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BIBLIOGRAPHY
OF
NORTH AMERICAN GEOLOGY
FOR
1910
WITH SUBJECT INDEX

BY
JOHN M. NICKLES



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BIBLIOGRAPHY OF NORTH AMERICAN GEOLOGY FOR 1910, WITH SUBJECT INDEX.

By JOHN M. NICKLES.

INTRODUCTION.

The bibliography of North American geology, including paleontology, petrology, and mineralogy, for the year 1910 follows the plan and arrangement of its immediate predecessors, the bibliographies for 1906-7, 1908, and 1909 (Bulletins 372, 409, and 444 of the U. S. Geological Survey). It includes publications bearing on the geology of the continent of North America and adjoining islands, also Panama and the Hawaiian Islands. Papers by American writers on the geology of other parts of the world are not included. Textbooks and papers general in character by American authors are included; those by foreign authors are excluded unless they appear in American publications.

As heretofore, the papers, with full title and medium of publication and explanatory note when the title is not fully self-explanatory are listed under the authors arranged in alphabetic order. The author list is followed by an index to the literature listed. In this index the entries, in one alphabet, are of three kinds—first, subject, with various subdivisions, to enable the specialist to ascertain readily all the papers bearing on a particular subject or area; second, titles of papers, many of them abbreviated or inverted, under their leading words; and third, cross references, which have been freely used to avoid too much repetition. The subjects have been printed in black-faced type, the titles of papers and cross references in ordinary type. As it may not be always obvious which subject headings have been adopted, a classified scheme of those used immediately precedes the index.

The bibliography of North American geology is comprised in the following bulletins of the United States Geological Survey: No. 127 (1732-1892); Nos. 188 and 189 (1892-1900); No. 301 (1901-1905); No. 372 (1906-7); No. 409 (1908); and No. 444 (1909).

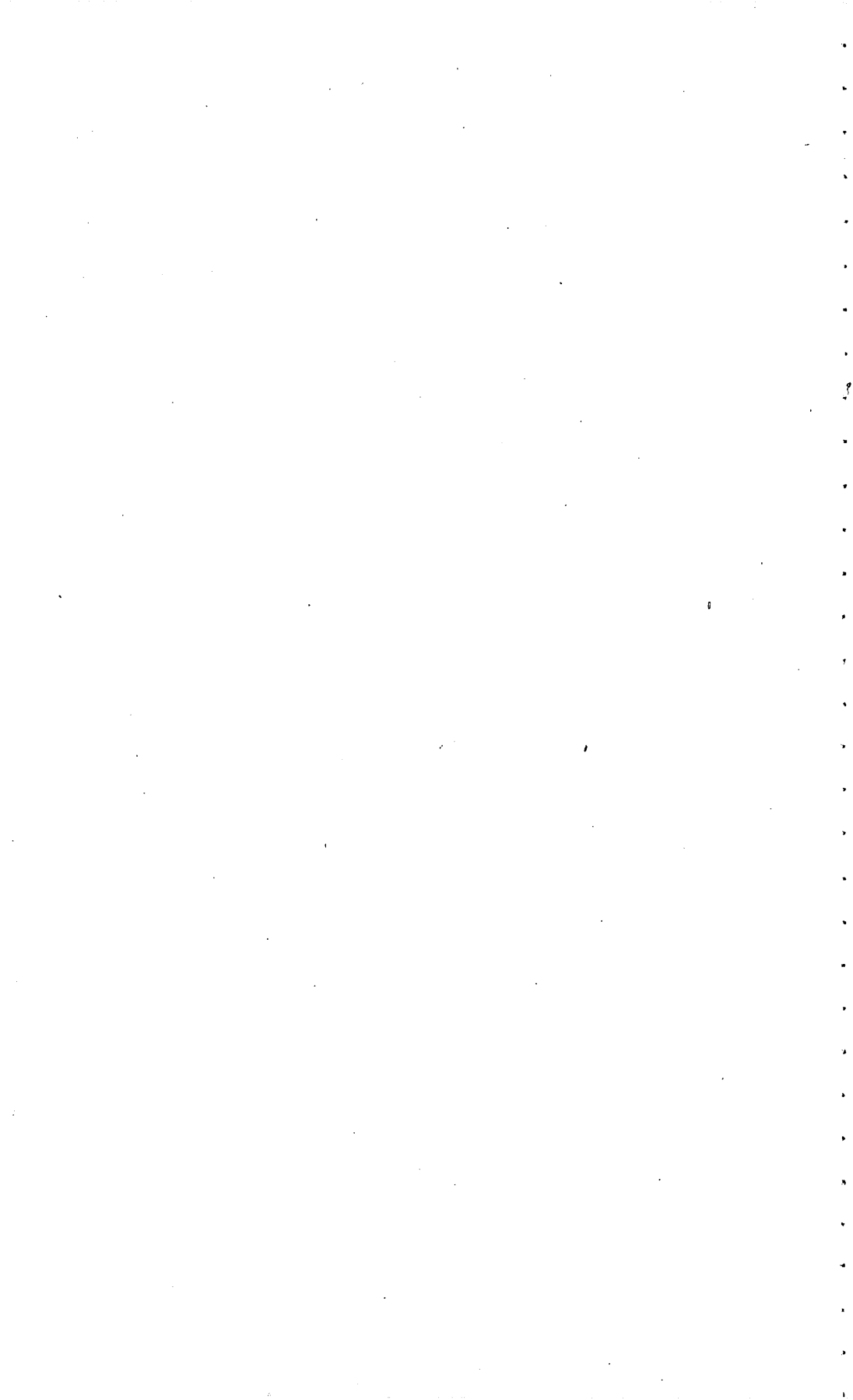
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1188. The Bering River coal field of Alaska.—Eng. and Min. Jour., vol. 90, pp. 272-275, 1 fig., August 6, 1910.

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Stout, W. H.

1193. Report of the geologist.—Pennsylvania, Dept. Agric., Bull. no. 193, pp. 174-177, 1910; Fifteenth Ann. Rept., 1909, pp. 570-573, 1910.

Stremme, H.

1194. Wie ist *Diplodocus* richtig aufzustellen?—Naturw. Wochenschr., Jena, N. F., Bd. 8, no. 50, pp. 796-799, 2 figs., December 12, 1909.

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Surr, Gordon.

1198. Igneous rocks; their classification in the field.—Min. World, vol. 32, pp. 314-319, February 5, 1910.
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1200. The origin of petroleum.—Los Angeles Min. Rev., vol. 28, no. 16, pp. 17-18, July 9, 1910.
1201. Cause of climatic variations. The glacial period and the effect it is possibly exerting on present-day conditions.—Los Angeles Min. Rev., vol. 28, no. 24, pp. 12-15, September 3, 1910. Mines and Methods, vol. 2, no. 2, pp. 43-44, October, 1910.

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1202. Recurrence of the *Tropidoleptus* fauna in the Chemung of Maryland.—Geol. Soc. America, Bull., vol. 20, pp. 679-686, 1 fig., 1910.
1203. A generalized section through the Appalachian Mountains of Maryland.—Abstract: Science, new ser., vol. 32, p. 189, August 5, 1910. Abstract and discussion: Geol. Soc. America, Bull., vol. 21, no. 4, pp. 769-770, 1910.

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1204. Geology of the Jarbridge mining district, Nevada.—Min. and Sci. Press, vol. 101, pp. 871-872, 1 fig., December 31, 1910.

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1207. Ice-borne boulder deposits in mid-Carboniferous marine shells.—Abstract: Geol. Soc. America, Bull., vol. 20, pp. 701-702, 1910.

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Tarr, Ralph S., and Martin, Lawrence.

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1210. A laboratory manual of physical geography. New York, The Macmillan Company, 1910. xvii, 362 pp., illus.

Tarr, William Arthur.

1211. Copper in the "Red Beds" of Oklahoma.—*Econ. Geology*, vol. 5, no. 3, pp. 221-226, 2 figs., 1910.

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1212. Bearing of the Tertiary mountain belt on the origin of the earth's plan.—*Geol. Soc. America, Bull.*, vol. 21, no. 2, pp. 179-226, 1 pl., 8 figs., 1910.

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Torre, Carlos de la.

1232. Excursion científica a Viñales. Descubrimiento de Ammonites del período jurásico en Cuba.—Habana, Acad. Cienc. Méd., Fís., y Nat., Anales, Rev. Cient., t. 47, pp. 187-191, July, 1910.

Records the discovery of Jurassic ammonites in Cuba.

1233. Excursion a la Sierra de Jatibonico. Osamentas fósiles de *Megalocnus rodens* ó *Myomorphus cubensis*. Comprobación de la naturaleza continental de Cuba á principios de la época cuaternaria.—Habana, Acad. Cienc. Méd., Fís., y Nat., Anales, Rev. Cient., t. 47, pp. 192-203, 6 pls., July, 1910.

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Twenhofel, W. H.

1237. Geologic bearing of the peat beds of Anticosti Island.—*Am. Jour. Sci.*, 4th ser., vol. 30, pp. 65-71, July, 1910.

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Ordovician-Silurian section of the Mingan and Anticosti Islands, Gulf of Saint Lawrence.—See Schuchert and Twenhofel, no. 1105.

Twitchell, M. W.

Geological distribution of the Mesozoic and Cenozoic Echinodermata of the United States.—See Clark and Twitchell, no. 242.

Tyrell, J. B.

1238. Changes of climate in northwestern Canada since the glacial period.—11. Intern. Geologenkongress, Stockholm: Die Veränderungen des Klimas seit dem Maximum der letzten Eiszeit, pp. 389-391, 1910.

1239. Ice on Canadian lakes.—*Canadian Inst., Trans.*, vol. 9, pp. 13-21, 6 pls., 1910.

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1240. "Rock glaciers" or chrystocrenes.—*Jour. Geology*, vol. 18, no. 6, pp. 549-553, 2 pls., 1910.

1241. The geology of western Canada.—Abstract: British Assoc. Adv. Sci., Rept. 79th Meeting, pp. 471-472, 1910.

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1243. Observations on the earthquake of May 26, 1909.—*Pop. Sci. Monthly*, vol. 77, no. 2, pp. 154-162, 1 fig., August, 1910. *Illinois State Acad. Sci., Trans.*, vol. 3, 1910 (reprint, 12 pp., 1 fig.).

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1244. A geologist's notes on the origin of coal.—*Min. World*, vol. 32, pp. 1129-1130, June 4, 1910.

Geological map of a portion of west Texas, showing parts of Brewster, Presidio, Jeff Davis, and El Paso counties and south of the Southern Pacific.—See Hill and Udden, no. 591.

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1245. Diamond drill core from Franklin County.—*Illinois State Geol. Survey, Bull.* no. 16, pp. 300-301.

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1247. Structural materials in Illinois.—*Illinois State Geol. Survey, Bull.* no. 16, pp. 342-393, 1910.

Uebe, Richard.

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1249. List of fossils from St. Hilaire, Quebec, collected by R. Harvie, jr.—Canada, Geol. Survey, Mem. no. 7, pp. 29–30, 1910.

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1250. Age and relations of the Little Falls dolomite (Calciferous) of the Mohawk Valley.—New York State Mus., Bull. 140, pp. 97–140, 1910.

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1253. A glance at the mammalian dawn.—Delaware County Inst. Sci., Media, Pa., Proc., vol. 5, no. 2, pp. 75–87, 1910.

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United States, Department of the Interior.

1256. Coal lands in Oklahoma.—U. S. Senate, 61st Congress, 2d sess., Sen. Doc. no. 390, 374 pp., 9 pls. (maps), 1910.

United States Geological Survey.

1257. Contributions to economic geology, 1908. Part II. Mineral fuels.—U. S. Geol. Survey, Bull. 381, 559 pp., 24 pls., 15 figs., 1910.

The papers in this bulletin have been entered under the individual authors. A list is included of Survey publications on petroleum and natural gas.

1258. Contributions to economic geology (short papers and preliminary reports), 1909. Part I. Metals and nonmetals except fuels.—U. S. Geol. Survey, Bull. 430, 653 pp., 14 pls., 75 figs., 1910.

The papers in this bulletin have been entered under the individual authors. Interspersed are lists of the Survey publications on various economic products.

1259. The publications of the United States Geological Survey (not including topographic maps). July, 1910. 112 pp.

Includes a finding list to the publications.

Upham, Warren.

1260. Geological time.—Popular Astronomy, vol. 14, no. 5, pp. 264–276, May, 1906.

1261. Birds Hill, an esker near Winnipeg, Manitoba.—Geol. Soc. America, Bull., vol. 21, pp. 407–432, 1 pl., July 20, 1910.

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1262. The glacial Lake Agassiz.—Abstract: British Assoc. Adv. Sci., Rept. 79th meeting, pp. 472–473, 1910.

Urbina, Fernando.

Primera nota acerca de la fauna miocenica de Zuluzum, Chiapas.—See Engerrand and Urbina, no. 405.

Informe acerca de una excursion geologica preliminar efectuada en el Estado de Yucatan.—See Engerrand and Urbina, no. 406.

Ussing, N. V.

1263. Kryoliten ved Ivigtut.—*Geografisk Tidsskrift*, Kobenhavn, Bd. 19, H. 5, pp. 194–200, 4 figs., 1908.

Describes the occurrence of cryolite at Ivigtut, Greenland, and the mining operations.

Van Horn, F. B.

1264. A cave-in caused by an underground stream at Staunton, Va.—*Eng. News*, vol. 64, no. 9, pp. 238–239, 5 figs., September 1, 1910.

Van Horn, Frank R.

1265. Landslide accompanied by buckling, and its relation to local anticlinal folds.—*Geol. Soc. America, Bull.*, vol. 20, pp. 625–632, 3 pls., 1910.

Describes the local geology where the slide occurred, Cleveland, Ohio, and the character and cause of the earth movement.

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1267. Some long-period deviations of the horizontal pendulums at the Harvard seismographic station.—*Science*, new ser., vol. 31, pp. 230–232, February 11, 1910.

Vaughan, Thomas Wayland.

1268. Geology of the Keys, the marine bottom deposits, and recent corals of southern Florida.—*Carnegie Inst. Washington, Year Book* no. 8, 1909, pp. 140–144, 1910.

1269. The Miocene horizons at Porters Landing, Georgia.—*Science*, new ser., vol. 31, pp. 833–834, May 27, 1910.

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1270. Sketch of the geologic history of the Floridian Plateau.—*Science*, new ser., vol. 32, pp. 24–27, abstract, p. 32, July 1, 1910.

1271. A contribution to the geologic history of the Floridian Plateau.—*Carnegie Inst. Washington, Publ.* no. 133, *Papers from the Tortugas Laboratory*, vol. 4, pp. 99–185, 15 pls., 6 figs., 1910.

1272. The continuity of development.—*Pop. Sci. Monthly*, vol. 77, no. 5, pp. 478–481, November, 1910.

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1273. Observations on glaciers in 1909.—*Canadian Alpine Jour.*, vol. 2, no. 2, pp. 126–130, 1910.

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Vaux, William S.

1274. Modern glaciers.—*Canadian Alpine Jour.*, vol. 2, no. 1, pp. 56–78, 7 pls., 1909.

Vélain, Ch.

1275. Les tremblements de terre récents: Californie, 1906.—*Revue de Géog.*, n. sér., t. 3, pp. 573–632, 1909. (Not seen.)

Versluys, J.

1276. Waren die sauropoden Dinosaurier Pflanzenfresser?—Zool. Jarb., Bd. 29, H. 3-4, pp. 425-450, 1 pl., 10 figs., 1910.

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Very, Frank W.

1277. Fall of a meteorite in Norwood, Massachusetts.—Science, new ser., vol. 31, pp. 143-144, January 28, 1910.

Describes the general appearance and physical characters and records the details of the discovery and fall.

1278. The Norwood "meteorite" a fraud. How meteoritic evidence may be manufactured.—Science, new ser., vol. 31, pp. 415-418, March 18, 1910.

Vesa y Fillart, Antonio.

1279. Acerca del hallazgo de terrenos geológicos secundarios en la Isla de Cuba.—Habana, Acad. Cienc. Méd., Fis., y Nat., Anales, Rev. Cient., t. 46, pp. 89-93, May-June, 1909.

Notes the discovery of Jurassic strata in the Island of Cuba, north of the city of Pinar del Río.

Villafañá, José.

1280. Las minas de "Coronas y Anexas," pertenecientes a la "Seguranza Mining Co."—Soc. cient. "Antonio Alzate," Mem. y Rev., t. 28, nos. 1-4, pp. 23-51, 2 pls., 1909.

Includes notes upon the local geology and mineralogy and the character and occurrence of the gold and silver ores at the Coronas y Anexas mine, in Zacualpan, Mex.

Villarello, Juan D.

1281. Hidrología subterránea de la comarca lagunera del Tlahualilo, Durango.—México, Inst. Geol., Parerg., t. 3, no. 4, pp. 205-251, 4 pls., 12 figs., 1910.

Describes the geology and underground water resources of the lake district of Tlahualilo, State of Durango, Mexico.

1282. Diversas zonas mineralizadas, en los principales criaderos metalíferos de Mexico.—Soc. Geol. Mexicana, Bol. t. 7, pt. 1, pp. 9-22, 1910.

Discusses the geologic distribution and genesis of ore deposits.

1283. Zonas probables de acumulacion del petroleo, en el subsuelo de las mejores regiones petrolíferas de Mexico.—Soc. Geol. Mexicana, Bol., t. 7, pt. 1, pp. 23-30, 1910.

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1284. Circulacion subterranea del agua por diaclasas, o cavidades supercapilares.—Soc. Geol. Mexicana, Bol., t. 7, pt. 1, pp. 31-46, 1910.

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1285. Algunos datos relativos al mineral de Providencia, San Felipe, Estado de Guanajuato.—Soc. Geol. Mexicana, Bol. t. 7, pt. 1, pp. 47-59, 1910.

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Von Engeln, O. D.

A laboratory manual of physical geography.—See Tarr and Von Engeln, no. 1210.

Waggaman, W. H.

1286. A review of the phosphate fields of Idaho, Utah, and Wyoming, with special reference to the thickness and quality of the deposits.—U. S. Dept. Agric., Bur. Soils, Bull. no. 69, 48 pp., 1 map, 1910.

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1287. Report of analyses of ores, non-metallic minerals, fuels, etc., made in the chemical laboratories during the years 1906, 1907, 1908.—Canada, Dept. Mines, Mines Branch, 126 pp., 2 pls., 1909.

Waitz, Paul.

1288. Principios de clasificacion y comparacion de rocas macizas (igneas).—Soc. cient. "Antonio Alzate," Mem. y Rev., t. 28, nos. 1-4, pp. 53-78, 6 figs., 1909.

Discusses the classification of igneous rocks.

1289. Las rocas eruptivas de la region [de San Pedro del Gallo, Durango, Mexico].—Mexico, Inst. Geol., Parerg., t. 3, no. 6, pp. 331-334, 1910.

Describes the eruptive rocks of the San Pedro del Gallo district, State of Durango, Mexico.

1290. Excursion geologica al Nevado de Toluca.—Soc. Geol. Mexicana, Bol., t. 6, pt. 2, pp. xxviii-xxix, 113-117, 1 pl., 1910.

Describes various geologic features of the extinct volcano, Nevado de Toluca, Mexico.

1291. Excursion geologica a la Sierra de Santa Catarina, Mexico.—Soc. Geol. Mexicana, Bol., t. 7, pt. 1, pp. 1-7, 7 pls., 1910.

Describes the general geology and the volcanic rocks and craters of the Santa Catarina range.

1292. Observaciones geologicas acerca del pico de Orizaba.—Soc. Geol. Mexicana, Bol., t. 7, pt. 1, pp. 67-76, 4 pls., 1910.

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Walcott, Charles D.

1293. Cambrian geology and paleontology, II. Abrupt appearance of the Cambrian fauna on the North American continent.—Smithsonian Misc. Coll., vol. 57, no. 1, pp. 1-16, 1 pl. (map), 1 fig., 1910.

Discusses the physical conditions and character of deposition in North America in Algonkian time and explains the abrupt appearance of the Cambrian fauna. Proposes the term Lipalian for the era between Algonkian and Cambrian.

1294. Cambrian geology and paleontology. No. 6. *Olenellus* and other genera of the Mesonacidae.—Smithsonian Misc. Coll., vol. 53, no. 6, pp. 231-422, 22 pls., 6 figs., 1910.

1295. Cambrian geology and paleontology. No. 7. Pre-Cambrian rocks of the Bow River Valley, Alberta, Canada.—Smithsonian Misc. Coll., vol. 53, no. 7, pp. 423-431, 3 pls., August, 1910.

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1296. Barite deposits of Five Islands, Nova Scotia.—Abstract: Geol. Soc. America, Bull., vol. 21, no. 4, pp. 786-787, 1910.

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1298. The South Park coal field, Colorado.—U. S. Geol. Survey, Bull. 381, pp. 307-316, 1 pl. (map), 1910.

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1299. The Canon City coal field, Colorado.—U. S. Geol. Survey, Bull. 381, pp. 341-378, 1 pl. (map), 1910.

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- Development in the Boulder oil field, Colorado.—U. S. Geol. Survey, Bull. 381, pp. 514-516, 1910. See no. 1205 of the bibliography for 1909, U. S. Geol. Survey, Bull. 444, p. 103.

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Washington, Henry S.

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CLASSIFIED SCHEME OF SUBJECT HEADINGS.

1. GENERAL.

Associations, meetings; Addresses; History; Philosophy; Biography; Bibliography; Educational; Text-books.

Classification; Nomenclature; Cartography; Technique; Fieldwork; Surveys; Borings.

Geochemistry; Chemical analyses (list); Atmosphere.

Miscellaneous.

2. REGIONAL.

The States of the Union, Alabama, etc.; the Provinces of Canada, Alberta, etc.; Greenland; Mexico; the countries of Central America; the West Indies, and the single islands; the Hawaiian Islands.

3. ECONOMIC.

Ore deposits, origin; Contact phenomena.

Gold; Placers; Black sands; Silver; Quicksilver; Nickel; Cobalt; Copper; Lead; Zinc; Iron; Magnetite; Manganese; Tin; Aluminum; Bauxite; Antimony; Bismuth; Tungsten; Wolframite; Vanadium; Uranium; Carnotite ores; Molybdenum; Molybdenite; Titanium; Rutile; Platinum; Monazite; Rare earths; Tantalum; Selenium; Tellurium; Zircon.

Coal; Anthracite; Coke; Peat; Lignite; Bituminous rock; Natural gas; Petroleum; Oil shales; Asphalt; Albertite; Gilsonite; Grahamite; Ozokerite.

Stone; Building stone; Granite; Bluestone; Limestone; Lime; Marble; Onyx; Sandstone; Clay; Kaolin; Bentonite; Fire clay; Ganister; Slate; Shale; Marl; Sand; Glass sand; Sand-lime brick; Gravel; Cement and cement materials; Concrete materials; Road materials; Trap; Steatite; Soapstone; Talc.

Precious stones; Diamonds; Sapphires; Turquoise; Tourmaline.

Abrasive materials; Corundum; Emery; Garnet; Diatomaceous earth; Tripoli; Volcanic ash; Millstones; Novaculite.

Asbestos; Feldspar; Mica; Quartz; Gypsum; Graphite; Fuller's earth; Infusorial earth; Magnesite; Mineral paint; Chromium; Chromite; Chromic iron ore; Fluorspar; Barite; Barytes; Strontium; Arsenic; Pyrite; Sulphur; Sulphate of soda; Cryolite; Phosphorus; Phosphate; Apatite; Glauconite; Borax; Bromine; Salt; Natron deposits.

4. DYNAMIC AND STRUCTURAL.

Earth, genesis of; Earth, age of; Earth, interior of; Earth, temperature of.

Volcanoes; Earthquakes; Seismographs.

Isostasy; Orogeny; Changes of level.

Magmas; Intrusions; Dikes; Laccoliths; Metamorphism; Contact phenomena.

Deformation; Folding; Faulting; Unconformities.

Conglomerates; Concretions; Stalactites; Jointing; Cleavage.

Sedimentation; Denudation; Erosion; Caves; Sink holes; Erratic boulders; Weathering; Wind work; Dunes; Loess; Landslides.

Glaciers; Glacial erosion; Eskers; Kames; Moraines; Kettle holes.

Drainage changes.

5. PHYSIOGRAPHIC.

Geomorphy; Relief maps.

Valleys; Cirques; Deserts; Dunes; Deltas; Alluvial fans; Eskers; Kames; Mounds, natural; Natural bridges; Sink holes; Karsts.

Lakes; Swamps; Marshes; Everglades; Terraces; Shore lines; Rivers; Meanders; Falls; Springs.

6. HISTORICAL OR STRATIGRAPHIC.

Geologic history; Geologic time; Paleogeography; Paleogeographic maps; Paleoclimatology.

Geologic maps; Geologic formations described (list).

Pre-Cambrian, Cambrian; Ordovician; Silurian; Devonian; Carboniferous; Triassic; Jurassic; Cretaceous; Tertiary; Quaternary; Recent; Glacial geology; Glaciation; Glacial lakes; Ice ages.

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- Beekmantown formation, Ordovician, New York: Kemp and Ruedemann, 702.
- Beekmantown series, Ordovician, Anticosti Island: Schuchert and Twenhofel, 1105.
- Bell shales, Devonian, Michigan: Lane, 768.
- Belly River, Cretaceous, Alberta: Brock, 142.
- Benton, Cretaceous, Alberta: Brock, 142.
- Benton formation, Cretaceous, Colorado: Kruger *et al.*, 736.
- Benton formation, Cretaceous, South Dakota: Todd, 1223.
- Benton shale, Cretaceous, Wyoming: Darton *et al.*, 321.
- Benton shales, Cretaceous, South Dakota: Perisho, 982.
- Berea grit, Carboniferous, Michigan: Lane, 768.
- Berea sandstone, Mississippian, Pennsylvania: Butts, 176.
- Bernalillo shales, Carboniferous, New Mexico: Keyes, 706.
- Berners formation, Jurassic-Cretaceous, Alaska: Knopf, 727.
- Bertie waterlime, Silurian, New York: Luther, 825; Newland and Leighton, 938.
- Bigby limestone, Ordovician, Tennessee: Ashley, 40.
- Bigfork chert, Ordovician, Arkansas: Purdue, 1016.
- Bijiki formation, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Birch Creek schist, Paleozoic, Alaska: Maddren, 844.
- Bishop? conglomerate, Tertiary, Wyoming: Ball and Stebinger, 54; Rich, 1044; Schultz, 1106.
- Black River, Ordovician, Vermont: Perkins, 987.
- Black River limestone, Ordovician, New York: Miller, 906.
- Black River group, Ordovician, New York: Cushing *et al.*, 305; Kemp and Ruedemann, 702.
- Bob formation, Silurian, Tennessee: Ashley, 40.
- Bohemian Range group, Cambrian, Michigan: Lane and Seaman, 775.
- Bolivar clay member, Pennsylvanian, Pennsylvania: Phalen, 990.
- Bon Air conglomerate, Carboniferous, Tennessee: Ashley, 40.
- Bonaventure formation, Devonian, New Brunswick: Young, 1400.
- Bone Valley formation, Florida: Sellards, 1115.
- Bone Valley gravel, Pliocene, Florida: Vaughan, 1271.
- Boquilla slates, pre-Cretaceous, Mexico: Burrows, 173.
- Boulder granite, British Columbia: Camsell, 191.
- Bow River series, lower Cambrian, British Columbia: Malloch, 847.
- Boyles sandstone member, Pennsylvanian, Alabama: Butts, 177.
- Braeburn limestones, Carboniferous?, Yukon Territory: Cairnes, 181.
- Bragdon formation, Carboniferous, California: Graton, 510.
- Bragdon series, Carboniferous, California: Smith, 1147.
- Bremen sandstone member, Pennsylvanian, Alabama: Butts, 177.
- Briceville shale, Carboniferous, Tennessee: Ashley, 40.
- Bridger formation, Tertiary, Colorado and Utah: Gale, 451.
- Brigham quartzite, Cambrian, Utah: Blackwelder, 112.
- Brock formation, Triassic, California: Smith, 1147.
- Broughton series, Quebec: Dresser, 362.
- Brownport, Silurian, Tennessee: Ashley, 40.
- Brownstown marl, Cretaceous, Louisiana: Harris, 552.
- Brule clay, Oligocene, Wyoming: Darton *et al.*, 321.
- Brule formation, Oligocene, Black Hills region, South Dakota: O'Harra, 947.
- Brule volcanics, Keewatin?, Michigan: Allen, 21.
- Brushy Mountain group, Carboniferous, Tennessee: Ashley, 40.
- Bryson formation, Carboniferous, Tennessee: Ashley, 40.
- Buchanan gravels, Quaternary, Iowa: Arey, 30, 31.
- Buffalo sandstone member, Pennsylvanian, Pennsylvania: Phalen, 990.
- Bulkley eruptives, Tertiary?, British Columbia: Leach, 781.
- Burgoon sandstone member, Mississippian, Pennsylvania: Phalen, 990.
- Butler sandstone member, Pennsylvanian, Pennsylvania: Phalen, 990.
- Cache Creek group, Carboniferous, British Columbia: Camsell, 192.
- Cade's conglomerate, Cambrian, Tennessee: Ashley, 40.
- Calcliferous formation, Ordovician, Michigan: Lane and Seaman, 775.
- Caloosahatchee marl, Pliocene, Florida: Vaughan, 1271.
- Calvert formation, Miocene, Maryland and Virginia: Clark, 240.
- Camden chert, Devonian, Tennessee: Ashley, 40.
- Camillus shale, Silurian, New York: Luther, 825; Newland and Leighton, 938.
- Camp Branch member, Pennsylvanian, Alabama: Butts, 177.
- Canadic system, Ordovician: Schuchert and Twenhofel, 1105.
- Cananea granite, Mexico: Emmons, 395.
- Caney shale, Mississippian, Oklahoma: Reeds, 1031.
- Cañon rhyolite, Nevada: Merriam, 893.
- Cape Fear formation, Cretaceous, North Carolina: Clark, 240.
- Capitan formation, Carboniferous, New Mexico: Keyes, 706.
- Capitan limestone, Carboniferous, New Mexico: Beede, 84.
- Capitan limestone, Carboniferous, Texas: Richardson, 1046.

- Capote quartzite, Mexico: Emmons, 395.
 Cardiff shale, Devonian, New York: Luther, 825.
 Carmanah formation, Tertiary, British Columbia: Clapp, 231.
 Carmack basalt, Pleistocene and late Tertiary, Yukon Territory: Cairnes, 180.
 Carmack basalts, Tertiary, Yukon Territory: Cairnes, 181.
 Carters limestone, Ordovician, Tennessee: Ashley, 40.
 Casadepaga schist, Alaska: Smith, 1149.
 Cashaqua shale, Devonian, New York: Luther, 825.
 Casper formation, Carboniferous, Wyoming: Darton *et al.*, 321.
 Castile gypsum, Carboniferous, Texas: Richardson, 1046.
 Castine formation, Cambrian?, Maine: Emmons, 400.
 Castle Hayne formation, Eocene, North Carolina: Clark, 240.
 Castle Hayne, Eocene, North Carolina: Miller, 905.
 Castle Mountain series, upper Cambrian, British Columbia: Malloch, 847.
 Catheys formation, Ordovician, Tennessee: Ashley, 40.
 Catron formation, Carboniferous, Tennessee: Ashley, 40.
 Catskill formation, Devonian, Pennsylvania: Munn, 933; Phalen, 990.
 Cayuga formation, Silurian, Maryland: Mathews and Grasty, 866.
 Cayugan, Maryland: Maynard, 883.
 Cedar Valley limestone, Devonian, Iowa: Arey, 30, 31.
 Central Mine group, Cambrian, Michigan: Lane and Seaman, 775.
 Chadron formation, Oligocene, Black Hills region, South Dakota: O'Harra, 947.
 Chadron sandstone, Oligocene, Wyoming: Darton *et al.*, 321.
 Chambersburg formation, Ordovician, Maryland: Mathews and Grasty, 866.
 Charleton formation, Ordovician, Anticosti Island (Quebec): Schuchert and Twenhofel, 1105.
 Chattahoochee formation, Miocene, Georgia: McCallie, 828.
 Chattahoochee formation, Oligocene, Florida: Selards and Gunter, 1117; Vaughan, 1271.
 Chattanooga shale, Devonian, Alabama: Burchard and Butts, 166; Butts, 177.
 Chattanooga shale, Devonian, Tennessee: Ashley, 40.
 Chazy, Ordovician, Vermont: Perkins, 987.
 Chazy formation, Ordovician, New York: Kemp and Ruedemann, 702.
 Chemung member, Devonian, Maryland: Mathews and Grasty, 866.
 Chemung formation, Devonian, Pennsylvania: Butts, 176; Munn, 933; Phalen, 990.
 Cherokee formation, Pennsylvanian, Iowa: Arey, 33.
 Chester group, Mississippian, Illinois: Shaw, 1119.
 Chestnut sandstone member, Pennsylvanian, Alabama: Butts, 177.
 Chickamauga (Pelham) limestone, Ordovician, Alabama: Burchard and Butts, 166; Butts, 177.
 Chickamauga limestone, Ordovician, Georgia: McCallie, 828.
 Chickamauga limestone, Ordovician, Tennessee: Ashley, 40.
 Chico series, Cretaceous, California: Smith, 1147.
 Chicotte formation, Silurian, Anticosti Island (Quebec): Schuchert and Twenhofel, 1105.
 Chieftain Hill volcanics, Yukon Territory: Cairnes, 180.
 Choctawhatchee marl, Miocene, Florida: Vaughan, 1271.
 Choptank formation, Miocene, Maryland: Clark, 240.
 Chorreras granite, Mexico: Burrows, 173.
 Chowan formation, Pleistocene, North Carolina: Clark, 240.
 Chuar group, pre-Cambrian, Arizona: Darton, 318.
 Chuar terrane, Algonkian, Arizona: Noble, 943.
 Chugwater formation, Triassic?, Wyoming: Darton *et al.*, 321.
 Cimarronian series, Carboniferous, New Mexico: Keyes, 706.
 Cincinnati system, Ordovician: Schuchert and Twenhofel, 1105.
 Citico conglomerate, Cambrian, Tennessee: Ashley, 40.
 Claggett, Cretaceous, Alberta: Brock, 142.
 Claggett? formation, Cretaceous, Wyoming: Woodruff, 1389.
 Claiborne formation, Eocene, Georgia: McCallie, 828.
 Claiborne group, Tertiary, Louisiana: Harris, 552.
 Claremore formation, Pennsylvanian, Oklahoma: Gould *et al.*, 491; Ohern, 945.
 Clifton limestone, Silurian, Tennessee: Ashley, 40.
 Clinch sandstone, Silurian, Tennessee: Ashley, 40.
 Clingman conglomerate, Cambrian, Tennessee: Ashley, 40.
 Clinton, Silurian, Michigan: Lane, 768.
 Clinton formation, Silurian, New York: Clarke, 247.
 Clinton formation, Silurian, Tennessee: Ashley, 40.
 Clinton (Rockwood) formation, Silurian, Alabama: Burchard and Butts, 166; Butts, 177.
 Cloverly formation, Cretaceous, Wyoming: Darton *et al.*, 321.
 Coast Range intrusives, Jurassic, Yukon Territory: Cairnes, 180.
 Cobleskill limestone, Silurian, New York: Luther, 825.
 Cochran conglomerate, Cambrian, Tennessee: Ashley, 40.
 Coconino sandstone, Carboniferous, Arizona: Darton, 318; Noble, 943.
 Coeymans member, Devonian, Maryland: Mathews and Grasty, 866.
 Colbert porphyry, pre-Cambrian: Reeds, 1031.
 Coldwater shale, Carboniferous, Michigan: Lane, 768.
 Colfax formation, Jurassic, California: Smith, 1147.
 Colorado group, Cretaceous, South Dakota: Todd, 1223.
 Colorado group, Cretaceous, Wyoming: Darton *et al.*, 321.
 Colorado series, Cretaceous, Colorado: Kruger *et al.*, 736.
 Colorado shale, Cretaceous, Wyoming: Woodruff, 1389.
 Columbia lava, Oregon: Merriam, 893.
 Columbia sands, Pleistocene, Georgia: McCallie, 828.

- Conasauga (Coosa) limestone, Cambrian, Alabama: Burchard and Butts, 166; Butts, 177.
- Conchos gravels, Mexico: Burrows, 173.
- Conemaugh formation, Carboniferous, Pennsylvania: Munn, 932, 933.
- Conemaugh formation, Pennsylvanian, Pennsylvania: Phalen, 990.
- Conewango formation, Devonian-Carboniferous, Pennsylvania: Butts, 176.
- Connasauga shale, Cambrian, Tennessee: Ashley, 40.
- Connoquenessing sandstone, Carboniferous, Pennsylvania: Munn, 933.
- Connoquenessing sandstone member, Pennsylvanian, Pennsylvania: Butts, 176; Phalen, 990.
- Conococheague formation, Ordovician, Maryland: Mathews and Grasty, 866.
- Copan member, Pennsylvanian, Oklahoma: Ohern, 948.
- Copper Harbor conglomerates, Cambrian, Michigan: Lane and Seaman, 775.
- Corral Creek, Algonkian, Alberta: Walcott, 1295.
- Cowichan group, Cretaceous, British Columbia: Allan, 18.
- Cowichan group, upper Cretaceous, British Columbia: Clapp, 231.
- Coyote formation, Carboniferous, New Mexico: Keyes, 706.
- Creston formation, Cambrian, British Columbia: Schofield, 1098.
- Croatian formation, Pliocene, North Carolina: Miller, 905.
- Cuchara formation, Eocene, Colorado: Richardson, 1048.
- Cuchillo formation, Mexico: Burrows, 173.
- Cuitaca granodiorite, Mexico: Emmons, 395.
- Curly formation, Pennsylvanian, Oklahoma: Ohern, 948.
- Cutler formation, Permian?, Colorado: Cross, 290.
- Dakota, Cretaceous, Alberta: Brock, 142.
- Dakota formation, Cretaceous, South Dakota: Todd, 1223.
- Dakota sandstone, Cretaceous, Colorado and Utah: Gale, 451.
- Dakota sandstone, Cretaceous, Colorado: Cross, 290.
- Dakota sandstone, Cretaceous, South Dakota: Perisho, 982.
- Dakota series, Cretaceous, Colorado: Kruger *et al.*, 736.
- Deadman Island beds, Pleistocene, California: Smith, 1147.
- Decatur limestone, Silurian, Tennessee: Ashley, 40.
- Delaware Mountain formation, Carboniferous, New Mexico: Beede, 84.
- Delaware Mountain formation, Carboniferous, Texas: Richardson, 1046.
- Denver? formation, Cretaceous, Colorado: Washburne, 1299.
- Des Moines stage, Pennsylvanian, Iowa: Arey, 32; Macbride, 827; Stookey, 1185, 1186.
- Detroit River series, Silurian, Michigan: Grabau and Sherzer, 499; Lane, 768.
- Dewey limestone lentil, Pennsylvanian, Oklahoma: Gould *et al.*, 491; Ohern, 948.
- Diamond Peak quartzite, Carboniferous, Nevada: Emmons, 399.
- Dixon formation, Silurian, Tennessee: Ashley, 40.
- Dolores formation, Triassic, Colorado: Cross, 290.
- Dundee limestone, Devonian, Michigan: Lane, 768.
- Dunderberg shale, Cambrian, Nevada: Emmons, 399.
- Dunkard series, Carboniferous, West Virginia: Grimsley, 524.
- Dunnellon formation, Florida: Sellards, 1115.
- Duplin formation, Miocene, North Carolina: Clark, 240; Miller, 905.
- Duplin marl, Miocene, Georgia: Vaughan, 1269.
- Eagle, Cretaceous, Alberta: Brock, 142.
- Eagle granite, British Columbia: Camsell, 191.
- Eagle? sandstone, Cretaceous, Wyoming: Woodruff, 1389.
- Eagle Ford clay, Cretaceous, Louisiana: Harris, 552.
- Eagle River group, Cambrian, Michigan: Lane and Seaman, 775.
- Eddy formation, Carboniferous, New Mexico: Keyes, 706.
- Edgewood formation, Silurian, Illinois and Missouri: Savage, 1088.
- Edgewood formation, Silurian, Illinois: Savage, 1086.
- Edmonton formation, Cretaceous, Alberta: Dowling, 357.
- Edmonton, Cretaceous, Alberta: Brock, 142.
- Edwards limestone, Cretaceous, Texas: Burchard, 164.
- Elbert formation, Devonian, Colorado: Cross, 290.
- Elbrook formation, Cambrian, Maryland: Mathews and Grasty, 866.
- Eldorado limestone, Cambrian, Nevada: Emmons, 399.
- Elisa quartz monzonite porphyry, Mexico: Emmons, 395.
- Ellis Bay formation, Ordovician, Anticosti Island (Quebec): Schuchert and Twenhofel, 1105.
- Ellsworth schist, pre-Cambrian?, Maine: Emmons, 400.
- El Torre syenite, Mexico: Emmons, 395.
- Emery sandstone, Carboniferous, Tennessee: Ashley, 40.
- Emory sandstone, Carboniferous, Tennessee: Ashley, 40.
- Elenita syenite porphyry, Mexico: Emmons, 395.
- English Head formation, Ordovician, Anticosti Island (Quebec): Schuchert and Twenhofel, 1105.
- Eo-Huronian, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Eolus granite, pre-Cambrian, Colorado: Cross, 290.
- Erwin quartzite, Cambrian, Tennessee: Ashley, 40.
- Escanaba (of Grabau), Ordovician, Michigan: Lane, 768.
- Etchegoin formation, Miocene, California: Arnold and Anderson, 35.
- Eureka quartzite, Ordovician, Nevada: Emmons, 399.
- Eutaw formation, Cretaceous, Georgia: McCallie, 828.
- Eutaw sand, Cretaceous, Tennessee: Ashley, 40.
- Farnham series, Ordovician, Quebec: Dresser, 362.
- Fayetteville shale, Mississippian, Arkansas: Girty, 474.
- Ferndale formation, Ordovician, Tennessee: Ashley, 40.
- Fernie shale, Jurassic, Alberta: Brock, 142.
- Fernvale limestone, Ordovician, Illinois: Savage, 1086.

- Fishkill limestone, Cambrian, New York: Gordon, 484.
- Flaming Gorge formation, Jurassic, Colorado: Gale, 451.
- Flat Rock dolomite, Silurian, Michigan: Grabau and Sherzer, 499.
- Floyd shale, Carboniferous, Georgia: McCallie, 828.
- Floyd shale, Mississippian, Alabama: Burchard and Butts, 166; Butts, 177.
- Forelle limestone, Carboniferous, Wyoming: Darton *et al.*, 321.
- Fork Mountain slate, Arkansas: Purdue, 1015.
- Fort Payne chert, Carboniferous, Georgia: McCallie, 828.
- Fort Payne chert, Mississippian, Alabama: Burchard and Butts, 166; Butts, 177.
- Fort Payne chert, Mississippian, Tennessee: Ashley, 40.
- Fort Union formation, Tertiary, Montana: Stone and Calvert, 1183.
- Fort Union formation, Tertiary, Wyoming: Woodruff, 1389.
- Fort Union (De Smet) member, Tertiary, Wyoming: Gale and Wegemann, 455.
- Fountain sandstone, Carboniferous, Colorado: Kruger *et al.*, 736.
- Fox Hills formation, Cretaceous, South Dakota: Todd, 1223.
- Fox Hills sandstone, Cretaceous, Colorado: Goldman, 477.
- Fox Hills sandstone, Cretaceous, South Dakota, North Dakota, and Wyoming: Stanton, 1170.
- Fox Hills sandstone, Cretaceous, Wyoming: Darton *et al.*, 321.
- Franciscan formation, Jurassic?, California: Arnold and Anderson, 35; Arnold and Johnson, 36.
- Franciscan series, California: Jones, 685.
- Franks conglomerate, Oklahoma: Reeds, 1031.
- Freda sandstone, Cambrian, Michigan: Lane and Seaman, 775.
- Freeport limestone, Carboniferous, Pennsylvania: Munn, 933.
- Freeport limestone members, Pennsylvanian, Pennsylvania: Phalen, 990.
- Frog Mountain sandstone, Devonian, Alabama: Burchard and Butts, 166; Butts, 177.
- Galena dolomite, Ordovician, Illinois: Cox, 286.
- Gaspé sandstone, Devonian, Canada: Williams, 1342.
- Genesee black shale, Devonian, New York: Luther, 825.
- Genesee member, Devonian, Maryland: Mathews and Grasty, 866.
- Genesee shale, Devonian, Pennsylvania: Phalen, 990.
- Geneva quartzite, Ordovician, Utah: Blackwelder, 112.
- Genudewa limestone, Devonian, New York: Luther, 825.
- Girardeau limestone, Silurian, Illinois: Savage, 1086.
- Girardeau limestone, Silurian, Illinois and Missouri: Savage, 1088.
- Glamorgan gabbro, pre-Cambrian, Ontario: Adams and Barlow, 8.
- Glenhook, Silurian, Tennessee: Ashley, 40.
- Glen Rose limestone, Cretaceous, Texas: Burchard, 164.
- Goldenville division, Nova Scotia: Faribault, 417.
- Goldenville quartzite, Cambrian, Nova Scotia: Faribault, 416.
- Goodrich quartzite, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Grand Canyon series, pre-Cambrian, Arizona: Darton, 318.
- Grand Canyon series, Algonkian, Arizona: Noble, 943.
- Grande limestone, Carboniferous, New Mexico: Keyes, 706.
- Grand Rapids group, Carboniferous, Michigan: Cooper and Lane, 281.
- Grainger shale, Devonian, Tennessee: Ashley, 40.
- Great Smoky conglomerate, Cambrian, Tennessee: Ashley, 40.
- Greenfield dolomite, Silurian, Michigan: Grabau and Sherzer, 499.
- Greenfield dolomites, Silurian, Michigan: Lane, 768.
- Green River formation, Tertiary, Colorado and Utah: Gale, 451.
- Green River formation, Tertiary, Wyoming: Schultz, 1106.
- Greenwich formation, lower Cambrian, New York and Vermont: Walcott, 1293.
- Grenville gneiss, pre-Cambrian, New York: Miller, 906.
- Grenville rocks, pre-Cambrian, New York: Cushing *et al.*, 305.
- Grenville series, pre-Cambrian, New York: Kemp and Ruedemann, 702.
- Grenville series, pre-Cambrian, Ontario: Adams and Barlow, 8.
- Grimes sandstones, Devonian, New York: Luther, 825.
- Grizzly series, Silurian, California: Smith, 1147.
- Guadalupian series, Carboniferous, New Mexico: Keyes, 706.
- Guadalupian series, Carboniferous, New Mexico: Beede, 84.
- Guelph dolomite, Silurian, Michigan: Lane, 768.
- Gun River formation, Silurian, Anticosti Island (Quebec): Schuchert and Twenhofel, 1105.
- Halifax slate, Cambrian, Nova Scotia: Faribault, 416.
- Hamburg limestone, Cambrian, Nevada: Emmons, 399.
- Hamilton formation, Devonian, Pennsylvania: Phalen, 990.
- Hamilton member, Devonian, Maryland: Mathews and Grasty, 866.
- Hamilton shale, Devonian, Pennsylvania: Butts, 176.
- Hampton shale, Cambrian, Tennessee: Ashley, 40.
- Hance formation, Carboniferous, Tennessee: Ashley, 40.
- Hancock limestone, Silurian, Tennessee: Ashley, 40.
- Hardgrave formation, Jurassic, California: Smith, 1147.
- Hardin sandstone, Devonian, Tennessee: Ashley, 40.
- Harpers shale, Cambrian, Maryland: Mathews and Grasty, 866.
- Harrison beds, Miocene, Black Hills region, South Dakota: O'Hara, 947.
- Hartselle sandstone member, Mississippian: Burchard and Butts, 166; Butts, 177.
- Hastings series, pre-Cambrian, Ontario: Adams and Barlow, 8.

- Hatch shales and flags, Devonian, New York: Luther, 825.
- Hawthorne formation, Oligocene, Florida: Sellards and Gunter, 1117; Vaughan, 1271.
- Hazel slate, Cambrian, Tennessee: Ashley, 40.
- Hazleton (porphyrite) group, Jurassic, British Columbia: Leach, 781.
- Hector formation, Algonkian, Alberta: Walcott, 1295.
- Helderberg formation, Devonian, Maryland: Mathews and Grasty, 866.
- Henrietta diorite porphyry, Mexico: Emmons, 395.
- Hermitage limestone, Ordovician, Tennessee: Foerste, 436.
- Hermitage (Saltito) limestone, Ordovician, Tennessee: Ashley, 40.
- Hermosa formation, Pennsylvanian, Colorado: Cross, 290.
- Hesse quartzite, Cambrian, Tennessee: Ashley, 40.
- Highland formation, upper Paleozoic?, British Columbia: Clapp, 231.
- Hignite formation, Carboniferous, Tennessee: Ashley, 40.
- Hinchman tuff, Jurassic, California: Smith, 1147.
- Hiwassee slate, Cambrian, Tennessee: Ashley, 40.
- Hogshooter limestone member, Pennsylvanian, Oklahoma: Ohern, 948.
- Hogshooter member, Pennsylvanian, Oklahoma: Gould *et al.*, 491.
- Holdenville formation, Pennsylvanian, Oklahoma: Gould *et al.*, 491.
- Holiknuk series, Mesozoic, Alaska: Maddren, 844.
- Holston marble, Ordovician, Tennessee: Ashley, 40.
- Homewood sandstone, Carboniferous, Pennsylvania: Munn, 933.
- Homewood sandstone member, Pennsylvanian, Pennsylvania: Phalen, 990.
- Honaker limestone, Cambrian, Tennessee: Ashley, 40.
- Horsetown formation, Cretaceous, California: Smith, 1147.
- Hossekuss formation, Triassic, California: Smith, 1147.
- Hot Springs sandstone, Carboniferous, Arkansas: Purdue, 1016.
- Howenstein limestone, Carboniferous, Ohio: Lamb, 761.
- Hoyt limestone, Cambrian, New York: Ulrich and Cushing, 1250.
- Huacalote rhyolite, Mexico: Emmons, 395.
- Hudson River slate formation, Ordovician, New York: Gordon, 484.
- Hueco limestones, Carboniferous, New Mexico: Beede, 84.
- Hueco group, Carboniferous, New Mexico: Keyes, 706.
- Hueco formation, Carboniferous, Texas: Richardson, 1046.
- Huerfano formation, Eocene, Colorado: Richardson, 1048.
- Huntton formation, Silurian-Devonian, Oklahoma: Reeds, 1031.
- Huronian, pre-Cambrian, Canada: Wilson, 1360.
- Huronian, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Huronian series, pre-Cambrian, Ontario: Hore, 627; Wilson, 1356.
- Hurrah slate, post-Ordovician?, Alaska: Smith, 1149.
- Hutshi group, Tertiary?, Yukon Territory: Cairnes, 181.
- Ignacio quartzite, Cambrian, Colorado: Cross, 290.
- Inyo series, Triassic, California: Smith, 1147.
- Iowan stage, Quaternary, Iowa: Arey, 30, 31.
- Islesboro formation, Cambrian?, Maine: Emmons, 400.
- Jacalitos formation, Miocene, California: Arnold and Anderson, 35.
- Jacksonville formation, Miocene, Florida: Sellards and Gunter, 1117; Vaughan, 1271.
- Jennings formation, Devonian, Maryland: Mathews and Grasty, 866; Swartz, 1202.
- Johnstown limestone member, Pennsylvanian, Pennsylvania: Phalen, 990.
- Jupiter River formation, Silurian, Anticosti Island (Quebec): Schuchert and Twenhofel, 1105.
- Kaibab limestone, Carboniferous, Arizona: Darton, 318; Noble, 943.
- Kansan drift, Quaternary, Iowa: Stookey, 1185, 1186.
- Kansan drift, Quaternary, Pennsylvania: Butts, 176.
- Kansan stage, Quaternary, Iowa: Arey, 30-33; Shimek, 1124.
- Keewatin series, pre-Cambrian, Canada: Hore, 627; Leith, 787; Wilson, 1356, 1360.
- Keewatin-Laurentian, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Kelly limestone, Mississippian, New Mexico: Gordon, 484.
- Kennett formation, Devonian, California: Graton, 510; Smith, 1147.
- Ketona dolomite member, Cambro-Ordovician, Alabama: Burchard and Butts, 166; Butts, 177.
- Keweenawan, Cambrian, Michigan: Lane and Seaman, 775.
- Keweenawan, Michigan: Wright, 1393.
- Keweenawan, pre-Cambrian, Ontario: Hore, 627; Wilson, 1356.
- Key Largo limestone, Pleistocene, Florida: Vaughan, 1271.
- Key West oolite, Pleistocene, Florida: Vaughan, 1271.
- Kiglualik group, Alaska: Smith, 1149.
- Kimmswick limestone, Ordovician, Illinois: Savage, 1086.
- Kinderhook stage, Mississippian, Iowa: 30, 31; Stookey, 1185.
- Kingsbury conglomerate member, Tertiary, Wyoming: Gale and Wegemann, 455.
- Kingston limestone, Carboniferous, British Columbia: Camsell, 192.
- Kitchener formation, Cambrian, British Columbia: Schofield, 1098.
- Kittanning sandstone, Carboniferous, Pennsylvania, Munn, 933.
- Kittanning sandstone member, Pennsylvanian, Pennsylvania: Phalen, 990.
- Klusa intrusives, Pleistocene and late Tertiary, Yukon Territory: Cairnes, 180.
- Klusa intrusives, Tertiary, Yukon Territory: Cairnes, 181.
- Knapp formation, Devonian-Carboniferous, Pennsylvania: Butts, 176.

- Knox dolomite, Cambro-Ordovician, Alabama: Burchard and Butts, 166; Butts, 177.
- Knox dolomite, Ordovician, Georgia: McCallie, 828.
- Knox dolomite, Ordovician, Tennessee: Ashley, 40.
- Knoxville formation, Cretaceous, California: Smith, 1147.
- Knoxville formation, Jurassic, Oregon: Knowlton, 734.
- Knoxville-Chico rocks, Cretaceous, California: Arnold and Anderson, 35; Arnold and Johnson, 36.
- Kolmakof series, Mesozoic, Alaska: Maddren, 844.
- Kona dolomite, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Kootanie, Cretaceous, Alberta: Brock, 142.
- Kushtaka formation, Tertiary, Alaska: Evans, 407.
- Laberge series, Jurassic-Cretaceous, Yukon Territory: Cairnes, 180, 181.
- Labette shales, Pennsylvanian, Oklahoma: Ohern, 948.
- Lac La Belle conglomerate, Michigan: Wright, 1393.
- Lac La Ronge series, pre-Cambrian, Saskatchewan: McInnes, 839.
- Ladronesian series, Carboniferous, New Mexico: Keyes, 706.
- Lafayette formation, Pliocene, Atlantic coastal plain: Clark, 240.
- Lafayette formation, Pliocene, Florida: Vaughan, 1271.
- Lafayette formation, Pliocene, Georgia: McCallie, 828.
- Lafayette sands, Pleistocene, Tennessee: Ashley, 40.
- Lagrange formation, Eocene, Tennessee: Ashley, 40.
- Lake Shore traps, Cambrian, Michigan: Lane and Seaman, 775.
- Lake Superior sandstone, Cambrian, Michigan: Lane and Seaman, 775.
- Lake Valley limestone, Carboniferous, New Mexico: Keyes, 706.
- Lake Valley limestone, Mississippian, New Mexico: Gordon, 484.
- Lance formation, Cretaceous, South Dakota, North Dakota, and Wyoming: Stanton, 1170.
- Lance formation, Cretaceous or Tertiary, Montana: Stone and Calvert, 1183.
- Lance Creek beds, Cretaceous: Hay, 561.
- La Plata sandstone, Jurassic, Colorado: Cross, 290.
- Laramie formation, Cretaceous, Colorado and Utah: Gale, 451.
- Laramie formation, Cretaceous, Colorado: Goldman, 477; Richardson, 1048; Washburne, 1299.
- Laramie formation, Cretaceous, South Dakota: Todd, 1223.
- Laramie formation, Cretaceous, Wyoming: Ball and Stebinger, 54; Schultz, 1106.
- Laramie formation, New Mexico: Gardner, 459.
- Laramie formation (upper), Tertiary, Wyoming: Ball and Stebinger, 54; Schultz, 1106.
- La Salle formation, Pennsylvanian, Illinois: DeWolf *et al.*, 345; Savage, 1085.
- Las Vigas formation, Mexico: Burrows, 173.
- Laurel limestone, Silurian, Tennessee: Ashley, 40.
- Laurentian, pre-Cambrian, Ontario: Hore, 627; Wilson, 1356.
- Laurentian granite gneiss, pre-Cambrian, New York: Cushing *et al.*, 305.
- Laurentian series, pre-Cambrian, Canada: Leith, 787.
- Lebanon limestone, Ordovician, Tennessee: Ashley, 40.
- Lebo andesitic member, Tertiary, Montana: Stone and Calvert, 1183.
- Lee conglomerate, Carboniferous, Tennessee: Ashley, 40.
- Leech River formation, upper Paleozoic, British Columbia: Clapp, 231.
- Lego limestone, Silurian, Tennessee: Ashley, 40.
- Leipers formation, Ordovician, Tennessee: Ashley, 40.
- Lenapah limestone, Pennsylvanian, Oklahoma: Gould *et al.*, 491; Ohern, 948.
- Lennep sandstone, Cretaceous or Tertiary, Montana: Stone and Calvert, 1183.
- Lenoir limestone, Ordovician, Tennessee: Ashley, 40.
- Leray limestone, Ordovician, New York: Cushing *et al.*, 305.
- Leray limestone member of Lowville formation, Ordovician, Ontario: Johnston, 683.
- Leroux formation, Triassic, Arizona: Darton, 318.
- Lewis shale, Cretaceous, Colorado and Utah: Gale, 451.
- Lewis shale, New Mexico: Gardner, 459.
- Lewis shale, Cretaceous, Wyoming: Ball and Stebinger, 54; Schultz, 1106.
- Lick Creek sandstone, Pennsylvanian, Alabama: Butts, 177.
- Lime Creek shales, Devonian, Iowa: Arey, 30, 31.
- Linden limestone, Devonian, Tennessee: Ashley, 40.
- Lipalian, post-Algonkian and pre-Cambrian: Walcott, 1293.
- L'Islet formation, Cambrian, Quebec: Dresser, 362.
- Lithodendron member, Triassic, Arizona: Darton, 318.
- Little Falls dolomite, Cambrian, New York: Ulrich and Cushing, 1250.
- Little Falls dolomite, Ordovician, New York: Cushing *et al.*, 305.
- Little Falls dolomite, New York (Ozarkian and Beekmantown in age): Ulrich and Cushing, 1251.
- Little River group: Matthew, 871.
- Livingston formation, Cretaceous and Tertiary, Montana: Stone and Calvert, 1183.
- Lobelville formation, Silurian, Tennessee: Ashley, 40.
- Lockport dolomite, Silurian, Michigan: Lane, 768.
- Lodore shale, Cambrian, Colorado: Gale, 451.
- Logan formation, Mississippian, Ohio: Morse, 929.
- Logana limestone, Ordovician, Kentucky: Foerste, 436.
- Lone Mountain quartzite, Ordovician, Nevada: Emmons, 399.
- Lookout sandstone, Carboniferous, Georgia: McCallie, 828.
- Lorraine formation, Ordovician, New York: Cushing *et al.*, 305.
- Lorraine or Maysville, Ordovician, Michigan: Lane, 768.
- Lorraine shales and sandstones, Ordovician, New York: Miller, 906.
- Los Cerritos beds, Pleistocene, California: Smith, 1147.

- Lost Gulch monzonite, Mesozoic, Arizona: Ransome, 1020.
- Lostman River limestone, Pleistocene, Florida: Vaughan, 1271.
- Loveland drift, Pleistocene, Nebraska and Iowa: Shimek, 1126.
- Loveland formation, Quaternary, Iowa: Shimek, 1124.
- Lower Magnesian dolomite, Ordovician, Illinois: Cox, 286.
- Lowellville limestone, Carboniferous, Ohio: Lamb, 761.
- Lowville formation, Ordovician, Ontario: Adams and Barlow, 8.
- Lowville (Birdseye) formation, Ordovician, Ontario: Johnston, 683.
- Lowville limestone, Ordovician, New York: Cushing *et al.*, 305; Miller 906.
- Loyalhanna limestone, Mississippian, Pennsylvania: Phalen, 990.
- Lucas dolomite, Silurian, Michigan: Lane, 768.
- Lucas limestone, Silurian, Ohio and Michigan: Grabau and Sherzer, 499.
- Lucas limestone, Silurian, Ohio: Grabau and Sherzer, 499.
- Ludlowville shale, Devonian, New York: Luther, 825.
- Lyons sandstone, Carboniferous, Colorado: Kruger *et al.*, 736.
- McCloud series, Carboniferous, California: Smith, 1147.
- McElmo formation, Jurassic, Colorado: Cross, 290.
- McKittrick formation, Miocene, California: Arnold and Johnson, 36.
- McKittrick formation, post-Eocene, California: Arnold and Anderson, 35.
- McLeansboro formation, Pennsylvanian, Illinois: DeWolf *et al.*, 345; Savage, 1085.
- Macastey black shale, Ordovician, Anticosti Island: Schuchert and Twenhofel, 1105.
- Maddox, Silurian, Tennessee: Ashley, 40.
- Madera limestone, Pennsylvanian, New Mexico: Gordon, 484.
- Maderan series, Carboniferous, New Mexico: Keyes, 706.
- Madison limestone, Mississippian, Idaho, Wyoming, and Utah: Gale and Richards, 454.
- Magdalena group, Pennsylvanian, New Mexico: Gordon, 484.
- Magdalena group, Carboniferous, New Mexico: Richardson, 1046.
- Magnesian dolomite, Ordovician, Illinois: Cox, 286.
- Magothy formation, Tertiary, New York and New Jersey: Bibbins, 108.
- Mahoning sandstone, Carboniferous, Pennsylvania: Munn, 933.
- Mahoning sandstone member, Pennsylvanian, Pennsylvania: Phalen, 990.
- Manasquan formation, Cretaceous, Atlantic coastal plain: Clark, 240.
- Mancos shale, Cretaceous, Colorado: Cross, 290.
- Mancos shale, Cretaceous, Colorado and Utah: Gale, 451.
- Mancos shale, Cretaceous, New Mexico: Darton, 318.
- Manlius limestone, Silurian, New York: Luther, 825.
- Mannie shale, Ordovician, Tennessee: Ashley, 40.
- Manzanan series, Carboniferous, New Mexico: Keyes, 706.
- Manzano group, Carboniferous, New Mexico: Richardson, 1046.
- Manzano group, Pennsylvanian, New Mexico: Gordon, 484.
- Maquoketa shale, Ordovician, Illinois: Cox, 286.
- Marble Bay formation, upper Paleozoic, British Columbia: McConnell, 832.
- Marcellus black shale, Devonian, New York: Luther, 825.
- Marcellus member, Devonian, Maryland: Mathews and Grasty, 866.
- Marcellus shale, Devonian, Pennsylvania: Butts, 176.
- Marianna formation, Oligocene, Florida: Vaughan, 1271.
- Marietta sandstone, Carboniferous, West Virginia: Grimsley, 524.
- Mariposa formation, Jurassic, California: Smith, 1147.
- Mariquita diabase, Mexico: Emmons, 395.
- Marks Head marl, Miocene, Georgia: Vaughan, 1269.
- Marlbrook sand, Cretaceous, Louisiana: Harris, 552.
- Marshall sandstone, Carboniferous, Michigan: Cooper and Lane, 281; Lane, 768.
- Marshall shale, Mississippian, Arkansas: Girty, 474.
- Martinez formation, Eocene, California: Smith, 1147.
- Martinsburg shale, Ordovician, Maryland: Mathews and Grasty, 866.
- Maryville limestone, Cambrian, Tennessee: Ashley, 40.
- Mauch Chunk shale, Mississippian, Pennsylvania: Phalen, 990.
- Maury shale, Devonian, Tennessee: Ashley, 40.
- Maxville limestone, Carboniferous, Michigan: Lane, 768.
- Maxville limestone, Mississippian, Ohio: Morse, 929.
- Mechunk limestone, Virginia: Lambeth, 765.
- Memphis loess, Pleistocene, Tennessee: Ashley, 40.
- Merced formation, Pliocene, California: Smith, 1147.
- Merced formation, Tertiary, California: Jones, 685.
- Mercer shale member, Pennsylvanian, Pennsylvania: Phalen, 990.
- Mercer shales, Carboniferous, Pennsylvania: Munn, 933.
- Mercer, lower, limestone, Carboniferous, Ohio: Lamb, 761.
- Mercer, upper, limestone, Carboniferous, Ohio: Lamb, 761.
- Mesa basalt, Nevada, Oregon: Merriam, 893.
- Mesaverde formation, Cretaceous, Colorado and Utah: Gale, 451.
- Mesaverde formation, Cretaceous, New Mexico: Darton, 318.
- Mesaverde formation, New Mexico: Gardner, 459.
- Mesaverde formation, Cretaceous, Wyoming: Ball and Stebinger, 54; Darton *et al.*, 321; Schultz, 1106.
- Mesnard quartzite, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Metchosin volcanics, Jurassic-Triassic, British Columbia: Clapp, 231.
- Miami oolite, Pleistocene, Florida: Vaughan, 1271.
- Michigamme slate, pre-Cambrian, Michigan: Lane and Seaman, 775.

- Michigamme (Hanbury) slate series, upper Huronian, Michigan: Allen, 21.
 Michigan series, Carboniferous, Michigan: Lane, 768.
 Midway-Sabine formation, Eocene, Georgia: McCallie, 828.
 Midway formation, Tertiary, Louisiana: Harris, 552.
 Milan loam, Pleistocene, Tennessee: Ashley, 40.
 Millsap limestone, Carboniferous, Colorado: Kruger *et al.*, 736.
 Mimbres limestone, Ordovician and Cambrian?, New Mexico: Gordon, 484.
 Mingan formation, Ordovician, Mingan Islands (Quebec): Schuchert and Twenhofel, 1105.
 Mingo formation, Carboniferous, Tennessee: Ashley, 40.
 Mio-Huronian, pre-Cambrian, Michigan: Lane and Seaman, 775.
 Missouri stage, Pennsylvanian, Iowa: Shimek, 1124.
 Missouri Mountain slate, Arkansas: Purdue, 1015, 1016.
 Moccasin limestone, Ordovician, Tennessee: Ashley, 40.
 Moencopie formation, Carboniferous, Arizona: Darton, 318.
 Moencopie formation, Carboniferous, New Mexico: Keyes, 706.
 Mohave beds, Tertiary, California: Merriam, 892.
 Mohawkian series, Ordovician, New York: Cushing *et al.*, 305.
 Molas formation, Pennsylvanian, Colorado: Cross, 290.
 Monmouth formation, Cretaceous, Atlantic coastal plain: Clark, 240.
 Monongahela formation, Carboniferous, Pennsylvania: Munn, 932.
 Monongahela formation, Pennsylvanian, Pennsylvania: Phalen, 990.
 Monongahela series, Carboniferous, West Virginia: Grimsley, 524.
 Monroe formation, Silurian, Michigan: Grabau and Sherzer, 499.
 Monroe, lower, Silurian, Michigan: Lane, 768.
 Monroe, upper, series, Silurian, Michigan: Lane, 768.
 Monroe Creek beds, Miocene, Black Hills region, South Dakota: O'Harra, 947.
 Montague group, Devonian-Carboniferous?, Yukon Territory: Cairnes, 181.
 Montana group, Cretaceous, South Dakota: Todd, 1223.
 Montana group, Cretaceous, Wyoming: Ball and Stebinger, 54; Darton *et al.*, 321; Woodruff, 1389.
 Monte de Oro formation, Jurassic, Oregon: Knowlton, 734.
 Monte de Oro slates, Jurassic, California: Smith, 1147.
 Monterey formation, Miocene, California: Smith, 1147.
 Monterey shale, Miocene, California: Arnold and Johnson, 36; Jones, 685.
 Montgomery formation, Silurian, California: Smith, 1147.
 Monticello rhyolites, Virginia: Lambeth, 765.
 Monticello schists, Virginia: Lambeth, 765.
 Montosa formation, Carboniferous, New Mexico: Keyes, 706.
 Moorefield shale, Mississippian, Arkansas: Girty, 474.
 Morgan formation, Pennsylvanian, Utah: Blackwelder, 112.
 Morgantown ("Ebensburg") sandstone member, Pennsylvanian, Pennsylvania: Phalen, 990.
 Mormon sandstone, Jurassic, California: Smith, 1147.
 Morrison formation, Cretaceous, Wyoming: Darton *et al.*, 321.
 Morrison formation, Jurassic, Colorado: Kruger *et al.*, 736.
 Mosca formation, Carboniferous, New Mexico: Keyes, 706.
 Moscow shale, Devonian, New York: Luther, 825.
 Mount Sicker formation, Jurassic-Triassic, British Columbia: Clapp, 231.
 Mount Sicker formation, Triassic-Jurassic, British Columbia: Allan, 18.
 Mount Stephens series, pre-Devonian, Yukon Territory: Cairnes, 180.
 Mount Stevens series, lower Paleozoic, Yukon Territory: Cairnes, 180.
 Moyie formation, Cambrian?, British Columbia: Schofield, 1098.
 Murfreesboro limestone, Ordovician, Tennessee: Ashley, 40.
 Murray slate, Cambrian, Tennessee: Ashley, 40.
 Muscogee group, Pennsylvanian, Oklahoma: Gould *et al.*, 491.
 Muskogee group, Pennsylvanian, Oklahoma: Ohern, 948.
 Nacatoch sand, Cretaceous, Louisiana: Harris, 552.
 Nacimiento group, Eocene, New Mexico: Gardner, 462.
 Nanjemoy formation, Eocene, Maryland: Miller, 905.
 Nanjemoy formation, Eocene, Maryland and Virginia: Clark, 240.
 Nantahala slate, Cambrian, Tennessee: Ashley, 40.
 Napoleon sandstone, Carboniferous, Michigan: Lane, 768.
 Nashua marl, Pliocene, Florida: Vaughan, 1271.
 Nastapoka group, pre-Cambrian, Canada: Leith, 787.
 Nebo quartzite, Cambrian, Tennessee: Ashley, 40.
 Nebraska beds, Miocene, Black Hills region, South Dakota: O'Harra, 947.
 Nebraskan drift, Pleistocene, Nebraska and Iowa: Shimek, 1126.
 Nebraskan stage, Quaternary, Iowa: Arey, 32; Shimek, 1124; Stookey, 1185, 1186.
 Needle Mountains group, Algonkian, Colorado: Cross, 290.
 Negaunee formation, pre-Cambrian, Michigan: Lane and Seaman, 775.
 Neo-Huronian (Animikie), pre-Cambrian, Michigan: Lane and Seaman, 775.
 Nevada limestone, Devonian, Nevada: Emmons, 399.
 Newman limestone, Mississippian, Kentucky: Gardner, 460.
 Newman limestone, Mississippian, Tennessee: Ashley, 40.
 New Scotland member, Devonian, Maryland: Mathews and Grasty, 866.
 Niagara dolomite, Silurian, Illinois: Cox, 286.

- Niagaran, Silurian, Michigan: Lane, 768.
 Niagaran (Anticostian) series, Silurian, Anticosti Island (Quebec): Schuchert and Twenhofel, 1105.
 Nicholas shale, Cambrian, Tennessee: Ashley, 40.
 Nickel Plate formation, Carboniferous, British Columbia: Camsell, 192.
 Nineveh limestone, Carboniferous, West Virginia: Grimsley, 524.
 Nineveh sandstone, Carboniferous, West Virginia: Grimsley, 524.
 Niobrara, Cretaceous, Alberta: Brock, 142.
 Niobrara formation, Cretaceous, Colorado: Kruger *et al.*, 736.
 Niobrara formation, Cretaceous, South Dakota: Perisho, 982; Todd, 1223.
 Niobrara limestone, Cretaceous, Wyoming: Darton *et al.*, 321.
 Nipisiguit granite, Devonian, New Brunswick: Young, 1400.
 Nitinat formation, upper Paleozoic, British Columbia: Clapp, 231.
 Nolachucky shale, Cambrian, Tennessee: Ashley, 40.
 Nome group, Alaska: Smith, 1149.
 Nonesuch formation, Cambrian, Michigan: Lane and Seaman, 775.
 Nordenskiöld dacites, Jurassic-Cretaceous, Yukon Territory: Cairnes, 181.
 North Haven greenstone, Cambrian, Maine: Emmons, 400.
 Nosoni formation, Carboniferous, California: Smith, 1147.
 Nowata shales, Pennsylvanian, Oklahoma: Ohern, 948.
 Nugget sandstone, Jurassic or Triassic, Idaho: Gale, 452.
 Nugget sandstone, Jurassic or Triassic, Idaho, Wyoming, and Utah: Gale and Richards, 454.
 Ocala limestone, Oligocene, Florida: Vaughan, 1271.
 Ochelata member, Pennsylvanian, Oklahoma: Ohern, 948.
 Ogden quartzite, Cambrian, Utah: Blackwelder, 113.
 Ogden quartzite, Ordovician, Colorado: Gale, 451.
 Ogden quartzite, Utah: Blackwelder, 112.
 Ojinaga formation, Cretaceous, Mexico: Burrows, 173.
 Ojo Alamo beds, Cretaceous, New Mexico: Brown, 153.
 Olean conglomerate member, Pennsylvanian, Pennsylvania: Butts, 176.
 Onondaga limestone, Devonian, New York: Luther, 825.
 Ontarian, Michigan: Lane, 768.
 Oologah formation, Pennsylvanian, Oklahoma: Ohern, 948.
 Oologah limestone, Pennsylvanian, Oklahoma: Gould *et al.*, 491.
 Orca group, Alaska: Grant and Higgins, 507.
 Orchard Creek shale, Ordovician, Illinois: Savage, 1086.
 Oregonia division of the Arnheim bed, Ordovician, Ohio: Foerste, 436.
 Oreodon beds, Oligocene, Black Hills region, South Dakota: O'Harra, 947.
 Oriskany sandstone, Devonian, New York: Luther, 825.
 Oscuro formation, Carboniferous, New Mexico: Keyes, 706.
 Osgood limestone, Silurian, Tennessee: Ashley, 40.
 Oswego sandstone, Silurian, New York: Miller, 906.
 Otter granite, British Columbia: Camsell, 191.
 Ouachita shale, Ordovician, Arkansas: Purdue, 1015.
 Ouray limestone, Devonian and Carboniferous, Colorado: Crawford, 289.
 Ouray limestone, Devonian and Mississippian, Colorado: Cross, 290.
 Outer conglomerate, Cambrian, Michigan: Lane and Seaman, 775.
 Owen beds, Devonian, Iowa: Arey, 30.
 Ozarkic (Ulrich): Cushing *et al.*, 305.
 Ozarkic period, Cambrian: Ulrich and Cushing, 1250.
 Painted Desert formation, Triassic?, Arizona: Darton, 318.
 Palm Beach limestone, Pleistocene, Florida: Vaughan, 1271.
 Palomas gravel, Quaternary (Pleistocene), New Mexico: Gordon, 484.
 Pamela limestone, Ordovician, New York: Miller, 906.
 Pamela (Stones River) limestone, Ordovician, New York: Cushing *et al.*, 305.
 Pamlico formation, Pleistocene, North Carolina: Clark, 240.
 Park City formation, Carboniferous, Idaho, Wyoming, and Utah: Gale and Richards, 454; Girty, 473.
 Park City formation, Carboniferous, Utah: Blackwelder, 111.
 Parkwood formation, Mississippian, Alabama: Burchard and Butts, 166; Butts, 177.
 Paskapoo, Tertiary, Alberta: Brock, 142.
 Paso Robles formation, Pliocene, California: Smith, 1147.
 Patapsco formation, Cretaceous, Maryland and Virginia: Clark, 240.
 Patuxent formation, Cretaceous, Maryland and Virginia: Clark, 240.
 Pawhuska formation, Pennsylvanian, Oklahoma: Gould *et al.*, 491.
 Pecos formation, Carboniferous, New Mexico: Keyes, 706.
 Pella limestone, Mississippian, Iowa: Arey, 33.
 Peninsula formation, Oligocene, Florida: Vaughan, 1271.
 Pennington shale, Mississippian, Alabama: Burchard and Butts, 166; Butts, 177.
 Pennington shale, Mississippian, Tennessee: Ashley, 40.
 Penobscot formation, Cambrian?, Maine: Emmons, 400.
 Percha shale, Devonian, New Mexico: Gordon, 484.
 Perkins volcanics, Yukon Territory: Cairnes, 180.
 Perry formation, Devonian, Maine: Emmons, 400.
 Perry formation, New Brunswick: Ellis, 384.
 Petersburg formation, Pennsylvanian, Illinois: DeWolf *et al.*, 345; Savage, 1085.
 Petoskey limestone, Devonian, Michigan: Lane, 768.
 Picton granite, New York: Cushing *et al.*, 305.
 Pierce limestone, Ordovician, Tennessee: Ashley, 40.

- Pierre formation, Cretaceous, South Dakota: Todd, 1223.
- Pierre shale, Cretaceous, Colorado: Goldman, 477; Richardson, 1048; Washburne, 1299.
- Pierre shales, Cretaceous, South Dakota: Perlisho, 982.
- Pierre shale, Cretaceous, South Dakota, North Dakota, and Wyoming: Stanton, 1170.
- Pierre shale, Cretaceous, Wyoming: Darton *et al.*, 321.
- Pigeon slate, Cambrian, Tennessee: Ashley, 40.
- Pine sandstone member, Pennsylvanian, Alabama: Butts, 177.
- Piney formation, Cretaceous, Wyoming: Gale and Wegemann, 455.
- Pit formation, Triassic, California: Graton, 510.
- Pitt formation, Triassic, California: Smith, 1147.
- Pittsford shale, Silurian, New York: Newland and Leighton, 938.
- Platteville limestone, Ordovician, Illinois: Cox, 286.
- Pleasanton shales, Pennsylvanian, Iowa: Arey, 32.
- Plomosas formation, Mexico: Burrows, 173.
- Plumas series, Jurassic, California: Smith, 1147.
- Pocono formation, Mississippian, Pennsylvania: Munn, 933; Phalen, 990.
- Pogonip limestone, Ordovician, Nevada: Emmons, 399.
- Poison Canyon formation, Eocene, Colorado: Richardson, 1048.
- Polk Creek shale, Ordovician, Arkansas: Purdue, 1015, 1016.
- Pontiac schist, pre-Cambrian, Canada: Wilson, 1360.
- Portage formation, Devonian, Pennsylvania: Butts, 176; Phalen, 990.
- Portage member, Devonian, Maryland: Mathews and Grasty, 866.
- Port Clarence limestone, Cambrian to Silurian: Smith, 1149.
- Porter Creek formation, Eocene, Tennessee: Ashley, 40.
- Potsdam sandstone, Cambrian, Illinois: Cox, 286.
- Potsdam sandstone, Cambrian, New York: Cushing *et al.*, 305; Kemp and Ruedemann, 702; Miller, 906; Ulrich and Cushing, 1250.
- Pottsville formation, Pennsylvanian, Alabama: Burchard and Butts, 166; Butts, 177.
- Pottsville formation, Pennsylvanian, Illinois: DeWolf *et al.*, 345; Savage, 1085; Shaw, 1119.
- Pottsville formation, Carboniferous, Pennsylvania: Munn, 933.
- Pottsville formation, Pennsylvanian, Pennsylvania: Butts, 176; Phalen, 990.
- Prospect Mountain quartzite, Cambrian, Nevada: Emmons, 399.
- Protoceras beds, Oligocene, Black Hills region, South Dakota: O'Harra, 947.
- Pryor Creek shale, Pennsylvanian, Oklahoma: Ohern, 948.
- Puckmummie schist, post-Ordovician, Alaska: Smith, 1149.
- Pueblo Range series, Nevada: Merriam, 893.
- Puertecitos limestone, Mexico: Emmons, 395.
- Puerco formation, Cretaceous, New Mexico: Brown, 153.
- Puerco formation, Eocene, New Mexico: Gardner, 462.
- Puerco formation, New Mexico: Gardner, 459.
- Purgatory conglomerate, Carboniferous, Rhode Island: Brown, 155.
- Purisima formation, Pliocene, California: Smith, 1147.
- Purisima formation, Tertiary, California: Jones, 685.
- Put-in-bay dolomite, Silurian, Michigan: Grabau and Sherzer, 499; Lane, 768.
- Putnam Hill limestone, Carboniferous, Ohio: Lamb, 761.
- Quantico slate belt, Ordovician, Virginia: Watson and Powell, 1305.
- Quesnel River series, Cretaceous?, British Columbia: Malloch, 847.
- Railroad Ridge gravels, Nevada: Merriam, 893.
- Raisin River dolomite, Silurian, Michigan: Grabau and Sherzer, 499; Lane, 768.
- Ralston group, Pennsylvanian, Oklahoma: Gould *et al.*, 491.
- Ramona formation, Pennsylvanian, Oklahoma: Ohern, 948.
- Rancocas formation, Cretaceous, Atlantic coastal plain: Clark, 240.
- Raritan formation, Cretaceous: Berry, 103.
- Raritan formation, Cretaceous, Atlantic coastal plain: Clark, 240.
- Razburg sandstone member, Pennsylvanian, Alabama: Butts, 177.
- Razor Mountain group, pre-Ordovician, Yukon Territory: Cairnes, 181.
- Reagan formation, Cambrian, Oklahoma: Reeds, 1031.
- Red Mountain formation, Carboniferous, British Columbia: Camsell, 192.
- Redtop formation, Carboniferous, British Columbia: Camsell, 192.
- Bedwall limestone, Carboniferous, Arizona: Darton, 318; Noble, 943.
- Richmond and Medina transition beds, Ordovician, Michigan: Lane, 768.
- Richmond group, pre-Cambrian, Canada: Leith, 787.
- Richmondian series, Ordovician, Anticosti Island (Quebec): Schuchert and Twenhofel, 1105.
- Riso formation, Pennsylvanian, Colorado: Cross, 290.
- Ridley limestone, Ordovician, Tennessee: Ashley, 40.
- Rio Grande beds, Tertiary, New Mexico: Bryan, 159.
- Rio Grande gravels, Quaternary, New Mexico: Bryan, 159.
- Ripley formation, Cretaceous, Georgia: McCallie, 828.
- Ripley formation, Cretaceous, Tennessee: Ashley, 40.
- Rochester shale, Silurian, New York: Clarke, 247.
- Rockwood formation, Ordovician, Georgia: McCallie, 828.
- Rockwood formation, Silurian, Tennessee: Ashley, 40.
- Rogersville shale, Cambrian, Tennessee: Ashley, 40.
- Romaine formation, Ordovician, Mingan Islands (Quebec): Schuchert and Twenhofel, 1105.
- Rome formation, Cambrian, Tennessee: Ashley, 40.
- Rome (Montevallo) formation, Cambrian, Alabama: Burchard and Butts, 166; Butts, 177.

- Romney formation, Devonian, Maryland: Mathews and Grasty, 866.
- Rondout waterlime, Silurian, New York: Luther, 825.
- Rosebud beds, Miocene, Black Hills region, South Dakota: O'Harra, 947.
- Roxbury conglomerate, Permian?, Massachusetts: Sayles and LaForge, 1089.
- Rustler formation, Carboniferous, Texas: Richardson, 1046.
- Rutledge limestone, Cambrian, Tennessee: Ashley, 40.
- Saanich granodiorite, upper Jurassic?, British Columbia: Allan, 18.
- Sacramento series, Devonian, California: Smith, 1147.
- Saginaw formation, Carboniferous, Michigan: Cooper and Lane, 281; Lane, 768.
- St. Louis limestone, Mississippian, Iowa: Macbride, 827.
- St. Louis limestone, Mississippian, Kentucky: Gardner, 460.
- St. Louis limestone, Mississippian, Tennessee: Ashley, 40.
- Saint Louis stage, Mississippian, Iowa: Stookey, 1186.
- St. Marys formation, Miocene, Virginia and Maryland: Clark, 240.
- St. Maurice, Tertiary, Louisiana (proposed for lower Claiborne): Harris, 553.
- St. Peter sandstone, Ordovician, Illinois: Cox, 286.
- St. Peters sandstone, Ordovician, Michigan: Lane, 768.
- Sakonnet sandstone, Carboniferous, Rhode Island: Brown, 155.
- Salamanca conglomerate member, Devonian-Carboniferous, Pennsylvania: Butts, 176.
- Salina (or lower Monroe), Silurian, Michigan: Lane, 768.
- Salina stage, Silurian, New York: Newland and Leighton, 938.
- Saltillo limestone, Ordovician, Tennessee: Ashley, 40; Foerste, 436.
- Saltsburg sandstone member, Pennsylvanian, Pennsylvania: Phalen, 990.
- San Andreas formation, Carboniferous, New Mexico: Richardson, 1046.
- San Andreas limestone, Pennsylvanian, New Mexico: Gordon, 484.
- Sandia formation, Carboniferous, New Mexico: Keyes, 706.
- Sandia formation, Pennsylvanian, New Mexico: Gordon, 484.
- San Diego formation, Pliocene, California: Smith, 1147.
- Sandsuck shale, Cambrian, Tennessee: Ashley, 40.
- San Lorenzo formation, Oligocene, California: Smith, 1147.
- San Pablo formation, Miocene, California: Smith, 1147.
- San Pablo formation, Tertiary, California: Jones, 695.
- San Pedro andesite, Mexico: Emmons, 395.
- San Pedro formation, Pleistocene, California: Smith, 1147.
- Sansum formation, Jurassic-Triassic, British Columbia: Clapp, 231.
- Sansum formation, Upper Jurassic?, British Columbia: Allan, 18.
- Santa Clara lake beds, Pliocene, California: Smith, 1147.
- Santa Fe formation, Miocene, Colorado: Siebenthal, 1128, 1129.
- Santa Margarita formation, Miocene, California: Smith, 1147.
- Santa Margarita (?) formation, Miocene, California: Arnold and Anderson, 35; Arnold and Johnson, 36.
- Santa Margarita formation, Tertiary, California: Jones, 685.
- Sapulpa group, Pennsylvanian, Oklahoma: Gould *et al.*, 491; Ohern, 948.
- Saratogan series, Cambrian, New York: Ulrich and Cushing, 1250.
- Satanka shale, Carboniferous, Wyoming: Darton *et al.*, 321.
- Saunders formation, lower Huronian, Michigan: Allen, 21.
- Schultze granite, post-Carboniferous, Arizona: Tolman, 1226.
- Schultze granite, post-Paleozoic, Arizona: Ransome, 1020.
- Schwatka andesites, Tertiary, Yukon Territory: Cairnes, 181.
- Scott shale, Carboniferous, Tennessee: Ashley, 40.
- Secret Canyon shale, Cambrian, Nevada: Emmons, 399.
- Selkirk series, pre-Cambrian, British Columbia: LeRoy, 788.
- Selma chalk, Cretaceous, Alabama: Smith, 1143.
- Selma Clay, Cretaceous, Tennessee: Ashley, 40.
- Sevier shale, Ordovician, Tennessee: Ashley, 40.
- Sexton Creek formation, Silurian, Illinois: Savage, 1086.
- Shades sandstone member, Pennsylvanian, Alabama: Butts, 177.
- Shady limestone, Cambrian, Tennessee: Ashley, 40.
- Shandon quartzite, Cambrian, New Mexico: Gordon, 484.
- Shark River formation, Eocene, New Jersey: Clark, 240.
- Sharon member, Pennsylvanian, Ohio: Morse, 929.
- Sharon shale member, Pennsylvanian, Pennsylvania: Butts, 176.
- Shasta series, Cretaceous, California: Smith, 1147.
- Shasta series, Jurassic-Cretaceous, Oregon: Knowlton, 734.
- Sheridan formation, Ordovician, Michigan: Allen, 21.
- Sherman granite, pre-Cambrian, Wyoming: Darton *et al.*, 321.
- Shinarump group, Carboniferous and Triassic, Colorado: Gale, 451.
- Shinarump group, Triassic, Arizona: Darton, 318.
- Shoshone group, Eocene, Colorado: Richardson, 1048.
- Shuswap group, pre-Cambrian?, British Columbia: Malloch, 847.
- Shuswap series, pre-Cambrian, British Columbia: LeRoy, 788.
- Siamo slate, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Sierra limestone, Carboniferous, New Mexico: Keyes, 706.
- Sillery formation, Cambrian, Quebec: Dresser, 362.

- Simpson formation, Ordovician, Oklahoma: Reeds, 1031.
- Siluric system: Schuchert and Twenhofel, 1105.
- Silver Peak series, Cambrian, California: Smith, 1147.
- Skaneateles shale, Devonian, New York: Luther, 825.
- Skeena series, Cretaceous, British Columbia: Leach, 781.
- Skiatook formation, Pennsylvanian, Oklahoma: Ohern, 948.
- Slocan series, pre-Cambrian, British Columbia: LeRoy, 788.
- Sneedville, Silurian, Tennessee: Ashley, 40.
- Snowbird formation, Cambrian, Tennessee: Ashley, 40.
- Socorran series, Carboniferous, New Mexico: Keyes, 706.
- Solomon schist, pre-Ordovician?, Alaska: Smith, 1149.
- Sooke formation, Tertiary, British Columbia: Clapp, 231.
- Sowik limestone, Ordovician?, Alaska: Smith, 1149.
- Spergen limestone, Mississippian, Kentucky: Gardner, 460.
- Spring Creek limestone, Mississippian, Arkansas: Girty, 474.
- Stanley shale, Carboniferous, Arkansas: Purdue, 1015, 1016.
- Stanton limestone member, Pennsylvanian, Oklahoma: Ohern, 948.
- Starrs conglomerate lentil, Cambrian, Tennessee: Ashley, 40.
- Steele shale, Cretaceous, Wyoming: Darton *et al.*, 321.
- Sterling granite series, Connecticut: Loughlin, 814.
- Stevenson limestone, Carboniferous, British Columbia: Camsell, 192.
- Stillwater formation, Tertiary, Alaska: Evans, 407.
- Stones River formation, Ordovician, Maryland: Mathews and Grasty, 866.
- Sucarnochee clays, Tertiary, Alabama: Smith, 1143.
- Sundance formation, Jurassic, Wyoming: Darton *et al.*, 321.
- Sunderland formation, Pleistocene, Atlantic coastal plain: Clark, 240.
- Sunnyside limestone, Carboniferous, British Columbia: Camsell, 192.
- Sunrise series, Alaska: Grant and Higgins, 506, 507.
- Sunset division of the Arnheim bed, Ordovician, Kentucky and Ohio: Foerste, 436.
- Supai formation, Carboniferous, Arizona: Darton, 318; Noble, 943.
- Swan Creek phosphate, Devonian, Tennessee: Ashley, 40.
- Sycamore limestone, Mississippian, Oklahoma: Reeds, 1031.
- Sylvan shale, Ordovician, Oklahoma: Reeds, 1031.
- Sylvania dolomite, Silurian, Michigan: Grabau and Sherzer, 499.
- Sylvania sandstone, Silurian, Michigan: Grabau and Sherzer, 499; Lane, 768.
- Syracuse salt, Silurian, New York: Newland and Leighton, 938.
- Takotna series, Devonian, Alaska: Maddren, 844.
- Talbot formation, Pleistocene, Atlantic coastal plain: Clark, 240.
- Tampa formation, Oligocene, Florida: Sellards and Gunter, 1117; Vaughan, 1271.
- Tantalus conglomerate, Jurassic-Cretaceous, Yukon territory: Cairnes, 180, 181.
- Tejon formation, Eocene, California: Arnold and Anderson, 35; Arnold and Johnson, 36; Smith, 1147.
- Tellico sandstone, Ordovician, Tennessee: Ashley, 40.
- Telluride conglomerate, Eocene?, Colorado: Cross, 290.
- Temple Butte limestone, Devonian, Arizona: Darton, 318.
- Texada formation, Triassic?, British Columbia: McConnell, 832.
- Thanet gabbro, pre-Cambrian, Ontario: Adams and Barlow, 8.
- Thaynes formation, Triassic, Idaho, Wyoming, and Utah: Girty, 473.
- Thaynes limestone, Permian?, Idaho: Gale, 452.
- Thaynes limestone, Triassic or Carboniferous, Idaho, Wyoming, and Utah: Gale and Richards, 454.
- Thaynes limestone, Triassic or Carboniferous, Utah: Blackwelder, 111.
- Thebes sandstone and shale, Ordovician, Illinois: Savage, 1086.
- Theresa dolomite, Cambrian, New York: Cushing *et al.*, 305.
- Theresa formation, Cambrian, New York: Cushing *et al.*, 305; Ulrich and Cushing, 1250.
- Theresa syenite, pre-Cambrian, New York: Cushing *et al.*, 305.
- Thetford series, Quebec: Dresser, 362.
- Thorofare andesite, Silurian Maine: Emmons, 400.
- Thousand Creek beds, Tertiary, Nevada: Merriam, 893.
- Thunderhead conglomerate, Cambrian, Tennessee: Ashley, 40.
- Tichenor limestone, Devonian, New York: Luther, 825.
- Tinaja granite porphyry, Mexico: Emmons, 395.
- Tishomingo granite, pre-Cambrian, Oklahoma: Reeds, 1031.
- Tokun formation, Tertiary, Alaska: Evans, 407.
- Toll Pit beds, Silurian, Michigan: Grabau and Sherzer, 499.
- Tomstown (Shady-Sherwood) formation, Cambrian, Maryland: Mathews and Grasty, 866.
- Tonto group, Cambrian, Arizona: Darton, 318.
- Torrejon formation, Eocene, New Mexico: Gardner, 462.
- Torrejon formation, New Mexico: Gardner, 459.
- Tracy City group, Carboniferous, Tennessee: Ashley, 40.
- Traverse group, Devonian, Michigan: Lane, 768.
- Trent formation, Eocene, North Carolina: Clark, 240; Miller, 905.
- Trenton, Ordovician, Vermont: Perkins, 987.
- Trenton limestone, Ordovician, Michigan: Lane, 768.
- Trenton limestone, Ordovician, New York: Cushing *et al.*, 305; Kemp and Ruedemann, 702; Miller, 906.
- Tribes Hill formation, Cambrian and Ordovician, New York: Cushing *et al.*, 305.

- Tribes Hill formation, Ordovician or Cambrian: Raymond, 1026.
- Tribes Hill limestone, Ordovician, New York: Ulrich and Cushing, 1250.
- Trinidad sandstone, Cretaceous, Colorado: Richardson, 1048; Washburne, 1299.
- Trinity division, Cretaceous, Oklahoma: Larkin, 778.
- Tudor intrusion, pre-Cambrian, Ontario: Adams and Barlow, 8.
- Tulare formation, Pliocene-Pleistocene, California: Arnold and Anderson, 35.
- Tulare lake beds, Pliocene, California: Smith, 1147.
- Tullahoma limestone, Mississippian, Tennessee: Ashley, 40.
- Tully limestone, Devonian, Moscow: Luther, 825.
- Tulsa group, Pennsylvanian, Oklahoma: Gould *et al.*, 491; Ohern, 948.
- Tuscaloosa (Potomac) formation, Cretaceous, Georgia: McCallie, 828.
- Tusquito quartzite, Cambrian, Tennessee: Ashley, 40.
- Twilight granite, pre-Cambrian, Colorado: Cross, 290.
- Twin Creek limestone, Jurassic, Idaho, Wyoming, and Utah: Gale and Richards, 454.
- Tymochtee beds?, Silurian, Michigan: Lane, 768.
- Tymochtee beds, Silurian, Ohio: Grabau and Sherzer, 499.
- Uinta quartzite, Algonkian?, Colorado: Gale, 451.
- Umfraville gabbro, pre-Cambrian, Ontario: Adams and Barlow, 8.
- Uncompahgre formation, Algonkian, Colorado: Cross, 290.
- Unicoi formation, Cambrian, Tennessee: Ashley, 40.
- University beds, New Mexico: Bryan, 159.
- Unkar group, pre-Cambrian, Arizona: Darton, 318.
- Unkar terrane, Algonkian, Arizona: Noble, 943.
- Utica shale, Ordovician, Michigan: Lane, 768.
- Utica shale, Ordovician, New York: Cushing *et al.*, 305; Miller, 906.
- Utica, Ordovician, Vermont: Perkins, 987.
- Valdez group, Alaska: Grant and Higgins, 507.
- Vallecito conglomerate, Algonkian, Colorado: Cross, 290.
- Vancouver group, Jurassic, Triassic, British Columbia: Clapp, 231.
- Vanport limestone, Carboniferous, Ohio: Lamb, 761.
- Vanport limestone, Carboniferous, Pennsylvania: Munn, 933.
- Vaqueros formation, Miocene, California: Smith, 1147.
- Vaqueros sandstone, Miocene, California: Arnold and Anderson, 35; Arnold and Johnson, 36.
- Verdi beds, Mississippian, Iowa: Stookey, 1186.
- Vermilion Cliff sandstone, Triassic, Colorado: Gale, 451.
- Vernon formation, Silurian, New York: Miller, 907.
- Vernon shale, Silurian, New York: Newland and Leighton, 938.
- Vicksburg group, Oligocene, Florida: Sellards and Gunter, 1117; Vaughan, 1271.
- Vicksburg-Jackson limestone, Eocene, Georgia: McCallie, 828.
- Victoria group, upper Paleozoic?, British Columbia: Clapp, 231.
- Vinalhaven rhyolite, Silurian, Maine: Emmons, 400.
- Vinita formation, Pennsylvanian, Oklahoma: Ohern, 948.
- Viola limestone, Ordovician, Oklahoma: Reeds, 1031.
- Virgin Valley beds, Tertiary, Nevada: Merriam, 893.
- Vishnu schist, Archean, Arizona: Noble, 943.
- Vulcan formation, upper Huronian, Michigan: Allen, 21.
- Wacamaw formation, Pliocene, North Carolina: Clark, 240.
- Walden sandstone, Carboniferous, Georgia: McCallie, 828.
- Waldron shale, Silurian, Tennessee: Ashley, 40.
- Wann formation, Pennsylvanian, Oklahoma: Ohern, 948.
- Wappinger limestone, Cambrian, New York: Gordon, 484.
- Wartburg sandstone, Carboniferous, Tennessee: Ashley, 40.
- Wasatch formation, New Mexico: Gardner, 459.
- Wasatch formation, Tertiary, Colorado and Utah: Gale, 451.
- Wasatch formation, Tertiary, Wyoming: Ball and Stebinger, 54; Schultz, 1106; Woodruff, 1389.
- Wasatch limestone, Carboniferous, Colorado: Gale, 451.
- Wasatch limestone, Mississippian, Idaho, Wyoming, and Utah: Gale and Richards, 454.
- Wasatch quartzite, Utah: Blackwelder, 113.
- Wasatch group, Eocene, Idaho, Wyoming, and Utah: Gale and Richards, 454.
- Watauga shale, Cambrian, Tennessee: Ashley, 40.
- Watertown limestone, Ordovician, New York: Cushing *et al.*, 305.
- Waverly formation, Mississippian, Tennessee: Ashley, 40.
- Waynesboro formation, Cambrian, Maryland: Mathews and Grasty, 866.
- Waynesburg limestone, Carboniferous, West Virginia: Grimsley, 524.
- Waynesburg sandstone, Carboniferous, West Virginia: Grimsley, 524.
- Weber conglomerate, Carboniferous, Nevada: Emmons, 399.
- Weber quartzite, Carboniferous, Idaho, Wyoming, and Utah: Gale and Richards, 454; Girty, 473.
- Weber quartzite, Carboniferous, Utah: Blackwelder, 111.
- Weber quartzite, Pennsylvanian, Utah: Blackwelder, 112.
- Weber quartzite, Utah: Blackwelder, 113.
- Weber sandstone, Carboniferous, Colorado: Gale, 451.
- Wedington member, Mississippian, Arkansas: Girty, 474.
- Westerly granite, Rhode Island: Loughlin, 814.
- West Hill flags and shales, Devonian, New York: Luther, 825.
- West River dark shale, Devonian, New York: Luther, 825.
- Wewe slates, pre-Cambrian, Michigan: Lane and Seaman, 775.
- Wheaton River volcanics, Pleistocene and late Tertiary, Yukon Territory: Cairnes, 180.

- White Cliff sandstone, Jurassic, Colorado: Gale, 451.
 Whitehorse beds, Carboniferous, Texas: Beede, 84.
 White Pine shale, Carboniferous, Nevada: Emmons, 399.
 White River group, Oligocene, Wyoming: Darton *et al.*, 321.
 Wicomico formation, Pleistocene, Atlantic coastal plain: Clark, 240.
 Wilcox formation, Tertiary, Louisiana: Harris, 552.
 Wildwood formation, Carboniferous, California: Smith, 1147.
 Wilhite slate, Cambrian, Tennessee: Ashley, 40.
 Wingate sandstone, Triassic, New Mexico: Darton, 318.
 Wisconsin drift, Quaternary, Pennsylvania: Butts, 176.
 Woodbine sandstone, Cretaceous, Louisiana: Harris, 552.
 Woodford chert, Mississippian, Oklahoma: Reeds, 1031.
 Woodside formation, Carboniferous or Triassic, Idaho, Wyoming, and Utah: Girty, 473.
 Woodside shale, Permian?, Idaho: Gale, 452.
 Woodside shale, Triassic or Carboniferous, Idaho-Wyoming, and Utah: Gale and Richards, 454.
 Woodside shale, Triassic or Carboniferous, Utah: Blackwelder, 111.
 Woods Run limestone, Carboniferous, Pennsylvania: Raymond, 1024.
 Woodville sandstone, Carboniferous, Michigan: Lane, 768.
 Wreford limestone, Pennsylvanian, Oklahoma: Gould *et al.*, 491.
 Wyman sandstone, Mississippian, Arkansas: Girty, 474.
 Wyoming, lower, Carboniferous, Colorado: Kruger *et al.*, 736.
 Wyoming, upper, Permian and Triassic, Colorado: Kruger *et al.*, 736.
 Yeso formation, Pennsylvanian, New Mexico: Gordon, 484.
 Yeso formation, Carboniferous, New Mexico: Richardson, 1046.
 York River beds, Devonian, Canada: Williams, 1342.
 Yorktown formation, Miocene, Virginia: Clark, 240.
 Yorktown formation, Miocene, Virginia and North Carolina: Miller, 905.
 Zuni sandstone, Triassic, New Mexico: Darton, 318.