

DEPARTMENT OF THE INTERIOR

BULLETIN

OF THE

UNITED STATES

GEOLOGICAL SURVEY

No. 191

**SERIES C, SYSTEMATIC GEOLOGY
AND PALEONTOLOGY, 56**



WASHINGTON
GOVERNMENT PRINTING OFFICE
1902

UNITED STATES GEOLOGICAL SURVEY
CHARLES D. WALCOTT, DIRECTOR

NORTH AMERICAN

GEOLOGIC FORMATION NAMES

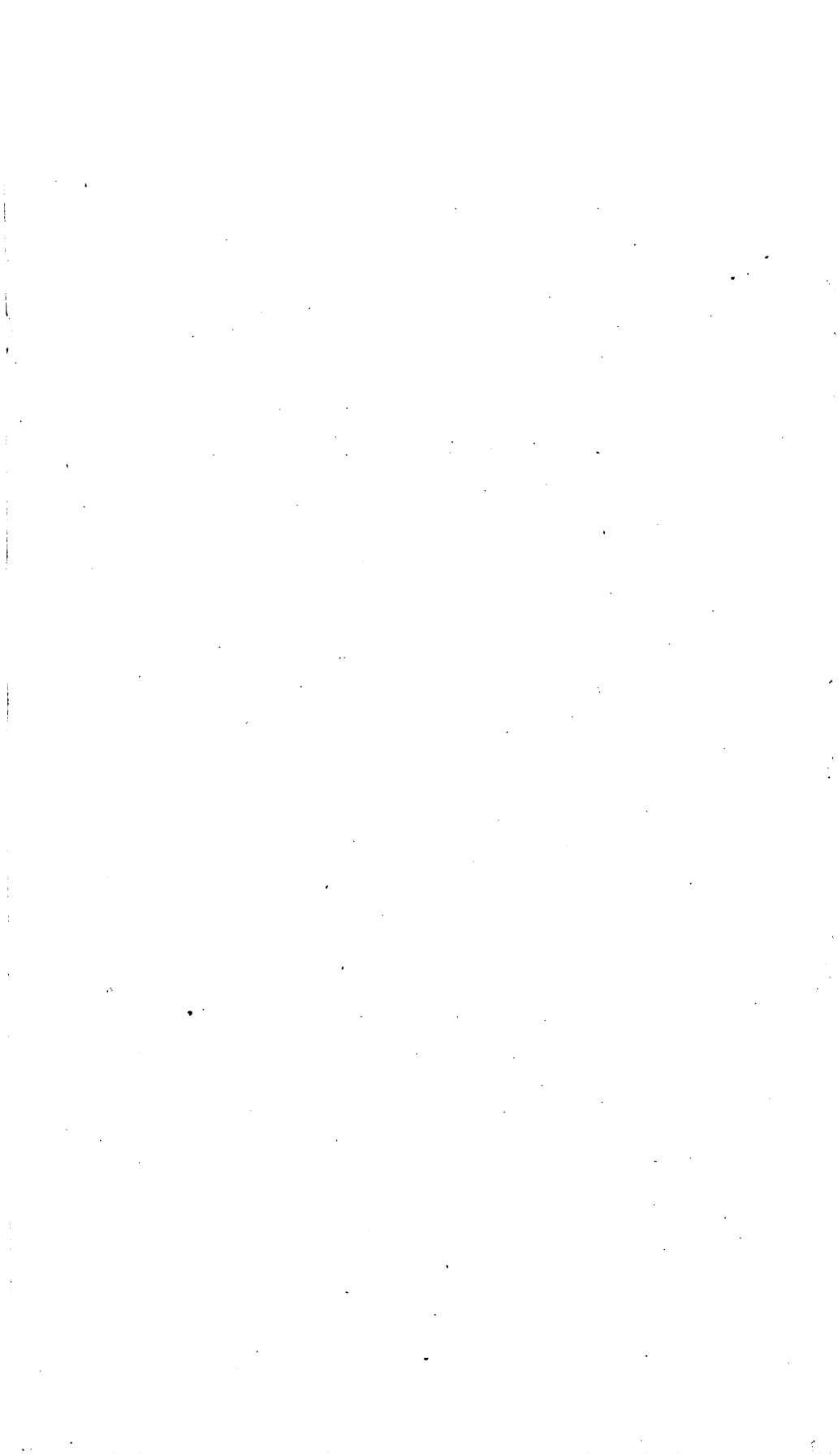
BIBLIOGRAPHY, SYNONYMY
AND DISTRIBUTION

BY

FRED BOUGHTON WEEKS

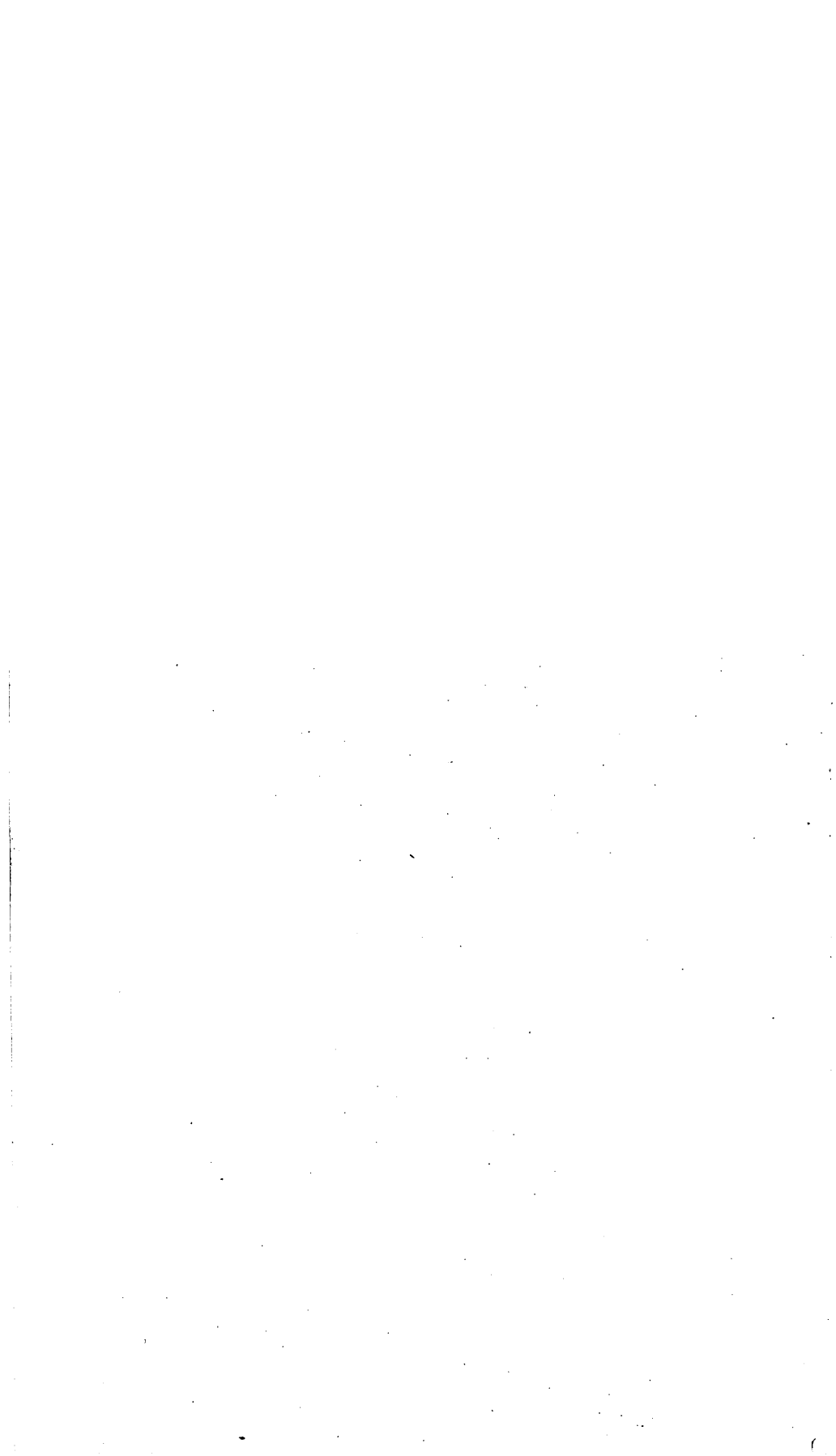


WASHINGTON
GOVERNMENT PRINTING OFFICE
1902



CONTENTS.

	Page.
Letter of transmittal.....	7
Introduction.....	9
List of publications examined.....	12
Synonymic table of period names used by authors and those used by the United States Geological Survey.....	21
List of geologic formation names, arranged by geographic provinces under the geologic periods to which they have been assigned.....	23
Alphabetical list of sedimentary formation names, with references to descriptions, synonymy, and correlations.....	41
Alphabetical list of geographic names applied to igneous masses.....	428
Index list of formation names.....	435



LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
Washington, D. C., November 27, 1901.

SIR: I have the honor to transmit herewith a manuscript entitled North American Geologic Formation Names: Bibliography, Synonymy, and Distribution, and to request that it be published as a bulletin of the Survey.

Very respectfully,

F. B. WEEKS.

Hon. CHARLES D. WALCOTT,
Director United States Geological Survey.



NORTH AMERICAN GEOLOGIC FORMATION NAMES: BIBLIOGRAPHY, SYNONYMY, AND DISTRIBUTION.

By F. B. WEEKS.

INTRODUCTION.

This publication contains:

(1) A list of all North American sedimentary formation names, arranged alphabetically by geographic provinces under each of the larger geologic subdivisions to which they have been assigned, in general, by various authors.

(2) A list of the names used to designate a particular stratum or aggregate of sedimentary strata within the area of North America. It is arranged alphabetically, and the references to each name are placed in chronological order. Each name appears in this list as it is used in the reference cited. The references refer only to the more important descriptions of formations or discussions of correlation, synonymy, or nomenclature. The geologic time-division to which a formation belongs, and the State, Territory, or country in which it occurs, form a part of each entry.

(3) A list of the geographic names that have been applied to masses of igneous rocks occurring in North America. Only those names that indicate that the rocks are of igneous origin have been included in this list. All names of metamorphic or other rocks of uncertain origin are included in the list of sedimentary formation names.

(4) An index list of formation names.

At the inception of this work it was seen that it would be necessary to read carefully every article or book on geology that had been published in order to be certain that every name that had been used to designate particular strata should be included in this catalogue. It was evident that the necessity for an early completion of the work and the limited time that could be devoted to it rendered it impossible to adopt such a plan. Furthermore, it is well known that during the early years of geologic literature names were employed so loosely that in very many cases it is impossible to determine whether it was intended to use the name merely in a descriptive sense or as a distinctive formation name. It may happen, therefore, that names are

included in this list which were not intended to be proposed as formation names, or that the first mention of a name subsequently used as a distinctive formation name has been omitted.

This work not only presents a list of formation names, and their synonymy and correlations as given by authors, but also serves as a bibliography of the literature describing each formation. Mere mentions of occurrence were not entered, but it was intended to include descriptions of a formation which defined it either wholly or in part. It is probably true that the discrimination as to what is a sufficient description to entitle the reference to be included in this catalogue has not been of such a uniform character as it would have been if the preparation of the catalogue had been wholly the work of one person; but it is not considered less valuable on this account, since all the really important descriptions are believed to have been included.

No attempt has been made to indicate the synonymy or taxonomic value of any formation except as it was given by the author of the reference cited. It is intended to refer the investigator to the literature of any North American geologic formation name, and he must exercise his own judgment as to its value and standing as a formation name.

The work of preparing this bulletin has been in progress for nearly three years. It has been interrupted from time to time by other office and field work of the author. During the winter of 1899-1900 it became evident that this work must be completed at once for the use of members of the United States Geological Survey in assigning names to the formations which were being delineated on the folios forming the Geologic Atlas of the United States. The Director of the Survey requested the following geologists to assist in completing the work: Messrs. M. R. Campbell, N. H. Darton, J. S. Diller, G. H. Girty, C. W. Hayes, F. H. Knowlton, F. L. Ransome, G. O. Smith, A. C. Spencer, T. W. Stanton, J. A. Taff, T. W. Vaughan, and David White. The literature that then remained to be examined was apportioned among these gentlemen, and since that time the material has been brought down to January 1, 1901, by the author. The methods of preparing this material, previously adopted, were followed with as much uniformity as was possible, and the author, as well as geologists in general, is greatly indebted to these gentlemen who assisted in bringing the work to an early completion.

In the discrimination of what constitutes a sufficient description of a formation and the determination of the problems of nomenclature, the following suggestions are offered. These represent, in brief, the conclusions of the author as the result of his studies of the geologic literature of North America.

A formation which is associated with other strata at the particular locality from which it takes its name should be defined, either by its

lithologic or its faunal characters, in such a manner that the reader, or the observer in the field, can differentiate it from the other strata with which it occurs. Where a name is given to a series of strata of varied lithologic character and of wide distribution, the general characters of the lithologic variations and the stratigraphic relations should be so given as to indicate, approximately, what are its relations to other formations of the same or related provinces.

In determining the names to be applied to formations the laws of priority and prescription (general usage) should be observed. The name first given to a definite formation or series of strata should hold, unless this name is superseded in literature by another which has come into general use. In the latter case the first name should be dropped for this formation; and, where there can be no question as to the general usage of the subsequent name, the first name might be used again for a different formation without causing serious trouble. Such reuse would certainly be very advantageous in regions where there are few geographic names.

As an illustration, the name Berkshire limestone was first applied to certain limestones in western Massachusetts. Subsequently the name Stockbridge limestone was employed to designate this formation and has since come into general usage for this subdivision of the Cambrian in that region. The name Berkshire limestone has therefore become obsolete, and the name might be used to designate some other formation without creating confusion.

The duplication of formation names has become a serious matter, as will be seen from an examination of this list. It seems very desirable that in the future there should be no further duplication; new names should replace those which can not hold their present varied definitions; thus in time all the present discrepancies in the nomenclature of formations would disappear from geologic literature.

It is the intention of the writer to continue this list in the yearly publication, *Bibliography and Index of North American Geology, etc.*, under the subheading, "Geologic formations described."

LIST OF PUBLICATIONS EXAMINED.

OFFICIAL AND SERIAL PUBLICATIONS.

- Alabama Geological Survey: Tuomey, First Biennial Report, 1849.
—— Tuomey, Second Biennial Report, 1855.
—— Smith (E. A.), Reports of Progress, 1874, 1875, 1876, 1877-78, 1879-80.
—— Bulletins, Nos. 1-6.
—— Report on Coosa Coal Field, 1895.
—— Report on Warrior Coal Field. 1886.
—— Report on the Warrior Coal Basin, 1900.
—— Report on Cahaba Coal Field, 1890.
—— Report on Coal Measures of the Plateau Region, 1891.
—— Report on Geological Structure of Murphrees Valley, 1893.
—— Report on Geology of the Coastal Plain of Alabama, 1894.
—— Report on Valley Regions of Alabama, Parts I-II.
Alabama Industrial and Scientific Society: Proceedings, Vols. I-IX.
Albany Institute: Proceedings, Vols. I-III, Parts I-II.
—— Transactions, Vols. I-X.
American Academy of Arts and Science: Proceedings, Vols. I-XXXV.
—— Memoirs, Vols. I-XII.
American Association for the Advancement of Science: Proceedings, Vols. I-XLVIII.
American Geologist, Vols. I-XXIV.
American Institute of Mining Engineers: Transactions, Vols. I-XXIX.
American Journal of Agriculture and Science, Vols. I-VII, 1845-1848.
American Journal of Science: First, second, third, and fourth series, Vols. I-VII.
American Museum of Natural History: Bulletin, Vols. I-XII.
—— Annual Reports, 1-31.
—— Memoirs, Vol. I, Parts, I-II.
American Naturalist, Vols. I-XXXIII, 1899.
American Paleontology: Bulletins, Nos. 1-12.
American Philosophical Society: Proceedings, Vols. I-XXXIX, Nos. 160-163.
—— Transactions, Vols. I-XIX.
Arkansas Geological Survey: Report for 1888, Vols. I-IV; Report for 1889, Vol. II;
Report for 1890, Vols. I-IV; Report for 1891, Vols. I-II; Report for 1892, Vols.
I-II.
—— Owen (D. D.), Geological Reconnaissance of Arkansas. First Report, 1858.
—— Geological Reconnaissance of Arkansas. Second Report, 1860.
Boston Journal of Natural History, Vols. I-VII, 1837-1863.
Boston Society of Natural History: Proceedings, Vols. I-XXIX, Nos. 1-14, 1900.
—— Journal, Vols. I-VII.
—— Memoirs, Vols. I-V, Nos. 1-5, 1866-1899.
Botanical Gazette: Vols. I-XXX.
Brookville Society of Natural History: Bulletins, Nos. 1-2.
Buffalo Society of Natural History: Bulletin, vols. 1-6, No. 1.

- California Academy of Science: Proceedings, first series, Vols. I-VII; second series, Vols. I-VI; third series, Vol. I, Nos. 1-9.
——— Bulletin, Vol. II, Nos. 6-8.
——— Occasional Papers, Vols. I-VI.
——— Memoirs, Vols. I-II.
- California Geological Survey: Whitney, Geology, Vol. I; Paleontology, Vols. I-II.
——— Whitney Guide Book, Yosemite Valley.
——— Trask (1850-55), Reports Nos. 1-4.
- California State Mining Bureau: Annual Reports, Nos. 1-13.
——— Bulletins, Nos. 1-19.
- California, University of, Department of Geology: Bulletin, Vols. I-II, Nos. 1-7.
- Canada Geological Survey: Reports of Progress, 1843-44, 1844-45, 1845-46, 1846-47, 1847-48, 1848-49, 1849-50, 1850-51, 1851-52, 1852-53, 1843-1863, 1863-1866, 1866-1869, 1870-71, 1871-72, 1872-73, 1873-74, 1874-75, 1875-76, 1876-77, 1877-78, 1878-79, 1879-80, 1880-81-82, 1882-83-84; new series, Vols. I-X.
——— Paleozoic Fossils, Vols. I-III.
——— Mesozoic Fossils, Vol. I, parts 1-3.
——— Contributions to Canadian Paleontology, vols. 1-4, Part I.
——— Contributions to the Micro-Paleontology of the Cambro-Silurian rocks of Canada, Parts I-IV.
- Canada Royal Society: Proceedings and Transactions, Vols. I-XII; new series, Vols. I-V.
- Canadian Institute: Journal, Vols. I-XV; new series, Vols. I-VII.
——— Transactions, Vols. I-VI.
- Canadian Naturalist, Vols. I-VIII; new series, Vols. I-X.
- Canadian Record of Science, Vols. II-VIII; Nos. 1-4.
- Central Ohio Scientific Association: Proceedings, Vol. I, Part I, 1878.
- Chicago Academy of Science: Transactions, Vol. I.
——— Proceedings, Vol. I.
——— Bulletin, Vols. I-II.
——— Geological and Natural History Survey; Bulletin: Vols. I-II.
- Cincinnati Quarterly Journal of Science, Vols. I-II.
- Cincinnati Society of Natural History: Journal, Vols. I-XIX.
——— Proceedings, No. 1, 1876.
- Cleveland Academy of Science: Proceedings, 1845-1859, 1874.
- Colorado Science Society: Proceedings, Vols. I-V.
- Colorado College Studies: Vols. IV-VIII.
- Connecticut Geological Survey: Shephard (Charles N.), Report, 1837.
——— Percival (James G.), Report on the Geology of the State of Connecticut, 1842.
——— Mather, New London and Windham counties.
- Connecticut Academy of Arts and Sciences: Transactions, Vols. I-X, Part I.
- Davenport Academy of Science: Proceedings, Vols. I-VI.
- Delaware Geological Survey: Booth (J. C.), Memoir of the Geological Survey, 1839.
- Denison University, Scientific Laboratories: Bulletin, Vols. I-XI, Nos. 1-9.
- Des Moines Academy of Science: Bulletin, Vol. I, No. 1.
- Elliott Society of Natural History: Proceedings, Vol. I, 1859.
- Essex Institute: Proceedings, Vols. I-III, VI.
——— Bulletins, Nos. 1-30.
- Geological Society of America: Bulletins, Vols. I-XI.
- Georgia Geological Survey: Little (George), Report of Progress, 1874, 1875.
——— Spencer (J. W.), First Report of Progress, 1891.
——— The Paleozoic Group, 1893.
——— Bulletins, Nos. 1-3A, 4A, 5A, 6A, 7.
- Hamilton Association: Journal and Proceedings, Vols. I-II and VII-XVI.

- Harvard College, Museum of Comparative Zoology: Bulletin, Vols. I-XXXV, Nos. 1-6.
 ———— Memoirs, Vols. I-XXIII.
- Illinois Geological Survey: Norwood (J. G.), Report of Progress of the State Geological Survey, 1853.
 ———— Abstract of a Report on Illinois Coals, 1857. Vols. I-VIII; Economic Geology, Vols. I-III.
- Illinois Natural History Society: Transactions, Series I, Vol. I, 1861.
- Illinois State Laboratory of Natural History: Bulletin, Vols. I-V, articles 1-10.
- Illinois State Museum of Natural History: Bulletin, Nos. 1-12.
- Indiana Academy of Science: Proceedings, 1885-99.
- Indiana Department of Statistics: Reports, 1879-1890.
- Indiana Department of Geology and Natural Resources: Annual Reports, 1-24.
- International Congress of Geologists, fifth session: Comptes Rendus, 1893.
- Iowa Academy of Science: Proceedings, Vols. I-VI.
- Iowa Geological Survey, Vols. I-X.
 ———— White (C. A.), First and Second Annual Reports, 1867, 1868.
 ———— Report on the Geological Survey of the State of Iowa to the Thirteenth General Assembly, Vols. I, II, 1870.
 ———— Hall (James) and Whitney (J. D.), Report on the Geological Survey of the State of Iowa, embracing the results of investigations made during portions of the years 1855, 1856, and 1857. Albany, 1858.
 ———— Hall (J.), Supplement to Vol. I, Part II, 1859.
- Iowa State University, Laboratory of Natural History: Bulletin, Vols. I-V, No. 1, 1899.
- Johns Hopkins University: Circulars, Nos. 1-146 (except 123, 137, 143).
- Journal of Geology, Vols. I-VIII.
- Kansas Academy of Science: Transactions, Vols. I-XVI.
- Kansas City Review, Vols. I-VIII.
- Kansas Geological Survey: Swallow (G. C.), Preliminary Report of the Geological Survey of Kansas, 1866.
 ———— Mudge (B. F.), First Annual Report on Geology of Kansas, 1866.
 ———— Swallow (G. C.) and Hawn (F.), Report on the Geological Survey of Miami County, Kans., 1865.
- Kansas University Geological Survey: Reports, Vol. I-V.
- Kansas University Quarterly, Vols. I-VIII.
- Kentucky Geological Survey, Vols. I-IV, by D. D. Owen.
 ———— Bulletin No. 1.
 ———— Memoirs, Vol. I, Parts I-IV; new series, Vols. I-V.
 ———— Crandall (A. R.), Report on Geology of Whitley County.
 ———— Sullivan (G. M.), Report on Geology of Jackson and Rockcastle Counties.
 ———— Linney (W. M.), Report on Geology of Clarke and Montgomery Counties.
 ———— Report on Geology of Mercer County.
 ———— Report on Geology of Lincoln County.
 ———— Report on Geology of Henry, Shelby, and Oldham Counties.
 ———— Report on Geology of Mason County.
 ———— Report on Geology of Garrard County.
 ———— Report on Geology of Spencer and Nelson Counties.
 ———— Report on Geology of Bath and Fleming Counties.
 ———— Norwood (C. J.), Report on the Geology of the Region Adjacent to the Louisville, Paducah and Southwestern Railroad.
 ———— Knott (W. T.), Report on the Geology of Marion County.
 ———— Loughridge (R. H.), Report on Geology of Clinton County.
 ———— Report on the Geological and Economical Features of the Jackson Purchase Region.

- Kentucky Geological Survey: Mather (W. W.), Report on a Geological Reconnoissance of Kentucky in 1838.
- Orton (Edward), Report on the Occurrence of Petroleum, Natural Gas, and Asphalt Rocks in Western Kentucky.
- Leland Stanford Junior University: Geology and Paleontology, No. 1.
- Louisiana State Geological Survey: Part V, 1889.
- State University Reports, 1869, 1870, 1871; Preliminary Survey by Agricultural Station.
- Hilgard (E. W.), Preliminary Report of a Geological Reconnoissance of Louisiana. New Orleans, 1869.
- ——— Supplementary and Final Report of a Geological Reconnoissance of the State of Louisiana. New Orleans, 1873.
- Hopkins (F. V.), Second Annual Report of the Geological Survey of Louisiana, in Annual Report of Supervisors of the State University for 1870-71.
- ——— Third Annual Report of Geological Survey of Louisiana, in Annual Report of Supervisors of the State University for 1871.
- Maine Geological Survey: Jackson (Chas. J.), First, Second, and Third Annual Reports.
- Hitchcock (C. H.), Preliminary Report on Natural History and Geology of Maine, Vols. I-II.
- Maryland Academy of Science: Transactions, Vol. I, 1888-1892.
- Maryland Geological Survey: Ducatel (J. T.), Annual Reports of the Geologist of Maryland, 1836-1840.
- Tyson (Philip T.), State Chemist, First Report, 1860.
- ——— State Chemist, First Report, 1862.
- Higgins (James), Annual Reports, 1-6.
- Maryland; Its Resources, Industries and Institutions, 1893. Vols. I-III (Clark), Allegany County, 1900.
- Massachusetts Geological Survey: Final Report by E. Hitchcock, 1841.
- Economic Geology, 1832 and 1838.
- Report on Geologic Map, by W. O. Crosby.
- Michigan Geological Survey: Annual Reports of the State Geologist, D. Houghton, 1837-1843, 1-7.
- Winchell (A.), First Biennial Report of Progress, 1861.
- ——— Report of Progress for 1870.
- Geological Survey Reports, Vols. I-VII, Part I.
- Report of State Board of Geological Survey for 1891-92, published 1893.
- Commissioner of Mineral Statistics, Annual Reports, 1877-1891, 1895-1897.
- Reports of State Geologist (D. Houghton) relative to State Salt Springs, 1839, 1840, 1843.
- Winchell (A.), 1866, The Grand Traverse Region.
- Morley (F.), 1882, second edition, Michigan and its Resources.
- Lawton (C. D.), 1886, Michigan Mineral Resources.
- Foster and Whitney, Report on the Geology and Topography of a Portion of Lake Superior Land District, Parts I-II.
- Minnesota Academy of Science: Bulletin, Vols. I-III.
- Minnesota Geological and Natural History Survey: Annual Reports, 1-24.
- Final Reports, Vols. I-IV.
- Winchell (A.), Report of a Geological Survey of the Vicinity of Belle Plaine, Minn. St. Paul, 1872.
- Reports of State Geologist, Henry H. Eames, 1865, 1866.
- Eames (Henry H.), Geological Reconnoissance of Northern, Middle, and Other Counties. St. Paul, 1867.
- Mississippi State Geological Survey: Waites (B. L. C.), Report on the Agriculture and Geology of Mississippi, 1884.

Mississippi State Geological Survey: Harper (L.), Preliminary Report on the Geology and Agriculture of the State of Mississippi, 1857.

— Hilgard (E. W.), Reports on the Geological and Agricultural Survey of the State of Mississippi, 1858, 1860.

Missouri Geological Survey: First and Second Annual Reports, 1855, by Swallow; Third Report, 1857; Fourth Report, 1859; Fifth Report, 1861.

— Reports, 1855-1871, Broadhead, Meek, and Shumard.

— Report, 1873-74, Broadhead and Norwood.

— Report, 1871-72.

— Hager (A. D.), Annual Report of the State Geologist, 1871.

— Swallow, Geological Report on Country along Line of Southwestern Branch of Pacific Railroad.

— Vols. I-XII.

National Geographic Magazine, Vols. I-XI.

Nebraska Academy of Science: Publications, I-III.

New Brunswick Natural History Society: Bulletin, Vols. I-III, 1897, Nos. 16-17.

Newfoundland, Geological Survey of the Province of. Annual Reports, 1839-1842, by Abraham Gesner.

New Hampshire Geological Survey: Hitchcock (C. H.), The Geology of New Hampshire, Vols. I-III.

— First Annual Report on the Geology and Mineralogy of the State of New Hampshire, 1869.

— Second Annual Report on the Geology and Mineralogy of the State of New Hampshire, 1871.

— Jackson (Chas. T.), Final Report on the Geology and Mineralogy of the State of New Hampshire, 1844.

— Report for the year 1870 of the Geological Survey of the State of New Hampshire.

— Report for 1871.

— Report for 1872.

New Jersey Geological Survey: Rogers (H. D.), Annual Report, 1836.

— Cook (G. H.), Report on Geology of Cape May County, 1856.

— Geology of New Jersey, 1868.

— Annual Reports for 1854, 1855, 1856, 1857, 1863, 1864, 1865, 1866, 1867, 1868.

— Final Report, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899.

— Report on Clay Deposits of New Jersey, 1878.

— Final Report by Henry D. Rogers, Philadelphia, 1840.

New Orleans Academy of Sciences: Proceedings, Vol. I, No. 1, 1854; No. 2, 1888.

Newport Natural History Society: Proceedings, Documents Nos. 1-7.

New York Academy of Science: Annals, Vols. I-XII; Transactions, Vols. I-XVI.

New York Geological Survey; Natural History of New York, Geology of New York, Part I, by W. W. Mather; Part II, by E. Emmons; Part III, by L. Vanuxem; Part IV, by J. Hall.

— Agriculture of New York, by E. Emmons, Vols. I-V.

— Paleontology, Vols. I-VIII.

— Annual Reports on Geological Survey of New York I-V, 1837-1841, Mather, Emmons, Vanuxem, and Hall.

— Annual Reports of State Geologists (Hall), 1-17.

New York Lyceum of Natural History: Proceedings, Vols. I-XI.

New York State Museum: Annual Reports, 1-49; 50, Vol. I; 51, Vols. I-II.

— Bulletins, 1-39.

North Carolina Geological Survey: Olmstead (D.), Report of the Geology of North Carolina, Part I, 1824; Part II, 1825.

—— Kerr (W. C.), Report of Progress of the Geological Survey of North Carolina, 1865.

—— Report for 1866-67.

—— Report of the Geological Survey of North Carolina, Vol. 1, 1875.

—— Appendix to Report of 1873.

—— Bulletins, 1, 3-7, 9-11, 13.

—— First Biennial Report State Geologist, 1893.

—— Emmons, Report on his Geological Survey of North Carolina. Raleigh, 1852.

—— Report on the Midland Counties of North Carolina. Raleigh, 1856.

Nova Scotian Institute of Science: Proceedings and Transactions, Vols. I-X, Part I.

Ohio Geological Survey, Vols. I-VII.

—— Paleontology, Vols. I-II.

—— Third Organization, Vol. I.

—— Mather (W. W.), First and Second Annual Reports of the Geological Survey of the State of Ohio, 1838.

—— Report on State House Artesian Well at Columbus, Ohio, 1859.

—— Newberry (J. S.), Reports of Progress, 1868, 1869, 1870, 1871.

—— Report on State House Artesian Well at Columbus, Ohio.

—— Geological Survey of Ohio, its Progress in 1869, published in 1870.

—— Annual Reports of the State Inspector of Mines, 1-6, 9, 12-22.

—— Orton, Preliminary Report on Petroleum and Inflammable Gas, 1866.

Ohio Mining Journal. Vol. I, No. 4; Vol. II, Nos. 1-3; Vol. III, No. 1.

Ottawa Naturalist, Vols. I-XIV.

Pacific Railway Survey, Vols. I-XII.

Pennsylvania Geological Society: Transactions, Vol. I, 1835.

Pennsylvania Geological Survey: Annual Report, 1885; Annual Report, 1886; Parts I-IV, 1887.

—— Reports AA, C, CC, CCC, C⁴, C⁵, C⁶, D, DD, D³; Parts I, II, E, F, F², F⁴, G, G², G³, G⁴, G⁵, G⁶, G⁷, H, H², H³, H⁴, H⁵, H⁶, H⁷, I, I², I³, I⁴, I⁵, J, K, K², K³, K⁴, Q, Q², Q³, Q⁴, R, R², T, T², T³, T⁴, V, V².

—— Rogers' Annual Reports, I-VI.

—— Geology of Pennsylvania, Vols. I-II, 1858.

—— Lesley's Final Reports, Vols. I-III.

Pennsylvania State College: Annual Report for 1896, Appendix.

Philadelphia Academy of Natural Sciences: Proceedings 1843-1900, Parts I-II.

—— Journal, Vols. I-X.

Portland Society of Natural History: Journal, Vol. I, No. 1, 1864.

—— Proceedings, Vol. I, 1861-1869.

Quebec Literary and Historical Society: Transactions, new series, Vols. I-XXII.

Rhode Island: Report of Geological and Agricultural Survey, by Chas. T. Jackson, 1840.

Rochester Academy of Science: Proceedings, Vols. I, II, and III, brochure 1 and 2.

St. Louis Academy of Science: Transactions, Vols. I-IX, Nos. 1-8; Vol. X, Nos. 1-8.

San Antonio Scientific Society: Proceedings, Vol. I, Nos. 1-2.

School of Mines Quarterly, Vols. I-II, IV-XX.

Science, Vols. I-XXIII; new series, Vols. I-XII.

Sedalia Natural History Society: Bulletin, 1885.

Smithsonian Institution, Annual Reports, 1851-1896, 46 volumes.

—— Miscellaneous Collections, Vols. I-XL.

—— Contributions to Knowledge, Vols. I-XXXVI, XXXVIII, XL; 8 special publications.

South Carolina Geological Survey: Tuomey (M.), Report on the Geology of South Carolina, 1848.

—— Lieber (O. M.), Annual Reports on the Survey of South Carolina, 1856, 1858, 1859, 1860.

South Dakota Geological Survey: Bulletins, Nos. 1-4.

Technology Quarterly, Vols. III-XIII.

Tennessee Geological Survey: Troost (G.), Annual Reports (Third to Ninth).

—— Safford (J. M.), Geology of Tennessee, 1869.

—— Geological Reconnaissance of Tennessee, First Report, 1856.

—— Killebrew (J. B.) and Safford (J. M.), Resources of Tennessee, 1874.

—— Safford (J. M.) and Killebrew (J. B.), Elementary Geology of Tennessee, 1876.

Texas Academy of Sciences: Transactions, Vol. I, Nos. 1, 2; Vol. II, No. 1; Vol. III.

Texas Geological Survey: Annual Reports, 1-4; Bulletins, Nos. 1-3.

—— Dumble (E. T.), Report on the Brown Coal and Lignites of Texas.

—— First Report of Progress, 1889.

—— Shumard (B. F.), First Report of Progress of the Geological and Agricultural Survey of Texas, 1859.

—— Buckley (S. B.), A Preliminary Report of the Geological Survey of Texas, 1866.

—— First Annual Report of Geological Survey of Texas, 1874.

—— Second Annual Report of the Geological Survey of Texas, 1876.

—— Shumard (George G.), A Partial Report on the Geology of Western Texas. Austin, 1886.

The Virginias, Vols. I-VI.

Torrey Botanical Club: Bulletin, Vols. I-XXVI.

United States and Mexican Boundary Survey: Vols. I-III.

United States Census, Tenth, Vols. XI-XIII.

United States Chief of Engineers: Reports, 1873, 1874, 1875, 1876, 1878, 1879.

United States Exploring Expedition under Command of Captain Wilkes, Vol. X; Geology by J. G. Dana. Philadelphia, 1849.

United States Geological Survey: Annual Reports, 1-20.

—— Monographs, 1-31; 32, Part II; 33-39.

—— Bulletins, 1-172.

—— Folios 1-59, 61-65.

—— Hawley sheet.

—— Baltimore Geologic sheet.

United States Geographical and Geological Survey of the Rocky Mountains Region: Gilbert (G. K.), Geology of the Henry Mountains.

—— Dutton (C. E.), Geology of the High Plateau of Utah.

—— Newton and Jenney, Geology of the Black Hills of Dakota.

—— Powell (J. W.), Report on the Lands of the Arid Region of the United States, with a more detailed Account of the Lands of Utah.

—— Report on the Geology of the Eastern Portion of the Uinta Mountains and a Region of Country Adjacent Thereto.

United States Geographical and Geological Survey of the Territories: Annual Reports, 1-12.

—— Bulletins, Vols. I-VI.

—— Monographs, Vols. I-XIII.

United States Geological Exploration of the Fortieth Parallel, Vols. I-III.

United States Geographical and Geological Survey West of the One Hundredth Meridian, Vol. III; Supplement to Vol. III; Vol. IV.

United States National Museum: Annual Reports, 1884-1897.

—— Proceedings, Vols. I-XXI.

—— Bulletins Nos. 1-49.

- United States Treasury Department: Owen (D. D.), Geological Reconnaissance of the Chippewa Land District, 1848.
- Vassar Brothers Institute: Transactions, Vols. I-VII.
- Vermont Geological Survey: Hitchcock (E.), Report on Geology of Vermont, 1861.
- Third and Fourth Annual Reports on the Geological Survey of Vermont.
- Adams (C. B.), First and Second Annual Reports on the Geological Survey of the State of Vermont, 1847, 1848.
- Report of State Geologist, H. A. Cutting, for 1874, 1875.
- Virginia Geological Survey: Rogers (William B.), Reports of Progress of the Geological Survey of Virginia, 1836-1841.
- Geology of the Virginias, edited by Jed. Hotchkiss.
- Wagner Free Institute of Science: Transactions, Vols. I-VI.
- Washburn College, Laboratory of Natural History: Bulletin, Vols. I-IX.
- Washington Academy of Sciences: Proceedings, Vol. I.
- Washington Biological Society: Proceedings, Vols. I-XIII.
- Washington Geological Society: Four brochures.
- Washington Philosophical Society: Bulletin, Nos. 1-13.
- West Virginia Geological Survey: Third Annual Report of Board of Regents of West Virginia University for 1870, published 1871. Article by Stevenson.
- Vol. I, White.
- Wisconsin Academy of Sciences, Arts, and Letters, Vols. I-XII, Part I.
- Wisconsin Geological Survey: Vol. I, 1883.
- Daniels (Edward), First Annual Report of the Geological Survey of Wisconsin, 1854.
- Percival (J. G.), Annual Report of the Geological Survey of Wisconsin, 1855.
- Daniels (Edward), Annual Report of the Geological Survey of Wisconsin, 1857.
- Hall (James), First Annual Report of the Geological Survey of Wisconsin, 1859.
- Murrish (John), Report on Geological Survey of Lead Region, 1863.
- Chamberlin (T. C.), Annual Reports of the Wisconsin Geological Survey, 1876, 1877, 1878, 1879.
- Bulletins, Vols. I-VI.
- Wyoming Historical and Geological Society: Proceedings and Collections, Vols. I-III.

MISCELLANEOUS PUBLICATIONS.

- Campbell (J. L.) and Ruffner (W. H.). A Physical Survey Extending Across Alabama and Mississippi to the Mississippi River. New York, 1833.
- Chapman (E. J.). A Popular and Practical Exposition of the Minerals and Geology of Canada. Toronto, 1864.
- Dawson (George M.). Report on the Tertiary Lignite Formation in the Vicinity of the Forty-ninth Parallel. Montreal, 1874.
- Report on the Geology and Resources of the Region in the Vicinity of the Forty-ninth Parallel, from the Lake of the Woods to the Rocky Mountains. British North American Boundary Commission. Montreal, 1875.
- Foster (J. W.) and Whitney (J. D.). Report on the Geology of the Lake Superior Land District. Part I, Executive Document No. 69, House of Representatives, Thirty-first Congress, first session, 1850. Part II, Executive Document No. 4, Senate special session, March, 1851.
- Hind (Henry Youle). A Preliminary Report on the Geology of New Brunswick, with a Special Report on the Distribution of the Quebec Group. Fredericton, New Brunswick, 1865.
- Jukes (J. B.). General Report on the Geological Survey of Newfoundland, 1843.
- Marcou (James). Geology of North America. Zurich, 1858.
- Murray (Alexander). Geological Survey of Newfoundland. London, 1881.

- Newberry (J. S.). Geological report, in Report upon the Colorado River of the West, by Lieut. Jos. C. Ives. Washington, 1861.
- Geological report, in Report of the Exploring Expedition from Santa Fe, New Mex., to the Junction of the Grand and Green Rivers, by Capt. J. N. Macomb. Washington, 1876.
- Orton (Edward). Review of the Stratigraphic Geology of Eastern Ohio, from the Annual Report of the Secretary of State, 1879. Columbus, 1880.
- Owen (David Dale). Report on a Geological Exploration of a Part of Iowa, Wisconsin, and Illinois in 1839. Washington, 1844.
- First report: A Geological Reconnaissance of Indiana in 1837.
- Second report: A Geological Reconnaissance of Indiana in 1838.
- Report of a Geological Reconnaissance of Indiana in 1859-60.
- Powell (J. W.). Exploration of the Colorado River of the West and its Tributaries. Washington, 1875.
- Smith (G. O.). Geology of the Fox Islands, Maine, 1897.
- Wall (G. P.) and Sawkins (J. G.). Report on the Geology of Trinidad. London, 1860.
- Whitney (J. D.). Contributions to American Geology, Vols. I-II. Cambridge, Mass.
- Report of a Geological Survey of the Upper Mississippi Lead Region. Albany, N. Y., 1862.
- Tyson (P. T.). Geological and Industrial Resources of California. Baltimore, Md., 1851.

SYNONYMIC TABLE OF PERIOD NAMES USED BY AUTHORS AND THOSE
USED BY THE UNITED STATES GEOLOGICAL SURVEY.

Names used by authors.		United States Geological Survey classification.
Glacial		} Pleistocene.
Quaternary		
Pleistocene		
Tertiary {	Pliocene	} Neocene.
	Miocene	
	Oligocene	} Eocene.
	Eocene	
Cretaceous		Cretaceous.
Jura		} Juratrias.
Trias		
Permian		} Carboniferous.
Carboniferous		
Devonian		Devonian.
Silurian		} Silurian.
Ordovician		
Cambrian		Cambrian.
Algonkian		Algonkian.
Archean		Archean.



LIST OF GEOLOGIC FORMATION NAMES, ARRANGED BY GEOGRAPHIC PROVINCES UNDER THE GEOLOGIC PERIODS TO WHICH THEY HAVE BEEN ASSIGNED.

PLEISTOCENE.

<i>Alaska.</i>		<i>Mississippi Valley.</i>
Cook Inlet.	Saugeen.	Aftonian.
Ground Ice.	Saxicava.	Altamont.
Kanektok.	Syrtsensian.	Bluff.
Kowak.	Toronto.	Bottom Prairie.
Kuskokwim.		Boulder.
Pinnacle.	<i>Great Lakes region.</i>	Buchanan.
St. Elias.	Albertan.	Cerro Gordo.
Saskatchewan.	Algoma.	Delta.
Togiak.	Arkona.	Forest.
Yukon.	Artemisia.	Fourth Moraine.
<i>Appalachian region.</i>	Calumet Beach.	Gravel.
Teay.	Gary.	Highland.
<i>Atlantic Coast region.</i>	Grassmere.	Illinoian.
Barnstable.	Mesabi.	Iowan.
Barrington.	Van Wert.	Iroquois.
Bryn Mawr.	Wisconsin.	Itasca.
Cape May.		Loess.
Columbia.	<i>Great Plains region.</i>	Marseilles.
Cornfield Harbor.	Antelope.	Orange Sand.
Jamesburg.	Cache Valley.	Peorian.
Middleboro.	Equus.	Sangamon.
Mohegan.	Gentile Valley.	Shelbyville.
Mussel-bearing.	Kansan.	Silveria.
Packer.	Lake Bonneville.	Tolleston.
Philadelphia.	Malade Valley.	Valley.
Queens River.	Marsh Creek.	Valparaiso.
Sankaty.	McPherson.	Vermilion.
Simmons Bluff.	Meade.	Western Valley.
Terrace.	Megalonyx.	Yarmouth.
Tisbury.	Salt Creek.	
Truro.	Third Moraine.	<i>Pacific Coast region.</i>
Yellow.	Wellington.	Admiralty.
<i>Canada.</i>	<i>Gulf States.</i>	Coos.
Galt.	Biloxi.	Douty.
Leda.	Mobile.	Gale.
Kingston.	Port Hudson.	Midland.
		Orting.

PLEISTOCENE—continued.

Osceola.	<i>Southwestern region.</i>	Champlain.
Puyallup.	Coast.	Coastal.
San Pedro.	Guertie.	Falmouth.
Steilacoom.	Leona.	May Pen.
Superjacent.	Prairie d' Ane.	Montego.
Tehachipa.	Seymour.	Neudeckian.
Vashon.	White Prairie d' Ane.	Ozarkian.
Yakutat.		Warren.
	<i>West Indies.</i>	Zapata.
<i>Rocky Mountain region.</i>		
Hot Spring.	Barbican.	
Sheridan.	Bogue Island.	
Stanford.	Buff Bay.	

TERTIARY.

<i>Alaska.</i>	Bryn Mawr.	Shell Bluff.
Hayes River.	Caloosahatchie.	Squanjum.
Kenai.	Cape Cod.	Tusahoma.
Nulato.	Carolinian.	Vineyard.
Nushagak.	Chattahoochee.	Virginian.
Orca.	Chesapeake.	Waccamaw.
Palisades.	Cooper River.	Weyquosque.
Pinnacle.	Coralline.	Wilmington.
Saskatchewan.	Croatan.	Woodstock.
Tanana.	Duplin.	Yellow.
Tok.	Eo-Lignitic.	
Twelvemile.	Floridian.	<i>Canada.</i>
Tyonek.	Glassboro.	Carmanah Point.
Unga.	Gray.	Coldwater.
Yakutat.	Great Carolina.	Lawrencian.
Yentna.	Hawthorne.	Leda.
	Holocene.	Roche Percee.
<i>Appalachian region.</i>	Jacksonboro.	Saxicava.
Flatwoods.	Lafayette.	Sooke.
Hickman.	Lisbon.	Tranquille.
Irvine.	Manatee.	
	Marl.	<i>Central America.</i>
<i>Atlantic Coast region.</i>	Marlborough.	Brito.
Alachua.	Marylandinian.	
Altamaha.	Mont Alto.	<i>Great Basin region.</i>
Alum Bluff.	Mount Holly.	Amyzon.
Appomattox.	Nashaquitsa.	Bishop Mt.
Aquia Creek.	Orangeburg.	Bitter Creek
Archer.	Pamunkey.	Bridger.
Ashley.	Patuxent.	Cache Lake.
Aspalaga.	Pensauken.	Esmerelda.
Autocene.	Piscataway.	Estuary.
Beacon Hill.	Pulaski.	Fort Bridger.
Branditown.	Santee.	Green River.
Brandon.	Shark River.	

TERTIARY—continued.

Humboldt.	Jacksonian.	Yegua.
Idaho.	Jacksonville.	Zeuglodon.
Manti.	Lagarto.	<i>Hawaii.</i>
Para.	Lignite.	Pearl River.
Pink Cliff.	Lignitic.	<i>Mexico.</i>
Plant.	Lufkin.	
Salt Lake.	Marine.	
Tower.	Matthews Landing.	Baucari.
Truckee.	Middleton.	Coatzacoalcos.
Uinta.	Midway.	Trincheras.
White.	Midwayan.	<i>Mississippi Valley.</i>
<i>Great Lakes region.</i>	Miliolite.	
Vermilion.	Moody's Branch.	Bloomfield.
<i>Great Plains region.</i>	Mount Selman.	Bluff.
	Myrick.	Geneva.
Equus.	Naheola.	La Grange.
Kingsdown.	Nanafalia.	Mansfield.
McPherson.	Navasota.	Orangesand.
Megalonyx.	Nummulite.	Port Hudson.
Nebraska.	Oak Grove.	Porters Creek.
Pearlette.	Oakville.	Portland.
Protoceras.	Ocala.	Quitman-Muerto.
White River.	Ocheesee.	<i>Pacific Coast region.</i>
<i>Greenland.</i>	Orbitoides.	
Atane.	Orbitoitic.	Arago.
<i>Gulf States.</i>	Orbitolite.	Asphalto.
	Orthaulax.	Astoria.
Arcadia.	Ostrea sellaeformis.	Aturia.
Bashi.	Palo Duro.	Auriferous.
Bells Landing.	Pascagoula.	Bituminous.
Black Bluff.	Peace Creek.	Carmelo.
Buhrstone.	Queen City.	Carrizo Creek.
Chickasaw.	Reynosa.	Chehalis.
Chipola.	Sabine River.	Chico.
Claiborne.	Shiloh.	Coaledo.
Clayton.	Sopchophy.	Contra Costa.
Coal Bluff.	Sparta.	Ellensburg.
Cocksfield Ferry.	St. Stephens.	Empire.
Coral.	Sucarnochee.	Ione.
De Soto.	Tallahatta.	John Day.
Diablo-Davis.	Tampa.	Johnson.
Ecphora.	Timber Belt.	Kettleman.
Fayette.	Tule.	Kittitas.
Fleming.	Uvalde.	Little Vein.
Frio.	Vicksburg.	Merced.
Grand Gulf.	Vicksburgian.	Miohippus.
Greensand.	Waldo.	Mojave.
Greggs Landing.	Walnut.	Monterey.
Hatchetigbee.	Webb Bluff.	Mytilus.
Jackson.	Wills Point.	Oakland.
	Woods Bluff.	Ocoya Creek.

TERTIARY—continued.

Paso Robles.	Florissant.	Bingen.
Pescadero.	Fort Ellis.	Blanco.
Puget.	Fort Union.	Blanco Canyon.
San Diego.	Galisteo.	Camden.
San Pablo.	High Park.	Cleveland County.
Santa Clara.	Huerfano.	Cooks Mountain.
Sespe.	Intermediate.	Fort Selden.
Similkameen.	Judith River.	Hueco.
Superjacent.	Laramie.	Lapara.
Swauk.	Loup Fork.	Llano Estacado.
Tassagara.	Loup River.	Marks Mills.
Tejon.	Monument Creek.	Plateau.
Ticholeptus.	North Park.	White Bluff.
Torregon.	Nussbaum.	
Tunnel Point.	Oreodon.	<i>West Indies.</i>
Tuscan.	Payette.	Antiguan.
Tyre.	Pinon.	Bowdan.
Roslyn.	Pliohippus.	Cambridge.
Umpqua.	Poison Canyon.	Caroni.
Wallala.	Potosi rhyolite series.	Catadupa.
Wilbur.	Procamelus.	Chapelton.
Wildcat.	Puerco.	Cobre.
	San Juan.	Guallava.
<i>Rocky Mountain region.</i>	San Miguel.	Limon.
Alnwick.	Santa Fe.	Manchionell.
Arapahoe.	Smith River.	Manzanilla.
Bates Hole.	Sphinx.	Maruga.
Bozeman.	Sweetwater.	Matanzas.
Brontotherium.	Titanotherium.	May Pen.
Brown.	Wahsatch.	Moneague.
Browns Park.	Washakie.	Moruga.
Canyon.	West Elk.	Naparima.
Canyon City.	Wind River.	Nariva.
Coryphoden.	Wyoming.	Oceanic.
Cripple Creek.		Parian.
Cuchara.	<i>Southwestern region.</i>	Pepino.
Deep River.	Arkadelphia.	Porus.
Denver.	Basal.	

CRETACEOUS.

<i>Alaska.</i>	Lisbon.	Hazlet.
Holikunk.	Marietta.	Island.
Kolmakof.		James River.
Matanuska.	<i>Atlantic Coast region.</i>	Lincoln.
Mission Creek.	Albirupean.	Magothy.
Oklune.	Amboy.	Manasquan.
Orca.	Aquia Creek.	Marl.
Tordrillo.	Baltimorean.	Matawan.
<i>Appalachian region.</i>	Clay.	Monmouth.
Brownstown.	Eutaw.	Mount Vernon.
Eagle.	Fish House.	Navesink.

CRETACEOUS—continued.

Patapsco.
 Pedee.
 Potomac.
 Potters.
 Rancocas.
 Rappahannock.
 Raritan.
 Redbank.
 Sand Hill.
 Sassafras River.
 Severn.
 Sewell.
 Vincentown.
 Woodbridge.

Canada.

Belly River.
 Clearwater.
 Crosswicks.
 Dunvegan.
 Edmonton.
 Fort St. John.
 Grand Rapids.
 Jackass Mountain.
 Komooks.
 Kootanie.
 La Biche.
 Loon River.
 Nanaimo.
 Nicollet.
 Odanah.
 Paskapoo.
 Pelican.
 Porcupine.
 Queen Charlotte.
 Quesnel River.
 St. Marys.
 Smoky River.
 Tar.
 Wapiti.
 Willow Creek.

Great Basin region.

Bear River.
 Black Butte.
 Bluegate.
 Golden Wall.
 Henry's Fork.
 Hogback.
 Masuk.

Salt Wells.
 Sulphur.
 Tu-nunk.

Great Plains region

Arickaree.
 Bad Land.
 Barrett.
 Belvidere.
 Benton.
 Beulah.
 Black Hill.
 Blue Cut.
 Blue Hill.
 Champion.
 Cheyenne.
 Corral.
 Downs.
 Elk Creek.
 Fence-post.
 Fort Hays.
 Fort Pierre.
 Fort Union.
 Fullington.
 Greenleaf.
 Hay Creek.
 Kiowa.
 Kirby.
 Lanphier.
 Medicine.
 Mentor.
 Neocomian.
 Oak Creek.
 Osborne.
 Platte.
 Reeder.
 Smoky Hill.
 Stokes.
 Trego.
 Victoria.

Greenland.

Atane.
 Kome.
 Patoo.

Gulf States.

Arenaceous group.
 Arietna.
 Bayou Chicot.
 Calcareous.
 Coffee sand.

Prairie Bluff.
 Ripley.
 Tombigbee.
 Tuscaloosa.
 Winfield.

Mexico.

Cantera.
 Timpas.
 Todos Santos.

Mississippi Valley.

Fort Dodge.
 Glauconitic.
 Green sand.
 Inoceramus.
 Nishuabotany.
 Rockville.
 Rotten.
 Woodbury.

Pacific Coast region.

Chico.
 Chico-Tejon.
 Foraminiferal.
 Franciscan.
 Golden Gate.
 Horsetown.
 Knoxville.
 Mesa.
 Myrtle.
 Puget.
 Radiolarian.
 San Francisco.
 Shasta.
 Shasta-Chico.
 Similkameen.
 Suisure.
 Superjacent.
 Tejon.
 Whitsett.
 Winthrop.

Rocky Mountain region.

Animas River.
 Apishapa.
 Arapahoe.
 Bull Mountain.
 Canyon City.
 Carlile.
 Cascade.
 Ceratops.

CRETACEOUS—continued.

Colorado.
Cretaceous Nos. 1, 2, 3.
Dakota.
Estuary.
Fort Benton.
Fox Hills.
Graneros.
Great Falls.
Green Mountain.
Greenhorn.
Halymenites.
Laramie.
Livingston.
Mancos.
Mesa Verde.
Middle Park.
Montana.
Niobrara.
Ohio Creek.
Pictured Cliff.
Pierre.
Piñon Mesa.
Point of Rocks.
Pteranodon.
Puerco.
Ruby.
Saliferous.
San Miguel.
Trinidad.
Yellowstone.

Southwestern region.

Anacacho.
Anoma.
Austin.
Big Decipher.
Black Prairie.
Bosque.
Buda.

Caprina.
Caprotina.
Chalky.
Choctaw.
Clark County.
Comanche.
Comanche Peak.
Comet Creek.
Coquina.
Dallas.
Danville.
Delrio.
Denison.
Dexter.
Dinosaur.
Duck Creek.
Eagle Ford.
Eagle Pass.
Edwards.
Escondido.
Etholen.
Exogyra arietina.
Exogyra costata.
Exogyra ponderosa.
Flag.
Fort Worth.
Fredericksburg.
Georgetown.
Gillespie.
Glen Rose.
Goodland.
Goodnight.
Grand Prairie.
Grayson.
Gulf.
Kiamitia.
Lower Cross Timbers.
Main Street.
Malone.
Marl Brook Columbus.

Navarro.
Nerinaea.
North Denison.
Paluxy.
Paw Paw.
Pinto.
Ponderosa.
Preston.
Pulliam.
Quitman.
Red River.
Requienia.
Richland-Gordon.
Rocky Comfort.
Shoal Creek.
Taylor.
Texana.
Texanan.
Timber Creek.
Travis Peak.
Trinity.
Tucumcari.
Upson.
Val Verde.
Vicarya.
Vola.
Walnut.
Washita.
Webberville.
Yucca.

West Indies.

Ballard.
Blue Mountain.
Frankenfield.
Jerusalem.
Logie Green.
Minbo.
Yallahs.

JURATRIAS.

Alaska

Naknek.
Skwentna.
Terra Cotta.

Atlantic Coast region

Albirupian.
Arundel.
Baltimorean.

Boscabel.
Brunswick.
Chesterfield.
Chicopee.
Connecticut River.
Granby.
Gwynedd.
Lansdale.
Lockatong.

Long Meadow.
Mount Toby.
New Red.
Newark.
Otterdale.
Patuxent.
Perkasie.
Pleurocoelus.
Potomac.

JURATRIAS—continued.

Pottstown.	<i>Pacific Coast region.</i>	Como.
Red sand rock.	Auriferous slate.	Dolores.
Seneca.	Bicknell.	Ellis.
Stockton.	Cedar.	Gunnison.
Sugarloaf.	Foreman.	La Plata.
Trap Tuff.	Franciscan.	McElmo.
Tuckahoe.	Golden Gate.	Meekoceras.
Vinita.	Hardgrave.	Morrison.
	Hinchman.	Pentacrinus.
<i>Canada.</i>	Hosselkus.	Red.
Nicola.	Mariposa.	Shirley.
Vancouver.	Milton.	Sundance.
	Mineral King.	Teton.
<i>Great Basin region.</i>	Monte de Oro.	Unkpaps.
Flaming Gorge.	Mormon.	Wingate.
Gray Cliff.	Pitt.	Wyoming.
Koipato.	Radiolarian.	Zuni.
Shinarump.	Sailor Canyon.	<i>Southwestern region.</i>
Star Peak.	Santa Anna.	Bend.
Vermilion.	Swearinger.	Dockum.
	Thompson.	Lista Blanca.
<i>Mexico.</i>	Trail.	Malone.
Barranca.	<i>Rocky Mountain region.</i>	Norristown.
	Atlantosaurus.	
<i>Mississippi Valley.</i>	Baptanodon.	
Merom.		

PERMIAN.

<i>Appalachian region.</i>	Cottonwood.	Kiger.
Dunkard Creek.	Curzon.	Kingfisher.
	Day Creek.	Manhattan.
<i>Great Plains region.</i>	Dog Creek.	Marietta.
Abilene.	Double Mountain.	Marion.
Alma.	Dry Bone.	Medicine Lodge.
Amphitheatre.	Flint.	Neosho.
Big Basin.	Flint Hill.	Red Bluff.
Big Blue.	Flower-pot.	Salt Fork.
Browntown.	Forest City.	Salt Plain.
Cave Creek.	Fort Riley.	Shimer.
Cedar Hills.	Geronimo.	Sumner.
Chapman.	Geuda.	Taloga.
Chase.	Glass Mountain.	Wellington.
Cimarron.	Harpers.	Wichita.
Clear Fork.	Jenkins.	Wreford.

CARBONIFEROUS.

<i>Alaska.</i>	<i>Appalachian region.</i>	Anthracite.
Cape Beaufort.	Alleghany River.	Bakerstown.
Tachatna.	Alton.	Bangor.
Tahkandit.	Ames.	Barren.
Wellesley.	Anderson.	Barton.

CARBONIFEROUS—continued.

Bayard.	Cuyahoga.	Marlisonville.
Bearwallow.	Dismal.	Mahoning.
Beaver River.	Dotson.	Marvin Creek.
Bedford.	Eagle.	Massilon.
Bee Spring.	Elk Lick.	Mauch Chunk.
Bellton.	Elk River.	Maxville.
Benezette.	Elkgarden.	Meadeville.
Berea.	Erie.	Mercer.
Big Clifty.	Ewuing.	Middle Conglomerate.
Big Injun.	Fairfax.	Mill Creek.
Black Hand.	Fayette.	Millstone.
Blacksville.	Federal Creek.	Monongahela River.
Blackwater.	Feriferous.	Morgantown.
Birmingham.	Fish Creek.	Mount Morris.
Bluefield.	Fishpot.	Mount Pleasant.
Bluestone.	Flint Ridge.	Mount Sand.
Bolivar.	Floyd.	Mountain.
Bonair.	Fort Payne.	New River.
Bradford.	Freeport.	Newman.
Braxton.	Frostburg.	Newtonville.
Breathitt.	Gallitzen.	Nineveh.
Briceville.	Garland.	Norton.
Broad Top.	Gilmore.	Oil Creek Lake.
Browntown.	Gladeville.	Oil Lake.
Brush Creek.	Great.	Olean.
Buffalo.	Great Conglomerate.	Olive.
Buhr.	Green County.	Orangeville.
Butler.	Greenbrier.	Oxmoor.
Cairo.	Griswold Gap.	Panther Creek.
Cambridge.	Harlan.	Pennington.
Canaan.	Hartselle.	Pennsylvanian.
Canal.	Hinton.	Pickens.
Cannelton.	Homewood	Pine Creek.
Caseyville.	Horsepen.	Pine Mountain.
Cassville.	Iowa.	Pithole.
Charleston.	Irondale.	Pittsburg.
Clarion.	Johnson River.	Pocahontas.
Clark.	Johnstown.	Pocono.
Clarksburg.	Jollytown.	Pomeroy.
Cleveland.	Kanawha.	Ponent.
Coal measures.	Kanawha Falls.	Pottsville.
Colvins Run.	Kinzua.	Powelton.
Conemaugh.	Kittanning.	Price.
Conglomerate.	Lauderdale.	Princeton.
Connellsville.	Lee.	Productive.
Connoquenessing.	Lehigh.	Pulaski.
Corbin.	Leitchfield.	Putnam Hill
Corry.	Licking.	Quakertown.
Crawford.	Logan.	Quinnemont.
Crinoidal.	Lookout.	Raccoon.
Curiew.	Lower Green.	Raleigh.
Cussewago.	Macksburg.	Redstone.

CARBONIFEROUS—continued.

Great Lakes region.

Riceville.
 Royal.
 Rushville.
 Saltsburg.
 Sand Mountain.
 Savage.
 Schreyfogs.
 Scott.
 Scotts Creek.
 Sequoyah.
 Seral.
 Sewanee.
 Sewell.
 Sewickley.
 Sharon.
 Sharpsville.
 Shawnee.
 Shenango.
 Shinersville.
 Siliceous.
 South Carrolton.
 Subconglomerate.
 Sunbury.
 Tar Spring.
 Tellowa.
 Tionesta.
 Trough Creek.
 Tuscumbia.
 Umbral.
 Uniontown.
 Upshur.
 Vanport.
 Venango.
 Verdi.
 Vespertine.
 Walden.
 Wartburg.
 Washington County.
 Waverly.
 Waynesburg.
 Welch.
 White.
 Wildcat Mountain.
 Windy Gap.
 Wise.
 Wyoming Valley.
 Zoar.

Conanicut.
 Cranston.
 Kingstown.
 Millers River.
 Natick.
 Pawtucket.
 Pelham.
 Pondville.
 Purgaton.
 Rose Island.
 Roxbury.
 Sachuest.
 Sockanosset.
 Sukonk.
 Tenmile River.
 Tiverton.
 Wamsutta.

Coldwater.
 Grand Rapids.
 Marshall.
 Michigan salt.
 Napoleon.
 Parma.
 Richmondville.
 Rock Falls.
 Woodville.

Great Plains region.

Altoona.
 Americus.
 Atchison.
 Auburn.
 Bethany Falls.
 Burlingame.
 Calhoun.
 Carlyle.
 Cave.
 Cave Rock.
 Cave Spring.
 Chanute.
 Chase.
 Cherryvale.
 Cottonwood.
 Cottonwood Falls.
 Deer Creek.
 Douglas.
 Dover.
 Dun.
 Dunlap.
 Earlton.
 Einstine.
 Elgin.
 Elk Falls.
 Elmont.
 Emporia.
 Falls River.
 Florence.
 Fort Scott.
 Garnett.
 Gypsum.
 Hartford.
 Howard.
 Iola.
 Labette.
 Lane.
 Le Compton.
 Le Roy.

Canada.

Albert.
 Banff.
 Bonaventure.
 Cache Creek.
 Campbell Creek.
 Cape John.
 Cascade.
 Hopewell.
 Marble Canyon.
 Mertgomist.
 New Glasgow.
 Perry.
 Pictou.
 Portland.
 Riversdale.
 Smalls Brook.
 Smelt Brook.
 Stellarton.
 Union.
 Windsor.
 Woodstock.

Great Basin region.

Aubrey.
 Godiva.
 Diamond Peak.
 Humbug.
 Lodore.
 Mammoth.
 Red Wall.
 Wahsatch.
 Weber.

New England.

Aquidneck.
 Attleboro.
 Coasters Harbor Island.

CARBONIFEROUS—continued.

Marion.	Clepsydrops.	North Vernon.
Marmaton.	Collinsville.	Orange Martin.
Maryville.	Concretionary.	Nodaway.
Neodesha.	Cooper.	Parkville.
Oread.	Coxville.	Pella.
Osage.	Cypress.	Platte.
Osage City.	Dekalb.	Plattsmouth.
Oswego.	Earlham.	Pottery.
Ottawa.	Encrinital.	Productal.
Pawnee.	English River.	Quarry Creek.
Plattsburg.	Ferruginous.	Quitman.
Pleasanton.	Forbes.	Redrock.
Pottawatomie.	Fragmental.	Rhomboida..
Robinett.	Fusulina.	Riverside.
Rossville.	Geode.	Rock Creek.
Sea Urchin.	Goniatite.	Rockcastle.
Severy.	Grand River.	Rockford.
Shunganunga.	Graydon.	St. Genevieve.
Silver Lake.	Graydon Springs.	St. Joe.
Soldier Creek.	Hanging Rock.	St. Louis.
Spring Rock.	Hannibal.	Salem.
Stanton.	Harrodsburg.	Spring River.
Strong.	Henrietta.	Springvale.
Swallow.	High Rock.	Summit.
Syntrialasina.	Jonesboro.	Thomas Hill.
Tecumseh.	Kansas City.	Unionville.
Thayer.	Kaskaskia.	Warrensburg.
Topeka.	Keokuk.	Warsaw.
Toronto.	Keosauqua.	Wassonville.
Victoria.	Kinderhook.	West Franklin.
Vilas.	Knob.	Westerville.
Wabaunsee.	Knobstone.	Weston.
Wakarusa.	Lady Washington.	Winterset.
Well Rock.	Lagonda.	Wyckoff.
Willard.	Lawrence.	
Winfield.	Lawrence-Crawford.	
	Le Grand.	
	Lithographic.	
	Livingston.	
	Louisiana.	
	Macon City.	
	Mansfield.	
	Maple Hill.	
	Marais des Cygnes.	
	Marshalltown.	
	Merom.	
	Miller.	
	Mississippian.	
	Missouri.	
	Missourian.	
	Mitchell.	
	Moberly.	
	Monroe-Harrison.	
	Mound Valley.	
		<i>Pacific Coast region.</i>
		Baird.
		Bed Rock.
		Blue Canyon.
		Calaveras.
		Cape Horn.
		Clipper Gap.
		Delhi.
		Eureka.
		Little Grizzly Creek.
		McCloud.
		Martinez.
		Pitt.
		Relief.
		Robinson.
		Shoo Fly.
		<i>Rocky Mountain region.</i>
		Arkansas.
		Badito.

Mississippi Valley.

Anvil Rock.
 Appanoose.
 Archimedes.
 Ardmore.
 Augusta.
 Aux Vases.
 Baden.
 Bevier.
 Bituminous.
 Burlington.
 Carlinville.
 Chaelites.
 Chariton.
 Cherokee.
 Chester.
 Chouteau.

CARBONIFEROUS—continued.

Blue.	Burnet Branch.	McAlester.
Castle.	Camp Colorado.	Milburn.
Eryops.	Camp Creek.	Milburn-Strawn.
Fountain.	Campophyllum.	Norristown.
Hermosa.	Canyon.	Novaculite.
Kibbey.	Carrollton.	Paint Rock.
Leadville.	Cavaniol.	Parks Mountain.
Madison.	Cedarton.	Pawhuski.
Maroon.	Chaffin.	Pentremital.
Millsap.	Cherry.	Poteau.
Monarch.	Cisco.	Richland.
Otter.	Coleman.	Ricker.
Otter Creek.	Coon Mountain.	Rochelle.
Paine.	Cottonwood Creek	Rough Creek.
Quadrant.	Cross Plains.	Russellville.
Rico.	Elliott Creek.	Saddle Creek.
Wood River.	Elm Creek.	Santa Anna.
Woodhurst.	Fayetteville.	Savanna.

Southwestern region.

Adams Branch.	Fox Ford.	Sebastian.
Albany.	Frickham.	Shadrick Mill.
Antelope Creek.	Genevieve.	Shoal Creek.
Appleton.	Granville.	Spadra.
Atoka.	Grape Creek.	Speck Mountain.
Batesville.	Greenwood.	Spring Creek.
Bead Mountain.	Hanna Valley.	Stöckwether.
Belva.	Hartshorne.	Strawn.
Bend.	Hartwell.	Sylamore.
Big Valley.	Hog Creek.	Talpa.
Boggy.	Home Creek.	Thurman.
Boone.	Hordes Creek.	Tomlinson.
Booneville.	Horse Creek.	Valera Bend.
Boston group.	Indian Creek.	Waldrip.
Brown Creek.	Jagger Bend.	Washburn.
Brownwood.	Kessler.	Washington.
Buffalo Creek.	Lohn.	Watts Creek.
Bull Creek.	Lost Creek.	Wilbarger Creek.
	Lynch Creek.	Wyman.

DEVONIAN.

<i>Alaska.</i>	Cadent.	Columbus.
Tachatna.	Camden.	Corniferous.
Tahkandit.	Cardiola.	Cuboides.
Wellesley.	Cascade.	Delaware.
West Fork.	Cashaqua.	Dellville.
	Catskill.	Dorset.
<i>Appalachian region.</i>	Cauda-Galli.	Elk.
Allegrippus.	Chapman.	Elk Mountair.
Becraft.	Chattanooga.	Ellicottsville.
Bellvale.	Chautauquan.	Encrinal.
Bernardston.	Chemung.	Erian.
Black shale.	Cherry Ridge.	Erie.
Blossburg.	Cleveland.	Esopus.
Burlington.	Coeymans.	Falls Creek.

DEVONIAN—continued.

Flagstone.
 Frog Mountain.
 Gardeau.
 Genesee.
 Girard.
 Grainger.
 Great Bend.
 Green Pond.
 Hamilton.
 Helderberg.
 Helderbergian.
 Honesdale.
 Hosmer.
 Ithaca.
 Jennings.
 Kimberling.
 Kings Mill.
 Lackawaxen.
 Leboeuf.
 Little Genesee
 Louisville.
 Ludlowville.
 McKean.
 Manlius.
 Marcellus.
 Monteballo.
 Monterey.
 Montrose.
 Moscow.
 Mount Pleasant.
 Naples.
 New Milford.
 New Scotland.
 Nunda.
 Ohio.
 Old Red.
 Olentangy.
 Oneonta.
 Onondaga.
 Oriskany.
 Panama.
 Panola.
 Perry.
 Peru.
 Ponent.
 Portage.
 Postmedial.
 Romney.
 Salamanca.
 Sandusky.
 Schoharie.
 Scioto.
 Selinsgrove.

Seneca.
 Senecan.
 Sherburne.
 Skaneateles.
 Skunnemunk.
 Stafford.
 Starucca.
 Stony Brook.
 Stormville.
 Styliolina.
 Sweetland.
 Tentaculite.
 Towanda.
 Tully.
 Tuna.
 Ulsterian.
 Venango.
 Vergent.
 West Jefferson.
 Wolf Creek.

Canada.

Bloomsbury.
 Gaspe.
 Intermediate.
 Kingston.
 Lambton.
 Little River.
 Manitoban.
 Mispec.
 Winnipegosan.

Great Basin region

Nevada.
 Ogden.
 Temple Butte.
 White Pine.

Great Lakes region.

Dundee.
 Little Traverse Bay.
 St. Clair.
 Thunder Bay.
 Traverse.

Mississippi Valley.

Brown.
 Bunker Hill.
 Callaway.
 Cedar Valley.
 Clear Creek.
 Davenport.
 Delphi.
 Fayette.

Grand Tower.
 Grassy Creek.
 Gyroceras.
 Hackberry.
 Hannibal.
 Huron.
 Independence.
 Kenwood.
 Kinderhook.
 King.
 Lime Creek.
 Louisian.
 Louisville-Delphi.
 Montpelier.
 New Albany.
 New Providence.
 North Vernon.
 Otis.
 Phelps.
 Riverside.
 Rockford.
 Sac.
 Sellersburg.
 Shelby.
 Snyder Creek.
 Spirifera pennata.
 State Quarry.
 Sylamore.
 Vernicular.
 Walker Block.
 Wapsipinicon.
 Warren.

New England.

Moose Island.
 Moose River.
 Newport.
 Paupack.

Pacific Coast region.

Arlington.
 Kennett.
 Sacramento.

Rocky Mountain region.

Jefferson.
 Monarch.
 Ouray.
 Parting.
 Three Forks.

Southwestern region.

Eureka.

SILURIAN.

Appalachian region.

Athens.
 Barree.
 Bastard.
 Bays.
 Beavertown.
 Bloomfield.
 Bloomsburg.
 Blue.
 Blue Shell.
 Bossardville.
 Bridgeport.
 Cacapon.
 Cedarville.
 Clarkes Mill.
 Cliff.
 Clinch.
 Clinch Mountain.
 Clinton.
 Cove.
 Crab Orchard.
 Cumberland.
 Damourite.
 Dayton.
 Decker Ferry.
 Delthyris.
 Dyestone.
 Garrard.
 Giles.
 Grand Rapids.
 Green Pond.
 Hampshire.
 Hancock.
 Harpeth.
 Helderberg.
 Highbridge.
 Hillsboro.
 Holland.
 Hydraulic.
 Juniata.
 Levant.
 Lewistown.
 Lexington.
 Longwood.
 Lowville.
 McCoytown.
 Manlius.
 Massanutten.
 Medina.
 Meniscus.
 Meridian.

Mifflintown.
 Moccasin.
 Monclova.
 Monterey.
 Montgomery.
 Neeleytown.
 Niagara.
 Niagaran.
 Oneida.
 Onondaga.
 Oswegan.
 Oswego.
 Panola.
 Pentamerus.
 Postmeridian.
 Poxono Island.
 Pre-Meridian.
 Primedidial.
 Proteau.
 Red Mountain.
 Rensselaer.
 Rockwood.
 Rondout.
 Salina.
 Salmon River.
 Scalent.
 Scutella.
 Shawangunk.
 Siliceous.
 Sneedville.
 Springfield.
 Stormville.
 Surgent.
 Taylors Ridge.
 Tellico.
 Tuscarora.
 Tymochtee.
 Waldron.
 Waterlime.
 West Union.
 White Oak Mountain.

Canada.

Anticosti.
 Arisaig.
 Bertie.
 Cayuga.
 Cobequid.
 Gaspé.
 Guelph.
 Halysites.
 Mascarene.

Great Basin region.

Eureka.
 Lone Mountain.

Great Lakes region.

Byron.
 Coralline.
 Gray.
 Mayville.
 Monroe.
 Racine.
 Sylvania.
 Waukesha.

Mississippi Valley.

Anamosa.
 Bertram.
 Bowling Green.
 Cape Girardeau.
 Clear Creek.
 Coggan.
 Coral.
 Glencoe.
 Gower.
 Grand Tower.
 Joliet.
 Laurel.
 Le Claire.
 Noix.
 Osgood.

New England.

Amherst.
 Aroostook.
 Ashland.
 Bellowspipe.
 Brimfield.
 Cobscook.
 Greylock.
 Sheridan.
 Vinal Haven.
 Whitmores Ferry.

Pacific Coast region.

Grizzly.
 Taylorsville.

Rocky Mountain region.

Parting.
 White.
 Yule.

SILURIAN—continued.

Southwestern region.

Beaver.
Burnet.
Cason.
Deep Creek.

Glens Falls.
Hinton.
Hoover.
Izard.
Leon.

St. Clair.
San Saba.
Wyo.

ORDOVICIAN.

Appalachian region.

Auroral.
Avondale.
Barnegate.
Beekmantown.
Belfast.
Berkshire.
Bird Mountain.
Birdseye.
Black River.
Calcliferous.
Canadian.
Capitol.
Carters Creek.
Central.
Champlain.
Chazy.
Chester Valley.
Chickamauga.
Cincinnati.
Codorus.
College Hill.
Conasauga.
Dayton.
Eolian.
Everett.
Flanagan.
Fossiliferous.
Frankfort.
Glade.
Hudson.
Hudson River.
Inwood.
Isle Lamotte.
Kentucky.
Knox.
Lancaster.
Lebanon.
Lenoir.
Lorraine.
Manhattan.
Martinsburg.
Matinal.
Moduria.
Mohawk.

Mohawkian.
Nashville.
Normandy.
Ontarian.
Ontaric.
Ontario.
Peach Bottom.
Pelham.
Pierce.
Point Pleasant.
Ridley.
Rochdale.
Rockmart.
Sevier.
Shenandoah.
Siliceous.
Sparry.
Stones River.
Trenton.
Utica.
Wappinger Valley.
Westfield.
Whateley.
Winchester.

Elevator.
Jordan.
Lake Superior.
St. Croix.
St. Lawrence.
St. Peters.

Mississippi Valley.

Beloit.
Bryant.
Buff.
Buffalo.
Cap-au-Grès.
Charette.
Crystal.
Folley.
Galena.
Girardeau.
Joachim.
McCum.
Magnesian.
Maquoketa.
Marble.
Marble Hill.
Receptaculites.
Richmond.
St. François.
St. Thomas.
Sandstone.
Shakopee.
Thebes.
Willow River.
Wykoff.

Canada.

Cat Head.
Citadel.
Farnham.
Lauzon.
Levis.
Marsouin.
Mottled.
Phillipsburg.
Quebec.
St. Jean.
Winnipeg.

New England.

Canaan.
Chester.
Conway.
Egremont.
Goshen.
Granville.
Hardwick.
Hawley.
Hoosac.

Great Basin region.

Pogonip.
Ute.

Great Lakes region.

Bluff.
Eastern.

ORDOVICIAN—continued.

	<i>Rocky Mountain region.</i>	<i>Southwestern region.</i>
Leyden.		
Riga.	Fremont.	Macluria.
Rowe.	Harding.	Polk Bayou.
Savoy.	Madison.	Rainy Mountain.
Mount Washington.	Manitou.	Saccharoidal.
Waterville.		St. Clair.

CAMBRIAN.

<i>Appalachian region.</i>		
Aldrich.	Unicoi.	Keweenawan.
Antietam.	Wallkill.	Lake Superior.
Apison.	Wappinger Valley.	Mendota.
Ashley Hill.	Weisner.	<i>Mississippi Valley.</i>
Beaver.	Weverton.	
Chikis.	Wiltons Run.	Cole Camp.
Chillhowee.	York.	Crystal City.
Chiques.		Dresbach.
Cochran.	<i>Canada.</i>	Elevator B.
Cohulta.	Acadian.	Fredericktown.
Coosa.	Adams Lake.	Gasconade.
Deer Creek.	Athabasca.	Grand Portage.
Graysonton.	Barachois.	Gritstone.
Hampton.	Belle Isle.	Hinckley.
Hardistonville.	Bow River.	Jordan.
Harpers.	Bretonian.	La Motte.
Harpers Ferry.	Castle Mountain.	Le Seur.
Hellem.	Churchill.	Moreau.
Hesse.	Copper-bearing.	New Richmond.
Honaker.	Etcheminian.	Pipestone.
Kentucky.	Johannian.	Pokegama.
Knox.	Kaministiquia.	Potosi.
Loudon.	Nisconlith.	Proctor.
Maryville.	Phillipsburg.	Puckwunge.
Montevallo.	Pointe Levis.	Roubidoux.
Murray.	Quebec.	St. Croix.
Nebo.	St. John.	St. François.
Nichols.	Selkirk.	St. Joseph.
Nolichucky.	Sillery.	St. Lawrence.
North Valley Hill.	<i>Great Basin region.</i>	Waswangoning.
Oostanala.	Hamburg.	Western.
Potsdam.	Prospect Mountain.	White River.
Primal.	Secret Canyon.	<i>New England.</i>
Reading.	Tintic.	Becket.
Rogersville.	Tonto.	Berkshire.
Rome.		Cheshire.
Russell.	<i>Great Lakes region.</i>	Coos.
Rutledge.	Eastern.	Dalton.
Sandsuck.	Eau Claire.	Eolian.
Shenandoah.	Fond du Lac.	Georgia.
South Valley Hill.	Hermansville.	Granular.
Starr.		Kendall Green.
		Lincoln.

CAMBRIAN—continued.

Lingua.
 Little Compton.
 Monson.
 Nahant.
 Newport Neck.
 Pelham.
 Poughquag.
 Quartzrock.
 St. Albans.
 Stockbridge.
 Stony Brook.
 Swiftwater.

Taconic.
 Taconyte.
 Vermont.
 Winooski.

Rocky Mountain region.

Barker.
 Dry Creek.
 Flathead.
 Gallatin.
 Meagher.

Park.
 Pilgrim.
 Sawatch.
 Yogo.

Southwestern region.

Blue Creek.
 Hickory.
 Katemcy.
 Ozark.
 Riley.

ALGONKIAN.

Appalachian region.

Catoctin.
 Citico.
 Courtland.
 Edison.
 Franklin.
 Hamburg Mountain.
 Hazel.
 Hemlock.
 Losee Pond.
 Manhattan.
 Monroe.
 Pigeon.
 Sandpond.
 Taconic.
 Talladega.
 Thunderhead.
 Wilhite.

Canada.

Anorthosite.
 Aspidella.
 Avalon.
 Conception.
 Huronian.
 Kaministiquia.
 Kingston.
 Momable.
 Ontarian.
 Random.
 Signal Hill.
 Thessalon.
 Torbay.

Great Lakes region.

Ajibik.
 Antoine.
 Baraboo.
 Bijiki.
 Black River Falls.
 Bohemia.

Bone Lake.
 Chippewa.
 Clarksburg.
 Eastern.
 Felch Mountain.
 Goodrich.
 Groveland.
 Hanbury.
 Ishpeming.
 Kona.
 Mansfield.
 Maquethian.
 Marquette.
 Marquette-Menominee.
 Marquettian.
 Menominee.
 Mesnard.
 Michigamme.
 Mount Mesnard.
 Negaunee.
 Ogishke.
 Penokee.
 Penokee-Gogebic.
 Quartz slate.
 Randville.
 St. Louis.
 Siamo.
 Stuntz.
 Sturgeon.
 Thompson.
 Vulcan.
 Wewe.

Great Basin region.

Chuar.
 Grand Canyon.
 Unkar.
 Vishnu.

Mississippi Valley.

Pilot Knob.
 Sioux.

New England.

Ashton.
 Blackstone.
 Coles Brook.
 Cumberland.
 East Lee.
 Goose Pond.
 Hinsdale.
 Hop Brook.
 Kearsarge.
 Mendon.
 Merrimack.
 Mount Holly.
 Rockingham.
 Smithfield.
 Stamford.
 Tyringham.
 Washington.
 White Mountain.

Rocky Mountain region.

Belt.
 Chamberlin.
 Cherry Creek.
 Empire.
 Greyson.
 Helena.
 Marsh.
 Neihart.
 Newland.
 Salida.
 Sheridan.
 Spokane.

Southwestern region.

Llano.
 Mason.
 Packsaddle.
 Texan.
 Texian.

ARCHEAN.

Appalachian region.

Broad Branch.
Chestnut Hill.
Highland.
Manayunk.
Orchard.
Piedmont.
Pochuck.
South Mountain.

Canada.

Arvonian.
Atic Oban.
Coast.
Coastal.
Coldbrook.
Coutchiching.
Dore.
Grenville.
Hastings.
Huronian.
Kingston.
Laurentian.
Norian.
Quesnel Lake.
Shuswap.
Steep Rock.

Great Lakes region.

Animikie.
Clover Canyon.
Glacian.
Holyoke.
Kewatin.
Keweenawan.
Keweenaw.
Kewenan.
Kitchi.
Mareniscan.
Minnesota River Valley.
Mona.
Necedah.
Ophian.
Palmer.
Pelodian.
Porphyrian.
Portland.
Quinnebec.
Republic.
Siderian.
Vermilion.
Waterloo.

Mexico.

Volcan.

New England.

Atlantic.
Franconia.
Greylock.
Labrador.
Labradorian.
Lake Winnepesaukee.
Lisbon.
Lyman.
Montalban.
Pemigewasset.
Pegauwket.
Terranovan.
Worcester.

Southwestern region.

Bodeville.
Burnetan.
Click.
Fernandan.
Long Grove.
Long Mountain.
Iron Mountain.
Valley Spring.

FORMATIONS OF UNDETERMINED AGE.

Alaska.

Bettles.
Birch Creek.
Bristol Bay.
Cantwell.
Copper River.
Fortymile.
Greenstone.
Klondike.
McCarthy Creek.
Nasina.
Nilkoka.
Nutzotin.
Rampart.
Rapids.
Shushitna.
Sunrise.
Tanana.
Valdes.

Appalachian region.

Bridgeton.
Buncombe.

Cades.
Cherokee slates.
Clingman.
Cockeysville.
Conshohocken.
Cortlandt.
Eaton.
Fairmount.
Frankford.
Kennett.
Kings Mountain.
Linnville.
Moose Hide.
New York.
Ocoee.
Oswegatchie.
Peach Bottom.
Pope Hollow.
Setters.
Yonkers.

Canada.

Anderson River.
Boston Bar.

Caribou.
George River.
Hunker.
Indian River.
Manitonnuck.
Menevian.
Mott Haven.
Nehacco.
Nipigon.
Sault St. Mary.

Great Basin region.

Arizonian.
Mesa.
Red Creek.

Great Lakes region.

Cupriferous.
L'Anse.
Logan.
Mackinac.
New Ulm.

FORMATIONS OF UNDETERMINED AGE—continued.

Pewabic.
Point aux Gres.
Trappean.

Mississippi Valley.

Brownsville.
Cannelton.
Flat Rock.
Fort Knox.
Geneva.
Golconda.
Grandad.
Greensburg.
Harris City.
Hawpatch.
Hindustan.
Huntingdon.
Lake Huron.
Lamont.
Lost River.
Pendleton.

Pine Creek.
Putnamville.
St. Anthony.
Sedalia.
Williamsport.

New England.

Bar Harbor.
Bartletts Island.
Blanford.
Bolton.
Calderwood Neck.
Cambridge.
Chitistone.
Chloritic.
Cranberry Island.
Greenwich.
Klutena.
Kotlo.
Lake.
Mapleton.

Phippsburg.
Schooner Head.
Suttons Island.
Swanton.
Taunton.
Winnepesaukee.

Pacific Coast region.

Tolenas.
Ventura.

Rocky Mountain region.

Minnelusa.
Nampa.

Southwestern region.

Plymouth.
Polk County.

West Indies.

Caribbean.

SEDIMENTARY FORMATION NAMES.

- Abilene** conglomerate, Haworth. Kan. Univ. Geol. Surv., vol. i, p. 186. 1896.
Permian. Kansas.
- Acadian**, Dawson. Am. Assoc. Adv. Sci., vol. xvi, pp. 117-119. 1867.
New Brunswick.
- Acadian, Dawson. Acadian Geology, 2d ed., London, p. 638. 1868.
New Brunswick. Exact syn. St. John group.
- Acadian, Smith. Ala. Geol. Surv., Rept. for 1875, p. 127. 1876.
Cambrian. Alabama.
- Acadian group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, p. 271. 1881.
- Acadian series, Matthew. Am. Geol., vol. ii, p. 3. 1888.
Cambrian. Canada.
- Acadian, Walcott. U. S. Geol. Surv. Bull., No. 81, p. 248. 1891.
Cambrian. New Brunswick.
- Adams Branch** limestone, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 391. 1893.
Carboniferous. Texas. Included in Canyon division.
- Adams Lake** series, Dawson. Can. Geol. Surv., new ser., vol. iv, pp. 29B, 31B. 1890.
British Columbia.
- Adams Lake, Dawson. Geol. Soc. Am., Bull., vol. ii, p. 169. 1891.
Cambrian? British Columbia.
- Adams Lake, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 26B, 30B, 33B. 1896.
Cambrian or Cambro-Silurian. British Columbia.
- Admiralty** clay, Willis. Geol. Soc. Am., Bull., vol. ix, p. 157. 1898.
Pleistocene. Washington. Included in Admiralty epoch.
- Admiralty till, Willis and Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 54. 1899.
Pleistocene. Washington.
- Aftonian**, Chamberlin. Jour. of Geol., vol. iii, pp. 272-273. 1895.
Pleistocene. Included in Glacial epoch.
- Aftonian stage, Upham. Am. Geol., vol. xvi, p. 103. 1895.
Pleistocene. Exact syn. Helvetian.
- Aftonian, Chamberlin. Jour. of Geol., vol. iv, pp. 872-876. 1896.
Pleistocene. Mississippi Valley.
- Aftonian epoch, Todd. Mo. Geol. Surv., vol. x, p. 213. 1896.
Pleistocene. Missouri.
- Aftonian, Beyer. Iowa Geol. Surv., vol. vii, pp. 231-232. 1897.
Pleistocene. Iowa.
- Aftonian, Norton. Iowa Geol. Surv., vol. ix, p. 474. 1899.
Pleistocene. Iowa.

Ajibik quartzite, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 540. 1895.

Algonkian. Lake Superior region. Included in Lower Marquette series.

Ajibik quartzite, Smyth. U. S. Geol. Surv., 15th Ann. Rept., p. 610. 1895.

Algonkian. Lake Superior region. Included in Lower Marquette series.

Ajibik quartzite, Smyth. U. S. Geol. Surv., Mon., vol. xxviii, pp. 528-529. 1897.

Algonkian. Michigan. Included in Lower Marquette series.

Ajibik quartzite, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 282-313. 1897.

Algonkian. Michigan. Included in Lower Marquette series.

Alachua clay, Dall and Harris. U. S. Geol. Surv., Bull., No. 84, p. 127. 1892.

Tertiary. Florida. Included in Pliocene.

Alachua clay, Dall. Wagner Free Inst., Trans., vol. iv, pp. xi-xiv. 1896. Florida.

Albany division, Cummins. Texas Geol. Surv., 2d Ann. Rept., p. 395. 1891.

Carboniferous. Texas.

Albany division, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 421-429. 1893.

Carboniferous. Texas. Includes Paint Rock, Talpa, Grape Creek, No. 12, Bead Mountain, Valera, Jagger Bend, No. 8, Elm Creek, Coleman, No. 5, Indian Creek, Hordes Creek, Lost Creek, and Coleman Junction beds.

Albert shales, Hind. Geol. of New Brunswick, p. 85. 1865.

Carboniferous. New Brunswick.

Albert shales, Bailey. Can. Geol. Surv., Rept. 1876-77, pp. 356-371; 386-388. 1878.

Carboniferous. New Brunswick. Included in Lower Carboniferous. Exact syn. Baltimore shales.

Albert shales, Bailey, Matthew, and Ells. Can. Geol. Surv., Rept. 1878-79, pp. 16D-19D. 1879.

Carboniferous. New Brunswick. Included in Lower Carboniferous.

Albertan formation, Dawson. Jour. of Geol., vol. iii, pp. 507-511. 1895.

Pleistocene. British Columbia.

Albertan stage, Dawson. Geol. Soc. Am., Bull., vol. vii, p. 45. 1895.

Pleistocene. Alberta, Canada.

Albertan, Chamberlin. Jour. of Geol., vol. iv, pp. 872-876. 1896.

Pleistocene. Alberta, Canada.

Albertan drift, Leverett. Chicago Acad. Sci., Bull. II of Geol. and Nat. Hist. Survey, p. 13. 1897.

Great Lakes region. Included in Pleistocene.

Albirupean, Uhler. Am. Phil. Soc., Proc., vol. xxv, p. 42. 1888.

Jurassic? Maryland.

Albirupean, Uhler. Md. Acad. of Sci., Trans., vol. i, p. 45. 1889.

Cretaceous. Maryland.

Albirupean, Clark. Johns Hopkins Univ. Circulars, vol. ix, p. 69, and vol. x, pp. 105-108. 1890.

Mesozoic. Virginia-Maryland.

Albirupean, Darton. Geol. Soc. Am., Bull., vol. ii, p. 436. 1891.

Cretaceous. Maryland.

Albirupean, Uhler. Md. Acad. of Sci., Trans., vol. i, pp. 185-201. 1892.

Cretaceous. Maryland. Part. Syn. Potomac.

Albirupean series, Ward. U. S. Geol. Surv., 15th Ann. Rept., p. 332. 1895.

Cretaceous. Maryland. Included in Potomac.

Aldrich limestone, McCally. Ala. Geol. Surv., Rept. on Valley Regions, pt. ii, pp. 41-42; 692-712, 767. 1897.

Cambrian. Alabama. Exact Syn. Beaver limestone.

Algoma sand, Logan. Can. Geol. Surv., Rept. 1843-63, pp. 887, 907-908. 1863.

Pleistocene. Canada.

- Allegheny** series, Rogers. Pa. State Geol., 4th Ann. Rept., p. 177. 1840.
Carboniferous. Pennsylvania. Exact Syn. Lower Coal Measures.
- Allegheny River** series, Stevenson. Am. Phil. Soc., Trans., vol. xv, pp. 27-30. 1873.
Carboniferous. West Virginia. Includes Mahoning sandstone.
- Allegheny River Coal Measures**, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 519, 534. 1877.
Carboniferous. Pennsylvania. Includes Mahoning sandstone. Exact Syn. Lower Productive Measures.
- Allegheny River** series, D'Invilliers. 2d Pa. Geol. Surv., Ann. Rept., 1886, pp. 79-81. 1887.
Carboniferous. Pennsylvania. Exact Syn. Lower Productive Measures.
- Allegheny River** series, White. U. S. Geol. Surv., Bull., No. 65, p. 99. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Lower Coal Measures. Includes Upper Freeport limestone and sandstone, Bolivar fire clay, Lower Freeport limestone and sandstone, Johnstown (cement) limestone, Kittanning fire clay and sandstone, Ferriferous limestone, and Eagle limestone.
- Allegheny River** series, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. 3, pt. ii, pp. 2155-2405. 1895.
Carboniferous. Pennsylvania. Exact Syn. No. xiii, Lower Productive Measures.
- Allegheny River coal** series, White. W. Va. Geol. Surv., vol. i, p. 202. 1899.
Carboniferous. West Virginia.
- Allegheny** series, White. Geol. Soc. Am., Bull., vol. xi, pp. 147-157. 1900.
Carboniferous. Pennsylvania. Includes Clarion group, Kittanning group and Freeport group.
- Allegheny** formation, O'Harra. Md. Geol. Surv., Allegany County, p. 115. 1900.
Carboniferous. Maryland.
- Allegrippus** conglomerate, White. 2d Pa. Geol. Surv., Rept. T³, pp. 99-100. 1885.
Devonian. Pennsylvania. Included in Chemung.
- Allegrippus** conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1554-1556. 1892.
Devonian. Pennsylvania. Included in Chemung. Exact syn. Chemung lower conglomerate.
- Alma** limestone, Prosser. Geol. Soc. Am., Bull., vol. vi, p. 44. 1894.
Permian. Kansas. Included in Cottonwood formation.
- Alnwick** lake beds, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894. Eocene. Colorado.
- Altamaha** grit, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Miocene. Georgia. Included in Miocene (Chesapeake epoch). Part. syn. Grand Gulf group.
- Altamaha** grit, Dall and Harris. U. S. Geol. Surv., Bull., No. 84, p. 81. 1892.
Tertiary. Georgia.
- Altamaha** grit, Dall and Stanley-Brown. Geol. Soc. Am., Bull., vol. v, p. 164. 1894.
Tertiary. Florida.
- Altamont** moraine, Todd. U. S. Geol. Surv., Bull., No. 144, p. 13. 1896.
Pleistocene. Dakotas. Exact Syn. First or Outer Moraine.
- Altamont** limestone, Adams. Kan. Univ. Geol. Surv., vol. i, p. 22, 1896.
Carboniferous. Kansas.
- Altamont** moraine, Beyer. Iowa Geol. Surv., vol. vii, p. 239, 1897.
Pleistocene. Iowa.
- Altamont** limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 6, 92, 94, 100. 1898.
Carboniferous. Kansas. Included in Manhattan formation.
- Altamont** moraine, Todd. U. S. Geol. Surv., Bull., No. 158, pp. 18-41. 1899.
Pleistocene. South Dakota. Exact Syn. First or Outer Moraine.

- Altamont moraine, Wilder. Iowa Geol. Surv., vol. x, p. 132. 1900.
Pleistocene. Iowa.
- Alton** group, Ashburner. 2d Pa. Geol. Surv., Rept. R², pp. 367-373. 1885.
Carboniferous. Pennsylvania.
- Alton coal group, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1876. 1895.
Carboniferous. Pennsylvania. Included in No. xii, Pottsville conglomerate.
- Altoona** limestone, Haworth and Piatt. Kan. Univ. Quart., vol. ii, p. 117. 1894.
Carboniferous. Kansas. Exact Syn. Erie limestone.
- Alum Bluff** series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 97. 1891.
Tertiary. Georgia.
- Alum Bluff series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., pp. 57, 97. 1891.
Tertiary. Georgia. Included in Miocene.
- Alum Bluff beds, Dall and Harris. U. S. Geol. Surv., Bull., No. 84, p. 122. 1892.
Tertiary. Florida.
- Alum Bluff beds, Dall and Stanley-Brown. Geol. Soc. Am., Bull., vol. v, pp. 147, 165. 1894.
Tertiary. Florida. Included in Miocene.
- Amboy** clays, Hollick. Geol. Soc. Am., Bull., vol. vii, p. 14. 1895.
Cretaceous. New Jersey. Part. Syn. Albirupear.
- Amboy clay, Newberry. U. S. Geol. Surv., Mon., vol. xxvi, p. 21. 1895.
Cretaceous. New Jersey.
- Amboy clay, Hollick. Am. Assoc. Adv. Sci., Proc., vol. xlvii, p. 293. 1898.
Cretaceous. New Jersey. New England.
- Americus** limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 80-81. 1896.
Carboniferous. Kansas.
- Ames** limestone, Andrews. Ohio Geol. Surv., vol. i, pt. i, pp. 235, 296. 1873.
Carboniferous. Ohio. Included in Coal Measures.
- Ames limestone, Lovejoy. Ohio Geol. Surv., vol. vi, pp. 631, 632. 1888.
Carboniferous. Ohio.
- Amherst** feldspathic mica-schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Silurian. Massachusetts.
- Amphitheater** dolomite, Cragin. Am. Geol., vol. xix, p. 358. 1897.
Permian. Kansas. Oklahoma. Included in Dog Creek formation of Cimarron series.
- Amyzon** beds, Clark. U. S. Geol. Surv., Bull., No. 83, p. 141. 1891.
Tertiary. Interior region.
- Amyzon group, Dall and Harris. U. S. Geol. Surv., Bull., No. 84, p. 281. 1892.
Tertiary. Oregon.
- Amyzon shales, Scott. Geol. Soc. Am., Bull., vol. ix, p. 404. 1898.
Tertiary. Nevada. Included in Oligocene.
- Amyzon formation, Smith. Jour. of Geol., vol. viii, pp. 454-455. 1900.
Tertiary. Western North America. Included in Eocene.
- Anacacho** formation, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 240. 1898.
Cretaceous. Texas. Included in Montana division of Gulf series.
- Anacacho formation, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas. Included in Gulf series.
- Anamosa** beds, Norton. Iowa Geol. Surv., vol. iv, pp. 130-135. 1895.
Silurian. Iowa. Included in Upper Silurian. Exact Syns. Mount Vernon beds.

- Anamosa stage, Calvin. Iowa Geol. Surv., vol. v, pp. 56-60. 1896.
 Silurian. Iowa. Included in Niagara series.
- Anamōsa limestone, Calvin. Iowa Geol. Surv., vol. vii, pp. 55-57. 1897.
 Silurian. Iowa. Included in Niagara.
- Anamosa stone, Norton. Iowa Geol. Surv., vol. ix, p. 424. 1899.
 Silurian. Iowa. Included in Gower stage.
- Anderson** sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
 Carboniferous. Tennessee.
- Anderson sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 40. 1897.
 Carboniferous. Tennessee.
- Anderson River** group, Selwyn. Can. Geol. Surv., Rept. 1871-72, pp. 62-63. 1872.
 British Columbia. Exact Syn. Boston Bar group.
- Animas River** beds, Cross. U. S. Geol. Surv., Mon., vol. xxvii, p. 217. 1896.
 Cretaceous. Colorado. Included in Post Laramie. Exact Syn. Denver.
- Animikie**, Irving. U. S. Geol. Surv., 3d Ann. Rept., pp. 165, 166. 1883.
 Archean. Michigan. Included in Huronian.
- Animikie group, Irving. Science, vol. i, pp. 140, 360. 1883.
 Huronian.
- Animikie formation, McKellar. Can. Roy. Soc., Trans., vol. v, sec. iv, pp. 63-73. 1888.
 Archean. Canada.
- Animikie, Winchell. Am. Geol., vol. i, pp. 14-24. 1888.
 Archean. Minnesota.
- Animikie series, Winchell. Minn. Geol. and Nat. Hist. Surv., 16th Ann. Rept., pp. 352-360. 1888.
 Huronian. Minnesota.
- Animikie, Lawson. Geol. Soc. Am., Bull., vol. i, p. 164. 1889.
 Algonkian? Canada.
- Animikie, Van Hise. U. S. Geol. Surv., 10th Ann. Rept., p. 402. 1890.
 Algonkian. Wisconsin, Minnesota. Exact syn. Penokie.
- Animikie series, Van Hise. Int. Cong. of Geol., 5th Session, pl. xiv. 1893.
 Algonkian. Lake Superior Region. Included in Huronian.
- Animikie series, Spurr. Minn. Geol. and Nat. Hist. Surv., Bull., No. 10, p. 3. 1894.
 Minnesota.
- Animikie, McInnes. Can. Geol. Surv., new ser., vol. x, pp. 23H-24H. 1898.
 Ontario.
- Animikie, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.
 Algonkian. Included in Upper Huronian. Part. Syns. Marquette, Kaministiquia, Penokee, Gogebic, Chippewa, and Baraboo.
- Animikie, Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 180, 323, 417, 456, 484, 493. 1899.
 Cambrian. Minnesota.
- Animikie, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 296, 374. 1899.
 Cambrian. Minnesota. Included in Taconic.
- Animikie, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. v, p. 46. 1900.
 Cambrian. Minnesota.
- Anoma** chalk, Hill. Geol. Soc. Am., Bull., vol. v, p. 308. 1894.
 Cretaceous. Indian Territory.
- Anorthosite** series, Adams. Jour. of Geol., vol. i, pp. 332-335. 1898.
 Algonkian. Canada.

- Antelope moraine**, Todd. U. S. Geol. Surv., Bull., No. 144, pp. 11, 45. 1896.
Pleistocene. North and South Dakota. Exact Syn. Third moraine.
- Antelope Creek bed**, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 385-386. 1893.
Carboniferous. Texas. Included in Strawn division.
- Anthracite formation**, Zachariah. Am. Jour. Sci., 1st ser., vol. iv, pp. 1-8. 1821.
Carboniferous. Pennsylvania. Includes Lehigh Coal.
- Anthracite Coal Measures**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 71-79. 1838.
Carboniferous. Pennsylvania. Exact Syn. No. xiii.
- Anticosti group**, Logan. Can. Geol. Surv., Rept., 1843-1863, pp. 298-344. 1863.
Silurian. Canada. Included in Middle Silurian. Includes Oneida conglomerate, Medina sandstone, Clinton group, and Niagara group.
- Anticosti group**, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. iv, p. 268. 1881.
Silurian.
- Anticosti group**, Foerste. Denison Univ. Sci. Lab., Bull., vol. iii, p. 9. 1888.
Canada.
- Antietam sandstone**, Williams and Clark. Maryland: Its Resources, Industries, and Institutions, p. 68. 1893.
Cambrian. Maryland.
- Antietam sandstone**, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, pp. 335-337. 1894.
Cambrian. Virginia, Maryland.
- Antietam sandstone**, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.
Cambrian. Virginia, Maryland, and West Virginia.
- Antietam formation**, Clark. Md. Geol. Surv., vol. i, pp. 157, 178. 1897.
Cambrian. Maryland.
- Antiguan marls**, Vaughan. Science, new ser., vol. xii, pp. 873-875. 1900.
Tertiary. Georgia. Part. Syn. Chattahoochee limestone.
- Antoine dolomite**, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
Algonkian. Michigan. Included in Lower Menominee.
- Anvil Rock sandstone**, Owen. Ky. Geol. Surv., vol. i, pp. 29-78. 1856.
Carboniferous. Kentucky. Included in Lower Coal Measures.
- Anvil Rock sandstone**, Lesquereux. Geol. Recon. Indiana, Rept., 1859-60, p. 308. 1862.
Carboniferous. Indiana.
- Anvil Rock sandstone**, Lesquereux. Ill. Geol. Surv., vol. i, pp. 213, 217, 232. 1866.
Carboniferous. Illinois. Included in Coal Measures.
- Anvil Rock sandstone**, Cox. Indiana Geol. Surv., 1st Ann. Rept. for 1869, p. 18. 1869.
Carboniferous. Indiana. Exact Syn. Mahoning sandstone.
- Anvil Rock**, Collett. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept. for 1883. p. 9, 49. 1884.
Carboniferous. Indiana.
- Apishapa formation**, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 567. 1896.
Cretaceous. Colorado. Included in Niobrara group.
- Apishapa formation**, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
Cretaceous. Colorado. Included in Niobrara.
- Apishapa formation**, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Cretaceous. Colorado. Included in Niobrara formation.
- Apison shale**, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios 2, 4, 6, 20. 1894-95.
Cambrian, Georgia, Tennessee.

- Apison shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 16. 1895.
Cambrian. Tennessee, North Carolina.
- Appanoose** beds, Bain. Iowa Geol. Surv., vol. v, pp. 378-394. 1896.
Carboniferous. Iowa. Included in Des Moines stage.
- Appanoose, Bain and Leonard. Geol. Soc. Am., Bull., vol. x, p. 11. 1899.
Carboniferous. Iowa. Included in Upper Carboniferous.
- Appleton** stage, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.
Carboniferous. Arkansas. Includes Crossplains sandstone, Russellville shale, Washburne sandstones.
- Appomattox** formation, McGee. Am. Jour. Sci., 3d ser., vol. xxxv, pp. 328-330. 1888.
Tertiary. Virginia.
- Appomattox formation, McGee. Am. Jour. Sci., 3d ser., vol. xl, pp. 15-41. 1890.
Tertiary. Atlantic Coastal Plain.
- Appomattox, Darton. Geol. Soc. Am., Bull., vol. ii, p. 432. 1891.
Tertiary. Virginia, Maryland.
- Aquia Creek** series, Ward. U. S. Geol. Surv., 15th Ann. Rept., p. 326. 1895.
Cretaceous. Maryland, Virginia. Included in Potomac.
- Aquia Creek, Clark. U. S. Geol. Surv., Bull., No. 141, pp. 54, 57. 1896.
Tertiary. Virginia. Included in Eocene.
- Aquia Creek stage, Clark. Am. Jour. Sci., 4th ser., vol. i, pp. 369, 370. 1896.
Tertiary. Virginia. Included in Eocene (Pamunkey formation). Part. Syn.
Middle or Upper Lignitic (p. 374).
- Aquidneck** shales, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 348-364. 1899.
Carboniferous. Rhode Island.
- Arago** beds, Diller. U. S. Geol. Surv., 17th Ann. Rept., pt. 1, pp. 458-462. 1896.
Oregon. Included in Eocene.
- Arago beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 343. 1898.
Oregon. Included in Eocene. Claibornian stage.
- Arago formation, Diller. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 319-320. 1899.
Oregon. Included in Eocene. Includes Coaledo and Pulaski formations.
- Arago formation, Smith. Jour. of Geol., vol. viii, pp. 459-460. 1900.
Tertiary. Oregon. Included in Eocene. Includes Pulaski and Coaledo formations.
- Arapahoe** beds, Eldridge. Colo. Sci. Soc., Proc., vol. iii, p. 99. 1888.
Tertiary. Colorado. Exact Syn. Willow-Creek beds.
- Arapahoe, Eldridge. Colo. Sci. Soc., Proc., vol. iii, p. 97, footnote. 1888.
Tertiary.
- Arapahoe, White. U. S. Geol. Surv., Bull., No. 82, p. 150. 1891.
Cretaceous. Colorado.
- Arapahoe, Clark. U. S. Geol. Surv., Bull., No. 83, p. 135. 1891.
Cretaceous. Colorado.
- Arapahoe formation, Cross. Am. Jour. Sci., 3d ser., vol. xlv, p. 20. 1892.
Tertiary. Colorado.
- Arapahoe formation, Cannon. Colo. Sci. Soc., Proc., vol. iv, p. 253. 1893.
Cretaceous. Colorado.
- Arapahoe, Emmons, Cross, and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, pp. 31, 151, 206. 1896.
Tertiary? Colorado.
- Arapahoe, Cross. U. S. Geol. Surv., Mon., vol. xxvii, p. 206. 1896.
Tertiary? Colorado.

Arapahoe, Davis. Am. Acad. Art. and Sci., Proc., vol. xxxv, p. 356. 1900.

Tertiary. Colorado.

Arcadia clays, Lerch. Prelim. Rept. upon the hills of La. south of the V., S. and P. R. R. Geol. and Agric. La. Exp. Sta., pt. ii, p. 85. 1893.

Tertiary. Included in Eocene. Exact Syn. Gray clays.

Arcadia clays, Vaughan. U. S. Geol. Surv., Bull., No. 142, p. 18. 1896.

Tertiary. Louisiana. Included in Eocene. Lower Claiborne.

Archer, Scott. Geol. Soc. Am., Bull., vol. v, p. 595. 1894.

Tertiary. Florida. Included in Upper Miocene. Loup Fork.

Archimedes limestone, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, pp. 151, 170, 181. 1855.

Carboniferous. Missouri.

Archimedes limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 95, 174, 194. 1855.

Carboniferous. Missouri. Included in Mountain or Lower Carboniferous limestone.

Archimedes limestone, Upper, Swallow. Am. Assoc. Adv. Sci., Proc., vol. ii, p. 5. 1857.

Carboniferous. Missouri.

Archimedes limestone, Owen. First Report of a Reconnaissance of the Northern Counties of Arkansas, 1857-58, p. 34. 1858.

Carboniferous. Arkansas.

Archimedes, Owen. Geol. Recon. State of Indiana, Rept. 1837, pp. 20, 21. 1859.

Carboniferous. Indiana.

Archimedes limestone, White. Boston Soc. Nat. Hist., Proc., vol. vii, 1859-1861, p. 321. 1860.

Iowa.

Archimedes limestone, Shumard. Mo. Geol. Surv., Rept. 1855-1871, pp. 279, 292, 294, 321. 1873.

Carboniferous. Missouri. Includes Upper Archimedes, Kaskaskia limestone of Hall, 3d Archimedes.

Archimedes, 3d, Shumard. Mo. Geol. Surv., Rept. 1855-1871, p. 305. 1873.

Carboniferous. Missouri. Exact Syn. Warsaw.

Archimedes limestone, Meek. Mo. Geol. Surv., Rept. 1855-1871, p. 172. 1873.

Carboniferous. Missouri. Included in Lower Carboniferous.

Archimedes limestone, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 95. 1874.

Lower Carboniferous. Missouri. Included in Keokuk limestone.

Archimedes limestone, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 55-74, 150. 1888.

Carboniferous. Arkansas. Included in Lower Carboniferous.

Archimedes limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 92-94. 1890.

Carboniferous. Arkansas. Included in Lower Carboniferous.

Archimedes, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, p. 325. 1898.

Carboniferous. Missouri. Exact Syn. Keokuk limestone.

Ardmore limestone, Gordon. Mo. Geol. Surv., vol. ix, sheet rept. No. 2, p. 20. 1896.

Carboniferous. Missouri. Included in Lower Coal Measures.

Arenaceous group, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 87. 1861.

Cretaceous. Texas. Included in Upper Cretaceous.

Arietna bed, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 719-720. 1891.

Cretaceous. Texas. Included in Washita division.

Arietna clay, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 347-348. 1892.

Cretaceous. Texas. Included in Washita division of Lower Cretaceous.

- Arickaree** shales, Cragin. Colo. College Stud., vol. vi, p. 52. 1896.
Cretaceous. Kansas. Included in Fox Hills.
- Arickaree** beds, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25-27. 1898.
Upper Cretaceous. Kansas. Exact syn. Fort Pierre shale.
- Arikaree** formation, Darton. U. S. Geol. Surv., 19th Ann. Rept., pt. iv, pp. 735, 743-747. 1899.
Nebraska. Included in Miocene.
- Arisaig** series, Dawson. Can. Nat., vol. v, pp. 135-137. 1860.
Silurian. Canada. Included in Middle Silurian.
- Arizonian** slates, Blake. Rept. of Governor of Arizona to Secretary of Interior, 1899, p. 139. 1900.
Arizona.
- Arkadelphia** shales, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 53-56. 1888.
Tertiary. Arkansas. Included in Camden series.
- Arkansas** sandstone, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., p. 129. 1878.
Carboniferous. Colorado. Included in Upper Carboniferous.
- Arkona** beach, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 138-140. 1900.
Pleistocene. Michigan.
- Arlington** beds, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
Carboniferous. California.
- Arlington, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 15. 1895.
Devonian. California.
- Aroostook** limestone, Gregory. U. S. Geol. Surv., Bull., No. 165, p. 141. 1900.
Maine.
- Aroostook limestone, Williams. U. S. Geol. Surv., Bull., No. 165, p. 44. 1900.
Silurian. Maine.
- Artemisia** gravel, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 887, 908-910. 1863.
Pleistocene. Canada.
- Artemisia gravel, Spencer. Geol. Soc. Am., Bull., vol. i, p. 86. 1889.
Pleistocene. Great Lakes Region.
- Arundel** formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 190. 1897.
Jurassic. Maryland.
- Arundel formation, Clark and Bibbins. Jour. of Geol., vol. v, pp. 485-489. 1897.
Jurassic. Maryland. Included in Potomac group. Upper Jurassic.
- Arvonian**, Whitney and Wadsworth. Mus. Comp. Zool., Bull., vol. vii, 1880-1884, p. 561. 1884.
Archean.
- Arvonian, Pumpelly. Geol. Soc. Am., Bull., vol. iv, p. 383. 1893.
Archean. Canada.
- Ashland** shale and limestone, Williams. U. S. Geol. Surv., Bull., No. 165, pp. 49-54. 1900.
Silurian. Maine.
- Ashley** beds, Tuomey. Geology of South Carolina. 1848.
Tertiary. South Carolina. Included in Eocene.
- Ashley River beds, Pratt. Ashley River Phosphates. 1868.
Tertiary. South Carolina. Included in Eocene.
- Ashley Phosphate beds, Leidy. Phil. Acad. Nat. Sci., Jour., vol. viii, p. 209. 187-(?).
South Carolina.
- Ashley River beds, Holmes. Phosphate Rock of South Carolina. 1848.
Tertiary. South Carolina. Included in Eocene.
- Ashley River marl, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 340. 1898.
Tertiary. South Carolina.

Ashley Hill limestone, Dale. U. S. Geol. Surv., 13th Ann. Rept., pt. ii, p. 312. 1893.

Cambrian. New York.

Ashton schists, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 107. 1899.

Algonkian. Rhode Island. Included in Blackstone series.

Aspalaga chalk, Dall and Stanley-Brown. Geol. Soc. Am., Bull., vol. v, p. 154. 1894.

Tertiary. Florida. Included in Miocene.

Asphalto Lake bed, Cooper. Cal. Acad. Sci., Proc. for 1893-94, 2d ser., vol. iv, p. 168. 1895.

Tertiary. California. Included in Pliocene.

Aspidella slate, Murray. Geol. of Newfoundland, pp. 280-288. 1881.

Algonkian. Newfoundland.

Astoria, Dall and Harris. U. S. Geol. Surv., Bull., No. 84, pp. 223-225, 254. 1892.

Tertiary. Oregon. Alaska.

Atane beds, White and Schuchert. Geol. Soc. Am., Bull., vol. ix, p. 345. 1898.

Cretaceous. Greenland. Included in Upper Cretaceous.

Atane beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 346. 1898.

Tertiary. Greenland. Included in Eocene.

Atchison shale, Keyes. Am. Geol., vol. xxiii, p. 309. 1899.

Carboniferous. Mississippi Valley. Included in Missourian series.

Atchison shales, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 94. 1900.

Carboniferous. Mississippi Valley. Included in Coal Measures.

Athabasca sandstone, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, p. 51D. 1893.

Cambrian. Canada.

Athabasca sandstone, Tyrrell. Can. Geol. Surv., new ser., vol. ix, Rept. F, p. 171. 1898.

Cambrian. Hudson Bay region.

Athens marble, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890.

Silurian. Arkansas. Included in Niagara.

Athens shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 4, 20. 1894, 1895.

Silurian. Tennessee.

Athens shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio Nos. 16, 25, 27. 1895, 1896.

Silurian. Tennessee, North Carolina.

Athens shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.

Silurian. Virginia, Tennessee.

Atic Oban series, Smith. Geol. Soc. Am., Bull., vol. iv, p. 334. 1893.

Archean. Ontario, Canada.

Atlantic group, Hitchcock. Geol. of N. Hamp., pt. i, p. 522. 1874.

Archean. New Hampshire.

Atlantic series, Hitchcock. Geol. of N. Hamp., pt. ii, p. 54. 1877.

Archean. New Hampshire.

Atlantic gneiss, Hitchcock. Geol. of N. Hamp., pt. ii, pp. 276-277. 1877.

Archean. New Hampshire.

Atlantosaurus, Marsh. U. S. Geol. Surv., Mon., vol. xxvii, p. 476. 1896.

Jurassic. Colorado.

Atlantosaurus, Marsh. Am. Jour. Sci., 4th ser., vol. ii, pp. 434, 435. 1896.

Jurassic. Wyoming.

Atoka formation, Taff and Adams. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 273. 1900.

Carboniferous. Indian Territory.

- Attleboro** sandstone, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 151. 1899.
Carboniferous. Rhode Island.
- Aturia** formation, Smith. Jour. of Geol., vol. viii, pp. 463-464. 1900.
Tertiary. Oregon. Included in Eocene.
- Aubrey**, Gilbert. U. S. Geog. and Geol. Surv. West of 100th M., vol. iii, p. 177. 1875. Carboniferous. Utah.
- Aubrey, Upper, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 41, 54, 57, 60, 149. 1876.
Carboniferous. Utah.
- Aubrey, Lower, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 41, 55, 57, 60, 149. 1876.
Carboniferous. Utah.
- Aubrey, Dutton. U. S. Geol. Surv., 2d Ann. Rept., p. 114. 1882.
Carboniferous. Grand Canyon of Colorado. Included in Carboniferous. Exact Syn. Coal Measures of Pennsylvania and England.
- Aubrey group, Dutton. U. S. Geol. Surv., 6th Ann. Rept., p. 132. 1885.
Carboniferous. New Mexico.
- Aubrey sandstone, Lower, Walcott. Geol. Soc. Am., Bull., vol. i, p. 50. 1889.
Carboniferous. Arizona.
- Aubrey limestone, Upper, Walcott. Geol. Soc. Am., Bull., vol. i, p. 50. 1889.
Carboniferous. Arizona.
- Auburn** shale, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 30. 1898.
Carboniferous. Kansas.
- Augusta** limestone, Keyes. Iowa Geol. Surv., vol. i, pp. 59-71. 1893.
Carboniferous. Iowa. Included in Mississippian series. Includes Warsaw shales and limestone, Keokuk, Upper and Lower Burlington limestones. Exact Syn. Burlington and Keokuk. Osage. Part. syn. Enderlital limestone.
- Augusta stage, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 76. 1894.
Carboniferous. Missouri. Included in Lower Carboniferous. Includes Warsaw, Geode bed, Keokuk limestone, Upper Burlington and Lower Burlington limestone.
- Augusta limestone, Keyes. Mo. Geol. Surv., vol. iv, pp. 58-76. 1894.
Carboniferous. Missouri. Included in Mississippian series. Exact Syn. Osage.
- Augusta stage, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Carboniferous. Missouri. Included in Lower Carboniferous. Includes Warsaw (in part), "Geode bed," Keokuk limestone, Upper and Lower Burlington limestone.
- Augusta, Bain. Iowa Geol. Surv., vol. iv, pp. 275-277. 1895.
Carboniferous. Iowa. Included in Mississippian series.
- Augusta, Bain. Am. Geol., vol. xv, p. 321. 1895.
Carboniferous. Iowa. Included in Mississippian series.
- Augusta limestone, Keyes. Iowa Geol. Surv., vol. iii, pp. 340-345, 439-447. 1895.
Carboniferous. Iowa. Included in Mississippian series. Includes Upper and Lower Burlington limestone, Keokuk limestone, Geode bed, Warsaw beds.
- Augusta, Bain. Iowa Geol. Surv., vol. v, pp. 140-143. 1896.
Carboniferous. Iowa. Included in Mississippian series.
- Augusta, Keyes. Am. Geol., vol. xxi, pp. 229-235. 1898.
Carboniferous. Mississippi Valley. Part. syn. Osage.
- Augusta limestone, Shepard. Mo. Geol. Surv., vol. xii, p. 100. 1898.
Carboniferous. Missouri. Included in Augusta stage. Includes lower and upper Burlington limestone, Keokuk limestone, Geode bed, and Warsaw shales. Part. Syn. Osage.
- Augusta stage, Shepard. Mo. Geol. Surv., vol. xii, p. 49, 100. 1898.
Carboniferous. Missouri. Includes Upper and Lower Burlington limestone.

Augusta limestone, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 31, 161. 1898.

Carboniferous. Missouri. Included in Augusta stage.

Auriferous slate series, Diller. U. S. Geol. Surv., 8th Ann. Rept., pt. i, p. 404. 1889.

California.

Auriferous slate series, Lindgren and Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 3. 1894.

Carboniferous-Cretaceous. California. Includes Calaveras and Mariposa formations.

Auriferous slate series, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 5. 1894.

Carboniferous-Cretaceous. California. Includes Calaveras and Mariposa beds.

Auriferous slate series, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 445. 1894.

California. Includes Grizzly, Calaveras, Robinson, Little Grizzly Creek beds, Juratrias, Cedar, Mineral King, and Mariposa formations.

Auriferous River gravels, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 465. 1894.

Included in Neocene. California.

Auriferous gravels, Lindgren and Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 3, 17. 1894, 1895.

Tertiary. California. Included in Neocene.

Auriferous gravel, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 5, 29, 31. 1894-1896.

Included in Neocene. California.

Auriferous gravels, Turner. Am. Geol., vol. xv, p. 371. 1895.

Tertiary. California. Included in Miocene?

Auriferous gravel, Lindgren. Jour. of Geol., vol. iv, pp. 881-890. 1896.

Tertiary. California. Included in Miocene?

Auriferous slate series, Turner. U. S. Geol. Surv., 17th Ann. Rept., pt. i, pp. 621, 659, 684. 1896.

Juratrias. California.

Auroral series, Rogers. Geol. of Pa., vol. i, pp. 105, 123-124, 208-245, 251-257 et seq., 261; vol. ii, p. 752. 1858.

Silurian. Pennsylvania. Includes Calciferous, Chazy, and Black River.

Auroral, Prime. Am. Phil. Soc., Proc., vol. xvi, p. 249. 1877.

Silurian. Pennsylvania. Exact Syn. Magnesian or No. II.

Austin limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, pp. 583, 585. 1857. Cretaceous. Texas.

Austin limestone, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 89. 1861.

Cretaceous. Texas. Included in Upper Cretaceous.

Austin limestone, White. Phil. Acad. Nat. Sci., Proc., 1887, p. 40. 1887.

Cretaceous. Texas. Included in Gulf series. Exact Syn. Rotten limestone of Mississippi and upper part of Colorado.

Austin chalk, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. xlvii. 1890.

Cretaceous. Texas. Included in Black Prairie series.

Austin-Dallas chalk, Hill. Texas Geol. Surv., 1st Ann. Rept., p. 112. 1890.

Cretaceous. Texas. Included in Black Prairie series.

Austin marble, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 127-128. 1890.

Cretaceous. Texas. Included in Washita division of Comanche series.

Austin formation, White. U. S. Geol. Surv., Bull., No. 82, p. 123. 1891.

Cretaceous. Texas.

Austin marble, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 343-344. 1892.

Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.

- Austin limestone, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 350-354. 1892.
Cretaceous. Texas. Included in Upper Cretaceous.
- Austin-Dallas chalk, Hill. Artesian Invest., Final Rept., 52d Cong., 1st sess., Ex. Doc. 41, pt. iii, p. 71. 1892.
Cretaceous. Texas.
- Austin limestone, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 305-308. 1893.
Cretaceous. Texas. Included in Upper Cretaceous.
- Austin chalk, Hill. Geol. Soc. Am., Bull., vol. v, pp. 297-305. 1894.
Cretaceous. Indian Territory and Texas. Included in Colorado division.
- Austin chalk, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 239. 1898.
Cretaceous. Texas. Included in Colorado division of Gulf series.
- Austin chalk, Vaughan. U. S. Geol. Surv., Bull., No. 164, p. 19. 1900.
Cretaceous. Texas.
- Austin chalk, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas. Included in Gulf series.
- Autocene**, Perry. Boston Soc. Nat. Hist., Proc., vol. xv, 1872-73, p. 55. 1872.
Tertiary. New England.
- Aux Vases** sandstone, Keyes. Geol. Soc. Am., Bull., vol. iii, p. 296. 1892.
Carboniferous. Missouri. Included in Kaskaskia limestone. Exact syn. Ferruginous sandstone.
- Aux Vases sandstone, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 72, 76. 1894.
Carboniferous. Missouri. Included in Kaskaskia stage. Exact syn. Ferruginous sandstone.
- Aux Vases limestone, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Carboniferous. Missouri. Included in Kaskaskia stage.
- Avalon** terrane, Walcott. Geol. Soc. Am., Bull., vol. x, p. 218. 1899.
Algonkian. Newfoundland. Includes Signal Hill, Mombable, Tarhay, and Conception.
- Avondale** limestone, Frazer. 2d Pa. Geol. Surv., Rept. C⁴, pp. 307, 321. 1883.
Silurian. Pennsylvania. Included in Siluro-Cambrian.
- Baden** sandstone, Wheeler. St. Louis Acad. Sci., Trans., vol. vii, p. 125. 1895.
Carboniferous. Missouri. Exact Syn. Ferruginous sandstone of early writers.
- Bad Land** group, Holmes. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., pp. 245, 248, 251. 1877.
Cretaceous. Colorado. Exact Syn. Puerco marl.
- Badito** formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Carboniferous? Colorado.
- Baird** shale, Smith. Jour. of Geol., vol. ii, pp. 594-599. 1894.
Carboniferous. California. Included in McCloud formation.
- Bakerstown** sandstone, White. 2d Pa. Geol. Surv., Rept. Q, p. 307. 1878.
Carboniferous. Pennsylvania.
- Ballard**, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, p. 42. 1899.
Cretaceous. Jamaica. Included in Blue Mountain series.
- Baltimorean**, Uhler. Am. Phil. Soc., Proc., vol. xxv, p. 48. 1888.
Jurassic? Maryland.
- Baltimorean, Uhler. Md. Acad. Sci., Trans., vol. i, p. 45. 1889.
Cretaceous. Maryland. Part. syn. Potomac (?).
- Banff** series, McConnell. Can. Geol. Surv., new ser., vol. ii, pp. 15D, 17D-19D. 1887.
Carboniferous. Canada. Included in Lower Carboniferous or possibly Upper Devonian. Includes Upper Banff shales, Upper Banff limestone, Lower Banff shales, Lower Banff limestone. Exact Syn. Banff limestone.
- Bangor** limestone, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.
Carboniferous. Alabama, Tennessee. Exact Syn. Mountain limestone.

Bangor limestone, Hayes. Ala. Geol. Surv., Bull., no. iv, p. 48. 1892.

Carboniferous. Alabama. Included in Mississippian series.

Bangor limestone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 8, 19, 21, 22, 35. 1894-1896.

Carboniferous. Georgia, Tennessee, Alabama.

Bangor, McCalley. Ala. Geol. Surv., Rept. on Valley Regions of Ala., pt. i, pp. 27, 43. 1896.

Carboniferous. Alabama. Included in Lower Carboniferous.

Bangor limestone, McCalley. Ala. Geol. Surv., Rept. on Valley Regions, pt. ii, pp. 53-54, 183-185, 246-249, 811-812. 1897.

Carboniferous. Alabama. Included in Upper Sub-Carboniferous.

Baptanodon, Marsh. Am. Jour. Sci., 4th ser., vol. ii, pp. 433-434. 1896.

Jurassic. Wyoming.

Baraboo quartzite, Van Hise. Int. Cong. of Geol., 5th sess., pl. xiv. 1893.

Algonkian. Lake Superior region. Included in Huronian.

Baraboo quartzite, Crosby. Geol. Soc. Am., Bull., vol. x, p. 162. 1899.

Cambrian? Wisconsin.

Baraboo quartzite, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.

Algonkian. Wisconsin. Included in Upper Huronian.

Barachois slates, Fletcher. Can. Geol. Surv., Descriptive note on the Sydney Coal field, p. 5. 1900.

Cambrian. Nova Scotia.

Barbican, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, p. 42. 1899.

Pleistocene. Jamaica. Included in Coastal series.

Bar Harbor series, Shaler. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 1047. 1889. Maine.

Barker formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 55, 56. 1899.

Cambrian. Montana. Part. syn. Flathead and Gallatin formations.

Barnegat limestone, Mather. Geol. Surv. of N. Y., 2d Ann. Rept., pp. 168-169. 1838.

New York.

Barnegat limestone, Mather. Geol. of N. Y., pt. i, pp. 410-412. 1843.

Silurian. New York. Included in Calciferous group.

Barnstable series, Shaler. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 539-541. 1898.

Pleistocene? Massachusetts. Included in Cape Cod series.

Barranca division, Dumble. Am. Inst. Mg. Engrs., Trans., vol. xxix, p. 139. 1900. Included in Trias. Mexico.

Barree, White. 2d Pa. Geol. Surv., Rept. T³, pp. 132-133. 1885.

Silurian. Pennsylvania. Exact. Syn. Niagara?

Barree group, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 825-827. 1892.

Silurian. Pennsylvania. Included in No. v, Clinton.

Barren group, Upper, Rogers. Geol. of Pa., vol. ii, p. 20 et seq. 1858.

Carboniferous. Pennsylvania.

Barren group, Lower, Rogers. Geol. of Pa., vol. ii, p. 17 et seq. 1858.

Carboniferous. Pennsylvania.

Barren limestone, Owen. Geol. Recon. State of Indiana, Rept. (1837), p. 22. 1859. Indiana.

Barren group, Killebrew and Safford. Resources of Tennessee, p. 40. 1874.

Carboniferous. Tennessee. Included in Lower Carboniferous.

Barren Coal Measures, Newberry. Ohio Geol. Surv., vol. ii, p. 155. 1874.

Carboniferous. Ohio. Included in Lower Coal Measures.

- Barren group, Upper, Stevenson. Am. Phil. Soc., Proc., vol. xiv, p. 372. 1875.
Carboniferous. West Virginia. Included in Coal Measures.
- Barren group, Lower, Stevenson. Am. Phil. Soc., Proc., vol. xiv, p. 391. 1875.
Carboniferous. West Virginia. Included in Lower Carboniferous.
- Barren group, Upper, White. Lyceum of Nat. Hist. of N. Y., Annals, vol. xi, pp. 46-57. 1876.
West Virginia, Pennsylvania.
- Barren Measures, Upper, Stevenson. 2d Pa. Geol. Surv., Rept. K, pp. 34-56. 1876.
Carboniferous. Pennsylvania. Includes Washington and Green Counties groups.
- Barren series, Lower, Stevenson. 2d Pa. Geol. Surv., Rept. K, pp. 75-83. 1876.
Carboniferous. Pennsylvania. Includes Morgantown sandstone, Birmingham shale.
- Barren series, Lower, White. 2d Pa. Geol. Surv., Rept. A², pp. 23-26. 1877.
Carboniferous. Pennsylvania.
- Barren series, Upper, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 25-29. 1877.
Carboniferous. Pennsylvania.
- Barren series, Lower, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 64-72. 1877.
Carboniferous. Pennsylvania. Includes Barton group.
- Barren Measures, Lower, Newberry. Ohio Geol. Surv., vol. iii, p. 723. 1878.
Carboniferous. Ohio. Included in Coal Measures.
- Barren Measures, Platt. 2d Pa. Geol. Surv., Rept. H⁴, pp. 167-174. 1878.
Carboniferous. Pennsylvania.
- Barren series, Lower, Stevenson. 2d Pa. Geol. Surv., Rept. K³, pp. 18-26. 1878.
Carboniferous. Pennsylvania.
- Barren Group, Lower, Stevenson. Ohio Geol. Surv., vol. iii, pp. 203, 221. 1878.
Carboniferous. Ohio. Included in Coal Measures.
- Barren series, Lower, White. 2d Pa. Geol. Surv., Rept. Q, pp. 23-38. 1878.
Carboniferous. Pennsylvania. Includes Pittsburg limestone, Morgantown sandstone, Elk Lick limestone, Pine Creek limestone, Buffalo sandstone, Brush Creek limestone.
- Barren Measures, Chance. 2d Pa. Geol. Surv., Rept. V, pp. 13-15. 1879.
Carboniferous. Pennsylvania.
- Barren Measures, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 311. 1880.
Carboniferous. Pennsylvania.
- Barren group, Upper, Stevenson. The Virginias, vol. ii, p. 70. 1881.
Carboniferous. West Virginia. Included in Coal Measures.
- Barren group, Lower, Stevenson. The Virginias, vol. ii, pp. 98, 122. 1881.
Carboniferous. West Virginia.
- Barren Measures, Lower, Platt. 2d Pa. Geol. Surv., Rept. H⁶, pp. xxviii-xxix. 1881.
Carboniferous. Pennsylvania.
- Barren Coal Measures, White. 2d Pa. Geol. Surv., Rept. T³, pp. 48 et seq. 1885.
Carboniferous. Pennsylvania.
- Barren Measures, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept. 1885, pp. 177-181. 1886.
Carboniferous. Pennsylvania. Includes Connellsville and Morgantown sandstones. Crinoidal limestone No. 19.
- Barren Measures, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept. 1886, pp. 74-79, 208, 265, 295-296. 1887.
Carboniferous. Pennsylvania. Exact Syn. Pittsburg series.
- Barren Measures, Upper, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept. 1886, pp. 58-63, 202-206, 262-263, 234-336. 1887.
Carboniferous. Pennsylvania. Includes Green County group and Washington County group.

- Barren Measures, Upper, Carll. 2d Pa. Geol. Surv., Rept. I⁵, p. 122. 1890.
Carboniferous. Pennsylvania. Exact Syn. Washington County group.
- Barren Measures, Lower, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 123-125. 1890.
Includes Crinoidal limestone = Ames limestone of Ohio and West Virginia. Exact Syn. Pittsburg series.
- Barren Measures, White. U. S. Geol. Surv., Bull., No. 65, p. 70. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Exact Syn. Elk River series.
- Barren Measures, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2406-2447. 1895.
Carboniferous. Pennsylvania. Exact Syn. No. xiv, Pittsburg series, Elk River series of West Virginia.
- Barren Measures, Upper, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2565-2588. 1895.
Carboniferous. Pennsylvania. Includes Green County group, Washington County group.
Exact Syns. No. xvi, Permo-Carboniferous or Dunkard Creek series.
- Barrett** shales, Jenney. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 568-587, 593. 1899.
Cretaceous. South Dakota. Included in Dakota group.
- Barrett shales, Ward. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, p. 593. 1899.
Cretaceous. South Dakota.
- Barrington** clays, Woodworth. U. S. Geol. Surv., 17th Ann. Rept. pt. i, p. 987. 1896.
Pleistocene. Rhode Island.
- Bartletts Island** series, Shaler. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 1038. 1889.
Maine.
- Barton** group, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 67-68. 1877.
Carboniferous. Pennsylvania. Included in Lower Barren series.
- Basal** clays, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, pp. xli-xliv. 1890.
Tertiary. Texas. Included in Eocene.
- Bashi** deposit, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 140, 144. 1884.
Tertiary. Alabama. Included in Eocene. Exact Syn. Eolignitic.
- Bashi series, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 43. 1887.
Tertiary. Alabama. Included in Lignitic or Lower Eocene. Exact syn. Woods Bluff series.
- Bashi, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 596. 1891.
Tertiary. Alabama. Included in Lower Eocene.
- Bashi series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 96. 1891.
Tertiary. Georgia. Exact syn. Woods Bluff series.
- Bashi division, Spencer. Geol. Surv. Ga., 1st Rept. of Prog., 1890-91. 1891.
Tertiary. Georgia. Included in Lignitic.
- Bashi series, Dall. U. S. Geol. Surv., 18th Ann. Rept. pt. ii, p. 345. 1898.
Tertiary. Alabama. Included in Eocene. Exact Syn. Woods Bluff series.
- Bastard** limestone, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 97-98. 1883.
Silurian. Pennsylvania. Included in Lower Helderberg, or No. VI.
- Bastard limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 948. 1892.
Silurian. Pennsylvania. Included in No. VI. Stormville series.
- Bates Hole** formation, Smith. Jour. of Geol., vol. viii, p. 456. 1900.
Tertiary. Wyoming. Included in Eocene.
- Batesville** sandstone, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 49-53, 149. 1888.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Batesville sandstone, Penrose. Ark. Geol. Surv., 1890, vol. i, pp. 139, 140. 1890.
Carboniferous. Arkansas. Included in Mississippian series. Osage group.

- Batesville ash-bed, Williams. Ark. Geol. Surv., 1890, vol. ii, pp. 373-375. 1890.
Arkansas.
- Batesville sandstone, Simonds and Hopkins. Ark. Geol. Surv., 1891, vol. ii, pp. 51-55. 1891.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Batesville sandstone, Williams. Ark. Geol. Surv., Ann. Rept. for 1892, pp. 355-358. 1900.
Carboniferous. Arkansas.
- Baucari** division, Dumble. Am. Inst. Mg. Engrs., Trans., vol. xxix, p. 126. 1900.
Tertiary. Mexico.
- Bay** shot sand, Eaton. Am. Jour. Sci., 1st ser., vol. xii, p. 18. 1826.
- Bayard**, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
Carboniferous. West Virginia, Maryland.
- Bayard, Clark. Md. Geol. Surv., vol. i, p. 156. 1897.
Carboniferous. Maryland. Included in Coal Measures.
- Bayard formation, Clark. Md. Geol. Surv., vol. i, p. 186. 1897.
Carboniferous. Maryland.
- Bayard, Clark. Md. Geol. Surv., vol. ii, p. 170. 1898.
Carboniferous. Maryland.
- Bayou Chicot** limestone, Harris and Veatch. La. State Exp. Station, pt. v, p. 61. 1899.
Cretaceous. Louisiana. Included in Ripley stage.
- Bays** sandstone, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 176. 1894.
Silurian. Virginia. Included in Medina.
- Bays sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 12, 26. 1894, 1896.
Silurian. Kentucky, Virginia, Tennessee.
- Bays sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
Silurian. Tennessee, North Carolina.
- Bays limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
Silurian. Tennessee. Exact Syn. Bays sandstone of Loudon folio. Part. Syns. Chickamauga limestone of Kingston folio; Trenton and Nashville group of Safford.
- Bays sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Silurian. Virginia, West Virginia.
- Bayssandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Silurian. Virginia, Tennessee.
- Beacon Hill**, Salisbury. N. J. Geol. Surv., Rept. 1893, pp. 47-57, 67-72. 1894.
Pleistocene. New Jersey. Included in Yellow gravel.
- Beacon Hill formation, Salisbury. N. J. State Geol., Ann. Rept. 1894, pp. 99-104. 1895.
Tertiary. New Jersey. Included in Miocene.
- Beacon Hill formation, Salisbury. Geol. Soc. Am., Bull., vol. vi, p. 483. 1895.
Tertiary. New Jersey. Included in Yellow gravel; Miocene?
- Beacon Hill formation, Salisbury. N. J. Geol. Surv., Rept. 1895, pp. 3-7. 1896.
Tertiary. New Jersey. Included in Miocene.
- Beacon Hill formation, Salisbury. N. J. Geol. Surv., Rept. 1896, pp. 13-15. 1897.
New Jersey.
- Beacon Hill formation, Salisbury. N. J. Geol. Surv., Rept. 1897, pp. 11-13. 1898.
New Jersey.
- Beade Mountain** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 426. 1893.
Carboniferous. Texas. Included in Albany division.

Bear River, Cope. U. S. Geol. and Geog. Surv. of Terr., 1873, p. 439. 1874.

Cretaceous or Tertiary. Utah. Exact Syn. **Green River**.

Bear River group, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull., No. 2, p. 13. 1874.

Cretaceous. Wyoming.

Bear River group, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ii, pp. 36-40. 1875.

Cretaceous. Wyoming.

Bear River group, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 144. 1876.

Tertiary. Colorado.

Bear River beds, Bowman. Can. Geol. Surv., new ser., vol. iii, pt. i, pp. 20C-22C. 1889.

British Columbia. Included in Upper Paleozoic. Includes **Bear River limestone** and **Cherty series**.

Bear River formation, Stanton. Am. Jour. Sci., 3d ser., vol. xliii, pp. 98-115. 1892. Cretaceous. Utah, Wyoming.

Bear River formation, White. Am. Jour. Sci., 3d ser., vol. xliii, pp. 91-97. 1892.

Cretaceous. Utah, Wyoming. Exact Syn. **Bear River Laramie**.

Bear River, White. U. S. Geol. Surv., Bull., No. 128. 1895.

Cretaceous. Utah, Idaho, Wyoming.

Bearwallow conglomerate, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Carboniferous. Virginia, West Virginia. Part. Syns. No. xii, **Great conglomerate of Rogers**.

Beauharnois formation, Chapman. Can. Inst., new ser., vol. viii, pp. 186-190. 1863.

Cambrian. Canada. Included in **Potsdam group**. "Lower Silurian."

Beaver division, Comstock. Texas Geol. Surv., 1st Ann. Rept., p. 295. 1890. Silurian. Texas. Included in **Leon series**.

Beaver limestone, Hayes. Geol. Soc. Am., Bull., vol. v, p. 467. 1894.

Cambrian. Tennessee and Georgia. Included in **Lower Cambrian**.

Beaver limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 16. 1895.

Cambrian. Tennessee, North Carolina.

Beaver River group, White. 2d Pa. Geol. Surv., Rept. Q, pp. 65-71. 1878.

Carboniferous. Pennsylvania. Includes **Homewood sandstone**, **Mercer limestone**, **Connoquenessing sandstone**, and **Sharon shales**.

Beaver River series, Chance. 2d Pa. Geol. Surv., Rept. V, p. 221 et seq. 1879.

Carboniferous. Pennsylvania.

Beaver River group, D'Inwilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1912. 1895.

Carboniferous. Pennsylvania. Included in No. xii, **Pottsville conglomerate**.

Beavertown marl, Foerste. Denison Univ. Sci. Lab., Bull., vol. i, p. 65. 1885. Ohio.

Beavertown marl, Foerste. Denison Univ. Sci. Lab., Bull., vol. iii, p. 4. 1888. Ohio.

Beavertown marl, Orton. Ohio Geol. Surv., vol. vii, p. 56. 1893.

Silurian. Ohio.

Becket gneiss, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.

Cambrian. Massachusetts. Part Syn. **Stockbridge limestone**.

Beckett conglomerate, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 5. 1895.

Cambrian. Massachusetts.

- Becket gneiss, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Cambrian. Massachusetts.
- Becket conglomerate gneiss, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 31-37. 1898.
Cambrian. Massachusetts. Included in Lower Cambrian.
- Becraft** limestone, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 245-246, 304. 1894.
Silurian. New York. Included in Lower Helderberg.
- Becraft limestone, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Devonian. New York. Included in Helderbergian.
- Becraft limestone, Weller. N. J. Geol. Surv., Rept. 1899, p. 39. 1900.
Devonian. New Jersey.
- Bedford** rock, Owen. Geol. Recon. Indiana, Rept. 1859-60, p. 137. 1862.
Carboniferous. Indiana.
- Bedford shale, Newberry. Ohio Geol. Surv., Rept. 1869, p. 22. 1871.
Carboniferous. Ohio. Included in Waverly group.
- Bedford shales, Reid. Ohio Geol. Surv., Rept. Prog. 1870, p. 469. 1871.
Ohio.
- Bedford shale, Read. Ohio Geol. Surv., vol. i, pt. i, pp. 485, 508, 514, 525. 1873.
Carboniferous. Ohio.
- Bedford stone, Collett. Indiana Geol. Surv., 5th Ann. Rept. for 1873, pp. 276, 280, 283. 1874.
Indiana.
- Bedford shale, Newberry. Ohio Geol. Surv., vol. ii, pp. 90-92, 188, 212. 1874.
Carboniferous. Ohio. Included in Waverly. Lower Carboniferous.
- Bedford shale, Winchell. Ohio Geol. Surv., vol. ii, pp. 241, 263. 1874.
Carboniferous. Ohio.
- Bedford shale, Lesley. 2d Pa. Geol. Surv., Rept. I, pp. 73-74. 1875.
Carboniferous. Pennsylvania and Ohio. Exact Syn. No. ix?
- Bedford shale, Orton. Rev. of Strat. Geol. of East. Ohio, p. 4. 1880.
Carboniferous. Ohio.
- Bedford shale, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas, p. 25. 1886.
Ohio. Included in Waverly series.
- Bedford shale, Orton. Ohio Geol. Surv., vol. vi, pp. 3, 33. 1888.
Carboniferous. Ohio. Included in Waverly group.
- Bedford shale, Herrick. Denison Univ. Sci., Lab. Bull., vol. iv, pp. 101, 106. 1888.
Ohio.
- Bedford shale, Cooper. Denison Univ. Sci. Lab., Bull., vol. v, p. 25. 1890.
Ohio. Included in Waverly group.
- Bedford shale, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 34-35. 1890.
Carboniferous. Ohio. Included in Waverly group.
- Bedford shale, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 27. 1893.
Carboniferous. Ohio. Included in Waverly group.
- Bedford oolitic limestone, Hopkins and Siebenthal. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rpt. (1896), p. 291. 1897.
Carboniferous. Indiana. Exact Syns. Indiana oolitic limestone, Spergen Hill limestone, White River stone.
- Bedford oolitic stone, Blatchley. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rept. (1896), p. 14. 1897.

Bedford oolitic limestone, Blatchley. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept. (1897), pp. 14, 20. 1898.

Carboniferous. Indiana.

Bedford oolitic limestone, Ashley. Indiana Dept. Geol. and Nat. Res., 23d Ann. Rept. (1898), p. 79. 1899.

Carboniferous. Indiana.

Bed Rock series, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 31. 1896.

Carboniferous. California. Includes Calaveras formation.

Bed Rock series, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 41. 1897.

Carboniferous. California. Includes Calaveras and Mariposa formations.

Bed Rock series, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 37. 1897.

Carboniferous and older. California. Includes Calaveras and Robinson formations.

Bed Rock series, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 39. 1897.

Carboniferous and Juratrias. California. Includes Calaveras and Sailor Canyon formations.

Bed Rock series, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 43. 1898.

Juratrias and older. California. Includes Calaveras and Cedar formations.

Bed Rock series, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 51. 1898.

Carboniferous. California. Includes Calaveras.

Bed Rock series, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio 66. 1900. California. Includes Mariposa, Sailor Canyon, and Calaveras formations.

Beekmantown limestone, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.

Silurian. New York. Included in Canadian.

Bee Spring sandstone, Moore. Ky. Geol. Surv., new ser., vol. ii, pp. 105-106. 1877. Carboniferous. Kentucky. Included in Coal Measures.

Belfast bed, Foerste. Cin. Soc. Nat. Hist., Jour., vol. xviii, nos. 3 and 4, pp. 161, 190. 1896.

Silurian. Ohio. Included in Lower Silurian.

Belfast bed, Foerste. Ind. Dept. Geol. and Nat. Hist., 24th Ann. Rept., pp. 67-68. 1900.

Silurian. Ohio. Included in Middle Silurian.

Belle Isle shale, Jukes. Gen. Rept. on Geol. of Newfoundland, pp. 51 et seq. 1843. Cambrian? Newfoundland.

Bellowspipe quartzite, Dale. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, pl. lxxi. 1894.

Silurian. Massachusetts.

Bellowspipe limestone, Pumpelly, Wolff, and Dale. U. S. Geol. Surv., Mon., vol. xxiii, pp. 20, 180, 184-186. 1894.

Silurian. Massachusetts.

Bell's Landing group, Aldrich. Ala. Geol. Surv., Bull., No. 1, p. 54. 1886.

Tertiary. Alabama.

Bell's Landing series, Smith and Johnson. U. S. Geol. Surv., Bull., No. 43, p. 46. 1887.

Tertiary. Alabama. Included in Lignitic; Lower Eocene.

Bell's Landing, Langdon. Geol. Soc. Am., Bull., vol. ii, p. 588. 1891.

Tertiary. Alabama. Included in Lower Eocene.

- Bell's Landing, Clark. U. S. Geol. Surv., Bull., No. 141, p. 57. 1896.
Tertiary. Alabama. Included in Eocene.
- Bellton** coal group, White. U. S. Geol. Surv., Bull., No. 65, p. 32. 1891.
Carboniferous. West Virginia, Pennsylvania. Included in Permo-Carboniferous;
Dunkard Creek series. Includes Nineveh, Dunkard, and Jollytown coals.
- Bellvale Flags**, Darton. Geol. Soc. Am., Bull., vol. v, pp. 367, 373. 1894.
Devonian. New Jersey.
- Bellvale flags, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 404. 1897.
Devonian. New York.
- Belly River** series, Dawson. Can. Geol. Surv., Rept. 1882-83-84, pp. 37C-126C. 1885.
Cretaceous. Canada.
- Belly River series, McConnell. Can. Geol. Surv., new ser., vol. i, pp. 63C-65C. 1886.
Cretaceous. Canada.
- Belly River series, Tyrrell. Can. Geol. Surv., new ser., vol. ii, 90E-129E. 1887.
Cretaceous. Canada.
- Belly River formation, White. U. S. Geol. Surv., Bull., No. 82, p. 173. 1891.
Cretaceous. Rocky Mountains.
- Beloit** formation, Sardeson. Am. Geol., vol. xix, pp. 24, 26-29. 1897.
Silurian. Mississippi Valley. Included in Lower Silurian. Includes Fucoid,
Stictopora, Stictoporella, Bellerophon, and Buff limestone beds.
- Belt**, Peale. U. S. Geol. Surv., Bull., No. 110, p. 16. 1893.
Algonkian. Montana.
- Belt beds, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Algonkian. Montana.
- Belt, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Algonkian. Montana.
- Belt beds, Weed and Pirsson. U. S. Geol. Surv., Bull., No. 139, p. 32. 1896.
Algonkian. Montana.
- Belt formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Algonkian. Montana.
- Belt terrane, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Algonkian. Montana. Includes Neihart quartzite and Belt formation.
- Belt terrane, Walcott. Geol. Soc. Am., Bull., vol. x, pp. 199, 201. 1899.
Algonkian? Pre-Cambrian. Montana.
- Belt terrane, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, pp. 279-283. 1900.
Algonkian. Montana. Includes Neihart quartzite, Chamberlain shale, Newland
limestone, Greyson shale, and Spokane shale.
- Belva** shale, Stevenson. N. Y. Acad. Sci., Trans., vol. xv., p. 51. 1896.
Carboniferous. Arkansas. Included in Sebastian stage.
- Belvidere** shales, Hill. Am. Jour. Sci., 3d ser., vol. I, pp. 208-234. 1895.
Cretaceous. Kansas, Oklahoma, New Mexico. Included in Comanche series.
- Belvidere beds, Cragin. Am. Geol., vol. xvi, p. 357. 1895.
Cretaceous. Kansas. Includes Kiowa shales, Champion shell bed, Cheyenne
sandstone.
- Bend**, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, pp. lxiii-lxv. 1890.
Carboniferous. Texas. Included in Lower Carboniferous.
- Bend formation, Cummins. Texas Geol. Surv., 2d Ann. Rept., pp. 360-367, 372. 1891.
Carboniferous. Texas. Included in Coal Measures.
- Bend formation, Smith. Jour. of Geol., vol. ii, pp. 611-612. 1894.
Juratrias. California.

- Bend, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 15. 1895.
Juratrias. California.
- Benezette** limestone, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 105. 1885.
Carboniferous. Pennsylvania. Included in Pocono.
- Benton** shale, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Cretaceous. Colorado.
- Benton, Bain. Iowa Geol. Surv., vol. iii, pp. 101-114. 1895.
Cretaceous. Iowa.
- Benton, Emmons, Cross, and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, p. 65. 1896.
Cretaceous. Colorado. Included in Colorado group.
- Benton group, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 564. 1896.
Cretaceous. Colorado. Includes Carlile shale, Greenhorn limestone, and Graneros shale.
- Benton formation, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.
Cretaceous. Colorado. Includes Graneros shale, Greenhorn limestone, and Carlile shale.
- Benton, Logan. Kan. Univ. Geol. Surv., vol. ii, pp. 215-219. 1897.
Cretaceous. Kansas. Included in Upper Cretaceous.
- Benton, Adams. Kan. Univ. Geol. Surv., vol. iv, p. 27. 1898.
Cretaceous. Kansas. Included in Upper Cretaceous. Includes Upper and Lower groups.
- Benton formation, Weed. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 482-484. 1898.
Cretaceous. Montana. Included in Upper Cretaceous.
- Benton shale, Wilder. Iowa Geol. Surv., vol. x, p. 111. 1900.
Cretaceous. Iowa.
- Berea grit**, Newberry. Ohio Geol. Surv., Rept. Prog. 1869, pp. 21, 22, 29. 1870.
Carboniferous. Ohio. Included in Waverly group.
- Berea grit, Newberry. Ohio Geol. Surv. (for 1869), p. 22. 1871.
Carboniferous. Ohio. Included in Waverly group.
- Berea grit, Read. Ohio Geol. Surv., Rept. Prog. 1870, p. 468. 1871.
Ohio.
- Berea grit, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 186, 209. 1873.
Carboniferous. Ohio. Included in Waverly.
- Berea grit, Read. Ohio Geol. Surv., vol. i, pt. i, pp. 483, 504, 512, 523. 1873.
Carboniferous. Ohio.
- Berea grit, Newberry. Ohio Geol. Surv., vol. ii, pp. 88, 90, 211. 1874.
Carboniferous. Ohio. Included in Waverly, Lower Carboniferous.
- Berea grit, Winchell. Ohio Geol. Surv., vol. ii, pp. 240, 259, 280. 1874.
Carboniferous. Ohio.
- Berea grit, Lesley. 2d Pa. Geol. Surv., Rept. I, pp. 69-72. 1875.
Carboniferous. Pennsylvania and Ohio. Exact Syn. No. X.
- Berea grit, Niles. Boston Soc. Nat. Hist., Proc., vol. xviii, 1875-76, p. 273. 1876.
Ohio. Included in Waverly group.
- Berea grit, Read. Ohio Geol. Surv., vol. iii, p. 301. 1878.
Carboniferous. Ohio. Included in Waverly.
- Berea grit, Orton. Rev. of Strat. Geol. of East. Ohio, p. 5. 1880.
Carboniferous. Ohio.
- Berea grit, Orton. Am. Assoc. Adv. Sci., Proc., vol. xxx, pp. 167-174. 1882.
Carboniferous. Ohio. Included in Waverly.
- Berea grit, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas, pp. 25, 54. 1886.
Ohio. Included in Waverly series.

- Berea grit, Cushing. Am. Assoc. Adv. Sci., Proc., vol. xxxvi, pp. 213-215. 1888.
Carboniferous. Ohio. Included in Waverly.
- Berea grit, Orton. Ohio Geol. Surv., vol. vi, pp. 3, 35. 1888.
Carboniferous. Ohio. Included in Waverly group.
- Berea series, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, p. 106. 1888.
Ohio. Includes Waverly shale, Berea shale, Berea grit, Bedford shale, Cleveland shale.
- Berea shale, Orton. Ohio Geol. Surv., vol. vi, pp. 3, 36. 1888.
Carboniferous. Ohio. Included in Waverly group. Exact Syn. Waverly black slate.
- Berea grit, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 97-104. 1890.
Carboniferous. Ohio, Pennsylvania. Included in Pocono.
- Berea grit and shale, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 35-37, 249-258. 1890.
Carboniferous. Ohio. Part Syn. Corry sandstone (Pa.).
- Berea grit, Cooper. Denison Univ. Sci. Lab., Bull., vol. v, p. 25. 1890.
Ohio. Included in Waverly group.
- Berea shale, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 30. 1893.
Carboniferous. Ohio. Included in Waverly group.
- Berea grit, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 28. 1893.
Carboniferous. Ohio. Included in Waverly group.
- Berkshire** limestone, Hitchcock. Mass. Geol. Surv. Rept., p. 297 (2d ed., p. 296); also Econ. Geol. Rept., 1838, p. 71. 1833.
Massachusetts.
- Berkshire limestone, Hitchcock. Geol. of Mass., Final Rept., pp. 567-587. 1841.
Massachusetts.
- Berkshire County series, Crosby. Rept. on Geol. Map of Mass., p. 40. 1876.
Massachusetts. Included in Pre-Cambrian. Includes Eolian limestone, Taconic slate, etc.
- Berkshire schist, Dale. U. S. Geol. Surv., 13th Ann. Rept., pt. ii, p. 303. 1893.
Silurian. New York.
- Berkshire schist, Dale. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, pls. 67, 69, 71. 1894.
Silurian. Vermont, Massachusetts.
- Berkshire schist, Pumpelly, Wolff, and Dale. U. S. Geol. Surv., Mon., vol. xxiii, pp. 15, 16, 20, 179, 182-184. 1894.
Silurian. Massachusetts.
- Berkshire schist, Dale. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 15-23. 1900.
Silurian. Vermont. Included in Ordovician.
- Bernardston** series, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 253-296. 1890.
Devonian. Massachusetts.
- Bernardston series, Emerson. Am. Jour. Sci., 3d ser., vol. xl, pp. 263-275, 362-374. 1890.
Devonian. Massachusetts, Vermont.
- Bernardston series, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Devonian. Massachusetts.
- Bertie** dolomite, Chapman. A Popular and Practical Exposition of the Minerals and Geol. of Can., p. 190. 1864.
Silurian. Canada. Includes Water lime and Tentaculite. Exact Syn. Cayuga dolomite.
- Bertram** beds, Norton. Iowa Geol. Surv., vol. iv, pp. 135-138. 1895.
Silurian. Iowa.

Bertram stage, Calvin. Iowa Geol. Surv., vol. v, p. 60. 1896.

Silurian. Iowa. Included in Niagara series.

Bethany Falls limestone, Broadhead. St. Louis Acad. Sci. Trans., vol. ii, p. 320. 1868.

Carboniferous. Indiana.

Bethany limestone, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 317. 1874.

Carboniferous. Missouri. Included in Coal Measures.

Bethany Falls limestone, Keyes. Mo. Geol. Surv., vol. iv, p. 82. 1894.

Carboniferous. Missouri. Included in Missourian. Exact Syn. Winterset limestone.

Bethany Falls limestone, Broadhead. Mo. Geol. Surv., vol. viii, p. 374. 1895.

Carboniferous. Missouri. Included in Upper Coal Measures.

Bethany, Keyes. Am. Jour. Sci., 4th ser., vol. ii, pp. 221, 225. 1896.

Carboniferous. Missouri, Iowa, Kansas. Included in Upper Coal Measures.

Exact Syns. Winterset, Erie or Triple limestone.

Bethany Falls limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, p. 157. 1896.

Carboniferous. Kansas.

Bethany limestone, Tilton and Bain. Iowa Geol. Surv., vol. vii, pp. 509-520. 1897.

Carboniferous. Iowa. Included in Missourian formation. Includes Earlham limestone; Winterset limestone.

Bethany limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 102-103. 1898.

Carboniferous. Kansas. Includes Erie, Iola, and Garnett limestone.

Bethany limestone, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 211, 215. 1898.

Carboniferous. Missouri. Included in Missourian series.

Bethany Falls limestone, Gallagher. Mo. Geol. Surv. Bien. Rept., p. 45. 1898.

Carboniferous. Missouri. Included in Middle Coal Measures.

Bethany limestone, Bain. Am. Jour. Sci., 4th ser., vol. v, pp. 433-439. 1898.

Carboniferous. Missouri. Included in Missourian series. Includes Westerville? Dekalb, Winterset, Earlham, and Fragmental.

Bethany limestone, Bain. Iowa Geol. Surv., vol. viii, pp. 272-282. 1898.

Carboniferous. Iowa. Included in Missourian series. Includes Earlham and Winterset limestones; Dekalb limestone.

Bethany limestone, Keyes. Am. Geol., vol. xxiii, p. 304. 1899.

Carboniferous. Mississippi Valley. Included in Missourian series.

Bethany limestone, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 86. 1900.

Carboniferous. Mississippi valley. Included in Coal Measures.

Bettles series, Schrader. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 475. 1900. Alaska.

Beulah shales, Darton. Geol. Soc. Am., Bull., vol. xi, p. 393. 1899.

Cretaceous. Black Hills.

Beulah clays, Jenney. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 568-587, 593. 1899.

Cretaceous. South Dakota. Included in Dakota group.

Beulah clays, Ward. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, p. 593. 1899.

Cretaceous. South Dakota.

Bevier fire clay, Wheeler. Mo. Geol. Surv., vol. ii, p. 57. 1893.

Carboniferous. Missouri. Included in Lower Coal Measures.

Bicknell sandstone, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.

Jurassic. California. Included in Callovian.

Bicknell sandstone, Hyatt. Geol. Soc. Am., Bull., vol. v, p. 413. 1894.

Jurassic. California. Included in Callovian.

Big Basin sandstone, Cragin. Colo. College Stud., vol. vi, pp. 3, 7. 1896.

Permian. Kansas. Included in Flint Hills division of Big Blue series.

- Big Basin sandstone, Cragin. Colo. College Stud., vol. vi, pp. 3, 46. 1896.
Permian. Kansas. Included in Cimarron series.
- Big Basin sandstone, Prosser. Kan. Univ. Geol. Surv., vol. ii, p. 94. 1897.
Permian? Kansas. Included in Cimarron series.
- Big Blue** series, Cragin. Colo. College Stud., vol. vi, pp. 3, 5. 1896.
Permian. Kansas. Includes Summer division above and Flint Hills below. Four formations.
- Big Blue beds, Grimsley. Geol. Soc. Am., Bull., vol. viii, p. 228. 1897.
Permian. Kansas.
- Big Clifty** sandstone, Norwood. Ky. Geol. Surv., new ser., vol. i, p. 369. 1876.
Carboniferous. Kentucky. Included in Chester group. Exact Syn. Tar Spring sandstone.
- Big Deciper** calcareous sandstone, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 77-79. 1888.
Cretaceous. Arkansas. Included in Upper Arenaceous beds.
- Big Injun** sandstone, White. Geol. Soc. Am., Bull., vol. x, p. 279. 1899.
Carboniferous. West Virginia. Included in Pocono.
- Big Valley** beds, Drake. Texas Geol. Surv., 4th Ann Rept., p. 380. 1893.
Carboniferous. Texas. Included in Strawn division.
- Bijiki** schist, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., pp. 5, 96, 1895.
Algonkian. Lake Superior region. Included in Upper Marquette series. Ishpeming formation.
- Bijiki schist, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 416-420. 1897.
Algonkian. Michigan. Included in Ishpeming formation of Upper Marquette series.
- Biloxi** formation, Smith. Am. Jour. Sci., 3d ser., vol. xlvii, p. 286. 1894.
Pleistocene. Alabama.
- Biloxi, Smith, Johnson, and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain, p. 29. 1894.
Pleistocene. Alabama.
- Bingen** sands, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 56-58. 1888.
Tertiary. Included in Camden series.
- Birch Creek** series Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 140-144. 1898.
Alaska.
- Birch Creek series, Emmons. Nat. Geog. Mag., vol. ix, p. 156. 1898.
Alaska.
- Bird Mountain** grit, Dale. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 15-23. 1900.
Silurian. Vermont. Included in Ordovician.
- Birdseye** limestone, Emmons. Geol. of New York, pt. ii, pp. 107-111, 317, 382. 1842.
Paleozoic. New York. Included in New York Transition system. Champlain group.
- Bird's-eye limestone, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, p. 230. 1842.
Silurian. Included in Lower Silurian.
- Birdseye, Emmons. Agriculture of New York, vol. i, p. 122. 1846.
Silurian. New York. Included in Champlain division of New York system.
- Birdseye limestone, Hough. Am. Jour. of Agric. and Sci., vol. v, p. 315. 1847.
Silurian. New York. Exact Syns. Isle La Motte marble, Black marble of Genesee Falls.
- Birdseye limestone, Hall. Am. Jour. Sci., 2d ser., vol. xvii, pp. 181-193. 1854.
Silurian. Michigan.

- Birdseye limestone, Hitchcock. Geol. of Vt., vol. i, pp. 279-280. 1861.
Paleozoic. Vermont. Included in Trenton period.
- Birdseye limestone, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 279, 281. 1881.
- Birdseye limestone, Linney. Ky. Geol. Surv., Geol. of Garrard Co., pp. 12-13. 1883.
Silurian. Kentucky. Included in Trenton period.
- Birdseye limestone, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery Counties. 1884.
Silurian. Kentucky. Included in Trenton period. Includes Kentucky marble.
- Birdseye limestone, Whitfield. Am. Mus. Nat. Hist., Bull., vol. i, 1881-1886, p. 295. 1886.
Vermont.
- Birdseye limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890.
Silurian. Arkansas.
- Birdseye limestone, Orton. Ky. Geol. Surv., Rept. on Petroleum, etc., p. 129. 1891.
Silurian. Kentucky.
- Birdseye formation, White. N. Y. State Mus., 51st Ann. Rept., vol. i, p. r127. 1899.
Ordovician. New York.
- Birdseye limestone, Cumings. N. Y. State Mus., Bull., vol. vii, p. 421. 1900.
New York. Included in Ordovician.
- Birmingham** shale, Stevenson. 2d Pa. Geol. Surv., Rept. K, p. 79. 1876.
Carboniferous. Pennsylvania. Included in Lower Barren Measures.
- Bishop Mountain** conglomerate, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 40, 44, 169. 1876.
Tertiary. Utah.
- Bitter Creek** series, Meek. U. S. Geol. and Geog. Surv. of Terr., 6th Ann. Rept., p. 455. 1873. Tertiary? Wyoming.
- Bitter Creek, Cope. U. S. Geol. and Geog. Surv. of Terr., 1873, p. 435. 1874.
Cretaceous. Wyoming.
- Bitter Creek series, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull., No. 2, p. 8. 1874.
Cretaceous. Western United States.
- Bitter Creek series, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ii, pp. 30-36. 1875.
Cretaceous. Western United States.
- Bitter Creek, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 40, 45, 162. 1876.
Tertiary. Utah.
- Bitter Creek, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 145. 1876.
Tertiary. Rocky Mts.
- Bitter Creek, White. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 223. 1879. Tertiary. Utah.
- Bitter Creek beds, Dutton. U. S. Geog. and Geol. Surv., Geol. of High Plateaus of Utah, p. 166. 1880.
Tertiary. Utah. Exact syns. Lower Green River epoch, Bitter Creek beds of Uinta Mts.
- Bitter Creek group, Stanton and Knowlton. Geol. Soc. Am., Bull., vol. viii, p. 146. 1897.
Cretaceous. Wyoming. Included in Laramie?
- Bituminous** slate, Whitney. Geol. Surv. of Cal., Geol., vol. i, p. 117. 1865.
Tertiary. California.

Bituminous limestone group, Broadhead. Mo. Geol. Surv. Rept., 1873-74, p. 125. 1874.

Carboniferous. Missouri. Included in Coal Measures.

Black shale, Hall. Geol. Surv. of New York, 3d Ann. Rept., pp. 301-302, 313. 1839.
Devonian. New York.

Black shale, Hall. Geol. Surv. of New York, 4th Ann. Rept., pp. 422-423. 1840.
Devonian. New York.

Black shale, Vanuxem. Geol. Survey of New York, 4th Ann. Rept., pp. 371-372. 1840.

Devonian. New York.

Black shale, Douglass. Mich. Legislature Doc., vol. i, no. xi (4th Ann. Rept. State Geologist for 1840), pp. 547, 549. 1841.

Devonian. Michigan.

Black limestone, Douglass. Mich. Legislature, Doc., vol. i, no. xi (4th Ann. Rept. State Geologist, for 1840), pp. 547, 551. 1841.

Devonian. Michigan.

Black slate, Emmons. Agric. of New York, vol. i, pp. 63-65. 1846.
New York. Included in Taconic.

Black slate, Safford. Am. Jour. Sci., 2d ser., vol. xii, p. 358. 1851.
Silurian. Tennessee.

Black lingula slate, Owen. Ky. Geol. Surv., vol. i, pp. 91-95. 1856.
Devonian. Kentucky.

Black shale, Safford. Geol. Recon. of the State of Tenn., 1st Rept., p. 158. 1856.
Carboniferous (?). Tennessee.

Black slate, Lyon. St. Louis Acad. Sci., Trans., vol. i, p. 619. 1857.
Kentucky.

Black shale, Winchell. The Grand Traverse Region, p. 48. 1866.
Michigan.

Black slate, Worthen. Ill. Geol. Surv., vol. i, pp. 119-120, 352-353. 1866.
Devonian. Illinois. Exact Syn. Genesee slate.

Black slate, Worthen. Ill. Geol. Surv., vol. iii, pp. 41, 115-116. 1868.
Devonian. Illinois.

Black shale, Safford. Geol. of Tenn., pp. 329-337. 1869.
Devonian. Tennessee. Part. Syn. Hamilton of New York.

Black shale, Killebrew and Safford. Resources of Tenn., p. 39. 1874.
Devonian. Tennessee. Included in Hamilton period.

Black slate, Collett. Indiana Geol. Surv., 6th Ann. Rept. (1874), p. 88. 1875.
Indiana.

Black shale, Little. Handbook of Ga., Com. of Agric., 1876, p. 42. 1876.
Devonian. Georgia. Part. Syn. Genesee.

Black shale, Rominger. Mich. Geol. Surv., vol. iii, pt. i, p. 64. 1876.
Devonian. Michigan. Exact syns. Black shales of Ohio and Genesee shales of New York. Basal portion of Winchell's Huron shale.

Black slate, Collett. Indiana Geol. Surv., 7th Ann. Rept. (for 1875), p. 373. 1876.
Devonian. Indiana.

Black slate, Hall. Paleontology of New York, vol. iv, pt. ii, pp. 148-154. 1879.
Devonian. New York, Ohio, and Mississippi Valley.

Black shale, Wetherby. Cin. Soc. Nat. Hist., Jour., vol. iii, no. ii, p. 147. 1880.
Kentucky.

Black shale, Orton. Rev. of Strat. Geol. of East. Ohio, p. 2. 1880.
Devonian. Ohio.

Black slate, Elrod. Indiana Dept. Geol. and Nat. Hist., 11th Ann. Rept., for 1881, pp. 174, 195. 1881.

Devonian. Indiana.

- Black slate, Linney. Ky. Geol. Surv., Geol. of Garrard Co., pp. 22-23. 1883.
Devonian. Kentucky.
- Black slate, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery Counties. 1884.
Devonian. Kentucky.
- Black slate, McCashin. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept., for 1883, pp. 120, 131. 1884.
Devonian. Indiana.
- Black shale, Knott. Ky. Geol. Surv., Geol. of Marion County, p. 19. 1885.
Devonian. Kentucky. Included in Hamilton period.
- Black slate, Linney. Ky. Geol. Surv., Geol. of Spencer and Nelson Counties, p. 46. 1886.
Devonian. Kentucky.
- Black shale, Williams. U. S. Geol. Surv., Bull., no. 41, p. 24.
Devonian. Ohio.
- Black shale, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, p. 101.
Ohio.
- Black shale, Smith. Ala. Geol. Surv., Rept. on Cahaba Coal Field, p. 154. 1890.
Devonian. Alabama.
- Black shale, Orton. Ky. Geol. Surv., Rept. on Petroleum, etc., p. 133. 1891.
Devonian. Kentucky.
- Black shale, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 637. 1891.
Devonian. Indiana.
- Black shale, Gibson. Ala. Geol. Surv., Geol. Structure of Murphree's Valley, p. 24. 1894.
Devonian. Alabama.
- Black shale, McCalley. Ala. Geol. Surv., Rept. on Valley Regions, pt. ii, pp. 50-51, 167-172, 237-240, 291-292, 475-476, 809. 1897.
Devonian. Alabama. Exact Syn. Chattanooga shale.
- Black shale, Newsom. Indiana Acad. Sci., Proc. for 1897, p. 251. 1898.
Devonian. Indiana.
- Black Bluff** group, Aldrich. Ala. Geol. Surv., Bull., No. 1, p. 60. 1886.
Tertiary. Alabama.
- Black Bluff, Smith and Johnson. U. S. Geol. Surv., Bull., No. 43, p. 61. 1887.
Tertiary. Alabama. Included in Lower Eocene. Lignitic.
- Black Bluff, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 595. 1891.
Tertiary. Alabama. Included in Lower Eocene.
- Black Bluff, Smith. Ala. Geol. Surv., Bull., No. 2, pp. 48, 51. 1892.
Tertiary. Alabama. Included in Lignitic.
- Black Bluff, Smith, Johnson, and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain, pp. 186, 239, 410, 489, 493. 1894.
Tertiary. Alabama. Included in Eocene, Lignitic.
- Black Butte** quartzite, Powell. U. S. Geol. and Geol. Surv., Geol. of Uinta Mts., p. 160. 1876.
Cretaceous. Utah.
- Black Hand** conglomerate, Hicks. Am. Jour. Sci., 3d ser., vol. xvi, p. 217. 1878.
Carboniferous. Ohio. Included in Waverly group.
- Black Hill** shale, Cragin. Washburn Coll. Lab. Nat. Hist., Bull., vol. i, no. iii, p. 90. 1885.
Cretaceous? Kansas.
- Black Hill shale, Cragin. Am. Geol., vol. xvi, p. 379. 1895.
Cretaceous. Kansas. Included in Fullington shale, in Belvidere beds. Part. Syn. Kiamitia.

- Black Prairie** formation, Hill. Am. Jour. Sci., 3d ser., vol. xxxviii, p. 469. 1889.
Cretaceous. Texas. Included in Upper Cretaceous. Gulf series. Includes Black Prairie and Lower Cross Timbers formation.
- Black Prairie** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, pp. xlv-xlix. 1890.
Cretaceous. Texas. Includes Glauconitic beds, Ponderosa marls, Austin chalk, Eagle Ford shales, Lower Cross Timber sandstone.
- Black Prairie** series, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 107-116. 1890.
Cretaceous. Texas. Includes Eagle Ford shales, Austin-Dallas chalk, Exogyra ponderosa marls, Glauconitic division.
- Black River** limestone, Vanuxem. Geol. of New York, pt. iii, pp. 38-45. 1842.
Paleozoic. New York. Included in New York system. Includes No. II, Pennsylvania survey. Exact Syn. Birdseye limestone, Mohawk limestone, Chazy limestone, Metalliferous or Transition lime rock.
- Black River** limestone group, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 28. 1843.
Paleozoic. New York. Included in New York system. Includes Birdseye and Chazy.
- Black River** limestone, Mather. Geol. of New York, pt. i, pp. 402-409. 1843.
Paleozoic. New York. Included in Champlain division. Includes Mohawk limestone, Birdseye limestone, Bald Mountain limestone, Blue limestone, Chazy limestone, Neeleytown limestone, Metalliferous, Transition and Sparry lime rocks, and No. II, Pennsylvania survey.
- Black River** limestone, Hough. Am. Jour. of Agric. and Sci., vol. v, p. 314. 1847.
Silurian. New York.
- Black River** and Birdseye limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 114. 1855.
Silurian. Missouri.
- Black River** limestone, Hall. Am. Jour. Sci., 2d ser., vol. xvii, pp. 181-193. 1854.
Silurian. Michigan.
- Black River**, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 159. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Black River** limestone, Hitchcock. Geol. of Vt., vol. i, pp. 280-281. 1861.
Paleozoic. Vermont. Included in Trenton period. Exact Syn. Isle La Motte marble.
- Black River** group, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, pp. 241, 242, 249. 1861.
Silurian. Vermont, Canada. Included in Lower Silurian. Includes Black River limestone, Birdseye limestone, and Chazy limestone.
- Black River**, Broadhead. Mo. Geol. Surv., Rept. 1855-1873, p. 50. 1873.
Silurian. Missouri. Included in Lower Silurian.
- Black River** and Birdseye, Shumard. Mo. Geol. Surv., Rept. 1855-1871, pp. 267, 283-307. 1873.
Silurian. Missouri.
- Black River** group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 270, 281. 1881.
Includes Birdseye and Black River limestones.
- Black River** group, Miller. North American Geol. and Pal., p. 39. 1889.
- Black River** limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890.
Silurian. Arkansas. Included in Silurian group.
- Black River**, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 234. 1893.
Silurian. Ontario. Included in Lower Silurian.
- Black River** schists, Van Hise. Int. Cong. of Geol., 5th sess., pl. lxiv. 1893.
Algonkian. Lake Superior Region. Included in Huronian.

Black River, Cushing. Geol. Soc. Am., Bull., vol. vi, p. 286. 1895.

Silurian. New York.

Black River limestone, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.

Silurian. New York. Included in Mohawkian.

Black River Falls iron-bearing schists, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.

Algonkian. Wisconsin. Part. Syns. Menominee, Felch Mountain Iron series, Lower Marquette, Lower Vermilion, Lower Huronian.

Black River formation, White. N. Y. State Mus., 51st Ann. Rept. vol. i, pr. 27. 1899.

Silurian. New York.

Black River limestone, Cumings. N. Y. State Mus., Bull., vol. vii, p. 423. 1900.

New York. Included in Ordovician.

Black River limestone, Cumings. N. Y. State Mus., Bull., vol. vii, No. 34, p. 423. 1900.

Silurian. New York.

Black River limestone, Cushing. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 514. 1897.

Silurian. New York.

Blackstone series, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 104-107. 1899.

Algonkian. Rhode Island. Includes Cumberland quartzites, Ashton schists, and Smithfield limestone.

Blacksville limestone, White. U. S. Geol. Surv., Bull., No. 65, p. 36. 1891.

Carboniferous. Pennsylvania. Included in Permo-Carboniferous, Dunkard Creek. Exact Syn. Limestone iii.

Blackwater, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 32. 1896.

Carboniferous. Virginia, West Virginia. Exact Syns. Pottsville conglomerate, Rogers, No. XII and Seral.

Blackwater sandstone, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.

Carboniferous. West Virginia, Maryland.

Blackwater formation, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.

Carboniferous. Virginia, West Virginia.

Blanco beds, Cope. Phil. Acad. Nat. Sci., Proc., 1892, p. 226. 1892.

Texas. Intermediate between Loup Fork and Equus beds.

Blanco beds, Cummins. Texas Geol. Surv., 4th Ann. Rept., pp. 200-201. 1893.

Tertiary. Texas.

Blanco beds, Scott. Geol. Soc. Am., Bull., vol. v, p. 594. 1894.

Tertiary. Texas. Included in Pliocene.

Blanco canyon, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 190-191. 1890.

Juratrias? Texas.

Blanco canyon beds, Cummins. Texas Geol. Surv., 2d Ann. Rept., pp. 431-433.

Tertiary. Texas.

Blanco canyon beds, Kennedy. Texas Geol. Surv., 3d Ann. Rept., p. 170. 1892.

Tertiary. Texas.

Blanford limestone, Hitchcock. Mass. Geol. Rept., p. 305 (2d ser., p. 304). 1833. Massachusetts.

Bloomfield sandstone, Claypole. 2d Pa. Geol. Surv., Rept. F³, pp. 54, 401. 1885.

Silurian. Pennsylvania. Included in Onondaga.

Bloomfield sandstone, Keyes. Mo. Geol. Surv., vol. iv, p. 30. 1894.

Tertiary. Missouri. Included in Eocene.

- Bloomsburg** shale, White. 2d Pa. Geol. Surv., Rept. T³, pp. 127, 130-131. 1885.
Silurian. Pennsylvania.
- Bloomsburg** shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 746, 760, 790, 823-824.
Silurian. Pennsylvania. Included in No. IV, Salina.
- Bloomsbury** group, Matthew. Can. Roy. Soc., Trans., vol. xii, sec. iv, p. 89. 1895.
Devonian. New Brunswick. Exact Syn. No. IV, Dawson.
- Blossburg**, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, p. 234. 1842.
Pennsylvania. Included in Devonian. Includes Upper division.
- Blue** limestone, Locke. Ohio Geol. Surv., 2d Ann. Rept. by W. W. Mather, p. 210. 1838.
Silurian. Ohio.
- Blue** marl, Rogers. Rept. for 1839 and Geol. of Virginias, p. 268. 1840.
Tertiary. Virginia. Included in Miocene.
- Blue** limestone, Douglass. Michigan Legislature, Doc., vol. i, no. xi (4th Ann. Rept. State Geologist for 1840), pp. 548, 551. 1841.
Devonian. Michigan.
- Blue** limestone, Daniels. Wis. Geol. Surv., Rept. 1853, p. 15. 1854.
Silurian. Wisconsin. Exact Syn. Trenton.
- Blue** limestone, Percival. Wis. Geol. Surv., Rept. 1854, p. 15, and Rept. for 1856, pp. 25, 77-86. 1855.
Silurian. Wisconsin. Includes Blue limestone and Buff limestone.
- Blue** shale, Percival. Wis. Geol. Surv., Rept. 1856, p. 71. 1856.
Silurian. Wisconsin.
- Blue** shell limestone and marl, Owen. Ky. Geol. Surv., vol. i, pp. 98-101. 1856.
Silurian? Kentucky.
- Blue** limestone, Whitney. Ill. Geol. Surv., vol. i, pp. 165-169. 1866.
Silurian. Illinois. Exact Syn. Trenton.
- Blue** limestone, Shaw. Ill. Geol. Surv., vol. v, pp. 21, 38, 69-70, 88-89, 113-114, 128-129. 1873.
Silurian. Illinois. Included in Trenton.
- Blue** limestone, Emmons. U. S. Geol. Surv., 2d Ann. Rept., p. 218. 1882.
Carboniferous. Colorado.
- Blue** limestone, Upper, Chamberlin. Geology of Wis., vol. i, p. 163, vol. ii, p. 296. 1883.
Cambro-Silurian. Wisconsin. Included in Trenton.
- Blue** limestone, Lower, Chamberlin. Geology of Wis., vol. i, p. 162, vol. ii, p. 294. 1883.
Cambro-Silurian. Wisconsin. Included in Trenton.
- Blue** limestone, Emmons. U. S. Geol. Surv., Mon., vol. xii, p. 63. 1886.
Silurian. Colorado.
- Blue** sandstone, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 75-77. 1888.
Cretaceous. Arkansas. Included in Upper Arenaceous beds.
- Blue** marl, Clark. U. S. Geol. Surv., Bull., No. 83, p. 41. 1891.
Tertiary. New Jersey. Included in Upper Marl bed, Eocene.
- Blue Canyon** formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.
Carboniferous. California. Included in Calaveras formation.
- Blue Creek** series, Bain. Geol. Soc. Am., Bull., vol. xi, pp. 135, 138-140. 1900.
Cambrian. Oklahoma.
- Blue Cut** shale, Cragin. Am. Geol., vol. xvi, p. 380. 1895.
Cretaceous. Kansas. Included in Fullington shale, in Belvidere beds. Part. Syn. Kiamitia.

- Bluefield** shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
Carboniferous. Virginia, West Virginia.
- Bluefield** shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Carboniferous. Virginia, West Virginia. Part. Syns. No. XI, Greenbrier shale.
- Blue Gate**, Gilbert. U. S. Geog. and Geol. Surv., Rept. on Henry Mts., p. 4. 1877.
Cretaceous. Utah.
- Blue Hill** shales, Logan. Kan. Univ. Geol. Surv., vol. ii, p. 218. 1897.
Cretaceous. Kansas. Included in Benton. Exact Syn. Victoria shale.
- Blue Hill**, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25-26. 1898.
Cretaceous. Kansas. Included in Benton. Exact Syn. Victoria shale.
- Blue Hill** shales, Logan. Jour. of Geol., vol. vii, pp. 88-89. 1899.
Cretaceous. Kansas, Nebraska. Included in Fort Benton. Exact Syn. Upper Carlile.
- Blue Mountain** series, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, pp. 41-69. 1899.
Cretaceous and Eocene. Jamaica. Includes Catadupa, Chapelton, Richmond, Minho, Ballard, Logie Green, Frankenfield, Jerusalem, and Yallahs beds.
- Bluestone**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
Carboniferous. Virginia, West Virginia.
- Bluestone** formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Carboniferous. Virginia, West Virginia. Part. Syns. No. XI, Greenbrier shale.
- Bluff**, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 69, 172, 186. 1855.
Pleistocene. Missouri. Exact Syn. Loess.
- Bluff** formation, Hilgard. Rept. on Geol. and Agric. of Miss., pp. 194-197. 1860.
Pleistocene. Mississippi.
- Bluff** gravel, Safford. Am. Jour. Sci., 2d ser., vol. xxxvii, p. 371. 1864.
Pleistocene. Tennessee.
- Bluff** loam, Safford. Am. Jour. Sci., 2d ser., vol. xxxvii, p. 372. 1864.
Pleistocene. Tennessee.
- Bluff** lignite, Safford. Am. Jour. Sci., 2d ser., vol. xxxvii, p. 370. 1864.
Tertiary? Tennessee.
- Bluff** group, Safford. Geology of Tennessee, pp. 432-434. 1869.
Pleistocene. Tennessee. Includes Bluff loam and Bluff gravel.
- Bluff** lignite, Safford. Geology of Tennessee, pp. 428-431. 1869.
Tertiary. Tennessee.
- Bluff** formation, White. Iowa Geol. Surv., vol. i, pp. 103-117. 1870.
Pleistocene. Iowa. Exact Syn. Loess.
- Bluff**, Hayden. U. S. Geol. and Geog. Surv. of Terr., 1st-3d Ann. Repts. p. 18. 1873.
Pleistocene. Nebraska.
- Bluff**, Shumard. Mo. Geol. Surv., Rept. 1855-1871, p. 315. 1873.
Pleistocene. Missouri.
- Bluff**, Broadhead. Mo. Geol. Surv. Rept. 1855-1871, pp. 40, 67, 94. 1873.
Pleistocene. Missouri.
- Bluff**, Meek. Mo. Geol. Surv., Rept. 1855-1871, p. 161. 1873.
Pleistocene. Missouri. Exact Syn. Loess.
- Bluff** loam, Killebrew and Safford. Resources of Tennessee, p. 45. 1874.
Pleistocene. Tennessee.
- Bluff**, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 21. 1874.
Pleistocene. Missouri. Exact Syn. Loess.
- Bluff** formation, Hilgard. Smithsonian Contrib., vol. xxiii, no. ii, p. 3. 1881.
Pleistocene. Mississippi.

- Bluff limestone, Lower, Chamberlin. Geology of Wisconsin, vol. i, p. 162; vol. ii, p. 293. 1883.
- Cambro-Silurian. Wisconsin. Included in Trenton formation.
- Bluff limestone, Lower, Chamberlin. Geology of Wisconsin, vol. i, p. 163; vol. ii, p. 295. 1883.
- Cambro-Silurian. Wisconsin. Included in Trenton.
- Bluff lignite, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 153-154. 1884.
- Tertiary. Tennessee.
- Bluff bed, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 727-728. 1891.
- Cretaceous. Texas. Included in Washita division.
- Bluff Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 400. 1893.
- Carboniferous. Texas. Included in Canyon division.
- Bodeville** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lv. 1890.
- Archean. Texas. Included in Burnetan system.
- Boggy** shale, Taff. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 438. 1899.
- Carboniferous. Indian Territory. Included in Coal Measures.
- Boggy shale, Taff and Adams. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 278. 1900.
- Carboniferous. Indian Territory.
- Bogue Island** formation, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, p. 103. 1899.
- Pleistocene. Jamaica. Included in Coastal series.
- Bohemia** conglomerate, Hubbard. Mich. Geol. Surv., vol. vi, pt. ii, p. 30. 1898.
- Algonkian. Michigan. Exact Syn. St. Louis conglomerate.
- Bolivar** sandstone, Stevenson. 2d Pa. Geol. Surv., Rept. K³, pp. 41-42. 1878.
- Carboniferous. Pennsylvania. Included in Lower Productive series.
- Bolivar fireclay, White. U. S. Geol. Surv., Bull., No. 65, p. 159. 1891.
- Carboniferous. Pennsylvania, West Virginia. Included in Lower Coal Measures, Allegheny River series.
- Bolton** mica slate formation, Percival. Report on Geol. of Conn. 1842, pp. 229-233. 1842.
- Included in "Primary."
- Bonair** conglomerate lentil, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 53. 1899.
- Carboniferous. Tennessee. Included in Pennsylvanian series. Exact Syn. Look-out sandstone.
- Bonaventure** formation, Chapman. Can. Inst., new ser., vol. viii, pp. 450-451. 1863.
- Carboniferous. Canada.
- Bonaventure formation, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 404-405, 886. 1863.
- Carboniferous. Canada. Included in Gaspe series.
- Bonaventure formation, Hind. Geol. of New Brunswick, p. 57. 1865.
- Carboniferous. New Brunswick.
- Bonaventure formation, Ells. Can. Geol. Surv., Rept. 1879-80, pp. 7D-10D. 1881.
- Carboniferous. New Brunswick. Included in Lower Carboniferous.
- Bonaventure formation, Ells. Can. Geol. Surv., Rept. 1880-81-82, p. 3D. 1883.
- New Brunswick. Partly included in Devonian.
- Bone Lake** crystalline schists, Clements and Smyth. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 62. 1899.
- Algonkian. Michigan. Included in Hemlock formation.
- Boone** chert and cherty limestone, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 27-37, 149. 1888.
- Carboniferous. Arkansas. Included in Lower Carboniferous.
- Boone chert, Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 94-107. 1890.
- Carboniferous. Arkansas. Included in Lower Carboniferous.

- Boone chert, Penrose. Ark. Geol. Surv., 1890, vol. i, pp. 129-138. 1890.
Carboniferous. Arkansas. Included in Mississippian series, Osage group.
- Boone chert and limestone, Simonds and Hopkins. Ark. Geol. Surv., 1891, vol. ii, pp. 38-46. 1891.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Boone chert and limestone, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 349. 1897.
Carboniferous. Indian Territory. Included in Lower Carboniferous.
- Boone chert, Williams. Ark. Geol. Surv., 1892, vol. v, pp. 337-341. 1900.
Carboniferous. Arkansas.
- Booneville** stage, Stevenson. N. Y. Acad. Sci., Trans., vol. vx, p. 51. 1896.
Carboniferous. Arkansas.
- Boscabel** beds, Shaler and Woodworth. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 424-425. 1899.
Juratrias. Virginia. Included in Tuckahoe group.
- Bosque** division, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 272-273, 281-325. 1892.
Cretaceous. Texas. Includes Paluxy sand, Glen Rose bed, and Trinity sand.
- Bosque, Dumble and Cummins. Am. Geol., vol. xii, p. 312. 1893.
Cretaceous. Texas.
- Bosque division, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 378. 1895.
Cretaceous. Texas. Included in Lower Cretaceous.
- Bossardville** limestone, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 141-145. 1882.
Silurian. Pennsylvania. Included in Upper Helderberg, or No. VI.
- Bossardville limestone, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 98-101. 1883.
Silurian. Pennsylvania. Included in Lower Helderberg, or No. VI.
- Bossardville limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 929-934, 948, 960, 964. 1892.
Silurian. Pennsylvania. Included in No. vi. Exact Syn. Lewistown limestone.
- Bossardville limestone, Weller. N. J. Geol. Surv., Rept. 1899, pp. 6-7. 1900.
Silurian. New Jersey.
- Boston** group, Branner. Ark. Geol. Surv., 1888, vol. iv, p. xiii. 1888.
Carboniferous. Arkansas. Included in Mississippian series. Part. Syns. Chester and St. Louis.
- Boston group, Penrose. Ark. Geol. Surv., 1890, vol. i, p. 140. 1890.
Carboniferous. Arkansas. Included in Mississippian series.
- Boston group, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Boston group, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 354. 1897.
Carboniferous. Indian Territory. Included in Lower Carboniferous. Includes Kessler limestone, Pentremital limestone, Washington shale and sandstone, Archimedes limestone, Marshall shale. Exact Syns. St. Louis and Chester.
- Boston group, Williams. Ark. Geol. Surv., 1892, vol. v, pp. 358-362. 1900.
Carboniferous. Arkansas.
- Boston Bar** group, Dawson. Can. Geol. Surv., Rept. 1871-72, pp. 62-63. 1872.
British Columbia. Exact Syn. Anderson River group.
- Boston Bar group, Dawson. Can. Geol. Surv., Rept. 1877-78, p. 73B. 1879.
British Columbia.
- Bottom Prairie**, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 66, 172. 1855.
Pleistocene. Missouri.
- Bottom Prairie, Broadhead. Mo. Geol. Surv., Rept. 1855-1871, pp. 40, 67, 75, 94. 1873.
Pleistocene. Missouri.
- Bottom Prairie, Broadhead. Mo. Geol. Surv., Rept. 1873-74, pp. 20, 21. 1874.
Pleistocene. Missouri.

- Boulder formation**, Billings. Can. Nat., vol. i, pp. 321-336. 1857.
Pleistocene, Canada.
- Boulder formation**, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 887, 893-896. 1863.
Pleistocene, Canada.
- Boulder drift**, Andrews. Am. Jour. Sci., 2d ser., vol. xlviii, pp. 172-179. 1869.
Pleistocene. Illinois.
- Boulder clay**, Dawson. Can. Nat., new ser., vol. vi, pp. 22, 24-34. 1872.
Pleistocene, Canada.
- Bowden beds**, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 340. 1898.
Tertiary. Jamaica. Included in Chipolan stage; Oligocene. Exact Syn. Monkey Hill beds.
- Bowden**, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, p. 82. 1899.
Tertiary. Jamaica. Included in Coastal series. Pliocene.
- Bowling Green limestone**, Keyes. Iowa Acad. Sci., Proc., vol. v, p. 62. 1898.
Silurian. Iowa.
- Bow River group**, McConnell. Can. Geol. Surv., new ser., vol. ii, pp. 15D, 29D-30D. 1887.
Cambrian. Canada.
- Bow River series**, Dawson. Geol. Soc. Am., Bull., vol. ii, p. 168. 1891.
Cambrian. British Columbia.
- Bow River series**, McConnell. Can. Geol. Surv., new ser., vol. vii, pp. 24C-25C. 1896.
Cambrian. Canada.
- Bozeman Lake beds**, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Included in Neocene. Montana.
- Bozeman Lake beds**, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Included in Neocene. Montana.
- Bradford red beds**, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 95-97. 1890.
Carboniferous. Pennsylvania. Included in Pocono.
- Bradford 3d sandstone**, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 133-135. 1890.
Devonian. Pennsylvania.
- Branchtown clay**, Lewis. Phil. Acad. Nat. Sci., Proc., vol. xxxii, pp. 268, 296-297. 1880.
Tertiary. Pennsylvania.
- Brandon formation**, Clark. U. S. Geol. Surv., Bull., No. 83, p. 90. 1891.
Tertiary. Vermont, Pennsylvania, Georgia. Included in Eocene.
- Braxton**, Taff and Brooks. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34. 1896.
Carboniferous. West Virginia.
- Braxton formation**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 69. 1900.
Carboniferous. West Virginia, Ohio. Includes Monongahela River Coal series and Elk River series in part.
- Breathitt formation**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 47. 1898.
Carboniferous. Kentucky. Included in Pennsylvanian series.
- Bretonian**, Walcott. U. S. Geol. Surv., Bull., No. 81, p. 247. 1891.
Cambrian. New Brunswick. Included in Upper Cambrian.
- Briceville shale**, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 25. 1896.
Carboniferous. Tennessee.
- Briceville shale**, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
Carboniferous. Tennessee. Part. syn. Walden sandstone.
- Briceville shale**, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 40. 1897.
Carboniferous. Tennessee. Part. Syn. Walden sandstone.
- Bridgeport sandstone**, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 57, 58. 1885.
Silurian. Pennsylvania. Included in Onondaga group.

- Bridgeport sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 761-763. 1892.
- Silurian. Pennsylvania. Included in No. V, Salina, Bloomsburg shale.
- Bridger** group, Hayden. U. S. Geol. Surv. of Wyoming, pp. 55-58. 1871.
- Tertiary. Wyoming.
- Bridger group, Comstock. Am. Jour. Sci., 3d ser., vol. vi, p. 427. 1873.
- Neocene. Wyoming.
- Bridger, Cope. Rept. Secy. of War to 43d Cong., vol. ii, pt. ii, p. 592. 1874.
- Tertiary. New Mexico. Included in Eocene.
- Bridger, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 149, also see pp. 156-158. 1876.
- Tertiary.
- Bridger, Powell. U. S. Geog. and Geol. Surv., Geology of Uinta Mts., pp. 40, 45, 167. 1876.
- Tertiary. Utah.
- Bridger, Emmons. U. S. Geol. Exploration of 40th Parallel, vol. ii, pp. 204, 244. 1877.
- Tertiary. Utah.
- Bridger, White. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 19, 22, 37. 1878.
- Tertiary. Utah, Colorado.
- Bridger group, King. U. S. Geol. Exploration of 40th Parallel, vol. i, p. 394. 1878.
- Tertiary. Wyoming. Included in Eocene.
- Bridger, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 635, 639. 1879.
- Tertiary. Wyoming.
- Bridger, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 132. 1879.
- Tertiary. Wyoming.
- Bridger beds, McMaster. Mus. of Geol. and Arch. of Coll. of N. J., Contributions, vol. i, no. i, pp. 45-54. 1881.
- Wyoming.
- Bridger, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. iii, pp. 11-12. 1881.
- Tertiary.
- Bridger, Clark. U. S. Geol. Surv., Bull., No. 83, p. 141. 1891.
- Tertiary. Wyoming, Utah. Exact Syn. Dinoceras.
- Bridger, Peterson. Am. Mus. Nat. Hist., Bull., vol. v, p. 73. 1895.
- Tertiary. Utah.
- Bridger beds, Osborn. Am. Nat., vol. xxxi, pp. 966-968. 1897.
- Tertiary. Colorado. Included in Eocene.
- Bridger beds, Osborn. Am. Assoc. Adv. Sci., Proc., vol. xlii, pp. 205-206. 1898.
- Tertiary. Colorado.
- Bridger formation, Smith. Jour. of Geol., vol. viii, pp. 450-451. 1900.
- Tertiary. Western North America. Included in Eocene. Includes Green River and Wind River beds.
- Bridgeton** formation, Salisbury. N. J. Geol. Surv., Rept., 1897, pp. 13-15. 1898.
- New Jersey.
- Brimfield** schist, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pl. 34. 1898.
- Silurian. Massachusetts.
- Bristol Bay** silts and gravels, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 177-178. 1900.
- Pleistocene. Alaska.
- Brito** formation, Hayes. Geol. Soc. Am., Bull., vol. x, p. 285-308. 1899.
- Tertiary. Nicaragua. Included in Oligocene.

Broad Branch series, McGee, Williams, and Darton. Int. Cong. of Geol., 5th sess., p. 244. 1893.

Archean. District of Columbia.

Broad Top series, Rogers. 1st Ann. Rept. State Geologist of Pa., pp. 16-18. 1836. Carboniferous. Pennsylvania. Included in Coal Measures.

Brontotherium, Marsh. U. S. Geol. Surv., Mon., vol. xxvii, p. 479. 1896. Tertiary. Colorado.

Brown shale, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 637. 1891. Devonian. Indiana.

Brown loam, Mabry. Jour. of Geol., vol. vi, pp. 274-302. 1898. Tertiary. Gulf States.

Brown Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 381. 1893. Carboniferous. Texas. Included in Strawn division.

Brown's Park, Powell. U. S. Geog. and Geol. Surv., Geology of Uinta Mts., pp. 40, 44, 168. 1876. Tertiary. Utah.

Brown's Park, Emmons. U. S. Geol. Exploration of 40th Parallel, vol. ii, p. 222. 1877.

Tertiary. Utah. Exact Syn. Green River.

Brown's Park beds, Osborn. Am. Mus. Nat. Hist., Bull., vol. vii, p. 74. 1895. Tertiary. Utah. Included in Upper Eocene? Exact Syn. Uinta beds.

Brown's Park beds, Irving. N. Y. Acad. Sci., Trans., vol. xv, p. 252. 1896. Tertiary. Utah. Included in Pliocene.

Brownstown marl, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 86, 87. 1888.

Cretaceous. Arkansas. Included in Chalky Marl beds. Exact Syn. Exogyra ponderosa marls of Texas.

Brownstown, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.

Cretaceous. Indian Territory, Texas. Included in Glauconitic division.

Brownsville bed, Elrod. Indiana Dept. Geol. and Nat. Hist., 14th Ann. Rept., for 1884., p. 69. 1884. Indiana.

Browntown sandstone, White. U. S. Geol. Surv., Bull., No. 65, p. 58. 1891.

Carboniferous. West Virginia. Included in Upper Coal Measures, Monongahela River series.

Browntown sandstone, White. Geol. Soc. Am., Bull., vol. iii, p. 190. 1892.

Permian. West Virginia. Included in Dunkard Creek series.

Brownville slate, Jackson. Geol. Rept. Public Lands in Maine, vol. i, p. 37. 1837.

Brownwood limestone, Tarr. Am. Geol., vol. vi, p. 150. 1890.

Carboniferous. Texas. Included in Upper Carboniferous.

Brownwood canyon, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxxvii. 1890.

Carboniferous. Texas. Included in Coal Measures.

Brownwood bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 389. 1893.

Carboniferous. Texas. Included in Canyon division.

Brule clay, Darton. U. S. Geol. Surv., 19th Ann. Rept., pt. iv, pp. 736, 755-759. 1899.

Tertiary. Nebraska. Included in Oligocene?

Brunswick series, Salisbury. N. J. Geol. Surv., Rept. 1896, pp. 47-55. 1897.

Juratias. New Jersey. Included in Newark system.

Brunswick shale series, Kümmel. Jour. of Geol., vol. v, pp. 547-549. 1897:

Juratias. New Jersey. Included in Newark system.

Brunswick series, Kümmel. N. J. Geol. Surv., Rept. 1897, pp. 41-52. 1898.

Juratias. New Jersey.

- Brunswick beds, Kummel. Jour. of Geol., vol. vii, pp. 26-27. 1899.
Juratrias. New York, New Jersey. Included in Newark.
- Brush Creek** limestone, White. 2d Pa. Geol. Surv., Rept. Q, p. 34. 1878.
Carboniferous. Pennsylvania. Included in Lower Barren series.
Exact Syn. Philson (?) limestone.
- Bryant** limestone, Keyes. Iowa Acad. Sci., Proc., vol. v, p. 61. 1898.
Silurian. Iowa. Included in Lower Silurian.
- Bryn Mawr** gravel, Lewis. Phil. Acad. Nat. Sci., Proc., vol. xxxii, pp. 269, 288, 296. 1880.
Tertiary. Pennsylvania. Included in Upper Miocene. Part. Syn. Mount Holly conglomerate of New Jersey.
- Bryn Mawr gravel, Hall. 2d Pa. Geol. Surv., Rept. C⁵, pp. 10-13. 1885.
Tertiary. Pennsylvania.
- Bryn Mawr gravel, Bascom. Am. Geol., vol. xix, pp. 50-57. 1897.
Pleistocene. Pennsylvania.
- Buchanan** gravels, Calvin. Iowa Acad. Sci., Proc., vol. iii, pp. 58-60. 1896.
Pleistocene. Iowa.
- Buchanan gravels, Calvin. Iowa Geol. Surv., vol. vii, pp. 172-174. 1897.
Pleistocene. Iowa.
- Buchanan, Beyer. Iowa Geol. Surv., vol. vii, pp. 233-234. 1897.
Pleistocene. Iowa.
- Buchanan gravels, Calvin. Iowa Geol. Surv., vol. viii, pp. 167-170, 241-244. 1898.
Pleistocene. Iowa.
- Buchanan?, Beyer. Iowa Geol. Surv., vol. ix, p. 199. 1899.
Pleistocene. Iowa.
- Buchanan gravel, Udden. Iowa Geol. Surv., vol. ix, p. 339. 1899.
Pleistocene. Iowa.
- Buchanan gravel, Wilder. Iowa Geol. Surv., vol. x, p. 129. 1900.
Pleistocene. Iowa.
- Buchanan gravel, Williams. Iowa Geol. Surv., vol. x, p. 359. 1900.
Pleistocene. Iowa.
- Buchanan gravels, Calvin and Bain. Iowa Geol. Surv., vol. x, p. 467. 1900.
Pleistocene. Iowa.
- Buda** limestone, Vaughan. U. S. Geol. Surv., Bull., No. 164, p. 18. 1900.
Cretaceous. Texas. Included in Comanche series.
- Buda limestone, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas. Included in Comanche series.
- Buff** colored limestone, Daniels. Wis. Geol. Surv., 1853, p. 16. 1854.
Silurian. Wisconsin.
- Buff sand, Winchell. Am. Assoc. Adv. Sci., Proc., vol. x, p. 89. 1856.
Tertiary. Alabama. Included in Lower Eocene.
- Buff limestone, Everett. Ill. Nat. Hist. Soc., Trans., vol. i, ser. i, p. 56. 1861.
Silurian. Ohio.
- Buff limestone, Whitney. Rept. on Upper Mississippi Lead Region, p. 157. 1862.
Silurian. Wisconsin.
- Buff limestone, Whitney. Ill. Geol. Surv., vol. i, pp. 165-167. 1866.
Silurian. Illinois. Exact Syn. Birdseye and Black River.
- Buff limestone, Shaw. Ill. Geol. Surv., vol. v, pp. 22-23, 70, 89-90, 115, 128. 1873.
Silurian. Illinois. Included in Trenton group.
- Buff limestone, Hershey. Am. Geol., vol. xiv, p. 175. 1894.
Silurian. Illinois.
- Buff limestone, Winchell and Ulrich. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, pt. ii. p. xci. 1897.
Silurian. Minnesota. Included in Stones River group.

- Buff Bay** beds, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, p. 84. 1899.
Pleistocene or Pliocene. Jamaica. Included in Coastal series.
- Buffalo** sandstone, White. 2d Pa. Geol. Surv., Rept. Q, p. 33. 1878.
Carboniferous. Pennsylvania. Included in Lower Barren Measure series. Exact Syn. Upper Mahoning.
- Buffalo** shales, Keyes. Iowa Acad. Sci., Proc., vol. v, pp. 61, 62. 1898.
Silurian. Iowa. Included in Lower Silurian.
- Buffalo Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 384. 1893.
Carboniferous. Texas. Included in Strawn division.
- Buhr**, Mather. Am. Jour. Sci., 1st ser., vol. xxxiv, p. 360. 1838.
Carboniferous. Ohio.
- Buhrstone** formation, Tuomey. Rept. on Geol. of South Carolina, pp. 140-154. 1848.
Tertiary. South Carolina. Included in Eocene.
- Buhr-stone**, Tuomey. Ala. Geol. Surv., 1st Bien. Rept., p. 147. 1850.
Tertiary. Alabama.
- Buhrstone**, Winchell. Am. Assoc. Adv. Sci., Proc., vol. x, p. 87. 1856.
Tertiary. Alabama. Included in Lower Eocene.
- Buhrstone** group, Hilgard. Am. Jour. Sci., 2d ser., vol. xliii, p. 33. 1867.
Tertiary. Alabama and Mississippi. Exact Syn. Siliceous Claiborne.
- Buhrstone**, Pratt. Ashley River Phosphates. 1868.
Tertiary. South Carolina. Included in Eocene.
- Buhrstone**, Holmes. Phosphate Rock of South Carolina. 1870.
Tertiary. South Carolina. Included in Eocene. Exact Syn. Silicified shell formation.
- Buhrstone** beds, Broadhead. Mo. Geol. Surv., Rept. 1855-1871, p. 31. 1873.
Silurian. Missouri. Included in Lower Silurian, Calcareous sand rock.
- Buhrstone**, Heilprin. Phil. Acad. Nat. Sci., Proc., p. 184. 1882,
Included in Eocene. Part. Syn. Siliceous Claiborne of Mississippi, Chalk Hills.
- Buhrstone**, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 116, 120, 147, 148. 1884.
Tertiary. Included in Eocene. Exact Syn. Chalk Hills, Siliceous Claiborne.
- Buhrstone**, Smith and Johnson. U. S. Geol. Surv., Bull., No. 43, pp. 16, 18, 34. 1887.
Tertiary. Alabama. Included in Middle Eocene.
- Buhrstone**, division, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 49. 1891.
Tertiary. Georgia. Included in Eocene.
- Buhrstone** series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 96. 1891.
Tertiary. Georgia.
- Buhrstone** iron ore, White. U. S. Geol. Surv., Bull., No. 65, p. 172. 1891.
Carboniferous. Pennsylvania, Ohio, West Virginia. Included in Lower Coal Measures, Allegheny River series. Exact Syn. Baird, Gray, and Limestone ore.
- Buhrstone**, Clark. U. S. Geol. Surv., Bull., No. 83, pp. 5, 61, 68. 1891.
Tertiary. Mississippi, Alabama, South Carolina. Included in Eocene.
- Buhrstone**, Langdon. Ala. Geol. Surv., Geol. of Coastal Plain, pp. 390, 491. 1894.
Tertiary. Alabama. Included in Eocene Claiborne.
- Bull Creek** sandstone, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 379. 1893.
Carboniferous. Texas. Included in Strawn division.
- Bull Mountain** series, Lindgren. U. S. 10th Census Repts., vol. xv, pl. lx. 1886.
Cretaceous-Tertiary. Montana. Included in Laramie.
- Buncombe** group, Kerr. N. C. Geol. Surv., Rept. 1866-67, pp. 29-30. 1869.
North Carolina.
- Burlingame** shale, Haworth. Am. Jour. Sci., 3d ser., vol. 1, p. 461. 1895.
Carboniferous. Kansas. Included in Coal Measures.

- Burlingame shales, Haworth. Kansas Univ. Geol. Surv., vol. i, pp. 162, 226-227. 1896.
Carboniferous. Kansas.
- Burlingame limestone, Beede. Kansas Univ. Quart., vol. vii, p. 232. 1898.
Carboniferous. Nebraska.
- Burlingame limestone, Haworth. Kansas Univ. Geol. Surv., vol. iii, pp. 73, 94, 105. 1898.
Carboniferous. Kansas. Included in Wabaunsee formation. Exact Syn. Eureka limestone.
- Burlingame shales, Beede. Kansas Acad. Sci., Trans., vol. xv, p. 30. 1898.
Carboniferous. Kansas.
- Burlingame limestone, Beede. Kansas Acad. Sci., Trans., vol. xvi, pp. 82-84. 1899.
Carboniferous. Kansas, Nebraska.
- Burlington**, Hall. Am. Assoc. Adv. Sci., Proc., vol. x, p. 53. 1856.
Carboniferous. Mississippi Valley. Exact Syn. Encrinital.
- Burlington limestone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 92-93. 1858.
Carboniferous. Iowa. Exact Syn. Encrinital limestone.
- Burlington limestone, Worthen. Iowa Geol. Surv., vol. i, pp. 195-203, 244. 1858.
Carboniferous. Iowa.
- Burlington limestone, White. Boston Soc. Nat. Hist., Jour., vol. vii, 1859-1863, p. 224. 1860.
Iowa.
- Burlington limestone, Meek and Worthen. Am. Jour. Sci., 2d ser., vol. xxxii, p. 174. 1861.
Carboniferous. Illinois.
- Burlington limestone, Hall. Albany Inst., Trans., vol. iv, p. 3. 1864.
Carboniferous. Mississippi Valley.
- Burlington limestone, Niles and Wachsmuth. Am. Jour. Sci., 2d ser., vol. xlii, pp. 95-99. 1866.
Carboniferous. Iowa.
- Burlington limestone, Worthen. Ill. Geol. Surv., vol. i, pp. 102-108. 1866.
Carboniferous. Illinois. Included in Lower Carboniferous.
- Burlington limestone, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 189. 1868.
Lower Carboniferous. Illinois.
- Burlington limestone, Worthen. Ill. Geol. Surv., vol. iii, pp. 113-115, 129-130, 140. 1868.
Carboniferous. Illinois.
- Burlington limestone, Green. Ill. Geol. Surv., vol. iv, p. 281; 295. 1870.
Carboniferous. Illinois.
- Burlington limestone, Worthen. Ill. Geol. Surv., vol. iv, pp. 12, 29, 55. 1870.
Carboniferous. Illinois.
- Burlington limestone, White. Iowa Geol. Surv., vol. i, pp. 201-209. 1870.
Carboniferous. Iowa. Included in Lower Carboniferous. Exact Syn. Encrinital limestone.
- Burlington limestone, Worthen. Ill. Geol. Surv., vol. v, p. 278. 1873.
Carboniferous. Illinois.
- Burlington limestone, Sherwood. 2d Pa. Geol. Surv., Rept. G, p. 37. 1875.
Devonian. Pennsylvania. Included in Chemung.
- Burlington group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, p. 289. 1881.
Silurian.
- Burlington limestone, Springer. Am. Jour. Sci., 3d ser., vol. xxvii, p. 97. 1884.
Carboniferous. New Mexico.
- Burlington group, Miller. North American Geol. and Pal., p. 69. 1889.

- Burlington series, Vogdes. N. Y. Acad. Sci., Annals, vol. iv, pp. 71-72. 1889.
Carboniferous. Mississippi Valley.
- Burlington, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 54. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Burlington limestone, Ladd. Mo. Geol. Surv., Bull., No. 3, pp. 14, 15. 1890.
Carboniferous. Missouri.
- Burlington limestone, Keyes. Am. Jour. Sci., 3d ser., vol. xlv, pp. 447-452. 1892.
Carboniferous. Missouri.
- Burlington, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 292. 1892.
Carboniferous. Missouri. Included in Osage limestone. Exact Syn. Encrinital limestone.
- Burlington limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1447. 1892.
Devonian. Pennsylvania. Included in Chemung.
- Burlington limestone, Haworth. Kansas Univ. Quart., vol. ii, pp. 120-121, 125. 1894.
Carboniferous. Kansas.
- Burlington limestone, Haworth and Kirk. Kansas Univ. Quart., vol. ii, p. 110. 1894.
Carboniferous. Kansas. Exact Syn. Garnett limestone.
- Burlington limestone, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 61-66, 76. 1894.
Carboniferous. Missouri. Included in Augusta stage.
- Burlington limestone, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Carboniferous. Missouri. Included in Augusta stage. Includes Upper and Lower Burlington.
- Burlington, Gordon. Iowa Geol. Surv., vol. iv, pp. 210-211. 1895.
Carboniferous. Iowa.
- Burlington limestone, Stewart. Kansas Univ. Quart., vol. iv, pp. 161-162. 1896.
Carboniferous. Missouri.
- Burlington limestone, Keyes. St. Louis Acad. Sci., Trans., vol. vii, p. 359. 1897.
Carboniferous. Missouri.
- Burlington limestone, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 103-123. 1898.
Carboniferous. Missouri. Included in Augusta stage.
- Burnet** limestone, Shumard. Am. Jour. Sci., 2d ser., vol. xxxii, p. 214. 1861.
Silurian. Texas.
- Burnetan system, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 255-267. 1890.
Archean. Texas. Includes Bodeville, Long Mountain, and Lone Grove series.
- Burnetan system, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, pp. lv-lvi. 1890.
Archean. Texas. Includes Bodeville, Long Mountain, and Lone Grove series.
Exact syn. Laurentian.
- Burnetan system, Comstock. Texas Geol. Surv., 2d Ann. Rept., pp. 559-560, 656-658. 1891.
Archean. Texas. Includes Lone Grove, Long Mountain, and Bodeville series.
- Burnet Branch bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 375. 1893.
Carboniferous. Texas. Included in Strawn division.
- Butler** sandstone, White. 2d Pa. Geol. Surv., Rept. Q, p. 47. 1878.
Carboniferous. Pennsylvania. Included in Lower Productive series. Exact Syn. Upper Freeport sandstone.
- Butler limestone, White. 2d Pa. Geol. Surv., Rept. Q, p. 49. 1878.
Carboniferous. Pennsylvania. Included in Lower Productive series. Exact Syn. Lower Freeport limestone.
- Butler gas sand, Carll. 2d Pa. Geol. Surv., Rept. I⁵, p. 97. 1890.
Carboniferous. Pennsylvania. Included in Pocono.
- Byron** beds, Chamberlin. Geology of Wisconsin, vol. ii, pp. 345-348. 1877.
Silurian. Wisconsin. Included in Niagara.

Byron beds, Chamberlin. Geology of Wisconsin, vol. i, p. 187. 1883.

Silurian. Wisconsin. Included in Niagara.

Cacapon sandstone, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.

Silurian. West Virginia, Maryland.

Cacapon sandstone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 32. 1896.

Silurian. Virginia, West Virginia. Part Syns. Clinton, Medina, Rogers, Nos. 4 and 5, and Levant.

Cacapon sandstone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.

Silurian. Virginia, West Virginia.

Cache Creek group, Upper, Selwyn. Can. Geol. Surv., Rept. 1871-72, pp. 60-61. 1872.

Carboniferous. British Columbia. Exact Syn. Marble Canon limestone.

Cache Creek group, Lower, Selwyn. Can. Geol. Surv., Rept. 1871-72, pp. 61-62. 1872.

Carboniferous? British Columbia.

Cache Creek series, Selwyn. Can. Geol. Surv., Rept. 1875-76, pp. 78-79. 1877.

Carboniferous. British Columbia. Includes Upper and Lower Cache Creek beds.

Cache Creek series, Lower, Dawson. Can. Geol. Surv., Rept. 1876-77, pp. 55, 89. 1878.

Carboniferous. British Columbia.

Cache Creek series, Dawson. Can. Geol. Surv., Rept. 1877-78, p. 92B. 1879.

Carboniferous. British Columbia. Included in Carboniferous.

Cache Creek formation, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 26B, 37B-49B, 98B, 110B. 1896.

Carboniferous. British Columbia. Includes Upper and Lower Cache Creek groups of earlier reports, Campbell Creek beds (?), Marble Canon limestone, etc. Part, Syn. Boston Bar group.

Cache Lake beds, Becker. U. S. Geol. Surv., Mon., vol. xiii, p. 238. 1888.

Tertiary. California. Included in Pliocene.

Cache Lake beds, Dall and Harris. U. S. Geol. Surv., Bull., No. 84, p. 201. 1892.

Tertiary. California.

Cache Valley group, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 641. 1879.

Pleistocene. Utah. Included in Quaternary.

Cadent series, Rogers. Geol. of Pa., vol. i, pp. 107, 138-140, et seq.; vol. ii, p. 775. 1858.

Devonian. Pennsylvania. Exact Syn. Marcellus.

Cades conglomerate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 16. 1895.

Tennessee, North Carolina. Included in Ocoee group.

Cairo oil sand, White. Geol. Soc. Am., Bull., vol. x, p. 279. 1899.

Carboniferous. West Virginia. Included in Pottsville?

Calaveras, Turner. Am. Geol., vol. xi, pp. 309, 425. 1893.

California.

Calaveras, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 11. 1894.

Carboniferous. California.

Calaveras formation, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 446. 1894.

Carboniferous. California.

Calaveras, Turner. Am. Geol., vol. xiii, p. 229. 1894.

Carboniferous. California. Included in Lower Carboniferous.

Calaveras, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 5, 29, 31. 1894, 1896.

Carboniferous. California. Included in Auriferous slate series.

Calaveras, Lindgren and Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 3, 18. 1894-95.

Carboniferous. California. Included in Auriferous slate series.

Calaveras, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 15. 1895.

Carboniferous. California.

Calaveras formation, Turner. U. S. Geol. Surv., 17th Ann. Rept., pt. i, pp. 549, 628. 1896.

Carboniferous. California.

Calaveras formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 31. 1896.

Carboniferous or older. California. Included in Bed Rock series.

Calaveras formation, Lindgren. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, pp. 79-88. 1896.

Carboniferous. California. Included in Bed Rock series.

Calaveras formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 39. 1897.

Carboniferous. California. Included in Bed Rock series.

Calaveras formation, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 37. 1897.

Carboniferous or older. California. Included in Bed Rock series.

Calaveras formation, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 41. 1897.

Carboniferous. California. Included in Bed Rock series.

Calaveras formation, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 43. 1898.

Carboniferous. California. Included in Bed Rock series.

Calaveras formation, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 51. 1898.

Carboniferous. California. Included in Bed Rock series.

Calaveras formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.

Carboniferous. California. Includes Clipper Gap, Delhi, Cape Horn, Relief, and Blue Canyon formations.

Calaveras formation, Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 63. 1900.

Carboniferous. California.

Calcareous (or lime) group, Harper. Prel. Rept. Geol. and Agr. Miss., p. 75. 1857. Cretaceous. Mississippi.

Calciferous sandrock, Eaton. Geol. and Agric. Surv. adjoining the Erie Canal. 1824.

Silurian. New York.

Calciferous sandrock, Vanuxem. Geol. Surv. N. Y., 2d Ann. Rept., pp. 259-261. 1838.

Cambrian. New York.

Calciferous sandstone, Mather. Geol. Surv. N. Y., 5th Ann. Rept., p. 101. 1841. Silurian. New York.

Calciferous, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, p. 230. 1842.

Included in Lower Silurian.

Calciferous group, Vanuxem. Geol. of New York, pt. iii, pp. 30-38. 1842.

Paleozoic. New York. Included in New York system. Includes Calciferous sandrock and Transition sandrock, No. 2, Pennsylvania survey.

- Calcifereous sandrock, Emmons. Geol. of New York, pt. ii, pp. 105-106, 179, 270, 310, 332, 361, 380. 1842.
- Paleozoic. New York. Included in New York transition system. Champlain group.
- Calcifereous group, Mather. Geol. of New York, pt. i, pp. 410-417. 1843.
- Paleozoic. New York. Included in Champlain division. Includes Barnegat limestone, Newburg limestone, Warwick limestone, Calcifereous and Transition sand rocks, and No. 2 Pennsylvania survey.
- Calcifereous sandstone, Mather. Geol. of New York, pt. i, pp. 414-415. 1843.
- Paleozoic. New York. Included in Calcifereous group.
- Calcifereous sandstone, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 28. 1843.
- Paleozoic. New York. Included in New York system.
- Calcifereous, Emmons. Agric. of New York, vol. i, pp. 118-122. 1846.
- Silurian. New York. Included in Champlain division of New York system.
- Calcifereous sandstone, Emmons. Agric. of New York, vol. i, pp. 118-122. 1846.
- New York. Included in New York system, Champlain division.
- Calcifereous sandstone, Foster and Whitney. Rept. on Geol. of Lake Superior Dist., pt. ii, p. 134, spec. sess. Mar., 1851, Ex. Doc. no. iv. 1851.
- Silurian. Lake Superior region.
- Calcifereous sandstone, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 160. 1855.
- Silurian. Missouri. Included in Lower Silurian. Includes Saccharoidal sandstone, 2d Magnesian limestone. Exact Syns. St. Peter sandstone, Lower Magnesian limestone of Iowa, Wisconsin, and Minnesota.
- Calcifereous sand rock, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 114. 1855.
- Silurian. Missouri. Included in Lower Silurian. Includes 1st Magnesian limestone, Saccharoidal sandstone, 2d Magnesian limestone, 2d sandstone, 3d Magnesian limestone, 3d sandstone, 4th Magnesian limestone.
- Calcifereous sandstone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 49-51. 1858.
- Silurian. Iowa. Exact Syn. Lower Magnesian limestone.
- Calcifereous sand group, Shumard. Am. Jour. Sci., 2d ser., vol. xxxii, p. 215. 1861.
- Silurian. Texas. Part. Syn. Lower Magnesian of Mississippi States.
- Calcifereous sand rock, Billings. Am. Jour. Sci., 2d ser., vol. xxxii, p. 232. 1861.
- Silurian. Vermont. Part. Syn. Postdam?
- Calcifereous, Hall. Am. Jour. Sci., 2d ser., vol. xxxi, p. 222. 1861.
- Silurian. Vermont.
- Calcifereous sand rock, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, pp. 241, 244, 249. 1861.
- Silurian. Vermont, Canada. Included in Lower Silurian.
- Calcifereous sand rock, Hitchcock. Geol. of Vermont, vol. i, pp. 266-271. 1861.
- Paleozoic. Vermont. Included in Potsdam period.
- Calcifereous formation, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 110-122. 1863.
- Lower Silurian. Canada.
- Calcifereous group, Chapman. Can. Inst., new ser., vol. viii, pp. 190-195. 1863.
- Silurian. Canada. Included in Lower Silurian.
- Calcifereous, Freeman. Ill. Geol. Surv., vol. iii, pp. 280-282. 1866.
- Silurian. Illinois.
- Calcifereous epoch, Irving. Wis. Acad. Sci., Trans., vol. i-ii, 1870-1872, pp. 129-137. 1872.
- Wisconsin.
- Calcifereous, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 59. 1873.
- Silurian. Ohio.

- Calciferos sand rock, Fontaine. *Am. Jour. Sci.*, 3d ser., vol. ix, pp. 365, 423-424. 1875.
- Silurian. Virginia.
- Calciferos beds, Prime. *Am. Jour. Sci.*, 3d ser., vol. ix, pp. 435, 437, 438, 439. 1875.
- Silurian. Pennsylvania.
- Calciferos mica-schist, Hitchcock. *Geol. of New Hampshire*, pt. ii, pp. 398-402. 1877.
- Paleozoic. New Hampshire.
- Calciferos, Endlich. *U. S. Geol. and Geog. Surv. of Terr.*, 11th Ann. Rept., pp. 71, 102, 119. 1879.
- Calciferos. Wyoming.
- Calciferos, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 55-59. 1881.
- Silurian. Pennsylvania.
- Calciferos group, Miller. *Cin. Soc. Nat. Hist., Jour.*, vol. iv, no. iv, pp. 269, 276. 1881.
- Ordovician.
- Calciferos, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 93-94. 1882.
- Silurian. Pennsylvania.
- Calciferos formation, Freeman. *Economical Geol. of Ill.*, vol. ii, p. 229. 1882.
- Illinois.
- Calciferos group, Miller. *North American Geol. and Pal.*, p. 31. 1889.
- Calciferos, Brainerd and Seeley. *Am. Mus. Nat. Hist., Bull.*, vol. iii, p. 1. 1890.
- Silurian. New York, Vermont.
- Calciferos, Hopkins. *Ark. Geol. Surv.*, 1890, vol. iv, p. 50. 1890.
- Silurian, Arkansas.
- Calciferos formation, Penrose. *Ark. Geol. Surv.*, 1890, vol. i, pp. 116-121. 1890.
- Silurian. Arkansas.
- Calciferos formation, Brainerd and Seeley. *Am. Mus. Nat. Hist., Bull.*, vol. iii, 1890-91, pp. 1-23. 1890.
- Champlain Valley.
- Calciferos limestone, Hopkins. *Ark. Geol. Surv.*, 1890, vol. iv, p. 115. 1890.
- Silurian. Arkansas. Includes Magnesian limestones of northwestern Arkansas.
- Calciferos, Prosser. *Geol. Soc. Am., Bull.*, vol. iv, pp. 108, 116. 1893.
- Ordovician. New York.
- Calciferos sand rock, Darton. *N. Y. State Geol.*, 13th Ann. Rept., pp. 417-421. 1894.
- Silurian. New York.
- Calciferos, Cushing. *N. Y. State Geol.*, 13th Ann. Rept., pp. 479-481. 1894.
- Silurian. New York.
- Calciferos, Cushing. *Geol. Soc. Am., Bull.*, vol. vi, p. 287. 1895.
- Cambrian. New York.
- Calciferos, Marcou. *Am. Geol.*, vol. xix, pp. 46-49. 1897.
- Silurian. New York.
- Calciferos sand rock, Prosser and Cumings. *N. Y. State Geol.*, 15th Ann. Rept., vol. i, pp. 619-659. 1897.
- Silurian. New York.
- Calciferos sand rock, Cumings. *N. Y. State Mus., Bull.*, vol. vii, p. 419. 1900.
- Silurian. New York. Included in Ordovician.
- Calderwood Neck** schists, Smith. *Geol. of the Fox Islands*, pp. 28-29. 1896.
- Maine. Included in Pre-Silurian.
- Calhoun** shales, Haworth. *Kan. Univ. Geol. Surv.*, vol. iii, p. 94. 1898.
- Carboniferous. Kansas. Included in Shawnee formation.
- Calhoun sandstone and shale, Beede. *Kans. Acad. Sci., Trans.*, vol. xv, p. 29. 1898.
- Carboniferous. Kansas.
- Calhoun limestone, Beede. *Kans. Acad. Sci., Trans.*, vol. xv, pp. 28-29. 1898.
- Carboniferous. Kansas.

- Callaway** limestone, Keyes. Mo. Geol. Surv., vol. iv, pp. 30-43. 1894.
Devonian. Missouri. Included in Hamilton stage.
- Callaway** beds, Keyes. Mo. Geol. Surv., vol. viii, p. 340. 1895.
Devonian. Missouri.
- Callaway** limestone, Wheeler. Mo. Geol. Surv., vol. xi, p. 42. 1896.
Devonian. Missouri. Includes Hamilton group.
- Caloosahatchie** beds, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Pliocene. Florida. Included in Pliocene (Floridian epoch), Floridian group.
Part. Syn. Floridian group.
- Caloosahatchie** beds, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 142. 1892.
Tertiary. Florida. Included in Pliocene. Exact Syn. Floridian.
- Caloosahatchie** beds, Dall. Proc. U. S. Nat. Mus., vol. xviii, p. 27. 1895.
Tertiary. Florida. Included in Pliocene.
- Caloosahatchie** beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 337. 1898.
Tertiary. Florida. Included in Pliocene.
- Calumet Beach**, Blatchley. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., for 1897, pp. 34, 35. 1898.
Glacial. Indiana.
- Cambridge** limestone, Andrews. Ohio Geol. Surv., vol. i, pt. i, p. 262. 1873.
Carboniferous. Ohio. Included in Coal Measures.
- Cambridge** limestone, Orton. Ohio Geol. Surv., vol. iii, p. 895. 1878.
Carboniferous. Ohio.
- Cambridge** limestone, Lovejoy. Ohio Geol. Surv., vol. vi, pp. 631, 633. 1888.
Carboniferous. Ohio.
- Cambridge** limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 93. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Barren Measures, Elk River series. Includes Upper and Lower Cambridge. Part. Syns. Pine Creek limestone. Coleman limestone, Black fossiliferous limestone, Brush Creek limestone.
- Cambridge** slates, Woodworth. Boston Soc. Nat. Hist., Proc., vol. xxvi, 1892-1895, p. 125. 1893.
Massachusetts.
- Cambridge** formation, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, pp. 57-65. 1899.
Tertiary. Jamaica. Included in Eocene. Includes Catadupa and Chapelton beds.
- Camden** series, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 48, 177. 1888.
Tertiary. Arkansas. Includes Arkadelphia shales, Bingen sands, and Cleveland County Red sands.
- Camden** chert, Safford and Schuchert. Am. Jour. Sci., 4th ser., vol. vii, pp. 429-430. 1899.
Devonian. Tennessee. Included in (Lower Oriskany).
- Camden** chert, Schuchert. Geol. Soc. Am., Bull., vol. xi, pp. 320-322. 1900.
Devonian. Tennessee. Included in Oriskany.
- Camp Colorado** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 418. 1893.
Carboniferous. Texas. Included in Cisco division.
- Camp Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 416-417. 1893.
Carboniferous. Texas. Included in Cisco division.
- Campbell Creek** beds, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 44B-45B, 129B. 1896.
Carboniferous. British Columbia. Included in Cache Creek group.
- Campophyllum** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 401. 1893.
Carboniferous. Texas. Included in Canyon division.
- Canaan** dolomite, Hobbs. Jour. of Geol., vol. i, p. 726. 1893.
Silurian. Massachusetts. Included in Mount Washington series. Ordovician.

- Canaan, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 32. 1896.
Carboniferous. Virginia, West Virginia. Exact Syn. Mauch Chunk shales. Part.
Syns. Rogers, No. 11, and Umbral.
- Canaan, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28.
1896.
Carboniferous. West Virginia, Maryland.
- Canaan, Taff and Brooks. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34, 1896.
Carboniferous. West Virginia.
- Canaan formation, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61, 1899.
Carboniferous. Virginia, West Virginia.
- Canadian**, Clarke and Schuchert. Science, new ser., vol. x, p. 877.
Silurian. New York. Includes Beekmantown limestone, Chazy limestone.
- Canal** limestone, Ashburner. 2d Pa. Geol. Surv., Ann. Rept. 1885, p. 445 et seq. 1886.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Cannelton** coal, White. U. S. Geol. Surv., Bull. No. 65, p. 97. 1891.
Carboniferous. West Virginia. Included in Barren Measures, Elk River series.
Includes Upper and Middle Cannelton.
- Cannelton** sandstone, Hopkins. Indiana Dept. Geol. and Nat. Res., 20th Ann. Rept.
(1895), p. 314. 1896.
Indiana.
- Canon City** group, Hayden. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. i, no.
v, 2d ser., p. 401. 1876.
Cretaceous or Tertiary. Colorado.
- Cantera**, Kimball. Am. Jour. Sci., 2d ser., vol. xlviii, p. 379 et seq. 1869.
Cretaceous. Mexico.
- Cantwell** conglomerate, Eldridge. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, p. 16,
1900.
Alaska.
- Canyon** division, Cummins. Texas Geol. Surv., 2d Ann. Rept., p. 374. 1891.
Carboniferous. Texas. Included in Coal Measures.
- Canyon** division, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 387-402. 1893.
Carboniferous. Texas. Includes Campophyllum bed, Bluff Creek, Home Creek,
Hog Creek, Chert, No. 7, Clear Creek, Cedarton, Adams Branch limestone,
Brownwood, Rochelle conglomerate, and Coral limestone beds.
- Canyon** conglomerate, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30,
1896.
Tertiary. Wyoming. Included in Neocene.
- Cap-au-Gris** sandstone, Keyes. Iowa Acad. Sci., Proc., vol. v, p. 60. 1898.
Ordovician. Iowa.
- Cape Beaufort** Coal Measures, Dall and Harris. U. S. Geol. Surv., Bull. No. 84,
p. 249. 1892.
Carboniferous. Alaska.
- Cape Cod** series, Shaler. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 535. 1898.
Tertiary and later. Massachusetts. Includes Nashaquitza and Barnstable series
and other unnamed later deposits.
- Cape Girardeau** limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Rept.,
p. 109. 1855.
Silurian. Missouri. Included in Upper Silurian.
- Cape Girardeau**, Shumard. St. Louis Acad. Sci., Trans., vol. ii, p. 156. 1868.
Silurian. Missouri.
- Cape Girardeau** limestone, Shumard. Mo. Geol. Surv., Rept. 1855-1871, pp. 263,
264. 1873.
Silurian. Missouri. Included in Upper Silurian.
- Cape Girardeau** limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890.
Silurian. Arkansas.

- Cape Girardeau sandstone, Keyes. Mo. Geol. Surv., vol. iv, p. 39. 1894.
 Silurian. Missouri. Included in Hudson shales.
- Cape Horn** formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.
 Carboniferous. California. Included in Calaveras formation.
- Cape John** sandstones, Ami. Brit. Assoc. Adv. Sci., Rept. 1899, p. 756. 1899.
 Carboniferous. Nova Scotia.
- Cape John formation, Ami. Can. Rec. Sci., vol. viii, pp. 162-163. 1900.
 Carboniferous. Canada. Included in Neo-Carboniferous.
- Cape May** formation, Salisbury. N. J. Geol. Surv., Rept. 1897, pp. 19-20. 1898.
 Pleistocene. New Jersey.
- Capitol** limestone, Safford. Geol. of Tennessee, pp. 277-278. 1869.
 Silurian. Tennessee. Included in Nashville formation.
- Caprina** limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, pp. 583, 584. 1857.
 Cretaceous. Texas.
- Caprina limestone, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 89. 1861.
 Cretaceous. Texas. Included in Upper Cretaceous.
- Caprina chalk and limestone, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 124-126. 1890.
 Cretaceous. Texas. Included in Fredericksburg division of Comanche series.
- Caprina limestone, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 513. 1891.
 Cretaceous. Texas.
- Caprina limestone, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 718-719, 720. 1891.
 Cretaceous. Texas. Included in Fredericksburg and Washita division.
- Caprina limestone, Dumble and Cummins. Am. Geol., vol. ix, p. 349. 1892.
 Cretaceous. Texas.
- Caprina limestone, Hill. Artesian Invest., Final Rept., Ex. Doc. 41, 52d Cong., 1st sess., pt. iii, p. 87. 1892.
 Cretaceous. Texas. Included in Trinity division.
- Caprina limestone, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 340-343. 1892.
 Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.
- Caprina limestone, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 256-257. 1893.
 Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.
- Caprotina** limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, pp. 583, 588. 1857.
 Cretaceous. Texas.
- Caprotina limestone, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 89. 1861.
 Cretaceous. Texas. Included in Upper Cretaceous. (Lower Cretaceous).
- Caprotina limestone, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 127-128. 1890.
 Cretaceous. Texas. Included in Washita division of Comanche series. Exact Syn. Austin marble.
- Caprotina bed, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 719, 727. 1891.
 Cretaceous. Texas. Included in Washita division.
- Cardiola** shale, Claypole. Am. Phil. Soc., Proc., vol. xxi, p. 230. 1884.
 Devonian. Pennsylvania. Exact Syn. Portage.
- Cariboo** schists, Bowman. Can. Geol. Surv., new ser., vol. iii, pt. i, pp. 22C-25C. 1889.
 British Columbia. Included in Lower Paleozoic.
- Carlile** shale, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 565. 1896.
 Cretaceous. Colorado. Included in Benton group.
- Carlile shale, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.
 Cretaceous. Colorado. Included in Benton formation.

- Carlile shale, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
Cretaceous. Colorado.
- Carlile shale, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Cretaceous. Colorado.
- Carlville** limestone, Worthen. Economical Geol. of Ill., vol. i, p. 169, vol. iii, pp. 305, 488. 1882.
Carboniferous. Illinois. Included in Coal Measures. Exact syn. Shoal Creek limestone.
- Carlville limestone, Worthen. Illinois Geol. Surv., vol. vii, pp. 19, 48. 1883.
Carboniferous. Illinois. Included in Coal Measures.
- Carlyle** limestone, Haworth. Kansas Univ. Quart., vol. ii, p. 119. 1894.
Carboniferous. Kansas.
- Carlyle limestone, Haworth and Piatt. Kan. Univ. Quart., vol. ii, p. 117. 1894.
Carboniferous. Kansas.
- Carlyle limestone, Haworth and Kirk. Kan. Univ. Quart., vol. ii, pp. 109–110. 1894.
Carboniferous. Kansas.
- Carlyle limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, p. 78. 1896.
Carboniferous. Kansas.
- Carlyle limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, p. 98. 1896.
Carboniferous. Kansas.
- Carlyle limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 133–134. 1896.
Carboniferous. Kansas.
- Carlyle limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, p. 158. 1896.
Carboniferous. Kansas.
- Carlyle limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, p. 104. 1898.
Carboniferous. Kansas. Exact syn. Garnett limestone.
- Carmanah Point** beds, Merriam. Univ. of Cal. Dept. of Geol., Bull., vol. ii, p. 102. 1896.
Tertiary. British Columbia. Included in Miocene.
- Carmelo** series, Lawson. Univ. of Cal. Dept. of Geol., Bull., vol. i, pp. 1–59. 1893.
Tertiary. California. Included in Eocene? Part. syn. Tejon?
- Carolinian** bed, Conrad. Am. Jour. Sci., 2d ser., vol. xlviii, p. 260. 1867.
Tertiary. North and South Carolina.
- Carolinian, Heilprin. Phil. Acad. Nat. Sci., Proc., 1882, p. 183–184. 1882.
Included in Miocene. Includes Upper Atlantic Miocene. Exact syn. Sumpter.
- Carolinian, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 119–120. 1884.
Included in Tertiary. Includes Upper Atlantic Miocene. Exact syn. Sumpter.
- Carolinian marl, Dall. U. S. Nat. Mus. Proc., vol. xviii, p. 31. 1895.
Tertiary. North Carolina.
- Caroni** series, Wall and Sawkins. Geol. of Trinidad, pp. 41–45. 1860.
Tertiary. Trinidad. Included in Newer Parian group.
- Caroni beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 341. 1898.
Tertiary. Island of Trinidad. Included in Oligocene.
- Carribean** group, Wall and Sawkins. Geol. of Trinidad, pp. 13–33. 1860.
Trinidad.
- Carrizo Creek** oyster bed, Orcutt. Cal. State Min. Bur., 10th Ann. Rept., vol. x, p. 915, etc. 1890.
Tertiary. California. Included in Miocene.
- Carrollton** limestone, Williams. Ark. Geol. Surv., 1892, vol. v, pp. 334–337. 1900.
Carboniferous. Arkansas.
- Carter's Creek** limestone, Safford. Geol. of Tennessee, pp. 263–268. 1869.
Silurian. Tennessee. Included in Trenton or Lebanon.
- Carter's Creek limestone, Wetherby. Cin. Soc. Nat. Hist., Jour., vol. iii, no. ii, p. 147. 1880.
Silurian. Kentucky.

- Cascade series**, Selwyn. Can. Geol. Surv., Rept. 1871-72. p. 60. 1872.
British Columbia.
- Cascade series**, Dawson. Can. Geol. Surv., Rept. 1877-78, pp. 63B, 67B, etc. 1879.
Carboniferous? British Columbia.
- Cascade sandstone**, White. 2d Pa. Geol. Surv., Rept. G⁵, pp. 74-79. 1881.
Devonian. Pennsylvania. Included in Chemung.
- Cascade formation**, Wadsworth. Mich., Rept. State Board of Geol. Surv. for 1891-1892, pp. 63, 66, 84, 99. 1893.
Archean, Michigan.
- Cascade formation**, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 55, 56. 1899.
Cretaceous. Montana.
- Caseyville sandstone**, Owen. Ky. Geol. Surv., vol. iii, p. 21. 1857.
Carboniferous. Kentucky. Included in Coal Measures.
- Cashaqua shale**, Hall. N. Y. Geol. Surv., 4th Ann. Rept., pp. 390-391, 423. 1840.
Devonian. New York.
- Cashaqua shale**, Hall. N. Y. Geol. Surv., 5th Ann. Rept., p. 165. 1841.
New York.
- Cashaqua shale**, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 226-227. 1843.
Paleozoic. New York. Included in Portage group.
- Cason limestone and shale**, Williams. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 326-329. 1894.
Silurian. Arkansas. Included in Upper Silurian.
- Cassville plant shale**, White. U. S. Geol. Surv., Bull. No. 65, p. 41. 1891.
Carboniferous. West Virginia. Included in Permo-Carboniferous, Dunkard Creek series.
- Castle limestone**, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 293. 1900.
Carboniferous. Montana. Included in Madison group.
- Castle Mountain group**, McConnell. Can. Geol. Surv., Rept., new ser., vol. ii, pp. 15D, 24D-29D. 1887.
Cambro-Silurian. Canada.
- Castle Mountain group**, Dawson. Geol. Soc. Am., Bull., vol. ii, p. 168. 1891.
Cambrian? British Columbia.
- Castle Mountain group**, McConnell. Can. Geol. Surv., new ser., vol. vii, p. 34C. 1896.
Canada. Included in Lower Paleozoic.
- Catadupa**, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, pp. 58-61. 1899.
Eocene. Jamaica. Included in Blue Mountain series, Cambridge formation.
- Cat Head beds**, Dowling. Ottawa Field Nat. Club, Trans., 1895-96, vol. xi, pp. 69-70. 1895-96.
Cambro-Silurian. Canada.
- Catoctin schist**, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.
Algonkian. Virginia, Maryland, West Virginia.
- Catoctin schist**, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 306. 1894.
Virginia, Maryland.
- Catskill Mountain series**, Mather. N. Y. Geol. Surv., 4th Ann. Rept., pp. 227-233. 1840.
Devonian. New York. Includes Nos. 8, 9, 10, and 11 of Pennsylvania survey.
- Catskill Mountain series**, Mather. N. Y. Geol. Surv., 5th Ann. Rept., pp. 75-85. 1841.
Devonian. New York. Includes Montrose sandstone, Chemung group, Ithaca group, Sherburne flags, Hamilton group, Marcellus shales.
- Catskill group**, Vanuxem. Geol. of New York, pt. iii, pp. 186-194. 1842.
Paleozoic. New York. Included in New York system. Includes Montrose and Oneonta sandstones, No. 9 Pennsylvania survey.

- Catskill shaly limestone, Vanuxem. Geol. of New York, pt. iii, pp. 120-122. 1842.
Paleozoic. New York. Included in New York system. Includes Delthyris shaly limestone, Scutella limestone. Part. syn. No. 6, Pennsylvania survey.
- Catskill division, Mather. Geol. of New York, pt. i, pp. 299-316. 1843.
Paleozoic. New York. Included in New York system. Includes Montrose and Oneonta sandstones, Old Red Sandstone Nos. ix, x, xi, xii, Pennsylvania survey.
- Catskill group, Emmons. Agriculture of New York, vol. i, pp. 193-197. 1846.
Devonian. New York. Included in Catskill division of New York system.
- Catskill division, Emmons. Agriculture of New York, vol. i, pp. 187-197. 1846.
Devonian. New York. Included in New York system. Includes Chemung, Portage, Ithaca and Catskill groups.
- Catskill shaly limestone, Owen. Am. Jour. Sci., 2d ser., vol. i, p. 50. 1846.
Silurian. New York. Included in No. 6 Pennsylvania Survey, Helderberg series (or division) of the New York system. Includes Delthyris shaly limestone and Scutella limestone.
- Catskill group, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada. Exact Syn. Old Red Sandstone.
- Catskill, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 71. 1873.
Devonian. Ohio.
- Catskill formation, Fontaine. Am. Jour. Sci., 3d ser., vol. vii, p. 578. 1874.
Devonian. West Virginia.
- Catskill, Hotchkiss. A Geographical and Political Summary of Virginia, p. 22. 1876.
Devonian. Virginia. Included in Devonian or Old Red Sandstone. Exact syn. Ponent (Formation ix-Rogers).
- Catskill, Ashburner. Am. Phil. Soc., Proc., vol. xvi, p. 525. 1877.
Devonian. Appalachian region. Exact Syn. Ponent.
- Catskill, Ashburner. 2d Pa. Geol. Surv., Rept. F, pp. 217-220. 1878.
Devonian. Pennsylvania. Exact syns. Ponent, Old Red Sandstone.
- Catskill, Newberry. Ohio Geol. Surv., vol. iii, p. 21. 1878.
Carboniferous. Ohio, Pennsylvania.
- Catskill group, Stevenson. Am. Jour. Sci., 3d ser., vol. xv, pp. 423-430. 1878.
Devonian. Pennsylvania.
- Catskill, Chance. 2d Geol. Surv. of Pa., Rept. G⁴, pp. 101-103. 1880.
Devonian. Pennsylvania. Exact syn. No. ix, Ponent.
- Catskill, White. 2d Geol. Surv. of Pa., Rept. G⁵, pp. 9-73. 1881.
Devonian. Pennsylvania. Includes Mount Pleasant and Elk Mountain shales, Cherry Ridge group, Honesdale sandstone, Montrose shale, Paupack sandstone, New Milford group, Starucca shale. Exact syn. No. ix.
- Catskill, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 26-27. 1881.
Devonian. Pennsylvania. Exact syn. No. ix.
- Catskill, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 91-104. 1882.
Devonian. Pennsylvania. Includes Mount Pleasant shale, Elk Mountain sandstone, Cherry Ridge group, Honesdale sandstone, Montrose shale, Delaware River flags, New Milford shale, Starucca sandstone.
- Catskill, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 73-75. 1882.
Devonian. Pennsylvania.
- Catskill, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 54-63. 1883.
Devonian. Pennsylvania. Exact syn. No. ix.
- Catskill-Chemung, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 63-67. 1883.
Devonian. Pennsylvania. Included in Nos. viii-ix.
- Catskill, Claypole. Am. Phil. Soc., Proc., vol. xx, p. 531. 1883.
Devonian. Pennsylvania.

Catskill, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 72-78. 1885.

Devonian. Pennsylvania. Includes Kings Mill sandstone and shale, Dellville sandstone.

Catskill, Ashburner. 2d Pa. Geol. Surv., Rept. R², pp. 376-377. 1885.

Devonian. Pennsylvania. Exact syn. No. ix.

Catskill, White. 2d Pa. Geol. Surv., Rept. T³, pp. 88-99. 1885.

Devonian. Pennsylvania.

Catskill sandstone, Winslow. 2d Pa. Geol. Surv., Rept. 1886, pt. iv, pp. 1338, 1344, 1354, 1357, 1358, 1359, 1361, 1363. 1887.

Carboniferous. Pennsylvania. Exact syn. No. ix.

Catskill group, Miller. North American Geol. and Pal., p. 65. 1889.

Catskill limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 52. 1890.

Silurian. Arkansas. Included in Lower Helderberg.

Catskill, D'Invilliers. 2d Pa. Geol. Surv., Rept. F⁴, pp. 44-45. 1891.

Devonian. Pennsylvania. Exact syn. No. ix.

Catskill, Williams. U. S. Geol. Surv., Bull., No. 80, p. 121. 1891.

Devonian.

Catskill, Stevenson. Am. Assoc. Adv. Sci., Proc., vol. xl, p. 219. 1891.

Devonian. Appalachian region.

Catskill, Prosser. Am. Geol., vol. vii, p. 351. 1891.

Devonian. New York, Pennsylvania.

Catskill, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1567-1627. 1892.

Devonian. Pennsylvania. Exact Syn. No. ix.

Catskill, Stevenson. Am. Geol., vol. ix, p. 6. 1892.

Devonian. Appalachian region. Included in Upper Devonian, Chemung.

Catskill, Darton. Am. Jour. Sci., 3d ser., vol. xlv, pp. 208-209. 1893.

Devonian. New York. Includes Portage and Chemung.

Catskill, Stevenson. Am. Jour. Sci., 3d ser., vol. xlvi, pp. 330-337. 1893.

Devonian. New York.

Catskill sandstone, Williams and Clark. Maryland; its Resources, Industries, and Institutions, pp. 70, 72. 1893.

Devonian. Maryland. Part. Syn. No. ix.

Catskill group, Hall. N. Y. State Geol., 12th Ann. Rept., pp. 33-35. 1893.

Devonian. New York.

Catskill, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.

Devonian. New York, Pennsylvania. Included in Upper Devonian. Includes Mount Pleasant red shale; Elk Mountain sandstone and shale, Cherry Ridge group, Honesdale sandstone.

Catskill sandstone, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-878. 1899.

Devonian. New York. Included in Chautauquan.

Catskill, White. W. Va. Geol. Surv., vol. i, p. 205. 1899.

Devonian. West Virginia.

Cauda-Galli grit, Vanuxem. Geol. of New York, pt. iii, pp. 127-130. 1842.

Paleozoic. New York. Included in New York system. Includes Cocktail grit.

Cauda-Galli grit, Mather. Geol. of New York, pt. i, pp. 341-342. 1843.

Paleozoic. New York. Included in Helderberg division.

Cauda-Galli grit, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 150. 1843.

Paleozoic. New York. Included in New York system. Exact Syn. Cocktail grit.

Cauda-Galli grit, Emmons. Agriculture of New York, vol. i, pp. 171-173. 1846.

Devonian. New York. Included in Helderberg division of New York system.

Cauda-Galli grit, Owen. Am. Jour. Sci., 2d ser., vol. i, p. 56. 1846.

New York. Included in Helderberg division of New York system.

- Cauda-Galli grit, Cook. Geol. of New Jersey, pp. 162-164. 1868.
Devonian. New Jersey.
- Cauda-Galli grit, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 121-122. 1882.
Devonian. Pennsylvania. Included in Upper Helderberg of No. viii.
- Cauda-Galli, Claypole. Am. Phil. Soc., Proc., vol. xx, p. 534. 1883.
Devonian. Pennsylvania.
- Cauda-Galli grit, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1040 et seq. 1892.
Devonian. Pennsylvania. Included in Oriskany.
- Cauda-Galli grit, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Corniferous. (Lower Devonian.)
- Cavaniol** group, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 371. 1897.
Carboniferous. Indian Territory. Included in Upper Coal Measures.
- Cave** limestone, Swallow. Kan. Geol. Surv., Prelim. Report, pp. 20-21, 75. 1866.
Carboniferous. Kansas.
- Cave rock series, Swallow. Kan. Geol. Surv., Prelim. Report, p. 20. 1866.
Carboniferous. Kansas.
- Cave Creek formation, Cragin. Colo. College Stud., vol. vi, pp. 3, 27-39. 1896.
Permian. Kansas. Included in Cimarron series. Includes Medicine Lodge gypsum and Shimer.
- Cave Creek formation, Cragin. Am. Geol., vol. xix, pp. 356-358. 1897.
Permian. Kansas, Oklahoma. Included in Salt Fork division of Cimarron series. Includes Shimer gypsum, Jenkins clay and Medicine Lodge gypsum.
- Cave Creek gypsum, Prosser. Kan. Univ. Geol. Surv., vol. ii, p. 94. 1897.
Permian? Kansas. Included in Upper part of Salt Fork division of the Cimarron series.
- Cave Springs sandstone, Haworth. Kan. Univ. Geol. Surv., vol. iii, p. 66. 1898.
Carboniferous. Kansas. Included in Elk Falls limestone.
- Cayuga** dolomite, Chapman. A Popular and Practical Exposition of the Minerals and Geology of Canada, p. 190. 1864.
Silurian. Canada. Includes Water lime and Tentaculite. Exact Syn. Bertie dolomite.
- Cayugan, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Silurian. New York. Includes Salina beds, Rondout Water lime, Manlius limestone.
- Cedar**, Turner. Am. Geol., vol. xiii, p. 231. 1894.
California. Includes Hosselkus limestone.
- Cedar formation, Smith. Jour. of Geol., vol. ii, pp. 604-609. 1894.
Trias. California. Includes Swearinger shale and Hosselkus limestone.
- Cedar, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 15. 1895.
Juratrias. California.
- Cedar formation, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 43. 1898.
Juratrias. California. Included in Bed-Rock series.
- Cedar Hills** sandstones, Cragin. Colo. College Stud., vol. vi, pp. 3, 24. 1896.
Permian. Kansas. Included in Cimarron series.
- Cedar Hills sandstone, Cragin. Am. Geol., vol. xix, p. 355. 1897.
Permian. Kansas, Oklahoma. Included in Glass Mountain formation of Cimarron series.
- Cedarton** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 391. 1893.
Carboniferous. Texas. Included in Canyon division.
- Cedar Valley** limestone, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 314. 1891.
Devonian. Iowa.

- Cedar Valley limestones, Keyes. Iowa Geol. Surv., vol. i, pp. 34-40. 1893.
Devonian. Iowa.
- Cedar Valley limestones, Norton. Iowa Geol. Surv., vol. iv, pp. 166-167. 1895.
Devonian. Iowa.
- Cedar Valley stage, Calvin. Iowa Geol. Surv., vol. vii, pp. 62-72, 145-160. 1897.
Devonian. Iowa.
- Cedar Valley limestone, Udden. Cin. Soc. Nat. Hist., Jour., vol. xix, no. iii, p. 93. 1897.
Devonian. Illinois.
- Cedar Valley limestone, Calvin. Iowa Geol. Surv., vol. viii, pp. 230-239. 1898.
Devonian. Iowa.
- Cedar Valley limestone, Udden. Iowa Geol. Surv., vol. ix, p. 269. 1899.
Devonian. Iowa.
- Cedar Valley limestone, Williams. Iowa Geol. Surv., vol. x, p. 345. 1900.
Devonian. Iowa.
- Cedar Valley stage, Norton. Iowa Geol. Surv., vol. ix, p. 457. 1899.
Devonian. Iowa.
- Cedarville** guelph limestone, Orton. Ohio Geol. Surv., Rept. Progress in 1870, pp. 271, 301. 1871.
Silurian. Ohio. Included in Niagara series.
- Cedarville beds, Phinney. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept. for 1883, p. 142. 1884.
Silurian. Indiana.
- Cedarville limestone, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas, p. 21. 1886.
Ohio. Included in Niagara series.
- Cedarville strata, Foerste. Denison Univ. Sci. Lab., Bull., vol. iii, p. 6. 1888.
Ohio.
- Cedarville limestone, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 13. 1888.
Upper Silurian. Ohio. Included in Niagara group.
- Cedarville limestone, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 11. 1893.
Silurian. Ohio. Included in Niagara group. Exact Syn. Guelph limestone.
- Cedarville rocks, Foerste. Cin. Soc. Nat. Hist., Jour., vol. xviii, nos. iii, iv, pp. 188, 190. 1896.
Silurian. Ohio.
- Central** limestone, Safford. Geol. Recon. of the State of Tenn., 1st Rept., pp. 154-156. 1856.
Silurian. Tennessee. Included in Lower Silurian. Includes Nashville, Stone River.
- Central limestone, Safford. Geol. of Tenn., pp. 259-261. 1869.
Silurian. Tennessee. Included in Trenton or Lebanon.
- Ceratops** beds, Marsh. Am. Jour. Sci., 3d ser., vol. xxxviii, p. 501. 1889.
Cretaceous. Rocky Mountains. Included in Upper Cretaceous.
- Ceratops beds, Hatcher. Am. Jour. Sci., 3d ser., vol. xlv, pp. 135-144. 1893.
Cretaceous or Tertiary. Colorado, Wyoming.
- Ceratops beds, Hatcher. Am. Nat., vol. xxx, pp. 114-118. 1896.
Tertiary. Rocky Mountain region.
- Ceratops beds, Marsh. U. S. Geol. Surv., Mon., vol. xxvii, p. 477. 1896.
Cretaceous. Colorado.
- Cerro Gordo** moraine, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 218-222. 1899.
Pleistocene. Illinois.
- Chadron** formation, Darton. U. S. Geol. Surv., 19th Ann. Rept., pt. iv, pp. 736, 759. 1899.
Tertiary. Nebraska. Included in Oligocene?

- Chaelites** limestone, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 202. 1874.
Carboniferous. Missouri. Included in Coal Measures.
- Chaffin** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 410-412. 1893.
Carboniferous. Texas. Included in Cisco division.
- Chalky** marl beds, Hill. Ark. Geol. Surv., 1888, vol. ii, p. 84. 1888.
Cretaceous. Arkansas. Included in Upper Cretaceous or *Exogyra castata* series.
Includes Marlbrook-Columbus or *Gryphæa vesicularis* chalk marls, Brownstone marls, White Cliff chalk, Rocky Comfort chalk.
- Chamberlain** shales, Walcott. Geol. Soc. Am., Bull., vol. x, pp. 199, 206. 1899.
Algonkian? Pre-Cambrian. Montana. Included in Belt terrane.
- Chamberlain shale, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 282. 1900.
Algonkian. Montana. Included in Belt terrane.
- Champion** shell beds, Cragin. Am. Geol., vol. xvi, p. 368. 1895.
Cretaceous. Kansas. Included in Belvidere beds.
- Champion shell bed, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 114-115. 1897.
Lower Cretaceous. Kansas. Included in Comanche series, Fredericksburg division. Exact Syn. Comanche Peak limestone.
- Champlain** group, Emmons. Geol. of New York, pt. ii, pp. 99-126. 1842.
Paleozoic. New York. Included in New York Transition system. Includes Potsdam sandstone, Calcareous sand rock, Chazy limestone, Birdseye limestone, Trenton limestone, Utica slate, Lorraine shales, Grey sandstone.
- Champlain division, Mather. Geol. of New York, pt. i, pp. 366-421. 1843.
Paleozoic, New York. Included in New York system. Includes Hudson River group, Utica slate, Trenton, Black River limestone, Calcareous group, Potsdam sandstone.
- Champlain division, Emmons. Agriculture of New York, vol. i, pp. 117-141. 1846.
New York. Includes Potsdam and Calcareous sandstone, Chazy and Birdseye limestones, Isle La Motte marble, Trenton limestone, Utica slate, Lorraine shales, and Oneida conglomerate.
- Champlain, Perry. Boston Soc. Nat. Hist., Proc., vol. xi, 1866-68. p. 352. 1867.
Vermont.
- Champlain, Hitchcock. Geol. Soc. Am., Bull., vol. vii, pp 2, 3. 1895.
Pleistocene. Vermont, New Hampshire, etc. Exact Syn. Mecklenburg stage.
- Champlain clays, Emerson. U. S. Geol. Surv., Mon. vol. xxix, pp. 697-718. 1898.
Pleistocene. Massachusetts. Included in Glacial.
- Champlainic, Clarke and Schuchert. Science, new ser., vol. x, pp. 875-876. 1899.
Silurian. New York. Exact Syn. Ordovician.
- Chanute** shales, Haworth and Kirk. Kan. Univ. Quart., vol. ii, p. 109. 1894.
Carboniferous. Kansas.
- Chapelon**, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, pp. 61-65. 1899.
Eocene. Jamaica. Included in Blue Mountain series, Cambridge formation.
- Chapman** dolomite, Cragin. Am. Geol., vol. xix, p. 358. 1897.
Permian. Kansas, Oklahoma. Included in Dog Creek formation of Cimarron series.
- Chapman sandstone, Williams. U. S. Geol. Surv., Bull. No. 165, p. 78. 1900.
Devonian. Maine.
- Chapman sandstone, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 133. 1900.
Maine.
- Charette** limestone, Broadhead. Mo. Geol. Surv., Rept. 1855-1871, p. 49. 1873.
Silurian. Missouri. Included in Trenton limestone.
- Chariton** conglomerate, Bain. Iowa Geol. Surv., vol. v, pp. 394-398. 1896.
Carboniferous, Iowa. Included in Des Moines stage.
- Charleston** sandstone, Campbell and Mendenhall. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 508. 1896.
Carboniferous. West Virginia. Exact Syn. No. xiv. Lower Barren Measures.

- Charleston sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 69. 1900.
- Carboniferous. West Virginia, Ohio. Included in Elk River series.
- Chase** formation, Prosser. Jour. of Geol., vol. iii, pp. 771-786. 1895.
- Permo-Carboniferous. Kansas.
- Chase limestones, Cragin. Colo. College Stud., vol. vi, pp. 3, 7. 1896.
- Permian. Kansas. Included in Big Blue series.
- Chase formation, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 180-187. 1896.
- Carboniferous. Kansas. Included in Permian.
- Chase formation, Beede. Kan. Univ. Quart., vol. ix, p. 198. 1900.
- Carboniferous. Kansas.
- Chattahoochee** series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 57. 1891.
- Tertiary. Georgia. Included in Miocene.
- Chattahoochee series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 97. 1891.
- Tertiary. Georgia.
- Chattahoochee group, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
- Miocene. Georgia, Florida. Included in Chipola epoch. Includes Hawthorne and Ocheesee beds.
- Chattahoochee group, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 83. 1892.
- Tertiary. Georgia.
- Chattahoochee, Foerste. Am. Jour. Sci., 3d ser., vol. xlviii, pp. 41-54. 1894.
- Tertiary. Georgia, Florida. Included in Miocene.
- Chattahoochee limestone, Dall and Stanley-Brown. Geol. Soc. Am., Bull., vol. v, pp. 147, 162. 1894.
- Tertiary. Florida. Included in Miocene. Includes Hawthorne beds, Tampa limestone.
- Chattanooga** black shale, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.
- Devonian. Tennessee. Exact syn. black shale.
- Chattanooga black shale, Hayes. Ala. Geol. Surv., Bull., vol. iv, p. 45. 1892.
- Devonian. Alabama.
- Chattanooga, Spencer. Ga. Geol. Surv., The Paleozoic group, p. 50. 1893.
- Devonian. Georgia.
- Chattanooga black shale, Hayes. Geol. Soc. Am., Bull., vol. v, p. 470. 1894.
- Devonian. Alabama.
- Chattanooga black shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
- Devonian. Kentucky, Virginia, Tennessee.
- Chattanooga black shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 8, 19, 20, 21, 22, 35. 1894-95, 1896.
- Devonian. Georgia, Tennessee, Alabama.
- Chattanooga black shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
- Devonian. Tennessee, North Carolina.
- Chattanooga shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
- Devonian. Tennessee.
- Chattanooga black shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896.
- Devonian. Alabama. Part. syn. Black shale.
- Chattanooga shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 46, 47. 1898.
- Devonian. Kentucky.

- Chattanooga shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 53. 1899.
 Devonian. Tennessee.
- Chattanooga shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
 Devonian. Virginia, Tennessee.
- Chautauquan**, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
 Devonian. New York. Includes Chemung beds.
- Chazy** limestone, Emmons. Geol. of New York, pt. ii, pp. 107, 315. 1842.
 Paleozoic. New York. Included in New York Transition system, Champlain group.
- Chazy, Emmons. Agriculture of New York, vol. i, p. 122. 1846.
 Silurian. New York. Included in Champlain division of New York system.
- Chazy limestone, Emmons. Agriculture of New York, vol. i, p. 122. 1846.
 New York. Included in New York system, Champlain division.
- Chazy limestone, Hall. Am. Jour. Sci., 2d ser., vol. xvii, pp. 181-193. 1854.
 Silurian. Michigan.
- Chazy limestone, Hitchcock. Geol. of Vermont, vol. i, pp. 272-279. 1861.
 Paleozoic. Vermont. Included in Trenton period. Exact syn. Isle La Motte limestone.
- Chazy formation, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 123-135. 1863.
 Lower Silurian. Canada.
- Chazy formation, Chapman. Can. Inst., new ser., vol. viii, pp. 195-196. 1863.
 Silurian. Canada. Included in Lower Silurian.
- Chazy formation, Bell. Can. Geol. Surv., Rept. 1863-1866, p. 170. 1866.
 Silurian. Canada.
- Chazy, Smith. Ala. Geol. Surv., Rept. 1875, pp. 24, 96, 111. 1876.
 Silurian. Alabama.
- Chazy, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 55-59. 1881.
 Silurian. Pennsylvania.
- Chazy group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 270, 279. 1881.
- Chazy limestone, Linney. Ky. Geol. Surv., Geol. of Garrard Co., p. 10. 1883.
 Silurian. Kentucky. Included in Canadian period.
- Chazy limestone, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery counties. 1884.
 Silurian or Cambrian. Kentucky. Included in Canadian period.
- Chazy limestone, Whitfield. Am. Mus. Nat. Hist., Bull., vol. i, 1881-1886, p. 295. 1886.
 Vermont.
- Chazy, Brainerd and Seeley. Am. Geol., vol. ii, pp. 323-330. 1888.
 Silurian. New York.
- Chazy formation, Sowter. Ottawa Field Nat. Club, Trans., 1888-89, vol. iv, pp. 11-15. 1888, 1889.
 Silurian. Canada.
- Chazy group, Miller. North American Geol. and Pal., p. 36. 1889.
- Chazy, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 50. 1890.
 Silurian. Arkansas.
- Chazy limestone, Orton. Ky. Geol. Surv., Rept. on Petroleum, etc., p. 128. 1891.
 Silurian. Kentucky.
- Chazy limestone, Cushing. N. Y. State Geol., 13th Ann. Rept., pp. 481-483. 1894.
 Silurian. New York.
- Chazy, Cushing. Geol. Soc. Am., Bull., vol. vi, p. 286. 1895.
 Ordovician. New York.

- Chazy, Brainerd and Seeley. *Am. Mus. Nat. Hist., Bull.*, vol. viii, pp. 305-315. 1896.
Silurian. Vermont and New York.
- Chazy limestone, Cushing. *N. Y. State Geol.*, 15th Ann. Rept., vol. i, p. 513. 1897.
Silurian. New York.
- Chazy, Marcou. *Am. Geol.*, vol. xix, pp. 46-49. 1897.
Silurian. New York.
- Chazy limestone, Clarke and Schuchert. *Science*, new ser., vol. x, pp. 876-877. 1899.
Silurian. New York. Included in Canadian.
- Chehalis**, Lawson. *Am. Geol.*, vol. xiii, p. 437. 1894.
Tertiary. Washington. Included in Eocene or Miocene.
- Chemung group**, Hall. *N. Y. Geol. Surv.*, 3d Ann. Rept., pp. 322-324, 326. 1839.
Devonian. New York.
- Chemung group, Hall. *N. Y. Geol. Surv.*, 4th Ann. Rept. pp. 402-409. 1840.
Devonian. New York.
- Chemung, Conrad. *Phil. Acad. Nat. Sci., Jour.*, vol. viii, pp. 232, 235. 1842.
Included in Devonian. Includes Middle division.
- Chemung group, Hall. *Am. Jour. Sci.*, 1st ser., vol. xlii, p. 54. 1842.
Devonian. Ohio.
- Chemung group, Vanuxem. *Geol. of New York*, pt. iii, pp. 179-185. 1842.
Paleozoic. New York. Included in New York system.
- Chemung group, Hall. *Geol. of New York*, pt. iv, 4th Geol. Dist., pp. 18, 251-261. 1843.
Paleozoic. New York. Included in New York system. Includes Ithaca group, No. 9 Pennsylvania survey.
- Chemung group, Emmons. *Agriculture of New York*, vol. i, pp. 190-193. 1846.
Devonian. New York. Included in Catskill division of New York system.
- Chemung, Whittlesey. *Am. Assoc. Adv. Sci., Proc.*, vol. v, p. 207. 1851.
Devonian. Ohio.
- Chemung group, Meek. *Mo. Geol. Surv.*, 1st and 2nd Ann. Repts., pt. ii, p. 101. 1855.
Carboniferous. Missouri. Includes Chouteau limestone.
- Chemung, Swallow. *Mo. Geol. Surv.*, 1st and 2nd Ann. Repts., pp. 101, 176. 1855.
Devonian. Missouri. Includes Chouteau, Vermicular, and Lithographic.
- Chemung, Swallow. *Am. Assoc. Adv. Sci., Proc.*, vol. ii, p. 9. 1857.
Devonian. Missouri. Includes Chouteau, Vermicular sandstone, and Lithographic limestone.
- Chemung group, Hall. *Iowa Geol. Surv.*, vol. i, p. 88. 1858.
Devonian. Iowa.
- Chemung group, Worthen. *Iowa Geol. Surv.*, vol. i, p. 245. 1858.
Devonian. Iowa.
- Chemung group, Whitney. *Iowa Geol. Surv.*, vol. i, p. 376. 1858.
Devonian. Iowa.
- Chemung group, Hall. *Iowa Geol. Surv.*, vol. i, pt. i, pp. 88-91. 1858.
Devonian. Iowa.
- Chemung group, Worthen. *Iowa Geol. Surv.*, vol. i, pt. i, pp. 245-246. 1858.
Devonian. Iowa.
- Chemung group, Whitney. *Iowa Geol. Surv.*, vol. i, pt. i, pp. 376-378. 1858.
Devonian. Iowa.
- Chemung group, Hall and Whitney (review). *Am. Jour. Sci.*, 2d ser., vol. xxvii, p. 113. 1859.
Devonian. Iowa.
- Chemung group, White and Whitfield. *Boston Soc. Nat. Hist., Proc.*, vol. viii, 1861-62, p. 289. 1862.
Iowa.

- Chemung group, Dawson. *Am. Jour. Sci.*, 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada.
- Chemung, Newberry. *Ohio Geol. Surv.*, vol. i, pt. i, p. 69. 1873.
Devonian. Ohio.
- Chemung, Hall. *Am. Assoc. Adv. Sci., Proc.*, vol. xxiv, p. 80. 1875.
Devonian. New York.
- Chemung, Lesley. 2d Pa. Geol. Surv., Rept. I, pp. 88-95. 1875.
Devonian. Pennsylvania, New York. Exact syn. No. viii.
- Chemung, Hotchkiss. *A Geographical and Political Summary of Virginia*, p. 22. 1876.
Devonian. Virginia. Included in Devonian or Old Red Sandstone. Exact syn. Vergent (Formation ix, Rogers).
- Chemung, Ashburner. *Am. Phil. Soc., Proc.*, vol. xvi, pp. 526, 549. 1877.
Devonian. Appalachian region. Exact syn. Vergent.
- Chemung group, Stevenson. *Am. Jour. Sci.*, 3d ser., vol. xv, pp. 423-430. 1878.
Devonian. Pennsylvania. Part. syns. Ponent series and Vergent series.
- Chemung, Newberry. *Ohio Geol. Surv.*, vol. iii, p. 21. 1878.
Carboniferous. Ohio, Pennsylvania.
- Chemung group, Miller. *Cin. Soc. Nat. Hist., Jour.*, vol. iv, no. iv, p. 289. 1881.
Silurian.
- Chemung, White. 2d Pa. Geol. Surv., Rept. G⁵, pp. 73-79. 1881.
Devonian. Pennsylvania. Includes Cascade sandstone. Part. syn. No. viii.
- Chemung, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 27-29. 1881.
Devonian. Pennsylvania.
- Chemung, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 117-118. 1881.
Devonian. Pennsylvania.
- Chemung, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 104-106. 1882.
Devonian. Pennsylvania. Included in No. viii.
- Chemung group, Williams. *Am. Jour. Sci.*, 3d ser., vol. xxv, pp. 97-104. 1883.
Devonian. Mississippi Valley, New York.
- Chemung, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 67-83. 1883.
Devonian. Pennsylvania. Includes Portage. Exact syn. No. viii.
- Chemung, Ewing. 2d Pa. Geol. Surv., Rept. T¹, pp. 433-434. 1884.
Devonian. Pennsylvania. Exact syn. No. viii.
- Chemung, Lilley. *Am. Phil. Soc., Proc.*, vol. xxi, p. 304. 1884.
Devonian. Pennsylvania.
- Chemung, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 70-72. 1885.
Devonian. Pennsylvania.
- Chemung, White. 2d Pa. Geol. Surv., Rept. T³, pp. 99-104. 1885.
Devonian. Pennsylvania.
- Chemung, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 377. 1885.
Devonian. Pennsylvania. Exact syn. Vergent.
- Chemung, Hall. *Am. Assoc. Adv. Sci., Proc.*, vol. xxxiii, pt. ii, p. 417. 1885.
Devonian. Pennsylvania, New York.
- Chemung, Stevenson. *Am. Phil. Soc., Proc.*, vol. xxi, pp. 135, 139. 1885.
Devonian. Virginia.
- Chemung, Lilley. *Am. Phil. Soc., Proc.*, vol. xxiii, p. 291. 1886.
Devonian. Pennsylvania.
- Chemung, Williams. *U. S. Geol. Surv., Bull.*, No. 41, pp. 51-104. 1887.
Devonian. New York.
- Chemung, Stevenson. *Am. Phil. Soc., Proc.*, vol. xxiv, p. 81. 1887.
Devonian. Virginia.
- Chemung group, Miller. *North American Geol. and Pal.*, p. 64. 1889.
- Chemung, Stevenson. *Am. Assoc. Adv. Sci., Proc.*, vol. xl, p. 219. 1891.
Devonian. Appalachian region. Includes Portage, Chemung, Catskill.

- Chemung, Williams. U. S. Geol. Surv., Bull., No. 80, p. 121. 1891.
Devonian.
- Chemung, Harris. Am. Geol., vol. vii, p. 165. 1891.
Devonian. New York.
- Chemung, Prosser. Am. Jour. Sci., 3d ser., vol. xlv, pp. 210-221. 1892.
Devonian. Pennsylvania.
- Chemung, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1371-1566. 1892.
Devonian. Pennsylvania. Exact syn. No. viiig.
- Chemung, Stevenson. Am. Geol., vol. ix, p. 6. 1892.
Devonian. Appalachian region. Included in Upper Devonian. Includes Portage, Chemung, Catskill.
- Chemung, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 100-108, 116. 1893.
Devonian. New York.
- Chemung formation, Darton. Am. Jour. Sci., 3d ser., vol. xlv, pp. 203-209. 1893.
Devonian. New York.
- Chemung, Williams and Clark. Maryland: Its Resources, Industries, and Institutions. 1893.
Devonian. Maryland. Part. syn. No. viii.
- Chemung group, Hall. N. Y. State Geol., 12th Ann. Rept., pp. 33-35. 1893.
Devonian. New York.
- Chemung, Prosser. U. S. Geol. Surv., Bull., No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Upper Devonian. Includes Montrose shales, Delaware flags, New Milford shale, Starucca sandstone.
- Chemung series, Prosser. N. Y. State Geol., 15th Ann. Rept., pp. 83-222. 1897.
Devonian. New York.
- Chemung group, Luther. N. Y. State Geol., 15th Ann. Rept., pp. 284-286. 1897.
Devonian. New York.
- Chemung, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1898.
Devonian. New York.
- Chemung group, Luther. N. Y. State Geol., 16th Ann. Rept., p. 225. 1899.
Devonian. New York.
- Chemung, Prosser. N. Y. State Geol., 17th Ann. Rept., pp. 67-315; N. Y. State Mus., 51st Ann. Rept., vol. ii, pp. 67-315. 1899.
Devonian, New York.
- Chemung beds, White. W. Va. Geol. Surv., vol. i, p. 208. 1899.
Devonian. West Virginia.
- Chengwatona** series, Hall. Am. Assoc. Adv. Sci., Proc., vol. xlix, p. 191. 1900.
Great Lakes region.
- Cherokee** slates, Kerr. N. C. Geol. Surv., Rept. 1866-67, p. 29. 1869.
North Carolina. Exact syn. Linville slates.
- Cherokee shales, Haworth and Kirk. Kan. Univ. Quart., vol. ii, pp. 105-106. 1894.
Carboniferous. Kansas.
- Cherokee shales, Haworth. Kan. Univ. Quart., vol. iii, pp. 272-273. 1895.
Carboniferous. Kansas, etc.
- Cherokee shales, Haworth. Am. Jour. Sci., 3d ser., vol. i, pp. 455-456. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Cherokee shales, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 150-151, 221-224. 1896.
Carboniferous. Kansas.
- Cherokee shales, Adams. Kan. Univ. Geol. Surv., vol. i, pp. 18-21. 1896.
Carboniferous. Kansas. Included in Coal Measures.
- Cherokee shales, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 37-40. 1896.
Carboniferous. Kansas.
- Cherokee shales, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 72-73. 1896.
Carboniferous. Kansas.

- Cherokee shale, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 32-33, 34-70, 119-121, 124-156, 162-163, 209, 212, 267. 1898.
- Upper Carboniferous. Missouri. Included in Des Moines series.
- Cherokee shales, Shepard. Mo. Geol. Surv., vol. xii, pp. 195, 197. 1898.
- Lower Carboniferous. Missouri.
- Cherokee stage, Shepard. Mo. Geol. Surv., vol. xii, p. 49. 1898.
- Upper Carboniferous. Missouri. Included in Des Moines series. Includes Graydon sandstone.
- Cherokee shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 21-30, 89, 92, 94, 99. 1898.
- Carboniferous. Kansas. Included in Lower Coal Measures.
- Cherokee shales, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 84. 1900.
- Carboniferous. Mississippi Valley. Included in Coal Measures.
- Cherry** limestone bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 395. 1893.
- Carboniferous. Texas. Included in Canyon Division.
- Cherry Creek** beds, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
- Algonkian. Montana.
- Cherry Ridge** group, White. 2d Pa. Geol. Surv., Rept. G⁵, pp. 64-66. 1881.
- Devonian. Pennsylvania. Included in Catskill.
- Cherry Ridge group, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 95-97. 1882.
- Devonian. Pennsylvania. Included in Catskill.
- Cherry Ridge conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1579-1580. 1892.
- Devonian. Pennsylvania. Included in Catskill, No. ix.
- Cherry Ridge group, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
- Devonian. New York, Pennsylvania. Included in Catskill (Upper Devonian).
- Cherryvale** shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 47-48, 102. 1898.
- Carboniferous. Kansas.
- Chesapeake**, McGee. U. S. Geol. Surv., 12th Ann. Rept., pt. i, p. 410. 1891.
- Tertiary. Atlantic Coastal Plain. Included in Miocene.
- Chesapeake, Darton. Geol. Soc. Am., Bull., vol. ii, pp. 431, 435, 443. 1891.
- Tertiary. Virginia, Maryland. Included in Miocene.
- Chesapeake, Dall and Harris. U. S. Geol. Soc., Bull. No. 84, pp. 54, 68, 123. 1892.
- Tertiary. Atlantic coast.
- Chesapeake, Darton. U. S. Geol. Surv., Baltimore, Md., Geologic Sheet. 1892.
- Tertiary. Maryland. Included in Neocene.
- Chesapeake group, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
- Miocene. Virginia, Maryland, Florida, etc.
- Chesapeake, Williams and Clark. Maryland: Its Resources, Industries, and Institutions, pp. 77, 80-82. 1893.
- Tertiary. Maryland. Included in Miocene.
- Chesapeake, McGee, Williams, and Darton. Int. Cong. of Geol., 5th sess., pp. 236, 246-247. 1893.
- Tertiary. Maryland, District of Columbia.
- Chesapeake, Dall and Stanley-Brown. Geol. Soc. Am., Bull., vol. v, pp. 147, 167. 1894.
- Tertiary. Florida. Included in Miocene.
- Chesapeake, Clark. N. J. Geol. Surv., Rept. 1894, p. 339. 1894.
- Neocene. New Jersey.
- Chesapeake, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 13, 23. 1894, 1896.
- Tertiary. Virginia, Maryland. Included in Neocene.
- Chesapeake, Clark. Johns Hopkins Univ. Circ., No. 121, pp. 6-8. 1895.
- Tertiary. New Jersey. Included in Miocene.

- Chesapeake formation, Shattuck. Johns Hopkins Univ. Circ., No. xv, p. 15. 1895.
Neocene. New Jersey.
- Chesapeake, Darton. U. S. Geol. Surv., Bull., No. 138, pp. 41, 119, 126, 163. 1896.
Tertiary. Atlantic Coastal Plain. Included in Neocene.
- Chesapeake, Clark. Md. Geol. Surv., vol. i, p. 156. 1897.
Neocene. Maryland.
- Chesapeake formation, Clark. Md. Geol. Surv., vol. i, p. 197. 1897.
Tertiary. Maryland. Included in Neocene.
- Cheshire** quartzite, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Cambrian. Massachusetts. Part. syn. Stockbridge limestone.
- Cheshire quartzite, Emerson. U. S. Geol. Surv., Bull. No. 159, p. 78. 1899.
Cambrian. Massachusetts.
- Chester**, Swallow. Am. Assoc. Adv. Sci., Proc., vol. ii, p. 5. 1857.
Carboniferous. Missouri.
- Chester, Worthen. Am. Assoc. Adv. Sci., Proc., vol. xiii, p. 312. 1860.
Carboniferous. Illinois.
- Chester group, Worthen. Ill. Geol. Surv., vol. i, pp. 41-42, 77-83, 284-292, 305-308, 321. 1866.
Carboniferous. Illinois. Includes Ferruginous sandstone.
- Chester group, Engelmann. Ill. Geol. Surv., vol. i, pp. 381-397, 414-417, 438-447, 460-477. 1866.
Carboniferous. Illinois.
- Chester group, Worthen. Ill. Geol. Surv., vol. iii, pp. 44-50, 65-68. 1868.
Carboniferous. Illinois.
- Chester limestone, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 189. 1868.
Lower Carboniferous. Illinois.
- Chester group, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 24. 1874.
Carboniferous. Missouri. Included in Lower Carboniferous, Mountain limestone.
- Chester group, Cox. Ill. Geol. Surv., vol. vi, pp. 221-223. 1875.
Carboniferous. Illinois.
- Chester group, Norwood. Ky. Geol. Surv., vol. i, new ser., pp. 366-371. 1876.
Carboniferous. Kentucky. Included in Lower Carboniferous. Exact syn.
Chester group of Illinois.
- Chester group, Shaler. Ky. Geol. Surv., vol. iii, new ser., pp. 182-183. 1877.
Carboniferous. Kentucky. Included in Sub-Carboniferous limestone.
- Chester group, Smith. Ala. Geol. Surv., Rept. 1877-78, pp. 16, 21, 24, 37, 39, 64. 1879.
Carboniferous. Alabama. Exact syn. Mountain limestone.
- Chester group, McCalley. Ala. Geol. Surv., Rept. 1879-80, pp. 77, 128, 133, 144. 1881.
Carboniferous. Alabama. Included in Sub-Carboniferous. Exact syn. Mountain limestone.
- Chester group, Worthen. Ill. Geol. Surv., vol. vii, pp. 34 et seq. 1883.
Carboniferous. Illinois. Included in Lower Carboniferous.
- Chester series, Vogdes. N. Y. Acad. Sci., Annals, vol. iv, p. 73. 1889.
Carboniferous. Mississippi Valley.
- Chester, Ladd. Mo. Geol. Surv., Bull., No. 3, pp. 14, 15. 1890.
Lower Carboniferous. Missouri.
- Chester, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Chester shale and limestone, Sullivan. Ky. Geol. Surv. (Proctor), Geol. of Jackson and Rockcastle counties. 1891.
Carboniferous. Kentucky.

- Chester group, Orton. Ky. Geol. Surv., Rept. on Petroleum, etc., p. 135. 1891.
Carboniferous. Kentucky.
- Chester, Nickles. Am. Geol., vol. vii, p. 47. 1891.
Carboniferous. Illinois. Included in Sub-Carboniferous.
- Chester amphibolite, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Silurian. Massachusetts.
- Chester shale, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 295, 297. 1892.
Lower Carboniferous. Missouri. Exact syn. Kaskaskia.
- Chester shales, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 76. 1894.
Lower Carboniferous. Missouri. Included in Kaskaskia stage.
- Chester amphibolite, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 5. 1895.
Cambrian? Massachusetts. Part. syn. Stockbridge limestone.
- Chester amphibolite, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Silurian. Massachusetts.
- Chester amphibolite, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 78-116. 1898.
Silurian. Massachusetts. Included in Lower Silurian.
- Chesterfield** group, Shaler and Woodworth. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 435-436. 1899.
Juratrias. Virginia. Includes Otterdale sandstone and Vinita beds.
- Chester Valley** limestone, Lesley. 2d. Pa. Geol. Surv., Rept. C⁴, pp. 113-135. 1883.
Silurian. Pennsylvania. Exact syns. Formation No. ii, Auroral; Calciferous, Chazy, and Trenton of New York.
- Chestnut Hill** group, Hall. 2d Pa. Geol. Surv., Rept. C⁶, pp. 24-27. 1881.
Pennsylvania.
- Chestnut Hill subdivision, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 123-124. 1892.
Archean. Pennsylvania.
- Chestnut Hill schists, Rand. Phil. Acad. Nat. Sci., Proc. 1900, pp. 275-276. 1900.
Pennsylvania.
- Cheyenne** sandstone, Cragin. Washburn Coll. Lab. Nat. Hist., Bull., vol. ii, pp. 65-68. 1889.
Kansas. Exact syn. Trinity division of Texas and Arkansas.
- Cheyenne sandstone, Cragin. Am. Geol., vol. vi, p. 233. 1890.
Cretaceous. Kansas. Exact syn. Trinity.
- Cheyenne sandstone, Cragin. Washburn Coll. Lab. Nat. Hist., Bull., vol. ii, pp. 69-80. 1890.
Cretaceous. Kansas.
- Cheyenne, Cragin. Am. Geol., vol. vii, p. 179. 1891.
Cretaceous. Texas.
- Cheyenne sandstone, Cragin. Am. Geol., vol. xvi, p. 361. 1895.
Cretaceous. Kansas. Included in Belvidere beds. Includes Elk Creek beds, Coral sandstone.
- Cheyenne sandstone, Hill. Am. Jour. Sci., 3d ser., vol. I, pp. 207-234. 1895.
Cretaceous. Kansas, Oklahoma, New Mexico. Included in Comanche series.
- Cheyenne sandstone, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 112-114. 1897.
Lower Cretaceous. Kansas. Included in Comanche series.
- Cheyenne sandstone, Gould. Am. Jour. Sci., 4th ser., vol. v, pp. 169, 173, 174. 1898.
Cretaceous. Kansas. Included in Comanche series.
- Cheyenne sandstone, Prosser. Kan. Univ. Quart., vol. viii, pp. 135-136. 1899.
Cretaceous. Kansas.

Chickamauga limestone, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.

Silurian. Tennessee. Exact Syn. Trenton?

Chickamauga, Hayes. Ala. Geol. Surv., Bull., No. 4, p. 42. 1892.

Silurian. Alabama. Includes Nashville or Cincinnati, Trenton, and Chazy of Smith; Nashville, Trenton or Lebanon of Safford.

Chickamauga series, Spencer. Ga. Geol. Surv., The Paleozoic Group, pp. 45, 82, 113, 116, 120, 124, 131, 141. 1893.

Silurian. Georgia. Included in Hudson, Trenton, and Chazy. Includes Rock-smart slate, Maclurea limestone.

Chickamauga limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 12, 26. 1894, 1896.

Silurian. Kentucky, Virginia, Tennessee.

Chickamauga, Hayes. Geol. Soc. Am., Bull., vol. vi, p. 469. 1894.

Silurian. Georgia, Alabama.

Chickamauga limestone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 8, 19, 20, 21, 22, 35. 1894, 1895, 1896.

Silurian. Georgia, Tennessee, Alabama.

Chickamauga limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.

Silurian. Tennessee, North Carolina.

Chickamauga limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.

Silurian. Tennessee. Part. syns. Trenton and Nashville groups.

Chickamauga limestone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896.

Silurian. Alabama. Exact syns. Trenton or Pelham limestone of Smith, Trenton, Lebanon, or Maclurea limestone of Safford.

Chickamauga limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Silurian. Virginia, West Virginia.

Chickamauga limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.

Silurian. Virginia, Tennessee.

Chickasaw formation, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 344-345. 1898.

Tertiary. Gulf States. Included in Eocene. Part. syn. Lignitic group.

Chickasawan stage, Vaughan. U. S. Geol. Surv., Mon., vol. xxxix, p. 25. 1900.

Tertiary. Gulf States. Included in Eocene. Includes Nanafalia, Bluff beds, Greggs Landing beds, Bashi or Woods Bluff beds, Hatchetebigbee Bluff beds.

Chico group, Whitney. Geol. Surv. of Cal., Paleontology, vol. ii, Preface, p. xiii. 1869.

Cretaceous. California.

Chico group, Diller. Science, vol. v, p. 43. 1885.

Tertiary. California.

Chico-Tejon, White. U. S. Geol. Surv., Bull., No. 51, p. 28. 1889.

Tertiary, Cretaceous. Oregon, Washington.

Chico beds, Diller. U. S. Geol. Surv., 8th Ann. Rept., pt. i, p. 407. 1889.

Cretaceous. California.

Chico-Tejon series, White. U. S. Geol. Surv., Bull., No. 82, pp. 192, 264. 1891.

Cretaceous. Pacific coast. Included in Upper Cretaceous.

Chico beds, Diller. Geol. Soc. Am., Bull., vol. iv, p. 205. 1893.

Cretaceous. California.

Chico, Stanton. Geol. Soc. Am., Bull., vol. iv, p. 245. 1893.

Cretaceous. California.

- Chico beds, Diller and Stanton. Geol. Soc. Am., Bull., vol. v, pp. 435, 444. 1894.
Cretaceous. California. Includes Wallala beds.
- Chico, Emmons and Merrill. Geol. Soc. Am., Bull., vol. v, pp. 496, 500. 1894.
Cretaceous. Mexico.
- Chico formation, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 458. 1894.
Cretaceous. California.
- Chico, Turner. Am. Geol., vol. xiii, p. 234. 1894.
Cretaceous. California.
- Chico-Tejon series, Turner and Stanton. Am. Geol., vol. xiv, p. 92. 1894.
Cretaceous. Tertiary. California.
- Chico-Tejon formation, Marcou. Am. Geol., vol. xix, pp. 121-125. 1897.
Cretaceous.
- Chico formation, Fairbanks. Jour. of Geol., vol. vi, pp. 560-561. 1898.
Cretaceous. California.
- Chicopee** shale, Emerson. Geol. Soc. Am., Bull., vol. ii, p. 452. 1891.
Trias. Massachusetts.
- Chicopee shale, Emerson. Geol. Soc. Am., Bull., vol. viii, p. 62. 1897.
Trias. Massachusetts.
- Chicopee shale, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 370. 1898.
Juratrias. Massachusetts. Included in Connecticut River sandstone.
- Chicopee shale, Emerson. U. S. Geol. Surv., Atlas of U. S., Folio No. 50. 1898.
Juratrias. Massachusetts.
- Chikis** quartzite, Frazer. 2d Pa. Geol. Surv., Rept. C³, pp. 6-8, 19-20. 1880.
Cambrian? Pennsylvania. Exact syn. Primal sandstone. See Chiques sandstone.
- Chilhowee** sandstone and shales, Safford. Geol. Recon. of the State of Tenn.,
1st Rept., pp. 152-153. 1856.
Tennessee. Includes in Cambrian system (?).
- Chilhowee sandstone, Safford. Geol. of Tenn. pp. 198-203. 1869.
Silurian. Tennessee. Included in Potsdam group.
- Chilhowee sandstones, Kerr. N. C. Geol. Surv., Rept. 1866-67, p. 29. 1869. North
Carolina.
- Chilhowee sandstone, Killebreu and Safford. Resources of Tennessee, p. 30. 1874.
Silurian. Tennessee. Included in Potsdam group.
- Chilhowee sandstone, Bradley. Am. Jour. Sci., 3d ser., vol. ix, p. 283. 1875.
Cambrian. Tennessee. Exact syn. Potsdam sandstone.
- Chilhowee sandstone, Little. Handbook of Ga., Com. of Agric. 1876, p. 41. 1876.
Silurian. Georgia. Included in Lower Primordial.
- Chilhowee sandstone series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., 1890-91.
1891.
Cambrian. Georgia. Exact syn. Weisner quartzite.
- Chilhowee, Walcott. U. S. Geol. Surv., Bull., No. 81, p. 251, 300. 1891.
Cambrian. Appalachian region. Included in Lower Cambrian. Exact syn.
Granular quartz.
- Chilhowee, Spencer. Ga. Geol. Surv., The Paleozoic group, pp. 35, 77. 1893.
Cambrian. Georgia. Included in Lower Cambrian.
- Chilhowee group, Keith. Wash. Phil. Soc., Bull., vol. xii, pp. 72, 75. 1895.
Tennessee. Included in Cambrian.
- Chilhowee series, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20.
1895.
Cambrian. Tennessee. Includes Sandsuck shale, Starr conglomerate, Cochran
conglomerate, Nichols shale, Nebo sandstone, Murray shale.
- Chipola** beds, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Miocene. Florida. Included in Miocene (Chipola epoch), Tampa group. Part.
syn. Tampa group.

Chipola marl, Dall and Harris. U. S. Geol. Surv., Bull. 84, p. 122. 1892.

Tertiary. Florida. Included in Miocene.

Chipola marl, Dall and Stanley-Brown. Geol. Soc. Am., Bull., vol. v, pp. 147, 165. 1894.

Tertiary. Florida. Included in Miocene.

Chipola beds, Dall. U. S. Nat. Mus., Proc., vol. xviii, p. 23. 1895.

Tertiary. Florida.

Chippewa Valley quartzites, Van Hise. Int. Cong. of Geol., 5th sess., pl. xiv. 1893.

Algonkian. Lake Superior region. Included in Huronian.

Chippewa quartzites, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.

Algonkian. Wisconsin. Included in Upper Huronian. Part. syns. Penokee, Upper Marquette, Animikie.

Chiques sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, p. 165. 1892.

Cambrian. Pennsylvania. Included in No. 1. See Chikis quartzite.

Chitistone limestone, Rohn. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 426. 1900. Alaska.

Chloritic formation, Dana. Am. Jour. Sci., 3d ser., vol. x, pp. 119-122. 1875. Connecticut.

Choctaw limestone, Cragin. Colo. College Stud., vol. v, p. 41. 1894.

Cretaceous. Texas. Included in Main street limestone.

Chouteau limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 101, 176, 194. 1855.

Devonian. Missouri. Included in Chemung.

Chouteau limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 408. 1857.

Missouri. Included in Chemung group.

Chouteau limestone, Meek and Worthen. Am. Jour. Sci., 2d ser., vol. xxxii, p. 174. 1861.

Carboniferous? Illinois.

Chouteau limestone, Shumard. Mo. Geol. Surv. Repts., 1855-1871, pp. 45, 295. 1873.

Carboniferous. Missouri. Included in Chemung group. Lower Carboniferous.

Chouteau limestone, Meek. Mo. Geol. Surv. Repts., 1855-1871, p. 174. 1873.

Carboniferous. Missouri. Included in Lower Carboniferous.

Chouteau group, Broadhead. Mo. Geol. Surv. Rept., 1873-74, pp. 26-65. 1874.

Carboniferous. Missouri. Included in Lower Carboniferous, Mountain limestone.

Includes Chouteau limestone, Vernicular sandstone, Lithographic limestone.

Exact syns. Chemung group, Kinderhook group.

Chouteau group, Broadhead. St. Louis Acad. Sci., Trans., vol. iii, pp. 219, 220. 1878.

Carboniferous. Missouri. Includes Chouteau limestone, Vernicular sandstone, and the Lithographic limestone. Exact syn. Kinderhook group.

Chouteau, Rowley. Am. Geol., vol. iii, pp. 111-116. 1889.

Carboniferous. Missouri.

Chouteau, Ladd. Mo. Geol. Surv., Bull. No. 3, pp. 14, 15. 1890.

Lower Carboniferous. Missouri. Exact syn. Waverly.

Chouteau group, Williams. U. S. Geol. Surv., Bull., No. 80, p. 170. 1891.

Carboniferous. Included in Mississippian series. Includes Chouteau limestone, Vermicular sandstone, and Lithographic limestone.

Chouteau, Miller. Mo. Geol. Surv., Bull. No. 4, p. 6. 1891.

Lower Carboniferous. Missouri. Exact syn. Waverly, Marshall, Kinderhook.

Chouteau limestone, Keyes. Geol. Soc. Am., Bull., vol. iii, p. 283. 1892.

Lower Carboniferous. Missouri. Included in Kinderhook beds.

Chouteau limestone, Keyes. Iowa Geol. Surv., vol. i, p. 56. 1893.

Carboniferous. Iowa. Included in Kinderhook.

- Chouteau group, Broadhead. *Am. Geol.*, vol. xii, p. 82. 1893.
Carboniferous. Missouri. Included in Mississippian series. Includes Chouteau limestone, Vernicular sandstone, Lithographic limestone.
- Chouteau limestone, Keyes. *Mo. Geol. Surv.*, vol. iv, pp. 30, 50, 57, 76. 1894.
Lower Carboniferous. Missouri. Included in Kinderhook stage.
- Chouteau limestone, Keyes. *Mo. Geol. Surv.*, vol. vii, pt. ii, pp. 390, 395. 1894.
Lower Carboniferous. Missouri. Included in Kinderhook stage.
- Chouteau group, Weller. *Jour. of Geol.*, vol. iii, pp. 903-917. 1895.
Carboniferous. Mississippi Valley.
- Chouteau limestone, Stewart. *Kan. Univ. Quart.*, vol. iv, pp. 161-162. 1896.
Carboniferous. Missouri.
- Chouteau limestone, Keyes. *St. Louis Acad. Sci., Trans.*, vol. vii, p. 359. 1897.
Carboniferous. Missouri.
- Chouteau limestone, Shepard. *Mo. Geol. Surv., Rept.*, vol. xii, pp. 49, 92-100. 1898.
Lower Carboniferous. Missouri. Included in Kinderhook stage.
- Chouteau limestone, Keyes. *Jour. of Geol.*, vol. viii, p. 318. 1900.
Carboniferous. Mississippi Valley.
- Chuar**, Walcott. *Geol. Soc. Am., Bull.*, vol. i, p. 50. 1889.
Algonkian. Arizona.
- Chuar, Walcott. *U. S. Geol. Surv., 14th Ann. Rept.*, pt. ii, p. 506. 1894.
Algonkian. Grand Canyon of Colorado. Included in Grand Canyon series.
- Chuar terrane, Walcott. *Jour. of Geol.*, vol. iii, pp. 319-322. 1895.
Algonkian. Grand Canyon region. Included in Grand Canyon series.
- Chuar terrane, Walcott. *Geol. Soc. Am., Bull.*, vol. x, p. 215. 1899.
Algonkian. Arizona. Included in Grand Canyon series.
- Chuar, Crosby. *Geol. Soc. Am., Bull.*, vol. x, p. 158. 1899.
Algonkian. Colorado. Included in Grand Canyon group.
- Churchill** Arkose sandstone, Tyrrell. *Can. Geol. Surv., new ser.*, vol. ix, p. 174F. 1898.
Cambrian. Hudson Bay region.
- Cimarron** series, Cragin. *Colo. College Stud.*, vol. vi, pp. 3, 18-48. 1896.
Permian. Kansas. Includes Kiger division above and Salt Fork below, 10 formations.
- Cimarron series, Prosser. *Kan. Univ. Quart.*, vol. vi, pp. 150-151, 175. 1896.
Permian or Triassic? Kansas.
- Cimarron series, Prosser. *Kan. Univ. Geol. Surv.*, vol. ii, pp. 75-95. 1897.
Carboniferous. Kansas. Included in Permian? Includes Kiger and Salt Fork divisions, comprising Big Basin sandstone, Hackberry shales, Day Creek dolomite, Red Bluff sandstones, Dog Creek shales, Cave Creek gypsum, Flower-pot shales, Cedar Hill sandstones, Salt Plain measures and Harper sandstones. Upper Permian.
- Cimarron series, Grimsley. *Geol. Soc. Am., Bull.*, vol. viii, p. 228. 1897.
Permian. Kansas.
- Cimarron series, Cragin. *Am. Geol.*, vol. xix, pp. 351-363. 1897.
Permian. Indian Territory, Kansas, Oklahoma. Includes Kiger and Salt Fork divisions.
- Cincinnati** limestone, Mather. *Rept. State House Artesian Well at Columbus, Ohio.* p. 6. 1859.
Ohio.
- Cincinnati group, Meek and Worthen. *Phil. Acad. Nat. Sci., Proc.*, vol. xvii, p. 155. 1865.
- Cincinnati group, Worthen. *Ill. Geol. Surv.*, vol. i, pp. 136-141. 1866.
Silurian. Illinois. Included in Lower Silurian. Includes Cape Girardeau limestone, and Thebes sandstone in southern Illinois.

- Cincinnati group, Whitney. Ill. Geol. Surv., vol. i, pp. 172-177. 1866.
Silurian. Illinois.
- Cincinnati group, Worthen. Ill. Geol. Surv., vol. iii, pp. 26-27, 117. 1868.
Silurian. Illinois.
- Cincinnati limestone, Haymond. Indiana Geol. Surv., 1st Ann. Rept., 1869, p. 192.
1869.
Indiana.
- Cincinnati group, Bannister. Ill. Geol. Surv., vol. iv, pp. 121, 140. 1870.
Silurian. Illinois.
- Cincinnati group, Bradley. Ill. Geol. Surv., vol. iv, pp. 200, 216, 233. 1870.
Silurian. Illinois.
- Cincinnati group, Worthen. Ill. Geol. Surv., vol. iv, p. 5. 1870.
Silurian. Illinois.
- Cincinnati group, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 19. 1870.
Silurian. Ohio. Exact syn. Blue Limestone group.
- Cincinnati group, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, pp. 12, 14. 1870.
Silurian. Ohio. Exact syn. Blue limestone.
- Cincinnati group, Newberry. Ohio Geol. Surv., Rept. Prog., p. 14. 1871.
Silurian. Ohio.
- Cincinnati group, Shaw. Ill. Geol. Surv., vol. v, pp. 35-56, 65-66, 77-78, 98-99,
110-111, 131-132, 152-154. 1873.
Silurian. Illinois.
- Cincinnati group, Orton. Ohio Geol. Surv., vol. i, pt. i, pp. 367, 437. 1873.
Silurian. Ohio. Includes Lebanon, Cincinnati, and Point Pleasant beds. Exact
syns. Blue limestone, Hudson River.
- Cincinnati, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 103, 116. 1873.
Silurian. Ohio. Includes Lebanon, Cincinnati, and Point Pleasant beds.
- Cincinnati group, Miller. Cin. Quart. Jour. Sci., vol. i, pp. 97-115. 1874.
Silurian. Ohio Valley. Included in Ordovician.
- Cincinnati group, Borden. Indiana Geol. Surv., 5th Ann. Rept. 1873, p. 137. 1874.
Indiana.
- Cincinnati group, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 28. 1874.
Silurian. Missouri. Included in Lower Silurian. Exact syns. Hudson River
and Utica shales.
- Cincinnati, Orton. Ohio Geol. Surv., vol. ii, p. 662. 1874.
Silurian. Ohio.
- Cincinnati group, Bradley. Am. Jour. Sci., 3d ser., vol. ix, p. 281. 1875.
Silurian. Tennessee.
- Cincinnati group, Shaler. Ky. Geol. Surv., new ser., vol. iii, pp. 149-159. 1877.
Silurian. Kentucky.
- Cincinnati shales and limestone, Chamberlin. Geol. of Wisconsin, vol. ii, p. 314.
1877.
Lower Silurian. Wisconsin.
- Cincinnati group, Newberry. Ohio Geol. Surv., vol. iii, p. 2. 1878.
Silurian. Ohio. Included in Lower Silurian.
- Cincinnati group, Orton. Ohio Geol. Surv., vol. iii, pp. 382, 400, 406. 1878.
Silurian. Ohio. Exact syn. Blue limestone.
- Cincinnati. Kansas City Rev., vol. ii, No. xi, p. 668. 1879.
Silurian. Ohio.
- Cincinnati group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, p. 269. 1881.
Ordovician.
- Cincinnati group, Foerste. Denison Univ. Sci. Lab., Bull., vol. i, p. 64, etc. 1885.
Ohio.

- Cincinnati group, James. *Cin. Soc. Nat. Hist., Jour.*, vol. ix, No. 2, p. 20. 1886.
Ordovician.
- Cincinnati series, Orton. *Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas*, p. 19. 1886.
Ohio.
- Cincinnati group, James. *Cin. Soc. Nat. Hist., Jour.*, vol. x, No. 2, pp. 71, 77. 1887.
Ordovician. Ohio.
- Cincinnati group, Foerste. *Denison Univ. Sci. Lab., Bull.*, vol. iii, p. 3. 1888.
Ohio.
- Cincinnati limestone, Hopkins. *Ark. Geol. Surv.*, 1890, vol. iv, p. 51. 1890.
Silurian. Arkansas.
- Cincinnati, James. *Am. Geol.*, vol. v, p. 335. 1890.
Silurian. Ohio and Mississippi Valley. Part. syn. Maquoketa.
- Cincinnati group, James. *Cin. Soc. Nat. Hist., Jour.*, vol. xiv, No. 2, p. 93. 1891.
Ordovician. Ohio.
- Cincinnati group, James. *Cin. Soc. Nat. Hist., Jour.*, vol. xiv, No. i, p. 45. 1891.
Lower Silurian.
- Cincinnati limestone and shale, Hall and Sardeson. *Geol. Soc. Am., Bull.*, vol. iii, pp. 332, 365. 1892.
Silurian. Minnesota. Includes Maquoketa beds and Wykoff beds.
- Cincinnati group, Hubbard. *Indiana Acad. Sci., Proc.*, 1885-1891, p. 68. 1892.
Lower Silurian. Indiana.
- Cincinnati group, Hershey. *Science*, vol. xxii, p. 202. 1893.
Silurian. Illinois.
- Cincinnati formation, Foerste. *Cin. Soc. Nat. Hist., Jour.*, vol. xviii, nos. 3, 4, p. 163. 1896.
Ordovician. Ohio.
- Cincinnati, Winchell and Ulrich. *Minn. Geol. and Nat. Hist. Surv., Final Rept.*, vol. iii, pt. ii, p. ci. 1897.
Lower Silurian. Minnesota. Exact syn. Hudson River.
- Cincinnati group, Kindle. *Indiana Dept. Geol. and Nat. Res.*, 22d Ann. Rept., 1897, p. 408. 1898.
Ordovician. Indiana.
- Cincinnati beds, Newsom. *Indiana Acad. Sci., Proc.* 1897, p. 250. 1898.
Indiana.
- Cincinnati rocks, Ashley. *Indiana Dept. Geol. and Nat. Res.*, 23d Ann. Rept., 1898, p. 77. 1899.
Lower Silurian. Indiana.
- Cincinnati, Clarke and Schuchert. *Science*, new ser., vol. x, pp. 876-877. 1899.
Silurian. New York. Includes Utica shale, Lorraine beds, Richmond beds.
- Cisco division, Cummins. *Texas Geol. Surv.*, 2d Ann. Rept., pp. 374-375. 1891.
Carboniferous. Texas. Included in Coal Measures.
- Cisco division, Drake. *Texas Geol. Surv.*, 4th Ann. Rept., pp. 402-421. 1893.
Carboniferous. Texas. Includes Santa Anna branch, No. 18, Horse Creek, Watts Creek, Camp Colorado, No. 13, Stockwether bed, Coon Mountain, Camp Creek, Saddle Creek, Waldrip, Chaffin, Parks Mountain, Lohn, Speck Mountain, Bellerophon, and Trickham beds.
- Citadel series, Ells. *Geol. Soc. Am., Bull.*, vol. i, p. 465. 1889.
Ordovician. Quebec. Included in Quebec group.
- Citadel rocks, Bailey and McInnes. *Can. Geol. Surv.*, new ser., vol. v, pt. i, pp. 5M-6M, 13M-14M. 1893.
Silurian. Canada. Included in Cambro-Silurian. Part. syn. Trenton-Utica.
- Citico conglomerate, Walcott. *Geol. Soc. Am., Bull.*, vol. v, p. 196. 1894.
Archean? Tennessee. Included in Ocoee.

Citico conglomerate, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.

Algonkian? Tennessee. Included in Ocoee series.

Citico conglomerate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25. 1895, 1896.

Tennessee, North Carolina. Included in Ocoee group.

Claiborne deposits, Conrad. Phil. Acad. Nat. Sci., vol. vii, pp. 116-123. 1834.
Included in Eocene.

Claiborne sandstone, Conrad. Phil. Acad. Nat. Sci., Proc., vol. iii, pp. 280-281. 1846.

Mississippi. Included in Lower Eocene.

Claiborne, Conrad. Phil. Acad. Nat. Sci., Proc., vol. vii, p. 257. 1856.

Mississippi. Included in Eocene.

Claiborne group, Hilgard. Rept. on Geol. and Agric. Miss., pp. 123-128. 1860.

Eocene. Mississippi. Includes Siliceous Claiborne, Lignitic clays and sands of Northern Clarke County? Part. syns. Buhrstone, Claiborne, etc.

Claiborne group, Hilgard. Am. Jour. Sci., 2d ser., vol. xliii, p. 33. 1867.

Tertiary. Alabama, Mississippi. Exact syn. Claiborne group proper, or Calcareous Claiborne.

Claiborne, Mell. Am. Inst. Mg. Engrs., Trans., vol. viii, p. 304. 1880.

Tertiary. Alabama.

Claibornian, Heilprin. Phil. Acad. Nat. Sci., Proc., 1882, p. 184. 1882.

Included in Eocene. Exact syn. Claiborne.

Claibornian, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 116, 120, 145-147. 1884.

Included in Tertiary, Eocene.

Claiborne, Aldrich. Am. Jour. Sci., 3d ser., vol. xxx, pp. 300-303. 1885.

Tertiary. Alabama.

Claiborne, Meyer. Am. Jour. Sci., 3d ser., vol. xxx, pp. 421-435. 1885.

Tertiary. Gulf region.

Claiborne, Smith. Am. Jour. Sci., 3d ser., vol. xxx, p. 272. 1885.

Tertiary. Gulf States.

Claiborne, Langdon. Am. Jour. Sci., 3d ser., vol. xxxi, p. 206. 1886.

Tertiary. Mississippi.

Claiborne group, Aldrich. Cin. Soc. Nat. Hist., Jour., vol. viii, p. 256. 1886.

Tertiary.

Claiborne, Aldrich. Ala. Geol. Surv., Bull., No. 1, p. 44. 1886.

Tertiary. Alabama.

Claiborne, Smith. Ala. Geol. Surv., Bull. No. 1, p. 8. 1886.

Tertiary. Alabama.

Claiborne, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, pp. 16, 18. 1887.

Tertiary. Alabama. Included in Middle Eocene.

Claiborne series, Langdon. Ga. Geol. Surv., 1st Rept. Prog., p. 96. 1891.

Tertiary. Georgia.

Claiborne division, Spencer. Ga. Geol. Surv., 1st Rept. Prog., p. 51. 1891.

Tertiary. Georgia. Included in Eocene.

Claiborne, Langdon. Geol. Soc. Am., Bull., vol. ii, p. 588. 1891.

Tertiary. Alabama. Included in Middle Eocene.

Claiborne division, Spencer. Ga. Geol. Surv., 1st Rept. Prog., 1890-91. 1891.

Tertiary. Georgia. Included in Middle Eocene.

Claiborne, Clark. U. S. Geol. Surv., Bull. No. 83, pp. 58, 62, 68. 1891.

Tertiary. Alabama, Mississippi. Included in Eocene.

Claiborne stage, Harris. Ark. Geol. Surv., 1892, vol. ii, p. 87. 1892.

Tertiary. Arkansas. Included in Eocene series.

- Claiborne, Smith. Ala. Geol. Surv., Bull., No. 2, pp. 53, 62. 1892.
Tertiary. Alabama.
- Claiborne, Smith, Johnson, and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Alabama, pp. 122, 232, 385, 492, 494. 1894.
Tertiary. Alabama. Included in Eocene. Includes Claiborne, Buhrstone.
- Claiborne stage, Lower, Vaughan. Am. Geol., vol. xv, p. 210. 1895.
Tertiary. Louisiana. Included in Eocene. Includes Mansfield group, Arcadia clays.
- Claiborne, Lower, Vaughan. U. S. Geol. Surv., Bull. No. 142, p. 15. 1896.
Tertiary. Louisiana. Included in Eocene. Includes Jackson in part, Arcadia, Upper Lignitic in part, Marine Claiborne, Lower Claiborne in part, and Mansfield.
- Claiborne-Meridian, McGee. U. S. Geol. Surv., 12th Ann. Rept., pt. i, p. 413. 1896.
Tertiary. Coastal Plain, Gulf States. Included in Eocene.
- Claiborne, Lower, Vaughan. U. S. Geol. Surv., Bull. No. 142, p. 15. 1896.
Tertiary. Louisiana. Included in Eocene. Includes *Ostrea sellaeformis*, Lisbon, Buhrstone, Calcareous and Siliceous Claiborne beds, Lerch's Jackson Arcadia, Upper Lignitic, Marine Claiborne, and Lower Lignitic, Mansfield group.
- Claiborne sands, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 340. 1898.
Tertiary. Alabama. Included in Claibornian stage, Eocene.
- Claiborne stage, lower, Harris and Veatch. La. State Exp. Sta., pt. v, p. 73. 1899.
Tertiary. Louisiana. Included in Eocene.
- Claibornian stage, Vaughan. U. S. Geol. Surv., Mon., vol. xxxix, p. 27. 1900.
Tertiary. Gulf States.
- Clarion** group, Rogers. Geol. of Pa., vol. ii, pp. 490, 501, 572. 1858.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Clarion sandstone, Stevenson. 2d Pa. Geol. Surv., Rept. K³, p. 43. 1878.
Carboniferous. Pennsylvania. Included in Lower Productive series. Exact syn. Piedmont sandstone.
- Clarion sandstone, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 323. 1880.
Carboniferous. Pennsylvania.
- Clarion group, Chance. Pa. Geol. Surv., Rept. V², pp. 49-56. 1880.
Carboniferous. Pennsylvania. Included in Lower Productive Measures.
- Clarion coal, White. U. S. Geol. Surv., Bull. No. 65, p. 175. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Lower Coal Measures, Allegheny River series. Includes Upper and Lower Clarion. Part. syn. Scrub-grass coal.
- Clarion group, White. Geol. Soc. Am., Bull., vol. xi, pp. 148-150. 1900.
Carboniferous. Pennsylvania. Included in Allegheny series.
- Clark**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
Carboniferous. Virginia, West Virginia. Included in Pottsville series.
- Clark formation, White. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, p. 814. 1900.
Carboniferous. Virginia, West Virginia.
- Clark County** Littorals, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 79, 80. 1888.
Cretaceous. Arkansas. Included in Upper Arenaceous beds.
- Clarke's Mill** shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 969-970, 972. 1892.
Silurian. Pennsylvania. Included in No. vi. Includes *Pentamerus* limestone, Delthyris shale.
- Clarksburg** limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 88. 1891.
Carboniferous. Pennsylvania, West Virginia. Included in Barren Measures, Elk River series.

- Clarksburg formation, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 604. 1895.
- Algonkian. Lake Superior Region. Included in Upper Marquette series.
- Clarksburg formation, Bayley. U. S. Geol. Surv., Mon., vol. xxviii, pp. 460-486. 1897.
- Algonkian. Michigan. Included in Upper Marquette series.
- Clay** marl formation, Clark. N. J. State Geol., Rept., 1892, pp. 186-190. 1893.
- Cretaceous. New Jersey.
- Clayton**, Smith, Johnson, and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Alabama, pp. 192, 198, 240, 413, 489. 1894.
- Tertiary. Alabama. Included in Eocene. Exact syn. Midway.
- Clear Creek** limestone, Worthen. Ill. Geol. Surv., vol. i, pp. 126-129. 1866.
- Devonian and Upper Silurian. Illinois. Part. syn. Lower Helderberg limestone and Oriskany sandstone of New York.
- Clear Creek, limestone, Worthen. Ill. Geol. Surv., vol. iii, pp. 24-25, 37-38. 1868.
- Devonian. Illinois. Included in Oriskany group.
- Clear Creek sandstone, Broadhead. Mo. Geol. Surv., Rept. 1873-74, pp. 69, 100. 1874.
- Carboniferous. Missouri. Included in Coal Measures.
- Clear Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 392-394. 1893.
- Carboniferous. Texas. Included in Canyon division.
- Clear Creek limestone, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 41, 42. 1894.
- Silurian. Missouri. Included in Niagara stage.
- Clear Creek, Wheeler. Mo. Geol. Surv., vol. xi, p. 41. 1896.
- Silurian. Missouri.
- Clear Creek limestone, Schuchert. Geol. Soc. Am., Bull., vol. xi, p. 317. 1900.
- Devonian. Illinois. Included in Oriskany.
- Clear Fork**, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxix. 1890.
- Permian. Texas.
- Clear Fork beds, Cummins. Texas Geol. Surv., 1st Ann. Rept., p. 188. 1890.
- Permian. Texas.
- Clear Fork beds, Cummins. Texas Geol. Surv., 2d Ann. Rept., pp. 401-402. 1891.
- Permian. Texas.
- Clear Fork division, Cummins. Texas Geol. Surv., 4th Ann. Rept., pp. 226-228. 1893.
- Permian. Texas.
- Clearwater** shale, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 30D-32D, 55D-58D. 1893.
- Cretaceous. Canada. Included in Colorado group.
- Clepsydrops** shale, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. v, pp. 51-52. 1879.
- Carboniferous. Illinois, Indiana.
- Clermont** limestone, Ashburner. 2d Pa. Geol. Surv., Rept. R², pp. 378-379. 1885.
- Carboniferous. Pennsylvania.
- Cleveland** shale, Newberry. Ohio Geol. Surv., Rept. Prog. 1869, pp. 19, 21. 1870.
- Carboniferous. Ohio.
- Cleveland shale, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 22. 1871.
- Carboniferous. Ohio. Included in Waverly group.
- Cleveland shale, Read. Ohio Geol. Surv., vol. i, pp. 486, 514, 525. 1873.
- Carboniferous. Ohio. Included in Waverly.
- Cleveland shale, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 189, 208. 1873.
- Carboniferous. Ohio. Included in Waverly.
- Cleveland shale, Newberry. Ohio Geol. Surv., vol. ii, pp. 92-95, 188, 213. 1874.
- Carboniferous. Ohio. Included in Waverly, Lower Carboniferous.
- Cleveland shale, Winchell. Ohio Geol. Surv., vol. ii, pp. 242, 263, 282. 1874.
- Carboniferous. Ohio. Included in Waverly.

- Cleveland shale, Lesley. 2d Pa. Geol. Surv., Rept. I, p. 75. 1875.
Devonian. Ohio, Pennsylvania. Exact syn. No. viii.
- Cleveland shale, Hicks. Am. Jour. Sci., 3d ser., vol. xvi, p. 70. 1878.
Carboniferous. Ohio. Included in Waverly.
- Cleveland shale, Orton. Rev. of Strat. Geol. of eastern Ohio, p. 2. 1880.
Devonian. Ohio.
- Cleveland shale, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 26. 1888.
Devonian. Ohio. Included in Ohio shale.
- Cleveland shale, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, p. 106. 1888.
Ohio.
- Cleveland shale, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 21, 22. 1893.
Devonian. Ohio. Included in Ohio shale.
- Cleveland County** red sands, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 58-59. 1888.
Tertiary. Arkansas. Included in Camden series. Part. syn. Claiborne beds of Alabama and Mississippi.
- Click** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvii. 1890.
Archean. Texas. Included in Fernandan system.
- Cliff** limestone, Locke. Ohio Geol. Surv., 2d Ann. Rept., by W. W. Mather, p. 211. 1838.
Silurian. Ohio.
- Cliff limestone, Owen. Rept. on Geol. of Iowa, Wis., and Ill., p. 19. 1839.
Mississippi Valley.
- Cliff limestone, Clapp. Phil. Acad. Nat. Sci., Proc., vol. i, pp. 178, 316. 1843.
Silurian. Ohio. Includes Niagara, Marcellus.
- Cliff limestone, Daniels. Wis. Geol. Surv., Rept., 1853, p. 12. 1854.
Silurian. Wisconsin. Includes Corraline beds.
- Cliff limestone, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 20. 1870.
Ohio. Includes Salina and Lower Helderberg formations with two other limestones and a bed of sandstone overlying.
- Cliff limestone, Orton. Ohio Geol. Surv., Rept. Prog., 1869, pp. 141, 150. 1870.
Ohio. Includes Clinton and Niagara groups.
- Cliff limestone, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 15. 1870.
Silurian. Ohio. Includes Salina and Water lime.
- Cliff limestone, Orton. Geol. Surv. Ohio, Rept. Prog., 1870, p. 295. 1871.
Silurian. Ohio.
- Cliff limestone, Newberry. Ohio Geol. Surv., p. 15. 1871.
Silurian. Ohio. Includes Salina and Lower Helderberg limestones.
- Cliff limestone, Foerste. Denison Univ. Sci. Lab., Bull., vol. i, p. 64. 1885.
Ohio.
- Clifton** limestone, Safford and Killebrew. Elementary Geol. of Tenn., pp. 144-146. 1876.
Silurian. Tennessee. Included in Upper Silurian. Exact syn. Meniscus limestone.
- Clinch Mountain** sandstone, Safford. Geol. Recon. in the State of Tenn., 1st Rept., p. 157. 1856.
Silurian(?). Tennessee. Included in Dyestone and Gray limestone group.
- Clinch Mountain sandstone, Safford. Geol. of Tenn., pp. 292-299. 1869.
Silurian. Tennessee. Included in Niagara group. Part. syn. Medina sandstone of New York.
- Clinch Mountain sandstone, Killebrew and Safford. Resources of Tenn., p. 37. 1874.
Silurian. Tennessee. Included in Niagara period.
- Clinch sandstone, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 176. 1894
Silurian. Virginia. Included in Medina, Oneida.

- Clinch sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 12, 26. 1894, 1896.
- Silurian. Kentucky, Virginia, Tennessee.
- Clinch sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 25, 27. 1896.
- Silurian. Tennessee.
- Clinch sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
- Silurian. Virginia, West Virginia.
- Clinch sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio 59. 1899.
- Silurian. Virginia, Tennessee.
- Clingman** conglomerate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 16. 1895.
- Tennessee, North Carolina. Included in Ocoee group.
- Clinton** group, Vanuxem. Geol. of New York, pt. iii, pp. 79-90. 1842.
- Paleozoic. New York. Includes Ferriferous slate and sandrock, No. 5 Pennsylvania survey. Part. syn. Protean group.
- Clinton, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, p. 230. 1842.
- Included in Lower Silurian.
- Clinton group, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 58-79. 1843.
- Paleozoic. New York. Includes Pentamerus limestone of Clinton group. Exact syn. Protean, Ferriferous slate and sand rock.
- Clinton group, Emmons. Agric. of New York, vol. i, pp. 144-150. 1846.
- New York. Included in Ontario division of New York system.
- Clinton group, Emmons. Agric. of New York, vol. i, pp. 144-150. 1846.
- Silurian. New York. Included in Ontario division of New York system. Exact syns. Protean group, Ferriferous slate and sand rock.
- Clinton group, Hall. Foster and Whitney's Rept. on Geol. of Lake Superior Dist., pt. ii, p. 152. 1851.
- Silurian. Lake Superior region.
- Clinton group, Hall. Paleontology of New York, vol. ii, pp. 2-4, 15-17. 1852.
- Silurian. New York.
- Clinton group, Hall. Am. Jour. Sci., 2d ser., vol. xvii, p. 192. 1854.
- Silurian. Michigan.
- Clinton formation, Logan. Can. Geol. Surv., Rept., 1843-63, pp. 310-321. 1863.
- Silurian. Canada (Western). Included in Anticoste group.
- Clinton formation, Bell. Can. Geol. Surv., Rept. 1866-69, pp. 127-128. 1871.
- Silurian. Canada.
- Clinton, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 62, 103, 126. 1873.
- Silurian. Ohio.
- Clinton, Orton. Ohio Geol. Surv., vol. i, pt. i, p. 463. 1873.
- Silurian. Ohio.
- Clinton, Orton. Ohio Geol. Surv., vol. ii, p. 663. 1874.
- Silurian. Ohio.
- Clinton, Lesley. Am. Phil. Soc., Proc., vol. xiv, p. 103. 1874.
- Silurian. Pennsylvania.
- Clinton, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 531, 556. 1877.
- Silurian. Appalachian region. Includes Olive shale. Exact syn. Surgent.
- Clinton iron ore, Chamberlin. Geol. of Wisconsin, vol. ii, pp. 327-334. 1877.
- Upper Silurian. Wisconsin.
- Clinton, Ashburner. 2d Pa. Geol. Surv., Rept. F, pp. 248-260. 1878.
- Silurian. Pennsylvania. Exact syn. Surgent.

- Clinton, Orton. Ohio Geol. Surv., vol. iii, pp. 384, 407. 1878.
Silurian. Ohio.
- Clinton, Newberry. Ohio Geol. Surv., vol. iii, p. 5. 1878.
Silurian. Ohio. Included in Upper Silurian.
- Clinton, Hussey. Ohio Geol. Surv., vol. iii, pp. 441, 479. 1878.
Silurian. Ohio.
- Clinton, Stevenson. Am. Phil. Soc., Proc., vol. xix, pp. 99, 228. 1880, 1881.
Silurian. Virginia.
- Clinton, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 42-44, 137-152. 1881.
Silurian. Pennsylvania. Exact syn. Sargent.
- Clinton group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 268, 289. 1881.
Silurian.
- Clinton, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 147-149. 1882.
Silurian. Pennsylvania. Exact syn. No. v.
- Clinton, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 90-91. 1882.
Silurian. Pennsylvania.
- Clinton, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 110-114. 1883.
Silurian. Pennsylvania. Exact syn. No. v.
- Clinton formation, Chamberlin. Geol. of Wisconsin. vol. i, pp. 179-181. 1883.
Upper Silurian. Wisconsin. Included in Niagara period.
- Clinton group, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery counties, 1884.
Silurian. Kentucky. Included in Upper Silurian. Part. syn. Crab Orchard shale.
- Clinton, Schmitz. Am. Inst. Mg. Engrs., Trans., vol. xii, p. 144. 1884.
Silurian. Alabama.
- Clinton, Claypole. Am. Phil. Soc., Proc., vol. xxi, p. 492. 1884.
Silurian. Pennsylvania.
- Clinton, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 44-51. 1885.
Silurian. Pennsylvania.
- Clinton, White. 2d Pa. Geol. Surv., Rept. T³, pp. 131-132. 1885.
Silurian. Pennsylvania.
- Clinton, Stevenson. Am. Phil. Soc., Proc., vol. xxi, p. 137. 1885.
Silurian. Virginia.
- Clinton, Linney. Ky. Geol. Surv., Geol. of Bath Co., p. 17. 1886.
Silurian. Kentucky.
- Clinton group, Miller. North American Geol. and Pal., p. 49. 1889.
- Clinton group, Orton. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 559. 1889.
Silurian. Ohio, Indiana.
- Clinton, Smith. Ala. Geol. Surv., Rept on Cahaba coal field, p. 153. 1890.
Silurian. Alabama. Exact syn. Red Mountain.
- Clinton limestone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 17-18, 225-247. 1890.
Silurian. Ohio.
- Clinton, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1892.
Silurian. New York.
- Clinton, Gibson. Ala. Geol. Surv., Geol. Structure of Murphree's Valley, pp. 25, 39. 1893.
Silurian. Alabama. Exact syn. Red Mountain.
- Clinton, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 232. 1893.
Silurian. Ontario.
- Clinton, Prosser. Geol. Soc. Am. Bull., vol. iv, pp. 108, 116. 1893.
Silurian. New York.
- Clinton, Williams and Clark. Maryland. Its Resources, Industries, and Institutions, p. 70. 1893.
Silurian. Maryland. Exact syn. Niagara. Part. syn. No. v.

- Clinton, Spencer. Ga. Geol. Surv., The Paleozoic group. 1893.
 Silurian. Georgia. Included in Red Mountain.
- Clinton, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 218-220. 1894.
 Silurian. New York.
- Clinton conglomerate, Foerste. Jour. of Geol., vol. iii, pp. 50-61, 169-197. 1895.
 Silurian. Kentucky, Ohio.
- Clinton shales, Luther. N. Y. State Geol., 15th Ann. Rept. p. 247. 1897.
 Silurian. New York.
- Clinton, Barlow. Can. Geol. Surv., new ser., vol. x, p. 123 I. 1898.
 Silurian. Ontario and Quebec.
- Clinton group, Luther. N. Y. State Geol., 16th Ann. Rept., p. 203. 1899.
 Silurian. New York.
- Clinton, White. N. Y. State Mus., 51st Ann. Rept., vol. i, p. r37. 1899.
 Silurian. New York.
- Clinton, Foerste. Indiana Dept. Geol. and Nat. Res., 24th Ann. Rept., pp. 68-77. 1900.
 Silurian. Indiana, Kentucky, Ohio. Included in Middle Silurian.
- Clinton formation, O'Harra. Md. Geol. Surv., Allegany County, p. 89. 1900.
 Silurian. Maryland.
- Clipper Gap** formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.
 Carboniferous. California. Included in Calaveras formation.
- Clover Canyon** quartzite, King. U. S. Expl. of 40th Parallel, vol. i, p. 69. 1878.
 Archean. Nevada.
- Coal Bluff** lignite, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 51. 1887.
 Tertiary. Alabama. Included in Lignitic, Nanafalia series, Lower Eocene.
- Coaledo** formation, Diller. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 319-320. 1899.
 Tertiary. Oregon. Included in Eocene.
- Coal Measures**, Rogers. Pa. State Geol., 1st Ann. Rept., pp. 16-20. 1836.
 Carboniferous. Pennsylvania.
- Coal Measures, Foster. Ohio Geol. Surv., 2d Ann. Rept., by W. W. Mather, p. 83. 1838.
 Carboniferous. Ohio.
- Coal Measures, Briggs. Ohio Geol. Surv., 2d Ann. Rept., by W. W. Mather, p. 132. 1838.
 Carboniferous. Ohio.
- Coal series, Lower, Mather. Am. Jour. Sci., 1st ser., vol. xxxiv, p. 357. 1838.
 Ohio.
- Coal Measures, Tuomey. Ala. Geol. Surv., 1st Biennial Rept., p. 72. 1850.
 Carboniferous. Alabama.
- Coal Measures, Hitchcock. Am. Jour. Sci., 2d ser., vol. xvi, pp. 327-337. 1853.
 Carboniferous. Rhode Island.
- Coal Measures, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 176. 1855.
 Silurian. Missouri.
- Coal Measures, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 78, 173, 187. 1855.
 Carboniferous. Missouri. Included in Upper Carboniferous. Includes Upper, Middle, and Lower Coal series.
- Coal Measures, Owen. Ky. Geol. Surv., vol. i, pp. 29-78. 1856.
 Carboniferous. Kentucky. Includes Lower Coal Measures and Upper Coal Measures.

- Coal Measures, Safford. Geol. Recon. of the State of Tenn., 1st Rept., p. 161. 1856.
Carboniferous. Tennessee.
- Coal Measures, Emmons. Geol. Rept. of Midland counties of N. C., pp. 227, et seq. 1856.
Carboniferous. North Carolina.
- Coal Measures, Upper, Rogers. Geol. of Pa., vol. ii, p. 19, et seq. 1858.
Carboniferous. Pennsylvania.
- Coal Measures, Hall. Iowa Geol. Surv., vol. i, p. 120. 1858.
Carboniferous. Iowa.
- Coal Measures, Worthen. Iowa Geol. Surv., Rept., vol. i, pt. i, pp. 120-141, 188-190, 200-201, 211-214, 222-226, 233-236, 241-242, 250, 254. 1858.
Carboniferous. Iowa.
- Coal formation, No. 19, Tyson. Md. State Agric. Chem. Rept., 1860, p. 40. 1860.
Carboniferous. Maryland. Exact syn. Ser. series of Pennsylvania.
- Coal Measures, False, Lesley. Am. Jour. Sci., 2d ser., vol. xxxii, p. 282. 1861.
Carboniferous. Pennsylvania.
- Coal Measures, Lesquereux. Ky. Geol. Surv., 4th Rept. of Owen, pp. 337-437. 1861.
Carboniferous. Kentucky.
- Coal Measures, Lesley. Am. Phil. Soc. Proc., vol. ix, p. 30. 1862.
Carboniferous. Southern Appalachian region.
- Coal Measures, Lesley. Am. Jour. Sci., 2d ser., vol. xxxvi, pp. 179-189. 1863.
Carboniferous. Canada.
- Coal Measures, Dawson. Am. Phil. Soc., Proc., vol. ix, pp. 165, 208. 1863.
Carboniferous. Canada.
- Coal Measures, Lesley. Am. Phil. Soc., Proc., vol. ix, p. 165. 1863.
Carboniferous. Canada.
- Coal Measures, Lesquereux. Ill. Geol. Surv., vol. i, pp. 212-237. 1866.
Carboniferous. Illinois.
- Coal Measures, Worthen. Ill. Geol. Surv., vol. i, pp. 48-76, 281-284, 300-305, 316-320, 330-333. 1866.
Carboniferous. Illinois.
- Coal Measures, White. Am. Jour. Sci., 2d ser., vol. xlv, pp. 23-31. 1868.
Carboniferous. Iowa.
- Coal Measures, White. Am. Jour. Sci., 2d ser., xlv, pp. 331-334. 1868.
Carboniferous. Iowa.
- Coal Measures, Hayden. Am. Jour. Sci., 2d ser., vol. xlv, pp. 326-330. 1868.
Carboniferous. Nebraska.
- Coal Measures, Freeman. Ill. Geol. Surv., vol. iii, pp. 264-275. 1868.
Carboniferous. Illinois.
- Coal Measures, Engelmann. Ill. Geol. Surv., vol. iii, pp. 148-168, 174-186, 193-215, 220-235. 1868.
Carboniferous. Illinois.
- Coal Measures, Middle, St. John. Iowa Geol. Surv., 2d Ann. Rept., 1867, pp. 175-190. 1868.
Carboniferous. Iowa.
- Coal Measures, Worthen. Ill. Geol. Surv., vol. iii, pp. 69-75, 87-97, 107-111 124-127, 136-138. 1868.
Carboniferous. Illinois.
- Coal Measures, Safford. Geol. of Tenn., pp. 336-409. 1869.
Carboniferous. Tennessee. Includes Upper Measures, Main conglomerate, Lower Measures.
- Coal Measures, Bannister. Ill. Geol. Surv., vol. iv, pp. 151, 165, 179. 1870.
Carboniferous. Illinois.

- Coal Measures, Bradley. Ill. Geol. Surv., vol. iv, pp. 194, 209, 231, 244, 267. 1870.
Carboniferous. Illinois.
- Coal Measures, Green. Ill. Geol. Surv., vol. iv, pp. 289, 302, 314, 326, 337. 1870.
Carboniferous. Illinois.
- Coal Measures, Worthen. Ill. Geol. Surv., vol. iv, pp. 15, 32, 48, 65, 77, 93. 1870.
Carboniferous. Illinois.
- Coal Measures, St. John. Iowa Geol. Surv., vol. ii, pp. 12-138. 1870.
Carboniferous. Iowa.
- Coal Measures, White. Iowa Geol. Surv., vol. ii, pp. 254-274. 1870.
Carboniferous. Iowa.
- Coal Measures, group, White. Iowa Geol. Surv., vol. i, pp. 231-250, 284. 1870.
Carboniferous. Iowa. Includes Upper, Middle, and Lower divisions.
- Coal Measures, Middle, St. John. Iowa Geol. Surv., vol. i, pp. 264-284. 1870.
Carboniferous. Iowa.
- Coal Measures, Stevenson. Geol. of Monongalia Co., West Va., pp. 47-63; W. Va. Univ., 3d Ann. Rept. of Board of Regents, pp. 47-63. 1871.
Carboniferous. West Virginia. Includes Upper and Lower Coal Measures.
- Coal Measures, Cox. Am. Assoc. Adv. Sci., Proc., vol. xx, p. 236. 1871.
Carboniferous. Indiana.
- Coal Measures, Lesley. Am. Phil. Soc., Proc., vol. xii, p. 489. 1871.
Carboniferous. Virginia.
- Coal Measures, Lesley. Am. Phil. Soc., Proc., vol. xii, p. 125. 1871.
Carboniferous. Pennsylvania.
- Coal Measures, Shaw. Ill. Geol. Surv., vol. v, pp. 172-181, 188-198, 204-208. 1873.
Carboniferous. Illinois.
- Coal Measures, Andrews. Ohio Geol. Surv., vol. i, pt. i, pp. 226, 248, 263, 295, 318. 1873.
Carboniferous. Ohio.
- Coal Measures, Read. Ohio Geol. Surv., vol. i, pp. 495, 521. 1873.
Carboniferous. Ohio.
- Coal Measures, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 74, 214. 1873.
Carboniferous. Ohio.
- Coal Measures, Shumard. Mo. Geol. Surv., Repts., 1855-1871, p. 316. 1873.
Carboniferous. Missouri.
- Coal Measures, Broadhead. Mo. Geol. Surv., Repts. 1855-1871, pp. 42, 70, 77, 95. 1873.
Carboniferous. Missouri.
- Coal Measures, Meek. Mo. Geol. Surv., Repts., 1855-1873, p. 163. 1873.
Carboniferous. Missouri.
- Coal Measures, Worthen. Ill. Geol. Surv., vol. v, pp. 219-221, 228-233, 238-247, 255-260, 270-274, 287-301, 309-316. 1873.
Carboniferous. Illinois.
- Coal Measures, Upper, Stevenson. Lyceum of Nat. Hist. of New York, Annals, vol. x, pp. 226-252. 1874.
Carboniferous. Northern Appalachian region.
- Coal Measures, Killebrew and Safford. Resources of Tenn., pp. 41-42. 1874.
Carboniferous. Tennessee. Included in Coal Measures period.
- Coal Measures, Andrews. Ohio Geol. Surv., vol. ii, pp. 458, 510, 530, 544, 571. 1874.
Carboniferous. Ohio.
- Coal Measures, Broadhead. Mo. Geol. Surv., Rept. 1873-74, pp. 23, 69, 100, 122, 157, 182, 186, 229, 250, 261, 304, 314, 323. 1874.
Carboniferous. Missouri. Includes Upper, Middle, and Lower Coal Measures.

- Coal Measures, Norwood. Mo. Geol. Surv., Rept., 1873-74, pp. 92, 140, 200, 276, 295. 1874.
Carboniferous. Missouri.
- Coal Measures, Freeman. Ill. Geol. Surv. vol. vi, pp. 238-244. 1875.
Carboniferous. Illinois.
- Coal Measures, Cox. Ill. Geol. Surv., vol. vi, pp. 202-212, 223-232. 1875.
Carboniferous. Illinois.
- Coal Measures, Broadhead. Ill. Geol. Surv., vol. vi, pp. 130-196. 1875.
Carboniferous. Illinois.
- Coal Measures, Worthen. Ill. Geol. Surv., vol. vi, pp. 1-127. 1875.
Carboniferous. Illinois.
- Coal Measures, Platt. 2d Pa. Geol. Surv., Rept. H, pp. 3-9. 1875.
Carboniferous. Pennsylvania.
- Coal Measures, Andrews. Am. Assoc. Adv. Sci., Proc., vol. xxiv, p. 84. 1875.
Carboniferous. Appalachian region.
- Coal group, Lower, Stevenson. Am. Phil. Soc., Proc., vol. xiv, p. 384. 1875.
Carboniferous. West Virginia. Included in Coal Measures.
- Coal group, Upper, Stevenson. Am. Phil. Soc., Proc., vol. xiv, p. 375. 1875.
Carboniferous. West Virginia. Included in Coal Measures.
- Coal Measures, White. Lyceum of Nat. Hist. of New York, Annals, vol. xi, pp. 14-18. 1876.
Carboniferous. Pennsylvania.
- Coal Measures, Smith. Ala. Geol. Surv., Rept. 1875, p. 120. 1876.
Carboniferous. Alabama.
- Coal Measures, Emmons. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 198, 343. 1877.
Carboniferous. Utah.
- Coal Measures, Hague. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 29-33. 1877.
- Coal-bearing group, Endlich. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., p. 195. 1877.
Tertiary. Colorado.
- Coal Measures, Upper, Broadhead. Kansas City Rev., vol. ii, no. iv, pp. 206-210. 1878.
Carboniferous. Missouri.
- Coal Measures, Middle, Broadhead. Kansas City Rev., vol. ii, no. iv, pp. 206-208. 1878.
Carboniferous. Missouri.
- Coal group, Upper, Stevenson. Ohio Geol. Surv., vol. iii, p. 209. 1878.
Carboniferous. Ohio. Included in Coal Measures.
- Coal Measures, Stevenson. Ohio Geol. Surv., vol. iii, pp. 187, 221, 238, 262. 1878.
Carboniferous. Ohio.
- Coal Measures, Read. Ohio Geol. Surv., vol. iii, pp. 353, 523, 531, 548, 649, 822, 1878.
Carboniferous. Ohio.
- Coal Measures, Hodge. Ohio Geol. Surv., vol. iii, p. 564. 1878.
Carboniferous. Ohio.
- Coal Measures, Newberry. Ohio Geol. Surv., vol. iii, pp. 54, 104, 137, 155, 719, 784. 1878.
Carboniferous. Ohio. Includes Upper Barren Measures, Upper Coal group, Lower Barren Measures, Lower Coal group.
- Coal group, Upper, Newberry. Ohio Geol. Surv., vol. iii, p. 720. 1878.
Carboniferous. Ohio. Included in Coal Measures.
- Coal group, Lower, Newberry. Ohio Geol. Surv., vol. iii, p. 724. 1878.
Devonian. Ohio. Included in Coal Measures.
- Coal Measures, Upper, King. U. S. Exploration of 40th Parallel, vol. i, pp. 127-248. 1878.
Carboniferous. Utah, Nevada.

- Coal Measures, Smith. Ala. Geol. Surv., Rept., 1877 and 1878, pp. 18, 21, 24, 37, 64, 84, 100, 106, 121. 1879.
Carboniferous. Alabama.
- Coal Measures, Stevenson. Am. Phil. Soc., Proc., vol. xix, pp. 90, 237. 1880, 1881.
Carboniferous. Virginia.
- Coal group, Lower, Stevenson. The Virginias, vol. ii, p. 98. 1881.
Carboniferous. West Virginia.
- Coal group, Upper, Stevenson. The Virginias, vol. ii, p. 71. 1881.
Carboniferous. West Virginia. Included in Coal Measures.
- Coal Measures, Stevenson. The Virginias, vol. ii, p. 25. 1881.
Carboniferous. Virginia.
- Coal Measures, Platt. 2d Pa. Geol. Surv. Rept. T, pp. 93-126. 1881.
Carboniferous. Pennsylvania. Includes Freeport and Kittanning.
- Coal-bearing group, Upper, Stevenson. U. S. Geog. and Geol. Surv. W. of 100th M., vol. iii, Suppl., p. 137. 1881.
Cretaceous. Colorado, New Mexico. Included in Laramie. Exact syns. Laramie, King, Fort Union, Hayden.
- Coal-bearing group, Lower, Stevenson. U. S. Geog. and Geol. Surv. W. of 100th M., vol. iii, Suppl., p. 134. 1881.
Cretaceous. Colorado, New Mexico. Included in Laramie.
- Coal Measures, McCalley. Ala. Geol. Surv., Rept., 1879-1880, pp. 77, 129, 136, 144, 151. 1881.
Carboniferous. Alabama.
- Coal Measures, Smith. Ala. Geol. Surv., Rept. 1879-1880, p. 19. 1881.
Carboniferous. Alabama.
- Coal Measures, Stevenson. Am. Phil. Soc., Proc., vol. xix, p. 276. 1881.
Carboniferous. West Virginia.
- Coal Measures, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 87-88. 1882.
Carboniferous. Pennsylvania. Exact syn. No. xiii.
- Coal Measures, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 59-65. 1882.
Carboniferous. Pennsylvania.
- Coal Measures limestone, Lower, Hague. U. S. Geol. Surv., 3d Ann. Rept., p. 268. 1883.
Carboniferous. Nevada.
- Coal Measures limestone, Upper, Hague. U. S. Geol. Surv., 3d Ann. Rept., p. 270. 1883.
Carboniferous. Nevada.
- Coal Measures, D'Inwilliers. 2d Pa. Geol. Surv., Rept. T⁴, pp. 51 et seq. 1884.
Carboniferous. Pennsylvania.
- Coal Measures, Schmitz. Am. Inst. Mg. Engrs., Trans., vol. xii, p. 144. 1884.
Carboniferous. Alabama.
- Coal Measures, White. The Virginias, vol. vi, pp. 7-16. 1885.
Carboniferous. West Virginia.
- Coal Measures, White. 2d Pa. Geol. Surv., Rept. T³, pp. 45-48. 1885.
Carboniferous. Pennsylvania.
- Coal Measures, Stevenson. Am. Phil. Soc., Proc., vol. xxii, pp. 133, 147. 1885.
Carboniferous. Virginia.
- Coal Measures, McCalley. Ala. Geol. Surv., Rept. on Warrior Coal field. 1886.
Carboniferous. Alabama.
- Coal Measures, Colton. Am. Inst. Mg. Engrs., Trans., vol. xiv, p. 292. 1886.
Carboniferous. Tennessee.
- Coal Measures, Winslow. 2d Pa. Geol. Surv., Ann. Rept., 1886, pt. iv. p. 1337. 1887.
Carboniferous. Pennsylvania. Exact syn. No. xiii.

- Coal-bearing shale, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 93-102. 1888.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Coal Measures, Keyes. Am. Geol., vol. ii, pp. 396-404. 1888.
Carboniferous. Iowa.
- Coal Measures, Penrose. Ark. Geol. Surv., 1890, vol. i, p. 498. 1890.
Carboniferous. Arkansas. Includes Upper and Lower Coal Measures.
- Coal Measures, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 56. 1890.
Carboniferous. Arkansas.
- Coal formation, Upper, Penrose. Ark. Geol. Surv., 1890, vol. i, p. 498. 1890
Carboniferous. Arkansas.
- Coal Measures, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii. 1890.
Carboniferous. Texas. Includes Coleman-Albany, Waldrip-Cisco, Brownwood Canyon, Milburn-Strawn, Richland-Gordon divisions.
- Coal Measures, Worthen. Ill. Geol. Surv., vol. i, pp. 48-76. 1890.
Carboniferous. Illinois.
- Coal Measures, Lower, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., p. 44. 1890.
Carboniferous. Ohio. Exact syns. Hecla sandstone, Ferriferous limestone, Kitting sandstone, Lower and Upper Freeport sandstone.
- Coal Measures, Chance. Am. Inst. Mg. Engrs., Trans., vol. xviii, p. 653. 1890.
Carboniferous. Indian Territory.
- Coal Measures, McCalley. Ala. Geol. Surv., Rept. on Coal Measures of Plateau region. 1891.
Carboniferous. Alabama. Includes Lower conglomerate or Millstone grit, or Cliff rock, and Upper conglomerate.
- Coal Measures, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 308. 1891.
Carboniferous. Iowa.
- Coal Measures, Williams. U. S. Geol. Surv., Bull. No. 80, p. 83. 1891.
Carboniferous.
- Coal Measures, Lower, Brown. Am. Geol., vol. ix, p. 224. 1892.
Carboniferous. West Virginia.
- Coal Measures, Lower, Gordon. Am. Geol., vol. ix, p. 185. 1882.
Carboniferous. Iowa.
- Coal Measures, Upper, Williams and Clark. Maryland. Its Resources, Industries and Institutions, p. 73. 1893.
Carboniferous. Maryland. Part. syn. No. xv.
- Coal Measures, Lower, Spencer. Ga. Geol. Surv., The Paleozoic Group. 1893.
Carboniferous. Georgia. Included in Coal Measures.
- Coal Measures, Spencer. Ga. Geol. Surv., The Paleozoic Group, pp. 52, 96, 127, 136, 143, 247. 1893.
Carboniferous. Georgia.
- Coal Measures, Gibson. Ala. Geol. Surv., Geol. Structure of Murphree's Valley, p. 17. 1893.
Carboniferous. Alabama.
- Coal Measures, Broadhead. Am. Geol.; vol. xii, p. 86. 1893.
Carboniferous. Missouri. Includes Upper and Lower Coal Measures.
- Coal Measures, Keyes. Am. Geol., vol. xii, p. 99. 1893.
Carboniferous. Iowa.
- Coal Measures, Hodge. Am. Inst. Mg. Engrs., Trans., vol. xxi, p. 922. 1893.
Carboniferous. Virginia.
- Coal Measures, Weeks. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, pp. 573-588. 1894.
Carboniferous. West Virginia.

- Coal Measures, Lyman. Am. Phil. Soc., Proc., vol. xxxiii, p. 282. 1894.
Carboniferous. West Virginia.
- Coal Measures, Tilton. Iowa Geol. Surv., vol. iii, pp. 137-146. 1895.
Carboniferous. Iowa.
- Coal Measures, Lower, Keyes. Iowa Geol. Surv., vol. iii, pp. 265-266, 352-353, 448-450. 1895. Carboniferous. Iowa. Exact syn. Des Moines formation.
- Coal Measures, Smith. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1923-1924, 1951, 1960, 1968, 1976, 1986, 2002, 2024, 2051. 1895.
Carboniferous. Pennsylvania.
- Coal Measures, Gibson. Ala. Geol. Surv., Rept. on Coosa Coal field. 1895.
Carboniferous. Alabama.
- Coal Measures, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 179-185. 1896.
Carboniferous. Kansas.
- Coal Measures, Smith. Am. Phil. Soc., Proc., vol. xxxv, p. 213. 1896.
Carboniferous. Arkansas.
- Coal Measures, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 53-57, 185-188, 250-251, 306, 308, 451-452, 478-481, 505-506, 531-534, 748-749, 812-814. 1897.
Carboniferous. Alabama.
- Coal Measures, Clark. Md. Geol. Surv., vol. i, p. 156. 1897.
Carboniferous. Maryland. Includes Elkgarden, Fairfax, Bayard, Savage, and Pottsville.
- Coal Measures, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 360. 1897.
Carboniferous. Indian Territory. Includes Upper and Lower Coal Measures.
- Coal Measures, Keyes. Jour. of Geol., vol. viii, pp. 356-365. 1898.
Carboniferous. Arkansas. Exact syn. Des Moines series.
- Coal Measures, White. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 462-471. 1899.
Carboniferous. Indian Territory. Includes Upper and Lower Coal Measures.
- Coal Measures, Girty. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 541-546. 1899.
Carboniferous. Indian Territory. Includes Upper and Lower Coal Measures.
- Coal Measures, Beede. Kan. Acad. Sci., Trans., vol. xvi, pp. 70-84. 1899.
Carboniferous. Kansas and Nebraska.
- Coal Measures, Fletcher. Can. Geol. Surv., Descriptive note on Sydney Coal field, pp. 8-12. 1900.
Carboniferous. Nova Scotia.
- Coast group**, Bailey and Matthew. Can. Geol. Surv., Rept., 1870-71, pp. 87-122. 1873.
Archean. New Brunswick. Included in Huronian.
- Coast clays, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, pp. xxxii-xxxiii. 1890.
Pleistocene. Texas.
- Coast clays, Dumble. Jour. of Geol., vol. ii, pp. 564-566. 1894.
Tertiary. Texas. Included in Champlain period of Dana. Exact syn. Port Hudson group.
- Coastal group**, Matthew. Can. Geol. Surv., Rept. Prog., 1876-77, p. 334. 1878.
Archean. New Brunswick. Included in Laurentian (?).
- Costal series, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, pp. 82-99. 1899.
Pleistocene. Jamaica. Included Falmouth, Barbican, Hopewell, and Manchionel and Bowden formations.
- Coasters Harbor Island** arkose, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 380. 1899.
Carboniferous. Rhode Island.

- Coatzacoalcos** formation, Spencer. Geol. Soc. Am., Bull., vol. ix, pp. 13, 23. 1897.
Tertiary. Mexico. Included in Miocene.
- Cobequid** series, Dawson. Can. Nat., 2d ser., vol. ix, p. 332. 1880.
Silurian. Nova Scotia. Included in Upper Silurian. Includes Upper and Lower Cobequid.
- Cobre**, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, p. 78. 1899.
Tertiary. Jamaica. Included in Oceanic series.
- Cobscook** series, Shaler. Am. Jour. Sci., 3d ser., vol. xxxii, pp. 35-60. 1886.
Devonian and Silurian. Maine.
- Cobscook Bay** series, Williams. U. S. Geol. Surv., Bull. No. 165, p. 34. 1900.
Silurian. Maine.
- Cochran** conglomerate, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
Cambrian. Tennessee. Included in Chilhowee series.
- Cochran** conglomerate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25. 1895, 1896.
Cambrian. Tennessee, North Carolina.
- Cockeysville** marble, Williams. U. S. Geol. Surv., Baltimore, Md. Geologic sheet. 1892.
Maryland.
- Cocksfield Ferry** beds, Vaughan. Am. Geol., vol. xv, p. 220. 1895.
Tertiary. Louisiana. Included in Eocene.
- Cocksfield Ferry** beds, Vaughan. U. S. Geol. Surv., Bull. No. 142, p. 21. 1896.
Tertiary. Louisiana. Included in Eocene. Exact syn. Claiborne sands of Alabama.
- Codorus** limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, p. 454. 1892.
Silurian. Pennsylvania. Included in Lower Silurian, No. ii (?).
- Coeymans** limestone, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Devonian. New York. Included in Helderbergian.
- Coeymans** limestone, Weller. N. J. Geol. Surv., Rept. 1899, p. 28. 1900.
Devonian. New Jersey.
- Coffee** sand, Safford. Am. Jour. Sci., 2d ser., vol. xxxvii, pp. 362-364. 1864.
Cretaceous. Tennessee. Exact syn. Tombigbee sand.
- Coffee** sand, Safford. Geol. of Tennessee, pp. 411-414. 1869.
Cretaceous. Tennessee. Exact syn. Tombigbee sand.
- Coffee** sand, Killebrew and Safford. Resources of Tenn., pp. 42-43. 1874.
Cretaceous. Tennessee.
- Coggan** beds, Norton. Iowa Acad. Sci., Proc., vol. i, pt. iv, p. 23. 1894.
Silurian. Iowa. Included in (?) Silurian (uppermost).
- Coggan** beds, Norton. Iowa Geol. Surv., vol. iv, pp. 138-154. 1895.
Silurian. Iowa. Included in Upper Silurian.
- Cohulta** conglomerate, Hayes. Geol. Soc. Am., Bull., vol. ii, pl. iii, p. 4. 1890.
Cambrian (?). Georgia.
- Coldbrook** group, Matthew. Can. Nat., vol. viii, pp. 244, 246-247. 1863.
New Brunswick.
- Coldbrook** group, Bailey and Matthew. Can. Geol. Surv., Rept., 1870-71, pp. 59-85. 1873.
Archean. New Brunswick. Included in Huronian.
- Coldbrook** group, Bailey and Matthew. Can. Geol. Surv., Rept., 1875-76, pp. 350-352. 1877.
Huronian (?). New Brunswick.

Coldwater shales, Lane. Mich. Geol. Surv. Rept. State Board for 1891-92, p. 66. 1893.

Sub-Carboniferous. Michigan.

Coldwater shales, Lane. Mich. Geol. Surv., vol. v, pt. ii, p. 19. 1895.

Michigan. Exact syn. Cuyahoga shale of Ohio.

Coldwater group, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 26B, 65B-66B, 68B-71B, 160B-164B. 1896.

Tertiary. British Columbia. Exact syn. Oligocene.

Coldwater shales, Lane. U. S. Geol. Surv., Water-Supply papers, No. 30, pl. vi. 1899.

Carboniferous. Michigan. Part. syns. Waverly and Cuyahoga.

Coldwater shale, Gordon. Mich. Geol. Surv., vol. vii, pt. iii, p. 7. 1900.

Carboniferous. Michigan.

Coldwater shale, Lane. Mich. Geol. Surv., vol. vii, pt. ii, pp. 24, 86. 1900.

Carboniferous. Michigan. Exact syn. Cuyahoga.

Cole Camp sandstone, Keyes. Mo. Geol. Surv., vol. vi, pp. 331, 366, 369. 1894.

Cambrian. Missouri. Included in Gasconade limestone, Ozark series. Part. syn. St. Joseph limestone.

Coleman-Albany, Dumble. Texas Geol. Surv., 1st Ann. Rept. pl. iii, p. lxxvii. 1890.

Carboniferous. Texas. Included in Coal Measures.

Coleman division, Tarr. Am. Geol., vol. vi, p. 152. 1890.

Carboniferous. Texas. Included in Upper Carboniferous.

Coleman beds, Tarr. Texas Geol. Surv., Bull. No. 3, pp. 14-15. 1892.

Carboniferous. Texas.

Coleman bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 424. 1893.

Carboniferous. Texas. Included in Albany division.

Coles Brook limestone, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 27. 1898.

Algonkian. Massachusetts.

Coles Brook limestone, Emerson. U. S. Geol. Surv., Bull. No. 159, p. 41. 1899.

Pre-Cambrian. Massachusetts. Exact syn. Hinsdale limestone.

Coles Brook limestone, Emerson. U. S. Geol. Surv., Bull. No. 159, pp. 41-43. 1899.

Pre-Cambrian. Massachusetts.

College Hill limestone, Safford. Geol. of Tenn., p. 276. 1869.

Silurian. Tennessee. Included in Nashville formation.

Collinsville limestone, Worthen. Econ. Geol. of Ill., vol. iii, p. 332. 1882.

Carboniferous. Illinois. Included in Coal Measures.

Colorado group, Endlich. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., pp. 126, 183, 192-215. 1877.

Cretaceous. Colorado. Exact syn. Cretaceous, No. 2.

Colorado, Hague. U. S. Geol. Explor. of 40th Parallel, vol. ii, pp. 28, 41-45. 1877.

Cretaceous. Colorado. Includes Fort Benton, Niobrara, and Fort Pierre.

Colorado group, King. U. S. Explor. of 40th Parallel, vol. i, pp. 305-320. 1878.

Cretaceous. Colorado, Wyoming. Includes Fort Benton (Cretaceous, No. 2), Niobrara (Cret. No. 3), and Fort Pierre (Cret. No. 4).

Colorado, White. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 19, 22, 30. 1878.

Cretaceous. Utah, Colorado.

Colorado, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 75, 109, 126. 1878.

Cretaceous. Colorado.

Colorado, Stevenson. Chief of Engineers' Rept., 1879, pt. iii, p. 2254. 1879.

Cretaceous. New Mexico. Includes Fort Benton, Niobrara, and Fort Pierre.

Colorado, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 85, 87, 109, 122. 1879.

Cretaceous. Wyoming.

- Colorado group, Stevenson. U. S. Geol. and Geol. Surv. of 100th M., vol. iii, Suppl., p. 95. 1881.
- Cretaceous. Colorado, New Mexico. Includes Fort Benton, Niobrara, and Fort Pierre of Meek and Hayden, Nos. 2, 3, 4, and Middle Cretaceous of Newberry.
- Colorado group, Dutton. U. S. Geol. Surv., 6th Ann. Rept., pp. 136-140. 1885.
- Cretaceous. NW. New Mexico. Includes Dakota sandstone, and Colorado shales.
- Colorado, White. U. S. Geol. Surv., Bull. No. 82, pp. 158, 261. 1891.
- Cretaceous. Rocky Mts. Includes Niobrara and Fort Benton. Exact syns. Austin limestone and Eagle Ford shale.
- Colorado formation, Cannon. Colo. Sci. Soc., Proc., vol. iv, p. 248. 1893.
- Cretaceous. Colorado.
- Colorado, Weed. U. S. Geol. Surv., Bull. No. 106, p. 17. 1893.
- Cretaceous. Montana.
- Colorado, Stanton. U. S. Geol. Surv., Bull. No. 106. 1893.
- Cretaceous. Rocky Mountains.
- Colorado, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
- Cretaceous. Montana. Includes Benton and Niobrara.
- Colorado, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
- Cretaceous. Colorado.
- Colorado, Bain. Iowa Geol. Surv., vol. v, pp. 273-275. 1896.
- Cretaceous. Iowa. Includes Benton and Niobrara.
- Colorado, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
- Cretaceous. Montana.
- Colorado, Emmons, Cross, and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, pp. 26, 64. 1896.
- Cretaceous. Colorado. Includes Benton, Niobrara.
- Colorado, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
- Cretaceous. Wyoming. Includes Benton and Niobrara.
- Colorado group, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 45. 1896.
- Cretaceous. Montana. Includes Benton and Niobrara.
- Colorado, Bain. Iowa Geol. Surv., vol. viii, pp. 330-335. 1898.
- Cretaceous. Iowa.
- Colorado formation, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, pp. 41-42. 1898.
- Cretaceous. Colorado. Includes Benton shales and Niobrara limestone.
- Colorado formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 55. 1899.
- Cretaceous. Montana.
- Colorado formation, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxii, pt. ii, pp. 1-59, 149-164. 1899.
- Cretaceous. Yellowstone Park.
- Colorado formation, Logan. Jour. of Geol., vol. vii, pp. 83-91. 1899.
- Cretaceous. Kansas and Nebraska. Includes Fort Benton and Niobrara.
- Colorado formation, Todd. U. S. Geol. Surv., Water-Supply paper, No. 34, p. 15. 1900.
- Cretaceous. South Dakota.
- Columbia formation, McGee.** U. S. Geol. Surv., 7th Ann. Rept., p. 594. 1888.
- Pleistocene. Maryland.
- Columbia formation, McGee. Am. Jour. Sci., 3d ser., vol. xxxv, pp. 367-388, pp. 367-388, 448-466. 1888.
- Pleistocene. Atlantic Coast region.
- Columbia, McGee. Am. Assoc. Adv. Sci., Proc., vol. xxxvi, pp. 221-222. 1888.
- Pleistocene. Atlantic Coastal Plain.
- Columbia formation, McGee. U. S. Geol. Surv., 12th Ann. Rept., pt. i, p. 384. 1891.
- Pleistocene. Atlantic Coastal Plain.
- Columbia, McGee. Am. Assoc. Adv. Sci., Proc., vol. xxxix, p. 245. 1891.
- Pleistocene. Mississippi Valley.

- Columbia, McGee. Smithsonian Inst. Rept., 1890, p. 72. 1891.
Pleistocene. District of Columbia.
- Columbia, Darton. Geol. Soc. Am., Bull., vol. ii, p. 432. 1891.
Pleistocene. Virginia, Maryland.
- Columbia series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., pp. 61-72. 1891.
Tertiary. Georgia.
- Columbia, Darton. U. S. Geol. Surv., Baltimore, Md., Geologic sheet. 1892.
Pleistocene. Maryland.
- Columbia, Williams and Clark. Maryland. Its Resources, Industries, and Institutions, pp. 74, 83. 1893.
Pleistocene. Maryland.
- Columbia, McGee, Darton, Williams. Int. Cong. Geol., 5th sess., pp. 232-233, 246. 1893.
Pleistocene. Maryland, District of Columbia.
- Columbian gravels, Grimsley. Cin. Soc. Nat. Hist., Jour., vol. xvii, No. i, p. 59. 1894.
Maryland.
- Columbia, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 13, 23. 1894, 1896.
Pleistocene. Virginia, Maryland.
- Columbia, Hershey. Am. Geol., vol. xv, p. 7. 1895.
Pleistocene. Illinois. Includes Florence gravel, Valley loess, Upland loess.
- Columbia, Hershey. Am. Geol., vol. xvi, p. 352. 1895.
Pleistocene. Missouri.
- Columbia, Darton. U. S. Geol. Surv., Bull. No. 138, pp. 119, 126, 164, 210. 1896.
Pleistocene. Atlantic Coastal Plain.
- Columbia formation, Clark. Md. Geol. Surv., vol. i, p. 199. 1897.
Pleistocene. Maryland.
- Columbia formation, Spencer. Geol. Soc. Am. Bull., vol. ix, p. 25. 1897.
Pleistocene. Mexico.
- Columbus** limestone, Mather. Rept. State House Artesian Well at Columbus, Ohio, p. 6. 1859.
Ohio.
- Columbus limestone, Orton. Ohio Geol. Surv., vol. vi, p. 763. 1888.
Ohio.
- Columbus limestone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept. p. 25. 1890.
Devonian. Ohio. Included in Upper Helderberg limestone. Exact syn. Lower Corniferous.
- Columbus beds, Brownocker. Denison Univ. Sci. Lab., Bull., vol. ii, Art. ii, p. 13. 1898.
Devonian. Ohio.
- Colvins Run** limestone, White. U. S. Geol. Surv., Bull., No. 65, p. 39. 1891.
Carboniferous. Pennsylvania. Included in Permo-Carboniferous, Dunkard Creek series. Exact syn. Limestone 1 (a), Stevenson.
- Comanche** series, Hill. Am. Jour. Sci., 3d ser., vol. xxxiii, p. 298, 1887; vol. xxxiv, p. 299, 1887.
- Comanche series, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 67, 110-116, 126. 1888.
Cretaceous. Arkansas. Includes Washita, Fredericksburg, and Trinity divisions.
- Comanche series, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 116-141. 1890.
Cretaceous. Texas. Included in Lower Cretaceous. Includes Trinity sands, Fredericksburg division, Comanche Peak subdivision, Caprina chalk, Washita division, Austin marble, Fort Worth limestone, Shoal Creek limestone, and Denison beds.

- Comanche series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, pp. i-liv. 1890.
 Cretaceous. Texas. Includes Washita, Fredericksburg, and Trinity divisions.
- Comanche series, Hill. Geol. Soc. Am., Bull., vol. ii, p. 503. 1891.
 Cretaceous. Texas.
- Comanche, White. U. S. Geol. Surv., Bull., No. 82, pp. 119, 253. 1891.
 Cretaceous. Texas.
- Comanche series, Hill. Am. Jour. Sci., 3d ser., vol. xlv, pp. 313-318. 1893.
 Cretaceous. Mexico, Texas.
- Comanche series, Hill. Amer. Jour. Sci., 3d ser., vol. i, pp. 205-234. 1895.
 Cretaceous. Kansas, Oklahoma, and New Mexico.
- Comanche series, Stanton. Jour. of Geol., vol. v, pp. 599-610. 1897.
 Cretaceous. Included in Lower Cretaceous.
- Comanche series, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 96-181. 1897.
 Lower Cretaceous. Kansas. Includes Cheyenne sandstone and Kiowa shales.
- Comanche series, Gould. Am. Jour. Sci., 4th ser., vol. v, pp. 169-175. 1898.
 Cretaceous. Kansas. Includes Kiowa shales and Cheyenne sandstone.
- Comanche series, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
 Cretaceous. Texas. Includes Glen Rose formation, Comanche Peak limestone, Edwards limestone, Georgetown limestone, Del Rio clay, Buda limestone.
- Comanche Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 385. 1893.
 Carboniferous. Texas. Included in Strawn division.
- Comanche Peak** group, Shumard. St. Louis Acad. Sci., Trans., vol. i, pp. 583, 584. 1857.
 Cretaceous. Texas.
- Comanche Peak group, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 89. 1861.
 Cretaceous. Texas. Included in Upper Cretaceous.
- Comanche Peak bed, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 123-124. 1890.
 Cretaceous. Texas. Included in Fredericksburg division of Comanche series.
- Comanche Peak division, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 512. 1891.
 Cretaceous. Texas.
- Comanche Peak limestone, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 340. 1892.
 Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.
- Comanche Peak series, Dumble and Cummins. Am. Geol., vol. ix, p. 349. 1892.
 Cretaceous. Texas.
- Comanche Peak chalk, Hill. Artesian Invest., Final Rept., pt. iii, p. 86, 52d Cong., 1st sess., Ex. Doc. 41, pt. iii. 1892.
 Cretaceous. Texas. Included in Trinity division.
- Comanche Peak limestone, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 256-257. 1893.
 Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.
- Comanche Peak beds, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.
 Cretaceous. Texas. Includes Goodland and Walnut.
- Comanche Peak stage, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 378. 1895.
 Cretaceous. Texas. Included in Lower Cretaceous.
- Comanche Peak limestone, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 226. 1898.
 Cretaceous. Texas. Included in Fredericksburg division of Comanche series.
- Comanche Peak formation, Hill and Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 42. 1898.
 Cretaceous. Texas. Included in Comanche series

- Comanche Peak limestone, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas. Included in Comanche series.
- Comet Creek** bed, Hill. Am. Jour. Sci., 3d ser., vol. 1, pp. 228-229. 1895.
Cretaceous. Oklahoma. Included in Comanche.
- Como** stage, Knight. Geol. Soc. Am., Bull., vol. xi, pp. 383-385. 1900.
Jurassic. Wyoming.
- Conanicut** arkose, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 380. 1889.
Carboniferous. Rhode Island.
- Conasauga** shale, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.
Ordovician (?). Tennessee. Exact syn. Knox shale.
- Conasauga, Walcott. U. S. Geol. Surv., Bull., No. 81, p. 246. 1891.
Cambrian. Georgia. Exact syn. Knox shale, Montevallo, Choccolocco.
- Conasauga shale, Hayes. Ala. Geol. Surv., Bull., No. 4, pp. 34, 39. 1892.
Cambrian. Alabama.
- Conasauga shale, Hayes. Geol. Soc. Am., Bull., vol. v, p. 467. 1894.
Cambrian. Georgia.
- Conasauga shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 20, 35. 1894-95, 1896.
Cambrian. Georgia, Tennessee.
- Conasauga shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896.
Cambrian. Alabama. Exact syns. Montevallo or Choccolocco shale, Knox shale.
- Conasauga shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
Cambrian. Tennessee. Includes Nolichucky shale and Marysville limestone.
Exact syn. Knox shale.
- Conasauga shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 25. 1896.
Cambrian. Tennessee.
- Conception** slates, Walcott. Geol. Soc. Am., Bull., vol. x, p. 220. 1899.
Algonkian. Newfoundland. Included in Avalon terrane.
- Concretionary** limestone, Worthen. Iowa Geol. Surv., vol. i, pt. i, pp. 190-191, 201, 215-216, 226-227, 236-237, 242-243, 254-255. 1858.
Carboniferous. Iowa.
- Concretionary limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Conemaugh** formation, O'Harra. Md. Geol. Surv., Allegany County, p. 118. 1900.
Carboniferous. Maryland.
- Conemaugh formation, Clark. Md. Geol. Surv., Phys. Atlas of Md., Allegany County. 1900.
Carboniferous. Maryland.
- Conglomerate** series, Fontaine. Am. Jour. Sci., 3d ser., vol. vii, pp. 463-465. 1874.
Carboniferous. West Virginia.
- Conglomerate series, Fontaine. Am. Jour. Sci., 3d ser., vol. xi, p. 374. 1876.
Carboniferous. West Virginia.
- Conglomerate Measures, White. 2d Pa. Geol. Surv., Rept. Q, pp. 33-58. 1880.
Carboniferous. Pennsylvania. Includes Homewood sandstone, Mercer shales, Connoquenessing sandstone, Sharon conglomerate. Exact syn. No. xii.
- Conglomerate group, Orton. Ohio Geol. Surv., vol. vi, p. 43. 1888.
Carboniferous. Ohio. Includes Homewood sandstone, Upper Mercer group, Lower Mercer group, Massillon sandstone, Upper Massillon sandstone, Lower Sharon conglomerate.
- Conglomerate group, Squire. Ala. Geol. Surv., Rept. on Cahaba Coal field, pp. 14 et seq. 1890.
Carboniferous. Alabama. Included in Coal Measures.

Conglomerate group, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 43-44. 1890.

Carboniferous. Ohio. Includes Homewood sandstone, Mercer group, Massillon sandstones, and Sharon conglomerate.

Connecticut River sandstone, Hitchcock. Am. Assoc. Adv. Sci., Proc., vol. ix, p. 225. 1855.

Juratias. Massachusetts.

Connecticut River sandstone, Emmons. St. Louis Acad. Sci., Trans., vol. i, p. 102. 1857.

Connecticut.

Connecticut sandstone, Hitchcock. Science, new ser., vol. i, pp. 74-77. 1895.

Juratias. Connecticut. Exact syn. Newark or Connecticut River sandstone.

Connecticut River sandstone, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 351-406. 1898.

Juratias. Massachusetts. Included in Trias. Includes Sugar Loaf arkose, Mount Toby conglomerate, Longmeadow brownstone, Chicopee shale, Granby tuff, Holyoke, Deerfield, and Black Rock beds. Part. syn. Newark.

Connellsville sandstone, Platt. 2d Pa. Geol. Geol. Surv., Rept. H⁴, p. 312. 1878.

Carboniferous. Pennsylvania.

Connellsville sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 87. 1891.

Carboniferous. Pennsylvania, West Virginia. Included in Barren Measures, Elk River series.

Connellsville sandstone, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.

Upper Carboniferous. West Virginia. Included in Elk River series.

Connoquenessing sandstone, Platt. 2d Pa. Geol. Surv., Rept. H⁶, p. 325. 1880.

Carboniferous. Pennsylvania.

Connoquenessing sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 201. 1891.

Carboniferous. Ohio and Pennsylvania. Included in Pottsville conglomerate series. Part. syn. Massillon sandstone.

Connoquenessing sandstone, D'Inwilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1911. 1895.

Carboniferous. Pennsylvania. Exact syn. Massillon sandstone of Ohio.

Conshohocken clay, Hopkins. Geol. Soc. Am., Bull., vol. x, pp. 480-484. 1900. Pennsylvania.

Contra Costa lake bed, Cooper. Cal. Acad. Sci., Proc., 1893-94, 2d series, vol. iv, p. 169. 1895.

Pliocene. California. Included in Pliocene fresh-water beds.

Conway schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.

Silurian. Massachusetts.

Conway schists, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 5. 1895.

Ordovician? Massachusetts.

Conway schists, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 177-200. 1898.

Silurian. Massachusetts.

Conway schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.

Silurian. Massachusetts.

Cook Inlet gravels, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 174-175. 1900.

Pleistocene. Alaska.

Cook's Mountain beds, Dumble. Texas Geol. Surv., Rept. on brown coal, pp. 141-143. 1892.

Tertiary. Texas. Included in Timber Belt division of Eocene.

Cook's Mountain series, Kennedy. Texas Geol. Surv., 3d Ann. Rept., pp. 54-57. 1892.

Tertiary. Texas. Included in Timber Belt beds of Eocene.

Coon Mountain bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 417. 1893.

Carboniferous. Texas. Included in Cisco division.

Cooper marble, Meek. Mo. Geol. Surv., Repts. 1855-1871, p. 176. 1873.

Carboniferous. Missouri.

Cooper River beds, Pratt. Ashley river phosphates. 1868.

Tertiary. South Carolina. Included in Eocene.

Cooper River beds, Holmes. Phosphate Rock of South Carolina. 1878.

Tertiary. South Carolina. Included in Eocene. Part. syn. Eocene marl.

Cooper River marls, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 342. 1898.

Tertiary. South Carolina. Included in Vicksburgian stage, Oligocene.

Coos group, Hitchcock. Boston Soc. Nat. Hist., Proc., vol. xv, 1872-73, p. 307. 1873.

New Hampshire. Includes Calciferous mica schists.

Coos group, Hitchcock. Am. Jour. Sci., 3d ser., vol. vii, pp. 474-475. 1874.

New Hampshire.

Coos quartzite, Huntington. Geol. of New Hamp., pt. ii, pp. 412-421. 1877.

Paleozoic. New Hampshire.

Coos group, Huntington. Geol. of New Hamp., pt. ii, pp. 38-47, 316-320, 372, 442. 1877.

Paleozoic. New Hampshire. Includes Coos quartzite.

Coos group, Hitchcock. Jour. of Geol., vol. iv, p. 55. 1896.

Silurian (?). New Hampshire.

Coos group, Hitchcock. Geol. Soc. Am., Bull., vol. vii, p. 510. 1896.

Cambrian. Vermont.

Coos conglomerate, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 336. 1898.

Pleistocene. Oregon.

Coosa shale, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.

Cambrian (?). Tennessee, Georgia.

Coosa shale, Smith. Ala. Geol. Surv., Rept. on Cahaba Coal field, p. 148. 1890.

Cambrian. Alabama.

Coosa, Walcott. U. S. Geol. Surv., Bull., No. 81, p. 247. 1891.

Cambrian. Alabama and Georgia.

Coosa shale, Hayes. Ala. Geol. Surv., Bull., No. 4, pp. 34, 35. 1892.

Cambrian. Alabama.

Coosa shale, Gibson. Ala. Geol. Surv., Geol. Struct. of Murphrees Valley, pp. 26, 90. 1893.

Cambrian. Alabama. Exact syn. Sparry limestone.

Coosa shales, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 42-44, 189-191, 254-256, 311-314, 453-456, 484-485, 514-516, 588-593, 712-713, 767-768. 1897.

Cambrian. Alabama. Exact syn. Flatwood shales, Conasanga.

Copper-bearing series of Lake Superior, Logan. Can. Geol. Surv., Rept., 1843-1863, pp. 67-86. 1863.

Canada. Includes Upper and Lower Copper-bearing groups.

Copper-bearing series, Upper, MacFarlane. Can. Geol. Surv., Rept., 1863-1866, pp. 132-147. 1866.

Canada. Included in Copper-bearing series of Lake Superior. Exact syn. Quebec and Potsdam groups.

Copper-bearing rocks, Wadsworth. Am. Assoc. Adv. Sci., Proc., vol. xxix, pt. ii, pp. 429-430. 1881.

Potsdam. Michigan.

Copper River silts and gravels, Schrader. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 410-412. 1900.

Alaska.

Coquina beds, Hill. Wash. Biol. Soc., Proc., vol. viii, p. 14. 1893.

Cretaceous. Texas. Included in Trinity division of Comanche series in Glen Rose beds.

Coral beds, Upper and Lower, Chamberlin. Geol. of Wis., vol. ii, pp. 349-356. 1877.

Upper Silurian. Wisconsin. Included in Niagara.

Coral beds, Chamberlin. Geol. of Wis., vol. i, p. 187. 1883.

Silurian. Wisconsin. Included in Niagara. Includes Upper and Lower Coral.

Coral limestone, Langdon. Geol. Soc. Am., Bull., vol. ii, p. 588. 1891.

Tertiary. Alabama. Included in Eocene (Upper).

Coralline limestone, Hall. Paleontology of New York, vol. ii, pp. 321-322. 1852. Silurian. New York.

Coralline Falls limestone, Owen. Ky. Geol. Surv., vol. i, pp. 95-97. 1856.

Devonian. Kentucky.

Coralline limestone, Barrett. Am. Jour. Sci., 3d ser., vol. xv, p. 370. 1878.

Silurian. New Jersey. Exact syn. Niagara limestone.

Coralline beds, Pratt. Ashley River phosphates. 1868.

Tertiary. South Carolina. Included in Eocene.

Coralline beds, Norton. Iowa Geol. Surv., vol. iv, pp. 128-129. 1895.

Silurian. Iowa. Included in Upper Silurian.

Corbin conglomerate lentil, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.

Carboniferous. Kentucky.

Corbin conglomerate lentil, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 47. 1898.

Carboniferous. Kentucky. Included in Pennsylvanian series.

Cornfield Harbor clays, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 336. 1898.

Pleistocene. Maryland.

Corniferous lime rock, Eaton. Am. Jour. Sci., 1st ser., vol. xxxvi, pp. 61-71. 1839.

New York. Exact syn. Cherty lime rock.

Corniferous limestone, Douglass. Michigan Legis. Doc., vol. i, No. ix (4th Ann. Rept. State Geol., 1840), p. 550. 1841.

Michigan.

Corniferous limestone, Vanuxem. Geol. of New York, pt. iii, pp. 139-146. 1842.

Paleozoic. New York. Included in New York system. Includes Seneca limestone.

Corniferous limestone, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 161-170. 1843.

Paleozoic. New York. Included in New York system. Includes Seneca limestone. Part. syn. Corniferous limerock.

Corniferous limestone, Mather. Geol. of New York, pt. i, pp. 337-338. 1843.

Paleozoic. New York. Included in Helderberg division.

Corniferous limestone, Owen. Am. Jour. Sci., 2d ser., vol. i, p. 64. 1846.

Devonian. New York. Includes Seneca limestone.

Corniferous formation, Chapman. Can. Inst., new ser., vol. viii, pp. 441-444. 1863. Devonian. Canada.

Corniferous formation, Logan. Can. Geol. Surv., Rept., 1843-1863, pp. 361-379. 1863. Devonian. Canada. Included in Upper Helderberg group.

- Corniferous limestone, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada.
- Corniferous limestone, Hunt. Am. Jour. Sci., 2d ser., vol. xlv, pp. 357-362. 1868.
Devonian. Canada. Included in Lower Devonian.
- Corniferous limestone, Cook. Geol. of New Jersey, pp. 165-166. 1868.
Devonian. New Jersey.
- Corniferous, Winchell. Ohio Geol. Surv., vol. i, pt. i, pp. 603, 619, 636, 642. 1873.
Devonian. Ohio.
- Corniferous, Gilbert. Ohio Geol. Surv., vol. i, pt. i, p. 575. 1873.
Silurian. Ohio.
- Corniferous, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 67, 105, 142. 1873.
Devonian. Ohio.
- Corniferous, Winchell. Am. Assoc. Adv. Sci., Proc., vol. xxii, p. 102. 1873.
Devonian. Ohio.
- Corniferous, Newberry. Ohio Geol. Surv., vol. ii, p. 190. 1874.
Devonian. Ohio.
- Corniferous, Andrews. Ohio Geol. Surv., vol. ii, p. 591. 1874.
Devonian. Ohio.
- Corniferous, Winchell. Ohio Geol. Surv., vol. ii, pp. 243, 289, 328, 339, 356, 383. 1874.
Devonian. Ohio. Includes Upper and Lower Corniferous.
- Corniferous, Winchell. Am. Assoc. Adv. Sci., Proc., vol. xxiv, p. 57. 1875.
Devonian. Ohio, Michigan.
- Corniferous, Hotchkiss. A Geographical and Political Summary of Virginia. 1876.
Devonian. Virginia. Included in Devonian or Old Red Sandstone. Exact syn. Post-Meridian, Formation viii.
- Corniferous, Orton. Ohio Geol. Surv., vol. iii, p. 603. 1878.
Devonian. Ohio.
- Corniferous, Newberry. Ohio Geol. Surv., vol. iii, p. 10. 1878.
Devonian. Ohio.
- Corniferous, Hall. Albany Inst., Trans., vol. ix, pp. 169-175. 1879.
Devonian. Ohio.
- Corniferous limestone, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. iv, p. 291. 1881.
- Corniferous limestone, Worthen. Econ. Geol. of Ill., vol. i, p. 482. 1882.
Devonian. Illinois.
- Corniferous, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 116-121. 1882.
Devonian. Pennsylvania. Included in Upper Helderberg of No. viii.
- Corniferous, Linney. Ky. Geol. Surv., Geol. of Garrard County, p. 21. 1883.
Devonian. Kentucky.
- Corniferous limestone, Linney. Ky. Geol. Surv., Geol. of Spencer and Nelson counties, pp. 45-46. 1884.
Devonian. Kentucky.
- Corniferous limestone, Linney. Ky. Geol. Surv., Geol. of Clark and Montgomery Counties. 1884.
Devonian. Kentucky.
- Corniferous, Knott. Ky. Geol. Surv., Geol. of Marion County, p. 17. 1885.
Devonian. Kentucky.
- Corniferous, Linney. Ky. Geol. Surv., Geol. of Bath County, p. 23. 1886.
Devonian. Kentucky.
- Corniferous, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 71-73, 118-120, 136. 1890.
Devonian. Pennsylvania. Included in No. viii.
- Corniferous terrane, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 52. 1890.
Devonian. Arkansas.

- Corniferous limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1153 et seq. 1892.
Devonian. Pennsylvania. Included in No. viija.
- Corniferous limestone, Prosser. N. Y. State Geol., 12th Ann. Rept., pp. 110-142. 1893.
Devonian. New York.
- Corniferous, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 229. 1893.
Devonian. Ontario.
- Corniferous, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Lower Devonian. Includes Upper Helderberg, Canda-Galli grit.
- Corniferous, Gallaher. Mo. Geol. Surv., Bien. Rept., p. 27. 1898.
Devonian. Missouri.
- Corral** sandstone, Cragin. Am. Geol., vol. xvi, p. 366. 1895.
Cretaceous. Kansas. Included in Belvidere beds, Cheyenne sandstone.
- Corry** sandstone, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 92-94. 1881.
Carboniferous. Pennsylvania. Included in Oil Lake group.
- Corry sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1769. 1895.
Carboniferous. Pennsylvania. Included in Oil Creek Lake group of No. x, Pocono.
- Cortlandt** series, Dana. Am. Jour. Sci., 3d ser., vol. xxi, pp. 103-119. 1881.
New York.
- Cortlandt series, Williams. Am. Jour. Sci., 3d ser., vol. xxxi, p. 26. 1886.
New York.
- Cortlandt series, Williams. Am. Jour. Sci., 3d ser., vol. xxxiii, pp. 135-144, 191-199, 1887. New York.
- Cortlandt series, Williams. Am. Jour. Sci., 3d ser., vol. xxxv, pp. 438-448. 1888.
New York.
- Cortlandt series, Williams. Johns Hopkins Univ. Circ., vol. vii, pp. 63-65. 1888.
Paleozoic(?). New York. Includes Eruptive rocks of Cortlandt Township, N. Y.
- Coryphodon** beds, Osborn. Am. Mus. Nat. Hist., Bull., vol. vii, p. 73. 1895.
Eocene. Included in Upper Eocene. Exact syn. Wahsatch.
- Cottonwood** Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 382. 1893.
Carboniferous. Texas. Included in Strawn division.
- Cottonwood, Prosser. Geol. Soc. Am., Bull., pp. 29, 39. 1894.
Permian. Kansas.
- Cottonwood formation, Prosser. Jour. of Geol., vol. iii, pp. 697-705. 1895.
Carboniferous. Kansas. Included in Upper Carboniferous.
- Cottonwood limestone, Prosser. Kan. Univ. Quart., vol. vi, pp. 151-155, 161, 164-165, 168, 175. 1896.
Carboniferous. Kansas.
- Cottonwood shales, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 164-165. 1896.
Carboniferous. Kansas. Included in Cottonwood formation.
- Cottonwood Falls limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 164, 167. 1896.
Carboniferous. Kansas.
- Cottonwood Falls limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 81, 83-85. 1896.
Carboniferous.
- Cottonwood Falls limestone, Grimsley. Geol. Soc. Am., Bull., vol. viii, p. 229. 1897.
Permian. Kansas.
- Cottonwood formation, Prosser. Jour. of Geol., vol. v, pp. 5-10. 1897.
Carboniferous. Kansas and Nebraska. Included in Upper Carboniferous.
- Cottonwood limestone, Beede. Kan. Univ. Quart., vol. vii, pp. 231-233. 1898.
Carboniferous. Nebraska.

- Cottonwood limestone, Beede. Kansas Acad. Sci., Trans., vol. xvi, pp. 71, 84. 1899.
Carboniferous. Nebraska.
- Cottonwood limestone, Keyes. Am. Geol., vol. xxiii, pp. 310-311. 1899.
Carboniferous. Mississippi Valley. Included in Missourian series.
- Cottonwood limestone, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 95. 1900.
Carboniferous. Mississippi Valley. Included in Coal Measures.
- Cottonwood formation, Beede. Kan. Univ. Quart., vol. ix, p. 193. 1900.
Carboniferous. Kansas.
- Courtland** quartzite, Hall. U. S. Geol. Surv., Bull., No. 157, p. 23. 1899.
Pre-Cambrian. Minnesota.
- Coutchiching** series, Lawson. Can. Geol. Surv., new ser., vol. iii, pt. i, pp. 99F-111F. 1889.
Archean. Canada.
- Coutchiching, Lawson. Geol. Soc. Am., Bull., vol. i, pp. 176, 182. 1889.
Huronian. Canada.
- Coutchiching series, Smith. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 17G, 39G-56G. 1893.
Archean. Canada. Part syn. Huronian(?).
- Coutchiching, Smith. Geol. Soc. Am., Bull., vol. iv, pp. 333, 340. 1893.
Laurentian(?). Ontario, Canada.
- Coutchiching, Winchell and Grant. Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., p. 62. 1895.
Minnesota. Included in Ontarian. Exact syn. Vermilion.
- Coutchiching, McInnes. Can. Geol. Surv., new ser., vol. x, pp. 174-184. 1898.
Ontario.
- Coutchiching, Coleman. Geol. Soc. Am., Bull., vol. ix, p. 224. 1898.
Algonkian. Ontario. Included in Ontarian.
- Coutchiching, Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 176. 1899.
Archean. Minnesota.
- Coutchiching, Winchell and Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 199. 1899.
Minnesota. Included in Ontarian.
- Cove**, Rogers. Pa. State Geol., 1st Ann. Rept., p. 13. 1836.
Silurian(?). Pennsylvania.
- Coxville** sandstone, Ashley. Indiana Dept. Geol. and Nat. Res., 23rd Ann. Rept. (1898), p. 300, 385. 1899.
Carboniferous. Indiana.
- Crab Orchard** shale, Linney. Ky. Geol. Surv. (Proctor), Geol. of Lincoln County. 1882. Silurian. Kentucky. Included in Clinton group.
- Crab Orchard shale, Foerste. Jour. of Geol., vol. v, p. 171. 1895.
Silurian. Kentucky. Included in Clinton.
- Cranberry Island** series, Shaler. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 1043. 1889.
Maine.
- Cranston** beds, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 159-163. 1899.
Carboniferous. Rhode Island. Included in Coal Measures. Includes Pawtucket shales, Sockanosset sandstones.
- Crawford** shale, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 93-95, 128. 1890.
Carboniferous. Pennsylvania. Included in Pocono, Vespertine.
- Cretaceous** No. 1, Marvin. U. S. Geol. and Geog. Surv. of Terr., 1873, p. 100. 1874.
Cretaceous. Colorado.

- Cretaceous No. 1, Endlich. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 222. 1876.
Cretaceous. Colorado.
- Cretaceous No. 2, Marvine. U. S. Geol. and Geog. Surv. of Terr., 1873, p. 101. 1874.
Cretaceous. Colorado.
- Cretaceous No. 2, Endlich. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 224. 1876.
Cretaceous. Colorado.
- Cretaceous No. 3, Marvine. U. S. Geol. and Geog. Surv. of Terr., 1893, p. 102. 1874.
Cretaceous. Colorado.
- Crinoidal** limestone, Borden. Indiana Geol. Surv., 5th Ann. Rept., p. 157. 1874.
Indiana.
- Crinoidal limestone, White. U. S. Geol. Surv., Bull., No. 65, p. 90. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Barren Measures, Elk River series. Exact syns. Green fossiliferous limestone, 1st Pa. Surv.; Ames limestone, Ohio Surv.
- Croatian** beds, Dall. Wagner Free Inst. Sci., vol. iii, pt. ii, p. 209. 1892.
Pliocene. South Carolina. Included in Pliocene (Floridian epoch). Part. syn. Floridian group.
- Croatian beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 337. 1898.
Tertiary. North Carolina. Included in Pliocene.
- Cross Plains** sandstone, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.
Carboniferous. Arkansas. Included in Appleton stage.
- Crosswicks** group, Conrad. Am. Jour. Sci., 2d ser., vol. xlvii, p. 359. 1869.
Cretaceous. New Jersey.
- Crosswicks clays, Clark, Bagg, and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 315, 329. 1897.
Cretaceous. New Jersey. Included in Matawan formation.
- Crosswicks clays, Clark, Bagg, and Shattuck. N. J. Geol. Surv., Rept. 1897, p. 178. 1898.
Cretaceous. New Jersey. Included in Matawan formation.
- Crystal** city sandstone, Keyes. Mo. Geol. Surv., vol. vi, pp. 331, 352, 358. 1894.
Cambrian. Missouri. Included in Ozark series. Exact syn. Roubidoux or Saccharoidal sandstone.
- Crystal sandstone, Wheeler. Mo. Geol. Surv., vol. xi, p. 39. 1896.
Ordovician. Missouri. Included in Ozark series.
- Cuboides** zone, Williams. Geol. Soc. Am., Bull., vol. i, p. 485. 1889.
Devonian. New York. Exact syn. Tully limestone.
- Cuchara** beds, Hills. Colo. Sci. Soc., Proc., vol. iv, p. 9. 1891.
Tertiary. Colorado. Included in Lower Eocene, Huerfano series.
- Cuchara beds, Osborn. Am. Nat., vol. xxxi, p. 967. 1897.
Cretaceous. Colorado.
- Cuchara formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Tertiary. Colorado. Included in Eocene(?).
- Cumberland** sandstone, Shaler. Ky. Geol. Surv., new ser., vol. iii, pp. 159-160. 1877.
Silurian. Kentucky. Part. syn. Oneida conglomerate and Medina sandstone.
- Cumberland quartzites, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 106. 1899.
Algonkian. Rhode Island. Included in Blackstone series.
- Cumberland sandstone, Foerste. Ind. Dept. Geol. and Nat. Res., 24th Ann. Rept., pp. 57-63. 1900.
Silurian. Indiana. Included in Middle Silurian.

Cupriferous series, Winchell. Am. Assoc. Adv. Sci., Proc., vol. xxix, pt. ii, pp. 422-425. 1881.

Minnesota.

Curlew sandstone and limestone, Owen. Ky. Geol. Surv., vol. iii, pp. 13, 23. 1857.
Carboniferous. Kentucky. Included in Coal Measures. Exact syn. Mahoning sandstone of Pa. (?)

Curlew limestone, Lesquereux. Ind. Geol. Recon., Rept. 1859-1860, p. 310. 1862.
Carboniferous. Indiana.

Curlew limestone, Lesquereux. Ill. Geol. Surv., vol. i, p. 216. 1866.
Carboniferous. Illinois. Included in Coal Measures.

Curlew limestone, Lesquereux. Ill. Geol. Surv., vol. i, pp. 216, 222, 227. 1866.
Carboniferous. Illinois. Included in Coal Measures.

Curzon limestone, Gallaher. Mo. Geol. Surv., Bien. Rept., p. 57. 1898.
Permian. Missouri.

Cussewago, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 94-96. 1881.
Carboniferous. Pennsylvania. Included in Oil Lake group.

Cussewago, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1773. 1895.
Carboniferous. Pennsylvania. Included in Oil Creek Lake group of No. x, Pocono.

Cuyahoga shale, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, pp. 21, 29. 1870.
Carboniferous. Ohio.

Cuyahoga shale, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 22. 1871.
Carboniferous. Ohio. Included in Waverly group.

Cuyahoga shale, Reid. Ohio Geol. Surv., Rept. Prog., 1870, p. 469. 1871.
Ohio.

Cuyahoga shale, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 185, 210. 1873.
Carboniferous. Ohio. Included in Waverly.

Cuyahoga shale, Read. Ohio Geol. Surv., vol. i, pp. 495, 512, 525. 1873.
Carboniferous. Ohio.

Cuyahoga, Winchell. Ohio Geol. Surv., vol. ii, pp. 240, 257, 276. 1874.
Carboniferous. Ohio.

Cuyahoga shale, Newberry. Ohio Geol. Surv., vol. ii, pp. 87-88, 210. 1874.
Carboniferous. Ohio. Included in Waverly. Lower Carboniferous.

Cuyahoga, Lesley. 2d Geol. Surv. of Pa., Rept. I, pp. 67-69. 1875.
Carboniferous. Pennsylvania and Ohio. Exact syn. No. xi.

Cuyahoga shale, Read. Ohio Geol. Surv., vol. iii, p. 299. 1878.
Carboniferous. Ohio. Included in Waverly.

Cuyahoga shale, Orton. Rev. of Strat. of eastern Ohio, p. 10. 1880.
Carboniferous. Ohio.

Cuyahoga shale, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas, p. 25. 1886.

Ohio. Included in Waverly series.

Cuyahoga shale, Orton. Ohio Geol. Surv., vol. vi, pp. 3, 37. 1888.
Carboniferous. Ohio. Included in Waverly group.

Cuyahoga series, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, p. 105. 1888.
Carboniferous. Ohio. Includes Logan and Kinderhook.

Cuyahoga shale, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, p. 103. 1888.
Ohio.

Cuyahoga shale, Ulrich. Denison Univ. Sci. Lab., Bull., vol. iv, p. 62. 1888.
Carboniferous. Ohio.

Cuyahoga shale, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 37-39. 1890.

Carboniferous. Ohio. Part. syn. Sharpsville sandstone of Pa. (White).

Cuyahoga shale, Cooper. Denison Univ. Sci. Lab., Bull., vol. v, pp. 30, 31. 1890.
Ohio. Included in Waverly group.

Cuyahoga shale, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 31. 1893.

Carboniferous. Ohio. Included in Waverly group.

Cypress sandstones, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 189. 1868.
Lower Carboniferous. Illinois.

Dakota group, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, pp. 410, 420. 1862.

Nebraska. Included in Lower Cretaceous. Exact syn. Formation No. i. Part.
syn. (vid. Niobrara).

Dakota group, Hayden. Am. Jour. Sci., 2d ser., vol. xliii, pp. 171-179. 1867.

Cretaceous. Nebraska, Dakota, Minnesota, Kansas, and New Mexico. Exact syn.
No. i Cretaceous.

Dakota, Hayden. U. S. Geol. Surv. of Wyoming, Rept., p. 87. 1871.

Cretaceous. Included in Lower Cretaceous. Exact syn. Formation No. i.

Dakota, Hayden. U. S. Geol. Surv. of Terr., 1-3d Ann. Repts., pp. 49, 50. 1873.

Cretaceous. Exact syn. Formation No. i.

Dakota group, Lesquereux. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. vi,
pp. 1-31. 1874.

Cretaceous.

Dakota group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix, pp. xxvi-
xxviii. 1876.

Cretaceous.

Dakota, Lesquereux. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 316.
1876.

Cretaceous.

Dakota, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 128. 1876.

Cretaceous. Colorado. Exact syn. Formation No. i.

Dakota, Hague. U. S. Geol. Explor. of 40th Parallel, vol. ii, pp. 28, 39-41. 1877.

Cretaceous. Colorado.

Dakota, Mudge. U. S. Geol. Surv. of Terr., 9th Ann. Rept., p. 291. 1877.

Cretaceous. Kansas.

Dakota, Endlich. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., pp. 124, 181.
1877.

Cretaceous. Colorado. Exact syn. Cretaceous No. 1.

Dakota, Peale. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., p. 88. 1877.

Cretaceous. Colorado. Exact syn. Formation No. i.

Dakota, White. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 19, 22,
29. 1878.

Cretaceous. Utah and Colorado.

Dakota, King. U. S. Geol. Explor. of 40th Parallel, vol. i, pp. 298-304. 1878.

Cretaceous. Colorado and Utah.

Dakota, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 74,
108, 127. 1878.

Cretaceous. Colorado.

Dakota, Stevenson. Chief of Engineers' Ann. Rept., pt. iii, p. 2254. 1879.

Cretaceous. New Mexico.

Dakota, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 84, 87,
108, 122. 1879.

Cretaceous. Wyoming.

Dakota group, Newton. Geol. of Black Hills, pp. 174-186. 1880.

Cretaceous. South Dakota.

Dakota, Stevenson. U. S. Geol. and Geol. Surv. W. of 100th Meridian, vol. iii, Suppl.,
pp. 88-93. 1881.

Cretaceous. Colorado and New Mexico. Includes Upper, Middle, and Lower
Dakota.

- Dakota group, Sternberg. Kansas City Rev., vol. iv, pp. 675-677. 1881.
Cretaceous. Kansas.
- Dakota group, Lesquereux. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. viii, pp. 2-24. 1883.
Cretaceous.
- Dakota, Hicks. Am. Assoc. Adv. Sci., Proc., vol. xxxiv, p. 217. 1886.
Cretaceous. Nebraska.
- Dakota, Stevenson. Am. Geol., vol. iii, p. 393. 1889.
Cretaceous. Colorado and New Mexico. Includes Upper, Middle, and Lower Dakota.
- Dakota, White. U. S. Geol. Surv., Bull. No. 82, pp. 171, 257. 1891.
Cretaceous. Rocky Mountains.
- Dakota, Weed. Geol. Soc. Am., Bull., vol. iii, p. 310. 1892.
Cretaceous. Montana.
- Dakota formation, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 285-298. 1893.
Cretaceous. Texas. Included in Upper Cretaceous. Includes Timber Creek beds, Dexter sand, and Basal clay. Exact syn. Lower Cross tim. ser.
- Dakota, Weed. U. S. Geol. Surv. Bull., No. 106, p. 17. 1893.
Cretaceous. Montana.
- Dakota group, Calvin. Iowa Geol. Surv., vol. i, pp. 148, 161. 1893.
Cretaceous. Iowa. Exact syns. Woodbury sandstones and shales.
- Dakota sandstone, Cannon. Colo. Sci. Soc., Proc., vol. iv, p. 247. 1893.
Cretaceous. Colorado.
- Dakota, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
Cretaceous. Colorado.
- Dakota, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Cretaceous. Colorado.
- Dakota, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Cretaceous. Montana.
- Dakota, Bain. Iowa Geol. Surv., vol. iii, pp. 101-114. 1895.
Cretaceous. Iowa.
- Dakota group, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 562. 1896.
Cretaceous. Colorado.
- Dakota, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Cretaceous. Montana.
- Dakota, Emmons, Cross, and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, pp. 25, 62. 1896.
Cretaceous. Colorado.
- Dakota, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Cretaceous. Wyoming.
- Dakota, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 45. 1896.
Cretaceous. Montana.
- Dakota, Bain. Iowa Geol. Surv., vol. v, pp. 267-275. 1896.
Cretaceous. Iowa.
- Dakota, Bain. Iowa Geol. Surv., vol. vii, pp. 451-459. 1897.
Cretaceous. Iowa.
- Dakota sandstone, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.
Cretaceous. Colorado.
- Dakota, Logan. Kan. Univ. Geol. Surv., vol. ii, pp. 206-215. 1897.
Upper and Lower Cretaceous. Kansas.
- Dakota sandstone, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 182-194. 1897.
Lower Cretaceous. Kansas. Includes Mentor beds of the Comanche series.
- Dakota, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25-27. 1898.
Upper and Lower Cretaceous. Kansas.

- Dakota, Bain. Iowa Geol. Surv., vol. viii, pp. 329-330. 1898.
Cretaceous. Iowa.
- Dakota, Weed. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, p. 477. 1898.
Cretaceous. Montana.
- Dakota formation, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, p. 41. 1898.
Cretaceous. Colorado.
- Dakota sandstone, Ward. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, p. 593. 1899.
Cretaceous. South Dakota.
- Dakota sandstone, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
Cretaceous. Colorado.
- Dakota group, Jenney. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 568-587. 1899.
Cretaceous. South Dakota.
- Dakota formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 55, 56. 1899.
Cretaceous. Montana.
- Dakota formation, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59, 149-164. 1899.
Cretaceous. Yellowstone Park.
- Dakota formation, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 57. 1899.
Cretaceous. Colorado.
- Dakota formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
Cretaceous. Colorado.
- Dakota, Bain. Iowa Geol. Surv., vol. xiv, p. 73. 1899.
Cretaceous. Iowa.
- Dakota sandstone, Wilder. Iowa Geol. Surv., vol. iv, p. 110. 1900.
Cretaceous. Iowa.
- Dakota, Logan. Kan. Univ. Quart., vol. ix, pp. 115-118. 1900.
Cretaceous. Kansas.
- Dakota sandstone, Todd. U. S. Geol. Surv., Water-Supply papers, No. 34, p. 13. 1900.
Cretaceous. South Dakota.
- Dakota sandstone, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Cretaceous. Colorado.
- Dallas** limestone, Hill. Am. Jour. Sci., 3d ser., vol. xxxiii, p. 298. 1887.
Cretaceous. Texas. Included in Gulf series.
- Dalton** phyllite, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Cambrian. Massachusetts. Part. syn. Stockbridge limestone.
- Damourite** slate, Prime. 2d Pa. Geol. Surv., Rept. D², pp. 23-24. 1878.
Silurian. Pennsylvania.
- Danville** stage, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.
Carboniferous. Arkansas.
- Davenport** beds, Lower, Norton. Iowa Acad. Sci., Proc., vol. i, pt. iv, p. 24. 1894.
Devonian. Iowa. Exact syn. Gyroceras bed. Part. syns. Corniferous, Fayette breccia.
- Davenport beds, Upper, Udden. Cin. Soc. Nat. Hist., Jour., vol. xix, no. iii, p. 93. 1897.
Devonian. Illinois.
- Davenport beds, Lower, Udden. Cin. Soc. Nat. Hist., Jour., vol. xix, no. iii, p. 93. 1897.
Devonian. Illinois.
- Davenport, Norton. Iowa Geol. Surv., vol. xiv, p. 443. 1899.
Devonian. Iowa. Included in Wapsipinicon. Includes Upper and Lower Davenport.

- Day Creek** dolomite, Cragin. Colo. College Stud., vol. vi, pp. 3, 44. 1896.
Permian. Kansas. Included in Cimarron series.
- Day Creek formation, Cragin. Am. Geol., vol. xix, pp. 361-362. 1897.
Permian. Kansas, Oklahoma. Included in Kiger division of Cimarron series.
- Dayton** stone, Haymond. Ind. Geol. Surv., 1st Ann. Rept., 1869, p. 193. 1869.
Indiana.
- Dayton stone, Orton. Ohio Geol. Surv., Rept. of Prog., 1869, pp. 143, 150, 157.
1870.
Ohio.
- Dayton stone, Newberry. Ohio Geol. Surv., Rept. of Prog., 1869, p. 15. 1870.
Silurian. Ohio.
- Dayton stone, Orton. Ohio Geol. Surv., Rept. of Prog., 1870, pp. 271, 301. 1871.
Silurian. Ohio. Included in Niagara series.
- Dayton stone, Orton. Ohio Geol. Surv., vol. ii, p. 668. 1874.
Silurian. Ohio. Included in Niagara.
- Dayton limestone, Foerste. Denison Univ., Sci. Lab., Bull., vol. i, p. 65, etc. 1885.
Ohio.
- Dayton limestone, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas, p. 21. 1886.
Ohio. Included in Niagara series.
- Dayton limestone, Foerste. Denison Univ., Sci. Lab., Bull., vol. iii, p. 4. 1888.
Ohio.
- Dayton limestone, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 13. 1888.
Upper Silurian. Ohio. Included in Niagara shale.
- Dayton limestone, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 11. 1893.
Upper Silurian. Ohio. Included in Niagara shale.
- Dayton limestone, Foerste. Cin. Soc. Nat. Hist., Jour., vol. xviii, nos. iii, iv, pp. 168, 190. 1896.
Lower Silurian. Ohio.
- Decker Ferry** limestone, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 137-141. 1882.
Silurian. Pennsylvania. Included in Upper Helderberg, no. vi.
- Decker Ferry limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 927-929. 1892.
Silurian. Pennsylvania. Included in No. vi.
- Decker Ferry formation, Weller. N. J. Geol. Surv., Rept. 1899, p. 7. 1900.
Silurian. New Jersey.
- Deep Creek** division, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 303-305. 1890.
Silurian. Texas. Included in San Saba series.
- Deep Creek, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii. 1890.
Silurian. Texas. Included in San Saba series.
- Deep Creek beds, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 287. 1892.
Tertiary. Montana. Included in Neocene.
- Deep River**, Scott. Geol. Soc. Am., Bull., vol. v, p. 595. 1894.
Tertiary. Montana. Included in Loup Fork, Upper Miocene.
- Deep River beds, Scott. Am. Phil. Soc., Trans., vol. xviii, pp. 55-63. 1895.
Montana.
- Deep River beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 339. 1898.
Tertiary. Montana. Exact syn. Ticholeptus beds.
- Deer Creek** system, Bennett. Kan. Univ. Geol. Surv., vol. i, p. 117. 1896.
Carboniferous. Kansas.
- Deer Creek limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 94, 105. 1898.
Carboniferous. Kansas. Included in Shawnee formation.

- Deer Creek sandstone, Clark. Md. Geol. Surv., vol. ii, p. 213. 1898.
Cambrian. Maryland.
- Deer Creek sandstone, Mathew. Md. Geol. Surv., vol. ii, p. 213. 1898.
Cambrian. Maryland.
- Dekalb** limestone, Bain. Am. Jour. Sci., 4th ser., vol. v, pp. 437, 439. 1898.
Carboniferous. Missouri. Included in Missourian series. Exact syn. Fusilina limestone.
- Dekalb limestone, Bain. Iowa Geol. Surv., vol. viii, pp. 277-278. 1898.
Carboniferous. Iowa. Included in Bethany limestone.
- Delaware** bluestone, Orton. Ohio Geol. Surv., vol. vi, p. 763. 1888.
Ohio. Part. syns. Sandusky bluestone and Flinty courses at Columbus.
- Delaware limestone, Newberry. Cin. Soc. Nat. Hist., Jour., vol. xii, Nos. ii, iii, p. 49. 1889.
Devonian. Ohio.
- Delaware limestone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., p. 25. 1890.
Devonian. Ohio. Included in Upper Helderberg limestone. Exact syn. Upper Corniferous.
- Delaware flag, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Chemung, Upper Devonian.
- Delaware stage, Calvin. Iowa Geol. Surv., vol. v, pp. 49-50. 1896.
Silurian. Iowa. Included in Niagara series.
- Delaware beds, Brownocker. Denison Univ., Sci. Lab., Bull., vol. ii, Art. ii, p. 20. 1898.
Devonian. Ohio.
- Delaware river flags, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 99-101. 1882.
Devonian. Pennsylvania. Includes Paupack and New Milford sandstones.
- Delhi** formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.
Carboniferous. California. Included in Calaveras formation.
- Dellville** sandstone, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 77-78. 1885.
Devonian. Pennsylvania. Included in Catskill.
- Dellville green sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1558-1560. 1892.
Devonian. Pennsylvania. Included in Chemung.
- Delphi** black shale, Gorby. Ind. Dept. Geol. and Nat. Hist., 15th Ann. Rept., 1886, p. 79. 1886.
Devonian. Indiana. Exact syn. New Albany black shale.
- Del Rio** clay, Hill and Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 42. 1898.
Cretaceous. Texas. Included in Comanche series.
- Del Rio clays, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 236-237. 1898.
Cretaceous. Texas. Included in Washita division of Comanche series. Exact syn. Exogyra arietina clays.
- Del Rio clay, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas. Included in Comanche series.
- Del Rio clay, Vaughan. U. S. Geol. Surv., Bull. No. 164, p. 17. 1900.
Cretaceous. Texas. Included in Comanche series.
- Delta** sand, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 177. 1873.
Pleistocene. Ohio.
- Delthyris** shaly limestone, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 144. 1843.
Paleozoic. New York. Included in New York system. Includes Catskill shaly limestone.

Delthyris shaly limestone, Mather. Geol. of New York, pt. i, pp. 343-345. 1843.

Paleozoic. New York. Included in Helderberg division. Exact syn. Catskill shaly limestone.

Delthyris shaly limestone, Emmons. Agric. of N. Y., vol. i, pp. 167-168. 1846.

Silurian. New York. Included in Helderberg division of New York system.

Delthyris shaly limestone, Owen. Am. Jour. Sci., 2d ser., vol. i, p. 50. 1846.

Silurian. New York. Included in Catskill shaly limestone.

Delthyris limestone, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 153. 1855.

Silurian. Missouri. Included in Upper Silurian.

Delthyris shaly limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 109. 1855.

Silurian. Missouri. Included in Upper Silurian.

Delthyris shale, Shumard. Mo. Geol. Surv., Repts., pt. ii, 1855-1871, pp. 261, 281. 1873.

Silurian. Missouri. Included in Upper Silurian.

Denison beds, Hill. Texas Geol. Surv., 1st Ann. Rept., p. 130. 1890.

Cretaceous. Texas. Included in Comanche series.

Denison beds, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 517. 1891.

Cretaceous. Texas. Included in Washita division.

Denison beds, Hill. Artesian Invest., Final Rept., pt. iii, p. 88, 52d Cong., 1st sess., Ex. Doc. 41, pt. iii. 1892.

Cretaceous. Southwest. Included in Washita division.

Denison beds, Hill. Science, vol. xxii, p. 23. 1893.

Cretaceous. Texas.

Denison marl, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 263-275. 1893.

Cretaceous. Texas. Included in Washita division of Lower Cretaceous.

Denison beds, Hill. Geol. Soc. Am., Bull., vol. v, pp. 298, 327. 1894.

Cretaceous. Indian Territory, Texas. Includes Pawpaw, North Denison, and Marietta.

Denver formation, Cross. Colo. Sci. Soc., Proc., vol. iii, pp. 119-133. 1888.

Tertiary. Colorado.

Denver formation, Cross. Am. Jour. Sci., 3d ser., vol. xxxvii, pp. 261-282. 1889.

Tertiary. Colorado.

Denver formation, Cope. Science, vol. xiii, p. 29. 1889.

Colorado. Included in Laramie.

Denver, White. U. S. Geol. Surv., Bull. No. 82, p. 150. 1891.

Cretaceous. Colorado.

Denver beds, Clark. U. S. Geol. Surv., Bull. No. 83, p. 136. 1891.

Cretaceous. Colorado.

Denver formation, Cross. Am. Jour. Sci., 3d ser., vol. xlv, p. 20. 1892.

Tertiary. Colorado.

Denver formation, Cannon. Colo. Sci. Soc., Proc., vol. iv, p. 254. 1893.

Cretaceous. Colorado.

Denver, Emmons, Cross, and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, pp. 33, 155, 206. 1896.

Tertiary. Colorado. Includes Animas River beds.

Denver, Cross. U. S. Geol. Surv., Mon., vol. xxvii, p. 206. 1896.

Tertiary. Colorado. Included in Upper part of Cretaceous.

Denver formation, Davis. Am. Acad. Arts and Sci., Proc., vol. xxxv, p. 356. 1900.

Tertiary. Colorado.

Des Moines beds, Keyes. Iowa Geol. Surv., vol. i, pp. 86-114. 1893.

Carboniferous. Iowa. Included in Pennsylvania series. Exact syn. Lower Coal Measures.

- Des Moines, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 82. 1894.
Carboniferous. Missouri. Exact syn. Lower Coal Measures of Missouri.
- Des Moines formation, Keyes. Iowa Geol. Surv., vol. ii, pp. 126-137, 143-154. 1894.
Carboniferous. Iowa. Included in Pennsylvania series. Exact syn. Lower Coal Measures.
- Des Moines stage, Gordon. Iowa Geol. Surv., vol. iv, pp. 222-230. 1895.
Carboniferous. Iowa. Exact syn. Lower Coal Measures.
- Des Moines stage, Bain. Iowa Geol. Surv., vol. iv, pp. 283-287, 336-342. 1895.
Carboniferous. Iowa. Included in Upper Carboniferous.
- Des Moines, Calvin. Iowa Geol. Surv., vol. v, pp. 60-61. 1896.
Carboniferous. Iowa.
- Des Moines stage, Beyer. Iowa Geol. Surv., vol. v, pp. 199-201. 1896.
Carboniferous. Iowa.
- Des Moines, Bain. Iowa Geol. Surv., vol. v, pp. 151-152, 377-398. 1896.
Carboniferous. Iowa. Includes Appanoose beds, Chariton conglomerate.
- Des Moines stage, Beyer. Iowa Geol. Surv., vol. vii, pp. 227-229. 1897.
Carboniferous. Iowa.
- Des Moines stage, Calvin. Iowa Geol. Surv., vol. vii, pp. 79-83. 1897.
Carboniferous. Iowa.
- Des Moines, Bain. Iowa Geol. Surv., vol. vii, pp. 292-335, 428-446. 1897.
Carboniferous. Iowa.
- Des Moines formation, Tilton and Bain. Iowa Geol. Surv., vol. vii, pp. 504-509. 1897.
Carboniferous. Iowa.
- Des Moines, Leonard. Iowa Geol. Surv., vol. viii, pp. 78-82. 1898.
Carboniferous. Iowa.
- Des Moines, Bain and Leonard. Jour. of Geol., vol. vi, pp. 577-588. 1898.
Carboniferous. Mississippi Valley.
- Des Moines stage, Haworth. Kan. Univ. Geol. Surv., vol. iii, p. 88. 1898.
Carboniferous. Kansas.
- Des Moines series, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 30-70, 121-159, 162-242, 267, 327-331. 1898.
Upper Carboniferous. Missouri. Includes Pleasonton shale, Henrietta limestone, and Cherokee shales.
- Des Moines series, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 123. 1898.
Upper Carboniferous. Missouri. Included in Cherokee stage. Graydon sandstone.
- Des Moines, Macbride. Iowa Geol. Surv., vol. ix, p. 133. 1899.
Carboniferous. Iowa.
- Des Moines, Bain. Iowa Geol. Surv., vol. ix, p. 68. 1899.
Carboniferous. Iowa.
- Des Moines stage, Beyer. Iowa Geol. Surv., vol. ix, p. 190. 1899.
Carboniferous. Iowa. Included in Pennsylvanian series.
- Des Moines, Udden. Iowa Geol. Surv., vol. ix, p. 303. 1899.
Carboniferous. Iowa.
- Des Moines, Beyer. Iowa Geol. Surv., vol. x, p. 271. 1900.
Carboniferous. Iowa. Included in Pennsylvania series.
- De Soto** beds, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Pliocene. Included in Floridian group. Part. syn. Floridian group.
- De Soto beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 337. 1898.
Tertiary. Florida. Included in Pliocene.
- Dexter** sand, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 285-298. 1893.
Cretaceous. Texas. Included in Dakota formation, Upper Cretaceous.
- Diablo-Davis** series, Hill. Geol. Soc. Am., Bull., vol. iii, p. 97. 1892.
Tertiary. Texas, New Mexico.

Diamond Peak quartzite, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 268. 1883.

Carboniferous. Nevada.

Diamond Peak quartzite, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 85. 1892.

Carboniferous. Nevada.

Dighton group, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 184. 1899.

Carboniferous. Rhode Island. Included in Coal Measures.

Dinosaur sands, White. Phil. Acad. Nat. Sci., Proc., 1887, p. 40. 1887.

Texas. Included in Cretaceous, Comanche.

Dismal formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Carboniferous. Virginia, West Virginia. Part. syns. No. xii, Great conglomerate.

Dockum beds, Hill. Texas Geol. Surv., 1st Ann. Rept., p. 189. 1890.

Juratrias(?). Texas.

Dockum, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. xxi. 1890.

Juratrias. Texas.

Dockum beds, Cummins. Texas Geol. Surv., 2d Ann. Rept., pp. 424-429. 1891.

Juratrias. Texas. Included in Trias. Exact syn. Shinarump beds.

Dockum beds, Drake. Texas Geol. Surv., 3d Ann. Rept., pp. 229-247. 1892.

Juratrias. Texas. Included in Triassic.

Dockum beds of Dumble, Simpson. Proc. U. S. Nat. Mus., vol. xviii, p. 381. 1895. Triassic. Texas.

Doe Run limestone, Frazer. 2d Pa. Geol. Surv., Rept. C⁴, pp. 70, 304, 307. 1883. Sirlurian. Pennsylvania. Included in Siluro-Cambrian.

Dog Creek shales, Cragin. Colo. College Stud., vol. vi, pp. 3, 39. 1896.

Permian. Kansas. Included in Cimarron series.

Dog Creek shales, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 94-95. 1897.

Lower Cretaceous. Kansas, Oklahoma. Included in Cimarron series.

Dog Creek formation, Cragin. Am. Geol., vol. 19. p. 358. 1897.

Permian. Kansas, Oklahoma. Included in Salt Fork division of Cimarron series.

Includes Chapman dolomite and Ampitheater dolomite. Exact syn. Stony Hills formation.

Dolores formation, Cross. U. S. Geol. Surv. Geol. Atlas of U. S., Folio No. 57. 1899.

Juratrias. Colorado.

Dolores formation, Cross and Spencer. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 67. 1900.

Juratrias. Colorado.

Doré conglomerate, Coleman. Geol. Soc. Am., Bull., vol. xi, pp. 109-110. 1900.

Archean. Ontario. Included in Huronian.

Dorset limestone, Hitchcock. Boston Soc. Nat. Hist., Proc., vol. vii, 1859-61, p. 237. 1860.

Vermont. Included in Upper Silurian or Devonian.

Dorset limestone, Hitchcock. Elementary Geology, p. 411. New ed. 1863.

Devonian. Vermont.

Dotson sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Carboniferous. Virginia and West Virginia. Part. syn. No. xii, Great Conglomerate.

Double Mountain, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxx. 1890. Permo-Carboniferous. Texas.

Double Mountain beds, Cummins. Texas Geol. Surv., 1st Ann. Rept., pp. 188-189. 1890.

Permo-Carboniferous. Texas. Included in Permian.

- Double Mountain beds, Cummins. Texas Geol. Surv., 2d Ann. Rept., p. 402. 1891.
Carboniferous. Texas. Included in Permian.
- Double Mountain division; Cummins. Texas Geol. Surv., 4th Ann. Rept., pp. 228-232. 1893.
Carboniferous. Texas. Included in Permian.
- Douglas** formation, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 93, 94. 1898.
Carboniferous. Kansas. Included in Upper Coal Measures. Includes Oread limestone and Lawrence shale.
- Douty** gravels, Willis. Geol. Soc. Am., Bull., vol. ix, p. 157. 1898.
Pleistocene. Washington. Included in Vashon epoch.
- Dover** limestone, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 31. 1898.
Carboniferous. Kansas.
- Dover shale and sandstone, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 31. 1898.
Carboniferous. Kansas.
- Downs** limestone, Cragin. Colo. College Stud., vol. vi, p. 50. 1896.
Cretaceous. Kansas. Included in Russell formation. Exact syn. Fence-post limestone.
- Dresbach** sandrock, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, p. xxii. 1888.
Minnesota. Included in St. Croix.
- Dresbach sandstone, Hall. Minn. Acad. Nat. Sci., Bull., vol. iii, no. i, p. 134. 1889.
Cambrian. Minnesota. Included in St. Croix.
- Dresbach sandstone, Keyes. Iowa Geol. Surv., vol. i, p. 23. 1893.
Cambrian. Iowa. Included in St. Croix sandstone.
- Dresbach sandstone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. vi, p. 170. 1895.
Middle Cambrian. Minnesota.
- Dry Bone** limestone, Prosser. Geol. Soc. Am., Bull., vol. vi, pp. 29, 36. 1894.
Permo-Carboniferous. Kansas.
- Dry Creek** shale, Peale. U. S. Geol. Surv., Bull., No. 110, p. 24. 1893.
Cambrian. Montana. Included in Gallatin.
- Dry Creek shale, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 286. 1900.
Cambrian. Montana.
- Duck Creek** chalk, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 516. 1891.
Cretaceous. Texas. Included in Washita division.
- Duck Creek chalk, Hill. Geol. Soc. Am., Bull., vol. v, pp. 298, 325. 1894.
Cretaceous. Texas. Included in Preston beds.
- Dun** limestone, Hay. Kan. Acad. Sci., Trans., vol. x, p. 7. 1887.
Carboniferous. Kansas. Exact syn. Humboldt limestone.
- Dundee** limestone, Lane. Mich. Geol. Surv., Rept. State Board for 1891-92, p. 66. 1893.
Devonian. Michigan.
- Dundee limestone, Lane. Mich. Geol. Surv., vol. v, pt. ii, p. 25. 1895.
Devonian. Michigan.
- Dundee limestone, Sherzer. Geol. Soc. Am., Bull., vol. ix, p. 11. 1897.
Silurian. Ohio.
- Dundee limestone, Lane. U. S. Geol. Surv., Water-Supply papers, No. 30, pl. vi. 1899.
Devonian. Michigan. Exact syn. Upper Helderberg.
- Dundee limestone, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 35-42, 226-228. 1900.
Devonian. Michigan.
- Dunkard Creek** series, White. U. S. Geol. Surv., Bull., No. 65, p. 20. 1891.
Carboniferous. Ohio, Pennsylvania, and West Virginia. Included in Permo-

Carboniferous. Includes Windy Gap limestone, Gilmore sandstone, Nineveh sandstone and limestone, Fish Creek sandstone, and Jollytown limestone, Upper, Middle, and Lower Washington limestone, Mariett asandstone, Blackville limestone, Washington sandstone, Colvins Run limestone, Mount Morris limestone, Waynesburg sandstone, and Cassville plant shale.

Dunkard Creek, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.

Permian. West Virginia.

Dunkard formation, O'Harra. Md. Geol. Surv., Allegany County, p. 128. 1900.

Permian. Maryland.

Dunlap limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 81, 83. 1896.

Carboniferous. Kansas.

Dunvegan sandstone, Dawson. Am. Jour. Sci., 3d ser., vol. xxi, p. 392. 1881.

Cretaceous. Canada. Exact syn. Niobrara.

Dunvegan group, Dawson. Can. Geol. Surv., Rept. 1879-80, pp. 116B-122B. 1881.

Cretaceous. British Columbia, Canada. Included in Cretaceous, Colorado group.

Includes Dunvegan sandstones. Exact syns. Lower sandstones and shales.

Part. syns. Belly River series, Bear River formation, Niobrara.

Dunvegan group, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 50D, 54D-55D. 1893.

Cretaceous. Canada. Part. syn. Belly River series, Bear River beds (Wyoming).

Duplin beds, Dall. U. S. Nat. Mus., Proc., vol. xviii, p. 40. 1895.

Tertiary. North Carolina.

Duplin beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 338. 1898.

Tertiary. North Carolina.

Dyestone and gray limestone group, Safford. Geol. Recon. of the State of Tenn., 1st Rept., pp. 156-158. 1856.

Devonian and Silurian. Tennessee. Included in Upper Silurian and Devonian.

Includes Sneedville limestone and Clinch Mountain limestone.

Dyestone group, Safford. Geol. of Tenn., pp. 302-311. 1869.

Silurian. Tennessee. Included in Niagara group. Part. syn. Clinton. [Medina in part (?).]

Dyestone group, Killebrew and Safford. Resources of Tenn., p. 38. 1874.

Silurian. Tennessee. Included in Niagara period.

Eagle limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 177. 1891.

Carboniferous. West Virginia. Included in Lower Coal Measures, Allegheny River series.

Eagle formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 55. 1899.

Cretaceous. Montana.

Eagle Ford shale, Hill. Am. Jour. Sci., 3d ser., vol. xxxiii, p. 298. 1887.

Cretaceous. Texas. Included in Gulf series.

Eagle Ford shales, White. Phil. Acad. Nat. Sci., Proc., 1887, p. 40. 1887.

Texas. Included in Cretaceous. Gulf series. Exact syns. Tombigbee sand, Lower part of Colorado group.

Eagle Ford shales, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. xlvii. 1890.

Cretaceous. Texas. Included in Black Prairie series.

Eagle Ford shale, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 111-112. 1890.

Cretaceous. Texas. Included in Black Prairie series.

Eagle Ford formation, White. U. S. Geol. Surv., Bull. No. 82, p. 122. 1891.

Cretaceous. Texas.

Eagle Ford division, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 734-735. 1891.

Cretaceous. Texas. Included in Upper Cretaceous. Exact syn. Benton shale.

- Eagle Ford shale, Taff. Texas Geol. Surv., 3d Ann. Rept., p. 350. 1892.
Cretaceous. Texas. Included in Upper Cretaceous.
- Eagle Ford shales, Hill. Artesian Invest., Final Rept., pt. iii, p. 70, 52d Cong., 1st sess., Ex. Doc. 41. 1892.
Cretaceous. Southwest. Exact syn. Benton clay.
- Eagle Ford formation, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 299-304. 1892.
Cretaceous. Texas. Included in Upper Cretaceous.
- Eagle Ford shale, Hill. Geol. Soc. Am., Bull., vol. v, pp. 297, 305. 1894.
Cretaceous. Texas.
- Eagle Ford stage, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 377. 1895.
Cretaceous. Texas. Included in Upper Cretaceous.
- Eagle Ford shales, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 239. 1898.
Cretaceous. Texas. Included in Colorado division of Gulf series.
- Eagle Ford formation, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas. Included in Gulf series.
- Eagle Ford formation, Vaughan. U. S. Geol. Surv., Bull., No. 164, p. 18. 1900.
Cretaceous. Texas.
- Eagle Pass** beds, White. U. S. Geol. Surv., Bull. No. 82, p. 117. 1891.
Cretaceous. Texas. Exact syn. Ripley formation.
- Eagle Pass division, Dumble. Geol. Soc. Am., Bull., vol. iii, pp. 219, 224. 1892.
Cretaceous. Texas. Included in Upper Cretaceous. Includes Upson clays, San Miguel, Coal series, Escondido beds.
- Eagle Pass, Hill. Geol. Soc. Am., Bull., vol. iii, p. 94. 1892.
Cretaceous. Texas.
- Eagle Pass formation, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 241. 1898.
Cretaceous. Texas. Included in Montana division of Gulf series.
- Eagle Pass formation, Vaughan. U. S. Geol. Surv., Bull., No. 164, p. 21. 1900.
Cretaceous. Texas. Includes San Miguel beds, Escondido beds.
- Earlham** limestone, Tilton and Bain. Iowa Geol. Surv., vol. vii, pp. 511-517. 1897.
Carboniferous. Iowa. Included in Bethany limestone.
- Earlham limestone, Bain. Am. Jour. Sci., 4th ser., vol. v, pp. 435, 436, 439. 1898.
Carboniferous. Missouri. Included in Bethany limestone.
- Earlton** limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 51, 103. 1898.
Carboniferous. Kansas. Included near summit of Thayer shale.
- East Lee** gneiss, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Algonkian. Massachusetts. Part. syn. Stamford gneiss.
- East Lee limestone, Emerson. U. S. Geol. Surv., Bull. No. 159, p. 50. 1899.
Pre-Cambrian. Massachusetts.
- Eastern** sandstone, Hubbard. Mich. Geol. Surv., vol. vi, pt. ii, p. 110. 1878.
Algonkian. Michigan.
- Eastern sandstone, Irving and Chamberlin. U. S. Geol. Surv., Bull. No. 23. p. 106. 1885.
Cambrian. Michigan. Exact syn. Potsdam.
- Eastern sandstone, James. Cin. Soc. Nat. Hist., Jour., vol. xvii, No. ii, p. 127. 1894.
Ordovician.
- Eastern sandstone, Hubbard. Mich. Geol. Surv., vol. vi, pt. ii, pp. 110-125. 1898.
Michigan.
- Eaton** beds, Foerste. Denison Univ. Sci. Lab., Bull., vol. iii, p. 8. 1888.
Ohio.

- Eau Claire** grit, Wooster. Geol. of Wisconsin, vol. iv, p. 110. 1882.
Cambrian. Wisconsin. Included in Potsdam sandstone.
- Eophora** bed, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 124. 1892.
Tertiary. Florida. Included in Miocene.
- Edison** gneiss, Wolff and Brooks. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 439. 1898.
Pre-Cambrian. New Jersey.
- Edmonton** series, Tyrrell. Can. Geol. Surv., new ser., vol. ii, pp. 74E-75E, 110E; 118E, 127E, 131E-135E, 137E-138E, 1887.
Canada. Included in Laramie.
- Edwards** limestone, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 227-235. 1898.
Cretaceous. Texas. Included in Fredericksburg division of Comanche series.
Exact syn. Caprina limestone, Barton Creek limestone.
- Edwards formation, Hill and Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 42. 1898.
Cretaceous. Texas. Included in Comanche series.
- Edwards limestone, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas. Included in Comanche series.
- Egremont** limestone, Hobbs. Jour. of Geol., vol. i, pp. 727-728. 1893.
Ordovician. Massachusetts. Included in Mount Washington series.
- Eistine** sandstone, Swallow and Hawn. Geol. of Miami County, Kans. 1865.
Carboniferous. Kansas. Included in Coal Measures.
- Elevator B** sandstone, Hall. Minn. Acad. Nat. Sci., Bull., vol. ii, no. i, p. 132. 1889.
Cambrian. Minnesota. Included in Shakopee.
- Elevator sandstone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, p. 341. 1892.
Ordovician(?). Minnesota. Included in Magnesian series.
- Elgin** sandstone, Haworth. Kan. Univ. Geol. Surv., vol. iii, p. 64. 1898.
Carboniferous. Kansas.
- Elk** group, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 78-79. 1890.
Devonian. Pennsylvania.
- Elk Creek** beds, Cragin. Am. Geol., vol. xvi, p. 366. 1895.
Cretaceous. Kansas. Includes Lanphier beds, Stokes sandstone.
- Elk Falls** limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 65-66, 105. 1898.
Carboniferous. Kansas. Includes Lecompton and Deer Creek limestone.
- Elkgarden**, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
Carboniferous. West Virginia and Maryland.
- Elkgarden formation, Clark. Md. Geol. Surv., vol. i, p. 156, 187. 1897.
Carboniferous. Maryland.
- Elk Lick** limestone, White. 2d Pa. Geol. Surv., Rept. Q, p. 29. 1878.
Carboniferous. Pennsylvania. Included in Lower Barren series.
- Elk Lick limestone, White. U. S. Geol. Surv. Bull. No. 65, p. 90. 1891.
Carboniferous. Pennsylvania. Included in Barren Measures, Elk River series.
- Elk Lick Coal, White. U. S. Geol. Surv., Bull. No. 65, p. 89. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Barren Measures, Elk River series.
- Elk Mountain** shale, White. 2d Pa. Geol. Surv., Rept. G⁵, p. 64. 1881.
Devonian. Pennsylvania. Included in Catskill.
- Elk Mountain gray shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1579. 1892.
Devonian. Pennsylvania. Included in Catskill, No. ix.

Elk Mountain sandstone and shale, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.

Devonian. New York, Pennsylvania. Included in Catskill (Upper Devonian).

Elk River series, White. U. S. Geol. Surv., Bull. No. 65, p. 70. 1891.

Carboniferous. Ohio, Pennsylvania, and West Virginia. Includes Pittsburg limestone, Connellsville sandstone, Clarksburg limestone, Morgantown sandstone, Elk Lick limestone, Crinoidal, Green fossiliferous or Ames limestone, Red Shale beds, Cambridge limestone, Irondale limestone, Mahoning sandstone and limestone, and Kanawha black flint. Exact syn. Barren Measures.

Elk River series, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.

Upper Carboniferous. West Virginia. Exact syn. Barren Measures.

Elk River series, White. West Virginia Geol. Surv., vol. i, p. 201. 1899.

Carboniferous. West Virginia. Exact syn. Barren Measures.

Ellensburg sandstone, Russell. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 127-128. 1900.

Tertiary. Washington. Included in Miocene.

Ellicottsville conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1531. 1892.

Devonian. Pennsylvania. Included in Venango.

Elliott Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 376. 1893.

Carboniferous. Texas. Included in Strawn division.

Ellis limestone, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.

Juratrias. Montana.

Ellis, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.

Juratrias. Wyoming.

Ellis, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.

Juratrias. Montana.

Ellis formation, Weed. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 477-478. 1898.

Juratrias. Montana.

Ellis formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 55, 56. 1899.

Juratrias. Montana.

Ellis formation, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 149-164. 1899.

Juratrias. Yellowstone Park.

Elm Creek bed, Drake. Texas. Geol. Surv., 4th Ann. Rept., p. 424. 1893.

Carboniferous. Texas. Included in Albany division.

Elmont limestone, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 30. 1898.

Carboniferous. Kansas.

Empire beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 308. 1898.

Tertiary. Oregon. Included in Miocene. Exact syn. Astoria sandstones.

Empire formation, Diller. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 319. 1899.

Tertiary. Oregon. Included in Miocene.

Empire shale, Walcott. Geol. Soc. Am., Bull., vol. x, pp. 199, 207. 1899.

Algonkian, Pre-Cambrian. Montana. Included in Belt terrane.

Emporia limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, p. 80. 1896.

Carboniferous. Kansas.

Encrinal limestone, Hall. N. Y. Geol. Surv., 3d Ann. Rept., p. 298. 1839.

Devonian. New York.

Encrinal limestone, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 187. 1843.

Paleozoic. New York. Included in Hamilton group.

Encrinal limestone, Hall. Geol. of New York, pt. iv, 4th Geol. Surv., pp. 18, 145. 1843.

Paleozoic. New York. Included in New York system. Includes Scutella limestone. Part. syn. No. 6, Pennsylvania survey.

Encrinal limestone, Emmons. Agriculture of New York, vol. i, p. 168. 1846. New York. Included in Helderberg division of New York system.

Encrinal limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 52. 1890.

Silurian. Arkansas. Included in Lower Helderberg.

Encrinal limestone, Grabau. Buffalo Soc. Nat. Hist., Bull., vol. vi, pp. 30-32. 1898. Devonian. New York.

Encrinital limestone, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, pp. 171, 181, 1855.

Carboniferous. Missouri.

Encrinital limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 97, 175, 194. 1855.

Carboniferous. Missouri. Included in Mountain or Lower Carboniferous limestone.

Encrinital limestone, Meek. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 98. 1855.

Carboniferous. Missouri.

Encrinital limestone, Shumard. Mo. Geol. Surv., Repts., 1855-1871, pp. 294, 305. 1873.

Carboniferous. Missouri. Included in Lower Carboniferous.

Encrinital limestone, Broadhead. Mo. Geol. Surv., Rept., 1855-1871, pp. 43, 71. 1873.

Carboniferous. Missouri. Included in Lower Carboniferous. Exact syn. Burlington limestone.

Encrinital limestone, Meek. Mo. Geol. Surv., Repts., 1855-1871, pp. 140, 173. 1873.

Carboniferous. Missouri. Included in Lower Carboniferous.

Encrinital limestone, Broadhead. Mo. Geol. Surv., Repts., 1873-74, pp. 25, 67, 183. 1874.

Carboniferous. Missouri. Included in Lower Carboniferous, Mountain limestone. Exact syn. Burlington.

Encrinital limestone, Broadhead. Mo. Geol. Surv., Repts., 1873-74, pp. 25, 67. 1874.

Lower Carboniferous. Missouri. Exact syn. Burlington limestone.

English River gritstones, Bain. Am. Geol., vol. xv, p. 322. 1895.

Carboniferous. Iowa. Included in Mississippian series, Kinderhook.

English River gritstones, Bain. Iowa Geol. Surv., vol. v, p. 134. 1896.

Carboniferous. Iowa. Included in Kinderhook.

Eolian limestone, Hitchcock. Geol. of Vermont, vol. i, pp. 396-419. 1861.

Cambrian. Vermont. Exact syns. Granular limestone, Berkshire limestone, Stockbridge limestone, Dorset limestone.

Eolian limestone, Hitchcock. Geol. of Vermont, vol. i, pp. 394-395, 419-424. 1861.

Cambrian. Vermont. Exact syns. Berkshire limestone, Stockbridge limestone.

Eolian limestone, Hitchcock. Geol. of Maine, Prelim. Rept., vol. ii, pp. 245-259. 1862.

Cambrian. Maine. Exact syn. Stockbridge limestone.

Eolian limestone, Crosby. Rept. on Geol. Map of Mass., p. 40. 1876.

Pre-Cambrian.

Eolian limestone, Dana. Am. Jour. Sci., 3d ser., vol. xiii, p. 414. 1877.

Silurian. Vermont. Part. syns. Lower Calciferous, Quebec, Chazy, Black River, Trenton.

Eolian limestone, Hitchcock. Geol. Soc. Am., Bull., vol. i, p. 513. 1889.

Ordovician(?). Vermont.

Eolian, Walcott. Geol. Soc. Am., Bull., vol. ii, p. 502. 1891.

Ordovician(?). Quebec. Included in Quebec group.

- Eo-Lignitic**, Heilprin. Phil. Acad. Nat. Sci., Proc., 1882, p. 184. 1882.
Included in Eocene.
- Eo-Lignitic**, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, p. 116. 1884.
Included in Tertiary-Eocene. Exact syns. Marlborough and Piscataway beds of Maryland(?). Shark River deposits of New Jersey.
- Equus** beds, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. iii, pp. 19-20. 1881.
Tertiary. Included in Pliocene.
- Equus** beds, Dumble. Jour. of Geol., vol. ii, pp. 563-564. 1894.
Pleistocene. Texas.
- Equus** beds, Scott. Geol. Soc. Am., Bull., vol. v, p. 594. 1894.
Pleistocene. Nebraska.
- Equus** beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 336. 1898.
Pleistocene.
- Erian**, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Devonian. New York. Includes Marcellus shale, Hamilton beds.
- Erie** division, Vanuxem. Geol. of New York, pt. iii, pp. 170-171. 1842.
Paleozoic. New York. Included in New York system.
- Erie** division, Mather. Geol. of New York, pt. i, pp. 317-323. 1843.
Paleozoic. New York. Included in New York system. Includes Ithaca and Chemung group, Hamilton group, Marcellus shales, 3d graywacke, No. viii, Olive shale, Skaneateles shale, Ludlowville shale, Encrinal limestone, Moscow shale, Apulia and Sherburne shales, Cazenovia group.
- Erie**, Emmons. Agriculture of New York, vol. i, pp. 180-186. 1846.
Devonian. New York. Included in New York system. Includes Marcellus, Hamilton.
- Erie** clay, Logan. Can. Geol. Surv., Repts., 1843-1863, pp. 887, 896-907. 1863.
Canada. Included in Drift (upper stratified portion).
- Erie** clays, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 26. 1870.
Carboniferous. Ohio.
- Erie** shale, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 20. 1870.
Devonian. Ohio.
- Erie** shale, Newberry. Ohio Geol. Surv. Rept. Prog., 1869, p. 27. 1870.
Devonian. Ohio. Part. syn. Chemung group of New York.
- Erie** clays, Newberry. Am. Nat., vol. iv, p. 202. 1870.
- Erie** clays, Newberry. Lyceum of New York, Annals, vol. ix, pp. 222-225. 1870.
Pleistocene. Great Lakes region. Included in Drift deposit.
- Erie** shale, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 21. 1871.
Devonian. Ohio.
- Erie** shale, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 163, 190. 1873.
Devonian. Ohio.
- Erie** shale, Read. Ohio Geol. Surv., vol. i, p. 486. 1873.
Devonian. Ohio.
- Erie** clay, Gilbert. Ohio Geol. Surv., vol. i, pt. i, p. 544. 1873.
Pleistocene. Ohio.
- Erie** clay, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 174. 1873.
Pleistocene. Ohio.
- Erie** muck, Collett. Ind. Geol. Surv., 5th Ann. Rept., for 1873, p. 408. 1874.
Indiana.
- Erie** shale, Newberry. Ohio Geol. Surv., vol. ii, pp. 188, 213. 1874.
Carboniferous. Ohio.
- Erie** shale, Winchell. Ohio Geol. Surv., vol. ii, pp. 242, 264. 1874.
Carboniferous. Ohio.
- Erie** shale, Lesley. 2d Pa. Geol. Surv., Rept. I, pp. 76-82. 1875.
Silurian. Pennsylvania and Ohio. Exact. syn. No. vii.

- Erie clay, Newberry. Ohio Geol. Surv., vol. iii, p. 32. 1878.
Pleistocene. Ohio.
- Erie shale, Read. Ohio Geol. Surv., vol. iii, p. 306. 1878.
Carboniferous. Ohio.
- Erie, Newberry. Ohio Geol. Surv., vol. iii, p. 18. 1878.
Carboniferous. Ohio.
- Erie shale, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, p. 106. 1888.
Devonian. Ohio.
- Erie shale, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 23. 1888.
Devonian. Ohio. Included in Ohio shale.
- Erie shale, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 21. 1893.
Devonian. Ohio. Included in Ohio shale.
- Erie limestone, Haworth. Kan. Univ. Quart., vol. ii, pp. 118-119. 1894.
Carboniferous. Kansas.
- Erie limestone, Haworth and Piatt. Kan. Univ. Quart., vol. ii, p. 116. 1894.
Carboniferous. Kansas. Exact syn. Altoona limestone.
- Erie limestone, Haworth and Kirk. Kan. Univ. Quart., vol. ii, pp. 108-109. 1894.
Carboniferous. Kansas.
- Erie limestone, Haworth. Am. Jour. Sci., 3d ser., vol. i, p. 458. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Erie limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, p. 76. 1896.
Carboniferous. Kansas.
- Erie limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 45-47. 1896.
Carboniferous. Kansas.
- Erie limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 154-157, 165. 1896.
Carboniferous. Kansas. Includes Bethany Falls limestone.
- Erie limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 95-97. 1896.
Carboniferous. Kansas.
- Erie limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 44-47, 88, 94, 101-102. 1898.
Carboniferous. Kansas. Included in Pottawatomie formation. Includes Bethany Falls rock and the Winterset limestone.
- Erie limestone, Orton. Geol. Soc. Am., Bull., vol. x, p. 104. 1899.
Upper Carboniferous. Kansas.
- Eryops** beds, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. v, p. 51-52. 1879.
Carboniferous. Included in Permian.
- Escondido**, Dumble. Geol. Soc. Am., Bull., vol. iii, pp. 219, 227. 1892.
Cretaceous. Texas. Included in Upper Cretaceous, Eagle Pass division.
- Escondido beds, Vaughan. U. S. Geol. Surv., Bull. No. 164, p. 26. 1900.
Cretaceous. Texas. Included in Eagle Pass formation.
- Esmeralda** formation, Turner. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, pp. 191-224. 1900. Am. Geol., vol. xxv, pp. 168-170. 1900.
Tertiary. Nevada.
- Esopus** slate, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 209-210, 244-245, 302. 1894.
Devonian. New York. Exact syn. Cauda-galli grit.
- Esopus slate, Darton. Regents, Univ. of N. Y., 47th Ann. Rept., p. 403. 1894.
Devonian. New York. Exact syn. Cauda-galli grit.
- Esopus slate, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 402. 1897.
Silurian. New York.
- Esopus grit, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Devonian. New York. Included in Ulsterian.
- Esopus grit, Weller. N. J. Geol. Surv., Rept. 1899, p. 44. 1900.
Devonian. New Jersey.

- Estuary** formation, Engelmann. Eng. Dept., U. S. A., Simpson's Explor. of Great Basin, p. 291. 1876.
Cretaceous or Tertiary. Wyoming and Utah.
- Etcheminian** series, Matthew. Am. Geol., vol. ii, p. 1. 1888.
Cambrian. Canada.
- Etcheminian, Walcott. Geol. Soc. Am., Bull., vol. x, p. 232. 1899.
Algonkian (?). New Brunswick.
- Etcheminian series, Matthew. Can. Rec. Sci., vol. iii, p. 72. 1889.
Cambrian. New Brunswick.
- Etcheminian, Walcott. Wash. Acad. Sci., Proc., vol. i, p. 338. 1900.
Cambrian. Newfoundland.
- Etholen** bed, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 723-725. 1891.
Cretaceous. Texas. Included in Washita division.
- Eureka** quartzite, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 262. 1883.
Silurian. Nevada.
- Eureka shale, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 26, 27. 1888.
Devonian (?). Arkansas.
- Eureka shale, Hopkins. Am. Assoc. Adv. Sci., Proc., vol. xl, p. 256. 1891.
Devonian (?). Arkansas.
- Eureka shale, Simonds and Hopkins. Ark. Geol. Surv., 1891, vol. ii, pp. 32-37. 1891.
Devonian (?). Arkansas.
- Eureka quartzite, Hague. U. S. Geol. Surv., Mon., vol., xx, p. 54. 1892.
Silurian. Nevada.
- Eureka fire clay, Wheeler. Mo. Geol. Surv., Sheet Rept. No. ii, p. 59. 1893.
Upper Carboniferous. Missouri. Included in Lower Coal Measures.
- Eureka shale, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 347. 1897.
Carboniferous. Indian Territory. Included in Lower Carboniferous.
- Eureka limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 67, 73. 1898.
Carboniferous. Kansas. Exact syn. Burlingame limestone of Wabaunsee formation.
- Eureka shale, Williams. Am. Jour. Sci., 4th ser., vol. viii, pp. 139-149. 1898.
Carboniferous. Arkansas. Part. syn. Kinderhook.
- Eureka shale, Shepard. Mo. Geol. Surv., vol. xii, pp. 67-71. 1898.
Devonian. Missouri. Included in Hamilton stage.
- Eureka limestone, Tower and Smith. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 622-624. 1899.
Carboniferous. Utah.
- Eutaw** group, Hilgard. Rept. on Geol. and Agric. Miss., pp. 61, 62-68. 1860.
Cretaceous. Mississippi. Exact syn. Lower Cretaceous.
- Eutaw group, Hilgard. Am. Jour. Sci., 3d ser., vol. ii, pp. 391-394. 1871.
Cretaceous. Mississippi, Alabama, Georgia, Texas, Arkansas. Exact syns. Coffee group, Dakota group. Part. syn. Fort Benton group.
- Eutaw formation, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 86. 1887.
Cretaceous. Alabama.
- Eutaw series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 30. 1891.
Cretaceous. Georgia.
- Eutaw series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 91. 1891.
Tertiary. Georgia.
- Eutaw, White. U. S. Geol. Surv., Bull. No. 82, p. 106. 1891.
Cretaceous. Gulf region. Includes Lower Eutaw and Tuscaloosa.
- Eutaw series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog. 1891.
Cretaceous. Georgia.
- Eutaw, Langdon. Geol. Soc. Am., Bull., vol. ii, p. 588. 1891.
Cretaceous. Alabama. Included in Tuscaloosa group.

Eutaw, Smith. Ala. Geol. Surv., Bull. No. 2, p. 14. 1892.

Cretaceous. Alabama.

Eutaw, Smith, Johnson, and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 290, 361, 431, 455. 1894.

Cretaceous. Alabama.

Everett schist, Hobbs. Jour. of Geol., vol. i, p. 728. 1893.

Silurian. Massachusetts. Included in Mount Washington series, Ordovician.

Ewing limestone, Lovejoy. Ohio Geol. Surv., vol. vi, pp. 631, 632. 1888.

Carboniferous. Ohio.

Exogyra arietina marl, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 583. 1857.

Cretaceous. Texas.

Exogyra arietina clays, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 128-129. 1890.

Cretaceous. Texas. Included in Washita division of Comanche series.

Exogyra arietina clay, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 275-283. 1893.

Cretaceous. Texas. Included in Washita division of Lower Cretaceous.

Exogyra costata series, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 67, 70-72, 96-109, 177, 130. 1888.

Cretaceous. Arkansas. Includes Upper Arenaceous beds, Chalky marl beds, Rocky Comfort chalk, Eagle Ford clay, Lower Cross Timber sands.

Exogyra ponderosa marls, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 114-116. 1890.

Cretaceous. Texas. Included in Black Prairie series.

Fairfax, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.

Carboniferous. West Virginia and Maryland.

Fairfax formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 187. 1897.

Carboniferous. Maryland.

Fairmount gneiss, Rand. Phil. Acad. Nat. Sci., Proc., 1900, pp. 278-279. 1900. Pennsylvania.

Fall River limestone, Hay. Kan. Acad. Sci., Trans., vol. x, p. 7. 1887.

Carboniferous. Kansas.

Falls Creek conglomerate, White. 2d Pa. Geol. Surv., Rept. G³, p. 237. 1881.

Devonian. Pennsylvania.

Falls Creek conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1556. 1892.

Devonian. Pennsylvania. Included in Chemung.

Falmouth, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, pp. 101-102. 1899.

Pleistocene. Jamaica. Included in Coastal series.

Farnham limestone, Ells. Can. Geol. Surv., new ser., vol. vii, pp. 17J, 25J-27J. 1896.

Silurian. Quebec. Included in Trenton.

Fayette beds, Penrose. Texas Geol. Surv., 1st Ann. Rept., pp. 47-58. 1890.

Tertiary. Texas. Exact Syn. Grand Gulf series.

Fayette beds, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, pp. xxxiii-xxxv. 1890.

Tertiary. Texas. Included in Miocene.

Fayette, Hill. Geol. Soc. Am., Bull., vol. iii, p. 94. 1892.

Tertiary. Texas. Included in Neocene.

Fayette sands, Kennedy. Texas Geol. Surv., 3d Ann. Rept., pp. 60-62. 1892.

Tertiary. Texas. Included in Miocene.

Fayette division, Dumble. Texas Geol. Surv., Rept. on brown coal, pp. 154-157. 1892.

Tertiary. Texas. Included in Eocene.

- Fayette sands, Dumble. Jour. of Geol., vol. ii, pp. 552-554. 1894.
Tertiary. Texas. Included in Eocene.
- Fayette sands, Kennedy. Phil. Acad. Nat. Sci., Proc., 1895, p. 95. 1895.
Texas. Included in Eocene, Lower Claiborne.
- Fayette breccia, Norton. Iowa Geol. Surv., vol. iv, pp. 157-166. 1895.
Devonian. Iowa.
- Fayette sandstone, Campbell and Mendenhall. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 497. 1896.
Carboniferous. West Virginia. Included in No. xii, Conglomerate series.
- Fayette breccia, Calvin. Iowa Geol. Surv., vol. vii, pp. 58-62. 1897.
Devonian. Iowa. Included in Wapsipinicon stage.
- Fayette breccia, Calvin. Iowa Geol. Surv., vol. vii, pp. 224-230. 1898.
Devonian. Iowa.
- Fayette breccia, Udden. Iowa Geol. Surv., vol. ix, p. 269. 1899.
Devonian. Iowa.
- Fayette sandstone, White. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 818-819. 1900.
Carboniferous. West Virginia.
- Fayetteville** shale, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 42-48, 149. 1888.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Fayetteville shale, Penrose. Ark. Geol. Surv., 1890, vol. i, pp. 138-139. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous or Mississippian series, Osage group.
- Fayetteville shale, Simonds and Hopkins. Ark. Geol. Surv., 1891, vol. ii, pp. 50-51. 1891.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Fayetteville shale, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 352. 1897.
Carboniferous. Indian Territory. Included in Lower Carboniferous. Exact syn. Warsaw.
- Federal Creek** coal, Andrews. Ohio Geol. Surv., vol. i, pt. i, p. 271. 1873.
Carboniferous. Ohio. Included in Coal Measures. Exact syn. Pomeroy seam.
- Felch Mountain** iron schists, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.
Algonkian. Michigan. Exact syns. Lower Huronian, Keewatin in part, Menominee.
- Fence-post** limestone, Cragin. Colo. College Stud., vol. vi, p. 50. 1896.
Cretaceous. Kansas. Exact syn. Downs limestone.
- Fernandan** system, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvi. 1890.
Archean. Texas. Includes Click, Iron Mountain, and Valley Spring series.
- Fernandan system, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 267-276. 1890.
Archean. Texas. Includes Click, Iron Mountain, and Valley Spring series.
- Fernandan system, Comstock. Texas Geol. Surv., 2d Ann. Rept., pp. 560-561, 656-658. 1891.
Archean. Texas. Includes Valley Spring, Iron Mountain, and Click series.
- Ferriferous** limestone, Roy. Ohio State Mine Inspector, 3d Ann. Rept., p. 153. 1876.
- Ferriferous limestone, Platt. 2d Pa. Geol. Surv., Rept. H. 1878.
Carboniferous. Pennsylvania.
- Ferriferous limestone, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 321. 1880.
Carboniferous. Pennsylvania.
- Ferriferous limestone, Orton. Ohio Geol. Surv., vol. v, p. 16. 1884.
Carboniferous. Ohio. Exact syns. Hanging Rock limestone, Gray limestone.
- Ferriferous limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 173. 1891.
Carboniferous. Pennsylvania, Ohio, West Virginia, and Maryland. Included in Lower Coal Measures, Allegheny River series.

- Ferruginous sand**, Morton. Phil. Acad. Nat. Sci., Jour., vol. vi, p. iii. 1829.
New Jersey and Delaware. Included in Secondary. Includes Greensand.
- Ferruginous sandstone**, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 91, 174, 193. 1855.
Carboniferous. Missouri. Included in Mountain Lower Carboniferous limestone.
- Ferruginous sandstone**, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Rept., pt. ii, p. 181. 1855.
Carboniferous. Missouri.
- Ferruginous sandstone**, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 189. 1868.
Lower Carboniferous. Illinois.
- Ferruginous sandstone**, Shumard. Mo. Geol. Surv., Rept. 1855-1871, pp. 77, 279, 292, 320. 1873.
Carboniferous. Missouri.
- Ferruginous sandstone**, Meek. Mo. Geol. Surv., Repts., 1855-1873, p. 172. 1873.
Carboniferous. Missouri. Included in Lower Carboniferous.
- Ferruginous sandstone**, Broadhead. Mo. Geol. Surv., Repts., 1873-74, pp. 24, 68, 185. 1874.
Carboniferous. Missouri. Included in Lower Carboniferous, Mountain limestone.
- Ferruginous sandstone**, Broadhead. Mo. Geol. Surv., vol. viii, p. 355. 1895.
Lower(?) Carboniferous. Missouri. Included in Kaskaskia.
- Fish Creek sandstone**, Stevenson. 2d Pa. Geol. Surv., Rept. K, p. 42. 1876.
Carboniferous. Pennsylvania. Included in Greene County group of Upper Barren Measures.
- Fish Creek sandstone**, White. U. S. Geol. Surv., Bull. No. 65, p. 33. 1891.
Carboniferous. Pennsylvania. Included in Permo-Carboniferous, Dunkard Creek.
- Fish House black clay**, Woolman. N. J. Geol. Surv., Rept. 1896, p. 201. 1897.
New Jersey. Exact syn. Pensauken.
- Fishpot limestone**, D'Invilliers. 2d Pa. Geol. Surv., Ann. Rept. 1876, pp. 73-74. 1887.
Carboniferous. Pennsylvania. Included in Upper Productive or Monongahela River series.
- Flag limestone**, Taff. Texas Geol. Surv., 3d Ann. Rept., p. 343. 1892.
Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.
- Flagstone series**, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 298-300. 1894.
Devonian. New York.
- Flaming Gorge**, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 41, 51, 146, 151. 1876.
Juratrias. Utah.
- Flaming Gorge group**, Gilbert. U. S. Geog. and Geol. Surv., Rept. on Henry Mts., p. 6. 1877.
Juratrias. Utah.
- Flanagan chert**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.
Silurian. Kentucky.
- Flathead**, Peale. U. S. Geol. Surv., Bull. No. 110, p. 20. 1893.
Cambrian. Montana.
- Flathead quartzite**, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Cambrian. Montana.
- Flathead**, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Cambrian. Montana.
- Flathead**, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Cambrian. Wyoming.

- Flathead**, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 34. 1896.
 Cambrian. Montana. Includes Upper Flathead shales, Flathead limestones, Lower Flathead shales, and Flathead quartzite.
- Flathead sandstone**, Walcott. Geol. Soc. Am., Bull., vol. x, p. 203. 1899.
 Cambrian. Montana.
- Flathead formation**, Hague. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 52. 1899.
 Cambrian. Wyoming.
- Flathead formation**, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59, 149-164. 1899.
 Cambrian. Yellowstone Park.
- Flathead sandstone**, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 285. 1900.
 Cambrian. Montana.
- Flat Rock** stone, Cox. Indiana Geol. Surv., 8th, 9th, and 10th Ann. Repts. for 1876-77-78, p. 89. 1879.
 Indiana.
- Flatwoods** group, Killebrew and Safford. Resources of Tenn., p. 44. 1874.
 Tertiary. Tennessee.
- Fleming** beds, Kennedy. Texas Geol. Geol. Surv., 3d Ann. Rept., pp. 62-63. 1892.
 Tertiary. Texas. Included in Miocene.
- Flint** beds, Hay. U. S. Geol. Surv. Bull., No. 137, p. 17. 1896.
 Permo-Carboniferous. Kansas.
- Flint Hill**, Cragin. Colo. Coll. Stud., vol. vi, pp. 3, 6. 1896.
 Permian. Kansas. Included in Lower division of Big Blue series.
- Flint Ridge** limestone, Andrews. Ohio Geol. Surv., Rept. Prog., 1869, p. 92. 1870.
 Ohio.
- Flint Ridge** limestone, Andrews. Ohio Geol. Surv., Rept. Prog., 1869, p. 95. 1871.
 Ohio.
- Flint Ridge** shale, Herrick. Denison Univ. Sci. Lab., Bull., vol. ii, p. 12. 1887.
 Carboniferous. Ohio.
- Florence** limestone, Prosser. Kan. Univ. Quart., vol. vi, pp. 171-172. 1896.
 Carboniferous. Kansas. Included in Chase formation, Permian.
- Florence flint**, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 189-190. 1896.
 Carboniferous. Kansas. Included in Chase formation, Permian. Exact syn. Upper Flint beds.
- Florence flint and limestone**, Beede. Kan. Univ. Quart., vol. ix, p. 199. 1900.
 Carboniferous. Kansas.
- Floridian** series, Heilprin. Wagner Free Inst. Sci., Trans., vol. i, pp. 28-32, pp. 64A, 64B. 1887.
 Pliocene. Florida. Exact syn. Pliocene series of the Caloosahatchee.
- Floridian** group, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
 Pliocene. Florida and South Atlantic States. Included in Floridian epoch.
 Includes Caloosahatchee, Croatan, De Soto, and Waccamaw beds.
- Florissant** lake beds, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
 Tertiary. Colorado. Included in Eocene.
- Flowerpot** shales, Cragin. Colo. Coll. Stud., vol. vi, pp. 3, 24-27. 1896.
 Permian. Kansas. Included in Cimarron series.
- Flowerpot** shales, Cragin. Am. Geol., vol. xix, p. 355. 1897.
 Permian. Kansas, Oklahoma. Included in Glass Mountain formation of Cimarron series.
- Floyd** shale, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.
 Lower Carboniferous. Tennessee.

Floyd shale, Hayes. Ala. Geol. Surv., Bull. No. 4, p. 47. 1892.

Carboniferous. Alabama. Included in Mississippian series.

Floyd shale, Spencer. Ga. Geol. Surv., The Paleozoic group, pp. 52, 96. 1893.

Carboniferous. Georgia. Included in Lower Carboniferous.

Floyd shales, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 6. 1894.

Carboniferous. Georgia, Tennessee.

Floyd shale, Hayes. Geol. Soc. Am., Bull., vol. v, p. 470. 1894.

Lower Carboniferous. Georgia, Alabama.

Folley limestone, Keyes. Iowa Acad. Sci., Proc., vol. v, p. 61. 1898.

Ordovician. Iowa.

Fond du Lac sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. 4, p. 567. 1899.

Cambrian. Minnesota.

Foraminiferal limestone, Lawson. U. S. Geol. Surv., 15th Ann. Rept., p. 419. 1895.

Mesozoic. California. Included in Franciscan series.

Foraminiferal limestone, Anderson. Univ. of Cal., Dept. of Geol., Bull., vol. ii, p. 133. 1899.

Cretaceous(?). California.

Forbes limestone, Gallaher. Mo. Geol. Surv., Bien. Rept., p. 56. 1898.

Permian. Missouri.

Forbes limestone, Keyes. Am. Geol., vol. xxiii, p. 309. 1899.

Carboniferous. Mississippi Valley. Included in Missourian series.

Forbes limestone, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 93. 1900.

Carboniferous. Mississippi Valley. Included in Coal Measures.

Foreman beds, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.

Trias. California.

Forest bed, McGee. Am. Jour. Sci., 3d ser., vol. xv, pp. 339-341. 1878.

Pleistocene. Iowa.

Forest bed, Newberry. Indiana Dept. Geol. and Nat. Hist., 14th Ann. Rept., 1884, p. 91. 1884.

Quaternary. Indiana.

Forest stage, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 140-141. 1900

Pleistocene. Michigan.

Forest City zone, Gallaher. Mo. Geol. Surv., Bien. Rept., pp. 55, 57. 1898.

Prelim. Rept. on structural and economic geology, p. 215. 1900.

Permian. Missouri.

Formation No. 1, Rogers. Repts. for 1837 and 1838, Geol. of Virginias, pp. 167, 204. 1884.

Virginia. Exact syn. Primal.

Formation No. 2, Rogers. Repts. for 1837 and 1838 and Geol. of Virginias, pp. 169, 209. 1884.

Cambro-Silurian. Maryland. Includes Chazy and Calciferous. Exact syns. Valley or Shenandoah limestone, Auroral.

Formation No. 3, Rogers. Repts. for 1837 and 1838 and Geol. of Virginias, pp. 173, 218. 1884.

Silurian. Virginia. Includes Hudson River, Utica, and Trenton. Exact. syn. Matinal of Pennsylvania.

Formation No. 4, Rogers. Rept. for 1837 and Geol. of Virginias, p. 175. 1884.

Silurian. Virginia. Exact syn. Medina, Levant of Pennsylvania.

Formation No. 5, Rogers. Rept. for 1837 and Geol. of Virginias, p. 177. 1884.

Silurian. Virginia. Included in Upper Silurian. Includes Clinton, Niagara, and Salina. Part. syn. Surgent and Scalent of Pennsylvania.

- Formation No. 6**, Rogers. Rept. for 1837 and Geol. of Virginias, p. 178. 1884.
1837.
Silurian. Virginia. Exact syn. Lower Helderberg pre-Meridian of Pennsylvania.
- Formation No. 7**, Rogers. Rept. for 1837 and Geol. of Virginias, p. 179. 1884.
Silurian. Virginia. Exact syns. Oriskany, Meridian of Pennsylvania.
- Formation No. 8**, Rogers. Rept. for 1837 and Geol. of Virginias, p. 179. 1884.
1837.
Devonian. Virginia. Includes Marcellus, Hamilton, Genesee, Portage, and Chemung. Part. syns. Cadent and Vergent of Pennsylvania.
- Formation No. 9**, Rogers. Rept. for 1837 and Geol. of Virginias, p. 182. 1884.
Devonian. Virginia. Exact syns. Catskill, Ponent of Pennsylvania.
- Formation No. 10**, Rogers. Repts. for 1837 and 1839 and Geol. of Virginias, pp. 183, 335. 1884.
Carboniferous. Virginia. Included in Lower Carboniferous. Exact syn. Vespertine sandstone of Pennsylvania.
- Formation No. 11**, Rogers. Repts. for 1837, 1838, and 1839 and Geol. of Virginias, pp. 183, 201, 336. 1884.
Carboniferous. Virginia. Exact syns. Greenbrier shales and limestone, Umbral shales and limestone of Pennsylvania.
- Formation No. 12**, Rogers. Repts. for 1838, 1839, and 1840 and Geol. of Virginias, pp. 201, 340, 487. 1884.
Carboniferous. Virginia. Exact syn. Great conglomerate. Part. syn. Seral of Pennsylvania.
- Formation No. 13**, Rogers. Repts. for 1838, 1839, 1840 and Geol. of Virginias, pp. 202, 342, 487, 506. 1884.
Carboniferous. Virginia. Exact syn. Lower Coal group. Part. syn. Seral of Pennsylvania.
- Formation i**, Rogers. N. J. Geol. Surv., Final Rept., p. 46. 1840.
New Jersey.
- Formation ii**, Rogers. N. J. Geol. Surv., Final Rept., pp. 47-90. 1840.
New Jersey. Exact syn. Blue limestone.
- Formation iii**, Rogers. N. J. Geol. Surv., Final Rept., p. 93. 1840.
New Jersey.
- Formation iv**, Rogers. N. J. Geol. Surv., Final Rept., p. 99. 1840.
New Jersey.
- Formation v**, Rogers. N. J. Geol. Surv., Final Rept., p. 103. 1840.
New Jersey.
- Formation No. 14**, Rogers. Rept. for 1840 and Geol. of Virginias, pp. 491, 510. 1884.
Carboniferous. Virginia. Exact syns. Lower shale and sandstone group. Lower Barren group. Part. syn. Seral of Pennsylvania.
- Formation No. 15**, Rogers. Rept. for 1840 and Geol. of Virginias, pp. 498, 513. 1884.
Carboniferous. Virginia. Exact syn. Upper Coal group. Part. syn. Seral of Pennsylvania.
- Formation No. 5**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 32. 1860.
Maryland.
- Formations Nos. 6 and 7**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 33. 1860.
Maryland.
- Formation No. 8**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 34. 1860.
Cambrian. Maryland. Exact syns. Primal of Pennsylvania; Potsdam sandstone of New York.
- Formation No. 10**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 35. 1860.
Silurian. Maryland. Exact syns. Auroral series, Pennsylvania; Chazy and Black River of New York.

- Formation No. 11**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 35. 1860.
Maryland.
- Formation No. 12**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 36. 1860.
Silurian. Maryland. Exact syns. Matinal series of Pennsylvania; Hudson River, Utica, and Trenton of New York.
- Formation No. 13**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 36. 1860.
Silurian. Maryland. Exact syns. Levant series of Pennsylvania; Onedia conglomerate and Medina sandstone of New York.
- Formation No. 14a**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 37. 1860.
Silurian. Maryland. Exact syns. Surgent series of Pennsylvania, Clinton group of New York.
- Formation No. 14b**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 37. 1860.
Silurian. Maryland. Exact syns. Scalent series of Pennsylvania; Onondaga shale and Water-line groups of New York.
- Formation No. 15a**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 38. 1860.
Silurian. Maryland. Exact syns. Pre-Meridian of Pennsylvania, Lower Helderberg limestone of New York.
- Formation No. 15b**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 38. 1860.
Silurian. Maryland. Exact syns. Meridian series of Pennsylvania; Oriskany sandstone of New York.
- Formation No. 16a**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 38. 1860.
Devonian. Maryland. Exact syns. Cadent series of Pennsylvania; Marcellus, Hamilton, and Genesee of New York.
- Formation No. 16b**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 39. 1860.
Devonian. Maryland. Exact syns. Vergent series of Pennsylvania; Portage, Ithaca, and Chemung groups of New York.
- Formation No. 17**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 39. 1860.
Devonian. Maryland. Exact syns. Ponent series of Pennsylvania; Catskill group of New York.
- Formation No. 18a**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 39. 1860.
Devonian. Maryland. Exact syn. Vespertine series of Pennsylvania.
- Formation No. 18b**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 40. 1860.
Carboniferous. Maryland. Exact syn. Umbral series of Pennsylvania.
- Formation No. 19**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 40. 1860.
Carboniferous. Maryland. Exact syn. Seral series of Pennsylvania.
- Formation No. 20**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 41. 1860.
Juratrias. Maryland
- Formation Nos. 21 and 22**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 41. 1860.
Cretaceous. Maryland.
- Formation No. 23**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 43. 1860.
Tertiary. Maryland.
- Formation No. 24**, Tyson. Md. State Agric. Chemist, 1st Rept., p. 44. 1860.
Pleistocene. Maryland.
- Fort Benton group**, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, pp. 419, 421. 1862.
Lower Cretaceous. Nebraska. Exact syn. Cretaceous No. 2.
- Fort Benton**, Hayden. U. S. Geol. Surv. of Wyoming, Rept., pp. 87, 90. 1871.
Cretaceous. Included in Lower Cretaceous. Exact syn. Cretaceous No. 2.
- Fort Benton**, Hayden. U. S. Geol. Surv. of Terr., 1st-3d Ann. Repts., pp. 49, 53. 1873.
Cretaceous. Exact syn. Cretaceous No. 2.

Fort Benton group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix, pp. xxviii-xxx. 1876.

Cretaceous.

Fort Benton, Hague. U. S. Geol. Explor. of 40th Parallel, vol. ii, p. 42. 1877.

Cretaceous. Colorado. Included in Colorado.

Fort Benton group, Newton. Geology of the Black Hills, p. 174. 1880.

Cretaceous. South Dakota.

Fort Benton, Stevenson. U. S. Geog. and Geol. Surv. W. of 100th M., vol. iii, Suppl., p. 96. 1881.

Colorado, New Mexico. Included in Colorado group. Exact syn. Cretaceous No. 2.

Fort Benton, Stevenson. Am. Geol., vol. iii, p. 393. 1889.

Cretaceous. Colorado and New Mexico.

Fort Benton, Calvin. Iowa Geol. Surv., vol. i, pp. 148-161. 1893.

Cretaceous. Iowa.

Fort Benton, Logan. Jour. of Geol., vol. vii, pp. 84-89. 1899.

Cretaceous. Kansas and Nebraska. Included in Colorado formation.

Fort Bridger, Engelmann. U. S. A., Eng. Dept., Simpson's Explor. of the Great Basin, p. 287. 1876.

Tertiary. Wyoming and Utah.

Fort Dodge beds, Keyes. Iowa Geol. Surv., 1st Ann. Rept., vol. i, pp. 135-137. 1893.

Cretaceous. Iowa.

Fort Ellis beds, Dall and Harris. U. S. Geol. Surv., Bull., No. 84, p. 287. 1892.

Tertiary. Montana. Included in Neocene.

Fort Hays division, Mudge. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. ii, pp. 218-221. 1876.

Cretaceous. Kansas.

Fort Hays, Mudge. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., p. 281. 1877.

Cretaceous. Kansas. Included in Niobrara.

Fort Hays division, Williston. Kan. Univ. Quart., vol. iv, p. 251. 1896.

Upper Cretaceous. Kansas. Included in Niobrara.

Fort Hays limestone, Logan. Kan. Univ. Geol. Surv., vol. ii, pp. 219-220. 1897.

Upper Cretaceous. Kansas. Included in Niobrara group.

Fort Hays beds, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25-27. 1898.

Upper Cretaceous. Kansas. Included in Niobrara.

Fort Hays limestone, Logan. Jour. of Geol., vol. vii, pp. 89-90. 1899.

Cretaceous. Kansas, Nebraska. Included in Niobrara. Exact syn. Lower Tim-pas beds.

Fort Knox sandstone, Collett. Indiana Geol. Surv., 5th Ann. Rept., for 1873, p. 323. 1874.

Exact syn. Fort Knox sandstone, No. 2.

Fort Payne chert, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.

Lower Carboniferous. Alabama, Tennessee.

Fort Payne chert, Hayes. Ala. Geol. Surv., Bull., No. 4, p. 46. 1892.

Carboniferous. Alabama. Included in Sub-Carboniferous or Mississippian.

Fort Payne chert, Gibson. Ala. Geol. Surv., Geol. Structure of Murphrees Valley, pp. 23, 93. 1893.

Carboniferous. Alabama. Included in Sub-Carboniferous. Exact syn. Siliceous group.

Fort Payne chert, Spencer. Ga. Geol. Surv., The Paleozoic group, pp. 51, 96. 1893.

Carboniferous. Georgia. Included in Lower Carboniferous.

Fort Payne chert, Hayes. Geol. Soc. Am., Bull., vol. v, p. 470. 1894.

Lower Carboniferous. Alabama and Georgia.

Fort Payne chert, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 8, 19, 20, 21, 22, 35. 1894-95, 1896.

Carboniferous. Georgia, Tennessee, and Alabama.

Fort Payne chert, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896. Carboniferous. Alabama. Part. syn. Siliceous group.

Fort Payne chert, McCalley. Ala. Geol. Surv., Rept. on Valley Regions, pt. ii, pp. 51-53, 172-183, 240-246, 292-299, 476-477, 503-504, 525-527, 643-644, 735-745, 809-811. 1897.

Carboniferous. Alabama. Included in Lower Sub-Carboniferous. Includes Tusculumbia limestone and Lauderdale chert.

Fort Pierre group, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, pp. 419, 424. 1862.

Upper Cretaceous. Nebraska. Exact syn. Cretaceous No. 4.

Fort Pierre, Hayden. U. S. Geol. Surv. of Wyoming, Rept., pp. 87, 91. 1871.

Cretaceous. Included in Upper Cretaceous. Exact syn. Cretaceous No. 4.

Fort Pierre, Hayden. U. S. Geol. Surv. of Terr., 1st-3d Ann. Repts., pp. 49, 55. 1873.

Cretaceous. Exact syn. Cretaceous No. 4.

Fort Pierre group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix, pp. xxxiii-xxxv. 1876.

Cretaceous.

Fort Pierre, Hague. U. S. Explor. of 40th Parallel, vol. ii, pp. 42. 1877.

Cretaceous. Colorado. Included in Colorado formation.

Fort Pierre, White. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 187. 1879.

Cretaceous.

Fort Pierre group, Newton. Geol. of Black Hills, pp. 172-173. 1880.

Cretaceous. South Dakota.

Fort Pierre, Stevenson. U. S. Geog. and Geol. Surv. W. of 100th M., vol. iii, Suppl., p. 99. 1881.

Cretaceous. Colorado, New Mexico. Included in Colorado formation. Exact syn. Cretaceous No. 4.

Fort Pierre, Stevenson. Am. Geol., vol. iii, p. 392. 1889.

Cretaceous. Colorado and New Mexico.

Fort Pierre shale, Upham. U. S. Geol. Surv., Mon., vol. xxv, p. 86. 1895.

Cretaceous. Minnesota.

Fort Pierre group, Logan. Kan. Univ. Geol. Surv., vol. ii, pp. 221-222. 1897.

Upper Cretaceous. Kansas. Exact syn. Pierre.

Fort Riley limestone, Prosser. Geol. Soc. Am., Bull., vol. vi, pp. 30, 48, 52. 1894. Permian. Kansas.

Fort Riley limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, p. 190. 1896.

Carboniferous. Kansas. Included in Chase formation, Permian. Exact syn. Florence limestone.

Fort St. John shales, Dawson. Can. Geol. Surv., Rept. 1879-80, p. 115B. 1881.

Cretaceous. British Columbia. Included in Colorado group. Exact syn. Lower dark shales. Part. syn. Benton.

Fort St. John shales, Dawson. Am. Jour. Sci., 3d ser., vol. xxi, p. 392. 1881.

Cretaceous. Canada. Exact syn. Benton.

Fort St. John series, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 47D-50D, 55D-58D. 1893.

Cretaceous. Canada. Included in Colorado group. Includes Fort St. John shales.

- Fort Scott** limestone, Swallow. Kan. Geol. Surv., Prelim. Rept., pp. 25-26. 1866.
Carboniferous. Kansas.
- Fort Scott** group, Broadhead. Mo. Geol. Surv., Rept. 1873-74, pp. 101, 126, 158.
1874.
Carboniferous. Missouri. Included in Coal Measures.
- Fort Scott** marble, Broadhead. St. Louis Acad. Sci., Trans., vol. iii, p. 225. 1878.
Carboniferous. Missouri.
- Fort Scott** series, Broadhead. Mo. Geol. Surv., vol. viii, p. 380. 1895.
Upper Carboniferous. Kansas. Included in Coal Measures.
- Fort Scott** cement rock, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 31-34, 100.
1898.
Carboniferous. Kansas. Included in Oswego limestones.
- Fort Selden**, Hill. Geol. Soc. Am., Bull., vol. iii, p. 96. 1892.
Tertiary. Texas.
- Fort Union**, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, p. 433.
1862.
Nebraska. Exact syn. Great Lignite, Eocene(?).
- Fort Union** or Great Lignite, Hayden. Phil. Acad. Nat. Sci., Jour., vol. vii, pp.
12-13. 1869.
Dakota and Nebraska. Included in Tertiary. Exact syn. Eocene(?).
- Fort Union**, Hayden. U. S. Geol. Surv. of Wyoming, Rept., p. 93. 1871.
Tertiary. Included in Eocene(?).
- Fort Union**, Hayden. U. S. Geol. Surv. of Terr., 1st-3d Ann. Repts., pp. 56, 192.
1873.
Tertiary. Exact syn. Great Lignite.
- Fort Union** group, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull., No. 2, p. 6.
1874.
Cretaceous.
- Fort Union**, Cope and Le Conte. Phil. Acad. Nat. Sci., Proc., vol. xxvi, pp. 10-12.
1874.
Cretaceous.
- Fort Union** group, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ii,
pp. 25-30. 1875.
Cretaceous.
- Fort Union** group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix,
pp. lv-lxi. 1876.
Cretaceous(?).
- Fort Union**, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 141.
1876.
Tertiary. Colorado. Exact syn. Great Lignite group.
- Fort Union** group, White. Am. Jour. Sci., 3d ser., vol. xxvi, pp. 120-123. 1883.
Cretaceous. Montana. Included in Laramie group.
- Fort Union**, Ward. U. S. Geol. Surv., 6th Ann. Rept., p. 438. 1885.
Cretaceous, Tertiary. Rocky Mountains. Exact syn. Laramie.
- Fort Union**, Clark. U. S. Geol. Surv., Bull., No. 83, p. 135. 1891.
Cretaceous. Interior region.
- Fort Union**, Weed. U. S. Geol. Surv., Bull., No. 106, p. 35. 1893.
Tertiary. Montana.
- Fort Union**, Weed. Am. Geol., vol. xviii, pp. 201-211. 1896.
Tertiary. Montana. Included in Eocene. Exact syn. Paskapoo (Canada).
- Fort Union** formation, Smith. Jour. of Geol., vol. viii, pp. 445-448. 1900.
Tertiary. Western North America. Included in Eocene.
- Fort Worth** limestone, Hill. Texas Geol. Surv., 1st Ann. Rept., p. 128. 1890.
Cretaceous. Texas. Included in Washita division of Comanche series. Exact
syn. Washita limestone.

- Fort Worth limestone, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 516. 1891.
Cretaceous. Texas. Included in Washita division.
- Fort Worth limestone, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 345-347. 1892.
Cretaceous. Texas. Included in Washita division of Lower Cretaceous.
- Fort Worth limestone, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 263-275. 1893.
Cretaceous. Texas. Included in Washita division of Lower Cretaceous.
- Fort Worth limestone, Hill. Geol. Soc. Am., Bull., vol. v, pp. 298, 323. 1894.
Cretaceous. Texas. Included in Washita division.
- Fort Worth limestone, Hill and Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 42. 1898.
Cretaceous. Texas. Included in Comanche series.
- Fort Worth limestone, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 235-236. 1898.
Cretaceous. Texas. Included in Washita division of Comanche series.
- Fort Worth limestone, Vaughan. U. S. Geol. Surv., Bull., No. 164, p. 16. 1900.
Cretaceous. Texas. Included in Comanche series.
- Fortymile** series, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 145-155. 1898.
Alaska.
- Fortymile** series, Emmons. Nat. Geog. Mag., vol. ix, pp. 156, 157. 1898.
Alaska.
- Fossiliferous** limestone, Cook. Geol. of N. J., pp. 131-134. 1868.
Silurian. New Jersey. Exact syn. Trenton limestone.
- Fountain**, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
Carboniferous. Colorado.
- Fountain beds, Crosby. Essex Inst., Bull., vol. xxvii, p. 114. 1895.
Carboniferous. Colorado.
- Fountain formation, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.
Juratrias. Colorado.
- Fountain beds series, Crosby. Geol. Soc. Am., Bull., vol. x, p. 43. 1899.
Carboniferous. Colorado.
- Fourth Moraine**, Todd. U. S. Geol. Surv., Bull., No. 144, p. 48. 1896.
Pleistocene. Dakota.
- Fox Ford** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 378. 1883.
Carboniferous. Texas. Included in Strawn division.
- Fox Hills** beds, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, pp. 419, 427. 1862.
Upper Cretaceous. Nebraska. Exact syn. Cretaceous No. 5.
- Fox Hills, Hayden. U. S. Geol. Surv. of Wyoming, Rept., pp. 87, 91. 1871.
Cretaceous. Included in Upper Cretaceous. Exact syn. Cretaceous No. 5.
- Fox Hill, Hayden. U. S. Geol. Surv. of Terr., 1st-3d Ann. Repts., p. 49. 1873.
Cretaceous. Exact syn. Cretaceous No. 5.
- Fox Hills group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix, pp. xxxv-xxxvii. 1876.
Cretaceous.
- Fox Hill, Hague. U. S. Geol. Explor. of 40th Parallel, vol. ii, p. 28. 1877.
Cretaceous. Colorado.
- Fox Hills, Endlich. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., p. 187. 1877.
Cretaceous. Colorado.
- Fox Hill group, King. U. S. Geol. Explor. of 40th Parallel, vol. i, p. 320-330. 1878.
Cretaceous. Colorado, Wyoming and Utah.
- Fox Hills, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 76, 109, 125. 1878.

- Cretaceous. Colorado.
 Fox Hills, White. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 19, 22, 31. 1878. Cretaceous. Utah and Colorado.
 Fox Hills group, Stevenson. Am. Jour. Sci., 3d ser., vol. xvii, pp. 369-373. 1879. Cretaceous. Colorado.
 Fox Hills, White. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 187. 1879. Cretaceous.
 Fox Hills, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 85, 87, 109, 123. 1879. Cretaceous. Wyoming.
 Fox Hills group, Newton. Geol. of the Black Hills, pp. 171-172. 1880. Cretaceous. South Dakota.
 Fox Hills, Dawson. Science, vol. i, p. 429. 1883. Cretaceous. Canada.
 Fox Hills group, Dutton. U. S. Geol. Surv., 6th Ann. Rept., pp. 136-140. 1885. Cretaceous. Northwestern New Mexico. Includes Upper and Lower Fox Hills shales.
 Fox Hills group, Tyrrell. Can. Geol. Surv., new ser., vol. ii, pp. 129-131. 1887. Cretaceous. Canada.
 Fox Hills, Stevenson. Am. Geol., vol. iii, p. 392. 1889. Cretaceous. Colorado and New Mexico.
 Fox Hills, Emmons, Cross, and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, p. 71. 1896. Cretaceous. Colorado. Included in Montana group.
 Fox Hills group, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 567. 1896. Cretaceous. Colorado.
Fragmental, Bain. Am. Jour. Sci., 4th ser., vol. v, pp. 438, 439. 1898. Carboniferous. Missouri. Included in Missourian series, Bethany limestone.
Franciscan series, Lawson. Am. Geol., vol. xv, p. 347. 1895. Cretaceous(?). California.
 Franciscan series, Lawson. U. S. Geol. Surv., 15th Ann. Rept., p. 415. 1895. Mesozoic. California. Includes San Francisco sandstone, Foraminiferal limestones and Radiolarian cherts.
 Franciscan formation, Turner. Jour. of Geol., vol. vi, pp. 488-493. 1898. Cretaceous. California. Exact syn. Golden Gate series.
 Franciscan, Willis. Geol. Soc. Am., Bull., vol. xi, p. 420. 1900. Cretaceous or Jurassic. California.
Franconia breccia, Huntington. Geol. of New Hamp., pt. ii, pp. 137-141. 1877. Eozoic. New Hampshire. Included in Montalban group.
Frankenfield, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, p. 42. 1899. Cretaceous. Jamaica. Included in Blue Mountains series.
Frankford gneiss, Rand. Phil. Acad. Nat. Sci., Proc., 1900, p. 279. 1900. Pennsylvania.
Frankfort slate, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., pp. 372-373. 1840. New York.
 Frankfort slate, Vanuxem. Geol. of N. Y., pt. iii, pp. 61-64. 1842. Paleozoic. New York. Included in Hudson River group.
 Frankfort slate, White. N. Y. State Mus., 51st Ann. Rept., vol. i, p. 33. 1899. Silurian. New York. Includes Utica and Hudson River.
Franklin white limestone, Wolff and Brooks. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 431-456. 1898. Pre-Cambrian. New Jersey.

- Fredericksburg**, Roger Bros. Phil. Acad. Nat. Sci., Proc., vol. i, p. 142. 1843.
Virginia. Exact syn. Oolite of Europe.
- Fredericksburg**, White. Phil. Acad. Nat. Sci., Proc., 1887, p. 40. 1887.
Cretaceous. Texas. Included in Comanche series.
- Fredericksburg division**, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 111-113. 1888.
Cretaceous. Arkansas. Included in Lower Cretaceous or Comanche series.
- Fredericksburg division**, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. li, 1890.
Cretaceous. Texas. Included in Comanche series.
- Fredericksburg division**, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 120-126. 1890.
Cretaceous. Texas. Included in Comanche series. Includes Caprina chalk and limestone, Comanche Peak beds.
- Fredericksburg division**, Taff. Texas Geol. Surv., 2d Ann. Rept., p. 717. 1891.
Cretaceous. Texas. Included in Lower Cretaceous. Includes Texana bed, Caprotina limestone.
- Fredericksburg division**, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 504, 509. 1891.
Cretaceous. Texas. Includes Goodland limestone, Caprina limestone, Comanche Peak chalk, Gryphaea and Walnut clays, and Paluxy sands.
- Fredericksburg division**, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 273-275. 1892.
Cretaceous. Texas. Includes Kiamitia clay, Austin marble, Flag limestone, Caprina limestone, Comanche Peak, and Texana.
- Fredericksburg division**, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 245-261. 1893.
Cretaceous. Texas. Included in Lower Cretaceous. Includes Kiamitia clay, Caprina, Comanche Peak, and Texana limestone.
- Fredericksburg**, Dumble and Cummins. Am. Geol., vol. xii, p. 311. 1893.
Cretaceous. Texas.
- Fredericktown** limestone, Keyes. Mo. Geol. Surv., Sheet Rept. No. iv, p. 18. 1896.
Cambrian. Missouri. Included in Upper Cambrian.
- Fredericktown** limestone, Keyes. Mo. Geol. Surv., vol. ix, Sheet Rept. No. iv, pp. 18-19, 20, 48-52. 1896.
Cambrian. Missouri. Included in Upper Cambrian.
- Fredericktown dolomite**, Wheeler. Mo. Geol. Surv., vol. xi, p. 37. 1896.
Cambrian. Missouri.
- Freeport** group, Rogers. Geol. of Pa., vol. ii, pp. 492, 501, 576. 1858.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Freeport** limestone, Platt. 2d Pa. Geol. Surv., Rept. H,⁴ p. 308. 1878.
Carboniferous. Pennsylvania.
- Freeport** group, Lesley. 2d Pa. Geol. Surv., Rept. Q, p. xvi. 1878.
Carboniferous. Pennsylvania.
- Freeport**, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 315. 1880.
Carboniferous. Pennsylvania.
- Freeport** group, Chance. 2d Pa. Geol. Surv., Rept. V², pp. 33-41. 1880.
Carboniferous. Pennsylvania. Included in Lower Productive Measures.
- Freeport sandstone**, Orton. Ohio Geol. Surv., vol. v, pp. 21, 22. 1884.
Carboniferous. Ohio. Includes Upper and Lower Freeport sandstone.
- Freeport**, White. 2d Pa. Geol. Surv., Rept. T³, pp. 53-54. 1885.
Carboniferous. Pennsylvania.
- Freeport**, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 384. 1885.
Carboniferous. Pennsylvania.
- Freeport coal**, White. U. S. Geol. Surv., Bull., No. 65, p. 147. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Lower Coal Measures, Allegheny River series. Includes Upper, Middle, and Lower Freeport.

- Freeport limestone, Upper, White. U. S. Geol. Surv., Bull., No. 65, p. 159. 1891.
Carboniferous. Ohio, Pennsylvania, and West Virginia. Included in Lower Coal Measures, Allegheny River series. Exact syns. Shawnee, White, Buchtel, Summit ore.
- Freeport limestone, Lower, White. U. S. Geol. Surv., Bull., No. 65, p. 163. 1891.
Carboniferous. Ohio, Pennsylvania. Included in Lower Coal Measures, Allegheny River series. Exact syn. Buff limestone of Ohio.
- Freeport sandstone, Upper, White. U. S. Geol. Surv., Bull., No. 65, p. 160. 1891.
Carboniferous. Pennsylvania, and West Virginia. Included in Lower Coal Measures, Allegheny River series.
- Freeport sandstone, Lower, White. U. S. Geol. Surv., Bull., No. 65, p. 163. 1891.
Carboniferous. Pennsylvania, Ohio and West Virginia. Included in Lower Coal Measures, Allegheny River series.
- Freeport sandstone, White. Geol. Soc. Am., Bull., vol. iii, p. 187. 1892.
Upper Carboniferous. West Virginia. Included in Lower Coal Measures.
- Freeport clay and shales, Lower, Orton. Ohio Geol. Surv., vol. vii, pp. 63, 67. 1893.
Carboniferous. Ohio.
- Freeport clay and shales, Upper, Orton. Ohio Geol. Surv., vol. vii, pp. 63, 67. 1893.
Carboniferous. Ohio.
- Freeport gravel, Sardeson. Am. Geol., vol. xx, p. 400. 1897.
Pleistocene. Wisconsin.
- Freeport gravel, Hershey. Am. Geol., vol. xix, p. 137. 1897.
Pleistocene. Illinois.
- Freeport group, White. Geol. Soc. Am., Bull., vol. xi, pp. 153-155. 1900.
Carboniferous. Pennsylvania. Included in Allegheny series.
- Fremont** limestone, Walcott. Geol. Soc. Am., Bull., vol. iii, pp. 153, 157, 170. 1892.
Ordovician. Colorado.
- Fremont limestone, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
Silurian. Colorado.
- Frickham** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 403. 1893.
Carboniferous. Texas. Included in Cisco division.
- Frio** clays, Dumble. Jour. of Geol., vol. ii, pp. 554-555. 1894.
Tertiary. Texas. Included in Eocene.
- Frio clays, Kennedy. Phil. Acad. Nat. Sci., Proc., 1895, p. 93. 1895.
Texas. Included in Eocene, Lower Claiborne.
- Frog Mountain** sandstone, Hayes. Geol. Soc. Am., Bull., vol. v, p. 470. 1894.
Lower Devonian. Georgia and Alabama. Included in Oriskany (?).
- Frostburg** coal formation, Tyson. Md. Acad. of Sci. and Lit., article iv, pp. 92-98. 1837.
Carboniferous. Maryland.
- Frostburg formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 188. 1897.
Carboniferous. Maryland. Included in Permian.
- Frostburg, Clark. Md. Geol. Surv., vol. ii, p. 170. 1898.
Permian. Maryland.
- Fullington** shale, Cragin. Am. Geol., vol. xvi, p. 379. 1895.
Cretaceous. Kansas. Included in Belvidere beds. Includes Black Hill shale, Blue Cut shale.
- Fusulina** limestone, Worthen. Ill. Geol. Surv., vol. vii, p. 27. 1883.
Carboniferous. Illinois. Included in Coal Measures.
- Gale** sands, Willis and Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 54. 1899.
Pleistocene. Washington.

- Galena** limestone, Whitney. Iowa Geol. Surv., vol. i, pt. i, pp. 288-290, 298-302, 350-356. 1858.
 Silurian. Iowa.
- Galena** limestone, Hall. Iowa Geol. Surv., vol. i, pp. 60-63. 1858.
 Silurian. Iowa. Exact syn. Upper Magnesian limestone.
- Galena** limestone, Hall and Whitney. Am. Jour. Sci., 2d ser., vol. xxvii, p. 108. 1859.
 Silurian. Iowa.
- Galena** limestone, Whitney. Rept. on Upper Mississippi lead region, p. 168. 1862.
 Silurian. Wisconsin. Exact syn. Upper Magnesian or Cliff limestone.
- Galena** limestone, Worthen. Ill. Geol. Surv., vol. i, pp. 141-149. 1866.
 Silurian. Illinois. Included in Trenton group.
- Galena** limestone, Whitney. Ill. Geol. Surv., vol. i, pp. 169-172. 1866.
 Silurian. Illinois.
- Galena** limestone, White. Iowa Geol. Surv., vol. i, pp. 177-180. 1870.
 Silurian. Iowa. Included in Trenton group.
- Galena** limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., pp. 49-53. 1870.
 Lower Silurian, Minnesota.
- Galena** limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 1st Ann. Rept., pp. 104-108. 1873.
 Lower Silurian. Minnesota.
- Galena** limestone, Shaw. Ill. Geol. Surv., vol. v, pp. 17-21, 36-38, 66-69, 76-77, 86-88, 99-100, 111-113, 129-131, 154-155. 1873.
 Silurian. Illinois. Included in Trenton.
- Galena** group, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 28. 1874.
 Lower Silurian. Missouri.
- Galena** limestone, Harrington. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 91. 1876.
 Lower Silurian. Minnesota.
- Galena** limestone, Chamberlin. Geol. of Wis., vol. ii, p. 305-314. 1877.
 Lower Silurian. Wisconsin.
- Galena** limestone, Irving. Geol. of Wis., vol. ii, p. 562. 1877.
- Galena** limestone, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 275, 284. 1881.
- Galena**, Chamberlin. Geol. of Wis., vol. i, pp. 105, 165-170. 1883.
 Silurian. Wisconsin. Included in Trenton period.
- Galena** limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 293. 1884.
- Galena** limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 50. 1890.
 Silurian. Arkansas.
- Galena** limestone, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 327. 1891.
 Silurian. Iowa.
- Galena**, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, p. 368. 1892.
 Lower Silurian. Minnesota. Included in Trenton.
- Galena** limestone, Keyes. Iowa Geol. Surv., vol. i, pp. 26-28. 1893.
 Silurian. Iowa.
- Galena**, Winchell. Am. Geol., vol. xv, p. 33. 1895.
 Silurian. Mississippi Valley.
- Galena** limestone, Calvin. Iowa Geol. Surv., vol. iv, pp. 80-81. 1895.
 Silurian. Iowa. Included in Ordovician.
- Galena-Trenton**, Norton. Iowa Geol. Surv., vol. iii, pp. 178-180. 1895.
 Silurian. Iowa.
- Galena** limestone, Udden. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 835. 1896.
 Silurian. Illinois.

- Galena, Sardeson. Am. Geol., vol. xviii, pp. 356-368. 1896.
 Silurian. Minnesota, Wisconsin, and Iowa. Exact syn. Trenton.
 Galena limestone, Winchell and Ulrich. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, pt. ii, p. xcvi. 1897.
 Lower Silurian. Minnesota. Included in Trenton group.
 Galena formation, Sardeson. Am. Geol., vol. xix, pp. 24, 29-30, 330-336. 1897.
 Silurian. Mississippi Valley. Included in Lower Silurian. Includes Maclurea, Lingulelasma, Camerella, and Orthisina beds.
 Galena limestone, Galvin and Bain. Iowa Geol. Surv., vol. x, p. 423. 1900.
 Silurian. Iowa. Included in Ordovician.
Galisteo sandstone, Cope. Rept. of Secy. of War to 44th Cong., vol. ii, pt. ii, p. 997. 1875.
 Cretaceous(?). New Mexico.
 Galisteo group, Stevenson. Am. Jour. Sci., 3d ser., vol. xviii, pp. 471-475. 1879.
 Cretaceous. New Mexico.
 Galisteo group, Stevenson. U. S. Geog. and Geol. Surv. W. of 100th M., vol. iii, Suppl., p. 159. 1881.
 Tertiary. New Mexico.
 Galisteo group, Dall and Harris. U. S. Geol. Surv., Bull., No. 84, p. 301. 1892.
 Tertiary. New Mexico.
Gallatin, Peale. U. S. Geol. Surv., Bull., No. 110, p. 22. 1893.
 Cambrian. Montana.
 Gallatin limestone, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
 Cambrian. Montana.
 Gallatin, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
 Cambrian. Montana.
 Gallatin limestone, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
 Cambrian. Wyoming.
 Gallatin limestone, Weed and Pirsson. U. S. Geol. Surv., Bull., No. 139, p. 37. 1896.
 Cambrian. Montana.
 Gallatin limestone, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59, 149-164. 1899.
 Cambrian. Yellowstone Park.
 Gallatin limestone, Hague. U. S. Geol. Surv., Geol. Atlas of the U. S., Folio No. 52. 1899.
 Cambrian. Wyoming.
Gallitzen limestone, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 312. 1880.
 Carboniferous. Pennsylvania.
Galt Moraine, Taylor. Am. Assoc. Adv. Sci., Proc., vol. xlviii, p. 228. 1899.
 Pleistocene. Canada.
Gardeau group, Hall. N. Y. Geol. Surv., 4th Ann. Rept., pp. 394, 402. 1840.
 Devonian. New York.
 Gardeau group, Hall. N. Y. Geol. Surv., 5th Ann. Rpt., pp. 165-166. 1841.
 Devonian. New York.
 Gardeau, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 55. 1842.
 Ohio.
 Gardeau shale, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 227-228. 1843.
 Paleozoic. New York. Included in Portage group.
Garland conglomerate, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 12-57. 1880.
 Carboniferous. Pennsylvania and New York. Included in Pottsville. Exact syn. Olean.
Garnett limestone, Haworth and Kirk. Kan. Univ. Quart., vol. ii, p. 110. 1894.
 Carboniferous. Kansas. Exact syn. Burlington limestone.

- Garnett limestone, Haworth. Kan. Univ. Quart., vol. ii, pp. 120-121, 125. 1894.
Carboniferous. Kansas.
- Garnett limestone, Haworth. Am. Jour. Sci., 3d ser., vol. i, p. 460. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Garnett limestone, Bennett. Kan. Univ., Geol. Surv., vol. i, pp. 60, 71. 1896.
Carboniferous. Kansas. Includes No. 112 and No. 108 or Plattsburg system in Kansas City section of Broadhead.
- Garnett limestone, Hall. Kan. Univ. Geol. Surv., vol. i, pp. 101-102. 1896.
Carboniferous. Kansas.
- Garnett limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 49-50, 135-136, 157-160, 166. 1896.
Carboniferous. Kansas. Exact syn. Burlington limestone.
- Garnett limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, p. 79. 1896.
Carboniferous. Kansas. Exact syn. Burlington limestone.
- Garnett limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 6, 55-56, 92, 94, 103, 104. 1898.
Carboniferous. Kansas. Included in Pottawatomie formation. Exact syns. Burlington limestone and Carlyle limestone.
- Garrard** sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.
Silurian. Kentucky.
- Gary moraine**, Todd. U. S. Geol. Surv., Bull., No. 144, p. 33. 1896.
Pleistocene. Dakotas. Exact syn. Second moraine.
- Gary moraine, Todd. U. S. Geol. Surv., Bull., No. 157, pp. 113-127. 1899.
Pleistocene. South Dakota.
- Gasconade** limestone, Winslow. Mo. Geol. Surv., vol. ii, pp. vii, 115. 1892.
Cambrian. Missouri.
- Gasconade, Nason. Am. Geol., vol. xi, p. 94. 1893.
Missouri.
- Gasconade limestone, Keyes. Mo. Geol. Surv., vol. vi, p. 331. 1894.
Cambrian. Missouri. Included in Ozark series. Includes Jefferson City limestone, Moreau sandstone, Osage limestone, Cole Camp sandstone, and Proctor limestone.
- Gaspe** limestones, Logan. Can. Geol. Surv., Repts., 1843-1863, pp. 390-394. 1863.
Silurian. Canada. Included in Middle and Upper Silurian. Gaspe series.
- Gaspe sandstones, Logan. Can. Geol. Surv., Repts., 1843-1864, pp. 394-404. 1863.
Devonian. Canada. Included in Gaspe series.
- Gaspe series, Logan. Can. Geol. Surv., Repts., 1843-1863, pp. 406-453, 880-886. 1863.
Canada. Included in Middle and Upper Silurian and Devonian, and Lower Carboniferous. Includes Gaspe limestone, and Gaspe sandstone, Bonaventure formation.
- Gaspe sandstone, Billings. Can. Geol. Surv., Pal. fossils, vol. ii, pt. i, pp. 1-7. 1874.
Devonian. Nova Scotia.
- Gaspe series, Ells. Can. Geol. Surv., Repts., 1880-1881-1882, p. 3DD. 1883.
Devonian. New Brunswick. Includes Gaspe sandstone, and Gaspe limestone.
- Gaspe series, Ells. Can. Geol. Surv., Repts., 1882-1883-1884, pp. 19E-25E. 1885.
Devonian. New Brunswick.
- Gaspe series, Williams. U. S. Geol. Surv., Bull., No. 165, p. 39. 1900.
Silurian. Canada.
- Gavilan** limestone, Ashley. Jour. of Geol., vol. iii, p. 436. 1895.
Pre-Cretaceous. California.
- Gavilan limestone, Ashley. Cal. Acad. Sci., Proc., 1895, 2d ser., vol. v, pp. 285-286, 292. 1896.
California.

- Genesee slate**, Vanuxem. Geol. of New York, pt. iii, pp. 168-169. 1842.
 Paleozoic. New York. Included in New York system. Includes Black slate.
- Genesee slate**, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 218-221. 1843.
 Paleozoic. New York. Included in New York system. Includes Upper Black slate and Black slate.
- Genesee slate**, Emmons. Agric. of N. Y., vol. i, pp. 189-190. 1846.
 Devonian. New York. Included in Catskill division of New York system.
- Genesee slate**, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
 Devonian. Canada.
- Genesee**, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 528, 551. 1877.
 Devonian. Appalachian region. Exact syn. Upper Cadent.
- Genesee**, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 30-31. 1881.
 Devonian. Pennsylvania.
- Genesee shale**, Williams. Am. Assoc. Adv. Sci., Proc., vol. xxx, p. 186-191. 1882.
 Devonian. New York.
- Genesee**, White. 2d Pa. Geol. Surv., Rept. G⁶, 107-109. 1882.
 Devonian. Pennsylvania. Included in No. viii. Exact syn. Upper Hamilton.
- Genesee**, White. 2d Pa. Geol. Surv., Rept. T³, pp. 107-108. 1885.
 Devonian. Pennsylvania.
- Genesee**, Williams. U. S. Geol. Surv., Bull., No. 41, p. 31. 1887.
 Devonian. New York.
- Genesee slate**, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1323-1335. 1892.
 Devonian. Pennsylvania. Exact syn. No. viii.
- Genesee group**, Luther. N. Y. State Geologist, 13th Ann. Rept., pp. 34-38. 1894.
 Devonian. New York.
- Genesee shale**, Prosser. U. S. Geol. Surv., Bull., No. 120, p. 78. 1894.
 Devonian. New York, Pennsylvania. Included in Hamilton (Middle Devonian).
 Exact syns. Tully and Hamilton.
- Genesee shale**, Lincoln. N. Y. State Geol., 14th Ann. Rept., pp. 97-99; N. Y. State Mus., 48th Ann. Rept., pt. ii, pp. 97-99. 1895.
 Devonian. New York.
- Genesee shales**, Grabau. Buffalo Soc. Nat. Hist., Bull., vol. vi, pp. 9-11. 1898.
 Devonian. New York.
- Genesee shale**, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1898.
 Devonian. New York.
- Genesee slate**, Luther. N. Y. State Geol., 16th Ann. Rept., p. 221. 1899.
 Devonian. New York.
- Geneva magnesian limestone**, Collett. Indiana Dept. Geol. and Nat. Hist., 11th Ann. Rept. for 1881, pp. 81, 82. 1882.
 Indiana.
- Geneva sands**, Smith. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 286-291. 1894.
 Tertiary. Alabama.
- Genevieve group**, Branner. Ark. Geol. Surv., 1888, vol. iv, p. xiv. 1888.
 Carboniferous. Arkansas. Included in Lower Carboniferous or Mississippian series. Part syns. St. Louis and Warsaw.
- Genevieve group**, Williams. U. S. Geol. Surv., Bull. No. 80, p. 169. 1891.
 Carboniferous. Included in Mississippian series. Includes Chester, St. Louis, and Warsaw in part.
- Genevieve group**, Broadhead. Am. Geol., vol. xii, p. 85. 1893.
 Carboniferous. Missouri. Included in Mississippian series. Includes Chester, St. Louis, and Warsaw.
- Gentile Valley group**, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 642. 1879.
 Pleistocene. Utah. Included in Quaternary.

- Geode** bed, Worthen. Iowa Geol. Surv., vol. i, pt. i, pp. 193, 202, 216, 227, 237. 1858.
Carboniferous. Iowa.
- Geode** shales, Gordon. Iowa Geol. Surv., vol. iv, p. 213. 1895.
Carboniferous. Iowa.
- George River** limestone, Fletcher. Can. Geol. Surv., Rept. of Prog., 1876-77, p. 426. 1878.
Nova Scotia.
- George River** limestone series, Fletcher. Can. Geol. Surv., Descriptive note on the Sydney Coal field, p. 5. 1900.
Nova Scotia.
- Georgetown** limestone, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas.
- Georgia** group, Hitchcock. Geol. of Vt., vol. i, pp. 357-386. 1861.
Cambria. Vermont. Exact syns. Argillaceous slate of Dewey, Black and Taconic slate of Emmons, Hudson River or Lorraine of Hall, Primordial of Barrande, and Logan.
- Georgia** slates, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, pp. 241, 244. 1861.
Vermont and Canada. Included in Upper Taconic of Marcou.
- Georgia** slates, Perry. Boston Soc. Nat. Hist., Proc., vol. xi, 1866-68, p. 347. 1867.
Vermont.
- Georgia** slates, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, 1881-86, p. 179. 1884.
Vermont and New Hampshire.
- Georgia**, Walcott. U. S. Geol. Surv., Bull. No. 30, p. 13. 1886.
Cambrian. General. Included in Middle Cambrian.
- Georgia** slate, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 98, 249, 278. 1891.
Cambrian. Appalachian region.
- Georgia** series, Ellis. Can. Geol. Surv., new ser., vol. vii, pp. 53J-54J. 1896.
Cambrian. Canada.
- Georgia** formation, Marcou. Am. Geol., vol. xix, pp. 39-43. 1897.
Cambrian.
- Gering** formation, Darton. U. S. Geol. Surv., 19th Ann. Rept., pt. iv, pp. 735, 747-755. 1899.
Tertiary. Nebraska. Included in Miocene.
- Geronimo** series, Bain. Geol. Soc. Am., Bull., vol. xi, pp. 135, 140-141. 1900.
Permian(?). Oklahoma.
- Geuda** Salt Measures, Cragin. Colo. College Stud., vol. vi, pp. 3, 9-16. 1896.
Permian. Kansas. Included in Big Blue series.
- Gila** conglomerate, Gilbert. U. S. Geog. and Geol. Surv. w. of 100th meridian, vol. iii, pp. 540-541. 1875.
Pleistocene. Arizona.
- Giles** formation, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 176. 1894.
Silurian. Virginia. Included in Helderberg and Oriskany.
- Giles**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
Silurian. Virginia and West Virginia.
- Giles** formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Siluro-Devonian. Virginia and West Virginia.
- Gillespie** formation, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 221. 1898.
Cretaceous. Texas. Included in Trinity division of Comanche series.

- Gilmore** sandstone, Stevenson. 2d Pa. Geol. Surv., Rept. K, pp. 38-39. 1876.
Carboniferous. Pennsylvania. Included in Greene County group of Upper Barren Measures.
- Gilmore** sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 31. 1891.
Carboniferous. Pennsylvania and West Virginia. Included in Permo-Carboniferous, Dunkard Creek.
- Girard** shale, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 118-119. 1881.
Devonian. Pennsylvania.
- Girard** shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1367-1370. 1892.
Devonian. Pennsylvania. Included in No. viii or Portage.
- Girardeau** limestone, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 40. 1894.
Lower Silurian. Missouri. Included in Hudson River stage.
- Girardeau** limestone, Wheeler. Mo. Geol. Surv., vol. xi, p. 41. 1896.
Ordovician. Missouri.
- Glacial**, Whitney and Wadsworth. Harvard Coll. Mus. Comp. Zool. Bull., vol. vii, 1880-84, p. 562. 1884. Included in Azoic system.
- Glade** limestone, Safford. Geol. of Tenn., pp. 262-263. 1869.
Silurian. Tennessee. Included in Trenton or Lebanon.
- Glade** limestone, Wetherby. Cin. Soc. Nat. Hist., Jour., vol. iii, no. ii, p. 147. 1880.
Trenton. Kentucky.
- Gladeville** sandstone, Campbell. U. S. Geol. Surv., Bull. No. 111, p. 33. 1893.
Carboniferous. Virginia. Included in Coal Measures. Exact syn. Mahoning, p. 99.
- Gladeville** sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
Carboniferous. Kentucky, Virginia, and Tennessee.
- Gladeville** sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Carboniferous. Virginia and Tennessee.
- Glass Mountain** formation, Cragin. Am. Geol., vol. xix, p. 355. 1897.
Permian. Kansas and Oklahoma. Included in Salt Fork division of Cimarron series. Includes Flowerpot shales and Cedar Hills sandstone.
- Glassboro** gravel, Lewis. Phil. Acad. Nat. Sci., Proc., vol. xxxii, p. 297. 1880.
Pennsylvania. Exact syn. Fossiliferous gravel. Part. syn. Pliocene.
- Glauconic** group, Harper. Miss. Geol. and Agric., Prelim. Rept., p. 72. 1857.
Cretaceous. Mississippi.
- Glauconic** division, Hill. Texas Geol. Surv., 1st Ann. Rpt., p. 116. 1890.
Cretaceous. Texas. Included in Black Prairie series.
- Glen Rose**, Hill. Geol. Soc. Am., Bull., vol. ii, p. 503. 1891.
Cretaceous. Texas. Included in Trinity division.
- Glen Rose** beds, Hill. Artesian Invest., Final Rept., Ex. Doc. 41, 52d Cong., 1st sess., pt. iii, p. 83. 1892.
Cretaceous. Southwest. Included in Trinity division.
- Glen Rose** bed, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 289-292, 336-338. 1892.
Cretaceous. Texas. Included in Bosque division of Lower Cretaceous.
- Glen Rose**, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.
Cretaceous. Texas. Included in Trinity division.
- Glen Rose** stage, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 378. 1895.
Cretaceous. Texas. Included in Lower Cretaceous.
- Glen Rose** formation, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 221-226. 1898.
Cretaceous. Texas. Included in Trinity division of Comanche series.
- Glen Rose** formation, Hill and Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 42. 1898.
Cretaceous. Texas. Included in Comanche series.

Glen Rose formation, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.

Cretaceous. Texas. Included in Comanche series.

Glencoe marble, Worthen. Econ. Geol. of Ill., vol. iii, p. 294. 1882.

Silurian. Illinois. Included in Trenton group. Exact syn. Galena limestone.

Glens Falls black marble, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890.

Silurian. Arkansas.

Godiva limestone, Tower and Smith. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 624. 1899.

Carboniferous. Utah.

Godiva limestone, Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 65. 1900.

Carboniferous. Utah.

Golconda clay, Cox. Ind. Geol. Surv., 6th Ann. Rept., 1874, p. 13. 1875. Indiana.

Golden Gate series, Fairbanks. Jour. of Geol., vol. iii, pp. 416-426. 1895.

Jurassic or Cretaceous. California.

Golden Gate series, Fairbanks. Jour. of Geol., vol. v, pp. 70-76. 1897.

Pre-Cretaceous. California. Exact syn. Franciscan series.

Golden Gate series, Fairbanks. Jour. of Geol., vol. vi, pp. 556-559. 1898.

Juratrias. California.

Golden Gate formation, Turner. Jour. of Geol., vol. vi, pp. 488-493. 1898.

Cretaceous. California. Exact syn. Franciscan formation.

Golden Wall sandstone, Powell. U. S. Geol. and Geog. Surv., Geol. of Uinta Mts., pp. 40, 48, 155. 1876.

Cretaceous. Utah. Included in Point of Rocks.

Goniatite limestone, Meek and Worthen. Am. Jour. Sci., 2d ser., vol. xxxii, pp. 167-177. 1861.

Carboniferous. Indiana. Exact syn. Rockford Goniatite bed.

Goniatite formation, Chapman. A Popular and Practical Exposition of the Minerals and Geology of Canada, p. 195. 1864.

Devonian. Canada. Exact syn. Lambton formation.

Goniatite shale, Cox. Ind. Geol. Surv., 6th Ann. Rept., 1874, p. 11. 1875.

Carboniferous. Indiana.

Goniatite limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1890.

Carboniferous. Arkansas. Included in Kinderhook.

Goodland limestone, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 502, 514. 1891.

Cretaceous. Texas. Included in Fredericksburg division.

Goodland limestone, Hill. Geol. Soc. Am., Bull., vol. v, pp. 297, 303. 1894.

Cretaceous. Texas. Included in Comanche Peak beds, Fredericksburg division.

Goodnight division, Cummins. Texas Geol. Surv., 4th Ann. Rept., pp. 201-203. 1893.

Tertiary. Texas.

Goodnight, Cummins. Am. Geol., vol. xv, p. 395. 1895.

Tertiary. Texas. Exact syn. Palo Duro.

Goodnight beds, Scott. Geol. Soc. Am., Bull., vol. ix, p. 406. 1898.

Tertiary. Texas. Included in Pliocene.

Goodrich quartzite, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 591. 1895.

Algonkian. Lake Superior region. Included in Upper Marquette series, Ishpeming formation.

Goodrich quartzite, Smyth. U. S. Geol. Surv. Mon., vol. xxviii, pp. 535-537. 1897.

Algonkian. Michigan. Included in Upper Marquette series.

- Goodrich quartzite, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 409-416. 1897.
Algonkian. Michigan. Included in Ishpeming formation of Upper Marquette series.
- Goose Pond** limestones, Emerson. U. S. Geol. Surv., Bull., No. 159, p. 51. 1899.
Pre-Cambrian. Massachusetts.
- Goshen** schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Silurian. Massachusetts.
- Goshen schists, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 5. 1895.
Ordovician(?). Massachusetts.
- Goshen schist, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 177-182. 1898.
Silurian. Massachusetts.
- Goshen schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Silurian. Massachusetts.
- Gower** stage, Norton. Iowa Geol. Surv., vol. ix, p. 423. 1899.
Silurian. Iowa. Includes Le Claire stone and Animosa stone.
- Grainger** shale, Campbell. U. S. Geol. Surv., Bull., No. 111, p. 38. 1893.
Devonian(?). Virginia.
- Grainger shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
Devonian. Kentucky, Virginia, and Tennessee.
- Grainger shale, Keith. Wash. Phil. Soc., Bull., vol. xii, pp. 78, 79. 1895.
Devonian. Tennessee.
- Grainger shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
Devonian. Tennessee and North Carolina.
- Grainger formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Devonian-Carboniferous. Virginia and Tennessee.
- Granby tuff**, Emerson. Geol. Soc. Am., Bull., vol. ii, p. 452. 1891.
Trias. Massachusetts.
- Granby tuff, Emerson. Geol. Soc. Am., Bull., vol. viii, p. 59. 1897.
Trias. Massachusetts.
- Granby tuff, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 369, 476-479. 1898.
Juratrias. Massachusetts. Included in Connecticut River sandstone.
- Granby tuff, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Juratrias. Massachusetts.
- Grand Canyon**, Powell. U. S. Geog. and Geol. Surv., Geol. of Unita Mts., pp. 43, 61. 1876.
Utah.
- Grand Canyon group, Walcott. Am. Jour. Sci., vol. xxvi, pp. 440-441. 1883.
Cambrian. Grand Canyon. Included in Lower Carboniferous.
- Grand Canyon sandstone, Walcott. Geol. Soc. Am., Bull., vol. i, p. 50. 1889.
Algonkian. Arizona.
- Grand Canyon series, Walcott. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 519. 1894.
Algonkian. Grand Canyon of Colorado. Includes Chuar and Unkar. Exact syn. Keweenawan series(?).
- Grand Canyon series, Walcott. Jour. of Geol., vol. iii, pp. 316-317, 319-324. 1895.
Algonkian. Grand Canyon region. Includes Chuar and Unkar.
- Grand Canyon group, Crosby. Geol. Soc. Am., Bull., vol. x, p. 158. 1899.
Algonkian. Colorado.
- Grand Canyon series, Walcott. Geol. Soc. Am., Bull., vol. x, p. 215. 1899.
Algonkian. Arizona.
- Grand Gulf** sandstone, Waites. Agric. and Geol. of Miss., pp. 216-219. 1857.
Tertiary. Mississippi. Included in Oligocene.

- Grand Gulf group, Hilgard. Rept. on Geol. and Agric. Miss., pp. 147-154. 1860.
Tertiary. Mississippi. Included in Oligocene.
- Grand Gulf group, Hilgard. Am. Jour. Sci., 2d ser., vol. xliii, p. 39. 1867.
Tertiary. Alabama and Mississippi.
- Grand Gulf group, Hilgard. Am. Jour. Sci., 2d ser., vol. xlviii, p. 337. 1869.
Tertiary. Louisiana.
- Grand Gulf series, Hilgard. Am. Jour. Sci., 3d ser., vol. ii, pp. 396-398. 1871.
Neocene. Gulf region.
- Grand Gulf, Hilgard. Am. Assoc. Adv. Sci., Proc., vol. xx, p. 230. 1871.
Tertiary. Gulf States.
- Grand Gulf group, Hilgard. Am. Jour. Sci., 3d ser., vol. xxii, pp. 59-65. 1881.
Tertiary. Gulf of Mexico.
- Grand Gulf group, Hilgard. Smithsonian Contrib., vol. xxiii, No. ii, p. 3. 1881.
Tertiary. Mississippi.
- Grand Gulf, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 138, 150-151. 1884.
Tertiary. Louisiana and Mississippi. Included in Neocene (?).
- Grand Gulf, Meyer. Am. Jour. Sci., 3d ser., vol. xxxii, pp. 20-25. 1886.
Tertiary. Mississippi.
- Grand Gulf, Meyer. Am. Geol., vol. ii, p. 88. 1888.
Tertiary. Gulf States.
- Grand Gulf formation, Johnson. Am. Jour. Sci., 3d ser., vol. xxxviii, pp. 213-216, 1889.
Tertiary. Gulf States.
- Grand Gulf formation, McGee. U. S. Geol. Surv., 12th Ann. Rept., pt. i, p. 408. 1891.
Tertiary. Atlantic Coastal Plain.
- Grand Gulf group, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Miocene. Gulf States. Included in Chesapeake Epoch. Includes Grand Gulf beds, Altamaha grit, etc.
- Grand Gulf, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, pp. 159, 161, 167, 172. 1892.
Tertiary. Gulf States.
- Grand Gulf formation, Dall. Science, vol. xx, p. 164. 1892.
Tertiary.
- Grand Gulf, Smith. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 295-296. 1894.
Tertiary. Alabama. Included in Miocene.
- Grand Gulf, Smith, Johnson, and Langdon. Ala. Geol. Surv., Geol. of Costal Plain of Ala., p. 97. 1894.
Tertiary. Alabama. Included in Miocene. Part. syns. Chipola Miocene, Chattahoochee Miocene.
- Grand Gulf group, Vaughan. Am. Geol., vol. xv, p. 225. 1895.
Tertiary. Louisiana. Included in Miocene.
- Grand Gulf, Vaughan. U. S. Geol. Surv., Bull. No. 142, p. 24. 1896.
Tertiary. Louisiana. Included in Oligocene. Exact syn. Upper Oligocene.
- Grand Gulf, Harris and Veatch. La. State Exp. Sta., pt. v, p. 94. 1899.
Tertiary. Louisiana. Included in Oligocene.
- Grand Portage** graywacke, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 510. 1899.
Cambrian. Minnesota. Included in Animikie.
- Grand Prairie** formation, Hill. Am. Jour. Sci., 3d ser., vol. xxxviii, p. 470. 1889.
Cretaceous. Texas. Included in Comanche series. Includes Grand Prairie and Upper Cross Timbers formation.
- Grand Rapids** sandstone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., p. 24. 1890.
Silurian. Ohio. Exact syn. Monclova or Holland sandstone.

- Grand Rapids group, Lane. Mich. Geol. Surv., Rept. State Board, 1891-92, p. 66. 1893.
 Sub-Carboniferous. Michigan.
- Grand Rapids sandstone, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 29D, 55D-58D. 1893.
 Cretaceous. Canada. Included in Colorado group.
- Grand Rapids group, Lane. Mich. Geol. Surv., vol. v, pt. ii, p. 10. 1895.
 Michigan.
- Grand River** zone, Gallaher. Mo. Geol. Surv., Bien. Rept., p. 55. 1898.
 Upper Carboniferous. Missouri. Included in Upper Coal Measures.
- Grand Tower** limestone, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 42. 1894.
 Devonian. Missouri. Included in Hamilton stage.
- Grand Tower formation, Keyes. Mo. Geol. Surv., vol. viii, p. 339. 1895.
 Devonian. Missouri. Included in Hamilton.
- Grand Tower limestone, Wheeler. Mo. Geol. Surv., vol. xi, p. 41. 1896.
 Silurian. Missouri. Part. Onondaga and Oriskany.
- Granddad** limestone, Borden. Ind. Geol. Surv., 5th Ann. Rept., 1873, p. 138. 1874.
 Indiana.
- Graneros** formation, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 564. 1896.
 Cretaceous. Colorado. Included in Benton group.
- Graneros shale, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.
 Cretaceous. Colorado. Included in Benton formation.
- Graneros shale, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
 Cretaceous. Colorado.
- Graneros shale, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
 Cretaceous. Colorado.
- Granular** quartz, Emmons. Agric. of N. Y., vol. i, pp. 83-86. 1846.
 New York and New England. Included in Taconic system.
- Granular quartz, Winchell. Am. Geol., vol. i, pp. 173-178. 1888.
- Granular quartz, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 91, 250, 275. 1891.
 Cambrian. Appalachian region.
- Granville** beds, Hicks. Am. Jour. Sci., 3d ser., vol. xvi, pp. 216-219. 1878.
 Carboniferous. Ohio. Included in Waverly group.
- Granville serpentines, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 90. 1898.
 Silurian. Massachusetts. Included in Chester amphibolites.
- Grape Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 427. 1893.
 Carboniferous. Texas. Included in Albany division.
- Grassmere** stage, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 141-142. 1900.
 Pleistocene. Michigan.
- Grassy Creek** shales, Keyes. Iowa Acad. Sci., Proc., vol. v, p. 63. 1898.
 Devonian. Iowa.
- Gravel** beds, Loughridge. Ky. Geol. Surv., Jackson Purchase region, pp. 57-72. 1888.
 Quaternary. Kentucky. Includes Stratified drift, Gravel conglomerate, Ore Region gravel, Tennessee River gravel.
- Gray** sandstone, Emmons. Geol. of N. Y., pt. ii, pp. 123-126, 406. 1842.
 Paleozoic. New York. Included in New York Transition system, Champlain group.
- Gray sandstone of Oswego, Vanuxem. Geol. of N. Y., pt. iii, pp. 67-70. 1842.
 Paleozoic. New York. Includes No. iv, Pennsylvania Survey.
- Gray sandstone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18 and 31. 1843.
 Paleozoic. New York. Included in New York system.

- Gray limestone, Daniels. Wis. Geol. Surv., Rept. 1853, p. 14. 1854.
Silurian. Wisconsin.
- Gray limestone and shales, Safford. Am. Jour. Sci., 2d ser. vol. xxxi, p. 207. 1861.
Silurian. Tennessee. Included in Niagara, Upper part.
- Gray sandstone, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, p. 288. 1881.
Silurian. Included in Medina group.
- Gray clays, Lerch. La. Exp. Sta., Geol. and Agric., pt. i, p. 21. 1892.
Eocene. Louisiana. Exact syn. Arcadia clays.
- Gray Cliff** group, Gilbert. U. S. Geog. and Geol. Surv., Rept. on Henry Mts., p. 6. 1877.
Juratrias. Utah.
- Graydon** sandstone, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 124-141. 1898.
Upper Carboniferous. Missouri. Included in Cherokee stage.
- Graydon Springs sandstone and conglomerate, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, pp. 422-425. 1894.
Upper Carboniferous. Missouri. Included in Coal Measures.
- Grayson** marls, Cragin. Colo. College Stud., vol. v, pp. 43-48. 1894.
Cretaceous. Texas.
- Graysonton** formation, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 175. 1894.
Cambrian. Virginia.
- Great** conglomerate, Fontaine. Am. Jour. Sci., 3d ser., vol. vii, pp. 459-465, 573-579. 1874.
Carboniferous. West Virginia.
- Great limestone, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 37-40. 1877.
Carboniferous. Pennsylvania. Included in Upper Productive series.
- Great limestone, White. U. S. Geol. Surv., Bull., No. 65, p. 59. 1891.
Carboniferous. Pennsylvania, West Virginia. Included in Upper Coal Measures, Monongahela River series. Includes Uniontown limestone, Upper division.
- Great Bend** limestone, White. 2d Pa. Geol. Surv., Rept. G⁵, p. 91. 1881.
Devonian. Pennsylvania.
- Great Carolina** (marl) bed, Ruffin. South Car. Agric. Surv., 1843, p. 7. 1843.
Tertiary. South Carolina. Included in Upper Cretaceous or Lower Eocene.
- Great Falls** coal series, Newberry. School of Mines Quart., vol. viii, p. 328. 1887.
Lower Cretaceous. Exact syns. Kome beds of Greenland, Kootenie of Canada.
- Great Falls group, Newberry. Am. Jour. Sci., 3d ser., vol. xli, p. 193. 1891.
Cretaceous. Montana. Exact syns. Kootenie group of Canada, Kome group of Greenland and Potomac group.
- Great Falls formation, Weed. Geol. Soc. Am., Bull., vol. iii, p. 305. 1892.
Cretaceous. Montana.
- Green Mountain** beds, Cannon. Colo. Sci. Soc., Proc., vol. iv, p. 253. 1892.
Post Laramie. Colorado. Exact syn. Denver beds.
- Green Pond Mountain** group, Merrill. N. Y. Acad. Sci., Trans., vol. vi, p. 59. 1887.
Devonian. New Jersey.
- Green Pond conglomerate, Darton. Geol. Soc. Am., Bull., vol. viii, pp. 367, 383. 1894.
Upper Silurian. New York and New Jersey. Included in Oneida (?). Medina.
- Green River** group, Hayden. U. S. Geol. Surv. of Wyoming, pp. 58, 70, 142. 1871.
Tertiary. Western Interior region.
- Green River group, Comstock. Am. Jour. Sci., 3d ser., vol. vi, pp. 427-428. 1873.
Eocene. Wyoming.
- Green River, Peale. U. S. Geol. and Geog. Surv., of Terr., 8th Ann. Rept., pp. 147, 156-158. 1876.
Tertiary. Rocky Mountains.

Green River, Upper, Powell. U. S. Geol. and Geol. Surv., Geol. of Uinta Mts., pp. 40, 45, 167. 1876.

Tertiary. Utah. Includes Plant beds, Tower sandstone.

Green River, Lower, Powell. U. S. Geol. and Geol. Surv., Geol. of Uinta Mts., pp. 40, 45, 166. 1876.

Tertiary. Utah.

Green River, Emmons. U. S. Geol. Explor. of 40th Parallel, vol. ii, pp. 203, 240. 1877.

Tertiary. Utah.

Green River, Peale. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., p. 184. 1878.

Tertiary. Colorado.

Green River, King. U. S. Geol. Explor. of 40th Parallel, vol. i, p. 377. 1878.

Tertiary. Wyoming and Utah. Included in Eocene.

Green River, White. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 19, 20, 22, 35. 1878.

Tertiary. Utah and Colorado.

Green River, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 82, 111, 123. 1878.

Tertiary. Colorado. Included in Miocene.

Green River, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 130. 1879.

Tertiary. Wyoming.

Green River, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 525, 635, 637. 1879.

Tertiary. Wyoming.

Green River group, Lesquereux. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. viii, pp. 127-134. 1883.

Tertiary.

Green River, Clark. U. S. Geol. Surv., Bull. No. 83, p. 140. 1891.

Tertiary. Interior region. Included in Eocene. Includes Manti beds.

Green River, Peterson. Am. Mus. Nat. Hist., Bull., vol. v., p. 73. 1895.

Tertiary. Utah.

Green River shales, Osborn. Am. Mus. Nat. Hist., Bull., vol. vii, 1895, p. 73. 1895. Eocene. Included in Upper Eocene.

Greenbrier limestone, White. Geol. Soc. Am. Bull., vol. iii, p. 190. 1892.

Lower Carboniferous. West Virginia.

Greenbrier limestone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 32. 1896.

Carboniferous. Virginia and West Virginia. Part syns. No. xi and Umbral.

Greenbrier limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.

Carboniferous. Virginia and West Virginia.

Greenbrier limestone, Taff and Brooks. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34. 1896.

Carboniferous. West Virginia.

Greenbrier limestone, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.

Carboniferous. West Virginia and Maryland.

Greenbrier formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 185. 1897.

Carboniferous. Maryland.

Greenbrier limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Carboniferous. Virginia and West Virginia. Part. syn. No. xi.

Greenbrier, Clark. Md. Geol. Surv., vol. ii, p. 170. 1898.

Carboniferous. Maryland. Included in Carboniferous.

Greenbrier, Clark. Md. Geol. Surv., vol. iii, pp. 97, 98. 1899.

Carboniferous. Maryland.

Greenbrier limestone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.

Carboniferous. Virginia and West Virginia.

Greenbrier formation, O'Harra. Md. Geol. Surv., Allegany County, p. 110. 1900.

Carboniferous. Maryland.

Greene County group, Stevenson. 2d Pa. Geol. Surv., Rept. K, pp. 35-44. 1876.

Carboniferous. Pennsylvania. Included in Upper Barren Measures.

Greene Co. group, D'Invilliers. 2d Pa. Geol. Surv., Ann. Rept., 1886, pp. 59-60. 1887.

Carboniferous. Pennsylvania. Included in Upper Barren Measures.

Greenhorn formation, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 564. 1896.

Cretaceous. Colorado. Included in Benton group.

Greenhorn limestone, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.

Cretaceous. Colorado. Included in Benton formation.

Greenhorn limestone, Hill. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.

Cretaceous. Colorado.

Greenhorn limestone, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.

Cretaceous. Colorado.

Greenleaf sandstone, Gould. Am. Jour. Sci., 4th ser., vol. v, pp. 170-174. 1898.

Cretaceous. Kansas. Included in Medicine beds.

Greensand formation, Rogers. N. J. Geol. Surv., Final Rept., pp. 186-216. 1840. New Jersey.

Greensand, Winchell. Am. Assoc. Adv. Sci., Proc., vol. x, p. 86. 1856.

Tertiary. Alabama. Included in Upper Eocene.

Greensand, Safford. Am. Jour. Sci., 2d ser., vol. xxxvii, pp. 364-366. 1864.

Cretaceous. Tennessee. Exact syn. Rotten limestone.

Greensand or Shell bed, Safford. Geol. of Tennessee, pp. 414-417. 1869.

Cretaceous. Tennessee. Exact syn. Rotten limestone of Alabama and Mississippi.

Greensburg stone, Cox. Ind. Geol. Surv., 8th, 9th, and 10th Ann. Repts., 1876, 1877, 1878, p. 89. 1879.

Indiana.

Greenstone schist, Williams. U. S. Geol. Surv., Bull. No. 62. 1890.

Michigan.

Greenstone schists, Brooks. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 470-479. 1900.

Alaska.

Greenstone series, Mendenhall. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 311-313. 1900.

Alaska.

Greenwich formation, Percival. Rept. on Geol. of Conn., 1842, p. 49. 1842.

Includes gneiss.

Greenwood sandstone, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.

Carboniferous. Arkansas and Indian Territory. Included in Sebastian stage.

Greggs Landing series, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 346. 1898.

Tertiary. Alabama. Included in Eocene.

- Grenville group**, Selwyn. Can. Geol. Surv., Rept. 1877-78, p. 10A. 1879.
Archean. Canada.
- Grenville series**, Adams. Jour. of Geol., vol. i, pp. 328-332. 1893.
Algonkian. Canada.
- Grenville series**, Adams. Can. Geol. Surv., new ser., vol. vi, p. 4J. 1895.
Archean. Canada. Included in Laurentian.
- Grenville series**, Adams. Can. Geol. Surv., new ser., vol. viii, pp. 11J-28J. 1897.
Archean. Canada. Included in Laurentian.
- Grenville series**, Adams and Barlow. Geol. Soc. Am., Bull., vol. viii, pp. 398, 402. 1897.
Algonkian. Ontario.
- Grenville series**, Adams, Barlow, and Ells. Can. Rec. Sci., vol. vii, pp. 304-313. 1897.
Algonkian. Canada.
- Grenville series**, Barlow. Can. Geol. Surv., new ser., vol. x, pp. 87I-90I. 1898.
Canada.
- Greylock group**, Hobbs. Geol. Soc. Am., Bull., vol. iii, p. 460. 1892.
Archean. Massachusetts.
- Greylock schist**, Pumpelly, Wolff, and Dale. U. S. Geol. Surv., Mon., vol. xxiii, pp. 20, 180, 186. 1894.
Silurian. Massachusetts.
- Greyson shale**, Walcott. Geol. Soc. Am. Bull., vol. x, pp. 199, 206. 1899.
Algonkian, Pre-Cambrian. Montana. Included in Belt terrane.
- Greyson shale**, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 282. 1900.
Algonkian. Montana. Included in Belt terrane.
- Griswold Gap conglomerate**, White. 2d Pa. Geol. Surv., Rept. G⁵, p. 57. 1881.
Carboniferous. Pennsylvania. Included in Pocono.
- Griswold Gap conglomerate**, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1643, 1647. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono.
- Gritstone beds**, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 357. 1874.
Silurian. Missouri. Included in Primordial Potsdam.
- Grizzly quartzite**, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
Silurian(?). California.
- Grizzly formation**, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 445. 1894.
Silurian. California.
- Grizzly**, Turner. Am. Geol., vol. xiii, p. 229. 1894.
California.
- Grizzly**, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 15. 1895.
Silurian. California.
- Ground Ice formation**, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 260. 1892.
Pleistocene. Alaska.
- Ground Ice formation**, Dall. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 850. 1896.
Pleistocene. Alaska.
- Ground Ice formation**, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 335. 1898.
Pleistocene. Alaska.
- Groveland formation**, Smyth. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 415-422, 446-450. 1899.
Michigan.
- Groveland formation**, Clements and Smyth. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 115, 137. 1899.
Algonkian. Michigan.

- Groveland formation, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
- Algonkian. Michigan. Included in Lower Huronian. Exact syn. Negaunee iron formation.
- Guallava** sandstone, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 342. 1898. Tertiary. Costa Rica. Included in Vicksburgian stage, Oligocene.
- Guelph** formation, Logan. Can. Geol. Surv., 1843-63, pp. 298-344. 1863. Middle Silurian. Canada (Eastern).
- Guelph formation, Chapman. Can. Inst., new ser., vol. viii, pp. 215-216. 1863. Silurian. Canada. Included in Middle Silurian, Niagara group.
- Guelph formation, Bell. Can. Geol. Surv., Repts., 1863-1866, pp. 176-177. 1866. Middle Silurian. Canada.
- Guelph, Hall. Regents, Univ. of N. Y., 20th Ann. Rept., pp. 305-308. 1867. Silurian. Canada. Included in Niagara. Exact syns. Le Claire limestone (Iowa), Racine limestone (Wis.).
- Guelph beds, Chamberlin. Geol. of Wis., vol. ii, pp. 377-380. 1877. Upper Silurian. Wisconsin. Included in Niagara.
- Guelph, Lindemuth. Ohio Geol. Surv., vol. iii, p. 512. 1878. Silurian. Ohio. Included in Niagara.
- Guelph formation, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 277, 292. 1881.
- Guelph beds, Chamberlin. Geol. of Wis., vol. i, p. 188. 1883. Silurian. Wisconsin. Included in Niagara.
- Guelph group, Miller. N. A. Geol. and Pal., p. 53. 1889.
- Guelph limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890. Silurian. Arkansas. Included in Niagara.
- Guelph, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 231. 1893. Silurian. Ontario.
- Guelph formation, Bell. Geol. Soc. Am., Bull., vol. vi, p. 300, pl. xv. 1895. Cambrian? Ontario, Canada.
- Guelph formation, Ashley. Ind. Dept. Geol. and Nat. Resources, 23d Ann. Rept., 1898, p. 78. 1899. Silurian. Indiana.
- Guertie** sand, Taff. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, p. 439. 1899. Recent(?). Indiana Territory.
- Gulf** series, Hill. Am. Jour. Sci., 3d ser., vol. xxxiii, p. 298. 1887. Cretaceous. Texas. Includes Navarro beds, Exogyra ponderosa marl, Dallas limestone, Eagle Ford shales, and Timber Creek group.
- Gulf series, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 238-243. 1898. Crétaceous. Texas. Includes Webberville, Eagle Pass, Taylor, Anacacho, Austin chalk, and Eagle Ford formations. Exact syn. Upper Cretaceous.
- Gulf series, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900. Cretaceous. Texas. Includes Eagle Ford, Austin chalk, Anacacho, and Pulliam formations.
- Gunnison**, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894. Juratrias. Colorado. Exact syn. Atlantosaurus beds.
- Gunnison formation, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, pp. 39-41. 1898. Juratrias. Colorado. Included in Triassic.
- Gunnison formation, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 57. 1899. Juratrias. Colorado. Includes McElmo formation and La Plata sandstone.
- Gwynedd** shale, Lyman. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2610-2612. 1895. Juratrias. Pennsylvania. Included in New Red.

Gypsum formation, Newberry. Eng. Dept., U. S. A., Macomb's Expedition from Santa Fe to junction of Grand and Green rivers, p. 21. 1876.

Kansas.

Gypsum series, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 74. 1877.

Carboniferous. Colorado. Included in Permian and Permo-Carboniferous.

Gyroceras beds, Calvin. Am. Geol., vol. viii, p. 142. 1891.

Devonian. Iowa.

Gyroceras beds, Udden. Cin. Soc. Nat. Hist., Jour., vol. xix, no. iii, p. 93. 1897.

Devonian. Illinois.

Hackberry shale, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 314. 1891.

Devonian. Iowa.

Hackberry shales, Keyes. Iowa Geol. Surv., vol. i, p. 39. 18

Devonian. Iowa.

Halymenites sandstone, Stevenson. Chief of Engineers, Rept., 1879, pt. iii, p. 2257. 1879.

Cretaceous. New Mexico. Included in Laramie.

Halymenite sandstone, Stevenson. U. S. Geog. and Geol. Surv. W. of 100th M., vol. iii, Suppl. p. 195. 1881.

Cretaceous. New Mexico.

Halysites beds, McConnell. Can. Geol. Surv., new ser., vol. ii, pp. 15D, 21D-22D. 1887.

Silurian. Canada.

Hamburg shale, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 255-256, 259. 1883.

Cambrian. Nevada.

Hamburg, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 246, 315. 1891.

Cambrian. Nevada. Included in Upper Cambrian.

Hamburg, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 39. 1892.

Cambrian. Nevada.

Hamburg shale, Walcott. U. S. Nat. Mus., Proc., vol. xxi, p. 401. 1898.

Cambrian? Wyoming.

Hamburg Mountain gneiss, Wolff and Brooks. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 439. 1898.

Pre-Cambrian. New Jersey.

Hamilton group, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., p. 380. 1840.

Devonian. New York.

Hamilton group, Vanuxem. Geol. of New York, pt. iii, pp. 150-163. 1842.

Paleozoic. New York. Included in New York system. Includes Skaneateles shale, Ludlowville shale, Encrinal limestone, Moscow shale, Cazenovia group.

Hamilton group, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 184-195. 1843.

Paleozoic. New York. Included in New York system. Includes Pyritiferous rock and 3d graywacke of Eaton. Ludlowville, Moscow, and Skaneateles shales, Cazenovia group, Encrinal limestone. Part syn. No. viii, Pennsylvania Survey.

Hamilton shale, Emmons. Agric. of N. Y., vol. i, pp. 183-186. 1846.

New York. Included in Erie division of New York system.

Hamilton shales, Emmons. Agric. of N. Y., vol. i, pp. 183-186. 1846.

Devonian. New York. Included in Erie division of New York system.

Hamilton group, Owen. Am. Jour. Sci., 2d ser., vol. iii, p. 59. 1847.

Devonian. New York. Included in Erie division of New York system. Part syn. Part of No. 8, Pennsylvania Survey.

Hamilton, Whittlesey. Am. Assoc. Adv. Sci., Proc., vol. v, p. 207. 1851.

Devonian. Ohio.

- Hamilton, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 106, 177. 1855.
Devonian. Missouri.
- Hamilton group, Hall. Iowa Geol. Surv., vol. i, p. 85. 1858.
Devonian. Iowa.
- Hamilton group, Whitney. Iowa Geol. Surv., vol. i, p. 370. 1858.
Devonian. Iowa.
- Hamilton group, Whitney. Iowa Geol. Surv., vol. i, pt. i, pp. 370-376. 1858.
Devonian. Iowa.
- Hamilton group, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 85-88. 1858.
Devonian. Iowa.
- Hamilton group, Hall and Whitney. Am. Jour. Sci., 2d ser., vol. xxvii, p. 112. 1859.
Devonian. Iowa.
- Hamilton group, Meek and Engelman. Phil. Acad. Nat. Sci., Proc., vol. xii, p. 127. 1860.
Devonian. Nevada.
- Hamilton formation, Chapman. Can. Inst., new ser., vol. viii, pp. 444-449. 1863.
Devonian. Canada.
- Hamilton formation, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 380-387. 1863.
Devonian. Canada. Included in Upper Devonian.
- Hamilton group, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada.
- Hamilton shale, Hunt. Am. Jour. Sci., 2d ser., vol. xlvi, pp. 357-362. 1868.
Devonian. Canada. Includes Marcellus shale.
- Hamilton limestone and shale, Worthen. Ill. Geol. Surv., vol. iii, pp. 40, 63-64, 116. 1868.
Devonian. Illinois.
- Hamilton group, White. Iowa Geol. Surv., vol. iv, pp. 184-188. 1870.
Devonian. Iowa. Includes Hamilton limestones and shales.
- Hamilton limestone, Worthen. Ill. Geol. Surv., vol. iv, p. 8. 1870.
Devonian. Illinois.
- Hamilton group, Shumard. Mo. Geol. Surv., Rept. 1855-1871, p. 296. 1873.
Devonian. Missouri.
- Hamilton, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 68, 149. 1873.
Devonian. Ohio.
- Hamilton, Winchell. Am. Assoc. Adv. Sci., Proc., vol. xxii, p. 103. 1873.
Devonian. Ohio.
- Hamilton, Hall. Albany Inst., Proc., vol. i, pp. 132-133. 1873.
Devonian. New York.
- Hamilton limestone, Worthen. Ill. Geol. Surv., vol. v, pp. 222-223. 1873.
Devonian. Illinois.
- Hamilton group, Worthen. Ill. Geol. Surv., vol. v, pp. 227-228. 1873.
Devonian. Illinois.
- Hamilton group, Shaw. Ill. Geol. Surv., vol. v, pp. 187-188. 1873.
Devonian. Illinois.
- Hamilton, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 27. 1874.
Devonian. Missouri.
- Hamilton, Newberry. Ohio Geol. Surv., vol. ii, p. 189. 1874.
Devonian. Ohio.
- Hamilton, Winchell. Ohio Geol. Surv., vol. ii, pp. 289, 328, 338, 427. 1874.
Devonian. Ohio. Exact syn. Upper Corniferous.
- Hamilton limestone, Winchell. Am. Jour. Sci., 3d ser., vol. vii, pp. 395-398. 1874.
Devonian. Ohio.
- Hamilton, Winchell. Am. Assoc. Adv. Sci., Proc., vol. xxiv, p. 59. 1875.
Devonian. Ohio, Michigan.

Hamilton, Hotchkiss. A Geographical and Political Summary of Virginia, p. 22. 1876.

Devonian. Virginia. Included in Old Red sandstone. Exact syn. Cadent. (Formation viii, Rogers.)

Hamilton, Ashburner. Am. Phil. Soc., vol. xvi, pp. 528, 551. 1877.

Devonian. Appalachian region. Exact syn. Cadent.

Hamilton, Chamberlin. Geol. of Wis., vol. ii, pp. 395-405. 1877.

Devonian. Wisconsin.

Hamilton, Newberry. Ohio Geol. Surv., vol. iii, p. 11. 1878.

Devonian. Ohio.

Hamilton, Hall. Albany Inst., Trans., vol. ix, pp. 169-175. 1879.

Devonian. Ohio.

Hamilton, Platt. 2d Pa. Geol. Surv., Rept. T, p. 32. 1881.

Devonian. Pennsylvania.

Hamilton group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, p. 272. 1881.

Hamilton group, Worthen. Econ. Geol. of Ill., vol. i, p. 482. 1882.

Devonian. Illinois.

Hamilton, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 107-116. 1882.

Devonian. Pennsylvania. Included in No. viii.

Hamilton, Chamberlin. Geol. of Wis., vol. i, p. 201. 1883.

Devonian. Wisconsin.

Hamilton, Claypole. Am. Assoc. Adv. Sci., Proc., vol. xxxii, p. 244. 1884.

Devonian. Pennsylvania.

Hamilton, Ewing. 2d Pa. Geol. Surv., Rept. T⁴, pp. 432-433. 1884.

Devonian. Pennsylvania. Exact syn., No. viii^b.

Hamilton group, Clarke. N. Y. State Geol. Rept. 1884, pp. 11-21. 1885.

Devonian. New York. Includes Marcellus, Hamilton, and Genesee shales, Tully limestone, Portage shales and flags.

Hamilton, Stevenson. Am. Phil. Soc. Proc., vol. xxi, pp. 136, 140. 1885.

Devonian. Virginia.

Hamilton, White. 2d Pa. Geol. Surv., Rept. T³, pp. 104-107, 109-113. 1885.

Devonian. Pennsylvania.

Hamilton, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 66-69. 1885.

Devonian. Pennsylvania. Includes Monteballo sandstone.

Hamilton, Stevenson. Am. Phil. Soc., Proc., vol. xxiv, p. 83. 1887.

Devonian. Virginia.

Hamilton, Prosser. Am. Assoc. Adv. Sci., Proc., vol. xxxvi, p. 210. 1888.

Devonian. New York.

Hamilton group, Miller. N. A. Geol. and Pal., p. 60. 1889.

Hamilton shale, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 26-27. 1890.

Devonian. Ohio. Exact. syn. Olentangy shale.

Hamilton terrane, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 53. 1890.

Devonian. Arkansas.

Hamilton, Claypole. Am. Geol., vol. viii, p. 152. 1891.

Devonian. Pennsylvania. Includes Tully limestone, Moscow shale, Encrinal limestone, Blue shale.

Hamilton, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 636. 1891.

Devonian. Indiana.

Hamilton, Prosser. Am. Jour. Sci., 3d ser., vol. xlv, pp. 210-221. 1892.

Devonian. Pennsylvania.

Hamilton, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1236-1307. 1892.

Devonian. Pennsylvania. Exact syn. No. viiic of Pennsylvania Survey.

- Hamilton, Prosser. *Roch. Acad. Sci., Proc.*, vol. ii, pp. 50-124. 1892.
Devonian. New York.
- Hamilton, Prosser. *Geol. Soc. Am., Bull.*, vol. vi, pp. 100, 108, 116. 1893.
Devonian. New York.
- Hamilton, Prosser. *N. Y. State Geol.*, 12th Ann. Rept., pp. 114-142. 1893.
Devonian. New York.
- Hamilton, Prosser. *Am. Jour. Sci.*, 3d ser., vol. xlv, pp. 212-230. 1893.
Devonian. New York.
- Hamilton, Brummell. *Geol. Soc. Am., Bull.*, vol. iv, p. 227. 1893.
Devonian. Ontario.
- Hamilton, Williams and Clark. *Maryland; Its Resources, Industries, and Institutions*, pp. 70-71. 1893.
Devonian. Maryland. Exact syn. Chemung. Part. syn. No. viii.
- Hamilton group, Luther. *N. Y. State Geol.*, 13th Ann. Rept., pp. 42-43. 1894.
Devonian. New York.
- Hamilton, Darton. *N. Y. State Geol.*, 13th Ann. Rept., pp. 240-242, 300. 1894.
Devonian. New York.
- Hamilton, Prosser. *U. S. Geol. Surv., Bull.*, No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Middle Devonian. Includes Genesee shale, Marcellus shale.
- Hamilton shale, Lincoln. *N. Y. State Geol.*, 14th Ann. Rept., pp. 93-95. 1895.
Devonian. New York. Includes Ludlowville shale; Encrinal limestone, Moscow shale.
- Hamilton shale, Lincoln. *N. Y. State Mus.*, 48th Ann. Rept., pt. ii, pp. 93-95. 1895.
Devonian. New York.
- Hamilton limestone, Stewart. *Kan. Univ. Quart.*, vol. iv, p. 162. 1896.
Devonian. Missouri.
- Hamilton group, Luther. *N. Y. State Geol.*, 15th Ann. Rept., pp. 279-284. 1897.
Devonian. New York.
- Hamilton series, Prosser. *N. Y. State Geol.*, 15th Ann. Rept., pp. 83-222. 1897.
Devonian. New York.
- Hamilton group, Bishop. *N. Y. State Geol.*, 15th Ann. Rept., pp. 315-320. 1897.
Devonian. New York. Includes Marcellus, Hamilton, and Genesee shales.
- Hamilton group, Ries. *N. Y. State Geol.*, 15th Ann. Rept., vol. i, p. 403. 1897.
Devonian. New York.
- Hamilton stage, Shepard. *Mo. Geol. Surv.*, vol. xii, p. 49. 1898.
Devonian. Missouri. Includes Phelps sandstone, Sac limestone, King limestone, Black shale.
- Hamilton, Gallaher. *Mo. Geol. Surv., Bien. Rept.*, 1898, p. 27. 1898.
Devonian. Missouri.
- Hamilton shale, Grabau. *Buff. Soc. Nat. Hist., Bull.*, vol. vi, pp. 33-34. 1898.
Devonian. New York.
- Hamilton series, Prosser. *N. Y. State Geol.*, 17th Ann. Rept., pp. 67-316; *N. Y. State Mus.*, 51st Ann. Rept., vol. ii, pp. 67-316. 1899.
Devonian. New York.
- Hamilton group, Luther. *N. Y. State Geol.*, 16th Ann. Rept., p. 216. 1899.
Devonian. New York.
- Hamilton beds, White. *West Virginia Geol. Surv.*, vol. i, p. 208. 1899.
Devonian. West Virginia.
- Hampshire**, Darton. *U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 14, 32.* 1894, 1896.
Devonian. Virginia, West Virginia. Exact syns. Catskill, No. ix and Ponent.
- Hampshire, Taff and Brooks. *U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34.* 1896.
Devonian. West Virginia.

- Hampshire, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
Devonian. West Virginia, Maryland.
- Hampshire formation, Clark. Md. Geol. Surv., vol. i, pp. 157, 184. 1897.
Devonian. Maryland.
- Hampshire formation, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
Devonian. Virginia, West Virginia.
- Hampshire formation, O'Harra. Md. Geol. Surv., Allegany County, p. 108. 1900.
Devonian. Maryland.
- Hampton shale**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Cambrian. Virginia, Tennessee.
- Hanbury shale**, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 62. 1900.
Algonkian. Michigan.
- Hancock limestone**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
Silurian. Kentucky, Virginia, Tennessee.
- Hancock limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 27. 1896.
Silurian. Tennessee.
- Hancock limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Silurian. Virginia, Tennessee.
- Hanging Rock sandstone**, Bradley. Indiana Geol. Surv., 1st Ann. Rept., 1869, p. 157. 1869.
Carboniferous. Indiana. Exact syn. Mahoning sandstone.
- Hanging Rock limestone, Orton. Ohio Geol. Surv., vol. iii, p. 892. 1878.
Carboniferous. Ohio. Exact syns. Ferriferous limestone, Gray limestone.
- Hanna Valley bed**, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 383. 1893.
Carboniferous. Texas. Included in Strawn division.
- Hannibal shale**, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 289. 1892
Lower Carboniferous. Missouri. Included in Kinderhook beds.
- Hannibal shale, Keyes. Iowa Geol. Surv., vol. i, pp. 55-56. 1893.
Carboniferous. Iowa. Included in Kinderhook. Exact syn. Vermicular sandstones and shales.
- Hannibal shale, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 56-57. 1894.
Lower Carboniferous. Missouri. Included in Kinderhook stage. Exact syn. Vermicular shale.
- Hannibal limestone, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, pp. 390, 394. 1894.
Lower Carboniferous. Missouri. Included in Kinderhook stage. Exact syn. Vermicular.
- Hannibal shales, Keyes. St. Louis Acad. Sci., Trans., vol. vii, p. 359. 1897.
Devonian. Missouri. Exact syn. Vermicular sandstone.
- Hannibal shale, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 86-92. 1898.
Lower Carboniferous. Missouri. Included in Kinderhook stage.
- Hardgrave sandstone**, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
Jurassic. California. Included in Lias (?).
- Harding sandstone**, Walcott. Geol. Soc. Am., Bull., vol. iii, pp. 153-169. 1892.
Ordovician. Colorado.
- Harding sandstone, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
Silurian. Colorado.
- Harding sandstone, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.
Silurian. Colorado.

Hardistonville quartzite, Wolff and Brooks. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 442-443, 454-456. 1898.

Cambrian. New Jersey.

Hardwick gneiss, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 239-240, 317. 1898.

Silurian. Massachusetts.

Harlan sandstone, Campbell. U. S. Geol. Surv., Bull. No. 111, p. 31. 1893.

Carboniferous. Virginia. Included in Coal Measures.

Harlan sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.

Carboniferous. Kentucky, Virginia, Tennessee.

Harper sandstones, Cragin. Colo. College Stud., vol. vi, pp. 3, 18-20. 1896.

Permian. Kansas. Included in Cimarron series.

Harper formation, Cragin. Am. Geol., vol. xix, pp. 352-355. 1897.

Permian. Kansas, Oklahoma. Included in Kingfisher formation of Cimarron series.

Harpers Ferry shales, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, p. 68. 1893.

Cambrian. Maryland.

Harpers shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.

Cambrian. Virginia, Maryland, West Virginia.

Harpers shale, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 333. 1894.

Cambrian. Virginia, Maryland.

Harpers formation, Clark. Md. Geol. Surv., vol. i, pp. 172-176. 1897.

Cambrian. Maryland.

Harpeth and Tennessee River group, Safford. Am. Jour. Sci., 2d ser., vol. xii, pp. 357-358. 1851.

Silurian. Tennessee.

Harris City limestone, Elrod. Indiana Dept. Geol. and Nat. Hist., 12th Ann. Rept., 1881, p. 128. 1883.

Indiana.

Harrodsburg limestone, Hopkins and Siebenthal. Indiana Dept. Geol. and Nat. Resources, 21st Ann. Rept. 1896, p. 296. 1897.

Carboniferous. Indiana.

Harrodsburg limestone, Jones. Indiana Acad. Sci., Proc., 1897, p. 257. 1898.

Lower Carboniferous. Indiana.

Harrodsburg limestone, Blatchley and Ashley. Indiana Dept. Geol. and Nat. Resources, 22d Ann. Rept., 1897, pp. 16, 20. 1898.

Carboniferous. Indiana.

Harrodsburg limestone, Ashley. Indiana Dept. Geol. and Nat. Resources, 23d Ann. Rept., 1898, pp. 74, 79. 1899.

Carboniferous. Indiana.

Hartford limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, p. 80. 1896.

Carboniferous. Kansas.

Hartselle, McCalley. Ala. Geol. Surv., Rept. on Valley Region of Ala., pt. i, pp. 27, 40. 1896.

Carboniferous. Alabama. Included in Upper Subcarboniferous.

Hartselle sandstone, McCalley. Ala. Geol. Surv., Rept. on Valley Regions, pt. ii, pp. 183-185, 246-249. 1897.

Carboniferous. Alabama. Included in Upper Subcarboniferous. Exact syn. Oxmoor sandstone.

Hartshorne sandstone, Taff. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 436. 1899.

Carboniferous. Indian Territory. Included in Coal Measures.

- Hartshorne sandstone, Taff and Adams. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 274. 1900.
Carboniferous. Indian Territory.
- Hartwell** sandstone, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.
Carboniferous. Arkansas. Included in Sebastian stage.
- Hastings**, Logan. Can. Geol. Surv. Rept. 1863-1866, p. 93, footnote, 1866.
Hastings limestone, Hunt. Boston Soc. Nat. Hist., Proc., vol. xix, 1876-78, p. 278. 1878.
Hastings series, Hunt. 2d Pa. Geol. Surv., Rept. E, pp. 171-173, 177. 1878.
Archean. Canada.
- Hastings series, Vennor. Can. Geol. Surv., Rept. 1876-77, pp. 254-256. 1878.
Archean. Canada. Included in Laurentian (Upper).
- Hastings series or group, Selwyn. Can. Geol. Surv., Rept. 1877-78, p. 10A. 1879.
Archean. Canada.
- Hastings series, Adams. Can. Geol. Surv., new ser., vol. iii, p. 4J. 1895.
Archean. Canada.
- Hastings series, Adams and Barlow. Geol. Soc. Am., Bull., vol. viii, pp. 398, 402. 1897.
Algonkian. Canada. Included in Laurentian.
- Hastings series, Adams, Barlow, and Ells. Can. Rec. Sci., vol. vii, pp. 304-313. 1897.
Algonkian. Canada.
- Hastings series, Adams. Jour. of Geol., vol. i, pp. 335-336. 1898.
Algonkian. Canada.
- Hatchetigbee** group, Aldrich. Ala. Geol. Surv., Bull. No. 1, p. 50. 1886.
Tertiary. Alabama.
- Hatchetigbee series, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 39. 1887.
Tertiary. Alabama. Included in Lignitic, Lower Eocene.
- Hatchetigbee division, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., 1891.
Tertiary. Georgia. Included in Lignitic.
- Hatchetigbee, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 597. 1891.
Tertiary. Alabama. Included in Lower Eocene.
- Hatchetigbee series, Langdon. Ga. Geol. Surv., 1st Rep. of Prog., p. 96. 1891.
Tertiary. Georgia.
- Hatchetigbee, Smith, Johnson, and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 149, 235, 397, 491. 1894.
Tertiary. Alabama. Included in Eocene Lignitic.
- Hatchetigbee beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 345. 1898.
Tertiary. Alabama. Included in Eocene.
- Hawley** schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Silurian. Massachusetts.
- Hawley schist, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 5. 1895.
Cambrian(?). Massachusetts. Part. syn. Stockbridge limestone.
- Hawley schist, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 163-171. 1898.
Silurian. Massachusetts. Included in Lower Silurian.
- Hawley schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Silurian. Massachusetts.
- Hawpatch** glacial gravel, Elrod. Indiana Dept. Geol. and Nat. Hist., 11th Ann. Rept., 1881, p. 156. 1882.
Indiana.
- Hawthorne** beds, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Miocene. (Georgia and Florida)? Included in Chipola epoch, Chattahoochee group.

- Hawthorne beds, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 107. 1892.
Tertiary. Florida. Included in Miocene, Chattahoochee group.
- Hay Creek** formation, Jenney. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 568-587, 593. 1899.
Cretaceous. South Dakota. Included in Dakota group.
- Hay Creek coal formation, Ward. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, p. 593. 1899.
Cretaceous. South Dakota.
- Hayes River** beds, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 172-173, 184. 1900.
Tertiary. Alaska. Included in Neocene.
- Hazel** slate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 16. 1895.
Tennessee, North Carolina. Included in Ocoee group.
- Hazlet** sands, Clark, Bagg and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 315, 329. 1897.
Cretaceous. New Jersey. Included in Matawan formation.
- Hazlet sand, Clark, Bagg and Shattuck. N. J. Geol. Surv., Rept., 1897, pp. 178-179. 1898.
Cretaceous. New Jersey. Included in Matawan formation.
- Helderberg** limestone group, Mather. N. Y. Geol. Surv., 4th Ann. Rept., pp. 236-246. 1840.
Devonian. New York.
- Helderberg limestone series, Mather. N. Y. Geol. Surv., 5th Ann. Rept., pp. 85-89. 1841.
Devonian. New York. Includes Seneca, Corniferous and Onondaga limestones, Oriskany, Scutella limestone, Delthyris shale, and Pentamerus limestone.
- Helderberg limestone group, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 57. 1842.
New York.
- Helderberg system, Conrad. Phil. Acad. Nat. Sci., Jour. vol. viii, pp. 233-234. 1842.
Includes Middle Silurian.
- Helderberg division, Mather. Geol. of N. Y., pt. i, pp. 324-353. 1843.
Paleozoic. New York. Included in New York system. Includes Corniferous limestone=Seneca limestone, Selenurus limestone, Onondaga limestone=Gray sparry limestone, Schoharie grit, Cauda-galli grit=Cocktail grit of Dr. Eight, Oriskany sandstone=White sandstone 1838, No. vii, Pa. Rept., Delthyris shaly limestone=Scutella limestone, sparry limestone of Gebbard, Delthyris shales, Catskill shaly limestone, Pentamerus limestone=No. vi, Pennsylvania Survey, Water limestone=Tentaculite limestone, and Hydraulic limerock of Eaton.
- Helderberg division, Emmons. Agric. of N. Y., vol. i, pp. 153-179. 1846.
New York. Includes Onondaga salt group; Manlius water lime and shales; Pentamerus, Delthyris, and Encrinal limestones; Oriskany sandstone; Cauda-galli Schoharie grits; and Onondaga limestone.
- Helderberg series, Upper, Hall. Foster and Whitney's Rept. on Geol. of Lake Superior Dist., pt. ii, p. 163. 1851.
Devonian. Lake Superior region.
- Helderberg series, Upper, Hall. Am. Jour. Sci., 2d ser., vol. xvii, pp. 193-194. 1854.
Devonian. Michigan.
- Helderberg, Upper, Meek. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 103. 1855.
Devonian. Missouri.
- Helderberg, Upper, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 81-84. 1858.
Devonian. Iowa.
- Helderberg group, Hall. Paleontology of N. Y., vol. iii, pt. i, pp. 97-98. 1859.
Silurian. New York.

- Helderberg, Lower, Safford. *Am. Jour. Sci.*, 2d ser., vol. xxxi, p. 208. 1860.
Silurian. Tennessee. Exact syn. Lower Helderberg(?) called Gray crinoidal limestone.
- Helderberg limestone, Upper, Hitchcock. *Geol. of Vt.*, vol. i, pp. 447-451. 1861.
Devonian. Vermont.
- Helderberg group, Lower, Logan. *Can. Geol. Surv.*, Rept., 1843-1864, pp. 345-352. 1863.
Upper Silurian. Canada. Includes Water-lime group; Pentamerous limestone; Delthyris shaly limestone; Encrinal limestone; and Upper Pentamerous limestone.
- Helderberg group, Lower, Chapman. *Can. Inst.*, new ser., vol. viii, pp. 439-440. 1863.
Silurian. Canada. Included in Upper Silurian.
- Helderberg group, Hall. *Paleontology of N. Y.*, vol. iv, pt. i, pp. 1-4. 1867.
Silurian. New York.
- Helderberg, Lower, Cook. *Geol. of N. J.*, pp. 158-159. 1868.
Silurian. New Jersey.
- Helderberg limestone, Lower, Worthen. *Ill. Geol. Surv.*, vol. iii, pp. 25-26, 36-37. 1868.
Silurian. Illinois.
- Helderberg, Lower, Safford. *Geol. of Tennessee*, pp. 322-328. 1869.
Silurian. Tennessee. Exact syn. Lower Helderberg of New York.
- Helderberg, Lower, Worthen. *Am. Assoc. Adv. Sci., Proc.*, vol. xix, p. 175. 1870.
Silurian. Illinois.
- Helderberg series, Dana. *Am. Jour. Sci.*, 3d ser., vol. vi, pp. 339-352. 1873.
Silurian. Massachusetts, Connecticut.
- Helderberg, Newberry. *Ohio Geol. Surv.*, vol. i, pt. i, pp. 63, 104. 1873.
Silurian. Ohio.
- Helderberg group, Lower, Hall. *Am. Assoc. Adv. Sci., Proc.*, vol. xxii, p. 321. 1873.
Silurian. New York, Mississippi Valley. Includes Upper Pentamerus and shaly limestone, Lower Pentamerus and Tentaculite limestone.
- Helderberg limestone, Lower, Killebrew and Safford. *Resources of Tenn.*, p. 39. 1874.
Silurian. Tennessee. Included in Lower Helderberg period.
- Helderberg strata, Hitchcock. *Am. Jour. Sci.*, 3d ser., vol. vii, pp. 476, 557-568. 1874.
Silurian. New Hampshire.
- Helderberg, Orton. *Ohio Geol. Surv.*, vol. ii, pp. 615, 643. 1874.
Silurian. Ohio. Included in Upper Silurian. Includes Water lime.
- Helderberg, Lower, Hall. *Regents Univ. of N. Y.*, 27th Ann. Rept., pp. 117-131. 1875.
Silurian. New York. Includes Tentaculite limestone, Lower Pentamerus limestone, shaly limestone, Upper Pentamerus or Scutella, and Limestone formation no. vi (Pa.).
- Helderberg, Hotchkiss. *A Geographical and Political Summary of Virginia*. 1876.
Upper Silurian. Virginia. Exact syns. Pre-Meridian. (Formation vi, Rogers.)
- Helderberg, Lower, Barrett. *Lyceum of Nat. Hist. of N. Y.*, *Annals.*, vol. xi, pp. 290-299. 1876.
Silurian. New York.
- Helderberg formation, Dana. *Am. Jour. Sci.*, 3d ser., vol. xiv, pp. 379-387. 1877.
Silurian. Massachusetts, Vermont.
- Helderberg series, Hitchcock. *Geol. of New Hamp.*, pt. ii, pp. 325-342, 444. 1877.
Devonian. New Hampshire.

- Helderberg, Lower, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 529, 555. 1877.
Silurian. Appalachian region. Includes Lewistown (Pre-Meridian) limestone.
- Helderberg limestone, Lower, Chamberlin. Geol. of Wis., vol. ii, p. 390. 1877.
Upper Silurian. Wisconsin.
- Helderberg, Upper, Ashburner. Am. Phil. Soc. Proc., vol. xvi, pp. 529, 553. 1877.
Devonian. Appalachian region. Exact syns. Post-Meridian, Corniferous.
- Helderberg, Lower, Hussey. Ohio Geol. Surv., vol. iii, p. 445. 1878.
Silurian. Ohio. Exact syn. Water lime.
- Helderberg, Lower, Orton. Ohio Geol. Surv., vol. iii, p. 600. 1878.
Silurian. Ohio. Exact syn. Water lime.
- Helderberg, Upper, Hall. Albany Inst., Trans., vol. ix, pp. 169-175. 1879.
Devonian. Ohio.
- Helderberg, Lower, Stevenson. Am. Phil. Soc., Proc., vol. xix, p. 98. 1880.
Silurian. Virginia.
- Helderberg, Lower, Platt. 2d Pa. Geol. Surv., Rept. T., pp. 37-41. 1881.
Silurian. Pennsylvania. Exact syn. Lewiston limestone.
- Helderberg group, Lower, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 274, 292. 1881.
- Helderberg, Upper, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 34-35. 1881.
Devonian. Pennsylvania.
- Helderberg group, Upper, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, p. 291. 1881.
- Helderberg limestone, Lower, Englemann and Worthen. Econ. Geol. of Ill., vol. i, pp. 463-464. 1882.
Silurian. Illinois. Exact. syn. Niagara of Northern Illinois.
- Helderberg, Lower, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 87-89. 1882.
Silurian. Pennsylvania.
- Helderberg, Lower, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 127-147. 1882.
Silurian. Pennsylvania. Includes Stormville shales, Decker Ferry limestone, Bossardville limestone, and Poxono Island shales. Exact syn. No. vi.
- Helderberg, Upper, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 116-122. 1882.
Devonian. Pennsylvania. Included in No. viii. Includes Corniferous limestone, and Cauda-galli grit.
- Helderberg period, Chamberlin. Geol. of Wis., vol. i, p. 178. 1883.
Silurian. Wisconsin. Included in Upper Silurian. Includes Oriskany, Lower Helderberg, and Salina.
- Helderberg, Lower, Chamberlin. Geol. of Wis., vol. i, p. 197. 1883.
Silurian. Wisconsin. Included in Upper Silurian.
- Helderberg, Lower, Hall. Am. Assoc. Adv. Sci., Proc., vol. xxxi, p. 48. 1883.
Silurian. New York.
- Helderberg, Lower, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 87-110. 1883.
Silurian. Pennsylvania. Includes Stormville, Bastard, and Bossardville limestones, Salina series. Exact syn. No. vi.
- Helderberg, Lower, Chamberlin. Geol. of Wis., vol. i, pp. 197-200. 1883.
Upper Silurian. Wisconsin.
- Helderberg, Lower, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 58-62. 1885.
Silurian. Pennsylvania. Includes Lewistown (Bossardville) limestone.
- Helderberg, Lower, Williams. Am. Jour. Sci., 3d ser., vol. xxxi, p. 139. 1886.
Silurian. New York.
- Helderberg, Lower, Williams. Am. Assoc. Adv. Sci., Proc., vol. xxxiv, p. 235. 1886.
Silurian. New York.
- Helderberg, Lower, Williams. Am. Assoc. Ad. Sci., Proc., vol. xxxv, p. 214. 1887.
Silurian. New York.
- Helderberg, Lower, Williams. N. Y. State Geol., Rept., 1886, pp. 10-12. 1887.
Devonian. New York.

- Helderberg, Lower, Clarke. N. Y. State Geol., Rept., 1888, pp. 82-91. 1889.
Devonian. New York.
- Helderberg series, Lower, Orton. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 563. 1889.
- Silurian. Ohio, Indiana. Includes Water lime, and Cliff limestone.
- Helderberg limestone, Upper, Orton. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 568. 1889.
- Devonian. Ohio, Indiana. Exact syn. Corniferous.
- Helderberg group, Lower, Miller. N. A. Geol. and Pal., p. 56. 1889.
- Helderberg group, Upper, Miller. N. A. Geol. and Pal., p. 59. 1889.
- Helderberg formation, Lower, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 21-23. 1890.
- Silurian. Ohio. Exact syn. Water-lime formation.
- Helderberg, Lower, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 52. 1890.
- Silurian. Arkansas. Includes Pentamerus, Catskill, Encrinal, and Upper Pentamerus limestones. Part syn. Water-lime group.
- Helderberg limestone, Upper, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 24-26. 1890.
- Devonian. Ohio. Includes Columbus and Delaware limestones.
- Helderberg, Lower, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 633. 1891.
- Silurian. Indiana.
- Helderberg, Lower, D'Inwilliers. 2d Pa. Geol. Surv., Rept. F⁴, pp. 54-61. 1891.
- Silurian. Pennsylvania. Includes Lewistown limestone. Exact syn. No. vi.
- Helderberg, Upper, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 635. 1891.
- Devonian. Indiana.
- Helderberg, Lower, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1892.
- Silurian. New York.
- Helderberg, Upper, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1892.
- Devonian. New York.
- Helderberg, Williams and Clark. Maryland; its Resources, Industries, and Institutions, p. 70. 1893.
- Devonian. Maryland. Part. syn. No. vi.
- Helderberg limestone, Darton. Geol. Soc. Am., Bull., vol. viii, pp. 367, 378. 1894.
- Silurian. New York.
- Helderberg limestone, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 204-206, 211-216. 1894.
- Devonian. New York. Includes Upper shaly beds, Scutella, Pentamerus, and Tentaculite beds.
- Helderberg, Upper, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
- Devonian. New York, Pennsylvania. Included in Corniferous (Lower Devonian.)
- Helderberg, Upper, Lincoln. N. Y. State Geol., 14th Ann. Rept., pp. 87-92. 1895.
- Devonian. New York. Includes Onondaga, Corniferous, Seneca.
- Helderberg, Upper, Bishop. N. Y. State Geol., 15th Ann. Rept., p. 313. 1897.
- Devonian. New York. Includes Onondaga and Corniferous limestones.
- Helderberg group, Lower, Luther. N. Y. State Geol., 15th Ann. Rept., pp. 267-274. 1897.
- Silurian. New York.
- Helderberg group, Upper, Luther. N. Y. State Geol., 15th Ann. Rept., pp. 275-279. 1897.
- Silurian. New York.
- Helderberg limestones, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 401. 1897.
- Silurian. New York.

Helderberg, Clark. Md. Geol. Surv., vol. iii, pp. 97, 98. 1899.

Devonian. Maryland. Part. syns. Lewistown.

Helderberg, Lower, Girty. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 546-550. 1899.

Silurian. Indian Territory.

Helderbergian, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.

Devonian. New York. Includes Coeymans limestone, New Scotland beds, Becraft limestone, Kingston beds.

Helderberg, Schuchert. Geol. Soc. Am., Bull., vol. xi, pp. 269-278. 1900.

Devonian. General.

Helderberg formation, O'Harra. Md. Geol. Surv., Allegany County, p. 94. 1900.

Devonian. Maryland.

Helena limestone, Walcott. Geol. Soc. Am., Bull., vol. x, pp. 199, 207. 1899.

Algonkian, Pre-Cambrian. Montana. Included in Belt terrane.

Hellem quartzite, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 166 et seq. 1892.

Cambrian. Pennsylvania.

Hemlock formation, Clements. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 73-154. 1899.

Michigan. Included in Lower Huronian series.

Hemlock formation, Clements and Smyth. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 45-63, 133. 1899.

Algonkian. Michigan. Includes Bone Lake schists.

Hemlock formation, Smyth. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 440-446. 1899.

Michigan.

Hemlock formation, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.

Algonkian. Michigan. Included in Lower Huronian.

Henrietta limestones, Haworth. Kan. Univ. Geol. Surv., vol. iii, p. 85. 1898.

Carboniferous. Kansas.

Henrietta formation, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 33, 34-36, 119, 121-159, 209, 212, 268, 271-273. 1898.

Upper Carboniferous. Missouri. Included in Des Moines series.

Henrietta, Bain and Leonard. Geol. Soc. Am. Bull., vol. x, p. 11. 1899.

Upper Carboniferous. Missouri. Exact syn. Appanoose. Part. syns. Pawnee and Oswego of Kansas.

Henrietta limestones, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 84. 1900.

Carboniferous. Mississippi Valley. Included in Coal Measures.

Henry's Fork, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 40, 50, 153. 1876.

Cretaceous. Utah.

Henry's Fork group, Peale. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., p. 89. 1877.

Cretaceous. Colorado. Included in Dakota.

Henry's Fork group, Gilbert. U. S. Geog. and Geol. Surv., Rept. on Henry Mountains, p. 4. 1877.

Cretaceous. Utah.

Hermansville limestone, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 62. 1900.

Cambrian and Silurian. Michigan.

Hermosa formation, Cross and Spencer. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 48. 1900.

Carboniferous. Colorado.

Hesse sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25. 1895, 1896.

Cambrian. Tennessee and North Carolina.

Hickman group (?), Loughridge. Ky. Geol. Surv., Jackson Purchase Region, pp. 37-41. 1888.

Eocene. Kentucky.

Hickman group, Clark. U. S. Geol. Surv., Bull. No. 83, p. 71. 1891.

Tertiary. Kentucky. Included in Eocene.

Hickory series, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 285-286. 1890. Cambrian. Texas. Included in Lower Cambrian(?).

Hickory series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxi. 1890. Cambrian. Texas.

Hickory, Walcott. U. S. Geol. Surv., Bull. No. 81, p. 246. 1891.

Cambrian. Texas.

Hickory series, Comstock. Texas Geol. Surv., 2d Ann. Rept., p. 564. 1891.

Cambrian. Texas. Included in Lower Cambrian.

High Park lake beds, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.

Included in Eocene. Colorado.

High Rock sandstone, Ashley. Indiana Dept. Geol. and Nat. Resources, 23d Ann. Rept., 1898, p. 113. ° 1899.

Carboniferous. Indiana.

Highbridge limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.

Silurian. Kentucky.

Highland moraine, Elftman. Am. Geol., vol. xxi, pp. 92-93. 1898.

Pleistocene. Minnesota.

Highland Archean, Britton. Sch. of Mines Quart., vol. ix, pp. 33-37. 1887.

New Jersey. Includes Gneissic and Schistose group, Iron-bearing group, and Massive group. Part. syn. Laurentian.

Hillsboro sandstone, Orton. Ohio Geol. Surv., Rept. Prog., in 1870, pp. 271, 301. 1871.

Silurian. Ohio. Included in Niagara series.

Hillsboro sandstone, Orton. Ohio Geol. Surv., Prelim. Rept., Petroleum and Inflammable Gas, p. 21. 1886.

Ohio. Included in Niagara series.

Hillsboro sandstone, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 13. 1888.

Upper Silurian. Ohio. Included in Niagara group.

Hillsboro sandstone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., p. 20. 1890.

Silurian. Ohio. Included in Niagara group.

Hillsboro sandstone, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 11. 1893.

Upper Silurian. Ohio. Included in Niagara group.

Hinchman tuff, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.

Jurassic. California. Included in Corallian-Jurassic.

Hinchman tuff, Hyatt. Geol. Soc. Am., Bull., vol. v, p. 413. 1894.

Jurassic. California. Included in Corallian.

Hinckley sandrock, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, p. xxii. 1888.

Minnesota.

Hinckley sandstone, Keyes. Iowa Geol. Surv., 1st Ann. Rept., vol. i, p. 23. 1893.

Cambrian. Iowa. Included in St. Croix sandstone.

Hinckley sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 16. 1899.

Cambrian. Minnesota.

Hindostan whetstone, Kindle. Indiana Dept. Geol. and Nat. Resources, 20th Ann. Rept., 1895, p. 336. 1896.

Indiana.

Hinsdale gneiss and limestone, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.

Algonkian. Massachusetts. Part. syn. Stamford gneiss.

Hinsdale gneiss and limestone, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 24-26. 1898.

Algonkian. Massachusetts.

Hinsdale gneiss and limestone, Emerson. U. S. Geol. Surv., Bull. No. 159, pp. 22-32. 1899.

Pre-Cambrian. Massachusetts.

Hinsdale gneiss and limestone, Emerson. U. S. Geol. Surv., Bull. No. 159, pp. 22-32. 1899.

Pre-Cambrian. Massachusetts.

Hinton, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii. 1890.

Silurian. Texas. Included in San Saba series.

Hinton division, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 302-303. 1890. Silurian. Texas. Included in San Saba series.

Hinton formation, Campbell and Mendenhall. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 487. 1896.

Carboniferous. West Virginia. Exact syns. Greenbrier shale, No. xi of Rogers.

Hinton, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.

Carboniferous. Virginia, West Virginia.

Hinton formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Carboniferous. Virginia and West Virginia. Part syns. No. xi, Greenbrier shale.

Hog Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 397. 1893.

Carboniferous. Texas. Included in Canyon division.

Hogback sandstone, Middle, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mountains., pp. 40, 48, 155. 1876.

Cretaceous. Utah. Included in Point of Rocks.

Hogback sandstone, Upper, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mountains., pp. 40, 48, 155. 1876.

Cretaceous. Utah. Included in Point of Rocks.

Holikhuk series, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 159-161, 182. 1900.

Cretaceous. Alaska.

Holland sandstone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., p. 24. 1890.

Silurian. Ohio. Exact syns. Monclova sandstone, Sylvania sandstone.

Holocene, Perry. Boston Soc. Nat. Hist., Proc., vol. xv, 1872-73, p. 55. 1872.

New England. Included in Tertiary.

Holyoke formation, Wadsworth. Mich. Geol. Surv., Rept. State Board for 1891, 1892, pp. 63, 64, 66, 84, 127. 1893.

Azoic or Archean. Michigan. Exact syn. Upper Marquette series. Part. syn.

Taconic formation in Michigan.

Holyokë, Van Hise. Geol. Soc. Am., Bull., vol. v, p. 6. 1893.

Archean. Michigan. Included in Marquette.

Home Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept. pp. 398-399. 1893. Carboniferous. Texas. Included in Canyon division.

Homewood sandstone, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 324. 1880.

Carboniferous. Pennsylvania. Included in Pottsville conglomerate.

Homewood sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 199. 1891.

Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Pottsville conglomerate series.

- Homewood sandstone, Orton. Ohio Geol. Surv., vol. vii, p. 36. 1893.
Carboniferous. Ohio. Included in conglomerate group.
- Honaker** limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Cambrian. Virginia and West Virginia.
- Honaker limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Cambrian. Virginia and Tennessee.
- Honesdale** sandstone, White. 2d Pa. Geol. Surv., Rept. G⁵, pp. 66-68. 1881.
Devonian. Pennsylvania. Included in Catskill.
- Honesdale sandstone, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 97-98. 1882.
Devonian. Pennsylvania. Included in Catskill.
- Honesdale sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1580. 1892.
Devonian. Pennsylvania. Included in Catskill, No. ix.
- Honesdale sandstone, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Catskill (Upper Devonian).
- Hoosac** schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Silurian or Cambrian. Massachusetts. Part. syn. Stockbridge limestone, upper part.
- Hoosac schist, Wolff. U. S. Geol. Surv., Mon., vol. xxiii, pp. 23, 59, 69, 72, 80, 81, 82, 87, 88. 1894.
Siluro-Cambrian. Massachusetts.
- Hoosac schists, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 5. 1895.
Cambrian (?). Massachusetts. Part. syn. Stockbridge limestone.
- Hoosac schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Silurian. Massachusetts.
- Hoosac schist, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 66-75. 1898.
Silurian. Massachusetts. Included in Lower Silurian.
- Hoosac schists, Emerson. U. S. Geol. Surv., Bull. No. 159, pp. 81-83. 1899.
Silurian. Massachusetts.
- Hoover** division, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 298-301. 1890.
Silurian. Texas.
- Hop Brook** limestone, Emerson. U. S. Geol. Surv., Bull. No. 159, p. 52. 1899.
Pre-Cambrian. Massachusetts.
- Hopewell** sandstone, Ami. Can. Rec. Sci., vol. viii, p. 162. 1900.
Carboniferous. Canada.
- Hordes Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 422. 1893.
Carboniferous. Texas. Included in Albany division.
- Horse Creek** clay and shales, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 379. 1893.
Carboniferous. Texas. Included in Strawn division.
- Horse Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 419. 1893.
Carboniferous. Texas. Included in Cisco division.
- Horsepen** group, White. Geol. Soc. Am., Bull., vol. vi, p. 316. 1895.
Upper Carboniferous. West Virginia. Included in Pottsville formation.
- Horsetown**, Becker. U. S. Geol. Surv., Bull. No. 19, p. 20. 1885.
California.
- Horsetown beds, Becker. Geol. Soc. Am., Bull., vol. ii, p. 202. 1891.
Cretaceous. California.
- Horsetown beds, Diller. Geol. Soc. Am., Bull., vol. iv, p. 205. 1893.
Cretaceous. California.

Horsetown beds, Diller and Stanton. Geol. Soc. Am., Bull., vol. v, pp. 435, 445. 1894.

Cretaceous.

Hosmer conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1508-1509. 1892.

Devonian. Pennsylvania. Included in Venango.

Hosselkus limestone, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.

Trias. California. Included in Lower Karnic.

Hosselkus limestone, Smith. Jour. of Geol., vol. ii, pp. 606-609. 1894.

Trias. California. Included in Cedar formation.

Hot Springs formation, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59. 1899.

Pleistocene. Yellowstone Park.

Howard limestones, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 67, 105. 1898.

Carboniferous. Kansas. Exact syn. Topeka limestone.

Hudson slate group, Mather. N. Y. Geol. Surv., 4th Ann. Rept., pp. 256-258. 1840.

Silurian. New York.

Hudson slate series, Mather. N. Y. Geol. Surv., 5th Ann. Rept., pp. 90-97. 1841.

Silurian. New York. Includes Frankfort slate and Mohawk slate.

Hudson River group, Vanuxem. Geol. of N. Y., pt. iii, pp. 60-67. 1842.

Paleozoic. New York. Included in New York system. Includes Frankfort slate, Green slate, Pulaski shale, Graywacke of Eaton, and No. iii, Pa. Survey.

Hudson River group, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 30. 1843.

Paleozoic. New York. Included in New York system. Exact syn. Blue limestone of Ohio.

Hudson River group, Mather. Geol. of N. Y., pt. i, pp. 369-389. 1843.

Paleozoic. New York. Included in Champlain division. Includes Frankfort slate, Graywacke, Pulaski shale, and No. iii, Pa. Survey.

Hudson River group, Hall. Foster and Whitney's Rept. on Lake Superior Dist., pt. ii, p. 148. 1851.

Silurian. Lake Superior region.

Hudson River, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 110. 1855.

Silurian. Missouri. Included in Lower Silurian.

Hudson River group, Hall. Iowa Geol. Surv., vol. i, p. 64. 1858.

Silurian. Iowa.

Hudson River group, Whitney. Iowa Geol. Surv., vol. i, pp. 290, 299, 356. 1858.

Silurian. Iowa.

Hudson River group, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 64-70. 1858.

Silurian. Iowa.

Hudson River group, Hall and Whitney. Am. Jour. Sci., 2d ser., vol. xxvii, p. 109. 1859.

Silurian. Iowa.

Hudson River group, Hitchcock. Geol. of Vt., vol. i, pp. 308-326. 1861.

Paleozoic. Vermont. Included in Hudson period.

Hudson River group, Whitney. Rept. on Upper Mississippi lead region, p. 177. 1862.

Silurian. Wisconsin.

Hudson River formation, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 198-224. 1863.

Lower Silurian. Canada.

Hudson River formation, Chapman. Can. Inst., new ser., vol. viii, pp. 205-208. 1863.

Silurian. Canada. Included in Lower Silurian, Ontario group.

- Hudson River formation, Bell. *Can. Geol. Surv., Rept.* 1863-1866, pp. 171-173, 1866.
Can. Geol. Surv., Rept. 1866-1869, pp. 125-127, 1871.
 Silurian. Canada.
- Hudson River group, Meek. *Am. Jour. Sci.*, 2d ser., vol. xviii, p. 256. 1867.
 Silurian. Illinois, New York.
- Hudson River slate, Cook. *Geol. of N. J.*, pp. 135-145. 1868.
 Silurian. New Jersey.
- Hudson River group, Shumard. *Mo. Geol. Surv., Repts.* 1855-1871, pp. 264, 297. 1873.
 Silurian. Missouri. Includes Upper Hudson shale, Cape Girardeau sandstone, Lower Hudson shale, and Receptaculite limestone.
- Hudson shale, Upper, Shumard. *Mo. Geol. Surv., Repts.* 1855-1871, p. 264. 1873.
 Silurian. Missouri. Included in Hudson River group.
- Hudson shale, Lower, Shumard. *Mo. Geol. Surv., Repts.* 1855-1871, p. 265. 1873.
 Silurian. Missouri. Included in Hudson River group.
- Hudson group, Newberry. *Ohio Geol. Surv.*, vol. i, pt. i, p. 60. 1873.
 Silurian. Ohio.
- Hudson, Hotchkiss. *A Geographical and Political Summary of Virginia*, p. 22. 1876.
 Cambrian and Lower Silurian. Virginia. *Exact syns. Matinal.* (Formation iii, Rogers.)
- Hudson River, Prime. *Am. Phil. Soc., Proc.*, vol. xvi, p. 254. 1877.
 Silurian. Pennsylvania. *Exact syns. Matinal*, No. iii in part.
- Hudson River, Ashburner. *Am. Phil. Soc., Proc.*, vol. xvi, pp. 532, 558. 1877.
 Silurian. Appalachian region. *Part. syn. Matinal* in part.
- Hudson River slates, Prime. *Am. Jour. Sci.*, 3d ser., vol. xv, p. 269. 1878.
 Silurian. Pennsylvania. *Exact syn. Matinal* slates.
- Hudson River, Hall. *Am. Assoc. Adv. Sci., Proc.*, vol. xxvi, pp. 259-265. 1878.
 Silurian. New York, Pennsylvania, and Ohio valley. *Exact syn. Cincinnati.*
- Hudson River slate, Prime. *2d Pa. Geol. Surv., Rept. D²*, pp. 71-74. 1878.
 Silurian. Pennsylvania. Included in No. iii.
- Hudson River, Dana. *Am. Jour. Sci.*, 3d ser., vol. xvii, p. 375. 1879.
 Silurian. New York.
- Hudson River group, Miller. *Cin. Soc. Nat. Hist., Jour.*, vol. iv, pp. 267, 269, 285. 1881.
 Ordovician.
- Hudson River, Platt. *2d Pa. Geol. Surv., Rept. T*, pp. 48-51. 1881.
 Silurian. Pennsylvania.
- Hudson Tribolite beds, Wooster. *Geol. of Wisconsin*, vol. iv, p. 110. 1882.
 Cambrian. Wisconsin. Included in Potsdam sandstone.
- Hudson, Stevenson. *2d Pa. Geol. Surv., Rept. T²*, pp. 92-93. 1882.
 Silurian. Pennsylvania.
- Hudson River group, Linney. *Ky. Geol. Surv., Geol. of Garrard co.*, pp. 15-19. 1883.
 Silurian. Kentucky. Includes Lower, Middle, and Upper.
- Hudson River formation, Chamberlin. *Geol. of Wis.*, vol. i, pp. 170-175. 1883.
 Lower Silurian or Cambro-Silurian. Wisconsin. *Exact syn. Cincinnati.*
- Hudson River, Hall. *Am. Assoc. Adv. Sci., Proc.*, vol. xxxi, p. 41. 1883.
 Silurian.
- Hudson River, Winchell. *Minn. Geol. and Nat. Hist., Surv., Final Rept.*, vol. i, p. 360. 1884.
- Hudson beds, Upper, Linney. *Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery Counties.* 1884.
 Silurian or Cambrian. Kentucky. Included in Hudson River period.

Hudson beds, Lower, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery Counties. 1884.

Silurian or Cambrian. Kentucky. Included in Hudson River period.

Hudson River group, Linney. Ky. Geol. Surv., Geol. of Spencer and Nelson Counties, pp. 8-18, 30-36. 1884.

Silurian. Kentucky. Includes Lower, Middle, and Upper.

Hudson River, Knott. Ky. Geol. Surv., Rept. on Marion Co., p. 12. 1885.

Silurian. Kentucky. Includes Middle and Upper beds.

Hudson beds, Linney. Ky. Geol. Surv., Geol. of Mason Co., pp. 7-13. 1886.

Silurian. Kentucky. Includes Lower, Middle, and Upper.

Hudson, Linney. Ky. Geol. Surv., Geol. of Bath Co., pp. 10-16. 1886.

Silurian. Kentucky. Includes Lower, Middle, and Upper Hudson.

Hudson River group, Miller. N. A. Geol. and Pa., p. 45. 1899.

Hudson terrane, Walcott. Geol. Soc. Am., Bull., vol. i, p. 353. 1889.

Silurian. New York. Includes Hudson River shale, Utica shale, Frankfort shale, Lorraine shale, Salmon River, Cincinnati shale, Nashville shale, and Maquoketa shale.

Hudson River group, Walcott. Geol. Soc. Am., Bull., vol. i, p. 344. 1889.

Silurian. New York. Exact syns. Salmon River, Hudson River, Lorraine, Nashville, Cincinnati, and Maquoketa.

Hudson River limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890.

Silurian. Arkansas.

Hudson River group, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 15-16. 1890.

Silurian. Ohio. Includes Cincinnati division and Lebanon division.

Hudson River, Winchell and Ulrich. Min. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, pt. ii, p. ci. 1891.

Lower Silurian. Minnesota. Exact syn. Cincinnati.

Hudson River group, Orton. Ky. Geol. Surv., Rept. on Petroleum, etc., p. 131. 1891.

Silurian. Kentucky.

Hudson River, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 630. 1891.

Silurian. Indiana.

Hudson River, D'Inwilliers. 2d Pa. Geol. Surv., Rept. F⁴, pp. 80-82. 1891.

Silurian. Pennsylvania. Exact syn. No. iii.

Hudson shale, Darton. Geol. Soc. Am., Bull., vol. iv, p. 437. 1893.

Silurian. New York.

Hudson River, Brumell. Geol. Soc. Am. Bull., vol. iv, pp. 227, 234. 1893.

Ordovician. Ontario.

Hudson River, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, p. 69. 1893.

Silurian. Maryland.

Hudson River shale, Dale. U. S. Geol. Surv., 13th Ann. Rept., pt. ii, p. 315. 1893.

Cambrian. New York.

Hudson shale, Keyes. Mo. Geol. Surv., vol. iv, p. 30. 1894.

Lower Silurian. Missouri. Included in Hudson River stage.

Hudson shale, Darton. Geol. Soc. Am., Bull., vol. viii, pp. 367, 383. 1894.

Silurian. New York.

Hudson River, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 249-250, 310. 1894.

Silurian. New York.

Hudson River beds, Dowling. Ottawa Field Nat. Club, Trans. 1895-96, vol. xi, pp. 72-73. 1895-96.

Silurian. Canada. Included in Cambro-Silurian.

- Hudson River shale, Udden. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 834. 1896.
Silurian. Illinois.
- Hudson River slates, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, pp. 401, 439-442. 1897.
Silurian. New York.
- Hudson River group, Luther. N. Y. State Geol., 16th Ann. Rept., p. 200. 1899.
Silurian. New York.
- Hudson River shale, Cumings. N. Y. State Mus. Bull., vol. vii, no. xxxiv, p. 428. 1900.
Silurian. New York.
- Hueco** series, Hill. Geol. Soc. Am., Bull., vol. iii, p. 97. 1892.
Tertiary. Texas, New Mexico.
- Huerfano** beds, Hills. Colo. Sci. Soc., Proc., vol. iii, pp. 148-164, 217-223. 1888.
Tertiary. Colorado.
- Huerfano beds, Clark. U. S. Geol. Surv., Bull. No. 83, p. 142. 1891.
Tertiary. Colorado. Included in Eocene.
- Huerfano series, Hills. Colo. Sci. Soc., Proc., vol. iv, pp. 7-9. 1891.
Tertiary. Colorado. Includes Huerfano beds, Cuchara beds, Poison Canyon beds.
- Huerfano beds, Hills. Colo. Sci. Soc., Proc., vol. iv., p. 9. 1891.
Tertiary. Colorado. Exact syn. Bridger group.
- Huerfano series, Cross. Am. Jour. Sci., 3d ser., vol. xlv, p. 21. 1892.
Tertiary. Colorado. Includes Huerfano, Cuchara and Poison Canyon beds.
- Huerfano series, Osborn. Am. Nat., vol. xxxi, pp. 966-968. 1897.
Tertiary. Colorado. Exact syns. Upper beds=Bridger group, Lower beds=Wind River group.
- Huerfano formation, Smith. Jour. of Geol., vol. viii, pp. 451-452. 1900.
Tertiary. Western North America. Included in Eocene.
- Humboldt** group, King. U. S. Geol. Explor. of 40th Parallel, vol. i, p. 434. 1878.
Tertiary. Utah, Nevada. Included in Pliocene.
- Humboldt limestone, Hay. Kan. Acad. Sci., Trans., vol. x, p. 7. 1887.
Carboniferous. Kansas.
- Humboldt group, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, pp. 312, 315. 1892.
Tertiary. Utah, Nevada.
- Humbug** series, Tower and Smith. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 625-626. 1899.
Carboniferous. Utah. Included in Coal Measures.
- Humbug formation, Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 65. 1900.
Carboniferous. Utah.
- Hunker** series, McConnell. Can. Geol. Surv., Rept. on Klondike gold fields, pp. 8-9. 1900.
Canada.
- Huntingdon** stone, Cox. Indiana Geol. Surv., 8th, 9th, and 10th Ann. Repts. for 1876, 1877, 1878, p. 66. 1879.
Indiana.
- Huron** formation, Logan. Am. Jour. Sci., 2d ser., vol. xiv, pp. 224-229. 1852.
Canada.
- Huron group, Winchell. Mich. Geol. Surv., 1st Bien. Rept. Prog., pp. 71, 139. 1861.
Devonian. Michigan.
- Huron group, Winchell. Am. Jour. Sci., 2d ser., vol. xxxix, pp. 350-353. 1865.
Devonian. Indiana, Ohio, Michigan. Exact syns. Black slate or shale, Genesee shale of New York.

- Huron group, Winchell. The Grand Traverse Region, pp. 39, 49. 1866.
Devonian. Michigan.
- Huron shale, Newberry. Ohio Geol. Surv., Rept. Prog. 1869, p. 18. 1870.
Devonian. Ohio. Exact syn. Black slate.
- Huron shale, Newberry. Ohio Geol. Surv., Rept. Prog. 1869, p. 19. 1871.
Devonian. Ohio.
- Huron gritstones, Winchell. Mich. Geol. Surv., Rept. Prog., p. 35. 1871.
Devonian. Michigan.
- Huron group, Winchell. Mich. Geol. Surv., Rept. Prog., p. 29. 1871.
Devonian. Michigan.
- Huron shale, Andrews. Ohio Geol. Surv., Rept. Prog. in 1870, p. 58. 1871.
Ohio. Exact syn. Ohio Black slate.
- Huron Bay slates, Brooks. Mich. Geol. Surv., vol. i, pt. i, p. 155. 1873.
Michigan. Included in L'Anse series.
- Huron shale, Read. Ohio Geol. Surv., vol. i, pt. i, p. 515. 1873.
Devonian. Ohio.
- Huron shale, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 107, 152, 191. 1873.
Devonian. Ohio.
- Huron shale, Newberry. Ohio Geol. Surv., vol. ii, pp. 188, 213. 1874.
Carboniferous. Ohio.
- Huron shale, Winchell. Ohio Geol. Surv., vol. ii, pp. 243, 264, 282, 425. 1874.
Devonian. Ohio.
- Huron shale, Andrews. Ohio Geol. Surv., vol. ii, p. 590. 1874.
Devonian. Ohio. Exact syn. Black slate.
- Huron shale, Orton. Ohio Geol. Surv., vol. ii, pp. 616, 646. 1874.
Devonian. Ohio. Exact syn. Black slate.
- Huron shale, Read. Ohio Geol. Surv., vol. iii, p. 307. 1878.
Devonian. Ohio.
- Huron, Newberry. Ohio Geol. Surv., vol. iii, p. 13. 1878.
Devonian. Ohio.
- Huron shale, Orton. Ohio Geol. Surv., vol. iii, p. 632. 1878.
Devonian. Ohio.
- Huron shale, Gorby. Indiana Dept. Geol. and Nat. Hist., 15th Ann. Rept., for 1886,
p. 328. 1886.
Indiana.
- Huron shale, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 25. 1888.
Devonian. Ohio. Included in Ohio shale.
- Huron shale, Newberry. Cin. Soc. Nat. Hist., Jour., vol. xii, Nos. ii, iii, p. 50. 1889.
Devonian. Ohio.
- Huron shale, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 21, 22. 1893.
Devonian. Ohio. Included in Ohio shale.
- Huronian**, Logan and Hunt. Esquisse Géologique du Canada, p. 29. 1855.
Canada.
- Huronian, Logan. Can. Inst., new ser., vol. ii, pp. 439-442. 1857.
Archean. Canada.
- Huronian, Logan. Am. Assoc. Adv. Sci., Proc., vol. ii, p. 44. 1857.
Archean. Canada. Included in Azoic.
- Huronian series, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 50-66, 841-844. 1863.
Archean. Canada. Included in Azoic.
- Huronian series, Macfarlane. Can. Geol. Surv., Rept. 1863-66, pp. 123-129. 1866.
Archean. Canada.
- Huronian series, Hind. Am. Jour. Sci., 2d ser., vol. xlix, pp. 347-355. 1870.
Nova Scotia. Exact syn. Cambrian.

- Huronian, Bailey and Matthew. *Can. Geol. Surv., Rept.* 1870-71, pp. 59-138. 1873.
Archean. New Brunswick. Includes Coldbrook group, Coast group, Kingston group.
- Huronian rocks, Irving. *Am. Jour. Sci.*, 3d ser., vol. v, p. 286. 1873.
Archean. Wisconsin.
- Huronian, Irving. *Wis. Acad. Sci., Trans.*, vol. ii, 1873-74, p. 108. 1873 (?).
Wisconsin.
- Huronian, Hitchcock. *Boston Soc. Nat. Hist., Proc.*, vol. xv, 1872-73, p. 304. 1873.
New Hampshire.
- Huronian rocks, Irving. *Am. Jour. Sci.*, 3d ser., vol. viii, p. 48. 1874.
Archean. Wisconsin.
- Huronian, Kerr. *N. C. Geol. Surv., Rept.*, vol. i, pp. 131-139. 1875.
Archean. North Carolina.
- Huronian, Sweet. *Wis. Acad. Sci., Trans.*, vol. iii, 1875-76, p. 42. 1875-76.
Wisconsin.
- Huronian, Crosby. *Rept. on Geol. map of Mass.*, pp. 12-29. 1876.
Massachusetts.
- Huronian rocks, Brooks. *Am. Jour. Sci.*, 3d ser., vol. xi, pp. 206-211. 1876.
Archean. Wisconsin.
- Huronian rocks, Bradley. *Am. Jour. Sci.*, 3d ser., vol. xii, p. 287. 1876.
Archean. Canada.
- Huronian rocks, Brooks. *Am. Jour. Sci.*, 3d ser., vol. xii, pp. 194-204. 1876.
Archean. Michigan, Wisconsin, Canada.
- Huronian, Hitchcock. *Geol. of N. H.*, pt. ii, pp. 457-465. 1877.
Eozoic. New Hampshire.
- Huronian group, Huntington. *Geol. of N. H.*, pt. ii, pp. 47-50. 1877.
Eozoic. New Hampshire.
- Huronian group, Hunt. *2d Pa. Geol. Surv., Rept. E*, pp. 63-94, 189-196. 1878.
Archean. General.
- Huronian series, Brooks. *Geol. of Wis.*, vol. iii, pp. 439-532. 1880.
Wisconsin.
- Huronian, Sweet. *Geol. of Wis.*, vol. iii, pp. 330-336. 1880.
Wisconsin.
- Huronian series, Wright. *Geol. of Wis.*, vol. iii, pp. 239-301. 1880.
Wisconsin.
- Huronian system, Irving. *Geol. of Wis.*, vol. iii, pp. 100-166. 1880.
Wisconsin. Includes xxi so-called formations bearing lithological names.
- Huronian system, Irving. *Geol. of Wis.*, vol. iii, p. 6. 1880.
Wisconsin.
- Huronian series, Miller. *Cin. Soc. Nat. Hist., Jour.*, vol. iv, No. iv, p. 275. 1881.
- Huronian, Chamberlin. *Geol. of Wis.*, vol. i, p. 80. 1883.
Archean. Wisconsin.
- Huronian, Hitchcock. *Am. Mus. Nat. Hist., Bull.*, vol. i, 1881-1886, pp. 166, 167. 1884.
Vermont and New Hampshire.
- Huronian, Whitney and Wadsworth. *Harvard Coll. Mus. Comp. Zool., Bull.*, vol. vii, 1880-1884, p. 561. 1884.
Included in Azoic system (?).
- Huronian, Irving. *Am. Jour. Sci.*, 3d ser., vol. xxxiv, pp. 204-216, 249-263, 365-374. 1887.
Archean.
- Huronian, Winchell. *Minn. Geol. and Nat. Hist. Surv.*, 16th Ann. Rept., pp. 13-40, 145-164. 1888.
Minnesota.

Huronian, Winchell. Minn. Geol. and Nat. Hist. Surv., 16th Ann. Rept., pp. 145-164. 1888.

Canada.

Huronian, Winchell. Minn. Geol. and Nat. Hist. Surv., 18th Ann. Rept., p. 57. 1890.
Canada.

Huronian, Winchell. Geol. Soc. Am., Bull., vol. ii, p. 98. 1890.

Huronian. Canada.

Huronian, Winchell. Minn. Acad. Nat. Sci., vol. iii, No. ii, p. 279. 1891.

Minnesota.

Huronian, Pumpelly and Van Hise. Am. Jour. Sci., 3d ser., vol. xliii, pp. 224-232. 1892.

Archean. Ontario. Includes Upper and Lower Huronian.

Huronian, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 152-164. 1892.

Archean. Pennsylvania.

Huronian, Van Hise. Int. Cong. of Geol., 5th sess., pp. 495-506. 1893.

Algonkian. Lake Superior region. Includes Upper and Lower Huronian.

Huronian, Barlow. Geol. Soc. Am., Bull., vol. iv, pp. 313-332. 1893.

Huronian. Ontario.

Huronian, Pumpelly. Geol. Soc. Am., Bull., vol. iv, p. 383. 1893.

Archean (?). Canada (?).

Huronian, Van Hise. Jour. of Geol., vol. i, pp. 116-124. 1893.

Algonkian. Lake Superior. Includes Upper and Lower Huronian.

Huronian, Dawson. Geol. Soc. Am., Bull., vol. v, p. 103. 1894.

Archean (?). Canada.

Huronian, Nitze and Hanna. N. C. Geol. Surv., Bull. No. 3, pp. 32-33, 43. 1896.

Archean. North Carolina.

Huronian, Barlow. Can. Geol. Surv., new ser., vol. x, pp. 90 I-94 I. 1898.

Ontario and Quebec.

Huronian, Lower, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.

Algonkian. Michigan. Includes Groveland, Hemlock, and Mansfield formations, Randville dolomite, Sturgeon quartzite.

Huronian, Winchell. Minn. Geol. and Nat. Hist. Surv., 17th Ann. Rept., pp. 23, 25. 1899.

Minnesota. Exact syn. Lower Cambrian of Sedgwick.

Huronian series, Upper, Clements. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 154-186. 1899.

Michigan.

Huronian series, Lower, Clements. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 50-154. 1899.

Michigan.

Huronian, Coleman. Geol. Soc. Am. Bull., vol. xi, pp. 107-114. 1900.

Archean. Ontario. Includes Upper and Lower Huronian.

Hydraulic limestone, Hall. N. Y. Geol. Surv., 4th Ann. Rept., pp. 416-418, 426. 1840.

Silurian (?). New York.

Hydraulic limestone, Hall. N. Y. Geol. Surv., 5th Ann. Rept., pp. 154-156. 1841.
New York.

Idaho formation, Cope. Phil. Acad. Nat. Sci., Proc., 1883, p. 135. 1883.

Included in Pliocene.

Idaho formation, Lindgren. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, pp. 98-99, 197. 1900.

Tertiary. Idaho. Included in Pliocene.

- Illinoian** drift, Leverett. Chic. Acad. Sci., Geol. and Nat. Hist. Surv., Bull. ii, pp. 14-15. 1897.
Pleistocene.
- Illinoian** till sheet, Leverett. Jour. of Geol., vol. vi, pp. 171-176. 1898.
Pleistocene. Mississippi Valley.
- Illinoian**, Norton. Iowa Geol. Surv., vol. ix, p. 480. 1899.
Pleistocene. Iowa.
- Illinoian** till, Udden. Iowa Geol. Surv., vol. ix, p. 340. 1899.
Pleistocene. Iowa.
- Illinoian** drift, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 24-119. 1899.
Pleistocene. Mississippi Valley.
- Illinoian**, Calvin. Geol. Soc. Am., Bull., vol. x, pp. 107, 114. 1899.
Pleistocene. Iowa.
- Illinoian** drift, Leverett. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 67. 1900.
Pleistocene. Illinois, Indiana.
- Independence** shales, Calvin. Am. Jour. Sci., 3d ser., vol. xv, pp. 460-462. 1878.
Devonian. Iowa.
- Independence** shales, Calvin. Am. Geol., vol. viii, p. 142. 1891.
Devonian. Iowa.
- Independence** shale, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 320. 1891.
Devonian. Iowa.
- Independence** shales, Keyes. Iowa Geol. Surv., vol. i, pp. 32-34. 1893.
Devonian. Iowa.
- Independence** limestone, Haworth and Piatt. Kan. Univ. Quart., vol. ii, p. 117. 1894.
Carboniferous. Kansas.
- Independence** limestone, Adams. Kan. Univ. Geol. Surv., vol. i, pp. 23-24. 1896.
Carboniferous. Kansas.
- Independence** shales, Calvin. Iowa Geol. Surv., vol. viii, pp. 222-224. 1898.
Devonian. Iowa.
- Independence** limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 48-49. 1898.
Carboniferous. Kansas.
- Independence** shale, Norton. Iowa Geol. Surv., vol. ix, p. 442. 1899.
Devonian. Iowa. Included in Wapsipinicon.
- Indian Creek** fossil bed, Broadhead. St. Louis Acad. Sci., Trans., vol. iv, p. 486. 1886.
Carboniferous. Kansas.
- Indian Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 386. 1893.
Carboniferous. Texas. Included in Strawn division.
- Indian Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 423. 1893.
Carboniferous. Texas. Included in Albany division.
- Indian river** group, McConnell. Can. Geol. Surv., Rept. on Klondike gold fields, p. 8. 1900.
Canada.
- Inoceramus** beds, White. Iowa Geol. Surv., vol. i, pp. 293-294. 1870.
Cretaceous. Iowa.
- Intermediate** limestone, McConnell. Can. Geol. Surv., new ser., vol. ii, pp. 15D, 19D-21D. 1887.
Devonian. Canada.
- Intermediate** series, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio 57. 1899.
Colorado.

Inwood limestone, Merrill. N. Y. State Mus., 50th Ann. Rept., vol. i, pp. 26-27. 1898.

Silurian. New York. Included in Ordovician.

Inyo marble, Hanks. Cal. State Min. Bur., 6th Ann. Rept., pt. i, p. 25. 1885. California.

Iola limestone, Haworth. Kan. Univ. Quart., vol. ii, p. 119. 1894.

Carboniferous. Kansas.

Iola limestone, Haworth and Kirk. Kan. Univ. Quart., vol. ii, p. 109. 1894.

Carboniferous. Kansas.

Iola limestone, Haworth and Piatt. Kan. Univ. Quart., vol. ii, p. 116. 1894.

Carboniferous. Kansas.

Iola limestone, Haworth. Am. Jour. Sci., 3d ser. vol. i, p. 459. 1895.

Carboniferous. Kansas. Included in Coal Measures.

Iola limestone, Adams. Kan. Univ. Geol. Surv., vol. i, pp. 24, 25. 1896.

Carboniferous. Kansas.

Iola limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 47-48, 132-133, 158-159, 160. 1896.

Carboniferous. Kansas.

Iola limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 77-78. 1896.

Carboniferous. Kansas.

Iola limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 97-98. 1896.

Carboniferous. Kansas.

Iola limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 52-54, 86, 92, 94, 103. 1898.

Carboniferous. Kansas. Included in Pottawatomie formation.

Iola limestone, Keyes. Am. Geol., vol. xxiii, p. 305. 1899.

Carboniferous. Mississippi Valley. Included in Missourian series.

Iola limestone, Orton. Geol. Soc. Am. Bull., vol. x, p. 104. 1899.

Upper Carboniferous. Kansas.

Iola limestone, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 87. 1900.

Carboniferous. Mississippi Valley. Included in Coal Measures.

Ione, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 5. 1894.

Included in Neocene. California.

Ione, Turner. Am. Geol., vol. xiii, p. 239. 1894.

California.

Ione, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 11. 1894.

Included in Neocene. California.

Ione formation, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 462. 1894.

Tertiary. Included in Miocene. California.

Ione formation, Diller. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 415. 1894.

Included in Neocene. California.

Ione, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 15. 1895.

Included in Neocene. California.

Ione, Lindgren and Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 18. 1895.

Included in Neocene. California.

Ione formation, Turner. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 540. 1896.

Cretaceous. California.

Ione formation, Lindgren. Jour. of Geol., vol. iv, pp. 890-891. 1896.

Included in Miocene. California.

Ione formation, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 41. 1897.

Neocene. California. Included in Superjacent series.

- Ione formation, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 338. 1898.
Tertiary. Included in Miocene. California.
- Iowa marble, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1890.
Carboniferous. Arkansas. Included in Kinderhook.
- Iowan formation, Chamberlin. Jour. of Geol., vol. iii, p. 273. 1895.
Pleistocene. Included in Glacial.
- Iowan stage, Upham. Am. Geol., vol. xvi, p. 104. 1895.
Pleistocene.
- Iowan drift, Norton. Iowa Geol. Surv., vol. iv, pp. 170-171. 1895.
Pleistocene. Iowa.
- Iowan epoch, Todd. Mo. Geol. Surv., vol. x, p. 214. 1896.
Pleistocene. Missouri.
- Iowan stage, Todd. Mo. Geol. Surv., vol. x, p. 215. 1896.
Pleistocene. Missouri.
- Iowan drift, Calvin. Iowa Geol. Surv., vol. v, pp. 63-70. 1896.
Pleistocene. Iowa.
- Iowan, Chamberlin. Jour. of Geol., vol. iv, pp. 872-876. 1896.
Pleistocene. Iowa.
- Iowan drift, Calvin. Iowa Geol. Surv., vol. vii, pp. 86-87, 174-176. 1897.
Pleistocene. Iowa.
- Iowan, Beyer. Iowa Geol. Surv., vol. vii, pp. 234-235. 1897.
Pleistocene. Iowa.
- Iowan drift, Leverett. Chic. Acad. Sci., Geol. and Nat. Hist. Surv., Bull. ii, p. 16.
1897.
Included in Pleistocene.
- Iowan loess, Leverett. Jour. of Geol., vol. vi, pp. 175-176. 1898.
Pleistocene. Mississippi Valley.
- Iowan drift, Calvin. Iowa Geol. Surv., vol. viii, pp. 170-174, 244-245. 1898.
Pleistocene. Iowa.
- Iowan, Calvin. Geol. Soc. Am., Bull., vol. x, p. 107. 1899.
Pleistocene. Iowa.
- Iowan, Norton. Iowa Geol. Surv., vol. ix, p. 483. 1899.
Pleistocene. Iowa.
- Iowan, Beyer. Iowa Geol. Surv., vol. ix, p. 200. 1899.
Pleistocene. Iowa.
- Iowan drift, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 131-184. 1899.
Pleistocene. Mississippi Valley.
- Iowan drift, Calvin and Bain. Iowa Geol. Surv., vol. x, p. 470. 1900.
Pleistocene. Iowa.
- Iowan drift, Williams. Iowa Geol. Surv., vol. x, p. 361. 1900.
Pleistocene. Iowa.
- Iowan, Beyer. Iowa Geol. Surv., vol. x, p. 280. 1900.
Pleistocene. Iowa.
- Iron Mountain series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvii.
1890.
Archean. Texas. Included in Fernandan system.
- Iron Mountain porphyry, Keyes. Mo. Geol. Surv., vol. iv, p. 30. 1894.
Archean. Missouri.
- Iron Mountain conglomerate, Keyes. Mo. Geol. Surv., vol. vi, p. 331. 1894.
Cambrian. Missouri. Included in Ozark series.
- Iron Mountain porphyry, Keyes. Mo. Geol. Surv., Sheet Rept., No. iv, p. 18. 1895.
Archean. Missouri.

Iron Mountain conglomerate, Winslow. U. S. Geol. Surv., Bull. No. 132, p. 12. 1896.

Missouri.

Iron Mountain porphyry, Keyes. Mo. Geol. Surv., vol. ix, Sheet Rept., No. iv., pp. 18-19, 32-37. 1896.

Archean. Missouri.

Irondale limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 95. 1891.

Carboniferous. West Virginia. Included in Barren Measures, Elk River series.

Iroquois stage, Upham. Am. Geol., vol. xvi, p. 106. 1895.

Pleistocene. Included in Champlain epoch.

Irvine formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.

Included in Neocene(?). Kentucky.

Ishpeming formation, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 590. 1895.

Algonkian. Lake Superior region. Included in Upper Marquette series. Includes Goodrich quartzite, Bijiki schist.

Ishpeming formation, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 409-443. 1897.

Algonkian. Michigan. Included in Upper Marquette series. Includes Goodrich quartzite, Bijiki schist.

Ishpeming formation, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.

Algonkian. Michigan. Included in Upper Marquette series.

Island series, Ward. U. S. Geol. Surv., 15th Ann. Rept., pp. 335, 336. 1895.

Cretaceous. New Jersey. Included in Potomac, Albirupean.

Island series, Hollick. Geol. Soc. Am., Bull., vol. vii, p. 12. 1895.

Cretaceous. Massachusetts. Included in Amboy clays.

Isle Lamotte, Emmons. Agric. of N. Y., vol. i, p. 123. 1846.

Silurian. New York. Included in Champlain division of New York system.

Isle Lamotte marble, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 182, 183. 1890.

Arkansas.

Itasca moraine, Elftman. Am. Geol., vol. xxi, p. 93. 1898.

Pleistocene. Minnesota.

Ithaca group, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 318-320, 325. 1839.

Devonian. New York.

Ithaca group, Vanuxem. Geol. of New York, pt. iii, pp. 174-178. 1842.

Paleozoic, New York. Included in New York system.

Ithaca, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, pp. 232, 234. 1842.

Devonian. New York. Includes Lower division.

Ithaca group, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., p. 250. 1843.

Paleozoic. New York. Included in Chemung group.

Ithaca group, Emmons. Agric. of N. Y., vol. i, pp. 190-193. 1846.

Devonian. New York. Included in Catskill division of New York system.

Ithaca shale, Williams. Am. Assoc. Adv. Sci., Proc., vol. xxx, pp. 186-191. 1882.

Devonian. New York.

Ithaca group, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1370. 1892.

Devonian. Pennsylvania. Exact syn. Chemung.

Ithaca group, Clarke. N. Y. State Geol., 13th Ann. Rept., pp. 552-556. 1894.

Devonian. New York.

Ithaca, Kindle. Am. Pal., Bull. 2, pp. 1-54. 1895.

Devonian. New York. Included in Upper Devonian.

Ithaca, Kindle. Am. Pal., Bull., vol. ii, no. vi, p. 5. 1896.

Devonian. New York.

- Ithaca group, Clarke. N. Y. State Geol., 15th Ann. Rept., pp. 27-82. 1897.
Devonian. New York.
- Ithaca formation, Prosser. N. Y. State Geol., 15th Ann. Rept., pp. 87-94. 1897.
Devonian. New York.
- Ithaca formation, Prosser. N. Y. State Geol., 17th Ann. Rept., p. 68 et seq.; N. Y. State Mus., 51st Ann. Rept., vol. ii, p. 68 et seq. 1899.
Devonian. New York.
- Izard** limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv., pp. 50, 108-115. 1890.
Silurian. Arkansas.
- Izard limestone, Penrose. Ark. Geol. Surv., 1890, vol. i, p. 121. 1890.
Silurian. Arkansas.
- Jackass Mountain** conglomerate group, Selwyn. Can. Geol. Surv., Rept. 1871-72, p. 60. 1872.
British Columbia.
- Jackass Mountain group, Dawson. Can. Geol. Surv., Rept. 1875-76, pp. 253-255. 1877.
Cretaceous. British Columbia. Exact syn. Shasta group in California.
- Jackass Mountain group, Dawson. Can. Geol. Surv., Rept. 1877-78, pp. 108B-112B. 1879.
Cretaceous. British Columbia. Exact syn. Tatlayoco group. Part syn. Shasta group of California.
- Jackson** group, Conrad. Phil. Acad. Nat. Sci., Proc., vol. vii, p. 257. 1856.
Eocene. Mississippi.
- Jackson group, Hilgard. Rept. on Geol. and Agric. Miss., pp. 128-135. 1860.
Eocene. Mississippi.
- Jackson group, Hilgard. Am. Jour. Sci., 2d ser., vol. xliii, pp. 29-33. 1867.
Tertiary. Alabama and Mississippi.
- Jacksonian, Heilprin. Phil. Acad. Nat. Sci., Proc., 1882, p. 184. 1882.
Eocene. Exact syns. Jackson beds of Mississippi, White limestone of Alabama.
- Jacksonian, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 116, 120, 145, 147-148. 1884.
Tertiary. Included in Eocene. Exact syns. Jackson beds of Mississippi, White limestone of Alabama.
- Jackson, Meyer. Am. Jour. Sci., 3d ser., vol. xxx, pp. 60-72, 421-435. 1885.
Tertiary. Gulf States.
- Jackson group, Aldrich. Cin. Soc. Nat. Hist., Jour., vol. viii, p. 256. 1886.
Tertiary.
- Jackson, Clark. U. S. Geol. Surv., Bull., No. 83, pp. 68, 76. 1891.
Tertiary. Mississippi, Louisiana. Included in Eocene, White limestone.
- Jackson, Langdon. Geol. Soc. Am., Bull., vol. ii, p. 588. 1891.
Tertiary. Alabama. Included in Upper Eocene.
- Jackson, Spencer. Ga. Geol. Soc., 1st Rept. of Prog., 1890-91. 1891.
Tertiary. Georgia. Included in White limestone.
- Jackson coal group, Lane. Mich. Geol. Surv., Rept. State Board for 1891, 1892, p. 66. 1893.
Carboniferous. Michigan.
- Jackson stage, Harris. Ark. Geol. Surv., 1892, vol. ii, pp. 87-176. 1894.
Tertiary. Arkansas.
- Jackson stage, Vaughan. Am. Geol., vol. xv, p. 221. 1895.
Tertiary. Louisiana. Included in Eocene.
- Jackson coal group, Lane. Mich. Geol. Surv., vol. v, pt. ii, p. 14. 1895.
Coal Measures. Michigan. Includes Woodville and Parma sandstones, with the intervening coal-bearing strata.

- Jackson stage, Vaughan. U. S. Geol. Surv., Bull., No. 142, p. 22. 1896.
Tertiary. Louisiana. Included in Eocene.
- Jackson series, Lane. U. S. Geol. Surv., Water-Supply Papers No. 30, pl. vi. 1899.
Carboniferous. Michigan. Exact syn. Coal Measures.
- Jackson stage, Harris and Veatch. La. State Exp. Stat., pt. v, p. 89. 1899.
Tertiary. Louisiana. Included in Eocene.
- Jacksonian stage, Vaughan. U. S. Geol. Surv., Mon., vol. xxxix, p. 30. 1900.
Tertiary. Gulf States.
- Jacksonboro limestone, Dall and Harris. U. S. Geol. Surv., Bull. 84, p. 83. 1892.
Tertiary. Georgia.
- Jacksonville limestone, Dall and Harris. U. S. Geol. Surv., Bull. 84, p. 124. 1892.
Tertiary. Florida. Included in Miocene.
- Jagger bend bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 426. 1883.
Carboniferous. Texas. Included in Albany division.
- James River series, Ward. U. S. Geol. Surv., 15th Ann. Rept., p. 318. 1895.
Cretaceous. Virginia. Included in Potomac. Exact syn. Basal clays.
- Jamesburg, Salisbury. N. J. Geol. Surv., Rept., 1893, pp. 60-67, 67-72. 1894.
Pleistocene. New Jersey. Included in Yellow gravel.
- Jamesburg formation, Salisbury. Geol. Soc. Am., Bull., vol. vi, p. 483. 1895.
Pleistocene. New Jersey.
- Jamesburg formation, Salisbury. N. J. State Geol., Ann. Rept. for 1894, pp. 119-130. 1895.
Pleistocene. New Jersey. Exact syn. Columbia.
- Jamesburg formation, Salisbury. N. J. Geol. Surv., Rept. 1895, pp. 13-16. 1896.
New Jersey.
- Jefferson, Peale. U. S. Geol. Surv., Bull., No. 110, pp. 25, 27. 1893.
Devonian. Montana.
- Jefferson City limestone, Keyes. Mo. Geol. Surv., vol. vi, pp. 337, 373-375. 1894.
Cambrian. Missouri. Included in Gasconade limestone, Ozark series. Part. syn. Potosi limestone.
- Jefferson limestone, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Devonian. Montana.
- Jefferson, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Devonian. Montana.
- Jefferson limestone, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Silurian. Wyoming.
- Jefferson, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 37. 1896.
Silurian. Montana.
- Jefferson formation, Weed. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 469-470. 1898.
Silurian. Montana.
- Jefferson limestone, Hague. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 52. 1899.
Silurian. Wyoming.
- Jefferson limestone, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59, 149-164. 1899.
Silurian. Yellowstone Park.
- Jefferson limestone, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 287. 1900.
Siluro-Devonian. Montana.
- Jenkins Clay, Cragin. Am. Geol., vol. xxx, pp. 356-358. 1897.
Permian. Kansas, Oklahoma. Included in Cave Creek formation of Cimarron series.

- Jennings**, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 14, 32. 1894, 1896.
 Devonian. Virginia, West Virginia. Exact syns. Chemung, Rogers' Vergent.
 Part. syn. Rogers No. viii.
- Jennings**, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
 Devonian. West Virginia, Maryland.
- Jennings**, Taff and Brooks. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34. 1896.
 Devonian. West Virginia.
- Jennings** formation, Clark. Md. Geol. Surv., vol. i, pp. 157, 183. 1897.
 Devonian. Maryland. Exact syn. Chemung group.
- Jennings** formation, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
 Devonian. Virginia, West Virginia.
- Jennings** formation, O'Harra. Md. Geol. Surv., Allegany County, p. 106. 1900.
 Devonian. Maryland.
- Jerusalem**, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, p. 42. 1889.
 Cretaceous. Jamaica. Included in Blue Mountain series.
- Joachim** limestone, Keyes. Mo. Geol. Surv., vol. vi, pp. 331, 352. 1894.
 Silurian. Missouri. Included in Trenton.
- Johannian**, Walcott. U. S. Geol. Surv., Bull. No. 81, p. 249. 1891.
 Cambrian. New Brunswick.
- John Day**, Marsh. Am. Jour. Sci., 3d ser., vol. ix, p. 52, 1875.
 Tertiary. Oregon.
- John Day**, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 281. 1892.
 Tertiary. Oregon. Exact syn. (?) Truckee group.
- John Day**, Russell. U. S. Geol. Surv., Bull. No. 108, p. 22. 1893.
 Tertiary. Washington. Included in Miocene.
- Johnson** gravel, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
 Tertiary. California. Included in Miocene.
- Johnson river** sandstone, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 387. 1885.
 Carboniferous. Pennsylvania.
- Johnstown** cement bed, Platt. 2d Pa. Geol. Surv., Rept. H⁴. 1878.
 Carboniferous. Pennsylvania.
- Johnstown** cement limestone, Chance. 2d Pa. Geol. Surv., Rept. V², pp. 43-44. 1880.
 Carboniferous. Pennsylvania. Included in Kittanning group.
- Johnstown** cement bed, Platt. 2d Pa. Geol. Surv., Rept. H³, p. 318. 1880.
 Carboniferous. Pennsylvania. Exact syn. Kittanning upper limestone.
- Johnstown** cement bed, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 387. 1885.
 Carboniferous. Pennsylvania.
- Johnstown** cement limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 165. 1891.
 Carboniferous. Pennsylvania. Included in Lower Coal Measures, Allegheny River series. Exact syn. Johnstown cement.
- Johnstown** cement, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.
 Upper Carboniferous. West Virginia. Included in Lower Coal Measures.
- Joliet** marble, Schufeldt. Am. Jour. Sci., 2d ser., vol. xl, p. 389. 1865.
 Silurian. Illinois.
- Jollytown** limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 34. 1891.
 Carboniferous. Pennsylvania. Included in Permo-Carboniferous, Dunkard Creek.
- Jollytown** sandstone, Lesley. 2d Pa. Geol. Surv., Final Répt., vol. ii, pt. ii, p. 2573. 1895.
 Carboniferous. Pennsylvania. Included in Washington County group.

Jonesboro quarry rock-strata, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 190. 1868.

Lower Carboniferous. Illinois.

Jordan sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 2d Ann. Rept., pp. 147-152. 1874.

Lower Silurian. Minnesota. Included in Lower Magnesian limestone.

Jordan sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 35. 1876.

Lower Silurian. Minnesota. Included in Lower Magnesian limestone.

Jordan sandstone, Upham. Minn. Geol. and Nat. Hist. Surv., 8th Ann. Rept., p. 105. 1880.

Lower Silurian. Minnesota.

Jordan sandstone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 426. 1884.

Minnesota.

Jordan sandstone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 636. 1884.

Minnesota.

Jordan sandstone, Harrington. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 335. 1884.

Cambrian. Minnesota.

Jordan sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, pp. 220, 252, 284. 1884.

Minnesota.

Jordan sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. 71, 381. 1888.

Cambrian. Minnesota.

Jordan sandstone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. 121, 161. 1888.

Minnesota.

Jordan sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, p. xxi. 1888.

Minnesota. Included in St. Croix. Exact syn. Madison sandstone.

Jordan sandstone, Hall. Minn. Acad. Nat. Sci., Bull., vol. iii, No. 1, p. 133. 1889.

Cambrian. Minnesota. Exact syns. Madison sandstone, Second sandstone.

Jordan sandstone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, p. 341. 1892.

Ordovician(?). Minnesota. Included in Magnesian series.

Jordan sandstone, Keyes. Iowa Geol. Surv., 1st Ann. Rept., vol. i, p. 23. 1893.

Cambrian. Iowa. Included in St. Croix sandstone. Exact syn. Madison sandstone.

Jordan sandstone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. vi, pp. 167, 175. 1895.

Upper Cambrian. Minnesota. Included in Magnesian series.

Judith beds, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, p. 417. 1862.

Tertiary.

Judith River beds, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull. 2, p. 8. 1874. Cretaceous.

Judith River, Cope. U. S. Geol. and Geog. Surv. of Terr., 7th Ann. Rept., p. 434. 1874.

Cretaceous. Montana.

Judith River beds, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 155. 1876.

Cretaceous. Wyoming and Utah.

Judith River group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix, pp. xlvii-lv. 1876.

Cretaceous.

Judith River formation, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. iii, pp. 565-569. 1877.

Cretaceous. Montana. Exact syn. Fort Pierre.

Judith River group, Sternberg. Kansas City Rev., vol. iv, pp. 730-733. 1881.

Cretaceous. Montana.

Juniata, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 32. 1896.

Silurian. Virginia and West Virginia. Part. syns. Medina, Rogers' No. iv, and Levant.

Juniata, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.

Silurian. West Virginia and Maryland.

Juniata formation, Clark. Md. Geol. Surv., vol. i, pp. 157, 180-181. 1897.

Silurian. Maryland. Exact syn. Red Medina sandstone.

Juniata, Clark. Md. Geol. Surv., vol. iii, p. 99. 1899.

Silurian. Maryland. Part. syn. Red Medina.

Juniata formation, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.

Silurian. Virginia and West Virginia.

Juniata formation, O'Harra. Md. Geol. Surv., Allegany County, p. 86. 1900.

Silurian. Maryland.

Kaministiquia formation, Chapman. Can. Inst., new ser., vol. viii, pp. 186-190. 1863.

Cambrian. Canada. Included in Potsdam group, Lower Silurian.

Kaministiquia, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.

Algonkian. Ontario. Included in Huronian.

Kanawha Coal Measures, Platt. 2d Pa. Geol. Surv. No. 2, p. xxvi. 1877.

Kanawha black flint, White. U. S. Geol. Surv., Bull. No. 65, p. 98. 1891.

Carboniferous. West Virginia. Included in Barren Measures, Elk River series.

Kanawha Falls sandstone, White. Geol. Soc. Am., Bull., vol. vi, p. 306. 1895.

Upper Carboniferous. West Virginia. Included in Pottsville formation.

Kanawha formation, Campbell and Mendenhall. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 499. 1896.

Carboniferous. West Virginia. Exact syns. Rogers' xiii, Lower Productive Measures.

Kanawha series, White. Geol. Soc. Am., Bull., vol. xi, pp. 157-170. 1900.

Carboniferous. Pennsylvania.

Kanawha formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 69. 1900.

Carboniferous. West Virginia and Ohio. Exact syn. Allegheny River Coal series.

Kanektok silts and gravels, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, p. 177. 1900.

Pleistocene. Alaska.

Kansan formation, Chamberlin. Jour. of Geol., vol. iii, pp. 271-272. 1895.

Pleistocene. Included in Glacial.

Kansan drift, Norton. Iowa Geol. Surv., vol. iv, p. 169. 1895.

Pleistocene. Iowa.

Kansan stage, Upham. Am. Geol., vol. xvi, p. 103. 1895.

Pleistocene.

Kansan epoch, Todd. Mo. Geol. Surv., vol. x, p. 213. 1896.

Pleistocene. Missouri.

Kansan drift, Calvin. Iowa Geol. Surv., vol. v, pp. 63-70. 1896.

Pleistocene. Iowa.

- Kansan formation, Beyer. Iowa Geol. Surv., vol. v, p. 203. 1896.
Pleistocene. Iowa.
- Kansan drift, Bain. Iowa Geol. Surv., vol. v, pp. 153-155. 1896.
Pleistocene. Iowa.
- Kansan, Chamberlin. Jour. of Geol., vol. iv, pp. 872-876. 1896.
Pleistocene. Kansas.
- Kansan, Hershey. Am. Geol., vol. xix, pp. 197-209. 1897.
Pleistocene. Illinois.
- Kansan drift, Leverett. Chic. Acad. Sci., Geol. and Nat. Hist. Surv., Bull. ii, p. 14. 1897.
Pleistocene.
- Kansan drift, Calvin. Iowa Geol. Surv., vol. vii, pp. 83-86, 171-172. 1897.
Pleistocene. Iowa.
- Kansan, Beyer. Iowa Geol. Surv., vol. vii, pp. 232-233. 1897.
Pleistocene. Iowa.
- Kansan drift, Bain. Iowa Geol. Surv., vol. vi, pp. 433-467. 1897.
Pleistocene. Iowa.
- Kansan drift, Pre-, Bain. Iowa Geol. Surv., vol. vii, pp. 335-338. 1897.
Pleistocene. Iowa.
- Kansan drift, Bain. Iowa Geol. Surv., vol. vii, pp. 338-340, 460-463. 1897.
Pleistocene. Iowa.
- Kansan drift, Tilton and Bain. Iowa Geol. Surv., vol. vii, pp. 521-522. 1897.
Pleistocene. Iowa.
- Kansan drift, Leonard. Iowa Geol. Surv., vol. viii, pp. 84-85. 1898.
Pleistocene. Iowa.
- Kansan drift, Calvin. Iowa Geol. Surv., vol. viii, pp. 165-167, 239-241. 1898.
Pleistocene. Iowa.
- Kansan drift, Bain. Iowa Geol. Surv., vol. viii, pp. 283-292. 1898.
Pleistocene. Iowa.
- Kansan drift, Williams. Am. Phil. Soc., Proc., vol. xxxvii, pp. 84-87. 1898.
Pleistocene. Pennsylvania.
- Kansan, Calvin. Geol. Soc. Am., Bull., vol. x, pp. 107, 114. 1899.
Pleistocene. Iowa.
- Kansan drift, Bain. Iowa Geol. Surv., vol. ix, p. 76. 1899.
Pleistocene. Iowa.
- Kansan drift, Macbride. Iowa Geol. Surv., vol. ix, p. 137. 1899.
Pleistocene. Iowa.
- Kansan, Beyer. Iowa Geol. Surv., vol. ix, p. 196. 1899.
Pleistocene. Iowa.
- Kansan till, Udden. Iowa Geol. Surv., vol. ix, p. 339. 1899.
Pleistocene. Iowa.
- Kansan, Norton. Iowa Geol. Surv., vol. ix, p. 475. 1899.
Pleistocene. Iowa.
- Kansan drift, Macbride. Iowa Geol. Surv., vol. x, p. 218. 1900.
Pleistocene. Iowa.
- Kansan, Beyer. Iowa Geol. Surv., vol. x, p. 279. 1900.
Pleistocene. Iowa.
- Kansan drift, Williams. Iowa Geol. Surv., vol. x, p. 358. 1900.
Pleistocene. Iowa.
- Kansan drift, Calvin and Bain. Iowa Geol. Surv., vol. x, p. 463. 1900.
Pleistocene. Iowa.
- Kansas City** oolite, Broadhead. St. Louis Acad. Sci., Trans., vol. iv, p. 483. 1886.
Carboniferous. Kansas.
- Kansas City limestone, Gallaher. Mo. Geol. Surv., Bien. Rept., p. 51. 1898.
Upper Carboniferous. Missouri. Included in Upper Coal Measures.

- Kaskaskia**, Hall. Am. Assoc. Adv. Sci., Proc., vol. x, p. 56. 1856.
Carboniferous. Mississippi Valley. Exact syn. Upper Archimides.
- Kaskaskia limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 405. 1857.
Lower Carboniferous. Missouri. Included in Mountain limestone.
- Kaskaskia limestone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 107-119. 1858.
Carboniferous. Iowa. Exact syns. Archimides limestone, Pentremital limestone.
- Kaskaskia limestone, Hall. Iowa Geol. Surv., vol. i, p. 107. 1858.
Carboniferous. Iowa. Exact syns. Archimides limestone, Pentremital limestone.
- Kaskaskia limestone, Hall. Albany Inst., Trans., vol. iv, pp. 2-3. 1864.
Carboniferous. Mississippi Valley. Exact syn. Upper Archimides limestone.
- Kaskaskia limestone, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 189. 1868.
Lower Carboniferous. Illinois.
- Kaskaskia group, Miller. Sin. Soc. Nat. Hist., Jour., vol. iv, No. iv, p. 284. 1881.
- Kaskaskia group, Miller. N. A. Geol. and Pa., p. 73. 1889.
- Kaskaskia beds, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 295. 1892.
Lower Carboniferous. Missouri. Includes Aux Vases sandstone, Kaskaskia limestone and Shale. Exact syn. Chester.
- Kaskaskia beds, Keyes. Iowa Geol. Surv., 1st Ann. Rept., vol. i, pp. 74-77. 1893.
Carboniferous. Iowa. Included in Mississippian series. Includes Aux Vases sandstone. Exact syn. Chester.
- Kaskaskia stage, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 72, 76. 1894.
Lower Carboniferous. Missouri. Includes Chester shales, Kaskaskia limestone and Aux Vases sandstone.
- Kaskaskia stage, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Lower Carboniferous. Missouri. Included in Mississippian. Includes Chester shale, Kaskaskia limestone and Aux Vases limestone.
- Kaskaskia limestone, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 74-76. 1894.
Lower Carboniferous. Missouri. Included in Kaskaskia stage.
- Kaskaskia limestone, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Lower Carboniferous. Missouri. Included in Kaskaskia stage.
- Katemcy** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxi. 1890.
Cambrian. Texas. Exact syn. Potsdam.
- Katemcy series, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 289-291. 1890.
Cambrian. Texas. Exact syn. Potsdam.
- Katemcy series, Comstock. Texas Geol. Surv., 2d Ann. Rept., pp. 564-565. 1891.
Cambrian. Texas. Included in Upper Cambrian. Exact syn. Potsdam.
- Katemcy, Walcott. U. S. Geol. Surv., Bull. No. 81, p. 246. 1891.
Cambrian. Texas.
- Kearsarge** andalusite group, Hitchcock. Geol. of New Hampshire, pt. ii, pp. 585-588, 627. 1877.
Paleozoic. New Hampshire.
- Kearsarge group, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, 1881-86, p. 179. 1884.
Vermont and New Hampshire.
- Kearsarge schists, Hitchcock. Jour. of Geol., vol. iv, p. 54. 1896.
Algonkian or Cambrian. New Hampshire.
- Kearsarge conglomerate, Hubbard. Mich. Geol. Surv., vol. vi, pt. ii, p. 85. 1898.
Algonkian. Michigan.
- Keewatin** series, Lawson. Can. Geol. Surv., new ser., vol. i, pp. 10CC-15CC, 61CC-85CC, 101CC-130CC. 1886.
Archean. Canada. Part. syn. Huronian(?).
- Keewatin, Winchell. Minn. Geol. and Nat. Hist. Surv., 16th Ann. Rept., 336-344. 1888.
Minnesota.

Keewatin series, Winchell. Minn. Geol. and Nat. Hist. Surv., 17th Ann. Rept., pp. 14, 19. 1889.

Huronian. Minnesota.

Keewatin schists, Winchell. Minn. Geol. and Nat. Hist. Surv., 17th Ann. Rept. p. 37. 1889.

Minnesota.

Keewatin series, Lawson. Can. Geol. Surv., new ser., vol. iii, pt. i, pp. 22F-99F. 1889.

Archean. Canada.

Keewatin, Winchell. Geol. Soc. Am., Bull., vol. ii, p. 109. 1890.

Huronian(?). Canada.

Keewatin, Winchell. Minn. Acad. Nat. Sci., vol. iii, pt. ii, p. 278. 1891.

Minnesota.

Keewatin series, Smith. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 17G, 56G-70G. 1893.

Archean. Canada. Part. syn. Huronian(?).

Keewatin series, Ontario. Geol. Soc. Am., Bull., vol. iv, pp. 333, 341, 342-344. 1893.

Laurentian. Ontario.

Keewatin series, Spurr. Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., p. 120. 1894.

Minnesota.

Keewatin, Grant. Science, vol. xxiii, p. 17. 1894.

Huronian (Lower). Minnesota.

Keewatin, Selwyn. Science, vol. xxiii, p. 107. 1894.

Silurian. Canada. Included in Quebec group.

Keewatin, Winchell and Grant. Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., p. 63. 1895.

Minnesota. Included in Ontarian.

Keewatin, McInnes. Can. Geol. Surv., new ser., vol. x, pp. 18H-20H. 1898.

Ontario.

Keewatin, Coleman. Geol. Soc. Am., Bull., vol. ix, p. 224. 1898.

Algonkian. Ontario. Included in Ontarian.

Keewatin, Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 178. 1899.

Minnesota.

Keewatin, Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 423, 467. 1899.

Archean. Minnesota.

Keewatin, Winchell and Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 199. 1899.

Minnesota. Included in Ontarian.

Keewatin, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 270, 384, 524. 1899.

Minnesota. Includes Upper and Lower Keewatin.

Keewatin (in part), Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.

Algonkian. Ontario. Included in Lower Huronian. Part. syns. Lower Vermilion, Lower Marquette, Felch Mountain, Menominee, and Black River Falls schist.

Keewatin, lower, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. v, p. 13. 1900.

Archean. Minnesota. Exact syn. Kawishiwin series.

Kenai group, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 234. 1892.

Tertiary. Alaska. Includes Unga conglomerate, Lignitic beds.

Kenai group, Knowlton. Geol. Soc. Am., Bull., vol. v, p. 587. 1894.

Tertiary. Alaska. Included in Eocene.

Kenai formation, Dall. U. S. Geol. Surv., 17th Ann. Rept., pt. i, pp. 772, 836. 1896.

Tertiary. Alaska. Included in Oligocene.

Kenai series, Emmons. Nat. Geog. Mag., vol. ix, p. 158. 1898.

Tertiary. Alaska. Included in Eocene.

Kenai series, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 184-195. 1898.

Tertiary. Alaska. Included in Eocene.

Kenai group, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 345. 1898.

Tertiary. Alaska. Included in Chichasawan stage, Eocene.

Kenai formation, Smith. Jour. of Geol., vol. viii, pp. 456-457. 1900.

Tertiary. Alaska. Included in Eocene.

Kenai formation, Eldridge. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 16-17. 1900.

Tertiary. Alaska. Included in Oligocene.

Kenai series, Schrader. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 477. 1900.
Alaska.

Kendall Green slate, Hobbs. Am. Geol., vol. xxiii, p. 110. 1899.

Cambrian. Massachusetts.

Kennett limestone and shale, Smith. Jour. of Geol., vol. ii, pp. 591-593. 1894.

Devonian. California. Included in Sacramento formation.

Kennett limestone, Rand. Phil. Acad. Nat. Sci., Proc., 1900, pp. 235-242. 1900.
Pennsylvania.

Kentucky shale, Shaler. Ky. Geol. Surv., new ser., vol. iii, pp. 183-186. 1877.

Carboniferous. Kentucky. Includes Subconglomerate Coal Measures.

Kentucky marble, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery counties, 1884.

Silurian or Cambrian. Kentucky. Included in Birdseye limestone.

Kenwood beds, Norton. Iowa Acad. Sci., Proc., vol. i, pt. iv., p. 23. 1894.

Devonian. Iowa. Exact syn. Independence shale.

Kenwood beds, Norton. Iowa Geol. Surv., vol. iv., pp. 156-157. 1895.

Devonian. Iowa. Included in Wapsipinicon stage.

Keokuk, Hall. Am. Assoc. Adv. Sci., Proc., vol. x, p. 54. 1856.

Carboniferous. Mississippi Valley. Exact syn. Lower Archimides.

Keokuk limestone, Worthen. Iowa Geol. Surv., vol. i, pp. 193, 202, 216, 228. 1858.

Carboniferous. Iowa.

Keokuk limestone, Hall. Iowa Geol. Surv., vol. i, p. 94. 1858.

Carboniferous. Iowa. Exact syn. Archimides limestone.

Keokuk limestone, Worthen. Iowa Geol. Surv., vol. i, pt. i, pp. 193-194, 202, 216-217, 228. 1858.

Carboniferous. Iowa.

Keokuk limestone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 94-96. 1858.

Carboniferous. Iowa. Exact syn. Archimides limestone.

Keokuk limestone, White. Boston Jour. Nat. Hist., vol. vii, 1859-1863, p. 224. 1860.
Iowa.

Keokuk limestone, Hall. Albany Inst., Trans., vol. iv, pp. 2-3. 1864.

Carboniferous. Mississippi Valley. Exact syn. Lower Archimides limestone.

Keokuk group, Worthen. Ill. Geol. Surv., vol. i, pp. 89-102, 334-337, 352. 1866.

Carboniferous. Illinois. Included in Subcarboniferous. Exact syn. Siliceous group.

Keokuk limestone, Worthen. Ill. Geol. Surv., vol. iii, pp. 112-113, 128-129, 140. 1868.

Carboniferous. Illinois.

- Keokuk limestone, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 189. 1868.
Lower Carboniferous. Illinois.
- Keokuk limestone, Green. Ill. Geol. Surv., vol. iv, p. 279. 1870.
Carboniferous. Illinois.
- Keokuk limestone, Worthen. Ill. Geol. Surv., vol. iv, pp. 14, 31, 53, 69, 84. 1870.
Carboniferous. Illinois.
- Keokuk limestone, White. Iowa Geol. Surv., vol. i, pp. 210-215. 1870.
Carboniferous. Iowa. Included in Subcarboniferous group. Exact syn. Lower Archimides limestone.
- Keokuk limestone, Worthen. Ill. Geol. Surv., vol. v, pp. 261, 277-278. 1873.
Carboniferous. Illinois.
- Keokuk group, Broadhead. Mo. Geol. Surv., Rept. 1873-74, pp. 25, 68, 99, 184. 1874.
Carboniferous. Missouri. Included in Lower Carboniferous, Mountain limestone.
- Keokuk group, Broadhead. Mo. Geol. Surv., Rept. 1873-1874, pp. 25, 68. 1874.
Lower Carboniferous. Missouri.
- Keokuk group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. iv, p. 286. 1881.
- Keokuk, Beachler. Am. Geol., vol. ii, p. 407. 1888.
Carboniferous. Indiana. Included in Eocarboniferous.
- Keokuk series, Vogdes. N. Y. Acad. Sci., Annals, vol. iv, p. 72. 1889.
Carboniferous. Mississippi Valley. Exact syn. Siliceous series of Tennessee.
- Keokuk group, Miller. N. A. Geol. and Pal., p. 70. 1889.
- Keokuk limestone, Ladd. Mo. Geol. Surv., Bull., No. 3, pp. 14, 15. 1890.
Lower Carboniferous. Missouri.
- Keokuk, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 54. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Keokuk beds, Gordon. Am. Jour. Sci., 3d ser., vol. xl, pp. 295-300. 1890.
Carboniferous. Iowa.
- Keokuk series, Orton. Ky. Geol. Surv., Rept. on Petroleum, etc., p. 134. 1891.
Carboniferous. Kentucky. Exact syn. Knobstone group.
- Keokuk, Beachler. Am. Geol., vol. x, p. 88. 1892.
Carboniferous. Ohio and Mississippi valleys. Includes Cherty bed, Keokuk limestone, Geode bed, Magnesian or Second Archimides of Owen, and Warsaw of Hall.
- Keokuk, Gordon. Am. Geol., vol. ix, p. 185. 1892.
Carboniferous. Iowa.
- Keokuk, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 292. 1892.
Lower Carboniferous. Missouri. Included in Osage limestone.
- Keokuk limestone, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 66-69, 76. 1894.
Lower Carboniferous. Missouri. Included in Augusta stage.
- Keokuk limestone, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Lower Carboniferous. Missouri. Included in Augusta stage.
- Keokuk, Gordon. Iowa Geol. Surv., vol. iv, pp. 211-213. 1895.
Carboniferous. Iowa.
- Keosauqua** sandstone, Gordon. Jour. of Geol., vol. iii, pp. 304-305. 1895.
Carboniferous. Iowa. Included in St. Louis group.
- Kessler** limestone, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 103-106, 152. 1888.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Kessler limestone, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 354. 1897.
Carboniferous. Indian Territory. Included in Boston group of Lower Carboniferous.
- Kettleman** lake bed, Cooper. Cal. Acad. of Sci., Proc. for 1893-94, 2d ser., vol. iv, p. 167. 1895.
Pliocene. California.

- Keweenawan**, Irving. *Am. Jour. Sci.*, 3d ser., vol. xvii, pp. 395-398. 1879.
Archean. Michigan.
- Keweenawan**, Sweet. *Geol. of Wis.*, vol. iii, pp. 336-350. 1880.
Wisconsin.
- Keweenawan**, Whittlesey. *Geol. of Wis.*, vol. iii, pp. 216-223. 1880.
Wisconsin.
- Keweenawan system**, Irving. *Geol. of Wis.*, vol. iii, pp. 167-206. 1880.
Wisconsin. Exact syn. Copper-bearing system.
- Keweenawan system**, Irving. *Geol. of Wis.*, vol. iii, pp. 7-15. 1880.
- Keweenawian group**, Wadsworth. *Harvard Coll. Mus. Comp. Zool., Bull.*, vol. vii, 1880-1884, p. 99. 1880.
Includes Copper-bearing series of Luke Superior.
- Keweenaw series**, Strong. *Geol. of Wis.*, vol. iii, pp. 391-395. 1880.
Wisconsin. Exact syn. Copper-bearing series.
- Keweenawan system**, Pumpelly. *Geol. of Wis.*, vol. iii, pp. 29-49. 1880.
Wisconsin.
- Keweenaw series**, Irving. *U. S. Geol. Surv., Mon.*, vol. v. 1883.
Algonkian. Lake Superior region.
- Keweenawan**, Chamberlin. *Geol. of Wis.*, vol. i, p. 96. 1883.
Archean. Wisconsin.
- Keweenawan series**, Irving. *U. S. Geol. Surv.*, 3d Ann. Rept., p. 93. 1883.
Algonkian. Lake Superior region.
- Keweenawan formation**, Chamberlin. *Geol. of Wis.*, vol. i, pp. 96-118. 1883.
Huronian. Wisconsin. Exact syn. Copper-bearing series.
- Keweenawan series**, Wadsworth. *Boston Soc. Nat. Hist., Proc.*, vol. xxiii, 1884-1888, p. 172. 1884.
Michigan.
- Keweenawian**, Hunt. *Smithsonian Ann. Rept.*, 1882, p. 336. 1884.
Archean. Michigan. Included in Eozoic. Exact syn. Keweenaw group.
- Keweenaw series**, Irving and Chamberlin. *U. S. Geol. Surv., Bull.*, No. 23. 1885.
Algonkian. Michigan.
- Keweenawan series**, Herrick, Tight, and Jones. *Denison Univ. Sci. Lab., Bull.*, vol. ii, p. 124. 1887.
Michigan.
- Keweenawian**, Winchell. *Minn. Geol. and Nat. Hist., Surv.*, 17th Ann. Rept., p. 14. 1889.
Minnesota. Exact syn. Keweenawan.
- Keweenawian**, Winchell. *Geol. Soc. Am., Bull.*, vol. ii, p. 109. 1890.
Huronian (?). Canada.
- Keweenawan**, Meeds. *Minn. Acad. Nat. Sci.*, vol. iii, pt. ii, pp. 274-277. 1891.
Minnesota.
- Keweenaw series**, Van Hise. *Jour. of Geol.*, vol. i, pp. 124-127. 1893.
Algonkian. Lake Superior region.
- Keweenaw series**, Van Hise. *Int. Cong. of Geol.*, 5th session, pp. 506-507. 1893.
Algonkian. Lake Superior region.
- Keweenawian**, Dawson. *Geol. Soc. Am. Bull.*, vol. v, p. 103. 1894.
Archean (?). Canada.
- Keweenawan**, Grant. *Am. Geol.*, vol. xiii, p. 437. 1894.
Archean. Lake Superior region.
- Keweenawan**, Winchell. *Am. Geol.*, vol. xvi, pp. 75, 150. 1895.
Archean. Lake Superior region.
- Keweenawan**, Grant. *Am. Geol.*, vol. xv, p. 192. 1895.
Archean. Lake Superior. Included in Copper-bearing rocks. Exact syn. Nipigon.

- Keweenaw group, Hubbard. Mich. Geol. Surv., vol. v, p. 85. 1895.
Michigan.
- Keweenawan series, Wadsworth. Am. Inst. Mg. Engrs., Trans., vol. xxvii, p. 687. 1898.
Lake Superior region.
- Keweenawan series, Elftman. Am. Geol., vol. xxii, pp. 131-149. 1898.
Algonkian. Minnesota. Includes Beaver Bay diabase, Redrock member, Temperance River member.
- Keweenawan series, Elftman. Am. Geol., vol. xxi, pp. 175-188. 1898.
Algonkian. Great Lakes region.
- Keweenawan, Lane. Mich. Geol. Surv., vol. vi, pt. i, pp. 219-266. 1898.
Archean. Michigan.
- Keweenaw series, Hubbard. Mich. Geol. Surv., vol. vi, pt. i, pp. 57-58, 97. 1898.
Algonkian. Michigan.
- Keweenawan, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.
Algonkian. Michigan. Part. syn. Nipigon of Ontario.
- Keweenawan, Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 325, 418, 457, 476, 488, 494. 1899.
Cambrian. Minnesota. Includes Cabotian, Puckwunge conglomerate, and Manitou.
- Keweenawan, Grant. Wis. Geol. and Nat. Hist. Surv., Bull., No. 6, Econ. ser., No. 3, pp. 8-16. 1900.
Wisconsin. Includes Upper and Lower Keweenawan.
- Kiamitia** clays, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 515. 1891.
Cretaceous. Texas. Included in Washita division.
- Kiamitia clay, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 344-345. 1892.
Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.
- Kiamitia clay, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 258-261. 1893.
Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.
- Kibbey** sandstone, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 295. 1900.
Carboniferous. Montana. Included in Quadrant group.
- Kiger**, Cragin. Colo. College Stud., vol. vi, pp. 3, 39. 1896.
Permian. Kansas. Included in Upper division of Cimarron series.
- Kiger division, Cragin. Am. Geol. vol. xix, pp. 358-363. 1897.
Permian. Kansas, Oklahoma. Included in Cimarron series. Includes Taloga, Day Creek, and Red Bluff formations.
- Kiger division, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 94-95. 1897.
Permian (?). Kansas. Included in Cimarron series.
- Kimberling** shale, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 177. 1894.
Devonian. Virginia.
- Kimberling shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
Devonian. Virginia and West Virginia.
- Kimberling shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Devonian. Virginia and West Virginia.
- Kinderhook** group, Worthen. Ill. Geol. Surv., vol. 1, pp. 43-44, 108-118. 1866.
Carboniferous. Illinois. Included in Subcarboniferous limestone. Includes Choteau limestone, Lithographic limestone, Vermicular sandstones and shales of Missouri and Goniatile limestone.
- Kinderhook limestone, White. Am. Jour. Sci., 2d ser., vol. xlv, p. 333. 1868.
Devonian. Iowa.
- Kinderhook group, Worthen. Ill. Geol. Surv., vol. iii, p. 115. 1868.
Carboniferous. Illinois.

- Kinderhook group, Green. Ill. Geol. Surv., vol. iv, p. 285. 1870.
Carboniferous. Illinois.
- Kinderhook group, Worthen. Ill. Geol. Surv., vol. iv, pp. 9, 27, 57. 1870.
Carboniferous. Illinois.
- Kinderhook beds, White. Iowa Geol. Surv., vol. i, pp. 191-201. 1870.
Carboniferous. Iowa. Included in Subcarboniferous group. Exact syn. Chemung group.
- Kinderhook group, Worthen. Ill. Geol. Surv., vol. v, p. 279. 1873.
Carboniferous. Illinois.
- Kinderhook group, Williams. Am. Jour. Sci., 3d ser., vol. xxv, pp. 97-104. 1883.
Carboniferous. Mississippi Valley.
- Kinderhook, Calvin. Am. Geol., vol. iii, pp. 25-36. 1889.
Carboniferous. Iowa.
- Kinderhook, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous. Includes Chouteau and lithographic limestone (Missouri), Gonetite limestone (Indiana), and Iowa marble.
- Kinderhook, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 287. 1892.
Lower Carboniferous. Missouri. Included in Mississippian. Includes Louisiana limestone, Hannibal shale, and Chouteau limestone. Part. syns. Waverly, Marshall.
- Kinderhook beds, Keyes. Iowa Geol. Surv., vol. i, pp. 50-59. 1893.
Carboniferous. Iowa. Included in Mississippian series. Includes Chouteau limestone, Hannibal shales, and Louisiana limestone.
- Kinderhook stage, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 48-58. 1894.
Lower Carboniferous. Missouri. Includes Chouteau limestone, Hannibal shale, and Louisiana limestone.
- Kinderhook stage, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Lower Carboniferous. Missouri. Included in Mississippian. Includes Chouteau limestone, Hannibal shale, and Louisiana limestone.
- Kinderhook shale, Keyes. Iowa Geol. Surv., vol. iii, pp. 339-340, 431-439. 1895.
Carboniferous. Iowa. Included in Mississippian series.
- Kinderhook, Bain. Iowa Geol. Surv., vol. v, pp. 131-140. 1896.
Carboniferous. Iowa. Included in Mississippian series. Includes Wassonville limestone, English River gritstone, and Maple Hill shale.
- Kinderhook, Keyes. Am. Geol., vol. xx, pp. 167-176. 1897.
Carboniferous. Mississippi Valley.
- Kinderhook stage, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 82. 1898.
Lower Carboniferous. Missouri. Includes Chouteau limestone, Hannibal shale, and Louisiana limestone.
- Kinderhook beds, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, p. 160. 1898.
Lower Carboniferous. Missouri. Included in Mississippian series.
- Kinderhook, Macbride. Iowa Geol. Surv., vol. ix, p. 123. 1899.
Carboniferous. Iowa. Included in Mississippian series.
- Kinderhook, Keyes. Jour. of Geol., vol. viii, pp. 315-321. 1900.
Carboniferous. Mississippi Valley.
- Kinderhook, Beyer. Iowa Geol. Surv., vol. x, p. 264. 1900.
Carboniferous. Iowa. Included in Mississippian series.
- Kinderhook, Weller. Iowa Geol. Surv., vol. x, pp. 63-79. 1900.
Devonian-Carboniferous. Iowa.
- Kinderhook, Keyes. Am. Geol., vol. xxvi, pp. 315-321. 1900.
Carboniferous. Mississippi Valley.
- Kinderhook, Keyes, Jour. of Geol., vol. 8, pp. 315-321. 1900.
Carboniferous. Mississippi Valley region.

- King** limestone, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 71-74. 1898.
Devonian. Missouri. Included in Hamilton stage.
- Kingfisher** formation, Cragin. Am. Geol. vol. xix, pp. 352-355. 1897.
Permian. Kansas, Oklahoma. Included in Salt Fork division of Cimarron series.
Includes Salt Plain and Harper formations.
- Kings Mill** sandstone, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 73-77. 1885.
Devonian. Pennsylvania. Included in Catskill.
- Kings Mill** sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1560-1561. 1892.
Devonian. Pennsylvania. Included in Chemung.
- Kings Mountain** series, Lieber. Survey of S. C., 1858, pp. 20-30. 1858.
Paleozoic(?). South Carolina.
- Kingsdown** marls, Cragin. Colo. College Stud., vol. vi, p. 54. 1896.
Tertiary. Kansas. Included in Tule division of Cummins, Equus beds of Cope.
- Kingston** group, Bailey and Matthew. Can. Geol. Surv., Rept., 1870-71, pp. 122-138. 1873.
Archean. New Brunswick. Included in Huronian.
- Kingston** series, Bailey and Matthew. Can. Geol. Surv., Rept., 1874-75, pp. 85-86. 1876.
Huronian. New Brunswick.
- Kingston** series, Matthew. Can. Geol. Surv., Rept., 1876-77, p. 336. 1878.
Archean. New Brunswick.
- Kingston** group, Matthew. Can. Geol. Surv., Rept., 1876-77, pp. 336-338. 1878.
Silurian. New Brunswick. Included in Upper Silurian.
- Kingston** group, Bailey, Matthew and Ells. Can. Geol. Surv., Rept., 1878-79, pp. 4D-6D. 1879.
Archean. New Brunswick. Included in Huronian.
- Kingston** series, Matthew. Can. Geol. Surv., Rept., 1877-78., p. 3E. 1879.
Archean. New Brunswick. Included in Huronian.
- Kingston** conglomerate, Hubbard. Mich. Geol. Surv., vol. vi, pt. ii, pp. 85-86. 1898.
Algonkian. Michigan. Exact. syn. Kearsarge conglomerate.
- Kingston** formation, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, p. 88. 1899.
Pleistocene. Jamaica. Included in Coastal series.
- Kingston** beds, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Devonian. New York. Included in Helderbergian.
- Kingstown** series, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 331-348. 1899.
Carboniferous. Rhode Island.
- Kinzua** Creek sandstone, Ashburner. 2d Pa. Geol. Surv., Rept. R², pp. 389-390. 1885.
Carboniferous. Pennsylvania.
- Kiowa** shales, Cragin. Colo. College Stud., vol. v, p. 49. 1894.
Cretaceous. Kansas. Included in Comanche series.
- Kiowa** shale, Cragin. Am. Geol., vol. xv, p. 371. 1895.
Cretaceous. Kansas. Included in Belvidere beds. Includes Tucumcari shale and Fullington shales.
- Kiowa** shales, Prosser. Kansas Univ. Geol. Surv., vol. ii, pp. 114-117. 1897.
Lower Cretaceous. Kansas. Included in Washita division of Comanche series.
Includes Fullington shales and Tucumcari shales.
- Kiowa** shales, Gould. Am. Jour. Sci., 4th ser., vol. v, pp. 169-174. 1898.
Cretaceous. Kansas. Included in Comanche series.
- Kirby** clays, Gould. Am. Jour. Sci., 4th ser., vol. v, pp. 170-174. 1898.
Cretaceous. Kansas. Included in Medicine beds.

Kitchi schist, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 496. 1895.

Archean. Lake Superior region. Exact syn. Mona schist.

Kitchi schists, Bayley. U. S. Geol. Surv., Mon., vol. xxviii, pp. 160-168. 1897.

Archean. Michigan. Included in Basement complex.

Kitchi schists, Van Hise. Geol. Soc. Am., Bull., vol. ix, p. 307. 1898.

Archean. Michigan.

Kittanning coal, Lesley. Manual of Coal, p. 99. 1856.

Kittanning coal, Rogers. Geol. of Pa., vol. ii, p. 477. 1858.

Kittanning group, Lesley. 2d Pa. Geol. Surv., Rept. Q, p. xvii. 1878.

Carboniferous. Pennsylvania.

Kittanning sandstone, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 319. 1880.

Carboniferous. Pennsylvania.

Kittanning group, Chance. Pa. Geol. Surv., Rept. V², pp. 41-49. 1880.

Carboniferous. Pennsylvania. Included in Lower Productive Measures. Includes Johnstown cement limestones.

Kittanning fireclay, White. U. S. Geol. Surv., Bull. No. 65, p. 171. 1891.

Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Lower Coal Measures, Allegheny River series.

Kittanning sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 172. 1891.

Carboniferous. Pennsylvania. Included in Lower Coal Measures, Allegheny River series.

Kittanning coal, White. U. S. Geol. Surv., Bull. No. 65, p. 164. 1891.

Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Lower Coal Measures, Allegheny River series.

Kittanning clay and shales, Middle, Orton. Ohio Geol. Surv., vol. vii, pp. 63, 66. 1893.

Carboniferous. Ohio.

Kittanning clay, Orton. Ohio Geol. Surv., vol. vii, pp. 63, 65. 1893.

Carboniferous. Ohio.

Kittanning group, White. Geol. Soc. Am., Bull., vol. xi, pp. 150-153. 1900.

Carboniferous. Pennsylvania. Included in Allegheny series.

Kittitas, Russell. U. S. Geol. Surv., Bull. No. 108, p. 20. 1893. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, p. 118 (footnote). 1900.

Tertiary. Washington.

Klondike series, McConnell. Can. Geol. Surv., Rept. on Klondike gold fields, pp. 8-9. 1900.

Canada.

Klutena series, Schrader. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, p. 410. 1900.

Alaska.

Knob sandstone, Owen. Rept. Geol. Recon. Indiana, 1859 and 1860, p. 108. 1862.

Carboniferous. Indiana.

Knob sandstone, limestone and shale, Borden. Indiana Geol. Surv., 5th Ann. Rept. for 1873, pp. 165, 166, 168, 170, 172. 1873.

Indiana. Exact syn. Ohio Waverly sandstone.

Knob sandstone, Cox. Indiana Geol. Surv., 6th Ann. Rept. for 1874, p. 44. 1875.

Indiana.

Knob sandstone and shale, Borden. Indiana Geol. Surv., 6th Ann. Rept., for 1874, pp. 118, 119. 1875.

Indiana.

Knob sandstone, Brown. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept., for 1883, p. 75. 1884.

Carboniferous. Indiana.

Knobstone, Owen. Ky. Geol. Surv., vol. ii, p. 351. 1857.

Carboniferous. Kentucky. Included in Subcarboniferous.

- Knobstone beds, Lyon. St. Louis Acad. Sci., Trans., vol. i, p. 619. 1857.
Subcarboniferous. Kentucky.
- Knobstone formation, Owen. Rept. Geol. Recon. State of Indiana (in 1837), p. 23. 1859.
Indiana.
- Knobstone beds, Collett. Indiana Geol. Surv., 5th Ann. Rept. for 1873, pp. 198, 279. 1874.
Indiana. Exact syns. Chemung group (Iowa), Waverly group (Ohio), and Kinderhook group (Illinois).
- Knobstone shales, Collett. Indiana Geol. Surv., 6th Ann. Rept. for 1874, p. 87. 1875.
Indiana.
- Knobstone group, Collett. Indiana Geol. Surv., 7th Ann. Rept. for 1875, pp. 303, 310, 318, 372, 374. 1876.
Carboniferous. Indiana.
- Knobstone group, Greene. Indiana Dept. Stat. and Geol., 2d Ann. Rept. for 1880, p. 432. 1880.
Indiana.
- Knobstone group, Collett. Indiana Dept. Stat. and Geol., 2d Ann. Rept. for 1880, p. 417. 1880.
Indiana.
- Knobstone group, Elrod. Indiana Dept. Geol. and Nat. Hist., 11th Ann. Rept., 1881, pp. 174, 198. 1882.
Carboniferous. Indiana.
- Knobstone group, M'Cashin. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept., 1883, pp. 120, 128. 1884.
Carboniferous. Indiana.
- Knobstone group, Thompson. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept., 1886, p. 18. 1886.
- Knobstone group, Gorby. Indiana Dept. Geol. and Nat. Hist., 15th Ann. Rept., 1886, pp. 122, 124. 1886.
Carboniferous. Indiana.
- Knobstone group, Hopkins and Siebenthal. Indiana Dept. Geol. and Nat. Resources, 21st Ann. Rept. for 1896, p. 295. 1897.
Carboniferous. Indiana.
- Knobstone group, Jones. Indiana Acad. Sci., Proc., 1897, p. 257. 1898.
Indiana.
- Knobstone group, Price. Indiana Acad. Sci., Proc., 1897, p. 263. 1898.
Indiana.
- Knobstone group, Bennett. Indiana Acad. Sci., Proc., 1897, p. 258. 1898.
Indiana.
- Knobstone group, Newsom. Ind. Acad. Sci., Proc., 1897, pp. 251, 253. 1898.
Indiana.
- Knobstone group, Blatchley and Ashley. Indiana Dept. Geol. and Nat. Resources, 22d Ann. Rept., 1897, pp. 16, 20. 1898.
Carboniferous. Indiana.
- Knobstone formation, Kindle. Indiana Dept. Geol. and Nat. Resources, 22d Ann. Rept., 1897, p. 408. 1898.
Carboniferous. Indiana.
- Knobstone shales, Blatchley. Indiana Dept. Geol. and Nat. Resources, 22d Ann. Rept., 1897, p. 10. 1898.
Indiana.
- Knobstone group, Ashley. Indiana Dept. Geol. and Nat. Resources, 23d Ann. Rept., 1898, pp. 74, 79. 1899.
Carboniferous. Indiana.

Knox group, Safford. Geol. of Tenn., by Safford, pp. 203-226. 1869.

Silurian. Tennessee. Included in Potsdam group. Includes Knox sandstone, Knox shale, and Knox dolomite.

Knox sandstone, Safford. Geol. of Tenn. by Safford, pp. 209-210. 1869.

Silurian. Tennessee. Included in Knox group.

Knox shale, Safford. Geol. of Tenn., by Safford, pp. 210-214. 1869.

Silurian. Tennessee. Included in Knox group.

Knox dolomite, Safford. Geol. of Tenn., by Safford, pp. 214-226. 1869.

Silurian. Tennessee. Included in Knox group.

Knox sandstone, Killebrew and Safford. Resources of Tenn., pp. 30-31. 1874.

Silurian. Tennessee. Included in Quebec period.

Knox shale, Killebrew and Safford. Resources of Tenn., p. 31. 1874.

Silurian. Tennessee. Included in Quebec period.

Knox dolomite, Killebrew and Safford. Resources of Tenn., pp. 31-32. 1874.

Silurian. Tennessee. Included in Quebec period.

Knox group, Bradley. Am. Jour. Sci., 3d ser., vol. ix, pp. 281-283. 1875.

Silurian. Tennessee. Part. syns. Saccharoidal sandstone of Missouri, Quebec group, and Calciferous sandrock.

Knox group, Smith. Ala. Geol. Surv., Rept. 1875, pp. 16, 84, 103, 135, 178. 1876.

Silurian. Alabama. Included in Calciferous, Quebec. Includes Knox sandstone shale and dolomite.

Knox dolomite, McCalley. Ala. Geol. Surv., Rept. 1879-1880, pp. 141, 145. 1881.

Silurian. Alabama. Exact syn. Quebec.

Knox group, Stevenson. The Virginias, vol. ii, p. 27. 1881.

Silurian. Virginia.

Knox dolomite, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1889.

Ordovician. Tennessee. Exact syn. Quebec (?).

Knox group, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 50. 1890.

Silurian. Arkansas. Part. syn. Quebec.

Knox dolomite, Smith. Ala. Geol. Surv., Rept. on Cahaba coal field, p. 150. 1890.

Silurian. Alabama.

Knox dolomite, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., pp. 108-189. 1891.

Cambro-Silurian. Georgia.

Knox shales series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., pp. 101, 106-107. 1891.

Cambrian. Georgia. Included in Cambrian. Exact syn. Connasauga shales.

Knox sandstone series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., 1890-91, p. 101. 1891.

Cambrian. Georgia.

Knox dolomite series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., pp. 108-109. 1891.

Ordovician. Georgia. Included in Cambro-Silurian.

Knox, Walcott. U. S. Geol. Surv., Bull. No. 21, pp. 137, 147, 301, 307. 1891.

Cambrian. Appalachian region.

Knox dolomite, Hayes. Ala. Geol. Surv., Bull. No. 4, p. 41. 1892.

Silurian. Alabama.

Knox dolomite, Spencer. Ga. Geol. Surv., The Paleozoic group, pp. 42, 78, 92, 102, 109, 112, 116, 119, 123, 130, 152. 1893.

Silurian. Georgia. Included in Lower Silurian. Exact syn. Calciferous.

Knox dolomite, Gibson. Ala. Geol. Surv., Geol. Structure of Murphrees Valley, pp. 25, 91. 1893.

Silurian. Alabama.

Knox dolomite, Hayes. Geol. Soc. Am., Bull., vol. v., p. 467. 1894.

Siluro-Cambrian. Georgia.

Knox dolomite, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 8, 19, 20, 21, 35. 1894-5-6.

Silurian. Georgia, Tennessee, and Alabama.

Knox dolomite, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.

Cambrian-Silurian. Kentucky, Virginia, and Tennessee.

Knox dolomite, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.

Silurian. Tennessee and North Carolina.

Knox dolomite, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.

Silurian. Tennessee.

Knox dolomite, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896. Silurian. Alabama.

Knox dolomite, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Cambro-Silurian. Virginia and West Virginia.

Knox dolomite, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899. Cambro-Silurian. Virginia and Tennessee.

Knoxville, Becker. U. S. Geol. Surv., Bull. No. 19, p. 18. 1885.

California. Exact syn. Mariposa.

Knoxville beds (group), Becker. Geol. Soc. Am., Bull., vol. ii, p. 202. 1891.

Cretaceous. California.

Knoxville beds, Diller. Geol. Soc. Am., Bull., vol. iv, p. 205. 1893.

Cretaceous. California.

Knoxville beds, Diller and Stanton. Geol. Soc. Am., Bull., vol. v, p. 435. 1894.

Cretaceous. California.

Knoxville, Hyatt. Geol. Soc. Am., Bull., vol. v, p. 406. 1894.

Cretaceous. California.

Knoxville, Stanton. U. S. Geol. Surv., Bull. No. 133. 1895.

Cretaceous. Pacific Coast region.

Knoxville beds, Fairbanks. Jour. of Geol., vol. vi, pp. 559-560. 1898.

Cretaceous. California.

Koipato, Hague. U. S. Geol. Expl. 40th Parallel, vol. ii, pp. 644, 661, 716-733, 752. 1877.

Juratias. Nevada.

Koipato, King. U. S. Geol. Expl. of 40th Parallel, vol. i, p. 544. 1878.

Juratias. Colorado, Utah. Included in Red beds, Triassic.

Kolmakof series, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 161-163, 182. 1900.

Cretaceous. Alaska.

Kome series, White and Schuchert. Geol. Soc. Am., Bull., vol. ix, p. 345. 1898.

Cretaceous. Greenland. Included in Potomac formation, Lower Cretaceous.

Komooks beds, Meek. Phil. Acad. Nat. Sci., Proc., vol. xiii, p. 315. 1862.

Cretaceous. Vancouver Island.

Kona dolomite, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 523. 1895.

Algonkian. Lake Superior region. Included in Lower Marquette series.

Kona dolomite, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 240-255. 1897.

Algonkian. Michigan. Included in Lower Marquette series.

Kootanie series, Dawson. Can. Geol. Surv., new ser., vol. i, pp. 126B-134B, 162B-167B. 1886.

Cretaceous. Canada.

Kootanie group, McConnell. Can. Geol. Surv., new ser., vol. ii, pp. 15D-17D. 1887.

Cretaceous. Canada.

Kootanie formation, Dawson. *Am. Jour. Sci.*, 3d ser., vol. xxxviii, pp. 120-127. 1889.

Cretaceous. British Columbia.

Kootanie, White. *U. S. Geol. Surv.*, Bull. No. 82, pp. 168, 254. 1891.

Cretaceous. Rocky Mountains. Included in Lower Cretaceous.

Kootanie, Weed. *Geol. Soc. Am.*, Bull., vol. iii, pp. 301, 309-310. 1892.

Cretaceous. Montana.

Kootanie formation, Dawson. *Can. Roy. Soc.*, Trans., 1892, vol. x, sec. iv., pp. 82-93. 1893.

Cretaceous. British Columbia.

Kootanie, Weed and Pirsson. *U. S. Geol. Surv.*, Bull. No. 139, p. 44. 1896.

Cretaceous. Montana.

Kootanie formation, Stanton. *Jour. of Geol.*, vol. v, pp. 593-594. 1897.

Cretaceous. Included in Lower Cretaceous.

Kootanie, Weed. *U. S. Geol. Surv.*, 18th Ann. Rept., pt. iii, pp. 477, 480-482. 1898.

Cretaceous. Montana.

Kotlo series, Brooks. *U. S. Geol. Surv.*, 21st Ann. Rept., pt. ii, p. 357. 1900. Alaska.

Kowak clay, Dall and Harris. *U. S. Geol. Surv.*, Bull. No. 84, p. 265. 1892.

Pleistocene. Alaska.

Kowak clays, Dall. *U. S. Geol. Surv.*, 18th Ann. Rept., pt. ii, p. 335. 1898.

Pleistocene. Alaska.

Kuskokwim gravels, Spurr. *U. S. Geol. Surv.*, 20th Ann. Rept., pt. vii, pp. 175-176. 1900.

Pleistocene. Alaska.

La Biche shales, McConnell. *Can. Geol. Surv.*, new ser., vol. v., pt. i, pp. 27D-28D. 1893.

Cretaceous. Canada. Included in Colorado group (lower part), Montana group (upper part).

La Grange group, Safford. *Am. Jour. Sci.*, 2d ser., vol. xxxvii, pp. 369-370. 1864.

Tertiary. Tennessee. Exact syn. Orange sand.

La Grange group, Killebrew and Safford. *Resources of Tenn.*, p. 44. 1874.

Tertiary. Tennessee.

La Grange, Heilprin. *Phil. Acad. Nat. Sci.*, Jour., vol. ix, pp. 153-154. 1884.

Tertiary. Tennessee. Included in Eocene.

La Grange group, Loughridge. *Ky. Geol. Surv.*, Jackson Purchase region, pp. 52-57. 1888.

Neocene(?). Kentucky. Exact syn. La Grange.

Lagrange beds, Dall. *Wagner Free Inst. Sci.*, Trans., vol. iii, pt. ii, p. 209. 1892.

Pliocene. Gulf States(?) Included in Floridian epoch, Lafayette group. Part. syn. Lafayette group.

Lagrange group, Dall and Harris. *U. S. Geol. Surv.*, Bull. No. 84, pp. 170-171. 1892.

Tertiary. Tennessee, Kentucky. Included in Lafayette.

La Motte sandstone, Keyes. *Mo. Geol. Surv.*, vol. vi, pp. 331, 358. 1894.

Cambrian. Missouri. Included in Ozark series. Part. syn. Proctor limestone.

La Motte sandstone, Keyes. *Mo. Geol. Surv.*, Sheet Rept., no. iv, pp. 18, 44. 1895. Upper Cambrian. Missouri.

La Motte sandstone, Keyes. *Mo. Geol. Surv.*, vol. ix, Sheet Rept., no. iv, pp. 18, 19, 20, 44-48. 1896.

Cambrian. Missouri. Included in Upper Cambrian.

La Motte sandstone, Winslow. *U. S. Geol. Surv.*, Bull. No. 132, p. 12. 1896. Missouri.

La Motte sandstone, Wheeler. *Mo. Geol. Surv.*, vol. xi, p. 37. 1896.

Cambrian. Missouri.

- La Plata** formation, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 57. 1899.
- Juratias. Colorado. Included in Gunnison formation.
- La Plata** formation, Cross and Spencer. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 73. 1900.
- Juratias. Colorado.
- Labette** shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 36-37, 92, 94, 100. 1898.
- Carboniferous. Kansas. Included in Marmaton formation.
- Labradorian**, Hitchcock. Boston Soc. Nat. Hist., Proc., vol. xv, 1872-73, p. 304. 1873.
- New Hampshire.
- Labrador system, Hitchcock. Geol. of N. H., pt. ii, p. 209. 1877.
- Azoic. New Hampshire.
- Lackawaxen** conglomerate, White. 2d Pa. Geol. Surv., Rept. 'G⁶, p. 100. 1882.
- Devonian. Pennsylvania. Included in Catskill.
- Lackawaxen conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1549-1553. 1892.
- Devonian. Pennsylvania. Included in Chemung.
- Lady Washington** rock, Cox. Indiana Geol. Surv., Sec. Rept. for 1870, p. 145. 1871.
- Carboniferous. Indiana.
- Lafayette**, Hilgard, Am. Geol. vol. viii, p. 130, 1891.
- Lafayette, McGee. U. S. Geol. Surv., 12th Ann. Rept., pt. i, p. 497. 1891.
- Tertiary. Coastal plain, Gulf States. Included in Neocene. Exact syns. Appomattox, Orange sand, Lagrange, Fayette beds, Plateau gravel.
- Lafayette series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., pp. 61-72. 1891.
- Tertiary. Georgia. Included in Pliocene.
- Lafayette, Hilgard, U. S. Geol. Surv. Bull. No. 84, p. 328, 1892.
- Lafayette formation, Harris. Ark. Geol. Surv., 1892, vol. ii, pp. 7-8. 1892.
- Arkansas.
- Lafayette formation, Hilgard. Am. Jour. Sci., 3d ser., vol. xliii, pp. 389-402. 1892.
- Tertiary. Gulf States.
- Lafayette group, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
- Pliocene. Gulf and Atlantic States. Included in Floridian epoch. Includes Lagrange beds, Orange sand, etc.
- Lafayette, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, pp. 80, 84, 159, 166, 179, 175. 1892.
- Tertiary. Atlantic and Gulf coasts, and Mississippi Valley.
- Lafayette, Darton. U. S. Geol. Surv., Baltimore, Md., Geologic sheet. 1892.
- Tertiary. Maryland. Included in Neocene.
- Lafayette, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, pp. 74-82. 1893.
- Tertiary. Maryland. Included in Pliocene.
- Lafayette (?), Spencer. Ga. Geol. Surv., The Paleozoic group, p. 97. 1893.
- Tertiary. Georgia.
- Lafayette, McGee, Williams and Darton. Int. Cong. of Geol., 5th Sess., pp. 234-235, 246. 1893.
- Tertiary. Maryland and District of Columbia.
- Lafayette, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios No. 13, 23. 1894, 1896.
- Included in Neocene. Virginia and Maryland.
- Lafayette, Smith. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 291-295. 1894.
- Tertiary. Alabama.
- Lafayette, Upham. Geol. Soc. Am., Bull., vol. v, pp. 87, 89. 1894.
- Tertiary. Minnesota. Included in Neocene.

- Lafayette, Upham. Am. Assoc. Adv. Sci., Proc., vol. xliii, p. 219. 1894.
Tertiary. General. Included in Quaternary.
- Lafayette, Clark. N. J. Geol. Surv., Rept., 1893, p. 339. 1894.
Neocene. New Jersey. Part syn. Yellow gravel.
- Lafayette, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.
Included in Neocene. Virginia, Maryland, and West Virginia.
- Lafayette, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 366. 1894.
Tertiary. Maryland and Virginia.
- Lafayette, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plains of Ala., p. 65. 1894.
Tertiary. Alabama. Included in Pliocene. Exact syn. Orange sand.
- Lafayette, Hershey. Am. Geol., vol. xvi, p. 349. 1895.
Tertiary. Missouri.
- Lafayette, Darton. U. S. Geol. Surv., Bull. No. 138, pp. 126, 164, 209. 1896.
Tertiary. Atlantic Coastal Plain. Included in Neocene.
- Lafayette formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 198. 1897.
Tertiary. Maryland. Included in Neocene.
- Lafayette formation, Spencer. Geol. Soc. Am. Bull., vol., ix, p. 25. 1897.
Tertiary. Mexico.
- Lafayette, Harris and Veatch. La. State Exp. Station, pt. v, p. 99. 1899.
Tertiary. Louisiana.
- Lagarto** division, Dumble. Jour. of Geol., vol. ii, p. 560. 1894.
Tertiary. Texas. Included in Pliocene.
- Lagonda** sandstone and shale, Gordon. Mo. Geol. Surv., Sheet Rept. ii, p. 19. 1893.
Upper Carboniferous. Missouri. Included in Lower Coal Measures.
- Lagonda sandstone, Gordon. Mo. Geol. Surv., vol. ix, Sheet Rept. no. 2, p. 19. 1896.
Carboniferous. Missouri. Included in Coal Measures.
- Lake** quartzite-schist, Schrader. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 474. 1900.
Alaska.
- Lake Bonneville** beds, Tower and Smith. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 667, 668. 1899.
Pleistocene. Utah.
- Lake Huron** shale, Thompson. Indiana Dept. Geol. and Nat. Hist., 15th Ann. Rept., for 1886, p. 325. 1886.
Indiana.
- Lake Superior** sandstone, Houghton. Mich. Legislature, Doc. No. 8 (sess. 1840), 3d Ann. Rept. State Geol., for 1839, p. 13. 1840.
Michigan.
- Lake Superior sandstone, Foster and Whitney. Am. Assoc. Adv. Sci., Proc., vol. v, pp. 22-38. 1851.
Silurian. Lake Superior region. Included in Lower Silurian.
- Lake Superior sandstone, Winchell. Mich. Geol. Surv., 1st Bien. Rept. Prog., pp. 49, 141. 1861.
Silurian. Michigan. Included in Ordovician.
- Lake Superior sandstone, Winchell. Am. Jour. Sci., 2d ser., vol. xxxvii, pp. 226-232. 1864.
Silurian. Michigan. Exact syn. Potsdam.
- Lake Superior group, Winchell. Mich. Geol. Surv., Rept. Prog., p. 27. 1871.
Michigan. The Conglomerate, the sandstone west of Keweenaw Point, the sandstone east of Keweenaw Point, and the Upper Gray sandstone of Houghton.
- Lake Superior sandstone, Sweet. Geol. of Wis., vol. iii, pp. 350-352. 1880.
Wisconsin.

- Lake Superior sandstone, Irving. Geol. of Wis., vol. iii, pp. 15, 207. 1880.
Cambrian. Wisconsin. Part. syn. Pottsville of Mississippi Valley.
- Lake Superior sandstone, Chamberlin. Geol. of Wis., vol. i, pp. 122-124. 1883.
Cambrian. Wisconsin. Included in Potsdam.
- Lake Superior sandstone, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 188, 252, 335. 1891.
Cambrian. Lake Superior region.
- Lake Superior sandstone, James. Cin. Soc. Nat. Hist., Jour., vol. xvii, no. ii, p. 129. 1894.
Ordovician.
- Lake Superior rocks, Winchell. Am. Geol., vol. xvi, p. 333. 1895.
Archean, Cambrian. Lake Superior region.
- Lake Superior sandstone, Grant. Wis. Geol. and Nat. Hist. Surv., Bull. No. 6. Econ. ser., no. iii, pp. 17-20. 1900.
Cambrian. Wisconsin.
- Lake Superior sandstone, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 62. 1900.
Cambrian and Silurian. Michigan.
- Lake Winnipiseogie** gneiss, Hitchcock. Geol. of N. H., pt. ii, pp. 595-599. 1877.
Eozoic. New Hampshire. Included in Laurentian.
- Lake Winnipiseogie gneiss, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, 1881-1886, p. 179. 1884.
Vermont and New Hampshire.
- Lake Winnipiseogie gneiss and Lake gneiss, Hitchcock. Jour. of Geol., vol. iv, p. 51. 1896.
Archean. New Hampshire. Part. syn. Green Mountain series.
- Lambton** formation, Chapman. A Popular and Practical Exposition of the Minerals and Geology of Canada, p. 195. 1864.
Devonian. Canada. Exact syn. Goniatile formation, Hamilton.
- Lamont** stone, Cox. Indiana Geol. Surv., 8th, 9th, and 10th Ann. Repts., for 1876, 1877, 1878, p. 92. 1879.
Indiana.
- Lancaster** limestone, Frazer. 2d Pa. Geol. Surv., Rept. C³, pp. 4-5. 1880.
Silurian. Pennsylvania. Exact syn. Calcareous and Trenton.
- Lane** shales, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 134-135. 1891.
Carboniferous. Kansas.
- Lane shales, Haworth. Am. Jour. Sci., 3d ser., vol. 1, p. 460. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Lane shales, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 48, 49. 1896.
Carboniferous. Kansas.
- Lane shales, Kirk. Kansas Univ. Geol. Surv., vol. i, p. 79. 1896.
Carboniferous. Kansas.
- Lane shales, Haworth. Kansas Univ. Geol. Surv., vol. iii, pp. 54-55, 92, 94, 103. 1898.
Carboniferous. Kansas. Included in Pottawatomie formation.
- Lanphier** beds, Cragin. Am. Geol., vol. xvi, p. 367. 1895.
Cretaceous. Kansas. Included in Elk Creek beds, Cheyenne sandstones, and Belvidere beds
- Lansdale** shale, Lyman. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2609-2610. 1895.
Juratrias. Pennsylvania. Included in New Red.
- L'Anse** series, Brooks. Mich. Geol. Surv., vol. i, pt. i, p. 155. 1873.
Michigan. Includes Huron Bay slates, etc.

- Lapara** division, Dumble. Jour. of Geol., vol. ii, pp. 559-560. 1894.
Tertiary. Texas. Included in Pliocene.
- Laramie**, White. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. iii, pp. 625-629. 1877.
Post-Cretaceous.
- Laramie, Hague. U. S. Geol. Explor. of 40th Parallel, vol. ii, p. 28. 1877.
Cretaceous. Colorado.
- Laramie, Hague. U. S. Geol. Explor. of 40th Parallel, vol. ii, pp. 143-148. 1877.
Cretaceous. Wyoming.
- Laramie, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 77, 109, 124. 1878.
Colorado. Included in Post-Cretaceous.
- Laramie, White. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 19, 20, 22. 1878.
Tertiary. Utah, Colorado. Included in Post-Cretaceous. Includes Fort Union, Judith River, Lignite.
- Laramie group, King. U. S. Explor. of 40th Parallel, vol. i, pp. 331-339. 1878.
Cretaceous. Colorado, Wyoming.
- Laramie group, Bannister. Am. Jour. Sci., 3d ser., vol. xvii, pp. 243-245. 1879.
Tertiary. Rocky Mountains.
- Laramie group, Peale. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. v, pp. 195-200. 1879.
Post-Cretaceous. Wyoming.
- Laramie, Stevenson. Chief of Engrs., Rept. 1879, pt. iii, p. 2255. 1879.
Cretaceous. New Mexico.
- Laramie group, Stevenson. Am. Jour. Sci., 3d ser., vol. xviii, pp. 129-134. 1879.
Cretaceous. Colorado and New Mexico.
- Laramie, St. John. U. S. Geol. and Geog. Surv., 11th Ann. Rept., p. 352. 1879.
Tertiary. Idaho.
- Laramie, White. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 161, 214-240. 1879.
Tertiary. Colorado, Wyoming.
- Laramie, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 88, 124. 1879.
Tertiary. Wyoming. Included in Post-Cretaceous.
- Laramie, Gardner. Am. Nat., vol. xiv, p. 565. 1880.
- Laramie group, Stevenson. Am. Jour. Sci., 3d ser., vol. xxi, pp. 370-371. 1881.
Tertiary. New Mexico.
- Laramie, Stevenson. Am. Phil. Soc., Proc., vol. xix, p. 505. 1881.
Cretaceous. Colorado.
- Laramie, Stevenson. U. S. Geog. and Geol. Surv. W. of 100 M, vol. iii, Suppl. p. 102, 1881.
Cretaceous. Colorado, New Mexico.
- Laramie, Stevenson. Am. Phil. Soc., Proc., vol. xx, p. 107. 1882.
Cretaceous. New Mexico.
- Laramie group, Lesquereux. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. viii, pp. 109-114. 1883.
Tertiary.
- Laramie, White. U. S. Geol. and Geog. Surv., 12th Ann. Rept., pt. i, p. 49. 1883.
Cretaceous.
- Laramie, Dawson. Sci., vol. i, p. 429. 1883.
Cretaceous. Canada. Included Judith River series, Willow Creek beds, St. Marys River series.

- Laramie formation, Cross. Colo. Sci. Soc., Proc., vol. i, p. 81. 1884.
Cretaceous. Colorado. Exact syn. Lignitic.
- Laramie, Ward. U. S. Geol. Surv., 6th Ann. Rept., p. 405. 1885.
Cretaceous. Tertiary. Rocky Mountains. Exact syn. Fort Union.
- Laramie group, Dutton. U. S. Geol. Surv., 6th Ann. Rept., pp. 136-140. 1885.
Cretaceous. Northwest New Mexico.
- Laramie, Willis. U. S. Geol. Surv., Bull., No. 21. 1885.
Cretaceous. South Dakota.
- Laramie, White. U. S. Geol. Surv., Bull. No. 34. 1886.
Cretaceous. Utah. Part. syn. Fort Union.
- Laramie group, White. Am. Jour. Sci., 3d ser., vol. xxxv, pp. 432-438. 1888.
Cretaceous. Rocky Mountains.
- Laramie, Stevenson. Am. Geol., vol. iii, p. 391. 1889.
Cretaceous. Colorado, New Mexico.
- Laramie group, Newberry. N. Y. Acad. Sci., Trans., vol. ix, pp. 27-32. 1890.
Cretaceous. Rocky Mountains.
- Laramie, Clark. U. S. Geol. Surv., Bull. No. 83, p. 132. 1891.
Cretaceous. Interior region.
- Laramie, White. U. S. Geol. Surv., Bull. No. 82, pp. 117, 145, 262. 1891.
Cretaceous. Great Interior region. Texas.
- Laramie, Cannon. Colo. Sci. Soc., Proc., vol. iv, p. 250. 1893.
Cretaceous. Colorado.
- Laramie, Weed. U. S. Geol. Surv., Bull. No. 106, p. 18. 1893.
Cretaceous. Montana.
- Laramie, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Cretaceous. Colorado.
- Laramie, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Cretaceous. Montana.
- Laramie, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Cretaceous. Wyoming.
- Laramie, Weed. Am. Geol., vol. xviii, pp. 201-211. 1896.
Cretaceous. Montana and Colorado. Part. syns. Edmonton (Tyrrell), Wapiti River (Dawson).
- Laramie, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 48. 1896.
Cretaceous. Montana.
- Laramie, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Cretaceous. Montana.
- Laramie, Emmons, Cross and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, pp. 28, 72. 1896.
Cretaceous. Colorado.
- Laramie, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, pp. 109-111. 1896.
Cretaceous. New Mexico.
- Laramie formation, Marcou. Am. Geol., vol. xix, pp. 120-121. 1897.
Tertiary.
- Laramie formation, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, p. 43. 1898.
Cretaceous. Colorado.
- Laramie formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
Cretaceous. Colorado.
- Laramie formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Cretaceous. Montana.
- Laramie formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Cretaceous. Colorado.
- Lauderdale** chert, McCalley. Ala. Geol. Surv., Rept. on Valley Regions of Ala., pt. i, pp. 27, 35. 1896.
Carboniferous. Alabama. Included in Lower Carboniferous. Includes Harpeth shale of Tennessee. Exact syn. Keokuk(?).

Lauderdale chert, McCalley. Ala. Geol. Surv., Rept. on Valley Regions, pt. ii, pp. 172-183, 240-246, 292-299. 1897.

Carboniferous. Alabama. Included in Fort Payne chert.

Laurel bed, Foerste. Cin. Soc. Nat. Hist., Jour., vol. xviii, nos. iii, iv, p. 190. 1896.

Silurian. Indiana.

Laurel limestone, Foerste. Indiana Dept. Geol. and Nat. Resources, 21st Ann. Rept., 1896, pp. 217, 230. 1897.

Upper Silurian. Indiana.

Laurel limestone, Foerste. Indiana Dept. Geol. and Nat. Resources, 22d Ann. Rept., 1897, pp. 197, 207, 211. 1898.

Upper Silurian. Indiana. Exact syn. Dayton limestone(?).

Laurel limestone, Blatchley. Indiana Dept. Geol. and Nat. Resources, 22d Ann. Rept., 1897, p. 14. 1898.

Indiana.

Laurentian system, Logan. Can. Geol. Surv., Rept. of Prog., 1852-53, p. 8. 1853.

Laurentian, Logan. Am. Assoc. Adv. Sci., Proc., vol. ii, pp. 46, 47. 1857.

Archean. Canada.

Laurentian, Logan. Can. Inst., new ser., vol. ii, pp. 439-442. 1857.

Archean. Canada.

Laurentian, Logan. Am. Assoc. Adv. Sci., Proc., vol. xiii, p. 310. 1860.

Archean. Canada.

Laurentian system, Hitchcock. Geol. of Vt., vol. i, pp. 257-259. 1861.

Archean. Vermont.

Laurentian system, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 22-49, 836-841. 1863.

Archean. Canada. Included in Azoic.

Laurentian series, Macfarlane. Can. Geol. Surv., Rept. 1863-1866, pp. 116-122. 1866.

Archean. Canada.

Laurentian, Hinds. Am. Jour. Sci., 2d ser., vol. xlix, pp. 347-355. 1870.

Nova Scotia.

Laurentian series, Hunt. Am. Jour. Sci., 3d ser., vol. iii, pp. 115-125. 1872.

Archean. New York, New Jersey, Canada.

Laurentian, Hitchcock. Am. Assoc. Adv. Sci., Proc., vol. xxi, p. 145. 1872.

Archean. New Hampshire.

Laurentian, Irving. Wis. Acad. Sci., Trans., vol. ii, 1873-74, p. 108. 1873(?).

Wisconsin.

Laurentian, Hitchcock. Boston Soc. Nat. Hist., Proc., vol. xv, 1872-73, p. 304. 1873.

New Hampshire.

Laurentian system, Bailey and Matthew. Can. Geol. Surv., Rept. 1870-71, pp. 30-59. 1873.

Archean. New Brunswick.

Laurentian rocks, Irving. Am. Jour. Sci., 3d ser., vol. viii, pp. 47-48. 1874.

Archean. Wisconsin.

Laurentian, Sweet. Wis. Acad. Sci., Trans., vol. iii, 1875-76, p. 41. 1875-1876.

Wisconsin.

Laurentian, Hotchkiss. A Geographical and Political Summary of Virginia, p. 22. 1876.

Metamorphic. Virginia. Exact syn. Azoic.

Laurentian series, Huntington. Geol. of N. H., pt. ii, pp. 468-506. 1877.

Eozoic. New Hampshire. Includes Bethlehem gneiss.

Laurentian, Hunt. 2d Pa. Geol. Surv., Rept. E, pp. 63-94. 1878.

Archean. General.

Laurentian, Prime. 2d Pa. Geol. Surv., Rept. D², pp. 5-7. 1878.

Archean. Pennsylvania.

Laurentian system, Irving. Geol. of Wis., vol. iii, pp. 5, 92-99. 1880.

Wisconsin.

Laurentian system, Adams. Ottawa Field Nat. Club, Trans., 1879-1883, vol. i, pp. 21-31. 1880-1883.

Archean. Canada.

Laurentian formation, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, p. 272. 1881.

Laurentian, Wadsworth. Boston Soc. Nat. Hist., Proc., vol. xxi, 1880-82, p. 121. 1881.

Laurentian, Chamberlin. Geol. of Wis., vol. i, p. 64. 1883.

Archean. Wisconsin.

Laurentian, Whitney and Wadsworth. Harvard Coll. Mus. Comp. Zool., Bull., vol. vii, 1880-84, p. 561. 1884.

Azoic.

Laurentian, Winchell. Minn. Geol. and Nat. Hist. Surv., 17th Ann. Rept., pp. 27, 28. 1889.

Minnesota.

Laurentian system, Miller. N. A. Geol. and Pal., p. 17. 1889.

Laurentian, Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 49, 50. 1890.

Archean. Arkansas.

Laurentian, Smith. Geol. Soc. Am., Bull., vol. iv, p. 333. 1893.

Archean. Ontario.

Laurentian, Ells. Geol. Soc. Am., Bull., vol. iv, p. 349. 1893.

Archean. Ottawa, Ontario.

Laurentian, Barlow. Geol. Soc. Am., Bull., vol. iv, pp. 313-332. 1893.

Archean. Ontario.

Laurentian, Upper, Adams. Can. Rec. Sci., vol. vi, p. 169. 1894.

Archean. Canada. Exact syn. Norian.

Laurentian, Dawson. Geol. Soc. Am., Bull., vol. v, p. 103. 1894.

Archean. Canada.

Laurentian, Winchell and Grant. Minn. Geol. and Nat. Hist. Surv., 23d Ann. Rept., pp. 53-61. 1895.

Minnesota.

Laurentian, Pumpelly. Geol. Soc. Am., Bull., vol. iv, p. 382. 1897.

Archean. Appalachian region.

Laurentian, Barlow. Can. Geol. Surv., new ser., vol. x, pp. 48I-54I. 1898.

Archean.

Laurentian, McInnes. Can. Geol. Surv., new ser., vol. x, pp. 13H-17H. 1898.

Archean. Ontario.

Laurentian, Winchell and Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 195. 1899.

Minnesota.

Laurentian, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.

Archean. Ontario.

Lauzon division, Richardson. Can. Geol. Surv., Rept. 1863-1866, pp. 32-36. 1866.

Lower Silurian. Canada (eastern). Included in Quebec group.

Lauzon division, Logan. Can. Geol. Surv., Rept. 1863-1866, pp. 4-5. 1866.

Lauzon, Ells. Geol. Soc. Am., Bull., vol. i, p. 466. 1889.

Cambrian. Quebec. Included in Quebec group.

Lauzon formation, Ells. Can. Geol. Surv., new ser., vol. iii, pt. ii, pp. 89K-93K. 1889.

Cambro-Silurian. Canada. Included in Quebec group.

- Lawrence** shales, Haworth. Kan. Univ. Quart., vol. ii, p. 122. 1894.
Carboniferous. Kansas.
- Lawrence shale, Haworth. Am. Jour. Sci., 3d ser., vol. I, p. 460. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Lawrence shales, Kirk. Kan. Univ. Geol. Surv., vol. i, p. 79. 1896.
Carboniferous. Kansas.
- Lawrence shales, Bennett. Kan. Univ. Geol. Surv., vol. i, p. 113. 1896.
Carboniferous. Kansas.
- Lawrence shales, Hall. Kan. Univ. Geol. Surv., vol. i, pp. 102-103. 1896.
Carboniferous. Kansas.
- Lawrence shales, Kan. Univ. Geol. Surv., vol. i, pp. 136-137, 160, 224. 1896.
Carboniferous. Kansas.
- Lawrence shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 57-61, 91, 92, 94, 104. 1898.
Carboniferous. Kansas. Included in Douglas formation. Exact syn. Leroy shale.
- Lawrence shale, Keyes. Am. Geol., vol. xxiii, p. 306. 1899.
Carboniferous. Mississippi Valley.
- Lawrence shales, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 90. 1900.
Carboniferous. Mississippi Valley. Included in Coal Measures.
- Lawrence-Crawford** limestone, Owen. Rept. Geol. Recon. Indiana, 1859-60, p. 125. 1862.
Carboniferous. Indiana. Included in Subcarboniferous limestone.
- Lawrentian**, Desor. Boston Soc. Nat. Hist., Proc., vol. iii, pp. 357, 358. 1850.
- Lawrencian formation, Billings. Can. Nat., vol. i, pp. 336-346. 1857.
Tertiary. Canada.
- Le Claire** limestone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 73-75. 1858.
Silurian. Iowa. Exact syn. Galt.
- Le Claire limestone, Hall and Whitney. Am. Jour. Sci., 2d ser., vol. xxvii, p. 111. 1859.
Silurian. Iowa.
- Le Claire limestone, Hall. Regents Univ. of N. Y., 20th Ann. Rept., pp. 305-308. 1867.
Silurian. Iowa. Included in Niagara. Exact syns. Guelph, Racine limestone (Wis.).
- Le Claire limestone, Bradley. Econ. Geol. of Ill., vol. ii, p. 495. 1882.
Silurian. Illinois. Included in Niagara limestone.
- Le Claire limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890.
Silurian. Arkansas. Included in Niagara.
- Le Claire limestone, Keyes. Iowa Geol. Surv., vol. i, p. 30. 1893.
Silurian. Iowa. Included in Upper Silurian.
- Le Claire beds, Norton. Iowa Geol. Surv., vol. iv, pp. 129-130. 1895.
Silurian. Iowa. Included in Upper Silurian.
- Le Claire stage, Calvin. Iowa Geol. Surv., vol. v, pp. 50-56. 1896.
Silurian. Iowa. Included in Niagara series.
- Le Claire limestone, Calvin. Iowa State Univ. Lab. Nat. Hist., Bull., vol. iii, pp. 183-189. 1896.
Silurian. Iowa. Included in Niagara.
- Le Claire limestone, Calvin. Iowa Geol. Surv., vol. vii, pp. 54-55. 1897.
Silurian. Iowa. Included in Niagara.
- Le Claire stone, Norton. Iowa Geol. Surv., vol. ix, p. 423. 1899.
Silurian. Iowa. Included in Gower stage.
- Le Compton** limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 116-117. 1896.
Carboniferous. Kansas. Includes Fusilina limestone.

- Le Compton shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 64, 94. 1898.
Carboniferous. Kansas. Included in Shawnee formation and Elk Falls limestone.
- Le Grand** beds, Beyer. Iowa Geol. Surv. vol., vii, pp. 221-226. 1897.
Carboniferous. Iowa. Included in Kinderhook.
- Le Roy** shales, Haworth and Kirk. Kansas Univ. Quart., vol ii, p. 110. 1894.
Carboniferous. Kansas.
- Leroy shale, Haworth. Kan. Univ. Geol. Surv., vol. iii, p. 104. 1898.
Carboniferous. Kansas. Exact syn. Lawrence shale.
- Le Sueur** formation, Keyes. Mo. Geol. Surv., Sheet Rept., No. iv, p. 18, 52-53. 1895.
Cambrian. Missouri. Included in Upper Cambrian.
- Le Sueur limestone, Wheeler. Mo. Geol. Surv., vol. xi, p. 37. 1896.
Cambrian. Missouri.
- Leadville** limestone, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Carboniferous. Colorado.
- Leadville limestone, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.
Carboniferous. Colorado. Exact syn. Blue limestone.
- Leadville limestone, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, pp. 22-30. 1898.
Carboniferous. Colorado.
- Lebanon** limestone, Upper, Safford. Am. Jour. Sci., 2d ser., vol. xii, p. 255. 1851.
Silurian. Tennessee. Included in Stones River group.
- Lebanon limestone, Lower, Safford. Am. Journ. Sci., 2d ser., vol. xii, p. 254. 1851.
Silurian. Tennessee. Included in Stones River group.
- Lebanon division, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., p. 15. 1890.
Silurian. Ohio. Included in Hudson River group.
- Lebœuf** conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1511-1514. 1892.
Devonian. Pennsylvania. Included in Venango. Exact syn. Panama Conglomerate.
- Leda** clay, Dawson. Can. Nat., vol. ii, pp. 405-414. 1857.
Tertiary. Canada. Included in Pliocene.
- Leda clay, Dawson. Can. Nat., new ser., vol. vi, pp. 22, 34-37. 1872.
Post Pliocene. Canada.
- Leda clay, Matthew. Can. Geol. Surv., Rept. 1877-78, pp. 22EE-31EE. 1879.
Pleistocene. New Brunswick.
- Leda clay, Chalmers. Can. Geol. Surv., new ser., vol. vii, pp. 111M-116M. 1896.
Pleistocene. New Brunswick, Nova Scotia.
- Lee** conglomerate, Campbell. U. S. Geol. Surv., Bull. No. 111, p. 36. 1893.
Carboniferous. Virginia. Included in Coal Measures.
- Lee conglomerate, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
Carboniferous. Kentucky, Virginia, and Tennessee.
- Lee conglomerate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 25. 1896.
Carboniferous. Tennessee.
- Lee conglomerate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
Carboniferous. Tennessee. Part. syns. Walden sandstone and Lookout sandstone.
- Lee conglomerate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 40. 1897.
Carboniferous. Tennessee.
- Lee gneiss, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 29. 1898.
Algonkian. Massachusetts.

- Lee formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.
Carboniferous. Kentucky.
- Lee formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 47. 1898.
Carboniferous. Kentucky. Included in Pennsylvanian series.
- Lee gneiss, Emerson. U. S. Geol. Surv., Bull. No. 159, p. 33. 1899.
Pre-Cambrian. Massachusetts.
- Lee gneiss, Emerson. U. S. Geol. Surv., Bull. No. 159, pp. 33-34. 1899.
Pre-Cambrian. Massachusetts.
- Lee conglomerate, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Carboniferous. Virginia, and Tennessee.
- Lee formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 53. 1899.
Carboniferous. Tennessee. Included in Pennsylvanian series.
- Lehigh** coal, Zachariah. Am. Jour. Sci., 1st ser., vol. iv, pp. 1-8, vol. ix, p. 397. 1821.
Carboniferous. Pennsylvania. Included in Anthracite formation of Wilkesbarre, etc.
- Leitchfield** marls, Shaler. Ky. Geol. Surv., new ser., vol. iii, p. 391. 1877.
Carboniferous. Kentucky. Included in Chester group.
- Lenoir** limestone, Safford and Killbrew. Elementary Geol. of Tenn., pp. 130-131. 1876.
Silurian. Tennessee. Exact syn. Chazy of New York and Canada.
- Leon** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxii. 1890.
Silurian. Texas. Includes Hoover, Wyoming, and Beaver divisions.
- Leon series, Comstock. Texas Geol. Surv., 1st Ann. Rept., p. 295. 1890.
Silurian. Texas. Includes Beaver division.
- Leon series, Comstock. Texas Geol. Surv., 2d Ann. Rept., pp. 565-566. 1891.
Silurian. Texas. Includes Beaver, Wyoming, and Hoover divisions.
- Leona** formation, Hill and Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 42. 1898.
Tertiary or Pleistocene. Texas.
- Leona formation, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Pleistocene. Texas.
- Levant** series, Rogers. Am. Jour. Sci., 1st ser., vol. xlvii, p. 155. 1844. Includes Medina, Clinton, Niagara, and Onondaga salt group of New York.
- Levant series, Rogers. Geol. of Pa., vol. i, pp. 105, 126-131, 271, et. seq., vol. ii, p. 753. 1858.
Silurian. Pennsylvania. Includes Oneida and Medina.
- Levis** formation, Logan. Can. Geol. Surv., Rept. 1843-63, pp. 225-297. 1863.
Lower Silurian. Canada (eastern). Included in Quebec group. Exact syn. Calciferous.
- Levis division, Richardson. Can. Geol. Surv., Rept. 1863-66, pp. 31-32. 1866.
Lower Silurian. Canada (eastern). Included in Quebec group.
- Levis limestone, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, 1881-86, p. 179. 1884.
Vermont and New Hampshire.
- Levis formation, Ells. Geol. Soc. Am., Bull., vol. i, p. 462. 1889.
Ordovician. Vermont and Canada. Included in Quebec group.
- Levis formation, Ells. Can. Geol. Surv., new ser., vol. iii, pt. ii, pp. 25K-84K. 1889.
Ordovician. Canada. Included in Quebec group, Cambro-Silurian.
- Levis, Ami. Geol. Soc. Am., Bull., vol. ii, p. 495. 1891.
Ordovician(?). Quebec.
- Lewistown** limestone, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 127-135. 1881.
Silurian. Pennsylvania. Exact syn. Lower Helderberg.

- Lewistown limestone, Claypole. 2d Pa. Geol. Surv., Rept. F², p. 38. 1885.
 Silurian. Pennsylvania. Included in Lower Helderberg. Exact syn. Bossardville limestone.
- Lewistown limestone, White. 2d Pa. Geol. Surv., Rept. T³, pp. 123-127. 1885.
 Silurian. Pennsylvania. Included in Lower Helderberg.
- Lewistown limestone, D'Invilliers. 2d Pa. Geol. Surv., Rept. F³, pp. 269, 307, 308, 319, 327, 342, 344, 350, 389. 1891.
 Silurian. Pennsylvania. Included in Lower Helderberg.
- Lewistown limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 969, 974. 1892.
 Silurian. Pennsylvania. Included in No. vi. Exact syn. Bossardville limestone.
- Lewistown limestone, Darton. Am. Geol., vol. x, p. 15. 1892.
 Silurian. Virginia. Part syn. Lower Helderberg.
- Lewistown limestone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios No. 14, 32. 1894, 1896.
 Silurian. Virginia and West Virginia. Includes Lower Helderberg, Salina, and Niagara. Exact syns. Rogers's No. vi and Pre-Meridian.
- Lewistown, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
 Silurian. West Virginia and Maryland.
- Lewistown, Clark. Md. Geol. Surv., vol. i, p. 157. 1897.
 Silurian. Maryland. Part syns. Niagara, Lower Helderberg.
- Lewistown formation, Clark. Md. Geol. Surv., vol. i, p. 182. 1897.
 Silurian. Maryland. Includes Niagara, Salina, and Lower Helderberg.
- Lewistown, Clark. Md. Geol. Surv., vol. ii, p. 170. 1898.
 Silurian and Devonian. Maryland.
- Lewistown limestone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
 Silurian. Virginia and West Virginia.
- Lexington** limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.
 Silurian. Kentucky.
- Leyden** phyllite, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
 Silurian. Massachusetts.
- Leyden argillite, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 201-210. 1898.
 Silurian. Massachusetts.
- Leyden argillite, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
 Silurian. Massachusetts.
- Licking** shale, Hicks. Am. Jour. Sci., 3d ser., vol. xvi, p. 216. 1878.
 Carboniferous. Ohio. Included in Waverly group.
- Lignite** group, Safford. Geol. Recon. of the State of Tenn., 1st Rept., pp. 162-163. 1856.
 Tertiary (?). Tennessee.
- Lignitic group, Northern. Hilgard. Rept. on Geol. and Agric. of Miss., pp. 110-123. 1860.
 Eocene. Mississippi.
- Lignitic group, Great, Meek and Hayden. Am. Jour. Sci., 2d ser., vol. xxxiv, p. 138. 1862.
 Eocene (?). Tertiary. Nebraska. Exact syn. Fort Union group.
- Lignite (Lower), Hilgard. Am. Jour. Sci., 2d ser., vol. xliii, p. 34. 1867.
 Tertiary (?). Alabama and Mississippi. Exact syn. Great Lignite group.
- Lignite deposits, Hayden. Am. Jour. Sci., 2d ser., vol. xlv, pp. 198-208. 1868.
 Tertiary. Wyoming and Colorado.

- Lignitic group, Northern. Hilgard. *Am. Jour. Sci.*, 3d ser., vol. ii, pp. 394-396. 1871.
- Eocene. Mississippi, Alabama, Georgia, Texas, Arkansas. Exact syns. Buhrstone group, Siliceous Claiborne. Part syns. Lagrange and Porter's Creek groups, Flatwoods clay.
- Lignite, Lesquereux. *U. S. Geol. Surv. of Terr.*, 6th Ann. Rept., p. 315. 1873.
- Tertiary. Rocky Mountains. Included in Eocene.
- Lignitic formation, Lesquereux. *Am. Jour. Sci.*, 3d ser., vol. vi, pp. 441-450; vol. vii, pp. 546-557. 1873-74.
- Eocene (?). Rocky Mountain region.
- Lignite formation, Dawson. Rept. of the Tertiary Lignitic formation in vicinity of 49th Parallel. 1874.
- Tertiary. British Columbia.
- Lignite beds, Newberry. *Am. Jour. Sci.*, 3d ser., vol. vii, pp. 399-404. 1874.
- Cretaceous (?). Western United States.
- Lignitic group, Hayden. *U. S. Geol. and Geog. Surv. Terr.*, Bull., No. 2, vol. i, pp. 1-2. 1874.
- Western Territories.
- Lignitic, Hayden. *U. S. Geol. and Geog. Expl. of Terr.*, 1873, pp. 26-27. 1874.
- Tertiary, Cretaceous. Colorado.
- Lignite formation, Marvine. *U. S. Geol. and Geog. Surv. of Terr.*, 1873, p. 106. 1874.
- Cretaceous (?). Colorado.
- Lignitic Post-, Marvine. *U. S. Geol. and Geog. Surv. of Terr.*, 1873, p. 128. 1874.
- Tertiary. Colorado.
- Lignite, Cope. *U. S. Geol. and Geog. Surv. of Terr.*, 1873, p. 432. 1874.
- Tertiary. Colorado. Exact syn. Fort Union.
- Lignitic, Lesquereux. *U. S. Geol. and Geog. Surv. of Terr.*, 1873, p. 367. 1874.
- Tertiary. Colorado. Included in Eocene.
- Lignite group, Stevenson. *Am. Phil. Soc., Proc.*, vol. xiv, p. 447. 1875.
- Tertiary. Includes Lower Lignitic, Upper or Great Lignitic.
- Lignitic group, Hayden. *U. S. Geol. and Geog. Surv. of Terr.*, Bull., vol. i, pp. 401-411. 1876.
- Cretaceous and Tertiary.
- Lignite, Hayden. *U. S. Geol. and Geog. Surv. of Terr.*, 8th Ann. Rept., p. 19. 1876.
- Tertiary. Rocky Mountains. Includes Fort Union, Wind River, White River, Loup Fork, and Monument Creek groups.
- Lignite formation, Engelmann. *Eng. Dept. U. S. A., Simpson's Expls. of Great Basin*, p. 281. 1876.
- Cretaceous or Eocene. Wyoming.
- Lignitic, Peale. *U. S. Geol. and Geog. Surv. of Terr.*, 8th Ann. Rept., p. 152. 1876.
- Tertiary. Included in Eocene.
- Lignitic, Lesquereux. *U. S. Geol. and Geog. Surv. of Terr.*, 8th Ann. Rept., p. 275. 1876.
- Tertiary.
- Lignite group, Dawson. *Can. Geol. Surv., Rept.* 1875-76, pp. 255-260. 1877.
- Miocene (?). British Columbia.
- Lignitic formation, Hayden. *U. S. Geol. and Geog. Surv. Terr.*, Mon., vol. vii, pt. ii, pp. iii-ix. 1878.
- Lignitic formations, Lesquereux. *U. S. Geol. and Geog. Surv. of Terr.*, Mon., vol. vii, pp. 3-31, 309-355. 1878.
- Tertiary.
- Lignitic, Smith. *Ala. Geol. Surv., Bull. No. 1.* 1886.
- Tertiary. Alabama.

- Lignitic, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, pp. 18, 38. 1887.
- Tertiary. Alabama. Included in Lower Eocene. Includes Hatchetigbee, Woods Bluff, Bells Landing, Nanafalia, Matthews Landing, Naheola, Black Bluff, and Midway.
- Lignite group, Loughridge. Ky. Geol. Surv., Jackson Purchase region, pp. 41-52. 1888.
- Eocene. Kentucky. Exact syn. Porter's Creek and Bluff Lignite in Tennessee.
- Lignitic division, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., 1890-91. 1891.
- Tertiary. Georgia. Included in Lower Eocene. Includes Hatchetigbee, Bashi, Tuskahoma, Nanafalia, and Midway or Clayton.
- Lignitic, McGee. U. S. Geol. Surv., 12th Ann. Rept., pt. i, p. 415. 1891.
- Tertiary. Coastal Plain, Gulf States. Includes Hickman group, Porters Creek group, Bluff lignite, Hatchetigbee, Bashi, Tuskahoma, Nanafalia, and Midway beds of Alabama. Camden series, Timber Belt or Sabine.
- Lignitic, Clark. U. S. Geol. Surv., Bull. No. 83, pp. 58, 66, 72. 1891.
- Tertiary. Kentucky, Mississippi, Alabama. Included in Eocene. Includes Hatchetigbee, Woods Bluff, Bells Landing, Nanafalia, Matthews Landing, Naheola, Black Bluff, and Midway. Exact syns. Porters Creek group, Camden series of Arkansas.
- Lignitic series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 43. 1891.
- Tertiary. Georgia. Included in Lower Eocene.
- Lignitic stage, Harris. Ark. Geol. Surv., 1892, vol. ii, pp. 55-86. 1892.
- Tertiary. Arkansas. Included in Eocene series.
- Lignite beds, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, pp. 228, 236, 237, 242. 1892.
- Tertiary. Washington.
- Lignitic, Smith. Ala. Geol. Surv., Bull. No. 2, p. 47. 1892.
- Tertiary. Alabama. Includes Midway or Pine barren = Clayton limestone, Black Bluff, Naheola, Matthews Landing, Nanafalia, Coal Bluff, Bells Landing or Tuskahoma, Woods Bluff or Bashi, and Hatchetigbee.
- Lignitic, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 147, 198, 488. 1894.
- Tertiary. Alabama. Included in Eocene. Includes Hatchetigbee, Woods Bluff or Bashi, Bells Landing or Tuskahoma, Nanafalia, Matthews Landing, Naheola, Black Bluff, and Lucarnochee.
- Lignitic stage, Vaughan. Am. Geol., vol. xv, p. 209. 1895.
- Tertiary. Louisiana. Included in Eocene.
- Lignitic stage, Harris. Am. Pal., Bull. No. 9, pp. 1-36. 1897.
- Tertiary. Gulf States. Included in Eocene.
- Lignitic stage, Harris and Veatch. La. State Exp. Stat., pt. v, p. 64. 1899.
- Tertiary. Louisiana. Included in Eocene.
- Lime Creek** beds, Williams. Am. Jour. Sci., 3d ser., vol. xxv, pp. 97-104. 1883.
- Devonian. Iowa. Included in Chemung group.
- Lime Creek shales, Keyes. Iowa Geol. Surv., vol. i, pp. 46-47. 1893.
- Devonian. Iowa.
- Lime Creek shales, Calvin. Iowa Geol. Surv., vol. vii, pp. 161-170. 1897.
- Devonian. Iowa.
- Lime Creek shales, Williams. Iowa Geol. Surv., vol. x, p. 357. 1900.
- Devonian. Iowa.
- Limon** clays, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 337. 1898.
- Tertiary. Costa Rica. Included in Pliocene.
- Lincoln** marble, Logan. Kan. Univ. Geol. Surv., vol. ii, p. 216. 1897.
- Upper Cretaceous. Kansas. Included in Benton.

Lincoln marble, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25, 27. 1898.

Upper Cretaceous. Kansas. Included in Lower Benton.

Lincoln slate, Hobbs. Am. Geol., vol. xxiii, p. 111. 1899.

Cambrian. Massachusetts.

Linden limestone, Safford and Killebrew. Elementary Geol. of Tenn., pp. 146-148. 1876.

Silurian. Tennessee. Included in Upper Silurian.

Lingula flag, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, pp. 241, 244. 1861.

Vermont and Canada. Included in Upper Taconic.

Lingula grits, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 357. 1874.

Silurian. Missouri. Included in Primordial.

Linnville slates, Kerr. N. C. Geol. Surv., Rept. 1866-67, pp. 32-33. 1869. North Carolina.

Lisbon group, Hitchcock. Am. Jour. Sci., 3d ser., vol. vii, pp. 472-473. 1874. New Hampshire.

Lisbon group, Hitchcock. Geol. of N. H., pt. ii, pp. 277-293, 358. 1877. Eozoic. New Hampshire. Included in Huronian.

Lisbon beds, Harris. Am. Jour. Sci., 3d ser., vol. xlvii, p. 304. 1894. Tertiary. Included in Lower Claiborne of Eocene.

Lisbon shales, Williston. Kan. Univ. Quart., vol. iv, p. 252. 1896.

Upper Cretaceous. Kansas. Exact syn. Pierre shales.

Lisbon shales, Cragin. Colo. College Stud., vol. vi, p. 52. 1896.

Cretaceous. Kansas. Included in Lower Fort Pierre(?).

Lisbon shale, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25-27. 1898.

Upper Cretaceous. Kansas. Exact syn. Pierre shale, or Fort Pierre shale.

Lisbon beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 344. 1898.

Tertiary. Alabama. Included in Claibornian stage, Eocene.

Lista Blanca division, Dumble. Am. Inst. Mg. Engrs., Trans., vol. xxix, p. 143. 1900.

Mexico. Included in Trias.

Lithographic limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 105, 177, 196. 1855.

Devonian. Missouri. Included in Chemung.

Lithographic limestone, Shumard. Mo. Geol. Surv., Repts., 1855-1875, p. 207. 1873.

Carboniferous. Missouri. Included in Lower Carboniferous.

Lithographic limestone, Broadhead. Mo. Geol. Surv., Rept. 1873-74, pp. 27, 66. 1874.

Carboniferous. Missouri. Included in Chouteau group.

Lithographic limestone, Keyes. Geol. Soc. Am., Bull., vol. iii, p. 288. 1892.

Lower Carboniferous. Missouri. Exact syn. Louisiana.

Lithographic limestone, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 394. 1894.

Lower Carboniferous. Missouri. Exact syn. Louisiana limestone.

Lithographic limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1899.

Carboniferous. Arkansas. Included in Kinderhook.

Little Compton shales, Shaler, Woodworth, and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 383. 1899.

Cambrian. Rhode Island.

Little Genesee conglomerate, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1892.

Devonian. New York. Exact syn. Olean conglomerate(?).

Little Grizzly Creek, Turner. Am. Geol., vol. xiii, p. 230. 1894.

Carboniferous. California. Included in Upper Carboniferous.

Little Grizzly Creek beds, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 448. 1894.

Carboniferous. California. Included in Upper Carboniferous.

Little River group, Matthew. Can. Nat., vol. viii, pp. 244, 251-153. 1863.

New Brunswick.

Little River group, Matthew. Can. Roy. Soc., Trans. 1894, vol. xii, sec. iv, pp. 89-111. 1895.

Devonian. New Brunswick. Exact syns. Nos. 2 and 3, Dawson.

Little Traverse Bay limestones, Douglas. Mich. Legis., Doc., vol. i, No. 11, 4th Ann. Rept. State Geol., 1840, p. 550. 1841.

Michigan.

Little Traverse Bay group, Winchell. Mich. Geol. Surv., Rept. Prog., p. 28. 1871.

Devonian. Michigan.

Little Vein (coal), Crawford. Cal. State Mg. Bur., 12th Ann., vol. xii, p. 43. 1894.

Lower Tertiary or Upper Cretaceous. California.

Livingston limestone, Worthen. Econ. Geol. of Illinois, vol. iii, pp. 339-348. 1882.

Carboniferous. Illinois. Included in Coal Measures.

Livingston, Weed. U. S. Geol. Surv., Bull. No. 106, p. 21. 1893.

Cretaceous. Montana. Included in Post-Laramie.

Livingston, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.

Cretaceous. Montana.

Livingston, Cross. U. S. Geol. Surv., Mon., xxvii, p. 220. 1896.

Cretaceous. Montana. Exact syn. Denver.

Livingston, Weed. Am. Geol., vol. xviii, pp. 203-204. 1896.

Tertiary or Cretaceous. Montana. Included in Post-Laramie, Colorado.

Livingston, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 49. 1896.

Cretaceous. Montana.

Livingston, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.

Cretaceous. Montana.

Livingston formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.

Cretaceous(?). Montana.

Llano group, Wolcott. Am. Jour. Sci., 3d ser., vol. xxviii, p. 431. 1884.

Cambrian. Texas.

Llano series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvii. 1890.

Algonkian. Texas. Included in Texan system.

Llano series, Walcott. Geol. Soc. Am., Bull., vol. x, p. 218. 1899.

Algonkian. Texas. Part. syn. Grand Canyon series of Arizona.

Llano estacado, Hill. Geol. Soc. Am., Bull., vol. iii, p. 87. 1892.

Tertiary. New Mexico.

Lockatong series, Salisbury. N. J. Geol. Surv., Rept. 1896, pp. 40-47. 1897.

Juratias. New Jersey. Included in Newark system.

Lockatong series, Kummel. Jour. of Geol., vol. v, pp. 544-547. 1897.

Juratias. New Jersey. Included in Newark system.

Lockatong series, Kummel. N. J. Geol. Surv., Rept. 1897, pp. 36-41. 1898.

Juratias. New Jersey.

Lockatong group, Kummel. Jour. of Geol., vol. vii, pp. 25-26. 1899.

Juratias. New York and New Jersey. Included in Newark.

Lodore, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mountains, pp. 41, 56, 147. 1876.

Carboniferous. Utah.

- Loess** formation, Harper. Prelim. Rept. Geol. and Agric., Miss., p. 235. 1857.
 Mississippi. Included in Rocks overlying the Miocene formation. Exact syn.
 Bluff formation.
- Loess, Hilgard. Am. Jour. Sci., 2d ser., vol. xli, pp. 318-319. 1866.
 Pleistocene. Mississippi.
- Loess, Hilgard. Am. Jour. Sci., 3d ser., vol. ii, p. 403. 1871.
 Pleistocene. Mississippi Valley.
- Loess, Aughey. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 245. 1876,
 Pleistocene. Nebraska.
- Loess formation, Cannon. Colo. Sci. Soc., Proc., vol. iii, p. 59. 1888.
 Pleistocene. Colorado.
- Loess, Chamberlin and Salisbury. Am. Jour. Sci., 3d ser., vol. xli, pp. 360-364.
 1891.
 Pleistocene. Mississippi Valley.
- Loess, Norton. Iowa Geol. Surv., vol. iv, pp. 173-174. 1895.
 Pleistocene. Iowa.
- Loess, Todd. Mo. Geol. Surv., vol. v, pp. 126-132. 1896.
 Pleistocene. Missouri.
- Loess, Bain. Iowa Geol. Surv., vol. v, pp. 155-156, 282-284. 1896.
 Pleistocene. Iowa.
- Loess, Tilton. Iowa Geol. Surv., vol. v, pp. 318-319. 1896.
 Pleistocene. Iowa.
- Loess, Calvin. Iowa Geol. Surv., vol. v, pp. 63-70. 1896.
 Pleistocene. Iowa.
- Loess, Calvin. Iowa Geol. Surv., vol. vii, pp. 88-90. 1897.
 Pleistocene. Iowa.
- Loess, Beyer. Iowa Geol. Surv., vol. vii, pp. 235-238. 1897.
 Pleistocene. Iowa.
- Loess, Bain. Iowa Geol. Surv., vol. vii, pp. 340-344, 463-466. 1897.
 Pleistocene. Iowa.
- Loess, Tilton and Bain. Iowa Geol. Surv., vol. vii, pp. 522-523. 1897.
 Pleistocene. Iowa.
- Loess, Leonard. Iowa Geol. Surv., vol. viii, pp. 86-88. 1898.
 Pleistocene. Iowa.
- Loess, Calvin. Iowa Geol. Surv., vol. viii, pp. 245-246. 1898.
 Pleistocene. Iowa.
- Logan** sandstones, Andrews. Ohio Geol. Surv., Rept. Prog. 1869, pp. 62, 76. 1870.
 Ohio.
- Logan sandstone, Andrews. Ohio Geol. Surv., 1869, p. 79. 1871.
 Ohio:
- Logan sandstone, Andrews. Ohio Geol. Surv., Rept. Prog., 1870, p. 59. 1871.
 Ohio. Included in Waverly group.
- Logan sandstone, Read. Ohio Geol. Surv., vol. iii, p. 816. 1878.
 Carboniferous. Ohio.
- Logan group, Orton. Rev. of Strat. Geol. of Eastern Ohio, p. 14. 1880.
 Carboniferous. Ohio. Includes Logan sandstone, Olive shales, Licking shales,
 Waverly conglomerate, and Black Hand conglomerate.
- Logan series, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable
 Gas, p. 24. 1886.
 Ohio. Included in Waverly series.
- Logan group, Orton. Ohio Geol. Surv., vol. vi, pp. 3, 39. 1888.
 Carboniferous. Ohio. Included in Waverly group. Exact syns. Olive shales,
 Logan sandstone, and Waverly conglomerate.

- Logan group, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, pp. 103, 105. 1888.
Ohio. Included in Cuyahoga or Waverly series.
- Logan group, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 39-42. 1890.
Carboniferous. Ohio. Part. syn. Shenango sandstone (Pennsylvania) and Olive shade.
- Logan group, Orton. Ohio Geol. Surv., Rept., vol. vii, pp. 4, 32. 1893.
Carboniferous. Ohio. Included in Waverly group.
- Logie Green**, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, p. 42. 1899.
Cretaceous. Jamaica. Included in Blue Mountain series.
- Lohn** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 408. 1893.
Carboniferous. Texas. Cisco division.
- Lone Mountain** limestone, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 262. 1883.
Silurian. Nevada.
- Lone Mountain limestone, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 57. 1892.
Silurian. Nevada.
- Long Grove** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lv. 1890.
Archean. Texas. Included in Burnetan system.
- Long Mountain** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvi. 1890.
Archean. Texas. Included in Burnetan system.
- Longmeadow**, Emerson. Geol. Soc. Am., Bull., vol. ii, p. 452. 1891.
Trias. Massachusetts.
- Longmeadow brownstone, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 6. 1895.
Trias. Massachusetts.
- Longmeadow sandstone, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 364-369. 1898.
Juratrias. Massachusetts. Included in Connecticut River sandstone.
- Longmeadow sandstone, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Juratrias. Massachusetts.
- Longwood** red shale, Darton. Geol. Soc. Am., Bull., vol. viii, pp. 367, 382, 383. 1894.
Silurian. New York. Included in Medina (?).
- Lookout** sandstone, Hayes. Ala. Geol. Surv., Bull., No. 4, p. 49. 1892.
Carboniferous. Alabama. Included in Coal Measures.
- Lookout sandstone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 8, 19, 21, 22, 35. 1894-5-6.
Carboniferous. Georgia, Tennessee, Alabama.
- Lookout sandstone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896.
Carboniferous. Alabama. Exact syn. Millstone grit of Smith, 1878.
- Lookout formation, White. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 817-818. 1900.
Carboniferous. Tennessee.
- Loon River** shales, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 41D, 53D, 56D-57D. 1893.
Cretaceous. Canada. Included in Colorado group.
- Lorraine** shale, Emmons. Geol. of N. Y., pt. ii, pp. 119-123, 401. 1842.
Paleozoic. New York. Included in New York Transition system, Champlain group. Part. syn. Pulaski shale.

- Lorraine shales, Emmons. Agric. of N. Y., vol. i, pp. 124-125. 1846.
New York. Included in New York system, Champlain division.
- Lorraine shale, Murray. Can. Geol. Surv., Rept. of Prog., 1847-48. 1849.
Silurian. Ontario.
- Lorraine shales, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, pp. 240, 241, 249. 1861.
Vermont and Canada. Included in Lower Silurian. Exact syns. Pulaski shales and Hudson River group.
- Lorraine shale, Hough. Am. Jour. of Agric. and Sci., vol. v, p. 322. 1879.
Silurian. New York.
- Lorraine, White. 2d Pa. Geol. Surv., Rept. T³, pp. 147-151. 1885.
Silurian. Pennsylvania.
- Lorraine, Walcott. Geol. Soc. Am., Bull., vol. i, p. 344. 1889.
Silurian. New York. Exact syn. Hudson River.
- Lorraine, Ami. Geol. Soc. Am., Bull., vol. ii, pp. 495. 1891.
Silurian. Quebec.
- Lorraine group, Ami. Ottawa Field Nat. Club., Trans. 1892-93, vol. viii, p. 43. 1892.
Ordovician. Canada. Included in Upper Ordovician. Exact syn. Hudson River group.
- Lorraine shale, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 100, 108, 116. 1893.
Silurian. New York.
- Lorraine beds, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Silurian. New York. Included in Cincinnati.
- Losee Pond gneiss, Wolff and Brooks. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 439. 1898.
Pre-Cambrian. New Jersey.
- Lost Creek limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 806. 1892.
Silurian. Pennsylvania. Included in No. v.
- Lost Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 422. 1893.
Carboniferous. Texas. Included in Albany division.
- Lost River limestone, Kindle. Indiana Dept. Geol. and Nat. Resources, 20th Ann. Rept., 1895, p. 367. 1896.
Indiana.
- Loudon shales, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, p. 68. 1893.
Cambrian. Maryland.
- Loudon, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 324. 1894.
Cambrian. Virginia and Maryland.
- Loudon, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.
Cambrian. Virginia, Maryland, and West Virginia.
- Loudon formation, Clark. Md. Geol. Surv., vol. i, pp. 176-177. 1897.
Cambrian. Maryland.
- Louisiana limestone, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 289. 1892.
Lower Carboniferous. Missouri. Included in Mississippian. Exact syn. Lithographic limestone.
- Louisiana limestone, Keyes. Iowa Geol. Surv., vol. i, pp. 54-55. 1893.
Carboniferous. Iowa. Included in Kinderhook. Exact syn. Lithographic limestone.
- Louisiana limestone, Keyes. Mo. Geol. Surv., vol., iv, pp. 30, 51-55. 1894.
Lower carboniferous. Missouri. Included in Kinderhook stage. Exact syn. Lithographic limestone.
- Louisiana limestone, Keyes. Mo. Geol. Surv., vol. vi, p. 359. 1894.
Lower Carboniferous. Missouri.

- Louisiana limestone, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, pp. 390, 394. 1894.
Lower Carboniferous. Missouri. Included in Kinderhook stage. Exact syn.
Lithographic limestone.
- Louisiana limestone, Keyes. St. Louis Acad. Sci., Trans., vol. vii, p. 359. 1897.
Devonian. Missouri. Exact syn. Lithographic limestone.
- Louisiana limestone, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 84-86. 1898.
Lower Carboniferous. Missouri. Included in Kinderhook stage. Exact syn.
Lithographic limestone.
- Louisiana limestone, Keyes. Iowa Acad. Sci., Proc., vol. v, p. 63. 1898.
Devonian. Iowa.
- Louisiana limestone, Keyes. Jour. of Geol., vol. viii, p. 316. 1900.
Carboniferous. Mississippi Valley.
- Louisville** limestones, Hall. Paleontology of N. Y., vol. v, pt. ii, pp. 139-147. 1879.
Devonian. New York.
- Louisville limestone, Foerste. Indiana Dept. Geol. and Nat. Resources, 21st Ann. Rept., 1896, pp. 217, 232. 1897.
Upper Silurian. Indiana.
- Louisville limestone, Foerste. Indiana Dept. Geol. and Nat. Resources, 22d Ann. Rept., 1897, pp. 197, 207, 214. 1898.
Upper Silurian. Indiana.
- Louisville-Delphi** black slate, Collett. Indiana Geol. Surv., 3d and 4th Ann. Repts. for 1871-72, pp. 294, 306. 1872.
Devonian. Indiana.
- Loup Fork** group, Cope. U. S. Geol. Surv. W. of 100th Meridian, vol. iv, pt. ii, pp. 20, 361. 1877.
Tertiary. New Mexico.
- Loup Fork, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. iii, pp. 16-19. 1881.
Tertiary. Includes Ticholiptus and Procamelus beds.
- Loup Fork group, Sternberg. Kansas City Rev., vol. vi, pp. 205, 208. 1882.
Tertiary. Kansas.
- Loup Fork, Cope. Am. Phil. Soc., Proc., vol. xxi, p. 308. 1884.
Tertiary. New Mexico. Included in Miocene.
- Loup Fork, Cope. Am. Phil. Soc., Proc., vol. xxiii, p. 146. 1885.
Tertiary. Mexico. Included in Miocene.
- Loup Fork, Cragin. Am. Geol., vol. viii, p. 29. 1891.
Tertiary. Indian Territory.
- Loup Fork, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, pp. 292, 296. 1892.
Tertiary. South Dakota, Nebraska.
- Loup Fork beds, Cummins. Texas Geol. Surv., 4th Ann. Rept., pp. 203-208. 1893.
Tertiary. Texas.
- Loup Fork, Scott. Geol. Soc. Am., Bull., vol. v, p. 595. 1894.
Tertiary. Nebraska. Included in Upper Miocene. Includes Palo Duro and Archer, Nebraska and Deep River beds.
- Loup River** beds, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, pp. 433, 435. 1862.
Tertiary. Nebraska. Exact syn. Pliocene.
- Loup River, Hayden. Phil. Acad. Nat. Sci., Jour., vol. vii, 2d ser., p. 13. 1869.
Tertiary. Dakota and Nebraska. Exact syn. Pliocene.
- Loup River, Hayden. U. S. Geol. Surv. of Wyoming, Rept. p. 93. 1871.
Tertiary. Included in Pliocene.
- Loup River, Hayden. U. S. Geol. Surv. of Terr., 1st-3d Ann. Repts., pp. 56, 192. 1873.
Tertiary.

- Lower Cross Timber** sands, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. xlviii. 1890.
Cretaceous. Texas. Included in Black Prairie series.
- Lower Cross Timber** division, Taff. Texas Geol. Surv., 2d Ann. Rept., p. 734. 1891.
Cretaceous. Texas. Included in Upper Cretaceous. Exact syn. Dakota division.
- Lower Cross Timber** beds, Hill. Artesian invest., Final Rept. to Secy. Agric., pt. iii, p. 70, 52d Cong., 1st sess., Ex. Doc. 41, pt. iii. 1892.
Cretaceous. Texas and Southwest. Exact syn. Dakota sands.
- Lower Green** sandstone group, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1669. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono formation. Exact syn. No. xa.
- Lowville** limestone, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Silurian. New York. Included in Mohawkian.
- Ludlowville** shales, Hall. Geol. Surv. of N. Y., 3d Ann. Rept., p. 298. 1839.
Devonian. New York.
- Ludlowville** group, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 57. 1842.
New York. Includes Marcellus, Skaneateles, Ludlowville and Moscow shales.
- Ludlowville** shales, Hall. Geol. of N. Y., pt. iv, pp. 18, 187. 1843.
Paleozoic. New York. Included in Hamilton group.
- Lufkin** or Angelina County deposits, Kennedy. Texas Geol. Surv., 3d Ann. Rept., pp. 58-60. 1892.
Tertiary. Texas. Included in Miocene.
- Lyman** group, Hitchcock. Am. Jour. Sci., 3d ser., vol. vii, p. 473. 1874.
New Hampshire.
- Lyman** group, Huntington. Geol. of N. H., pt. ii, pp. 50, 277-279, 293-311, 356. 1877.
Eozoic. New Hampshire. Included in Huronian.
- Lynch Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 375. 1893.
Carboniferous. Texas. Included in Strawn division.
- McAlester** shale, Taff. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 437. 1899.
Carboniferous. Indian Territory. Included in Coal Measures.
- McAlester** shale, Taff and Adams. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 275. 1900.
Carboniferous. Indian Territory.
- McCarthy Creek** shale, Rohn. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 426. 1900. Alaska.
- McCloud** formation, Smith. Jour. of Geol., vol. ii, pp. 593-601. 1894.
Carboniferous. California. Includes Baird shale and McCloud limestone.
- McCloud River** limestone, Smith. Geol. Soc. Am., Bull., vol. v, p. 247. 1894.
Upper Carboniferous. California. Included in Coal Measures(?).
- McCoytown** sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 807. 1892. Silurian. Pennsylvania. Included in No. v.
- McCum** limestone, Keyes. Iowa Acad. Sci., Proc., vol. v, p. 61. 1898.
Ordovician. Iowa.
- McElmo** formation, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 57. 1899.
Juratrias. Colorado. Included in Gunnison formation.
- McElmo** formation, Cross and Spencer. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 76. 1900.
Juratrias. Colorado.
- Machuca** formation, Hayes. Geol. Soc. Am., Bull., vol. x, pp. 285, 313. 1899.
Tertiary. Nicaragua. Included in Oligocene(?).

- McKean** group, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 76-78. 1890.
Devonian. Pennsylvania.
- Mackinac** limestone, Douglass. Mich. Legis., Doc., vol. i, no. ii, (4th Ann. Rept. State Geol., for 1840), p. 548. 1841.
Michigan.
- Macksburgs** sandstone, Lovejoy. Ohio Geol. Surv., vol. vi, pp. 628, 635. 1888.
Carboniferous. Ohio.
- Maclurea** limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 50. 1890.
Silurian. Arkansas.
- Maclurea** limestone, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., pp. 100-111. 1891.
Silurian. Georgia.
- Maclurea** limestone, Spencer. Ga. Geol. Surv., The Paleozoic group. 1893.
Ordovician. Georgia. Exact syn. Chickamauga.
- Macon City** shale, Wheeler. Mo. Geol. Surv., Sheet Rept. No. ii, p. 60. 1893.
Upper Carboniferous. Missouri. Included in Lower Coal Measures.
- Macon City** shale, Wheeler. Mo. Geol. Surv., vol. ix, Sheet Rept. No. ii, p. 60. 1896.
Carboniferous. Missouri. Included in Coal Measures.
- McPherson** Equus beds, Haworth and Beede. Kan. Univ. Geol. Surv., vol. ii, pp. 285-296. 1897.
Pleistocene. Kansas.
- McPherson** Equus beds, Beede. Kan. Acad. Sci., Trans., vol. xv, pp. 104-111. 1898.
Pliocene (?). Kansas.
- Madison** rocks, Borden. Indiana Geol. Surv., 5th Ann. Rept., for 1873, p. 139. 1874.
Indiana.
- Madison** sandstone, Irving. Am. Jour. Sci., 3d ser., vol. ix, p. 442. 1875.
Silurian. Wisconsin. Included in Canadian. Exact syn. Jordan sandstone.
Part. syn. Lower Magnesian limestone (on Mississippi bluffs).
- Madison** sandstone, Chamberlin. Geol. of Wis., vol. ii, p. 260. 1877.
Lower Silurian. Wisconsin. Included in Potsdam.
- Madison** sandstone, Irving. Geol. of Wis., vol. ii, pp. 525, 577, 584, 590, 591, 592, 602, 603. 1877.
Lower Silurian. Wisconsin.
- Madison** sandstone, Chamberlin. Geol. of Wis., vol. i, p. 122. 1883.
Cambrian. Wisconsin. Included in Potsdam.
- Madison** sandstone, Walcott. U. S. Geol. Surv., Bull., No. 81, pp. 245, 331. 1891.
Cambrian. Wisconsin. Included in Potsdam.
- Madison** sandstone, Keyes. Iowa Geol. Surv., vol. i, p. 23. 1893.
Cambrian. Iowa. Included in Potsdam sandstone. Exact syn. Jordan sandstone.
- Madison**, Peale. U. S. Geol. Surv., Bull., No. 110, p. 33. 1893.
Carboniferous. Montana.
- Madison** limestone, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Carboniferous. Montana.
- Madison** sandstone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. vi, pp. 167, 175. 1895.
Cambrian (?). Wisconsin. Included in Jordan sandstone.
- Madison**, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Carboniferous. Montana.
- Madison** limestone, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Carboniferous. Wyoming.
- Madison**, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 39. 1896.
Carboniferous. Montana.

- Madison beds, Foerste. Indiana Dept. Geol. and Nat. Resources, 21st Ann. Rept., 1896, pp. 218, 220. 1897.
Lower Silurian. Indiana.
- Madison formation, Weed. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, p. 469. 1898.
Carboniferous. Montana.
- Madison limestone, Hague. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 52. 1899.
Carboniferous. Wyoming.
- Madison limestone, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59, 149-164. 1899.
Carboniferous. Yellowstone Park.
- Madison limestone, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folios No. 55. 56. 1899.
Carboniferous. Montana.
- Madison beds, Foerste. Indiana Dept. Geol. and Nat. Res., 24th Ann. Rept., pp. 47-57, 63-66. 1900.
Silurian. Indiana. Included in Middle Silurian.
- Madison group, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, pp. 289-293. 1900.
Carboniferous. Montana. Includes Paine shale, Woodhurst limestone, and Castle limestone.
- Madisonville** limestone, Norwood. Ky. Geol. Surv., new ser., vol. iv, p. 319. 1878.
Carboniferous. Kentucky. Included in Coal Measures. Exact syn. South Carolina limestone(?).
- Magnesian** slate, Emmons. Agric. of N. Y., vol. i, pp. 75-78. 1846.
New York, New England. Included in Taconic system.
- Magnesian, Upper and Lower. Am. Jour. Sci., 2d ser., vol. x, p. 5. 1850.
Wisconsin and Iowa.
- Magnesian limestone, Lower, Foster and Whitney. Am. Jour. Sci., 2d ser., vol. xi, p. 233. 1851.
Michigan.
- Magnesian limestone, Lower, Daniels. Wis. Geol. Surv., Rept., 1853, p. 17. 1854.
Silurian. Wisconsin.
- Magnesian, Upper, Percival. Wis. Geol. Surv., Rept., 1854. p. 12. 1855. Wis. Geol. Surv., Rept., 1856, pp. 25, 72-77.
Silurian. Wisconsin.
- Magnesian, Lower, Percival. Wis. Geol. Surv., Rept., 1854, p. 18. 1855. Rept., 1856, pp. 26, 86-92.
Silurian. Wisconsin.
- Magnesian limestone, Second, Meek. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 106. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Magnesian limestone, First, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 115. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Magnesian limestone, Second, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 121, 197. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Magnesian limestone, Third, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 126. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Magnesian limestone, Fourth, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 129. 1855.
Silurian. Missouri. Included in Lower Silurian.

Magnesian limestone, First, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, pp. 159, 174. 1855.

Silurian. Missouri. Included in Lower Silurian.

Magnesian limestone, Second, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 162. 1855.

Silurian. Missouri. Included in Lower Silurian.

Magnesian limestone and shale group, Safford. Geol. Recon. of the State of Tenn., 1st Rept., pp. 153-154. 1856.

Tennessee. Includes Limestone members, shale member, and sandstone member.

Magnesian limestone (Lower), Whitney. Iowa Geol. Surv., vol. i, p. 332. 1858.

Silurian. Iowa.

Magnesian limestone, Worthen. Iowa Geol. Surv., vol. i, p. 192. 1858.

Carboniferous. Iowa.

Magnesian limestone, Lower, Hall and Whitney. Am. Jour. Sci., 2d ser., vol. xxvii, p. 107. 1859.

Silurian. Iowa.

Magnesian limestone (Lower), Whitney. Rept. on Upper Mississippi lead region, p. 144. 1862.

Silurian. Wisconsin.

Magnesian limestone, Lower, Worthen. Ill. Geol. Surv., vol. i, pp. 151-152. 1866.

Silurian. Illinois.

Magnesian limestone, Lower, Whitney. Ill. Geol. Surv., vol. i, pp. 163-164. 1866.

Silurian. Illinois. Exact syn. Calciferous.

Magnesian limestone, Cook. Geol. of N. J., pp. 90-130. 1868.

Cambrian (?). New Jersey. Exact syns. Blue limestone, Calciferous sandstone.

Magnesian limestone, Lower, White. Iowa Geol. Surv., vol. i, pp. 172-174. 1870.

Silurian. Iowa. Included in Primordial group of Lower Silurian.

Magnesian limestone, Lower, Winchell. Minn. Geol. and Nat. Hist. Surv., 1st Ann. Rept., pp. 81-88. 1873.

Lower Silurian. Minnesota.

Magnesian limestone, First, Meek. Mo. Geol. Surv., Rept., 1855-1871, p. 141. 1873.

Silurian. Missouri. Included in Lower Silurian.

Magnesian limestone, Second, Meek. Mo. Geol. Surv., Rept., 1855-1871, pp. 118, 143. 1873.

Silurian. Missouri. Included in Lower Silurian.

Magnesian limestone, Third, Meek. Mo. Geol. Surv., Rept., 1855-1871, pp. 123, 145. 1873.

Silurian. Missouri. Included in Lower Silurian.

Magnesian limestone, Fourth, Meek. Mo. Geol. Surv., Rept., 1855-1871, pp. 127, 148. 1873.

Silurian. Missouri. Included in Lower Silurian.

Magnesian limestone, First, Broadhead. Mo. Geol. Surv., Rept., 1855-1871, p. 53. 1873.

Silurian. Missouri. Included in Lower Silurian and Calciferous sand rock.

Magnesian limestone, Second, Broadhead. Mo. Geol. Surv., Rept., 1855-1871, pp. 10, 27, 55. 1873.

Silurian. Missouri. Included in Lower Silurian and Calciferous sand rock.

Magnesian limestone, Third, Broadhead. Mo. Geol. Surv., Rept., 1855-1871, pp. 15, 32. 1873.

Silurian. Missouri. Included in Lower Silurian and Calciferous sand rock.

Magnesian limestone, First, Shumard. Mo. Geol. Surv., Rept., 1855-1871, pp. 267, 284, 298, 308. 1873.

Silurian. Missouri. Included in Lower Silurian and Calciferous sand rock.

- Magnesian limestone, Second, Shumard. Mo. Geol. Surv., Rept., 1855-1871, pp. 192, 207, 215, 226, 235, 246, 269, 285, 298, 308. 1873.
- Silurian. Missouri. Included in Lower Silurian and Calciferous sand rock.
- Magnesian limestone, Third, Shumard. Mo. Geol. Surv., Rept., 1855-1871, pp. 195, 217, 226, 237, 247, 269, 284, 299, 309. 1873.
- Silurian. Missouri. Included in Lower Silurian and Calciferous sand rock.
- Magnesian limestone, First, Broadhead. Mo. Geol. Surv. Rept., 1873-74, p. 229. 1874.
- Silurian. Missouri. Included in Magnesian limestone series and Calciferous sand rock.
- Magnesian limestone, Second, Broadhead. Mo. Geol. Surv., Rept., 1873-74, pp. 30, 325. 1874.
- Silurian. Missouri. Included in Magnesian limestone series and Calciferous sand rock.
- Magnesian limestone, Third, Broadhead. Mo. Geol. Surv., Rept., 1873-74, pp. 30, 328, 359. 1874.
- Silurian. Missouri. Included in Magnesian limestone series and Potsdam.
- Magnesian limestone, Fourth, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 31. 1874.
- Silurian. Missouri. Included in Magnesian limestone series and Potsdam.
- Magnesian limestone series, Broadhead. Mo. Geol. Surv., Rept., 1873-74, pp. 29, 64. 1874.
- Silurian. Missouri. Included in Calciferous sand rock and Potsdam. Includes First limestone, First sandstone, Second limestone, Second sandstone, Third limestone, Third sandstone, Fourth limestone.
- Magnesian limestone, Lower, Harrington. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 86. 1876.
- Lower Silurian. Minnesota.
- Magnesian limestone, Lower, Irving. Geol. of Wis., vol. ii, p. 547, 586-587, 591, 592, 603, 604. 1877.
- Lower Silurian. Wisconsin. Exact syn. Calciferous sand rock of New York.
- Magnesian limestone, Lower, Chamberlin. Geol. of Wis., vol. ii, pp. 268-285. 1877.
- Lower Silurian. Wisconsin.
- Magnesian limestone, Prime. Am. Jour. Sci., 3d ser., vol. xv, pp. 262-266. 1878.
- Silurian. Pennsylvania. Exact syn. Auroral limestone of Rogers.
- Magnesian limestone, Lower, Strong. Geol. of Wis., vol. iii, p. 397. 1880.
- Wisconsin.
- Magnesian limestone, Lower, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. iv, p. 269. 1881.
- Magnesian limestone, Lower, Wooster. Geol. of Wis., vol. iv, pp. 123-129. 1882.
- Wisconsin.
- Magnesian limestone, Lower, Strong. Geol. of Wis., vol. iv, pp. 64-81. 1882.
- Wisconsin.
- Magnesian limestone, Lower, Chamberlin. Geol. of Wis., vol. i, pp. 138-143. 1883.
- Cambrian. Wisconsin. Included in Potsdam period. Part. syn. Calciferous of New York.
- Magnesian limestone, Lower, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. 12, 36, 72, 382. 1888.
- Cambrian. Minnesota.
- Magnesian limestone, Lower, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. 124, 162. 1888.
- Minnesota.
- Magnesian limestone, First, Ladd. Mo. Geol. Surv., Bull. No. 3, pp. 14, 15. 1890.
- Lower Silurian. Missouri.

- Magnesian limestone, Second, Ladd. Mo. Geol. Surv., Bull. No. 3, pp. 14, 15. 1890.
Cambrian (?). Missouri.
- Magnesian limestone, Simonds and Hopkins. Ark. Geol. Surv., 1891, vol. ii, pp. 27-29. 1891.
Silurian. Arkansas.
- Magnesian limestone, Third, Broadhead. Am. Geol., vol. xi, p. 265. 1893.
Cambrian. Missouri.
- Magnesian limestone, Third, Broadhead. Am. Geol., vol. xii, p. 76. 1893.
Cambrian. Missouri.
- Magnesian limestone, Fourth, Broadhead. Am. Geol., vol. xii, p. 76. 1893.
Cambrian. Missouri.
- Magnesian series, Nason. Am. Geol., vol. xi, p. 91. 1893.
Missouri, Arkansas.
- Magnesian limestone, First, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 38. 1894.
Lower Silurian. Missouri. Included in Calcareous stage.
- Magnesian limestone, Keyes. Mo. Geol. Surv., vol. iv, p. 30. 1894.
Cambrian. Missouri. Included in Ozark series.
- Magnesian limestone, Lower, Hershey. Am. Geol., vol. xiv, p. 171. 1894.
Cambrian. Illinois.
- Magnesian limestone, First, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 61-65. 1898.
Silurian. Missouri. Included in Ozark series. Part syn. Sacchoroidal sandstone.
- Magnesian sandstone, Second, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 53-57. 1898.
Silurian. Missouri. Included in Ozark series.
- Magnesian sandstone, Third, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 50-51. 1898.
Silurian. Missouri. Included in Ozark series.
- Magnesian limestone, Lower, Buckley. Wis. Geol. and Nat. Hist. Surv., Bull. 4, Econ. ser., No. 2, pp. 255-269. 1898.
Wisconsin.
- Magnesian limestone, Lower, Salisbury and Atwood. Wis. Geol. and Nat. Hist. Surv., Bull. No. 5, Ed. ser., No. i, p. 31. 1900.
Wisconsin.
- Magothy** formation, Darton. Am. Jour. Sci., 3d ser., vol. xlv, pp. 407-419. 1893.
Cretaceous. Maryland.
- Magothy, Darton. U. S. Geol. Surv., Bull. No. 138, p. 125. 1896.
Cretaceous. Atlantic Coastal Plain.
- Mahoning** sandstone, Lesley. Manual of Coal, pp. 94, 97-98. 1856.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Mahoning sandstone, Rogers. Geol. of Pa., vol. ii, p. 477. 1858.
- Mahoning sandstone, Lesquereux. Am. Jour. Sci., 2d ser., vol. xxx, p. 368. 1860.
Carboniferous. Central States. Included in Coal Measures.
- Mahoning sandstone, Lesley. Am. Jour. Sci., 2d ser., vol. xxxii, p. 285. 1861.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Mahoning sandstone, Lesquereux. Ill. Geol. Surv., vol. i, p. 215. 1866.
Carboniferous. Illinois. Included in Coal Measures. Exact syn. Mahoning sandstone of Pennsylvania (?).
- Mahoning sandstone, Stevenson. Am. Phil. Soc., Trans., vol. xv, pp. 27-29. 1873.
Carboniferous. West Virginia. Included in Alleghany River series.
- Mahoning sandstone, Fontaine. Am. Jour. Sci., 3d ser., vol. vii, p. 461. 1874.
Carboniferous. West Virginia. Included in Lower Barren Measures.
- Mahoning sandstone, Newberry. Ohio Geol. Surv., vol. ii, p. 149. 1874.
Carboniferous. Ohio. Included in Lower Coal Measures.
- Mahoning sandstone, Crandall. Ky. Geol. Surv., vol. ii, new ser., pp. 3-76. 1877.
Carboniferous. Kentucky. Included in Coal Measures.

- Mahoning sandstone, Newberry. Ohio Geol. Surv., vol. iii, p. 71. 1878.
Carboniferous. Ohio. Included in Coal Measures.
- Mahoning sandstone, Platt. 2d Pa. Geol. Surv., Rept. H⁴, p. 312. 1878.
Carboniferous. Pennsylvania.
- Mahoning, Platt. 2d Pa. Geol. Surv., Rept. H⁵, pp. 312-313. 1880.
Carboniferous. Pennsylvania.
- Mahoning sandstone, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 394. 1885.
Carboniferous. Pennsylvania.
- Mahoning sandstone, White. 2d Pa. Geol. Surv., Rept. T³, pp. 49-50. 1885.
Carboniferous. Pennsylvania.
- Mahoning sandstone, Lovejoy-Ellis. Ohio Geol. Surv., vol. vi, p. 631. 1888.
Carboniferous. Ohio.
- Mahoning coal, White. U. S. Geol. Surv., Bull. No. 65, p. 96. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Barren Measures, Elk River series. Exact syn. Brush Creek.
- Mahoning limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 96. 1891.
Carboniferous. Pennsylvania. Included in Barren Measures, Elk River series. Exact syn. Summit limestone.
- Mahoning sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 95. 1891.
Carboniferous. Pennsylvania, West Virginia. Included in Barren Measures, Elk River series. Includes Upper and Lower Mahoning.
- Mahoning sandstone, Lower, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.
Upper Carboniferous. West Virginia. Included in Elk River series.
- Mahoning sandstone, Upper, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.
Upper Carboniferous. West Virginia. Included in Elk River series.
- Mahoning sandstone, Gallaher. Mo. Geol. Surv., Bien. Rept., p. 39. 1898.
Upper Carboniferous. Missouri. Included in Lower Coal Measures.
- Main** street, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.
Cretaceous. Indian Territory. Included in Denison beds, Washita division.
- Malade** Valley group, Peale. U. S. Geol. Surv. of Terr., 11th Ann. Rept., p. 641. 1879.
Pleistocene. Utah. Included in Quaternary.
- Malone** bed, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 721-722. 1891.
Cretaceous. Texas. Included in Washita division.
- Malone formation, Stanton. Jour. of Geol., vol. v, pp. 817-819. 1897.
Jurassic. Texas.
- Mammoth** limestone, Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 65. 1900.
Carboniferous. Utah.
- Manasquan** marl, Clark. N. J. State Geol., Ann. Rept. for 1892, pp. 205-208. 1893.
Cretaceous. New Jersey.
- Manasquan formation, Clark. Jour. of Geol., vol. ii, p. 166. 1894.
Cretaceous. New Jersey. Part. syn. Upper Marl bed.
- Manasquan, Clark. N. J. Geol. Surv., Rept. 1893, p. 338. 1894.
Cretaceous. New Jersey. Part. syn. Upper Marl bed.
- Manasquan formation, Clark. Geol. Soc. Am., Bull., vol. vi, pp. 479, 481. 1895.
Cretaceous. New Jersey. Includes Upper Marl bed.
- Manasquan formation, Shattuck. Johns Hopkins Univ. Circ., vol. xv, p. 15. 1895.
Cretaceous. New Jersey. Part. syn. Lower portion of Upper Marl bed.
- Manasquan, Darton. U. S. Geol. Surv., Bull. No. 138, p. 41. 1896.
Cretaceous. New Jersey. Exact syn. Upper Marl in part.
- Manasquan formation, Clark, Bagg and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 316, 339. 1897.
Cretaceous. New Jersey. Included in Upper Cretaceous.

Manasquan formation, Clark, Baggs and Shattuck. N. J. Geol. Surv., Rept., 1897, pp. 190-191. 1898.

Cretaceous. New Jersey. Included in Upper Cretaceous.

Manatee River marl, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 125. 1892.

Tertiary. Florida. Included in Miocene.

Manayunk mica schists, Hall. 2d Pa. Geol. Surv., Rept. C⁶, pp. 27-28. 1881. Pennsylvania.

Manayunk subdivision, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 122-123. 1892.

Archean. Pennsylvania.

Manayunk gneisses and schists, Rand. Phil. Acad. Nat. Sci., Proc., 1900, pp. 279-283. 1900.

Pennsylvania.

Manchionell, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, p. 86. 1899.

Tertiary. Jamaica. Included in Coastal series, Pliocene.

Mancos shale, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Geol. Atlas of U. S., Folio No. 57. 1899.

Cretaceous. Colorado.

Manhattan group, Stevens. Lyceum of Nat. Hist. of N. Y., Annals, vol. viii, pp. 108-120. 1867.

New York. Exact syn. Taconic.

Manhattan, Prosser. Geol. Soc. Am., Bull., vol. vi, pp. 29, 37, 40. 1894.

Permian. Kansas. Exact syn. Cottonwood.

Manhattan schist, Merrill. N. Y. State Mus., 50th Ann. Rept., vol. i, p. 287. 1898.

Silurian. New York. Included in Ordovician.

Manitoban, Tyrrell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 144E-199E. 1893.

Devonian. Canada. Included in Upper Devonian.

Manitonnuck group, Bell. Can. Geol. Surv., Rept. 1877-78, pp. 11C-19C. 1879. Canada.

Manitou limestone, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.

Silurian. Colorado.

Manitou limestone, Crosby. Essex Inst., Bull., vol. xxvii, p. 114. 1895.

Ordovician. Colorado.

Manitou limestone, Crosby. Geol. Soc. Am., Bull., vol. x, p. 143. 1899.

Ordovician. Colorado.

Manitou series, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 307, 519. 1899.

Cambrian. Minnesota. Included in Animikie.

Manlius water-lime group, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., p. 376. 1840.

Silurian. New York.

Manlius water-lime group, Emmons. Agric. of New York, vol. i, pp. 159-166. 1846.

New York. Included in Onondaga salt group of Helderberg division of New York system.

Manlius limestone, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.

Silurian. New York. Included in Cayugan.

Manlius limestone, Grabau. Geol. Soc. Am., Bull., vol. xi, pp. 350-351. 1900.

Silurian. New York. Included in Upper Silurian.

Manlius limestone, Weller. N. J. Geol. Surv., Rept. 1899, p. 24. 1900.

Devonian. New Jersey.

- Mansfield group**, Hilgard. Am. Jour. Sci., 2d ser., vol. xlviii, p. 340. 1869.
Tertiary. Louisiana.
- Mansfield group**, Hopkins. La. State Univ., Rept. for 1869, p. 83. 1870.
Eocene.
- Mansfield series**, Johnson. Iron regions of northern Louisiana and eastern Texas, 50th Cong., 1st sess., House Rep., Ex., p. 16. 1888.
Eocene. Louisiana. Part. syn. Claiborne.
- Mansfield sandstone**, Hopkins. Indiana Dept. Geol. and Nat. Res., 20th Ann. Rept., 1875, pp. 186, 195, 196, 199. 1896.
Carboniferous. Indiana.
- Mansfield sandstone**, Blatchley. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rept., 1896, p. 15. 1897.
- Mansfield Sandstone**, Newsom. Indiana Acad. Sci., Proc., 1897, p. 252. 1898.
Indiana.
- Mansfield sandstone**, Blatchley and Ashley. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, pp. 16, 21. 1898.
Carboniferous. Indiana.
- Mansfield sandstone**, Kindle. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, p. 408. 1898.
Carboniferous. Indiana.
- Mansfield sandstone**, Ashley. Indiana Dept. Geol. and Nat. Res., 23d Ann. Rept., 1898, pp. 94, 89, 93, 95, 141, 180, 925. 1899.
Carboniferous. Indiana.
- Mansfield schists**, Smyth. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 411-415, 437-440. 1899.
Michigan.
- Mansfield formation**, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
Algonkian. Michigan. Included in Lower Huronian.
- Mansfield slate**, Clements. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 54-73. 1899.
Michigan. Included in Lower Huronian series.
- Mansfield formation**, Clements and Smyth. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 36-40, 131. 1899.
Algonkian. Michigan. Included in Lower Huronian.
- Manti beds**, Scott. Geol. Soc. Am., Bull., vol. ix, p. 404. 1898.
Tertiary. Utah. Exact syn. Green River.
- Manti formation**, Smith. Jour. of Geol., vol. viii, p. 455. 1900.
Tertiary. Western North America. Included in Eocene.
- Manzanilla beds**, Guppy. London Geol. Soc., Quart. Jour., vol. xxii, pp. 572-573. 1866.
Tertiary. Trinidad. Included in Lower Miocene.
- Manzanilla beds**, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 344. 1898.
Tertiary. Island of Trinidad. Included in Claibornian stage, Eocene. Exact syn. Gatun beds, Arago beds.
- Maple Mill shale**, Bain. Am. Geol., vol. xv, p. 322. 1895.
Carboniferous. Iowa. Included in Mississippian series. Kinderhook.
- Maple Mill shale**, Bain. Iowa Geol. Surv., vol. v, pp. 134-135. 1896.
Carboniferous. Iowa. Included in Kinderhook.
- Mapleton sandstone**, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 136. 1900.
Maine.
- Maquoketa shale**, White. Iowa Geol. Surv., vol. i, pp. 180-182. 1870.
Silurian. Iowa. Included in Cincinnati group. Exact syn. Hudson River shales.
- Maquoketa shales**, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 300. 1884.

- Maquoketa shale, Walcott. Geol. Soc. Am., Bull., vol. i, p. 343. 1889.
Silurian. Tennessee. Included in Hudson River.
- Maquoketa shale, James. Am. Assoc. Adv. Sci., Proc., vol. xxxviii, p. 250. 1889.
Silurian. Iowa.
- Maquoketa, James. Am. Geol., vol. v., p. 335. 1890.
Silurian. Ohio and Mississippi valleys. Included in Cincinnati.
- Maquoketa shales, James. Cin. Soc. Nat. Hist., Jour., vol. xiii, No. i, p. 2. 1890.
Ordovician.
- Maquoketa shale, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 326. 1891.
Silurian. Iowa.
- Maquoketa beds, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, pp. 332, 365. 1892.
Lower Silurian. Minnesota. Included in Cincinnati group.
- Maquoketa shales, Keyes. Iowa Geol. Surv., vol. i, pp. 28-29. 1893.
Silurian. Iowa.
- Maquoketa shale, Norton. Iowa Geol. Surv., vol. iii, pp. 177-178. 1895.
Silurian. Iowa.
- Maquoketa, Sardeson. Am. Geol., vol. xviii, pp. 356-368. 1896.
Silurian. Mississippi Valley. Part syn. Trenton.
- Maquoketa series, Sardeson. Am. Geol., vol. xix, pp. 21-35, 330-336. 1897.
Silurian. Mississippi Valley. Included in Lower Silurian. Includes Wyckoff,
Maquoketa, and Transition formations.
- Maquoketa shales, Calvin. Iowa Geol. Surv., vol. viii, pp. 140-144. 1898.
Silurian. Iowa. Included in Ordovician.
- Maquoketa shale, Calvin and Bain. Iowa Geol. Surv., vol. x, p. 431. 1900.
Silurian. Iowa. Included in Ordovician.
- Marais des Cygnes** coal series, Swallow. Kan. Geol. Surv., Prelim. Rept., pp. 22-24. 1866.
Carboniferous. Kansas.
- Marais des Cygnes shales, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 84. 1900.
Carboniferous. Mississippi Valley. Included in Coal Measures.
- Marble** beds, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 355. 1874.
Silurian. Missouri. Included in Primordial Potsdam.
- Marble Canon** limestone, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 26B, 39B-40B. 1896.
Carboniferous. British Columbia. Included in Cache Creek beds.
- Marble Hill** marble stratum, Borden. Indiana Geol. Surv., 5th Ann. Rept., 1873, p. 139. 1874.
Indiana.
- Marble Hill beds, Foerste. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rept., 1896, pp. 218, 219. 1897.
Lower Silurian. Indiana.
- Marcellus** shales, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 295-296. 1839.
Devonian. New York.
- Marcellus shale, Hall. N. Y. Geol. Surv., 4th Ann. Rept., pp. 420-421. 1840.
Devonian. New York.
- Marcellus shale, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 57. 1842.
New York. Included in Ludlowville group.
- Marcellus shale, Vanuxem. Geol. of New York, pt. iii, pp. 146-150. 1842.
Paleozoic. New York. Included in New York system. Exact syn. Pyritiferous rock (Third graywacke) of Eaton.
- Marcellus shale, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 177-179. 1843.
Paleozoic. New York. Included in New York system. Includes Pyritiferous rock of Eaton and Black shale.

- Marcellus slate, Emmons. Agric. of N. Y., vol. i, pp. 181-183. 1846.
New York. Included in Erie division of New York system.
- Marcellus shales, Loomis. Am. Jour. Sci., 2d ser., vol. i, p. 223. 1846.
Devonian. Tennessee.
- Marcellus, Emmons. Agric. of N. Y., vol. i, pp. 181-183. 1846.
Devonian. New York. Included in Erie division of New York system.
- Marcellus shale, Owen. Am. Jour. Sci., 2d ser., vol. iii, p. 57. 1847.
Devonian. New York. Included in Erie division of New York system. Part syn. Lower part of Formation, No. viii, Pennsylvania Survey.
- Marcellus shale, Cook. Geol. of New Jersey, p. 167. 1868.
Devonian. New Jersey.
- Marcellus shale, Hunt. Am. Jour. Sci., 2d ser., vol. xvi, pp. 357-362. 1868.
Devonian. Canada. Included in Hamilton shale.
- Marcellus, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 528, 532. 1877.
Devonian. Appalachian region. Exact syn. Cadent, Lower.
- Marcellus shale, Whitfield. Am. Assoc. Adv. Sci., Proc., vol. xxviii, pp. 297-299. 1880.
Devonian. Ohio.
- Marcellus, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 32-34. 1881.
Devonian. Pennsylvania.
- Marcellus shale, Whitfield. N. Y. Acad. Sci., Annals, vol. ii, p. 233. 1882.
Devonian. Ohio. Part syn. Hamilton of New York.
- Marcellus shale, Williams. Am. Assoc. Adv. Sci., Proc., vol. xxx, pp. 186-191. 1882.
Devonian. New York.
- Marcellus shale, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 112-116. 1882.
Carboniferous. Pennsylvania. Included in Hamilton of No. viii. Exact syn. Lower Hamilton.
- Marcellus, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 64-65. 1885.
Devonian. Pennsylvania.
- Marcellus, White. 2d Pa. Geol. Surv., Rept. T³, pp. 113-116. 1885.
Devonian. Pennsylvania.
- Marcellus shale, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1892.
Devonian. New York.
- Marcellus shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1194-1236. 1892.
Devonian. Pennsylvania. Exact syn. No. viiib of Pennsylvania Survey.
- Marcellus, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 95, 108, 116. 1893.
Devonian. New York.
- Marcellus shale, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Hamilton (Middle Devonian).
- Marcellus shale, Lincoln. N. Y. State Mus., 48th Ann. Rept., pt. ii, pp. 92-93. 1895.
Devonian. New York.
- Marcellus shale, Lincoln. N. Y. State Geol., 14th Ann. Rept., pp. 92-93. 1895.
Devonian. New York.
- Marcellus shale, Grabau. Buff. Soc. Nat. Hist., Bull., vol. vi, pp. 65-66. 1898.
Devonian. New York.
- Mareniscan**, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.
Archean. Michigan. Exact syn. Couthiching (?) of Ontario and Minnesota (?).
- Marietta** sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 35. 1891.
Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Permian-Carboniferous, Dunkard Creek.

Marietta, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.

Cretaceous. Texas, Indian Territory. Included in Denison beds, Washita division.

Marino beds, Kennedy. Phil. Acad. Nat. Sci., Proc., 1895, p. 108. 1895.

Eocene. Texas. Included in Lower Claiborne. Part. syn. Cooks Mountain series.

Marion formation, Prosser. Jour. of Geol., vol. iii, pp. 786-789. 1895.

Permo-Carboniferous. Kansas.

Marion formation, Prosser. Kan. Univ. Quart., vol. vi, pp. 157-158, 174. 1896.

Carboniferous. Kansas. Included in Permian.

Marion formation, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 64-65. 1897.

Carboniferous. Kansas. Included in Permian. Exact syn. Gueda Salt Measures.

Marion limestone, Beede. Kan. Univ. Quart., vol. ix, p. 202. 1900.

Carboniferous. Kansas.

Mariposa, Becker. U. S. Geol. Surv., Bull. No. 19, p. 18. 1885.

California. Exact syn. Knoxville.

Mariposa beds, Diller. Geol. Soc. Am., Bull., vol. iv, p. 222. 1893.

Jurassic. California.

Mariposa, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 11. 1894.

Cretaceous. California.

Mariposa, Turner. Am. Geol., vol. xiii, p. 234. 1894.

Juratrias. California.

Mariposa formation, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 452. 1894.

Juratrias or Cretaceous. California.

Mariposa, Lindgren and Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 3. 1894.

Cretaceous. California. Included in Auriferous slate series.

Mariposa, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 5, 29. 1894, 1896.

Cretaceous. California. Included in Auriferous slate series.

Mariposa beds, Diller and Stanton. Geol. Soc. Am., Bull., vol. v, p. 457. 1894.

Jurassic. California.

Mariposa beds, Hyatt. Geol. Soc. Am., Bull., vol. v, p. 406. 1894.

Jurassic. California.

Mariposa formation, Lindgren. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 88. 1896.

Juratrias. California.

Mariposa formation, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 41. 1897.

Juratrias. California. Included in Bed Rock series.

Mariposa formation, Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 63. 1900.

Juratrias. California.

Mariposa formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.

Juratrias. California. Included in Bed Rock series.

Marks Mills red beds, Harris. Am. Jour. Sci., 3d ser., vol. xlvii, p. 304. 1894.

Tertiary. Included in Jackson stage of Eocene.

Marks Mills beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 342. 1898.

Tertiary. Arkansas. Included in Jacksonian stage, Eocene.

Marl stratum, Rogers. 1st rept. on the Geol. of N. J., p. 29 et seq. 1836.

Marl series, Newberry. Senate Ex. Doc., 36th Cong., 1st sess., Ives's Rept. on Colorado River, p. 106. 1861.

Cretaceous. New Mexico.

Marl beds, Rogers. Geol. of N. J., pp. 261-266. 1868.

Cretaceous, New Jersey. Includes lower marl bed, red sand, middle marl bed, yellow sand bed, and upper marl bed.

- Marl period, Perry. Boston Soc. Nat. Hist., Proc., vol. xv, 1872-73, p. 139. 1872.
Tertiary. New England.
- Marl bed, Lower, Clark. N. J. State Geol., Rept., 1892, pp. 191-199. 1893.
Cretaceous. New Jersey. Includes Monmouth formation.
- Marl bed, Middle, Clark. N. J. State Geol., Rept., 1892, pp. 201-205. 1893.
Cretaceous. New Jersey. Includes Rancocas formation.
- Marl bed, Upper, Clark. N. J. State Geol., Rept., 1892, pp. 205-210. 1893.
Cretaceous and Tertiary. New Jersey. Includes Manasquan and Shark River formations.
- Marlborough**, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 124-127. 1884.
Tertiary. Maryland. Included in Eocene.
- Marl-Brook Columbus** chalk marls, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 84-86. 1888.
Cretaceous. Arkansas. Included in Chalky marl beds.
- Marmaton** formation, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 92, 94. 1898.
Carboniferous. Kansas. Included in Lower Coal Measures. Includes Upper Pleasanton shales, Altamont limestone, Lower Pleasanton shale, Pawnee limestone, Labette shale, and Oswego limestone.
- Maroon** conglomerate, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Carboniferous. Colorado.
- Maroon formation, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.
Carboniferous. Colorado.
- Maroon formation, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, pp. 33-37. 1898.
Carboniferous. Colorado.
- Marquette** series, Brooks. Mich. Geol. Surv., vol. i, pt. i, p. 216. 1873.
Michigan.
- Marquette, Irving. U. S. Geol. Surv., 3d Ann. Rept., pp. 166-168. 1883.
Archean. Michigan. Included in Huronian. Exact syn. Animikie, Penokee, and Menominee.
- Marquettian, Winchell. Minn. Geol. and Nat. Hist. Surv., 16th Ann. Rept., p. 365. 1888.
Minnesota.
- Marquette-Menominee schists, Van Hise. Int. Cong. of Geol., 5th session, pl. xiv. 1893.
Algonkian. Lake Superior region. Included in Huronian.
- Marquette series, Upper, Van Hise. Geol. Soc. Am., Bull., vol. v, p. 6. 1893.
Archean. Michigan.
- Marquette series, Lower, Van Hise. Geol. Soc. Am., Bull., vol. v, p. 6. 1893.
Archean. Michigan.
- Marquette series, Lower, Smyth. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 216-223. 1894.
Algonkian. Michigan.
- Marquette series, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 517. 1895.
Algonkian. Lake Superior region. Includes Mesnard quartzite, Kona dolomite, Wewe slate, Ajibik quartzite, Siamo slate, and Negaunee formation. Exact syns. Lower Huronian, Lower Felch Mountain, and Lower Menominee series.
- Marquette series, Upper, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 590. 1895.
Algonkian. Lake Superior region. Included Ishpeming, Michigamme, and Clarksburg formation.
- Marquette series, Upper, Smyth. U. S. Geol. Surv., 15th Ann. Rept., p. 616. 1895.
Algonkian. Lake Superior region. Included Goodrich quartzite. Exact syn. Upper Huronian.

- Marquette series, Lower, Smyth. U. S. Geol. Surv., 15th Ann. Rept., p. 610. 1895.
Algonkian. Lake Superior region. Includes Ajibik quartzite, and Negaunee formation.
- Marquette series, Upper, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 408-486, 554-575. 1897.
Algonkian. Michigan. Includes Ishpeming formation, Michigamme formation, and Clarksburg formation.
- Marquette series, Lower, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 221-407, 554-575. 1897.
Algonkian. Michigan. Includes Mesnard quartzite, Kona dolomite, Wewe slate, Ajibik quartzite, Siamo slate, and Negaunee formation. Exact syn. Lower Menominee.
- Marquette series, Upper, Smyth. U. S. Geol. Surv., Mon., vol. xxviii, pp. 535-537. 1897.
Algonkian. Michigan. Includes Goodrich quartzite.
- Marquette series, Lower, Smyth. U. S. Geol. Surv., Mon., vol. xxviii, pp. 528-535. 1897.
Algonkian. Michigan. Includes Ajibik quartzite, and Negaunee formation. Exact syn. Lower Menominee.
- Marquette series, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
Algonkian. Michigan. Included in Upper and Lower.
- Marquette series, Lower, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
Algonkian. Michigan. Includes Negaunee formation, Siamo slate, Ajibik quartzite, Wewe slate, Kona dolomite, Mesnard quartzite. Exact syns. Lower Huronian and Lower Menominee.
- Marquette series, Upper, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
Algonkian. Michigan. Exact syns. Upper Huronian and Upper Menominee.
- Marquette, Walcott. Geol. Soc. Am. Bull., vol. x, p. 222. 1899.
Algonkian. Michigan. Exact Syns. Felch Mountain and Menominee.
- Mars Hill** conglomerate, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 134. 1900.
Maine.
- Marseilles** moraine, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 307-316. 1899.
Pleistocene. Illinois.
- Marsh** shale, Walcott. Geol. Soc. Am. Bull., vol. x, pp. 199, 207. 1899.
Algonkian. Pre-Cambrian. Montana.
- Marsh Creek** group, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 642. 1879.
Pleistocene. Utah. Included in Quaternary.
- Marshall** group, Winchell. Mich. Geol. Surv., 1st Bien. Rept., Prog., pp. 80, 139. 1861.
Devonian. Michigan.
- Marshall group, Winchell. Phil. Acad. Nat. Sci., Proc., vol. xv, p. 2. 1863.
- Marshall group, Winchell. Phil. Acad. Nat. Sci., Proc., vol. xvii, p. 109. 1865.
Paleozoic. Michigan.
- Marshall group, Winchell. Am. Jour. Sci., 2d ser., vol. xli, p. 120. 1866.
Carboniferous (?). Michigan.
- Marshall group, Winchell. The Grand Traverse region, pp. 39, 52. 1866.
Lower Carboniferous. Michigan.
- Marshall group, Winchell. Am. Phil. Soc., Proc., vol. ii, p. 57. 1869.
Carboniferous. Michigan. Includes Napoleon sandstone, Marshall sandstone, Huron grit stone.

- Marshall group, Winchell. Mich. Geol. Surv., Rept. Prog., pp. 29, 34. 1871.
Carboniferous. Michigan.
- Marshall shale, Simonds. Ark. Geol. Surv., 1888, vol. iv, p. 53. 1888.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Marshall sandstone, Lane. Mich. Geol. Surv., Rept. State Board for 1891-92, p. 66. 1893.
Subcarboniferous. Michigan.
- Marshall sandstone, Lane. Mich. Geol. Surv., vol. v, pt. ii, p. 17. 1895.
Michigan.
- Marshall shale, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 354. 1897.
Carboniferous. Indian Territory. Included in Boston group of Lower Carboniferous.
- Marshall series, Lane. U. S. Geol. Surv., Water-Supply Papers, No. 30, pl. vi. 1899.
Carboniferous. Michigan. Exact syn. Kinderhook.
- Marshall series, Lane. Mich. Geol. Surv., vol. vii, pt. ii, pp. 16, 89. 1900.
Carboniferous. Michigan. Includes Upper or Napoleon sandstone and Lower Marshall.
- Marshalltown** shales, Beyer. Iowa Geol. Surv., vol. vii, pp. 226-227. 1897.
Carboniferous. Iowa. Included in Kinderhook.
- Marsouin** series, Dawson. Can. Roy. Soc., Trans., new ser., vol. ii, sec. iv, p. 93. 1896.
Silurian. Canada. Included in Quebec group, Upper division of group proper.
Part. syn. Chazy and Trenton.
- Martinez** group, Gabb. Cal. Geol. Surv., Paleontology, vol. ii, Preface, p. xiii. 1869.
Cretaceous. California.
- Martinez group, Stanton. Geol. Soc. Am., Bull., vol. iv, p. 253. 1893.
Cretaceous. California. Included in Chico.
- Martinez group, Stanton. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 1028. 1896.
California.
- Martinez group, Merriam. Jour. of Geol., vol. v, pp. 767-775. 1897.
Cretaceous. California.
- Martinez group, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 347. 1898.
Tertiary. California. Included in Eocene.
- Martinez formation, Smith. Jour. of Geol., vol. viii, pp. 459-460. 1900.
Tertiary. California. Included in Eocene.
- Martinsburg** shale, Geiger and Keith. Geol. Soc. Am., Bull., vol. ii, p. 161. 1890.
Silurian. Virginia and West Virginia. Exact syn. Hudson River.
- Martinsburg shale, Darton. Am. Geol., vol. x, p. 13. 1892.
Silurian. Virginia. Part. syn. Valley limestones.
- Martinsburg shale, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 342. 1894.
Silurian. Virginia and Maryland.
- Martinsburg shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.
Silurian. Virginia, Maryland, and West Virginia.
- Martinsburg shale, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 14, 32. 1894, 1896.
Silurian. Virginia and West Virginia. Exact syns. Hudson River, Rogers No. iii, and Matinal.
- Martinsburg formation, Clark. Md. Geol. Surv., vol. i, pp. 157-180. 1897.
Silurian. Maryland.
- Martinsburg shale, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
Silurian. Virginia and West Virginia.

- Martinsburg shale, Prosser. Jour. of Geol., vol. viii, pp. 653-663. 1900.
 Silurian. Maryland and Virginia. Included in Ordovician.
- Maruga** sands, Spencer. Geol. Soc. Am., Bull., vol. vi, p. 126. 1894.
 Tertiary. Trinidad, W. I. Included in Pliocene.
- Marvin Creek** limestone, Ashburner. 2d Pa. Geol. Surv., Rept. R, pp. 68-69. 1880.
 Carboniferous. Pennsylvania. Included in Pocono.
- Marvin Creek limestone, Lesley. 2d. Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1731. 1895.
 Carboniferous. Pennsylvania. Included in No. x, Pocono.
- Marylandian**, Heilprin. Phil. Acad. Nat. Sci., Proc., 1882, pp. 183-184. 1882.
 Lower Miocene. Included in Lower Atlantic Miocene. Exact syn. Older group of Maryland. Part. syn. Yorktown in part.
- Marylandian, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 119-120. 1884.
 Tertiary. Includes Lower Atlantic Miocene. Part. syn. Yorktown.
- Maryville** rock, Broadhead. St. Louis Acad. Sci., Trans., vol. iv, p. 489. 1886.
 Carboniferous. Kansas.
- Maryville limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
 Cambrian. Kentucky, Virginia, and Tennessee.
- Maryville limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
 Cambrian. Tennessee and North Carolina.
- Maryville limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
 Cambrian. Tennessee. Included in Conasauga shale. Part. syn. Knox shale of Safford.
- Maryville limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
 Cambrian. Virginia and Tennessee.
- (**Mascarene**) Mascarienne formation, Bailey and Matthew. Can. Geol. Surv., Rept., 1870-71, pp. 148-163. 1873.
 New Brunswick.
- Mascarene series, Bailey and Matthew. Can. Geol. Surv., Rept., 1874-75, p. 85. 1876.
 Upper Silurian. New Brunswick. Includes 5 divisions.
- Mascarene series, Bailey and Matthew. Can. Geol. Surv., Rept., 1875-76, pp. 352-366. 1877.
 Upper Silurian. New Brunswick. Includes 5 divisions.
- Mason** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvii. 1890.
 Algonkian. Texas. Included in Texan system.
- Massanutten** sandstone, Darton. Am. Geol., vol. x, p. 14. 1892.
 Silurian. Virginia. Part. syns. Medina and Clinton.
- Massanutten sandstone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 14. 1894.
 Silurian. Virginia and West Virginia.
- Massillon** sandstone, Upper, Orton. Ohio Geol. Surv., vol. vii, pp. 36, 59. 1893.
 Carboniferous. Ohio. Included in Conglomerate group.
- Massillon sandstone, Lower, Orton. Ohio Geol. Surv., vol. vii, p. 36. 1893.
 Carboniferous. Ohio. Included in Conglomerate group.
- Masuk**, Gilbert. U. S. Geog. and Geol. Surv., Rept. on Henry Mountains, p. 4. 1877.
 Cretaceous. Utah.
- Matanuska** series, Mendenhall. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 307-309. 1900.
 Cretaceous. Alaska.

- Matanzas** series, Spencer. Geol. Soc. Am., Bull., vol. vi, p. 124. 1894.
Tertiary. Cuba. Included in Pliocene and Lafayette.
- Matanzas** formation, Spencer. Geol. Soc. Am., Bull., vol. vii, pp. 67, 81. 1895.
Tertiary. Cuba. Included in Pliocene.
- Matawan**, Clark. N. J. Geol. Surv., Rept., 1893, pp. 335-336. 1894.
Cretaceous. New Jersey. Exact syn. Clay marls.
- Matawan** formation, Clark. Jour. of Geol., vol. ii, pp. 163-164. 1894.
Cretaceous. New Jersey. Exact syn. Clay marls.
- Matawan** formation, Clark. Geol. Soc. Am., Bull., vol. vi, pp. 479, 480. 1895.
Cretaceous. New Jersey.
- Matawan** formation, Shattuck. Johns Hopkins Univ. Circ., vol. xv, p. 15. 1895.
Cretaceous. New Jersey. Exact syn. Clay marls.
- Matawan**, Darton. U. S. Geol. Surv., Bull. No. 138, p. 40. 1896.
Cretaceous. New Jersey.
- Matawan**, Clark. Md. Geol. Surv., vol. i, pp. 156, 193. 1897.
Cretaceous. Maryland.
- Matawan** formation, Clark, Bagg and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 315, 326. 1897.
Cretaceous. New Jersey. Included in Upper Cretaceous. Includes Crosswicks clays, Hazlet sands.
- Matawan** formation, Clark, Bagg and Shattuck. N. J. Geol. Surv., Rept., 1897, pp. 175-180. 1898.
Cretaceous. New Jersey. Included in Upper Cretaceous. Includes Crosswicks clays and Hazlet sands.
- Matinal** series, Rogers. Am. Jour. Sci., 1st series, 1844, vol. xlvii, p. 155. 1844.
Includes rocks from the base of the Calceiferous sandstone to the top of the Hudson River slates.
- Matinal** series, Rogers. Geol. of Pa., vol. i, pp. 105, 124-126, 239, 246, 252, 260, et seq., vol. ii, p. 752. 1858.
Silurian. Pennsylvania. Includes Trenton, Utica slates, and Hudson River slate.
- Matthews** Landing group, Aldrich. Ala. Geol. Surv., Bull. No. 1, p. 59. 1886.
Tertiary. Alabama.
- Matthews** Landing series, Smit¹ and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 57. 1887.
Tertiary. Alabama. Included in Lower Eocene, Lignitic.
- Matthews** Landing, Langdon. Geol. Soc. Am., Bull., vol. ii, p. 588. 1891.
Tertiary. Alabama. Included in Lower Eocene.
- Mauch Chunk** red shale, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 521, 536. 1877.
Carboniferous. Pennsylvania. Includes Mountain limestone. Exact syn. Umbral.
- Mauch Chunk** red shale, Platt. 2d Pa. Geol. Surv., Rept. H², p. xxvi. 1877.
- Mauch Chunk** red shale, Ashburner. 2d Pa. Geol. Surv., Rept. F, pp. 194-206. 1878.
Carboniferous. Pennsylvania.
- Mauch Chunk** shale, Stevenson. 2d Pa. Geol. Surv., Rept. K³, pp. 47-53. 1878.
Carboniferous. Pennsylvania. Exact syn. Umbral.
- Mauch Chunk**, Ashburner. 2d Pa. Geol. Surv., Rept. R, pp. 63-64. 1880.
Carboniferous. Pennsylvania. Exact syn. No. xi.
- Mauch Chunk** red shale, Chance. 2d Pa. Geol. Surv., Rept. G⁴, pp. 95-96. 1880.
Carboniferous. Pennsylvania. Exact syn. No. xi.
- Mauch Chunk** shale, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 19-22. 1881.
Carboniferous. Pennsylvania. Exact syn. No. xi.
- Mauch Chunk** red shale, White. 2d Pa. Geol. Surv., Rept. G⁵, pp. 55-56. 1881.
Carboniferous. Pennsylvania. Exact syn. No. xi.

- Mauch Chunk shale, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 67-69. 1882.
Carboniferous. Pennsylvania.
- Mauch Chunk shale, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 88-89. 1882.
Carboniferous. Pennsylvania. Exact syn. No. xi.
- Mauch Chunk shale, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 44-46. 1883.
Carboniferous. Pennsylvania. Exact syn. No. xi.
- Mauch Chunk shale, White. 2d. Pa. Geol. Surv., Rept. T³, pp. 73-77. 1885.
Carboniferous. Pennsylvania.
- Mauch Chunk shale, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 395. 1885.
Carboniferous. Pennsylvania. Exact syn. No. xi.
- Mauch Chunk red shale, Winslow. 2d Pa. Geol. Surv., Ann. Rept. 1886, pt. iv, pp. 1337, 1347, 1348, 1352. 1887.
Carboniferous. Pennsylvania. Exact syn. No. xi.
- Mauch Chunk, White. Geol. Soc. Am., Bull., vol. iii, p. 190. 1892.
Lower Carboniferous. West Virginia.
- Mauch Chunk red shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1805, 1853. 1895.
Carboniferous. Pennsylvania. Exact syns. No. xi, Umbral of Rogers.
- Mauch Chunk red shale, Hopkins. Penn. State Coll. Ann. Rept. for 1896, Appendix, pp. 91-105. 1897.
Carboniferous. Pennsylvania. Included in Lower Carboniferous.
- Mauch Chunk, Clark. Md. Geol. Surv., vol. i, pp. 156, 185. 1897.
Carboniferous. Maryland. Exact syn. Canaan formation.
- Mauch Chunk red shales, White. W. Va. Geol. Surv., vol. i, p. 203. 1899.
Carboniferous. West Virginia.
- Mauch Chunk formation, O'Harra. Md. Geol. Surv., Allegany County, p. 112. 1900.
Carboniferous. Maryland.
- Maxville** sandstone, Andrews. Ohio Geol. Surv., Rept. Prog., 1869, pp. 80, 84. 1870.
Ohio.
- Maxville limestone, Andrews. Ohio Geol. Surv., Rept., 1870, p. 63. 1871.
- Maxville limestone, Andrews. Ohio Geol. Surv., Rept., 1869, p. 83. 1871.
Ohio.
- Maxville limestone, Andrews. Am. Jour. Sci., 3d ser., vol. i, pp. 91-92. 1871.
Carboniferous. Ohio. Included in Lower Carboniferous. Exact syn. Chester group of Illinois.
- Maxville limestone, Newberry. Ohio Geol. Surv., vol. ii, pp. 100-102. 1874.
Carboniferous. Ohio. Included in Lower Carboniferous limestone.
- Maxville limestone, Orton. Ohio Geol. Surv., vol. iii, p. 890. 1878.
Carboniferous. Ohio. Exact syn. White limestone.
- Maxville limestone, Read. Ohio Geol. Surv., vol. iii, p. 817. 1878.
Carboniferous. Ohio.
- Maxville limestone, Herrick. Denison Univ. Sci. Lab., Bull., vol. ii, pp. 14, 15. 1887.
Ohio.
- Maxville limestone, Orton. Ohio Geol. Surv., vol. vi, pp. 3, 43. 1888.
Carboniferous. Ohio. Exact syns. Newtonville limestone, Subcarboniferous limestone, etc.
- Maxville limestone, Herrick. Denison Univ. Sci. Lab., Bull., vol. iii, p. 20. 1888.
Carboniferous. Ohio.
- Maxville limestone, Lane. Mich. Geol. Surv., vol. vii, pt. ii, pp. 12, 295. 1900.
Carboniferous. Michigan.
- May Pen** beds, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, p. 84. 1899.
Pleistocene or Pliocene. Jamaica. Included in Coastal series.

- Mayville** beds, Chamberlin. Geol. of Wis., vol. ii, pp. 336-345. 1877.
Upper Silurian. Wisconsin. Included in Niagara.
- Mayville** beds, Chamberlin. Geol. of Wis., vol. i, p. 187. 1883.
Silurian. Wisconsin. Included in Niagara.
- Meade** gravels, Cragin. Colo. College Stud., vol. vi, p. 53. 1896.
Tertiary. Kansas. Included in Late Pliocene, the Tule division of Cummins (Equus beds of Cope).
- Meade** gravels, Williston. Kan.-Univ. Geol. Surv., vol. ii, pp. 300-308. 1897.
Pleistocene. Kansas.
- Meadville** group, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 83-90. 1881.
Carboniferous. Pennsylvania. Includes Meadville limestone and shale, Sharpsville sandstone, and Orangeville shale.
- Meadville** group, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1757. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono.
- Meagher** limestone, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. -iii, p. 285. 1900.
Cambrian. Montana.
- Medicine** beds, Gould. Am. Jour. Sci., 4th ser., vol. v, pp. 171-174. 1898.
Cretaceous. Kansas. Includes Reeder sandstone, Kirby clays, Greenleaf sandstone, and Spring Creek clays.
- Medicine Lodge** gypsum, Cragin. Colo. Coll. Stud., vol. vi, pp. 3, 29-39. 1896.
Permian. Kansas. Included in Cave Creek formation.
- Medicine Lodge** gypsum, Cragin. Am. Geol., vol. xix, pp. 356-358. 1897.
Permian. Kansas, Oklahoma. Included in Cave Creek formation, of Cimarron series.
- Medial** series, Rogers. Am. Jour. Sci., 1st ser., vol. xlvii, p. 155. 1844.
Includes Schoharie grit, Onondaga and Corniferous limestone.
- Medina** sandstone, Vanuxem. Geol. of New York, pt. iii, pp. 71-74. 1842.
Paleozoic. New York. Included in New York system. Includes Red sandstone of Oswego, Niagara sandstone, Saliferous rock of Eaton, and No. 5, Pennsylvania Survey.
- Medina**, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 34-57. 1843.
Paleozoic. New York. Included in New York system. Exact syns. Saliferous of Eaton, Niagara sandstone, Red sandstone of Oswego, Variegated sandstone, Red marl and sandstone, and No. 5, Pennsylvania Survey.
- Medina** sandstone, Emmons. Agric. of New York, vol. i, pp. 142-144. 1846.
New York. Included in Ontario division of New York system.
- Medina** sandstone, Hall. Paleontology of New York, vol. ii, pp. 2-4. 1852.
Silurian. New York.
- Medina** formation, Logan. Can. Geol. Surv., Rept. 1843-63, pp. 310-321. 1863.
Middle Silurian. Canada (western). Included in Anticosti group.
- Medina** and Clinton formation, Chapman. Can. Inst., new ser., vol. viii, pp. 208-210. 1863.
Silurian. Canada. Included in Middle Silurian. Niagara group.
- Medina** formation, Bell. Can. Geol. Surv., Rept. 1863-66, pp. 173-174. 1866.
Silurian. Canada.
- Medina** sandstone, Cook. Geol. of New Jersey, pp. 150-153. 1868.
Silurian. New Jersey.
- Medina**, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 61, 103, 126. 1873.
Silurian. Ohio.
- Medina**, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 532, 557. 1877.
Silurian. Appalachian region. Part. syn. Levant in part.

- Medina, Newberry. Ohio Geol. Surv., vol. iii, p. 4. 1878.
 Silurian. Ohio. Included in Upper Silurian.
- Medina, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 44-48. 1881.
 Silurian. Pennsylvania. Included in No. iv.
- Medina group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. iv, pp. 268, 288. 1881.
 Silurian. Includes Medina sandstone, Oneida conglomerate, and Gray sandstone.
- Medina sandstone, Linney. Ky. Geol. Surv. (Proctor), Geol. of Lincoln County. 1882.
 Silurian. Kentucky. Included in Niagara period.
- Medina, White. 2d Pa. Geol. Surv., Rept. G⁴, pp. 149-152. 1882.
 Silurian. Pennsylvania. Includes Oneida conglomerate. Exact syn. No. iv.
- Medina, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 91-92. 1882.
 Silurian. Pennsylvania.
- Medina, Stevenson. Am. Phil. Soc., Proc., vol. xxi, pp. 137, 140. 1885.
 Silurian. Virginia.
- Medina, White. 2d Pa. Geol. Surv., Rept. T³, pp. 143-147. 1885.
 Silurian. Pennsylvania.
- Medina, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 43-44. 1885.
 Silurian. Pennsylvania.
- Medina, Linney. Ky. Geol. Surv., Geol. of Linney Co., p. 16. 1886.
 Silurian. Kentucky.
- Medina group, Miller. North American Geol. and Pal., p. 48. 1889.
- Medina shale, Orton. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 558. 1889.
 Silurian. Ohio, Indiana.
- Medina shale, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 16-17. 1890.
 Silurian. Ohio.
- Medina, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 232. 1893.
 Silurian. Ontario.
- Medina, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 100-108, 116. 1893.
 Silurian. New York.
- Medina sandstone, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, p. 70. 1893.
 Silurian. Maryland. Part. syn. No. iv.
- Medina, Spencer. Ga. Geol. Surv., The Paleozoic Group. 1893.
 Silurian. Georgia. Included in Red Mountain.
- Medina sandstone, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 401. 1897.
 Silurian. New York.
- Medina sandstone, Luther. N. Y. State Geol., 16th Ann. Rept., p. 201. 1899.
 Silurian. New York.
- Meekoceras** beds, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 623. 1879.
 Juratrias. Idaho and Wyoming. Included in Triassic(?). Exact syn. Koipato group.
- Megalonyx** beds, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. v, pp. 51-52. 1879.
 Tertiary. Included in Pliocene.
- Megalonyx beds, Udden. Am. Geol., vol. vii, p. 340. 1891.
 Pleistocene. Kansas. Part. syn. Equus beds.
- Mendon** series, Whittle. Jour. of Geol., vol. ii, pp. 408-414. 1894.
 Algonkian. Vermont.
- Mendota** limestone, Irving. Am. Jour. Sci., 3d ser., vol. ix, pp. 441-442. 1875.
 Silurian, Wisconsin. Included in Canadian. Part. syn. St. Lawrence limestone.

- Mendota limestone, Chamberlin. Geol. of Wis., vol. ii, p. 260. 1877.
- Mendota limestone, Irving. Geol. of Wis., vol. ii, pp. 525, 577, 583-584, 590-592, 602, 603. 1877.
- Lower Silurian. Wisconsin.
- Mendota, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 245, 332. 1891.
- Cambrian. Wisconsin. Included in Potsdam.
- Mendota limestone, Keyes. Iowa Geol. Surv., vol. i, p. 23. 1893.
- Cambrian. Iowa. Included in Potsdam sandstone. Exact syn. St. Lawrence limestone.
- Mendota limestone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. vi, pp. 167, 174. 1895.
- Cambrian(?). Wisconsin. Exact syn. St. Lawrence.
- Menevian** slates, Hunt. Boston Soc. Nat. Hist., Proc., vol. xix, 1876-78. p. 278. 1878.
- Meniscus** limestone, Safford. Geol. of Tennessee, by Safford. 1869.
- Silurian. Tennessee. Included in Niagara group.
- Meniscus limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 51. 1890.
- Silurian. Arkansas. Included in Niagara.
- Menominee**, Irving. U. S. Geol. Surv., 3d Ann. Rept., pp. 166-168. 1883.
- Archean. Michigan. Included in Huronian. Exact syns. Animikie, Penokee, and Marquette.
- Menominee series (Lower) Smyth. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 216-223. 1894.
- Algonkian. Michigan.
- Menominee, Lower, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
- Algonkian. Michigan. Includes Vulcan iron formation, Antoine dolomite, and Sturgeon quartzite.
- Menominee, Walcott. Geol. Soc. Am. Bull., vol. x, p. 222. 1899.
- Algonkian. Michigan. Exact syns. Lower Huronian, Keewatin in part, Lower Marquette, and Felch Mountain Iron series.
- Menominee series, Upper, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 62. 1900.
- Algonkian. Michigan. Includes Vulcan formation.
- Mentor** beds, Cragin. Am. Geol., vol. xvi, p. 162. 1895.
- Cretaceous. Kansas. Included in Comanche series.
- Mentor beds, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 182-194. 1897.
- Lower Cretaceous. Kansas. Included in Comanche series.
- Mentor beds, Jones. Kan. Acad. Sci., Trans., vol. xv, pp. 111-112. 1898.
- Lower Cretaceous. Kansas.
- Mentor beds, Jones. Kan. Acad. Sci., Trans., vol. xvi, pp. 65-66. 1899.
- Cretaceous. Kansas. Included in Dakota.
- Merced** series, Lawson. Univ. of Cal., Bull. Dept. of Geol., vol. i, pp. 115-160. 1894.
- Pliocene. California.
- Merced series, Ashley. Jour. of Geol., vol. iii, pp. 439, 441-446. 1895.
- Tertiary. California. Included in Pliocene.
- Merced series, Ashley. Cal. Acad. of Sci., Proc., 1895, 2d ser., vol. v, p. 312. 1896.
- Tertiary. California. Included in Pliocene.
- Merced group, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 336-337. 1898.
- Tertiary. California. Included in Pliocene.
- Merced formation, Turner. Jour. of Geol., vol. vi, p. 499. 1898.
- Tertiary. California. Included in Pliocene. Exact syn. Wild Cat series.
- Mercer** limestone, Rogers. Geol. of Pa., vol. ii, p. 477. 1858.

- Mercer group, Chance. 2d Pa. Geol. Surv., Rept. V, p. 185, et seq. 1879.
Carboniferous. Pennsylvania.
- Mercer, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 325. 1880.
Carboniferous. Pennsylvania.
- Mercer limestone (Lower), Orton. Ohio Geol. Surv., vol. v, p. 13. 1884.
Carboniferous. Ohio. Exact syns. Zoar limestone and Blue limestone.
- Mercer limestone, Upper, Orton. Ohio Geol. Surv., vol. v, p. 15. 1884.
Carboniferous. Ohio. Exact syn. Gore limestone.
- Mercer group, White. U. S. Geol. Surv., Bull. No. 65, p. 200. 1891.
Carboniferous. Ohio, Pennsylvania, and West Virginia. Included in Pottsville Conglomerate series. Includes Upper and Lower Mercer. Part. syns. Zoar limestone and Blue limestone.
- Mercer group, Lower, Orton. Ohio Geol. Surv., vol. vii, pp. 36, 59, 61. 1893.
Carboniferous. Ohio. Included in Conglomerate group.
- Mercer group, Upper, Orton. Ohio Geol. Surv., vol. vii, pp. 36, 59, 62. 1893.
Carboniferous. Ohio. Included in Conglomerate group.
- Mercer group, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1902. 1895.
Carboniferous. Pennsylvania. Included in No. xii, Pottsville Conglomerate.
- Meridian** series, Rogers. Geol. of Pa., vol. i, pp. 107, 137-138, 273, et seq., vol. ii, p. 755. 1858.
Silurian. Pennsylvania. Includes Oriskany.
- Merigomish** formation, Ami. Can. Rec. Sci., vol. viii, pp. 162-163. 1900.
Carboniferous. Canada. Included in Neo-Carboniferous.
- Merom** sandstone, Collett. Indiana Geol. Surv., 2d Rept., for 1870, p. 199. 1871.
Carboniferous. Indiana.
- Merom rock, Collett. Indiana Geol. Surv., 5th Ann. Rept., for 1873, pp. 320, 321, 323, 388. 1874.
Carboniferous. Indiana. Exact syn. Fort Knox sandstone.
- Merom sandstone, Collett. Indiana Geol. Surv., 7th Ann. Rept., 1875, pp. 251, 254. 1876.
Indiana.
- Merom sandstone, Collett. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept., 1883, pp. 8, 48, 49, 55. 1884.
Carboniferous. Indiana.
- Merom sandstone, Blatchley and Ashley. Indiana Dept. Geol. and Nat. Resources, 22d Ann. Rept., pp. 16, 22. 1898.
Cretaceous or Juratrias. Indiana.
- Merom sandstone, Ashley. Indiana Dept. Geol. and Nat. Res., 23d Ann. Rept., 1898, pp. 74, 909. 1899.
Triassic (?). Indiana.
- Merrimack** group, Hitchcock. Geol. of N. H., pt. ii, pp. 588-591, 621. 1877.
Paleozoic. New Hampshire.
- Merrimack group, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, 1881-86, p. 179. 1884.
Vermont and New Hampshire.
- Merrimack group, Hitchcock. Jour. of Geol., vol. iv, p. 54. 1896.
Algonkian or Cambrian. New Hampshire. Included in Montalban.
- Mesa** sandstones, Gabb. Cal. Acad. Sci., Proc., 2d ser., vol i, p. 175. 1867.
Cretaceous. Baja California.
- Mesa formation, Goodyear. Cal. State Mg. Bur., Rept., vol. viii, 1888, p. 518. 1888.
California.
- Mesa formation, Blake. Rept. of Governor of Arizona to Secretary of Interior, 1899, p. 143, 1900.
Arizona.

- Mesa Verde** group, Holmes. U. S. Geol. and. Geog. Surv. of Terr., 9th Ann. Rept., pp. 245, 248. 1877.
Cretaceous. Colorado.
- Mesabi** moraine, Elftman. Am. Geol., vol. xxi, pp. 93-94. 1898.
Pleistocene. Minnesota.
- Mesnard** formation, Wadsworth. Mich. Geol. Surv. Rept. State Board for 1891 and 1892, p. 66. 1893.
Azoic or Archean. Michigan.
- Mesnard, Van Hise. Geol. Soc. Am., Bull., vol. v, p. 6. 1893.
Archean. Michigan. Included in Marquette series.
- Mesnard quartzite, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 516. 1895.
Algonkian. Lake Superior region. Included in Lower Marquette series.
- Mesnard quartzite, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 221-239. 1897.
Algonkian. Michigan. Included in Lower Marquette series.
- Michigamme** formation, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 598. 1895.
Algonkian. Lake Superior region. Included in Upper Marquette series.
- Michigamme formation, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 444-459. 1897.
Algonkian. Michigan. Included in Upper Marquette series.
- Michigamme formation, Van Hise. Geol. Soc. Am., Bull., vol. ix, p. 281. 1898.
Algonkian. Michigan. Included in Upper Marquette series.
- Michigamme formation, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
Algonkian. Michigan. Included in Upper Marquette series. Exact syn. Upper Menominee.
- Michigan** salt group, Taylor. Rept. Committee on Salines, relative to the Saline resources State of Michigan, p. 3. 1839.
Michigan.
- Michigan salt group, Winchell. Mich. Geol. Surv., 1st Bien. Rept. Prog., pp. 91, 139. 1861.
Carboniferous. Michigan.
- Michigan salt group, Rominger. Mich. Geol. Surv., vol. iii, pt. i, p. 102. 1876.
Carboniferous. Michigan.
- Michigan series, Lane. U. S. Geol. Surv., Water-Supply Papers, No. xxx, pl. vi, 1899.
Carboniferous. Michigan.
- Michigan series, Lane. Mich. Geol. Surv., vol. vii, pt. ii, pp. 13, 98, 294. 1900.
Carboniferous. Michigan.
- Middle conglomerate** group, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1667. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono. Exact syn. No. xb.
- Middle Park** beds, Clark. U. S. Geol. Surv., Bull. No. 83, p. 137. 1891.
Cretaceous. Colorado.
- Middle Park beds, Cross. Colo. Sci. Soc., Proc., vol. iv, pp. 192-214. 1892.
Post Laramie. Colorado. Part. syn. Denver beds.
- Middleboro** clays, Woodworth. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 985. 1896.
Pleistocene. Massachusetts.
- Middleton** formation, Safford. Geol. Soc. Am., Bull., vol. iii, pp. 511, 512. 1892.
Tertiary. Tennessee, Alabama, Mississippi. Included in Eocene.
- Midland** sands, Willis and Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 54. 1899.
Pleistocene. Washington.

- Midway** series, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 62. 1887.
Tertiary. Alabama. Included in Lower Eocene and Lignitic.
- Midway**, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 595. 1891.
Tertiary. Alabama. Included in Lower Eocene.
- Midway or Clayton** series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 95. 1891.
Tertiary. Georgia.
- Midway** division, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 44. 1891.
Tertiary. Georgia. Included in Eocene. Exact syn. Clayton division.
- Midway or Clayton** stage, Harris. Ark. Geol. Surv., 1892, vol. ii, pp. 22-55. 1892.
Tertiary. Arkansas. Included in Eocene series.
- Midway** stage, Harris. Am. Pal., Bull. No. 4, pp. 10-11. 1896.
Tertiary. Gulf States. Included in Eocene.
- Midway** stage, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 346. 1898.
Tertiary. Alabama. Included in Eocene. Exact syn. Clayton group.
- Midway** stage, Harris and Veatch. La. State Exp. Sta., pt. v, pp. 63-64. 1899.
Tertiary. Louisiana. Included in Eocene.
- Midwayan** stage, Vaughan. U. S. Geol. Surv., Mon., vol. xxxix, p. 25. 1900.
Tertiary. Gulf States. Included in Eocene.
- Mifflintown** limestone, Lesley. 2d Pa. Geol. Surv., Rept. F, pp. xxv-xxvi. 1878.
Silurian. Pennsylvania.
- Milburn** shales, Tarr. Am. Geol., vol. vi, p. 150. 1890.
Carboniferous. Texas. Included in Upper Carboniferous.
- Milburn-Strawn**, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxvi. 1890.
Carboniferous. Texas. Included in Coal Measures.
- Miliolite** limestone, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, pp. 104, 331. 1892.
Tertiary. Florida. Included in Miocene.
- Mill Creek** limestone, Ashburner. 2d Pa. Geol. Surv., Rept., 1885, p. 443 et seq. 1886.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Miller** fire clay, Wheeler. Mo. Geol. Surv., Sheet Rept. No. 2, p. 57. 1893.
Upper Carboniferous. Missouri. Included in Lower Coal Measures.
- Millers River** conglomerate, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 140. 1899.
Carboniferous. Rhode Island. Included in Pondville group.
- Millsap** division, Cummins. Texas Geol. Surv., 2d Ann. Rept., pp. 372-373. 1891.
Carboniferous. Texas. Included in Coal Measures.
- Millsap** limestone, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
Carboniferous. Colorado.
- Millsap** limestone, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.
Carboniferous. Colorado.
- Millstone** grit, Tuomey. Ala. Geol. Surv., 1st Bien. Rept., p. 71. 1850.
Carboniferous. Alabama.
- Millstone** grit, Owen. First Report of a Reconnoissance of Northern Arkansas, 1857-58, pp. 135, 137. 1858.
Arkansas.
- Millstone** grit, Lesquereux. Am. Phil. Soc., Proc., vol. ix, p. 199. 1863.
Carboniferous. Arkansas.
- Millstone** grit, Cox. Ill. Geol. Surv., vol. vi, pp. 223-224. 1875.
Carboniferous. Illinois. Included in Coal Measures.
- Millstone** grit, or The Conglomerate, Shaler. Ky. Geol. Surv., vol. iii, new ser., pp. 186-190. 1877.
Carboniferous. Kentucky.

Millstone grit, Bailey and Ells. Can. Geol. Surv., Rept. of Prog., 1876-77, p. 383. 1878.

Carboniferous. New Brunswick.

Millstone grit (False), Harris. Ark. Geol. Surv., 1888, vol. iv, pp. 152-153. 1888.

Carboniferous. Arkansas. Included in Coal Measures or Pennsylvanian.

Millstone grit formation, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 106-112, 152. 1888.

Carboniferous. Arkansas. Included in Coal Measures or Pennsylvanian.

Millstone grit, Penrose. Ark. Geol. Surv., 1890, vol. i, pp. 140-141, 498. 1890.

Carboniferous. Arkansas. Included in Coal Measures.

Millstone grit group, Squire. Ala. Geol. Surv., Rept. on Cahaba Coal Field, p. 14 et seq. 1890.

Carboniferous. Alabama. Included in Coal Measures.

Millstone grit, Fletcher. Can. Geol. Surv., Descriptive note on Sydney Coal Field, pp. 7-8. 1900.

Carboniferous. Nova Scotia.

Milton series, Turner. Am. Geol., vol. xiii, p. 232. 1894.

Juratrias. California.

Milton formation, Turner. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 624. 1896.

Juratrias. California.

Milton formation, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 37. 1897.

Juratrias. California.

Milwood series, Tyrrell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 83E, 144E, 199E, 212E-215E. 1893.

Cretaceous. British Columbia. Included in Pierre.

Minbo, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxiv, p. 57. 1899.

Cretaceous. Jamaica. Included in Blue Mountain series.

Mineral King, Turner. Am. Geol., vol. xiii, p. 231. 1894.

Juratrias. California.

Mineral King beds, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 451. 1894.

Juratrias. California. Included in Triassic (?).

Minne-Lusa sandstone, Winchell. Rept. of a Reconnoissance of the Black Hills by Capt. Ludlow, pp. 38, 63. 1875.

South Dakota.

Minnesota River Valley gneiss, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899. Archean. Minnesota.

Miohippus series, Marsh. Am. Jour. Sci., 3d ser., vol. xiv, p. 355. 1877.

Miohippus beds, Marsh. Am. Jour. Sci., 3d Ser., vol. xlviii, pp. 91-92. 1894.

Tertiary. Oregon. Included in Miocene.

Mispeck group, Matthew. Can. Nat., vol. viii, p. 244. 1863.

New Brunswick.

Mispeck group, Bailey and Matthew. Can. Geol. Surv., Rept. 1870-71, pp. 180-183. 1873.

Devonian. New Brunswick.

Mispeck group, Matthew. Can. Roy. Soc., Trans., 1894, vol. xii, sec. iv, pp. 89-111. 1895.

Devonian. New Brunswick. Exact syn. No. i, Dawson.

Mission Creek series, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 175-184. 1898.

Cretaceous. Alaska.

Mission Creek series, Emmons. Nat. Geog. Mag., vol. ix, p. 158. 1898.

Cretaceous (in part). Alaska.

Mississippi group, Winchell (A.). Am. Phil. Soc., Proc., vol. xi, p. 79. 1869.

Proposes name for Carboniferous limestones of the United States.

Mississippian series, Branner. Ark. Geol. Surv., 1888, vol. iv, p. xiii. 1888.

Carboniferous. Arkansas. Included in Pennine. Includes Boston, Genevieve, and Osage groups.

Mississippian series, Williams. U. S. Geol. Surv., Bull. No. 80, pp. 135, 169. 1891.

Carboniferous. Includes Genevieve, Osage, and Chouteau groups.

Mississippian series, Keyes. Iowa Geol. Surv., vol. i, pp. 47-80. 1893.

Carboniferous. Iowa. Includes Kinderhook, Augusta, St. Louis, and Kaskaskia.

Mississippian series, Keyes. Iowa Geol. Surv., vol. ii, pp. 69-91. 1894.

Carboniferous. Iowa. Exact syn. Lower Carboniferous.

Mississippian, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 43-79. 1894.

Lower Carboniferous. Missouri. Includes Kaskaskia, St. Louis, Augusta, and Kinderhook stages.

Mississippian limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 35-57, 147-149. 1896.

Carboniferous. Kansas.

Mississippian series, Bain. Iowa Geol. Surv., vol. v, pp. 130-151. 1896.

Carboniferous. Iowa. Includes Kinderhook, Augusta, and St. Louis.

Mississippian series, Adams. Kan. Univ. Geol. Surv., vol. i, pp. 16-18. 1896.

Carboniferous. Kansas.

Mississippian series, Beyer. Iowa Geol. Surv., vol. vii, pp. 219-227. 1897.

Carboniferous. Iowa. Includes Kinderhook, Augusta, and St. Louis.

Mississippian, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 14-19, 96. 1898.

Carboniferous. Kansas. Exact syn. Sub-carboniferous.

Mississippian, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, p. 323. 1898.

Lower Carboniferous. Missouri. Includes Augusta, and Burlington.

Mississippian series, Shepard. Mo. Geol. Surv., vol. xii, p. 49. 1898.

Lower Carboniferous. Missouri. Includes Augusta and Kinderhook stages.

Mississippian series, Keyes. Am. Geol., vol. xxii, pp. 108-113. 1898.

Carboniferous.

Missouri formation, Keyes. Iowa Geol. Surv., vol. i, pp. 114-116. 1893.

Carboniferous. Iowa. Included in Pennsylvanian series. Exact syn. Upper Coal Measures.

Missouri formation, Keyes. Iowa Geol. Surv., vol. ii, pp. 137-139, 155-159. 1894.

Carboniferous. Iowa. Included in Pennsylvanian series. Exact syn. Upper Coal Measures.

Missouri stage, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 82. 1894.

Carboniferous. Missouri. Exact syn. Upper Coal Measures of Missouri.

Missouri stage, Lonsdale. Iowa Geol. Surv., vol. iv, pp. 391-411. 1895.

Carboniferous. Iowa. Exact syn. Upper Coal Measures.

Missourian series, Wheeler. Mo. Geol. Surv., vol. xi, p. 46. 1896.

Upper Carboniferous. Missouri. Includes Upper Coal Measures.

Missourian formation, Bain. Iowa Geol. Surv., vol. vii, pp. 446-451. 1897.

Carboniferous. Iowa.

Missourian formation, Tilton and Bain. Iowa Geol. Surv., vol. vii, pp. 509-520. 1897.

Carboniferous. Iowa. Includes Bethany limestone.

Missourian, Leonard. Iowa Geol. Surv., vol. v, pp. 82-83. 1898.

Carboniferous. Iowa.

Missourian, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 31, 210, 268. 1898.

Upper Carboniferous. Missouri. Included in Upper Coal Measures.

Missouri, Bain and Leonard. Jour. of Geol., vol. vi, pp. 577-588. 1898.

Carboniferous. Mississippi Valley.

Missourian series, Keyes. Am. Geol., vol. xxiii, pp. 298-316. 1899.

Carboniferous. Mississippi Valley. Includes Cottonwood limestone, Atchison shale, Forbes limestone, Platte shale, Plattsmouth limestone, Lawrence shale, Plattsburg limestone, Parkville shale, Iola limestone, Thayer shale, and Bethany limestone.

Mitchell limestone, Hopkins and Siebenthal. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rept., 1896, pp. 296, 298. 1877.

Carboniferous. Indiana.

Mitchell limestone, Blatchley and Ashley. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, pp. 16, 21. 1898.

Carboniferous. Indiana.

Mitchell limestone, Ashley. Indiana Dept. Geol. and Nat. Res., 23d Ann. Rept., 1898, pp. 74, 79. 1899.

Carboniferous. Indiana.

Moberly sandstone, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 323, 324, 331-332, 350. 1898.

Upper Carboniferous. Missouri. Included in Pennsylvanian. Exact syn. Middle Coal Measures.

Mobile, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., p. 47. 1894.

Pleistocene. Alabama. Exact syn. Estuarine or Transition formation.

Moccasin limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio Nos. 12, 26. 1894, 1896.

Silurian. Kentucky, Virginia, and Tennessee.

Moccasin limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 27. 1896.

Silurian. Tennessee.

Moccasin limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Silurian. Virginia, and West Virginia.

Moccasin limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 39. 1899.

Silurian. Virginia, and Tennessee.

Moduria limestone series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., 1890-91. 1891.

Ordovician. Georgia. Exact syn. Chickamauga limestone.

Mohawk limestone, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., pp. 363-364, 370. 1840.

Silurian. New York.

Mohawk slate, Mather. N. Y. Geol. Surv., 5th Ann. Rept., pp. 92-94, 98-101. 1841.

Silurian. New York. Included in Hudson slate series.

Mohawk, Conard. Phil. Acad. Nat. Sci. Jour., vol. viii, pp. 230, 233-234. 1842. Ordovician.

Mohawk limestone, Mather. Geol. of N. Y., pt. i, pp. 402-406. 1843.

Paleozoic. New York. Included in Black River limestone.

Mohawkian, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.

Silurian. New York. Includes Lowville limestone, Black River limestone, and ton limestone.

Mohegan bluff beds, Woodworth. Geol. Soc. Am., Bull., vol. viii, p. 210. 1897.

Pleistocene. Rhode Island. Included in Columbia. Exact syn. Tishbury beds.

Mojave formation, Smith. Jour. of Geol., vol. viii, pp. 455-456. 1900.

Tertiary. California. Included in Eocene.

Momable slates, Walcott. Geol. Soc. Am., Bull., vol. x, p. 219. 1899.

Algonkian. New Foundland. Included in Avalon terrane.

Mona schist, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 490. 1895.

Archean. Lake Superior region. Exact syn. Kitchi formation.

Mona schists, Bayley. U. S. Geol. Surv., Mon., vol. xxviii, pp. 152-159. 1897.

Archean. Michigan. Included in Basement complex.

Monarch formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 55, 56. 1899.

Devonian and Silurian. Montana. Part. syns. Jefferson limestone and Three Forks formation.

Monclova sandstone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., p. 24. 1890.

Silurian. Ohio. Exact syn. Sylvania sandstone.

Monague, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, p. 75. 1899. Tertiary. Jamaica. Included in Oceanic series.

Monmouth formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 193-194. 1897. Cretaceous. Maryland.

Monmouth formation, Clark, Bagg and Shattuck. N. J. Geol. Surv., Rept., 1897, pp. 180-186. 1898.

Cretaceous. New Jersey. Included in Upper Cretaceous. Includes Mount Laurel sands, Navesink marls, and Redbank sands.

Monmouth formation, Clark, Bagg and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 315, 331. 1897.

Cretaceous. New Jersey. Included in Upper Cretaceous. Includes Mount Laurel sands, Navesink marls, and Redbank sands.

Monongahela series, Rogers. Geol. Surv. of Pa., 4th Ann. Rept., p. 150. 1840.

Monongahela series, Platt. 2d Pa. Geol. Surv., Rept. J. H. pp. 5-8. 1875.

Monongahela River series, Stevenson. Am. Phil. Soc., Trans., vol. xv, pp. 17-27. 1873.

Carboniferous. West Virginia. Includes Pittsburg limestone and sandstone.

Monongahela River series, D'Invilliers. 2d Pa. Geol. Surv., Ann. Rept., 1886, pp. 63-64, 206-208, 264-265, 291-295, 336-341. 1887.

Carboniferous. Pennsylvania. Exact syn. Upper Productive Measures.

Monongahela River series, White. U. S. Geol. Surv., Bull. No. 65, p. 43. 1891.

Carboniferous. Pennsylvania, West Virginia, and Ohio. Included in Upper Coal Measures. Includes Browntown sandstone, Waynesburg limestone, Uniontown sandstone and limestone, Sewickley sandstone and limestone, Redstone limestone, and Pittsburg sandstone.

Monongahela River series, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2448-2564. 1895.

Carboniferous. Pennsylvania. Exact syn. No. xv, or Upper Productive series.

Monongahela River Coal series, White. W. Va. Geol. Surv., vol. i, p. 199. 1899.

Carboniferous. West Virginia.

Monongahela formation, O'Harra. Md. Geol. Surv., Allegany County, p. 124. 1900.

Carboniferous. Maryland.

Monroe beds, Lane. Mich. Geol. Surv., Rept. State Board, 1891-92, p. 66. 1893.

Upper Silurian. Michigan.

Monroe shale, Darton. Geol. Soc. Am., Bull., vol. viii, pp. 367, 373. 1894.

Devonian. New York.

Monroe beds, Lane. Ill. Geol. Surv., vol. v, pt. ii, p. 26. 1895.

Michigan.

Monroe slates, Nitze. Elisha Mitchell Sci. Soc., Jour., pt. ii, 1896, p. 66. 1896.

Algonkian. North Carolina. Included in Lower Paleozoic.

Monroe slate, Nitze and Hanna. N. C. Geol. Surv., Bull. No. 2, pp. 36-37. 1896.

Algonkian. North Carolina.

- Monroe shales, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 404. 1897.
Devonian. New York.
- Monroe, Lane. U. S. Geol. Surv., Water-Supply Papers, No. 30, pl. vi. 1899.
Silurian. Michigan. Exact syn. Lower Helderberg.
- Monroe beds, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 43-53, 222-226. 1900.
Silurian. Michigan.
- Monroe-Harrison** limestone, Owen. Rept. Geol. Recon. Indiana (1859-1860),
p. 125. 1862.
Carboniferous. Indiana. Included in Subcarboniferous limestone.
- Monson** gneiss, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 41, 56. 1898.
Cambrian. Massachusetts. Included in Lower Cambrian.
- Mont Alto** lignite, Lesley. Am. Jour. Sci., 2d ser., vol. xl, p. 119. 1865.
Tertiary. Pennsylvania.
- Montalban**, Hitchcock. Geol. of N. H., pt. i, p. 522. 1874.
Eozoic. New Hampshire.
- Montalban, Crosby. Report on Geol. Map of Massachusetts, pp. 29-40. 1876.
Massachusetts.
- Montalban group, Hitchcock. Geol. of N. H., pt. ii, pp. 112-127, 563-573, 600. 1877.
Eozoic. New Hampshire.
- Montalban series, Huntington. Geol. of N. H., pt. ii, pp. 410-411. 1877.
Eozoic. New Hampshire.
- Montalban, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, No. 5, p. 167. 1884.
Archean.
- Montalban, Hunt. Smithsonian Inst. Ann. Rept., 1882, p. 336. 1884.
Archean. North America. Part. syn. Terranovan.
- Montalban, Whitney and Wadsworth. Harvard Coll. Mus. Comp. Zool., Bull.,
vol. vii, 1880-84, p. 561. 1884.
Included in Azoic system.
- Montalban, Crosby. Boston Soc. Nat. Hist., Proc., vol. xxiii, 1884-88, p. 498. 1888.
Dakota.
- Montalban, Pumpelly. Geol. Soc. Am., Bull., vol. iv, p. 383. 1893.
Archean(?). Canada(?).
- Montalban gneiss, Crosby and Fuller. Inst. of Tech., Quart., vol. ix, p. 330. 1896.
New Hampshire.
- Montana** group, Eldridge. Colo. Sci. Soc., vol. iii, p. 93 (footnote). 1888.
Cretaceous. Colorado. Includes Fox Hills and Fort Pierre formations. Exact
syn. Fox Hill.
- Montana, White. U. S. Geol. Surv., Bull. No. 82, pp. 158, 261. 1891.
Cretaceous. Rocky Mountains. Include Fox Hills, Fort Pierre. Exact syn.
Ripley formation.
- Montana, Weed. U. S. Geol. Surv., Bull. No. 106, p. 18. 1893.
Cretaceous. Montana.
- Montana formation, Cannon. Colo. Sci. Soc., Proc., vol. iv, p. 249. 1893.
Cretaceous. Colorado.
- Montana, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Cretaceous. Colorado. Includes Pierre and Fox Hills.
- Montana, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
Cretaceous. Colorado.
- Montana, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1.
1894.
Cretaceous. Montana. Includes Pierre and Fox Hills beds.
- Montana, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Cretaceous. Wyoming. Includes Pierre and Fox Hills.
- Montana, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 47. 1896.
Cretaceous. Montana. Includes Pierre shale, Fox Hills sandstone.

- Montana, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Cretaceous. Montana.
- Montana, Emmons, Cross and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, pp. 28, 68. 1896.
Cretaceous. Colorado. Includes Pierre, Fox Hills.
- Montana formation, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, pp. 42-43. 1898.
Cretaceous. Colorado.
- Montana formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 55. 1899.
Cretaceous. Montana.
- Montana formation, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxviii, pt. ii, pp. 1-59, 149-164. 1899.
Cretaceous. Yellowstone Park.
- Montana formation, Hague. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 52. 1899.
Cretaceous. Wyoming.
- Montana formation, Knowlton. U. S. Geol. Surv., Bull. No. 163, pp. 1-11. 1900.
Cretaceous. Wyoming, Utah, and Montana. Part. syn. Belly River series.
- Monte de Oro** formation, Turner. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 548. 1896.
Juratrias. California. Included in Superjacent series.
- Monteballo** sandstone, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 67-68. 1885.
Devonian. Pennsylvania. Included in Hamilton.
- Montego** formation, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, p. 102. 1899.
Pleistocene. Jamaica. Included in Coastal series.
- Monterey**, Blake. Phil. Acad. Nat. Sci., Proc., vol. vii, pp. 328-331. 1856.
Tertiary. California.
- Monterey sandstone, Darton. Am. Geol., vol. x, p. 15. 1892.
Silurian. Virginia. Part. syn. Oriskany.
- Monterey series, Lawson. Univ. Cal., Dept. of Geol., Bull., vol. i, pp. 1-59. 1893.
Miocene. California.
- Monterey series, Ashley. Jour. of Geol., vol. iii, pp. 439, 441. 1895.
Tertiary. California. Included in Miocene.
- Monterey sandstone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 14, 32. 1894, 1896.
Devonian. Virginia, West Virginia. Exact syns. Oriskany, Rogers No. vii, and Meridian.
- Monterey sandstone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
Devonian. West Virginia and Maryland.
- Monterey series, Ashley. Cal. Acad. Sci., Proc., 2d ser., vol. v, p. 309. 1896.
Miocene. California. Exact syns. White Miocene shale and Bituminous shale.
- Monterey formation, Clark. Md. Geol. Surv., vol. i, pp. 157, 182-183. 1897.
Devonian. Maryland. Exact syn. Oriskany sandstone.
- Monterey series, Fairbanks. Jour. of Geol., vol. vi, pp. 561-563. 1898.
Tertiary. California. Included in Lower Neocene.
- Monterey, Clark. Md. Geol. Surv., vol. ii, pp. 199, 208. 1898.
Devonian. Maryland. Part syn. Oriskany.
- Monterey sandstone, Daryon. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
Devonian, Virginia and West Virginia.
- Montevallo** shale, Smith. Ala. Geol. Surv., Rept. on Cahaba coal field, p. 148. 1890.
Cambrian. Alabama. Exact syn. Choccolocco shale.

- Montevallo, Walcott. U. S. Geol. Surv., Bull. No. 81, p. 247. 1891.
Cambrian. Alabama. Exact syn. Connasauga, Choccolocco.
- Montevallo shale and sandstone, McCalley. Ala. Geol. Surv., Rept. on Valley regions.
pt. ii, pp. 40-41, 253-254, 310-311, 484, 512-514, 575-588, 692-712, 765-767. 1897.
Cambrian. Alabama. Includes Lower Connasauga and Rome formation.
- Montgomery** buhr, Rogers. Rept. on Geol. Surv. of Va., 1837. Geol. of Virginias,
p. 173. 1884.
- Montgomery grits and coal, Rogers. Macfarlane Ry. Guide, p. 179, 1879. Geol. of
Virginias, p. 717. 1884.
- Montgomery limestone, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
Silurian. California. Included in Niagara.
- Montgomery bed, Foerste. Cin. Soc. Nat. Hist., Jour., vol. xviii, Nos. iii, iv, p. 190,
1896.
Silurian. Ohio.
- Montpelier** sandstone, Keyes. Iowa Geol. Surv., vol. i, pp. 40-46. 1893.
Devonian. Iowa.
- Montpelier sandstone, Udden. Cin. Soc. Nat. Hist., Jour., vol. xix, No. iii, p. 93.
1897.
Devonian. Illinois.
- Montpelier, Hill. Harvard Coll. Mus. of Comp. Zool., Bull., vol. xxxiv, pp. 70-75.
1899.
- Tertiary. Jamaica. Included in Oceanic series.
- Montrose** sandstone, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., p. 381. 1840.
Devonian. New York.
- Montrose shale, White. 2d Pa. Geol. Surv., Rept., G⁵, p. 68. 1881.
Devonian. Pennsylvania. Included in Catskill.
- Montrose shale, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 98-99. 1882.
Devonian. Pennsylvania. Included in Catskill.
- Montrose red shale Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1581. 1892.
Devonian. Pennsylvania. Included in Catskill, No. ix.
- Montrose shale, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Chemung (Upper Devonian).
- Monument Creek** group, Hayden. U. S. Geol. Surv., Prelim. rept., pp. 39, 40.
1869. U. S. Geol. & Geog. Surv. of Terr., p. 430. 1873.
- Monument Creek, Cope. U. S. Geol. and Geog. Surv. of Terr., 1873, p. 430, 1874.
Tertiary. Colorado. Included in Miocene.
- Monument Creek, Hayden. U. S. Geol. and Geog. Expl. of Terr., 1873, p. 32. 1874.
Tertiary. Colorado. Included in Miocene.
- Monument Creek, Hayden. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept.,
p. 36. 1876.
Tertiary. Colorado. Included in Miocene.
- Monument Creek, White. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept.,
p. 191. 1879.
- Tertiary. Wyoming, Colorado. Exact syn. White River. Part. syns. Wahsatch,
and Green River or Bridger(?).
- Monument Creek beds, Eldridge. Colo. Sci. Soc., Proc., vol. iii, p. 99. 1888.
Tertiary. Colorado. Included in Miocene(?).
- Monument Creek, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 308. 1892.
Tertiary. Colorado.
- Monument Creek beds, Cannon. Colo. Sci. Soc., Proc., vol. iv, p. 262. 1893.
Cretaceous. Colorado.
- Monument Creek, Emmons, Cross and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii,
pp. 38, 252. 1896.
Cretaceous. Colorado.

- Moodys Branch** beds, Harris. Am. Jour. Sci., 3d ser., vol. xlvii, p. 304. 1894.
Tertiary. Included in Jackson stage of Eocene.
- Moodys Branch** beds, Dall. U. S. Geol. Surv., 18th Ann., Rept., pt. ii, p. 342. 1898.
Tertiary. Mississippi. Included in Jacksonian stage, Eocene.
- Moose Island** series, Shaler. Am. Jour. Sci., 3d ser., vol. xxxii, p. 54. 1886.
Devonian. Maine.
- Moose River** sandstone, Williams. U. S. Geol. Surv., Bull. No. 165, p. 88. 1900.
Devonian. Maine.
- Moose Hide** group, McConnell. Can. Geol. Surv., Rept. on Klondike gold fields, pp. 8-9. 1900. Canada.
- Moreau** sandstone, Keyes. Mo. Geol. Surv., vol. vi, pp. 331, 370, 373, 375. 1894.
Cambrian. Missouri. Included in Gasconade limestone, Ozark series. Part. syn. Potasi limestone.
- Morgantown** sandstone, Platt. 2d Pa. Geol. Surv., Rept. H⁴, p. 312. 1878.
Carboniferous. Pennsylvania.
- Morgantown** sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 88. 1891.
Carboniferous. Pennsylvania and West Virginia. Included in Barren Measures, Elk River series.
- Morgantown** sandstone, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.
Upper Carboniferous. West Virginia. Included in Elk River series.
- Mormon** sandstone, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
Jurassic. California. Included in Oolite.
- Mormon** sandstone, Hyatt. Geol. Soc. Am., Bull., vol. v, p. 413. 1894.
Jurassic. California. Included in Lower Oolite.
- Morrison**, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 7. 1894.
Juratrias. Colorado. Exact syn. Gunnison.
- Morrison**, Emmons, Cross and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, pp. 22. 60. 1894.
Juratrias. Colorado.
- Morrison** formation, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1899.
Juratrias. Colorado.
- Morrison** formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Juratrias. Colorado.
- Moruga** series, Wall and Sawkins. Geol. of Trinidad, pp. 45-53. 1860.
Tertiary. Trinidad. Included in Newer Parian group.
- Moscow** shale, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 298-300. 1839.
Devonian. New York.
- Moscow** shale, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., p. 380. 1840.
Devonian. New York.
- Moscow** shale, Hall. N. Y. Geol. Surv., 5th Ann. Rept., pp. 163-164. 1841.
New York.
- Moscow** shales, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 57. 1842.
New York. Included in Ludlowville group.
- Moscow** shale, Hall. Geol. of New York, pt. iv, 4th Geol. Dist., pp. 18, 187. 1843.
Paleozoic. New York. Included in Hamilton group.
- Moscow** shale, Emmons. Agric. of N. Y., vol. i, p. 188. 1846.
Devonian. New York. Exact syn. Hamilton group.
- Moscow** shales, Grabau. Buff. Soc. Nat. Hist., Bull., vol. vi, pp. 16-19. 1898.
Devonian. New York.
- Mott Haven** limestone, Dana. Am. Jour. Sci., 3d ser., vol. xxi, p. 432. 1881.
New York.

- Mottled** limestone, Upper, Dowling. Ottawa Field Nat. Club, Trans., 1895-96, vol. xi, pp. 70-72. 1895-96.
Cambro-Silurian. Canada.
- Mottled** limestone, Lower, Dowling. Ottawa Field Nat. Club, Trans., 1895-96, vol. xi, pp. 68-69. 1895-96.
Cambro-Silurian. Canada.
- Mound** limestones, Percival. Wis. Geol. Surv., 1856, pp. 23, 65-70. 1856.
Silurian. Wisconsin. Part. syn. Niagara limestone.
- Mound Valley** limestone, Adams. Kan. Univ. Geol. Surv., vol. i, p. 23. 1896.
Carboniferous.
- Mound Valley** shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 47, 102. 1898.
Carboniferous. Kansas.
- Mound Valley** limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 47, 102. 1898.
Carboniferous. Kansas.
- Mount Holly** conglomerate, Lewis. Phil. Acad. Nat. Sci., Proc., vol. xxxii, p. 271. 1880.
Tertiary. New Jersey. Included in Miocene (?). Part. syn. Bryn Mawr gravel.
- Mount Holly** series, Whittle. Jour. of Geol., vol. ii, pp. 414-417. 1894.
Algonkian: Vermont.
- Mount Laurel** sands, Clark, Bagg and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 315, 333. 1897.
Cretaceous. New Jersey. Included in Monmouth formation.
- Mount Laurel** sands, Clark, Bagg and Shattuck. N. J. Geol. Surv., Rept., 1897, p. 183. 1898.
Cretaceous. New Jersey. Included in Monmouth formation.
- Mount Mesnard** quartzite, Wadsworth. Mich. Geol. Surv., Rept. State Board, 1891, 1892, pp. 64, 65. 1893.
Azoic or Archean. Michigan.
- Mount Morris** limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 39. 1891.
Carboniferous. Pennsylvania. Included in Permo-Carboniferous, Dunkard Creek series.
- Mount Pleasant** shale, White. 2d Pa. Geol. Surv., Rept. G⁵, p. 63. 1881.
Devonian. Pennsylvania. Included in Catskill.
- Mount Pleasant** conglomerate, White. 2d Pa. Geol. Surv., Rept. G⁵, p. 58. 1881.
Carboniferous. Pennsylvania. Included in Pocono.
- Mount Pleasant** conglomerate, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 89-91. 1882.
Carboniferous. Pennsylvania. Included in Pocono.
- Mount Pleasant** shale, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 94-95. 1882.
Devonian. Pennsylvania. Included in Catskill.
- Mount Pleasant** red shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1579. 1892.
Devonian. Pennsylvania. Included in Catskill, No. ix.
- Mount Pleasant** conglomerate, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Carboniferous. New York, Pennsylvania. Included in Pocono.
- Mount Pleasant** shale, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Catskill (Upper Devonian).
- Mount Pleasant** conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1649. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono.
- Mount Sand** series, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 81-90. 1880.
Carboniferous. Northwest Pennsylvania.

Mount Selman beds, Dumble. Texas Geol. Surv., Rept. on Brown Coal, pp. 140-141. 1892.

Tertiary. Texas. Included in Timber-belt division of Eocene.

Mount Selman series, Kennedy. Texas Geol. Surv., 3d Ann. Rept., pp. 52-54. 1892.

Tertiary. Texas. Included in Timber-belt beds of Eocene.

Mount Toby conglomerate, Emerson. Geol. Soc. Am., Bull., vol. ii, p. 452. 1891.

Trias. Massachusetts.

Mount Toby conglomerate, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 6. 1895.

Trias. Massachusetts.

Mount Toby conglomerate, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 358-

364. 1898.

Juratrias. Massachusetts. Included in Connecticut River sandstone.

Mount Toby conglomerate, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50, 1898.

Juratrias. Massachusetts.

Mount Vernon series, Ward. U. S. Geol. Surv., 15th Ann. Rept., p. 324. 1895.

Cretaceous. Virginia. Included in Potomac.

Mount Washington series, Hobs. Jour. of Geol., vol. i, p. 725. 1893.

Silurian. Massachusetts. Included in Ordovician. Includes Canaan dolomite, Riga schist, Egremont limestone, and Everett schist.

Mountain limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 91. 1855.

Carboniferous. Missouri. Included in Lower Carboniferous. Includes Ferruginous sandstone, Archimedes, St. Louis, and Encrinital limestone. Exact syn. Carboniferous limestone.

Mountain limestone, Safford. Geol. Recon. of the State of Tenn., 1st Rept., pp. 160-161. 1856.

Carboniferous. Tennessee.

Mountain limestone, Safford. Geol. of Tenn., pp. 351-365. 1869.

Carboniferous. Tennessee. Included in Lower Carboniferous. Part. syn. Kaskaskia or Chester limestone.

Mountain limestone, Shumard. Mo. Geol. Surv., Rept., 1855-1871, p. 319. 1873.

Carboniferous. Missouri. Included in Lower Carboniferous. Includes Ferruginous sandstone, St. Louis limestone, and Archimedes limestone.

Mountain limestone, Killebrew and Safford. Resources of Tenn., p. 41. 1874.

Carboniferous. Tennessee. Included in Lower Carboniferous period.

Mountain limestone, Smith. Ala. Geol. Surv., Rept., 1875, p. 26. 1876.

Carboniferous. Alabama. Included in Subcarboniferous.

Mountain limestone, Platt. 2d Pa. Geol. Surv., Rept. H⁴, p. 309. 1878.

Carboniferous. Pennsylvania. Exact syn. No. xi.

Mountain limestone, Stevenson. Am. Phil. Soc., Proc., vol. xix, pp. 230, 241, 258. 1881.

Carboniferous. Virginia. Included in Lower Carboniferous.

Mountain limestone group, Stevenson. The Virginias, vol. ii, p. 25. 1881.

Carboniferous. Virginia.

Mountain limestone, Linn and Linton. 2d Pa. Geol. Surv., Ann. Rept., 1885, pp. 222-226. 1886.

Carboniferous. Pennsylvania.

Mountain bed, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 730-731. 1891.

Cretaceous. Texas. Included in Washita division.

Mountain limestone, Spencer. Ga. Geol. Surv., The Paleozoic Group, p. 52. 1893.

Carboniferous. Georgia. Included in Lower Carboniferous.

- Mountain limestone, Gibson. Ala. Geol. Surv., Geol. Structure of Murphrees Valley, pp. 20, 93. 1893.
- Carboniferous. Alabama. Included in Subcarboniferous. Exact syn. Bangor.
- Mountain limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1789-1805. 1895.
- Carboniferous. Pennsylvania. Included in Nos. x-xi.
- Murray** shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
- Cambrian. Tennessee. Included in Chilhowee series.
- Murray** shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25. 1895, 1896.
- Cambrian. Tennessee, North Carolina.
- Muskingum** conglomerate, Lesley. Manual of Coal, p. 105. 1856.
- Mussel-bearing** clays, Pilsbry. Phil. Acad. Nat. Sci., Proc., 1896, pp. 567-570. 1896.
- Pleistocene. New Jersey.
- Myrick** formation, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
- Tertiary. Texas. Included in Eocene.
- Myrtle** formation, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 49. 1898.
- Cretaceous. Oregon.
- Mytilus** beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 336. 1898.
- Tertiary. Oregon. Included in Pliocene.
- Naheola**, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 57. 1887.
- Tertiary. Alabama. Included in Lower Eocene, Lignitic.
- Naheola**, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 596. 1891.
- Tertiary. Alabama. Included in Lower Eocene.
- Naheola**, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 181, 239, 410, 489. 1894.
- Tertiary. Alabama. Included in Eocene lignitic. Exact syn. Matthews Landing series.
- Naknek** series, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 169-171, 179. 1900.
- Juratrias. Alaska.
- Nampa** beds, Emmons. Boston Soc. Nat. Hist., Proc., vol. xxiv, 1888-1890, p. 432. 1890.
- Nanafalia** group, Aldrich. Ala. Geol. Surv., Bull. No. 1, p. 58. 1886.
- Tertiary. Alabama.
- Nanafalia** series, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 51. 1887.
- Tertiary. Alabama. Included in Lignitic, Lower Eocene. Includes Coal Bluff lignite.
- Nanafalia** division, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 46. 1891.
- Tertiary. Georgia. Included in Eocene.
- Nanafalia** series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 95. 1891.
- Tertiary. Georgia.
- Nanafalia**, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 596. 1891.
- Tertiary. Alabama. Included in Lower Eocene.
- Nanafalia**, Smith. Ala. Geol. Surv., Bull. No. 2, pp. 52, 61, 71. 1892.
- Tertiary. Alabama. Included in Lignitic.
- Nanafalia**, Smith, Johnson, and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 170, 238, 403, 490, 494. 1894.
- Tertiary. Alabama. Included in Eocene Lignitic. Includes Coal Bluff lignite.
- Nanafalia** series, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 346. 1898.
- Tertiary. Alabama. Included in Eocene.
- Nanaimo** group, Dawson. Am. Jour. Sci., 3d ser., vol. xxxix, pp. 181-183. 1890.
- Cretaceous. British Columbia. Exact syn. Vancouver group.

Nanaimo, White. U. S. Geol. Surv., Bull. No. 82, p. 195. 1891.

Cretaceous. Pacific Coast. Included in Upper Cretaceous.

Nanaimo beds, Stanton. Geol. Soc. Am., Bull., vol. iv, p. 245. 1893.

Cretaceous. British Columbia. Included in Chico.

Nanaimo group, Diller and Stanton. Geol. Soc. Am., Bull., vol. v, p. 461. 1894.

Cretaceous. British Columbia. Exact syn. Chico.

Nanaimo group, Dawson. Can. Roy. Soc., Trans., 1895, new ser., vol. i, sec. iv, pp. 137-141. 1895.

Cretaceous. British Columbia. Included in Upper Cretaceous. Part. syn. Chico of California.

Naparima marl, Wall and Sawkins. Geol. of Trinidad, pp. 36-37. 1860.

Tertiary. Trinidad. Included in Newer Parian group.

Naparima beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 341. 1898.

Tertiary. Trinidad, West Indies.

Naparima marl, Jukes-Browne. Lond. Geol. Soc., Quart. Jour., vol. lv, pp. 177-181. 1899.

Tertiary. Trinidad.

Naparima marl, Harrison. Lond. Geol. Soc., Quart. Jour., vol. lv, pp. 181-189. 1899.

Tertiary. Trinidad. Included in Miocene.

Naples black and gray shales, Grabau. Buff. Soc. Nat. Hist., Bull., vol. vi, pp. 5-9. 1898.

Devonian. New York. Exact syns. Gardeau shale, and Coshaqua shales.

Napoleon sandstone, Taylor. Rept. Com. on Salines relative to the Saline Resources of State of Michigan, p. 3. 1839.

Michigan.

Napoleon group, Winchell. Mich. Geol. Surv., 1st Bien. Rept. Prog., pp. 88, 139. 1861.

Carboniferous. Michigan.

Napoleon sandstone, Lane. Mich. Geol. Surv., vol. vii, pt. ii, p. 18. 1900.

Carboniferous. Michigan. Exact syn. Upper Marshall.

Nariva series, Wall and Sawkins. Geol. of Trinidad, pp. 35-36, 1860.

Tertiary. Trinidad. Included in Newer Parian group.

Nariva series, Harrison. London Geol. Soc., Quart. Jour., vol. lv, pp. 187-189. 1899.

Tertiary. Trinidad. Included in Eocene.

Nashaquitsa series, Shaler. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 536-539. 1898.

Tertiary. Massachusetts. Included in Cape Cod series.

Nashville beds, Safford. Am. Jour. Sci., 2d ser., vol. xii, p. 356. 1851.

Silurian. Tennessee. Includes Lower and Upper beds.

Nashville group, Safford. Am. Jour. Sci., 2d ser., vol. xii, p. 356. 1851.

Silurian. Tennessee. Includes siliceous, limestone, Lower Nashville beds, and Upper Nashville beds.

Nashville, Safford. Am. Assoc. Adv. Sci., Proc., vol. vii, p. 153. 1853.

Silurian. Tennessee. Exact syns. Hudson River, Utica, and Trenton.

Nashville member, Safford. Geol. Recon. in the State of Tenn., 1st Rept., p. 155. 1856.

Silurian. Tennessee. Included in Central limestone and shale group. Part. syns. Hudson River, Trenton, and Upper Trenton of New York.

Nashville, Safford. Geol. of Tenn. by Safford, pp. 268-290. 1869.

Silurian. Tennessee. Included in Lower Silurian. Includes Upper member, Middle member, Orthis bed. Exact syn. Hudson River(?).

Nashville or Cincinnati group, Killebrew and Safford. Resources of Tenn., pp. 33-37. 1874.

Silurian. Tennessee. Included in Trenton period.

- Nashville group, Walcott. Geol. Soc. Am., Bull., vol. i, p. 342. 1889.
 Silurian. Tennessee. Exact syn. Hudson River.
- Nashville limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 50. 1890.
 Silurian. Arkansas.
- Nashville slate, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 112. 1891.
 Silurian. Georgia. Exact syn. Rockmart slate.
- Nasina** series, Brooks. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 465-467, 478. 1900.
 Alaska.
- Natick** arkose, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 375-378. 1899.
 Carboniferous. Rhode Island.
- Navarro** beds, Shumard. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 189. 1861.
 Cretaceous. Texas.
- Navarro beds, Hill. Am. Jour. Sci., 3d ser., vol. xxxiii, p. 298. 1887.
 Cretaceous. Texas. Included in Gulf series.
- Navarro beds, White. Phil. Acad. Nat. Sci., Proc., 1887, p. 40. 1887.
 Cretaceous. Texas. Included in Gulf series. Exact syns. Ripley of Mississippi and Fox Hills of Western States.
- Navarro beds, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 383. 1895.
 Cretaceous. Texas. Included in Upper Cretaceous; Ripley. Exact syn. Glauconitic.
- Navasota** beds, Kennedy. Texas Geol. Surv., 4th Ann. Rept., pp. 9-15, 43-44. 1893.
 Tertiary(?). Texas. Includes Upper and Lower divisions.
- Navesink**, Clark. N. J. Geol. Surv., Rept., 1893, pp. 336-337. 1894.
 Cretaceous. New Jersey. Exact syn. Lower marl bed.
- Navesink formation, Clark. Jour. of Geol., vol. ii, pp. 164-165. 1894.
 Cretaceous. New Jersey. Exact syn. Lower marl bed.
- Navesink formation, Clark. Geol. Soc. Am., Bull., vol. vi, p. 479. 1895.
 Cretaceous. New Jersey. Includes Lower marl bed.
- Navesink formation, Shattuck. Johns Hopkins Univ. Circ., vol. xv, p. 15. 1895.
 Cretaceous. New Jersey. Exact syn. Lower marl bed.
- Navesink, Darton. U. S. Geol. Surv., Bull. No. 138, p. 40. 1896.
 Cretaceous. New Jersey. Exact syn. Lower marl.
- Navesink marl, Clark, Bagg and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 315, 334. 1897.
 Cretaceous. New Jersey. Included in Monmouth formation.
- Navesink marls, Clark, Bagg and Shattuck. N. J. Geol. Surv., Rept., 1897, pp. 183-184. 1898.
 Cretaceous. New Jersey. Included in Monmouth formation.
- Nebo** sandstone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
 Cambrian. Tennessee. Included in Chilhowee series.
- Nebo sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25. 1895, 1896.
 Cambrian. Tennessee, North Carolina.
- Nebraska**, Scott. Geol. Soc. Am., Bull., vol. v, p. 595. 1894.
 Tertiary. Nebraska. Included in Loup Fork, Upper Miocene.
- Necedah** quartzite, Irving. Geol. of Wis., vol. ii, p. 523. 1877.
 Archean. Wisconsin.
- Nehacco** series, Dawson. Can. Geol. Surv., Rept., 1876-77, pp. 72, 90. 1878.
 British Columbia.
- Neelytown** limestone, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 442. 1897.
 Silurian. New York.

- Negaunee** formation, Wadsworth. Mich. Geol. Surv., Rept. State Board for 1891, 1892, pp. 65, 66. 1893.
Azoic or Archean. Michigan.
- Negaunee**, Van Hise. Geol. Soc. Am. Bull., vol. v, p. 6. 1893.
Archean. Michigan. Included in Marquette.
- Negaunee** formation, Smyth. U. S. Geol. Surv., 15th Ann. Rept., p. 611. 1895.
Algonkian. Lake Superior region. Included in Lower Marquette series.
- Negaunee** formation, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 561. 1895.
Algonkian. Lake Superior region. Included in Lower Marquette series.
- Negaunee** formation, Smyth. U. S. Geol. Surv., Mon., vol. xxviii, pp. 529-532. 1897.
Algonkian. Michigan. Included in Lower Marquette series.
- Negaunee** formation, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 328-406. 1897.
Algonkian. Michigan. Included in Lower Marquette series.
- Negaunee** formation, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 62. 1900.
Algonkian. Michigan. Included in Lower Menominee series.
- Nehant** limestone, Sears. Essex Inst., Bull., vol. xxii, p. 32. 1890.
Cambrian. Massachusetts. Exact syns. Olenellus, Lower Cambrian.
- Neihart** quartzite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Algonkian. Montana.
- Neihart** quartzite and sandstone, Walcott. Geol. Soc. Am., Bull., vol. x, pp. 199, 204. 1899.
Pre-Cambrian. Montana. Included in Belt terrane.
- Neihart** quartzite, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 281. 1900.
Algonkian. Montana. Included in Belt terrane.
- Neocomian** shales, Cragin. Washburn Coll. Lab. Nat. Hist., Bull., vol. ii, pp. 69-80. 1890.
Cretaceous. Kansas.
- Neocomian**, Cragin. Am. Geol., vol. vii, p. 23. 1891.
Cretaceous. Kansas.
- Neodesha** sandstone, Hay. Kan. Acad. Sci., Trans., vol. x, p. 7. 1887.
Carboniferous. Kansas.
- Neosho** formation, Prosser. Jour. of Geol., vol. iii, pp. 764-771. 1895.
Permo Carboniferous. Kansas.
- Neosho** formation, Prosser. Kan. Univ. Quart., vol. vi, pp. 152-157, 164. 1896.
Carboniferous. Kansas. Included in Permian.
- Neosho** shales, Cragin. Colo. Coll. Stud., vol. vi, pp. 3, 7. 1896.
Permian. Kansas. Included in Big Blue series.
- Neosho** formation, Beede. Kan. Univ. Quart., vol. ix, p. 195. 1900.
Carboniferous. Kansas.
- Nerinaea** flags, Hill. Wash. Biol. Soc., Proc., vol. viii, p. 15. 1893.
Cretaceous. Texas. Included in Glen Rose beds, Trinity division. Exact syn. Top of Glen Rose beds.
- Neudeckian** stage, Upham. Am. Geol., vol. xvi, p. 104. 1895.
Pleistocene. Included in Champlain epoch.
- Nevada** limestone, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 263-266. 1883.
Devonian. Nevada.
- Nevada** limestone, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 63. 1892.
Devonian. Nevada.
- New Albany** black slate, Borden. Indiana Geol. Surv., 5th Ann. Rept., 1873, pp. 150, 152, 158, 172. 1874.
Devonian. Indiana.

New Albany black shale, Cox. Indiana Geol. Surv., 6th Ann. Rept., 1874, pp. 11, 13, 44. 1875.

Devonian. Indiana.

New Albany black shale, Borden. Indiana Geol. Surv., 6th Ann. Rept., 1874, pp. 122, 123, 145. 1875.

New Albany black shale, Borden. Indiana Geol. Surv., 7th Ann. Rept., 1875, pp. 148, 169. 1876.

Devonian. Indiana. Exact syn. Genesee shale of New York.

New Albany black shale, Thompson. Indiana Dept. Geol. and Nat. Hist., 15th Ann. Rept., 1886, p. 17. 1886.

Devonian. Indiana.

New Albany black slate, Duden. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rept., 1896, p. 108. 1896.

Indiana.

New Albany black shale, Blatchley and Ashley. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, pp. 16, 17. 1898.

Devonian. Indiana.

New Albany shale, Kindle. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, p. 408. 1898.

Devonian. Indiana.

New Albany black shale, Kindle. Am. Pal., Bull. No. 12, pp. 7, 110-111. 1899.

Devonian. Indiana.

New Albany black shale, Ashley. Indiana Dept. Geol. and Nat. Res., 23d Ann. Rept., 1898, pp. 74, 78. 1899.

Devonian. Indiana.

New Glasgow conglomerate, Fletcher and Faribault. Can. Geol. Surv., new ser., vol. ii, pp. 93P-94P. 1887.

Carboniferous. Nova Scotia. Included in Permian.

New Glasgow conglomerate, Fletcher. Can. Geol. Surv., new ser., vol. v, pt. ii, pp. 109P-120P. 1893.

Carboniferous. Nova Scotia. Included in Permian.

New Glasgow conglomerate, Poole. Nov. Scot. Inst., Proc. and Trans., 1890-1894, vol. viii, pp. 273-280. 1895.

Carboniferous. Nova Scotia. Included in Permian.

New Glasgow conglomerate, Ami. Brit. Assoc. Adv. Sci., Rept., 1899, p. 756. 1899.

Carboniferous. Nova Scotia.

New Glasgow formation, Ami. Can. Rec. Sci., vol. viii, pp. 162-163. 1900.

Carboniferous. Canada. Included in Neo-Carboniferous.

New Milford group, White. 2d Pa. Geol. Surv., Rept. G⁵, pp. 68-70. 1881.

Devonian. Pennsylvania. Included in Catskill.

New Milford shale, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 101-102. 1882.

Carboniferous. Pennsylvania. Included in Catskill.

New Milford sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1581-1582. 1892.

Devonian. Pennsylvania. Included in Catskill, No. ix.

New Milford shale, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.

Devonian. New York and Pennsylvania. Included in Chemung (Upper Devonian).

New Providence shale, Borden. Indiana Geol. Surv. for 1873, 5th Ann. Rept. for 1873, p. 161. 1874.

Indiana.

New Providence shale, Kindle. Am. Pal., Bull., No. 12, pp. 6-7. 1899.

Devonian. Indiana. Included in Knobstones.

New Red sandstone, Hitchcock. Geol. of Mass., Final Rept., vol. ii, pp. 434-531. 1841.

Mesozoic. Massachusetts.

- New Red sandstone, Lea. Phil. Acad. Nat. Sci. Jour., 2d ser., vol. ii, p. 185. 1852.
Pennsylvania.
- New Red sandstone, Wheatley. Am. Jour. Sci., 2d ser., vol. xxxii, pp. 41-48. 1861.
Juratrias. Pennsylvania.
- New Red sandstone, Frazer. Am. Inst. Mg. Engrs., Trans., vol. v, p. 494. 1877.
Juratrias.
- New Red, Frazer. 2d Pa. Geol. Surv., Rept. C³, pp. 13-16. 1880.
Juratrias. Pennsylvania.
- New Red, Hall. 2d Pa. Geol. Surv., Rept. C⁶, pp. 20-24. 1881.
Juratrias. Pennsylvania.
- New Red, Lyman. Am. Phil. Soc., Proc., vol. xxxiii, p. 192. 1894.
Juratrias. Eastern U. S.
- New Red, Lyman. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2589-2638. 1895.
Juratrias. Pennsylvania, New Jersey. Includes Pottstown, Perkasio, Lansdale, Gwynedd, and Norristown shales. Exact syn. Newark.
- New Red, Hopkins. Pa. State Coll. Ann. Rept. for 1896, Appendix, p. 45, et seq. 1897.
Juratrias. Pennsylvania.
- New Richmond** sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. xxii and 11, 37, 73, 388. 1888.
Cambrian. Included in Lower Magnesian.
- New Richmond sandstone, Keyes. Iowa Geol. Surv., 1st Ann. Rept., vol. i, p. 23. 1893.
Silurian. Iowa. Included in Lower Silurian, Lower Magnesian limestone, and St. Peter sandstone.
- New Richmond sandstone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. vi, pp. 167, 179. 1895.
Upper Cambrian. Wisconsin. Included in Magnesian series. Includes Elevator B.
- New River** system, Fontaine. Am. Jour. Sci., 3d ser., vol. vii, p. 463. 1874.
- New River system, Platt. 2d Pa. Geol. Surv., Rept. 4², pp. xxiv-xxvi. 1877.
- New River coal group, Lesley. 2d Pa. Geol. Surv., Rept. 4³, p. xxiii. 1877.
- New River coal group, White. U. S. Geol. Surv., Bull., No. 65, p. 202. 1891.
Carboniferous. Ohio, Pennsylvania, and West Virginia. Included in Pottsville conglomerate series. Includes Sharon coal, Fire Creek and Quinnemont beds.
- New River coal series, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1665. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono formation. Exact syn. No. xc.
- New River coal series, White. W. Va. Geol. Surv., vol. i, p. 202. 1899.
Carboniferous. West Virginia.
- New Scotland** beds, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Devonian. New York. Included in Helderbergian.
- New Scotland beds, Weller. N. J. Geol. Surv., Rept., 1899, p. 32. 1900.
Devonian. New Jersey.
- New Ulm** quartzite, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, p. xxii. 1888.
Minnesota.
- New York** transition system, Emmons. Geol. of New York, part ii, pp. 99-127. 1842.
Paleozoic. New York. Includes Champlain, Ontario, Helderberg, and Erie groups.
- New York system, Vanuxem. Geol. of N. Y., pt. iii, pp. 11-16, 24-194. 1842.
Paleozoic. New York. Includes all subdivisions from Potsdam to Catskill, inclusive.

- New York system, Hall. Geol. of N. Y., part iv, 4th Geol. Dist., pp. 18 et seq., 500-515, 516-520. 1843.
- Paleozoic. New York. Includes all subdivisions from Potsdam to Chemung, inclusive. Twenty-eight subdivisions in all.
- New York system, Emmons. Agric. of N. Y., vol. i, pp. 113-199. 1846.
- Silurian. New York. Includes Champlain, Ontario, Helderberg, and Erie divisions.
- New York system, Williams. U. S. Geol. Surv., Bull. No. 80, p. 59. 1891.
- Paleozoic. New York.
- Newark**, Redfield. Am. Jour. Sci., 2d ser., vol. xxii, p. 357; Am. Assoc. Adv. Sci., Proc., vol. x, p. 181. 1856.
- Newark, Darton. U. S. Geol. Surv., Bull. No. 67. 1890.
- Juratrias. New Jersey.
- Newark, Russell. U. S. Geol. Surv., Bull. No. 85, p. 16. 1892.
- Juratrias.
- Newark, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.
- Juratrias. Virginia, Maryland, and West Virginia.
- Newark system, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 345. 1894.
- Juratrias. Maryland and Virginia.
- Newark diabase, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 352. 1894.
- Maryland and Virginia.
- Newark, Lyman. Am. Phil. Soc., Proc., vol. xxxiii, pp. 5, 9. 1894.
- Juratrias. Eastern United States.
- Newark, Lyman. Jour. of Geol., vol. ii, pp. 59-61. 1894.
- Juratrias.
- Newark, Gilbert. Jour. of Geol., vol. ii, pp. 55-59. 1894.
- Juratrias.
- Newark, Davis and Griswold. Geol. Soc. Am., Bull., vol. v, p. 516. 1894.
- Trias. Connecticut.
- Newark, Hitchcock. Science, new ser., vol. i, pp. 74-77. 1895.
- Juratrias, Triassic. Connecticut.
- Newark, Russell. Science, new ser., vol. i, p. 266. 1895.
- Juratrias. General.
- Newark system, Kummel. N. J. Geol. Surv., Rept., 1896, pp. 25-88. 1897.
- Juratrias. New Jersey. Includes Stockton, Lockatong, and Brunswick series.
- Newark system, Kummel. Jour. of Geol., vol. v, pp. 541-562. 1897.
- Juratrias. New Jersey. Includes Stockton series; Lockatong and Brunswick shale series.
- Newark, Clark. Md. Geol. Surv., vol. i, p. 156. 1897.
- Triassic. Maryland.
- Newark system, Kummel. N. J. Geol. Surv., Rept., 1897, pp. 23-159. 1898.
- Juratrias. New Jersey. Includes Stockton, Lockatong, and Brunswick series.
- Newark, Clark. Md. Geol. Surv., vol. ii, p. 170. 1898.
- Triassic. Maryland.
- Newark, Kummel. Jour. of Geol., vol. vii, pp. 23-52. 1899.
- Juratrias. New York, New Jersey.
- Newark, Clark. Md. Geol. Surv., vol. iii, p. 91. 1899.
- Triassic. Maryland.
- Newark, Shaler and Woodworth. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 396-418. 1899.
- Juratrias. Virginia.
- Newland** limestone, Walcott. Geol. Soc. Am., Bull., vol. x, pp. 199, 206. 1899.
- Algonkian, Pre-Cambrian. Montana. Included in Belt terrane.
- Newland limestone, Weed. U. S. Geol. Surv., 20th Ann. Rpt., pt. iii, p. 282. 1900.
- Algonkian. Montana. Included in Belt terrane.

- Newman** limestone, Campbell. U. S. Geol. Surv., Bull., No. 111, p. 38. 1893.
Carboniferous. Virginia. Included in Coal Measures.
- Newman** limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
Carboniferous. Kentucky, Virginia, and Tennessee.
- Newman** limestone, Keith. Wash. Phil. Soc., Bull., vol. xii, p. 74. 1895.
Carboniferous. Tennessee. Included in Lower Carboniferous.
- Newman** limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
Carboniferous. Tennessee and North Carolina.
- Newman** limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
Carboniferous. Tennessee.
- Newman** limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 40. 1897.
Carboniferous. Tennessee. Part. syn. Bangor limestone.
- Newman** limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 47. 1898.
Carboniferous. Kentucky. Included in Mississippian series.
- Newman** limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.
Carboniferous. Kentucky.
- Newman** limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 53. 1899.
Carboniferous. Tennessee. Included in Mississippian series.
- Newman** limestone, U. S. Geol. Surv., Geol. Atlas of U. S. Folio No. 59. 1899.
Carboniferous. Virginia and Tennessee.
- Newport** conglomerate, Rogers. Boston Soc. Nat. Hist., Proc., vol. xviii, 1875-76, p. 97. 1875.
- Newport** limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1594. 1892.
Devonian. Pennsylvania. Included in Catskill, No. ix.
- Newport Neck** shales, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 383. 1899.
Cambrian (?). Rhode Island.
- Newtonville** limestone, Andrews. Ohio Geol. Surv., Rept. Prog. 1869, p. 93. 1870.
Ohio. Exact syn. Maxville limestone.
- Newtonville** limestone, Andrews. Ohio Geol. Surv., Rept. Prog., 1869, p. 96. 1871.
Ohio. Exact syn. Maxville limestone.
- Newtonville** limestone, Andrews. Ohio Geol. Surv., vol. i, pt. i, p. 314. 1873.
Carboniferous. Ohio. Included in Coal Measures. Exact syn. Maxville limestone.
- Newtonville** limestone, Orton. Ohio Geol. Surv., vol. vi, pp. 3, 43. 1888.
Carboniferous. Ohio. Exact syn. Maxville limestone and Subcarboniferous limestone.
- Niagara** limestone, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 58. 1842.
- Niagara** shale, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, p. 232. 1842.
Middle Silurian.
- Niagara** sandstone, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, p. 230. 1842.
Lower Silurian.
- Niagara** group, Vanuxem. Geol. of N. Y., pt. iii, pp. 90-94. 1842.
Paleozoic. New York. Included in New York system. Includes Lockport group, Upper part Proteau group, Geodiferous limerock, and Calciferous slate.
- Niagara** limestone, Rogers. Am. Phil. Soc., Trans., new ser., vol. viii, p. 274. 1842.
Silurian. Canada and New York.

- Niagara group, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 80-117. 1843.
Paleozoic. New York. Included in New York system. Includes Geodiferous limerock and Calciferous slate, Lockport limestone, Rochester shale, Niagara shale, and Niagara limestone. Part. syn. Proteau group, No. 6 of Pennsylvania Survey.
- Niagara shale, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 81-83. 1843.
Paleozoic. New York. Included in Niagara group.
- Niagara limestone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 84-97. 1843.
Paleozoic. New York. Included in Niagara group.
- Niagara group, Emmons. Agric. of N. Y., vol. i, pp. 150-152. 1846.
New York. Included in Ontario division of New York system. Includes Niagara shale and Niagara limestone. Exact syn. Geodiferous limerock and Calciferous slate, Lockport limestone and Rochester slate. Part. syn. Proteau group of Ann. Repts. of New York.
- Niagara limestone, Emmons. Agric. of New York, vol. i, pp. 151-152. 1846.
New York. Included in Niagara group of Ontario division of New York system.
- Niagara group, Loomis. Am. Jour. Sci., 2d ser., vol. i, p. 222. 1846.
Silurian. Tennessee.
- Niagara limestone, Murray. Can. Geol. Surv., Rept., 1847-1848. 1849.
Silurian. Ontario.
- Niagara group, Hale. Foster and Whitney's Rept. on Geol. of Lake Superior district, pt. ii, p. 156. 1851.
Silurian. Lake Superior region.
- Niagara group, Hall. Pal. of New York, vol. ii, pp. 2-4, 106-108. 1852.
Silurian. New York.
- Niagara group, Hall. Am. Jour. Sci., 2d ser., vol. xvii, p. 192. 1854.
Silurian. Michigan.
- Niagara limestone, Hall. Iowa Geol. Surv., vol. i, p. 71. 1858.
Silurian. Iowa.
- Niagara limestone, Whitney. Iowa Geol. Surv., vol. i, pt. i, pp. 292-295, 362-368. 1858.
Silurian. Iowa.
- Niagara, Safford. Am. Jour. Sci., 2d ser., vol. xxxi, p. 207. 1861.
Silurian. Tennessee. Includes Variegated limestone, and glade-forming limestones and shales, or Gray limestones and shales.
- Niagara limestone, Whitney. Rept. on Upper Mississippi lead region, p. 186. 1862.
Silurian. Wisconsin.
- Niagara formation, Logan. Can. Geol. Surv., Rept. 1843-63, pp. 321-336. 1863.
Middle Silurian. Canada. Included in Anticosti group.
- Niagara group, Chapman. Can. Inst., new ser., vol. viii, pp. 208-216. 1863.
Silurian. Canada. Included in Middle Silurian. Includes Medina and Clinton, Niagara and Guelph formations. Part. syn. Anticosti group (+ Guelph).
- Niagara limestone, Worthen. Ill. Geol. Surv., vol. i, pp. 129-136. 1866.
Silurian. Illinois.
- Niagara formation, Bell. Can. Geol. Surv., Rept. 1863-66, pp. 174, 176. 1866.
Middle Silurian. Canada.
- Niagara formation, Bell. Rept. 1866-69, pp. 128-131. 1866, 1871.
Silurian. Canada.
- Niagara limestone, Whitney. Ill. Geol. Surv., vol. i, pp. 177-186. 1866.
Silurian. Illinois. Exact syns. Upper Magnesian, Corraline and Pentamerus beds, and Mound limestone. Part. syn. Cliff limestone.

- Niagara group, Bannister. Ill. Geol. Surv., vol. iii, pp. 245-253. 1868.
Silurian. Illinois.
- Niagara limestone, Worthen. Ill. Geol. Surv., vol. iii, pp. 116-117. 1868.
Silurian. Illinois.
- Niagara group, Safford. Geol. of Tennessee, by Safford, pp. 291-322. 1869.
Silurian. Tennessee. Includes Meniscus limestone, Dyestone group, White Oak Mount sandstone, and Clinch Mount sandstone. Exact syn. Dana's Niagara period. Part. syns. Medina, Clinton, and Niagara epochs.
- Niagara group, Bannister. Ill. Geol. Surv., vol. iv, pp. 114, 131, 139. 1870.
Silurian. Illinois.
- Niagara limestone, Bradley. Ill. Geol. Surv., vol. iv, pp. 213, 232. 1870.
Silurian. Illinois.
- Niagara limestone, Worthen. Ill. Geol. Surv., vol. iv, p. 6. 1870.
Silurian. Illinois.
- Niagara, Worthen. Am. Assoc. Adv. Sci., Proc., vol. xix, p. 172. 1870.
Silurian. Illinois.
- Niagara group, White. Iowa Geol. Surv., vol. i, pp. 182-184. 1870.
Silurian. Iowa. Includes Niagara limestone. Part. syn. Le Claire limestone.
- Niagara limestone, Hunt. Am. Jour. Sci., 3d ser., vol. i, pp. 420-424. 1871.
Silurian. Illinois.
- Niagara, Hall. Am. Assoc. Adv. Sci., Proc., vol. xxii, p. 321. 1873.
Silurian. New York, Mississippi Valley. Exact syn. Coralline limestone.
- Niagara, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 62, 104, 128. 1873.
Silurian. Ohio.
- Niagara, Orton. Ohio Geol. Surv., vol. i, pt. i, p. 464. 1873.
Silurian. Ohio.
- Niagara, Winchell. Ohio Geol. Surv., vol. i, pt. i, pp. 596, 613, 627, 741. 1873.
Silurian. Ohio.
- Niagara, Shumard. Mo. Geol. Surv., Rept., 1855-1871, pp. 261, 281, 296. 1873.
Silurian. Missouri. Included in Upper Silurian.
- Niagara limestone, Worthen. Ill. Geol. Surv., vol. v, p. 223. 1873.
Silurian. Illinois.
- Niagara limestone, Shaw. Ill. Geol. Surv., vol. v, pp. 15-16, 33-35, 64-65, 78-79, 132-134, 149-152, 187. 1873.
Silurian. Illinois.
- Niagara, Orton. Ohio Geol. Surv., vol. ii, p. 667. 1874.
Silurian. Ohio. Included in Upper Silurian. Includes Guelph or Cedarville beds, Springfield beds, West Union beds, Niagara beds, Niagara shale, and Dayton stone.
- Niagara, Winchell. Ohio Geol. Surv., vol. ii, pp. 229, 316, 354, 359, 370, 398. 1874.
Silurian. Ohio.
- Niagara limestone, Killebrew and Safford. Resources of Tenn., pp. 38-39. 1874.
Silurian. Tennessee. Included in Niagara period.
- Niagara, Hall. Regents Univ. of N. Y., 27th Ann. Rept., pp. 117-131. 1875.
Silurian. New York. Includes Coralline limestone of New York.
- Niagara limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 53. 1876.
Lower Silurian. Minnesota.
- Niagara, Smith. Ala. Geol. Surv., Rept., 1875, pp. 26, 99. 1876.
Silurian. Alabama. Included in Upper Silurian.
- Niagara, Hotchkiss. A Geographical and Political Summary of Virginia, p. 22. 1876.
Upper Silurian. Virginia. Exact syns. Surgent, Levant (Formation iv, Rogers).
- Niagara, Ashburner. Am. Phil. Soc. Proc., vol. xvi, p. 556. 1877.
Silurian. Pennsylvania.

- Niagara limestone, Chamberlin. Geol. of Wis., vol. ii, pp. 335-371. 1877.
Upper Silurian. Wisconsin.
- Niagara group, Shaler. Ky. Geol. Surv., vol. iii, new ser., pp. 35, 163-169. 1877.
Silurian. Kentucky. Exact syn. includes all New York formations from top of Medina sandstone to top of Niagara period.
- Niagara, Newberry. Ohio Geol. Surv., vol. iii, p. 7. 1878.
Silurian. Ohio. Included in Upper Silurian.
- Niagara, Hussey. Ohio Geol. Surv., vol. iii, pp. 443, 447. 1878.
Silurian. Ohio.
- Niagara, Orton. Ohio Geol. Surv., vol. iii, pp. 386, 408. 1878.
Silurian. Ohio.
- Niagara, St. John. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 484. 1879.
Silurian. Idaho.
- Niagara group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 268, 290. 1881.
Silurian.
- Niagara, Chamberlin. Geol. of Wis., vol. i, pp. 178, 181-196. 1883.
Upper Silurian. Wisconsin. Includes Mayville beds, Waukesha beds, Racine beds, Byron beds, Lower and Upper Coral beds, and Guelph beds.
- Niagara, Hall. Am. Assoc. Adv. Sci., Proc., vol. xxxi, p. 46. 1883.
Silurian. Eastern U. S., Mississippi Valley.
- Niagara limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 302. 1884.
Minnesota.
- Niagara group, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery Cos. 1884.
Silurian. Kentucky. Included in Upper Silurian.
- Niagara, Linney. Ky. Geol. Surv., Geol. of Spencer and Nelson Cos., pp. 36-45. 1884.
Silurian. Kentucky.
- Niagara, Knott. Ky. Geol. Surv., Geol. of Marion Co., p. 15. 1885.
Silurian. Kentucky.
- Niagara, Linney. Ky. Geol. Surv., Geol. of Bath Co., p. 21. 1886.
Silurian. Kentucky.
- Niagara, Ringneberg. Am. Geol., vol. i, pp. 264-272. 1888.
Silurian. New York.
- Niagara group, Miller. N. A. Geol. and Pal., p. 50. 1889.
- Niagara group, Orton. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 561. 1889.
Silurian. Ohio, Indiana.
- Niagara group, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 18-20. 1890.
Silurian. Ohio. Includes Niagara limestone and shale, Guelph limestone and Hillsboro sandstone. Part. syn. Guelph limestone.
- Niagara limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 51, 60, 81, 213.
Silurian. Arkansas. Includes Meniscus (Tenn.), Galt or Guelph (Canada), and Leclaire (Iowa) limestone, and Athens (Ill.) marble. Part. syn. Cliff limestone (Ohio).
- Niagara, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 632. 1891.
Silurian. Indiana.
- Niagara limestone, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 323. 1891.
Silurian. Iowa.
- Niagara, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1892.
Silurian. New York.

- Niagara limestone, Keyes. Iowa Geol. Surv., 1st Ann. Rept., vol. i, p. 30. 1893.
Silurian. Iowa. Included in Upper Silurian.
- Niagara, Houser. Iowa Geol. Surv., 1st Ann. Rept., vol. i, pp. 199-207. 1893.
Silurian. Iowa.
- Niagara, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 231. 1893.
Silurian. Ontario.
- Niagara, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 100, 108. 1893.
Silurian. New York.
- Niagara, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 206-207, 218. 1894.
Silurian. New York.
- Niagara limestone, Udden. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 834. 1896.
Silurian. Illinois.
- Niagara series, Calvin. Iowa Geol. Surv., vol. v, pp. 48-60. 1896.
Silurian. Iowa. Includes Delaware, Leclaire, Anamosa, and Bertram stages.
- Niagara limestone, Luther. N. Y. State Geol., 15th Ann. Rept., pp. 247-250. 1897.
Silurian. New York.
- Niagara formation, Buckley. Wis. Geol. and Nat. Hist. Surv., Bull. No. 4, Econ. ser., No. 2, pp. 298-348. 1898.
Wisconsin.
- Niagara limestone, Calvin. Iowa Geol. Surv., vol. viii, pp. 144-159, 216-220. 1898.
Silurian. Iowa. Includes Delaware stage.
- Niagara, Barlow. Can. Geol. Surv., Rept. new ser., vol. x, p. 123I. 1898.
Silurian. Ontario and Quebec.
- Niagara group, Luther. N. Y. State Geol., 16th Ann. Rept., p. 204. 1899.
Silurian. New York.
- Niagaran, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Silurian. New York. Includes Clinton beds, Rochester shale, Lockport limestones, and Guelph dolomite.
- Niagara, Clark. Md. Geol. Surv., vol. iii, p. 97. 1899.
Silurian. Maryland. Included in Silurian. Exact syn. Lewiston (Helderberg).
- Niagara limestone, Calvin and Bain. Iowa Geol. Surv., vol. x, p. 445. 1900.
Silurian. Iowa.
- Niagara formation, O'Harra. Md. Geol. Surv., Allegany County, p. 91. 1900.
Silurian. Maryland.
- Nichols** shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
Cambrian. Tennessee. Included in Chilhowee series.
- Nichols shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios 16, 25. 1895, 1896.
Cambrian. Tennessee and North Carolina.
- Nicola** series, Dawson. Can. Geol. Surv., Rept., 1877-78, pp. 74B-81B, 171B. 1879.
Triassic(?). British Columbia. Red Beds (E. of Wahsatch) and Star Peak group (W. of Wahsatch) of 40th Par. Survey.
- Nicola, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 26B, 49B-58B, 112B-114B, 130B-146B. 1896.
Juratrias. British Columbia.
- Nicollet** clay, Harris. Phil. Acad. Nat. Sci., Proc., vol. ii, pp. 235-237. 1846.
Cretaceous.
- Nilkoka** beds, Brooks. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 472, 480. 1900.
Alaska.
- Nineveh** limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 32. 1891.
Carboniferous. Pennsylvania, West Virginia. Included in Permo-Carboniferous, Dunkard Creek. Exact syn. Limestone No. 10.

Niobrara division, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, pp. 419, 422. 1862.

Lower Cretaceous. Nebraska. Exact syn. Formation No. iii.

Niobrara, Hayden. Am. Phil. Soc., Trans., new ser., vol. xii, p. 1, et seq. 1863.
Cretaceous. Northwest.

Niobrara, Hayden. U. S. Geol. Surv. of Wyoming, pp. 87, 90. 1871.

Cretaceous. Included in Lower Cretaceous. Exact syn. Formation No. 3.

Niobrara, Hayden. U. S. Geol. Surv. of Terr., 1-3d Ann. Repts., pp. 49, 54. 1873.
Cretaceous. Exact syn. Formation No. 3.

Niobrara, Cope. U. S. Geol. and Geog. Surv., Mon., vol. ii, pp. 16-24. 1875.
Cretaceous.

Niobrara, Mudge. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. ii, p. 214. 1876.
Cretaceous. Kansas.

Niobrara group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix, pp. xxx-xxxiii. 1876.

Cretaceous.

Niobrara, Mudge. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., p. 281. 1877.

Cretaceous. Kansas. Includes Niobrara and Fort Hays.

Niobrara, Hague. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 42, 67-71. 1877.

Tertiary. Wyoming. Included in Pliocene.

Niobrara, King. U. S. Geol. Expl. of 40th Parallel, vol. i, p. 425. 1878.

Tertiary. Colorado, Wyoming. Included in Pliocene.

Niobrara group, Newton. Geol. of Black Hills., pp. 173-174. 1880.

Cretaceous. South Dakota.

Niobrara, Stevenson. U. S. Geog. and Geol. Surv. W. of 100th M., vol. iii, Suppl., p. 97. 1881.

Cretaceous. Colorado, New Mexico. Included in Colorado. Exact syn. Cretaceous, No. 3.

Niobrara group, Sternberg. Kansas City Review, vol. v, pp. 1-4. 1881.

Cretaceous. Kansas.

Niobrara, Dawson. Science, vol. i, p. 429. 1883.

Cretaceous. Canada.

Niobrara, Stevenson. Am. Geol., vol. iii, p. 393. 1889.

Cretaceous. Colorado and New Mexico.

Niobrara, Williston. Kansas Acad. Sci., Trans., vol. xiii, pp. 107-111. 1893.

Upper Cretaceous. Kansas.

Niobrara group, Calvin. Iowa Geol. Surv., vol. i, pp. 149-161. 1893.

Cretaceous. Iowa. Exact syn. Inoceramus beds.

Niobrara limestone, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.

Cretaceous. Colorado.

Niobrara chalk, Calvin. Am. Geol., vol. xiv, p. 142. 1894.

Cretaceous. Nebraska and Dakota. Included in Upper Cretaceous.

Niobrara chalk, Calvin. Am. Assoc. Adv. Sci., Proc., vol. xliii, p. 197. 1894.

Cretaceous. Nebraska and Iowa.

Niobrara, Bain. Iowa Geol. Surv., vol. iii, pp. 101-114. 1895.

Cretaceous. Iowa.

Niobrara, Emmons, Cross and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, p. 66. 1896.

Cretaceous. Colorado. Included in Colorado group.

Niobrara group, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 566. 1896.

Cretaceous. Colorado. Includes Timpas formation and Apishapa formation.

- Niobrara, Williston. Kansas Univ. Geol. Surv., vol. ii, pp. 235-246. 1897.
Upper Cretaceous. Kansas.
- Niobrara group, Logan. Kansas Univ. Geol. Surv., vol. ii, pp. 219-221. 1897.
Upper Cretaceous. Kansas. Includes Fort Hays limestone, and Pteranodon beds in Smoky Hill chalk.
- Niobrara formation, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.
Cretaceous. Colorado.
- Niobrara, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 24-27. 1898.
Upper Cretaceous. Kansas. Includes Pteranodon beds (Herperornis and Rudistes beds) and Fort Hays beds.
- Niobrara formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
Cretaceous. Colorado. Apishapa and Timpas formations.
- Niobrara, Logan. Jour. of Geol., vol. vii, pp. 89-91. 1899.
Cretaceous. Kansas, Nebraska. Includes Fort Hays limestone, Pteranodon beds.
- Nipigon** group, Spencer. Can. Nat., 2d ser., vol. viii, pp. 55-70. 1878.
Canada. Exact syn. Copper-bearing series.
- Nipigon series, Bell. Can. Geol. Surv., Rept. 1876-77, pp. 213-215. 1878.
Canada. Exact syn. Upper Copper-bearing series.
- Nipigon group, Selwyn. Can. Geol. Surv., Rept. 1877-78, p. 15A. 1879.
Canada.
- Nipigon, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.
Algonkian. Ontario. Part. syn. Keweenaw of Michigan.
- Nisconlith** series, Dawson. Can. Geol. Surv., new ser., vol. iv, pp. 31B-32B. 1890.
Paleozoic. British Columbia.
- Nisconlith series, Dawson. Geol. Soc. Am., Bull., vol. ii, pp. 165, 170. 1891.
Cambrian. British Columbia.
- Nisconlith series, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 26B, 30B-32B. 1896.
Cambrian. British Columbia.
- Nisconlith slate, McConnell. Can. Geol. Surv., new ser., vol. x, p. 30A. 1898.
British Columbia.
- Nishnabotany** sandstone, White. Iowa Geol. Surv., vol. i, pp. 289-291. 1870.
Cretaceous. Iowa.
- Nishnabotany sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 308. 1884.
Minnesota.
- Nishnabotany sandstone, Keyes. Iowa Geol. Surv., vol. i, pp. 134-135. 1893.
Cretaceous. Iowa.
- Nishnabotany sandstone, Lonsdale. Iowa Geol. Surv., vol. iv, pp. 412-423. 1895.
Cretaceous. Iowa.
- Nishnabotany sandstone, White. Am. Jour. Sci., 2d ser., vol. xlv, pp. 27, 119. 1898.
Cretaceous. Iowa. Exact syn. Dakota (?).
- Nodaway** limestone, Gallagher. Mo. Geol. Surv., Bien. Rept., p. 53. 1898.
Upper Carboniferous. Missouri. Included in Upper Coal Measures.
- Nogales** division, Dumble. Am. Inst. Mg. Engrs., Trans., vol. xxix, p. 128. 1900.
Tertiary. Mexico.
- Noix** oölite, Keyes. Iowa Acad. Sci., Proc., vol. v, p. 62. 1898.
Silurian. Iowa.
- Nolichucky** shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
Cambrian. Kentucky, Virginia, and Tennessee.

- Nolichucky shale, Walcott. Geol. Soc. Am., Bull., vol. v, p. 195. 1894.
Cambrian. Virginia.
- Nolichucky shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
Cambrian. Tennessee and North Carolina.
- Nolichucky shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
Cambrian. Tennessee. Included in Conasauga shale.
- Nolichucky shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44, 1897.
Cambrian. Virginia, West Virginia.
- Nolichucky shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Cambrian. Virginia, Tennessee.
- Norian**, Hitchcock. Am. Assoc. Adv. Sci., Proc., vol. xxi, p. 136. 1872.
Archean. New Hampshire.
- Norian, Crosby. Report on Geol. Map of Mass., pp. 7-11. 1876.
Massachusetts.
- Norian series, Hunt. 2d Pa. Geol. Surv., Rept. F, pp. 161-164. 1878.
Archean. Canada.
- Norian series, Selwyn. Can. Geol. Surv., Rept. 1877-78, pp. 10A, 12A-13A. 1879.
Canada.
- Norian, Hunt. Smithsonian Inst. Ann. Rept., 1882, p. 336. 1884.
Eozoic. N. E. America. Included in Archean. Includes Upper Laurentian or Labradorian.
- Norian, Whitney and Wadsworth. Harvard Coll. Mus. Comp. Zool., Bull., vol. vii, 1880-84, pp. 561, 562. 1884.
Azoic.
- Norian, Pumpelly. Geol. Soc. Am., Bull., vol. iv, p. 383. 1893.
Archean. Canada (?).
- Normandy** limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S. Folio No. 53. 1899.
Silurian. Tennessee. Exact syns. Chickamauga limestone, Nashville series.
- Norristown** shale, Lyman. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2612-2616. 1895.
Juratrias, Permian (?). Pennsylvania. Included in New Red.
- Norristown stage, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.
Carboniferous. Arkansas, Indian Territory.
- North Denison**, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.
Cretaceous. Indian Territory. Included in Denison beds, Washita division.
- North Haven** greenstone, Smith. Geol. of the Fox Islands, pp. 13-17. 1896.
Pre-Silurian. Maine.
- North Park** group, King. U. S. Geol. Expl. of 40th Parallel, vol. i, p. 431. 1878.
Tertiary. Wyoming. Included in Pliocene.
- North Valley Hill** sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, p. 166 et seq. 1892.
Cambrian. Pennsylvania.
- North Vernon** limestone, Borden. Indiana Geol. Surv., 7th Ann. Rept., 1875, pp. 148, 160. 1876.
Devonian. Indiana.
- North Vernon bluestone, Cox. Indiana Geol. Surv., 8th, 9th, and 10th Ann. Repts., 1876, 1877, 1878, p. 88. 1879.
Indiana.
- North Vernon stone, Elrod. Indiana Dept. Geol. and Nat. Hist., 11th Ann. Rept., 1881, pp. 174, 186. 1882.
Carboniferous. Indiana.

- Norton** formation, Campbell. U. S. Geol. Surv., Bull. No. 111, p. 34. 1893.
Carboniferous. Virginia. Included in Coal Measures. Exact syn. Lower Coal Measures.
- Norton, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
Carboniferous. Kentucky, Virginia, Tennessee.
- Norton zone, Williston. Kan. Univ. Quart., vol. iv., p. 251. 1896.
Upper Cretaceous. Kansas. Included in Smoky Hill chalk.
- Norton formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Carboniferous. Virginia and Tennessee.
- Novaculite** series, Ashley. Am. Phil. Soc., Proc., vol. xxxvi, pp. 228 et seq. 1897.
Carboniferous. Arkansas.
- Nulato** sandstone, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, p. 196. 1898.
Tertiary. Alaska. Included in Miocene.
- Nulato beds, Becker. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pl. i. 1898.
Alaska.
- Numbers I, II, III, IV**, Meek and Hayden. Am. Jour. Sci., 2d ser., vol. xxviii, pp. 219-226. 1859.
Cretaceous. Kansas and Nebraska.
- Number I**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 20-23. 1838.
Cambrian. Pennsylvania.
- Number I, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 38, 46. 1840.
Cambrian. Pennsylvania.
- Number I, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 165-186. 1892.
Cambrian. Pennsylvania. Includes Chiques sandstone, Hellam quartz, North Valley, Hill sandstone, Potsdam, and Upper Cambrian quartzite. Exact syn. Primal sandstone.
- Number II**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 23-30. 1838.
Silurian. Pennsylvania.
- Number II, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 41, 44, 53, 99, 134. 1840.
Silurian. Pennsylvania.
- Number II, Prime. 2d Pa. Geol. Surv., Rept. D, pp. 7-15. 1875.
Silurian. Pennsylvania. Includes Calciferous, Chazy, Birdseye, and Black River of New York.
- Number II, Prime. 2d Pa. Geol. Surv., Rept. D², pp. 11-22. 1878.
Silurian. Pennsylvania. Exact syn. Siluro-Cambrian.
- Number II, Hall. 2d Pa. Geol. Surv., Rept. C⁶, pp. 34-38. 1881.
Silurian. Pennsylvania.
- Number II, Prime. 2d Pa. Geol. Surv., Rept. D³, pt. i, pp. 161-201. 1883.
Silurian. Pennsylvania.
- Number II, D'Invilliers. 2d Pa. Geol. Surv., Rept. D³, pt. ii, pp. 137-196. 1883.
Silurian. Pennsylvania. Includes Auroral and Matinal of Rogers, Calciferous, Chazy, etc., of New York.
- Number II, Ewing. 2d Pa. Geol. Surv., Rept. T⁴, pp. 401-424. 1884.
Silurian. Pennsylvania. Includes Trenton, Chazy, Calciferous, etc. Exact syn. Great Valley limestone.
- Number III**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 30-36. 1838.
Silurian. Pennsylvania.
- Number III, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 64, 101, 104. 1840.
Silurian. Pennsylvania.
- Number III, Sanders. 2d Pa. Geol. Surv., Rept. D³, pt. i, pp. 83-85. 1883.
Silurian. Pennsylvania. Exact syn. Hudson River.
- Number III, Lesley. 2d Pa. Geol. Surv., Rept. D³, pt. i, pp. 32-35. 1883.
Silurian. Pennsylvania. Exact syn. Hudson River.

- Number III, Ewing. 2d Pa. Geol. Surv., Rept. T⁴, pp. 424-427. 1884.
 Silurian. Pennsylvania. Includes Hudson River and Utica.
- Number III, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 525-624. 1892.
 Silurian. Pennsylvania. Includes Utica and Hudson River slate.
- Number IV**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 36-39. 1838.
 Silurian. Pennsylvania.
- Number IV, Rogers. Pa. State Geol., 3d Ann. Rept., pp. 47-49. 1839.
 Silurian. Pennsylvania.
- Number IV, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 69, 102, 105, 137. 1840.
 Silurian. Pennsylvania.
- Number IV, Ewing. 2d Pa. Geol. Surv., Rept. T⁴, pp. 427-429. 1884.
 Silurian. Pennsylvania. Includes Oneida and Medina.
- Number IV, D'Invilliers. 2d Pa. Geol. Surv., Rept. F⁴, pp. 78-79. 1891.
 Silurian. Pennsylvania. Includes Medina and Oneida.
- Number IV, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 625-719. 1892.
 Silurian. Pennsylvania. Includes Oneida and Medina.
- Number V**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 39-46. 1838.
 Silurian. Pennsylvania.
- Number V, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 78, 140. 1840.
 Silurian. Pennsylvania.
- Number V, Ewing. 2d Pa. Geol. Surv., Rept. T⁴, p. 429. 1884.
 Silurian. Pennsylvania. Exact syn. Clinton group.
- Number V, D'Invilliers. 2d Pa. Geol. Surv., Rept. F⁴, pp. 62-78. 1891.
 Silurian. Pennsylvania. Includes Salina and Clinton.
- Number V, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 721-897. 1892.
 Silurian. Pennsylvania. Includes Clinton, Niagara, Salina, Barree group, McCoy-town sandstone, Lost Creek limestone, Bloomsburg shale, and Bridgeport sandstone.
- Number VI**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 46-50. 1838.
 Silurian. Pennsylvania.
- Number VI, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 84-143. 1840.
 Silurian. Pennsylvania. Exact syn. Fossiliferous limestone.
- Number VI, Ewing. 2d Pa. Geol. Surv., Rept. T⁴, pp. 429-430. 1885.
 Silurian. Pennsylvania. Exact syn. Lower Helderberg.
- Number VI, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 898-1033. 1892.
 Silurian. Pennsylvania. Includes Stormville shale, Bossardville limestone, Poxono Island shale, Bastard limestone, Lewistown limestone, and Clarks Mill shale. Exact syn. Lower Helderberg.
- Number VII**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 50-52. 1838.
 Devonian. Pennsylvania.
- Number VII, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 88-143. 1840.
 Devonian. Pennsylvania. Exact syn. Fossiliferous sandstone.
- Number VII, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1034-1142. 1892.
 Devonian. Pennsylvania. Includes Oriskany, Canda-Galli and Schoharie grits.
- Number VIII**, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 52-59. 1838.
 Devonian. Pennsylvania. Exact syn. Olive slate.
- Number VIII, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 91, 146. 1840.
 Devonian. Pennsylvania. Exact syn. Olive slate.
- Number VIII, Chance. 2d Pa. Geol. Surv., Rept. G⁴, pp. 105-106. 1880.
 Devonian. Pennsylvania. Includes Chemung and Portage.
- Number VIII, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 75-84. 1882.
 Devonian. Pennsylvania. Includes Chemung, Portage, Genesee, Hamilton, and Marcellus.

Number VIII, D'Inwilliers. 2d Pa. Geol. Surv., Rept. F⁴, pp. 45-50. 1891.

Devonian. Pennsylvania. Includes Chemung, Portage, Genesee, Hamilton, and Marcellus.

Number VIIIA, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1143-1193. 1892.

Devonian. Pennsylvania. Includes Upper Helderberg, Onondaga, and Corniferous limestones.

Number VIIIB, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1194-1236. 1892.

Devonian. Pennsylvania. Exact syn. Marcellus, black shale.

Number VIIIC, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1236-1307. 1892.

Devonian. Pennsylvania. Exact syn. Hamilton.

Number VIID, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1307-1322. 1892.

Devonian. Pennsylvania. Exact syn. Tully limestone.

Number VIIE, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1323-1335. 1892.

Devonian. Pennsylvania. Exact syns. Genesee black slate, Cadent Upper black slate.

Number VIIF, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1337-1370. 1892.

Devonian. Pennsylvania. Includes Cashaqua shale and Gardeau shale. Exact syn. Portage.

Number VIIG, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1371-1566. 1892.

Devonian. Pennsylvania. Exact syn. Chemung.

Number IX, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 59-63. 1838.

Devonian. Pennsylvania.

Number IX, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 97, 147. 1840.

Devonian. Pennsylvania.

Number IX, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1567-1627. 1892.

Devonian. Pennsylvania. Exact syn. Catskill.

Number X, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 63-65. 1838.

Carboniferous. Pennsylvania.

Number X, Rogers. Pa. State Geol., 4th Ann. Rept., p. 98. 1840.

Carboniferous. Pennsylvania.

Number X, Platt. 2d Pa. Geol. Surv., Rept. H⁴, p. 311. 1878.

Carboniferous. Pennsylvania. Exact syns. Pocono-Verpertine.

Number X, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1629-1789. 1895.

Carboniferous. Pennsylvania. Exact syn. Pocono formation.

Number XI, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 65-68. 1838.

Carboniferous. Pennsylvania.

Number XI, Rogers. Pa. State Geol., 4th Ann. Rept., p. 98 et seq. 1840.

Carboniferous. Pennsylvania.

Number XI, Platt. 2d Pa. Geol. Surv., Rept. H⁴, p. 311. 1878.

Carboniferous. Pennsylvania. Exact syns. Mauch Chunk red shale, Umbral.

Number XI, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1805-1853. 1895.

Carboniferous. Pennsylvania. Exact syns. Mauch Chunk red shale, Umbral.

Number XII, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 68-71. 1838.

Carboniferous. Pennsylvania.

Number XII, Rogers. Pa. State Geol., 4th Ann. Rept., pp. 123-132, 199. 1840.

Carboniferous. Pennsylvania.

Number XII, Lesley. 2d Pa. Geol. Surv., Rept. I, pp. 63-66. 1875.

Carboniferous. Pennsylvania and Ohio.

Number XII, White. 2d Pa. Geol. Surv., Rept. Q², pp. 51-70. 1877.

Carboniferous. Pennsylvania. Includes Piedmont or Tionesta sandstone, Mercer limestone, Connoquenessing sandstone, and Quakertown shale.

Number XII, Platt. 2d Pa. Geol. Surv., Rept. H⁴, p. 310. 1878.

Carboniferous. Pennsylvania. Exact syn. Pottsville conglomerate.

Number XII, Chance. 2d Pa. Geol. Surv., Rept. G⁴, pp. 91-95. 1880.

Carboniferous. Pennsylvania.

Number XII, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1857-1915. 1895.

Carboniferous. Pennsylvania. Includes Homewood or Johnson Run sandstone, Connoquenessing or Kinzua sandstone, and Sharon, Olean or Garland conglomerate. Exact syns. Pottsville conglomerate, Seral conglomerate.

Number XII, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2155-2405. 1895.

Carboniferous. Pennsylvania. Exact syn. Lower Productive Measures, Allegheny River series.

Number XII, Smith. 2d Pa. Geol. Surv., Final Rept., vol. ii, pt. i, pp. 1853-1855, 1920-1923, 1949-1951, 1953, 1959, 1966, 1975, 1984, 2000, 2009, 2025, 2031-2032, 2050, 2054. 1895.

Carboniferous. Pennsylvania. Exact syn. Pottsville conglomerate.

Number XIII, Rogers. Pa. State Geol., 2d Ann. Rept., pp. 71-79. 1838.

Carboniferous. Pennsylvania. Exact syn. Anthracite Coal Measures.

Number XIII, Rogers. Pa. State Geol., 3d Ann. Rept., pp. 82-87. 1839.

Carboniferous. Pennsylvania. Included in Coal Measures.

Number XIV, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2406-2447. 1895.

Carboniferous. Pennsylvania. Exact syns. Barren Measures, Pittsburg series, and Elk River series of West Virginia.

Number XV, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2448-2564. 1895.

Carboniferous. Pennsylvania. Exact syns. Upper Productive or Monongahela River series.

Number XVI, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2565-2588. 1895.

Carboniferous. Pennsylvania. Includes Greene Co. group and Washington Co. group. Exact syns. Upper Barren Measures, and Permo-Carboniferous or Dunkard Creek series.

Nummulite limestone, Lyell. Am. Jour. Sci., 2d ser., vol. iv, pp. 186-191. 1847. Eocene. Alabama. Exact syn. Orbitolite limestone.

Nunda group, Vanuxem. Geol. of N. Y., pt. iii, p. 172. 1842.

Paleozoic. New York. Included in New York system. Exact syn. Portage group.

Nunda group, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 224-241. 1843.

Paleozoic. New York. Included in New York system. Exact syn. Portage group.

Nushagak beds, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 173-174, 184. 1900.

Tertiary. Alaska. Included in Neocene.

Nussbaum formation, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.

Colorado. Included in Neocene.

Nussbaum formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.

Colorado. Included in Neocene(?).

Nussbaum formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.

Colorado. Included in Neocene.

Nutzotin series, Brooks. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 359. 1900. Alaska.

Oak Creek beds, Ward. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, p. 593. 1899.
Cretaceous. South Dakota.

Oak Creek beds, Jenney. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 568-587, 593.
1899.

Cretaceous. South Dakota. Included in Dakota group.

Oak Grove sands, Dale. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 340. 1898.
Tertiary. Florida.

Oakland limestone lentils, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio
No. 49. 1898.

Oregon. Included in Eocene.

Oakville, Dumble. Jour. of Geol., vol. ii, pp. 556-559. 1894.

Tertiary. Texas. Included in Miocene.

Oakville beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 339. 1898.

Tertiary. Texas. Included in Miocene. Part. syn. Fayette beds.

Ocala group, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.

Eocene. Florida. Included in Later Eocene. Exact syn. Nummulite beds of
Florida.

Ocala limestone, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 103. 1892.

Tertiary. Florida. Exact syn. Nummulitic beds.

Oceanic series, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, pp. 69-85.
1899.

Tertiary. Jamaica. Included in Oligocene. Includes Cobre, Moneague, and
Montpelier formations.

Ocheesee beds, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 105. 1892.

Tertiary. Florida. Included in Miocene, Chattahoochee group.

Ocheesee beds, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.

Miocene. Florida. Included in Chipola epoch, Chattahoochee group. Part. syn.
Chattahoochee group.

Ocoee conglomerate and slates, Safford. Geol. Recon. of the State of Tenn., 1st
Rept., pp. 151-152. 1856.

Tennessee. Included in Metamorphic Rocks.

Ocoee conglomerate and slates, Safford. Geol. of Tenn., by Safford, pp. 183-198.
1869.

Silurian. Tennessee. Included in Potsdam group.

Ocoee group, Killebrew and Safford. Resources of Tennessee, pp. 28-29. 1874.

Silurian. Tennessee. Included in Potsdam period.

Ocoee group, Bradley. Am. Jour. Sci., 3d ser., vol. ix, p. 283. 1875.

Cambrian. Tennessee. Exact syn. Lower Potsdam (Acadian).

Ocoee, Little. Hand-book of Ga., Com. of Agric., 1876, p. 41. 1876.

Silurian. Georgia. Included in Lower Primordial. Part. syn. Acadian.

Ocoee conglomerate, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 143, 252, 299.
1891.

Cambrian. Appalachian region.

Ocoee, Spencer. Ga. Geol. Surv., The Paleozoic Group, p. 34. 1893.

Cambrian. Georgia. Included in Lower Cambrian(?).

Ocoee series, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.

Algonkian(?). Tennessee. Includes Wilhite slate, Citico conglomerate, Pigeon
slate, and Thunderhead conglomerate and slate.

Ocoee group, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25.
1895, 1896.

Algonkian(?). Tennessee, North Carolina. Includes Wilhite slate, Citico conglom-
erate, Pigeon slate, Cades conglomerate, Thunderhead conglomerate, Hazel
slate, and Clingman conglomerate.

- Ocoee, Smith. Ala. Geol. Surv., Bull. No. 5, p. 110. 1896.
 Algonkian. Alabama. Exact syn. Talladega.
- Ocoya Creek**, Turner. Am. Geol., vol. xiii, p. 239. 1894.
 Tertiary. California. Included in Miocene.
- Ocoya Creek beds, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 461. 1894.
 Tertiary. California. Included in Miocene.
- Odanah** series, Tyrrell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 83E, 84E, 85E, 199 E, 212E-215E. 1893.
 Cretaceous. British Columbia. Included in Pierre.
- Ogallala** formation, Darton. U. S. Geol. Surv., 19th Ann. Rept., pt. iv, pp. 734-735, 741-742. 1899.
 Tertiary. Nebraska. Included in Pliocene(?).
- Ogden** quartzite, King. Am. Jour. Sci., 3d ser., vol. xi, p. 478. 1876.
 Devonian. Nevada.
- Ogden quartzite, Emmons. U. S. Geol. Expl. of 40th Parallel, vol. ii, p. 343, et seq. 1877.
 Devonian. Utah.
- Ogden quartzite, Hague. U. S. Geol. Expl. of 40th Parallel, vol. ii, p. 400. 1877.
 Devonian. Utah.
- Ogden quartzite, King. U. S. Geol. Expl. of 40th Parallel, vol. i, pp. 127-248. 1878.
 Devonian. Utah, Nevada.
- Ogden flint, Prosser. Geol. Soc. Am., Bull., vol. vi, p. 48. 1894.
 Carboniferous, Permian. Kansas.
- Ogishke** conglomerate, Winchell. Minn. Geol. and Nat. Hist. Surv., 16th Ann. Rept., pp. 344-350, 359. 1888.
 Minnesota.
- Ogishke conglomerate, Winchell. Am. Assoc. Adv. Sci., Proc., vol. xxxviii, p. 234. 1889.
 Algonkian. Lake Superior region. Included in Vermilion series.
- Ogishke conglomerate, Grant. Am. Geol., vol. x, p. 4. 1892.
 Archean. Minnesota.
- Ohio** black slate, Andrews. Ohio Geol. Surv., Rept. Prog., 1869, p. 62. 1870.
 Ohio.
- Ohio shale, Shaler. Ky. Geol. Surv., new ser., vol. iii, pp. 169-175. 1877.
 Devonian. Kentucky. Exact syns. Huron shale. Includes all from top of Oriskany to top of Chemung.
- Ohio shale, Orton. Rev. of Strat. Geol. of eastern Ohio, p. 4. 1880.
 Devonian. Ohio. Exact syn. Black shale.
- Ohio shale, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 23. 1888.
 Carboniferous. Ohio. Includes Cleveland shale, Erie shale, and Huron shale.
- Ohio shale, Herrick. Denison Univ. Sci. Lab., Bull., vol. iii, p. 26. 1888.
 Devonian. Ohio.
- Ohio shale, Orton. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 570. 1889.
 Devonian. Ohio, Indiana. Includes Cleveland, Huron, and Erie shales.
- Ohio shale, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas, pp. 23, 62. 1886.
 Ohio.
- Ohio shale, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 27-33, pp. 248-249. 1890.
 Devonian. Ohio. Includes Cleveland shale, Erie shale, and Huron shale. Part. syn. Genesee slate, Portage and Chemung groups.
- Ohio shale, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 21. 1893.
 Devonian. Ohio. Includes Cleveland shale, Erie shale, and Huron shale.

Ohio, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.

Cretaceous. Colorado.

Ohio Creek, Cross. U. S. Geol. Surv., Mon., vol. xxvii, p. 219. 1896.

Cretaceous. Colorado. Part. syns. Arapahoe.

Ohio shale, Bownocker. Denison Univ. Sci. Lab., Bull., vol. ii, art. ii, p. 14. 1898.
Ohio.

Oil Creek Lake group, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1767. 1895.

Carboniferous. Pennsylvania. Included in No. 10, Pocono. Includes Corry sandstone, 3d Mountain sandstone, Cussewago shale, limestone, and sandstone.
Exact syn. Berea group of Ohio.

Oil Lake group, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 91-98. 1881.

Carboniferous. Pennsylvania. Includes Corry and Cussewago sandstone and shales. Exact syns. Berea grit, Pithole grit. Part. syn. Pocono.

Oklune series, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 163-169, 181. 1900.

Cretaceous. Alaska.

Old Red sandstone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 278-283. 1843.

Paleozoic. New York. Includes Catskill group, Montrose and Oneonta sandstone, No. 11, Pennsylvania Survey.

Old Red sandstone, Lesley. 2d Pa. Geol. Surv., Rept. I, pp. 97-102. 1875.

Devonian. Pennsylvania and New York. Exact syn. No. IX.

Olean conglomerate, Sub-, Carll. 2d Pa. Geol. Surv., Rept. I⁴, pp. 189-195. 1883.

Carboniferous. Pennsylvania. Exact syn. Shenango sandstone.

Olean conglomerate, Ashburner. 2d Pa. Geol. Surv., Rept. R², pp. 396-397. 1885.

Carboniferous. Pennsylvania.

Olean conglomerate, Sub-, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 402. 1885.

Carboniferous. Pennsylvania.

Olean Conglomerate, Sub-, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 105-110. 1890.

Carboniferous, Pennsylvania. Included in Pocono. Exact syns. Shenango sandstone and Logan sandstone.

Olean conglomerate, Randall. Regents Univ. of N. Y., 47th Ann. Rept., p. 715. 1894.

New York.

Oleon, Sub-, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1733 et seq. 1895.

Carboniferous. Pennsylvania. Included in No. 10, Pocono.

Olean conglomerate, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1861, 1873, 1892. 1895.

Carboniferous. Pennsylvania. Included in No. 12, Pottsville conglomerate.

Olentangy shale, Winchell. Ohio Geol. Surv., vol. ii, pp. 243, 287. 1874.

Devonian. Ohio.

Olentangy shale, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 22. 1888.

Devonian. Exact syn. Hamilton shale(?).

Olentangy shale, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 26-27. 1890.

Devonian. Ohio. Exact syn. Hamilton shale.

Olentangy shale, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 20. 1893.

Devonian. Ohio. Exact syn. Hamilton shale.

Oley Valley slate, D'Invilliers. 2d Pa. Geol. Surv., Rept. D³, pt. ii, pp. 102-103. 1883.

Cambrian(?). Pennsylvania. Included in Potsdam(?).

- Olive shale**, Read. Ohio Geol. Surv., vol. iii, pp. 337, 523. 1878.
Carboniferous. Ohio. Included in Waverly.
- Oneida conglomerate**, Vanuxem. Geol. of N. Y., pt. iii, pp. 71-74. 1842.
Paleozoic. New York. Included in New York system. Includes Shawangunk conglomerate, Millstone grit, Gray band of Rochester, and No. 5, Pennsylvania Survey.
- Oneida conglomerate**, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 31. 1843.
Paleozoic. New York. Included in New York system. Exact syn. Shawangunk conglomerate.
- Oneida conglomerate**, Emmons. Agric. of N. Y., vol. i, pp. 125-126. 1846.
Silurian. New York. Included in Champlain division of New York system.
- Oneida conglomerate**, Jewett. Am. Jour. Sci., 2d ser., vol. xxxviii, p. 121. 1864.
Silurian. New York.
- Oneida conglomerate**, Cook. Geol. of N. J., pp. 146-149. 1868.
Silurian. New Jersey. Exact syn. Shawangunk conglomerate or grit.
- Oneida conglomerate**, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 61. 1873.
Silurian. Ohio.
- Oneida**, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 532, 558. 1877.
Silurian. Appalachian region. Part. syn. Levant in part.
- Oneida**, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 44-48. 1881.
Silurian. Pennsylvania. Included in No. 4.
- Oneida conglomerate**, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, p. 288. 1881.
Silurian. Included in Medina group.
- Oneida conglomerate**, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 150-152. 1882.
Silurian. Pennsylvania. Included in No. 4, Medina.
- Oneida**, White. 2d Pa. Geol. Surv., Rept. T⁸, pp. 143-147. 1885.
Silurian. Pennsylvania.
- Oneida conglomerate**, White. N. Y. State Mus., 51st Ann. Rept., vol. i, p. r36. 1899.
Ordovician. New York.
- Oneonta sandstone**, Hall. N. Y. State Geol., Rept. for 1885, p. 11. 1886.
Devonian. New York.
- Oneonta sandstone**, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 93, 108. 1893.
Devonian. New York. Included in Portage.
- Oneonta**, Prosser. Am. Jour. Sci., 3d ser., vol. xlvi, pp. 213-215. 1893.
Devonian. New York.
- Oneonta formation**, Darton. Am. Jour. Sci., 3d ser., vol. xlv, pp. 203-209. 1893.
Devonian. New York.
- Oneonta**, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 238-240. 1894.
Devonian. New York.
- Oneonta**, Clarke. N. Y. State Geol., 13th Ann. Rept., p. 557. 1894.
Devonian. New York. Exact syn. Portage.
- Oneonta sandstones**, Clarke. N. Y. State Geol., 15th Ann. Rept., pp. 27-82. 1897.
Devonian. New York.
- Oneota limestone**, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 331. 1891.
Silurian. Iowa.
- Oneota limestone**, Hall. Geol. Soc. Am., Bull., vol. iii, p. 464. 1892.
Ordovician. Minnesota. Exact syn. Lower Magnesian.
- Oneota**, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, p. 341. 1892.
Ordovician (?). Minnesota. Included in Magnesian series.
- Oneota**, Keyes. Iowa Geol. Surv., vol. i, pp. 21-24. 1893.
Silurian. Iowa. Included in Lower Silurian. Exact syn. Lower Magnesian limestone.

- Oneota, Hall and Sardeson. Geol. Soc. Am., Bull., vol. vi, pp. 167, 176. 1895.
Upper Cambrian. Minnesota. Included in Magnesian series.
- Oneota limestone, Norton. Iowa Geol. Surv., vol. iii, pp. 182-184. 1895.
Silurian. Iowa.
- Oneota limestone, Calvin. Iowa Geol. Surv., vol. iv, pp. 61-68. 1895.
Silurian. Iowa. Included in Ordovician. Exact syns. Lower Magnesian limestone, Calciferous.
- Onondaga** group, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 290-293, 304. 1839.
Silurian. New York.
- Onondaga limestone, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 309-310. 1839.
Devonian. New York. Exact syn. Gray crinoidal limestone.
- Onondaga salt group, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., pp. 375-376. 1840.
Silurian. New York.
- Onondaga limestone, Hall. N. Y. Geol. Surv., 4th Ann. Rept., pp. 418-420, 427. 1840.
Devonian. New York.
- Onondaga limestone, Hall. N. Y. Geol. Surv., 5th Ann. Rept., pp. 156-158. 1841.
New York.
- Onondaga salt group, Mather. N. Y. Geol. Surv., 5th Ann. Rept., pp. 89-90. 1841.
Silurian. New York.
- Onondaga salt group, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 58. 1842.
New York.
- Onondaga system, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, pp. 233-234. 1842.
Includes Upper Silurian.
- Onondaga limestone, Vanuxem. Geol. of N. Y., pt. iii, pp. 132-138. 1842.
Paleozoic. New York. Included in New York system. Includes Gray sparry limestone.
- Onondaga salt group, Vanuxem. Geol. of N. Y., pt. iii, pp. 94-110. 1842.
Paleozoic. New York. Included in New York system. Includes Calciferous slate, Second graywacke with shell lime rock of Eaton.
- Onondaga salt group, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 117-140. 1843.
Paleozoic. New York. Included in New York system. Includes Calciferous slate, Second graywacke with shell lime rock of Eaton. Gypseous marls and slates.
- Onondaga limestone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 151-157. 1843.
Paleozoic. New York. Included in New York system. Corniferous lime rock. Includes Gray sparry limestone.
- Onondaga limestone, Mather. Geol. of N. Y., pt. i, p. 339. 1843.
Paleozoic. New York. Included in Helderberg division.
- Onondaga salt group, Owen. Am. Jour. Sci., 2d ser., vol. i, pp. 43, 57. 1846.
Silurian. New York. Included in Helderberg series (or division) of the New York system. Includes Magnesian deposits and Vermicular lime rock.
- Onondaga salt group, Emmons. Agric. of N. Y., vol. i, pp. 153-166. 1846.
New York. Included in Helderberg division of New York system. Includes Manlius water-lime group.
- Onondaga limestone, Emmons. Agric. of N. Y., vol. i, pp. 174-179. 1846.
New York. Included in Helderberg division of New York system. Includes Selenurus limerock, Seneca limestone, and Corniferous limestone.
- Onondaga salt group, Hall. Pal. of New York, vol. ii, p. 339. 1852.
Silurian. New York.
- Onondaga limestone, Meek. Mo. Geol.-Surv., 1st and 2d Ann. Repts., pt. ii, p. 103. 1855.
Devonian. Missouri.

- Onondaga limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 107, 178, 196. 1855.
Devonian. Missouri.
- Onondaga salt group, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 76-80. 1858.
Silurian. Iowa.
- Onondaga salt group, Hall and Whitney. Am. Jour. Sci., 2d ser., vol. xxvii, p. 112. 1859.
Silurian. Iowa.
- Onondaga formation, Logan. Can. Geol. Surv., Rept. 1843-63, pp. 345-352. 1863.
Upper Silurian. Canada.
- Onondaga formation, Chapman. Can. Inst., new ser., vol. viii, pp. 437-439. 1863.
Silurian. Canada. Included in Upper Silurian.
- Onondaga group, Worthen. Ill. Geol. Surv., vol. iii, pp. 23-24, 39-40, 62-63. 1868.
Devonian. Illinois.
- Onondaga limestone, Cook. Geol. of N. J., pp. 165-166. 1868.
Devonian. New Jersey.
- Onondaga, Winchell. Am. Assoc. Adv. Sci., Proc., vol. xxii, p. 103. 1873.
Devonian. Ohio.
- Onondaga, Winchell. Ohio Geol. Surv., vol. ii, p. 340. 1874.
Devonian. Ohio. Included in Corniferous.
- Onondaga limestone, Broadhead. Mo. Geol. Surv., Rept. 1873-1874, p. 27. 1874.
Devonian. Missouri.
- Onondaga, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 530, 555. 1877.
Silurian. Appalachian region. Exact syns. Salina and Scalent.
- Onondaga salt group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 290, 291. 1881.
Silurian.
- Onondaga group, Englemann and Worthen. Econ. Geol. of Ill., vol. i, pp. 461-462. 1882.
Silurian (?). Illinois.
- Onondaga salt, Hall. Am. Assoc. Adv. Sci., Proc., vol. xxxi, p. 47. 1883.
Silurian. Eastern United States.
- Onondaga, Claypole. Am. Phil. Soc., Proc., vol. xxi, p. 497. 1884.
Silurian. Pennsylvania. Exact syn. Gypseous group.
- Onondaga, White. 2d Pa. Geol. Surv., Rept. T³, pp. 128-131. 1885.
Silurian. Pennsylvania. Exact syn. Salina.
- Onondaga, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 52-58. 1885.
Silurian. Pennsylvania. Includes Bridgeport sandstone.
- Onondaga group, Miller. N. A. Geol. and Pal., p. 54. 1889.
- Onondaga salt group, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 52. 1890.
Silurian. Arkansas. Part. syn. Salina.
- Onondaga limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 52, 53. 1890.
Devonian. Arkansas.
- Onondaga salt group, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1892.
Silurian. New York.
- Onondaga limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1143 et seq. 1892.
Devonian. Pennsylvania. Included in No. 8a.
- Onondaga, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 230. 1893.
Silurian. Ontario.
- Onondaga salt group, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 97, 108, 116. 1893.
Upper Silurian. New York.

- Onondaga limestone, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 203, 207-208, 242-243, 301. 1894.
 Devonian. New York. Exact syn. Corniferous.
- Onondaga limestone, Ries. N. Y. State Geol., 15th Ann. Rept., p. 403. 1897.
 Devonian. New York. Exact syn. Corniferous.
- Onondaga limestone, Luther. N. Y. State Geol., 16th Ann. Rept., p. 214. 1899.
 Devonian. New York.
- Onondaga limestone, Weller. N. J. Geol. Surv., Rept., 1899, p. 45. 1900.
 Devonian. New Jersey.
- Ontario** division, Mather. Geol. of N. Y., pt. i, pp. 353-365. 1843.
 Paleozoic. New York. Included in Shawangunk grit.
- Ontario division, Emmons. Agric. of N. Y., vol. i, pp. 141-152. 1846.
 New York. Includes Medina sandstone, Clinton group, and Niagara group.
- Ontario group, Chapman. Can. Inst., new ser., vol. viii, p. 186. 1863.
 Silurian. Canada. Included in Lower Silurina. Includes Birdseye and Black River formation, Trenton, Utica, and Hudson River.
- Ontario group, Chapman. A Popular and Practical Exposition of the Minerals and Geology of Canada, p. 157, Toronto. 1864.
 Silurian. Canada. Includes Hudson River, Utica, Trenton, Birdseye, and Black River.
- Ontarian system, Lawson. Geol. Soc. Am., Bull., vol. i, p. 177. 1889.
 Archean. Ontario.
- Ontarian, Dana. Geol. Soc. Am., Bull., vol. i, p. 41. 1889.
 Upper Silurian. New York, etc. Exact syn. Ontario division of Mather.
- Ontarian, Winchell and Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 195. 1899.
 Minnesota. Includes Couchiching and Keewatin.
- Ontaric, Clarke and Schuchert. Science, new ser., vol. x, p. 876. 1899.
 Silurian. New York. Exact syn. Siluric.
- Oostanala** series, Spencer. Ga. Geol. Surv., The Paleozoic Group, pp. 34, 37, 77, 87, 99, 108, 112, 115, 119, 123, 130. 1893.
 Cambrian. Georgia. Included in Middle and Upper Cambrian. Includes Knox or Connesauga shale, and Knox or Rome sandstone.
- Ophian**, Witney and Wadsworth. Harvard Mus. Comp. Zool., Bull., vol. vii, 1880-84, p. 562. 1884.
 Included in Azoic system.
- Orange Martin** limestone, Owen. Geol. Recon. Indiana, Rept. 1859-60, p. 126. 1862.
 Carboniferous. Indiana. Included Eocarboniferous limestone.
- Orange Sand** group, Safford. Geol. Recon. of the State of Tenn., 1st Rept., p. 162. 1856.
 Cretaceous. Tennessee.
- Orange Sand group, Harper. Prelim. Rept. Geol. and Agric. Miss., p. 107. 1857.
 Mississippi. Included in rocks overlying the Cretaceous formation.
- Orange Sand formation, Hilgard. Rept. on Geol. and Agric., Miss., pp. 4-46. 1860.
 Quaternary. Mississippi.
- Orange Sand, Safford. Am. Jour. Sci., 2d ser., vol. xxxvii, p. 369. 1864.
 Tertiary. Tennessee. Exact syn. La Grange group.
- Orange Sand, Hilgard. Am. Jour. Sci., 2d ser., vol. xli, pp. 311-318; vol. xlii, p. 346. 1866.
 Quaternary. Mississippi.
- Orange Sand or La Grange group, Safford. Geol. of Tenn., pp. 424-428. 1869.
 Tertiary. Tennessee.

- Orange Sand formation, Hilgard. Am. Jour. Sci., 2d ser., vol. xlviii, p. 334. 1869.
Quaternary. Louisiana.
- Orange Sand, Hilgard. Am. Jour. Sci., 2d ser., vol. xlvii, pp. 77-88. 1869.
Quaternary (?). Louisiana.
- Orange Sand, Hilgard. Am. Jour. Sci., 3d ser., vol. ii, pp. 398-401. 1871.
Pleistocene. Mississippi Valley and Gulf region.
- Orange Sand, Killebrew and Safford. Resources of Tenn., p. 45. 1874.
Quaternary. Tennessee.
- Orange Sand, Hilgard. Smithsonian Inst. Contr., vol. xxiii, no. 2, p. 3. 1881.
Tertiary. Louisiana.
- Orange Sand, Salisbury. Am. Jour. Sci., 3d ser., vol. xlii, pp. 252-253. 1891.
Tertiary. Illinois.
- Orange Sands, Chamberlin and Salisbury. Am. Jour. Sci., 3d ser., vol. xli, pp. 364-377. 1891.
Pre-Pleistocene. Mississippi Valley.
- Orange Sand, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Pliocene. Gulf and Atlantic States. Included in Floridian epoch, Lafayette group.
Part syn. Lafayette group.
- Orangeburg** formation, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 344. 1898.
Tertiary. Georgia, Alabama. Included in Claibornian stage, Eocene.
- Orangeville** shale, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 89-90. 1881.
Carboniferous. Pennsylvania. Included in Meadville group.
- Orangeville shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1765. 1895.
Carboniferous. Pennsylvania. Included in No. 10, Pocono.
- Orbitoides** limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 57. 1890.
Tertiary. Arkansas.
- Orbitoides** limestone, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 101. 1892.
Tertiary. Florida. Included in Vicksburg group.
- Orbitoitic**, Heilprin. Phil. Acad. Nat. Sci., Proc., 1882, pp. 183-184. 1882.
Oligocene. Exact syn. Vicksburg beds, Florida beds.
- Orbitoitic**, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 117-120. 1884.
Tertiary. Included in Oligocene. Exact syns. Vicksburg beds and Florida Nummulitic beds.
- Orbitolite** limestone, Lyell. Am. Jour. Sci., 2d ser., vol. iv, pp. 186-191. 1847.
Eocene. Alabama. Exact syn. Nummulite limestone.
- Orca** series, Schrader. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, p. 404. 1900.
Upper Cretaceous or Tertiary. Alaska.
- Orchard** gneiss, Kemp. Am. Inst. Mg. Engrs., Trans., vol. xxvii, p. 178. 1898.
Archean. New York.
- Oread** limestone, Haworth. Kan. Univ. Quart., vol. ii, pp. 123-124. 1894.
Carboniferous. Kansas.
- Oread limestone, Haworth. Am. Jour. Sci., 3d ser., vol. i, p. 461. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Oread limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 138, 161, 166. 1896.
Carboniferous. Kansas.
- Oread limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 60, 71, 114-116. 1896.
Carboniferous. Kansas. Includes the heavy limestone at Atchison.
- Oread limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 62-64, 93, 94, 104. 1898.
Carboniferous. Kansas. Included in Douglas formation.

- Oreodon**, Wortman. Am. Mus. Nat. Hist., Bull., vol. v, p. 97. 1893.
Tertiary. Included in White River or Lower Miocene.
- Oriskany sandstone**, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 308-309. 1839.
Devonian. New York.
- Oriskany**, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, pp. 232-233. 1842.
Middle Silurian. New York.
- Oriskany sandstone**, Vanuxem. Geol. of N. Y., pt. iii, pp. 123-127. 1842.
Paleozoic. New York. Includes White sandstone. Exact syn. No. 7, Pennsylvania Survey.
- Oriskany sandstone**, Mather. Geol. of N. Y., pt. i, pp. 342-343. 1843.
Paleozoic. New York. Included in Helderberg division.
- Oriskany sandstone**, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 146-148. 1843.
Paleozoic. New York. Included in New York system. Includes No. 7, Pennsylvania Survey.
- Oriskany sandstone**, Emmons. Agric. of N. Y., vol. i, pp. 168-171. 1846.
New York. Included in Helderberg division of New York system.
- Oriskany sandstone**, Hall. Pal. of N. Y., vol. ii, pt. i, pp. 421-425. 1859.
Devonian. New York.
- Oriskany sandstone**, Hitchcock. Prelim. Rept. Geol. of Maine, vol. i, pp. 243-245. 1861.
Devonian. Maine.
- Oriskany formation**, Logan. Can. Geol. Surv., Rept. 1843-63, pp. 359-361. 1863.
Devonian. Canada. Included in Upper Helderberg group.
- Oriskany formation**, Chapman. Can. Inst., new ser., vol. viii, pp. 440-441. 1863.
Devonian. Canada.
- Oriskany sandstone**, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada.
- Oriskany sandstone**, Worthen. Ill. Geol. Surv., vol. i, pp. 124-126. 1866.
Devonian. Illinois.
- Oriskany group**, Worthen. Ill. Geol. Surv., vol. iii, pp. 24-25, 62. 1868.
Devonian. Illinois. Includes Clear Creek limestones.
- Oriskany**, Cook. Geol. of N. J., pp. 160-161. 1868.
Devonian. New Jersey.
- Oriskany sandstone**, Shumard. Mo. Geol. Surv., Repts. 1855-1871, p. 296. 1873.
Devonian. Missouri.
- Oriskany**, Winchell. Ohio Geol. Surv., vol. i, pt. i, p. 603. 1873.
Devonian. Ohio.
- Oriskany**, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 67, 140. 1873.
Devonian. Ohio.
- Oriskany**, Newberry. Ohio Geol. Surv., vol. ii, p. 193. 1874.
Devonian. Ohio.
- Oriskany**, Winchell. Ohio Geol. Surv., vol. ii, pp. 301, 328, 340, 379. 1874.
Devonian. Ohio.
- Oriskany sandstone**, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 27. 1874.
Silurian. Missouri. Included in Upper Silurian.
- Oriskany**, Hotchkiss. A Geographical and Political Summary of Virginia. p. 22. 1876.
Upper Silurian. Virginia. Exact syn. Meridian. (Formation vii, Rogers.)
- Oriskany**, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 529, 554. 1877.
Devonian. Appalachian region. Exact syn. Meridian.
- Oriskany sandstone**, Hitchcock. Geol. of N. H., pt. ii, p. 208. 1877.
Devonian. New Hampshire.

- Oriskany, Newberry. Ohio Geol. Surv., vol. iii, p. 9. 1878.
Devonian. Ohio.
- Oriskany, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 35-37. 1881.
Silurian. Pennsylvania.
- Oriskany group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, p. 267. 1881.
Silurian.
- Oriskany, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 122-127. 1882.
Silurian. Pennsylvania. Exact syn. No. vii.
- Oriskany, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 85-86. 1882.
Silurian. Pennsylvania.
- Oriskany, Hall. Am. Assoc. Adv. Sci., Proc., vol. xxxi, p. 50. 1883.
Devonian. Eastern United States.
- Oriskany, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 85-87. 1883.
Silurian. Pennsylvania. Exact syn. No. 7.
- Oriskany sandstone, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery Cos. 1884.
Devonian. Kentucky.
- Oriskany, Ewing. 2d Pa. Geol. Surv., Rept. T⁴, pp. 430-432. 1884.
Devonian. Pennsylvania. Exact syn. No. 7.
- Oriskany, White. 2d Pa. Geol. Surv., Rept. T³, pp. 117-121. 1885.
Silurian. Pennsylvania. Includes Stormville shale.
- Oriskany, Claypole. 2d Pa. Geol. Surv., Rept. F², pp. 62-64. 1885.
Devonian. Pennsylvania.
- Oriskany, Linney. Ky. Geol. Surv., Geol. of Bath Co., p. 22. 1886.
Devonian. Kentucky.
- Oriskany group, Miller. N. A. Geol. and Pa., p. 58. 1889.
- Oriskany, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 52. 1890.
Silurian. Arkansas.
- Oriskany, D'Invilliers. 2d Pa. Geol. Surv., F⁴, pp. 51-54. 1891.
Devonian. Pennsylvania. Includes Stormville shale. Exact syn. No. 7.
- Oriskany series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog. 1891.
Devonian. Georgia.
- Oriskany, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pt. i, pp. 1034-1142. 1892.
Devonian. Pennsylvania. Includes Cauda-Galli and Schoharie grits.
- Oriskany, Williams and Clark. Maryland: Its Resources, Industries, and Institutions, p. 70. 1893.
Devonian. Maryland. Part. syn. No. VII.
- Oriskany, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 229. 1893.
Devonian. Ontario.
- Oriskany sandstone, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 203-204, 210-211, 245, 303. 1894.
Devonian. New York.
- Oriskany quartzite, Darton. Geol. Soc. Am., Bull., vol. viii, pp. 367, 375. 1894.
Devonian. New York.
- Oriskany sandstone, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 402. 1897.
Silurian. New York.
- Oriskany sandstone, Luther. N. Y. State Geol., 15th Ann. Rept., pp. 274-275. 1897.
Silurian. New York.
- Oriskany sandstone, Luther. N. Y. State Geol., 16th Ann. Rept., p. 213. 1899.
Silurian. New York.
- Oriskany, Clark. Md. Geol. Surv., vol. iii, p. 100. 1899.
Devonian. Maryland. Exact syn. Monterey.

- Oriskanian, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Devonian. New York. Includes Oriskany beds.
- Oriskany beds, Weller. N. J. Geol. Surv., Rept., 1899, p. 42. 1900.
Devonian. New Jersey.
- Oriskany, Schuchert. Geol. Soc. Am., Bull., vol. xi, pp. 289-331. 1900.
Devonian. General.
- Oriskany formation, O'Harra. Md. Geol. Surv., Allegany County, p. 98. 1900.
Devonian. Maryland.
- Orthaulax** bed, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 113. 1892.
Tertiary. Florida. Included in Miocene.
- Orting** gravels, Willis. Geol. Soc. Am., Bull., vol. ix, pp. 146, 147. 1898.
Pleistocene. Washington.
- Osage** group, Branner. Ark. Geol. Surv., 1888, vol. iv, p. xiii. 1888.
Carboniferous. Arkansas. Included in Lower Carboniferous or Mississippian series. Includes Batesville sandstone, Fayetteville shale, Wyman sandstone, and Boone chert and limestone. Part. syns. Keokuk, Burlington.
- Osage group, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 35. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- Osage group, Williams. U. S. Geol. Surv., Bull. No. 80, p. 169. 1891.
Carboniferous. Included in Mississippian series. Includes Keokuk and Burlington.
- Osage limestone, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 290. 1892.
Lower Carboniferous. Missouri. Included in Mississippian. Includes Burlington, Keokuk, and Warsaw.
- Osage group, Broadhead. Am. Geol., vol. xii, p. 84. 1893.
Carboniferous. Missouri. Included in Mississippian series. Includes Keokuk and Burlington.
- Osage limestone, Keyes. Mo. Geol. Surv., vol. vi, pp. 331, 366, 375. 1894.
Cambrian. Missouri. Included in Gasconade limestone, Ozark series. Part. syn. St. Joseph limestone.
- Osage City shales, Haworth. Am. Jour. Sci., 3d ser., vol. I, p. 461. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Osage City shales, Haworth. Kan. Univ. Geol. Surv., vol. i, p. 162. 1896.
Carboniferous. Kansas.
- Osage shales, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 119-120. 1896.
Carboniferous. Kansas.
- Osage group, Keyes. Am. Geol., vol. xxi, pp. 229-235. 1898.
Carboniferous. Mississippi Valley. Part. syn. Augusta.
- Osage City shales, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 29. 1898.
Carboniferous. Kansas.
- Osage limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, p. 73. 1898.
Carboniferous. Kansas.
- Osage shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 65, 67, 73, 91, 94, 105. 1898.
Carboniferous. Kansas. Included in Shawnee formation. Includes Burlingame shales.
- Osborne** limestone, Cragin. Colo. Coll. Stud., vol. vi, p. 91. 1896.
Cretaceous. Kansas. Included in Fort Hays, Lower Niobrara and Benton.
- Osborne limestone, Williston. Kan. Univ. Quart., vol. iv, p. 251. 1896.
Upper Cretaceous. Carboniferous. Kansas. Exact syn. Fort Hays beds.
- Osceola** till (clays), Willis. Geol. Soc. Am., Bull., vol. ix, pp. 126, 143. 1898.
Pleistocene. Washington.

- Osceola till, Willis and Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 54. 1899.
- Pleistocene. Washington.
- Osgood beds**, Foerste. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rept., 1896, pp. 217, 227. 1897.
- Upper Silurian. Indiana.
- Osgood beds, Foerste. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, pp. 197, 207, 208. 1898.
- Upper Silurian. Indiana.
- Osgood beds, Foerste. Indiana Dept. Geol. and Nat. Res., 24th Ann. Rept., pp. 78-80. 1900.
- Silurian. Indiana, Kentucky, and Ohio. Included in Middle Silurian. Part. syn. Crab Orchard shales of Kentucky, and Niagara shale of Ohio.
- Ostrea Sellaeformis** beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 343. 1898.
- Tertiary. Alabama. Included in Claibornian stage. Eocene.
- Oswegatchie** series, Smyth. Geol. Soc. Am., Bull., vol. vi, p. 266. 1895.
- Pre-Cambrian(?). New York.
- Oswego sandstone**, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 100, 108, 116. 1893.
- Silurian. New York.
- Oswego limestone, Haworth and Kirk. Kan. Univ. Quart., vol. ii, pp. 105, 106, 107, 116. 1894.
- Carboniferous. Kansas.
- Oswego limestone, Haworth. Am. Jour. Sci., 3d ser., vol. i, pp. 456-457. 1895.
- Carboniferous. Kansas. Included in Coal Measures.
- Oswego limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 73-74. 1896.
- Carboniferous. Kansas.
- Oswego limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 88-91. 1896.
- Carboniferous. Kansas.
- Oswego limestones, Adams. Kan. Univ. Geol. Surv., vol. i, p. 21-22. 1896.
- Carboniferous. Kansas.
- Oswego limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 40-43, 151-152, 165. 1896.
- Carboniferous. Kansas.
- Oswego limestones, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 30-36, 85, 88, 92, 94, 99. 1898.
- Carboniferous. Kansas. Included in Marmaton formation. Includes Cement rock and Fort Scott limestone.
- Oswego, Bain and Leonard. Geol. Soc. Am., Bull., vol. x, p. 11. 1899.
- Upper Carboniferous. Kansas. Included in Henrietta and Des Moines of Missouri.
- Oswegan, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
- Silurian. New York. Includes Oneida conglomerate, Shawangunk grit, and Medina sandstone.
- Otis beds**, Norton. Iowa Acad. Sci., Proc., vol. i, pt. iv, p. 23. 1894.
- Devonian. Iowa.
- Otis beds, Norton. Iowa Geol. Surv., vol. iv, pp. 155-156. 1895.
- Devonian. Iowa. Included in Wapsipinicon stage.
- Otis beds, Udden. Cin. Soc. Nat. Hist., Jour., vol. xix, no. iii, p. 93. 1897.
- Devonian. Illinois.
- Ottawa gneiss**, Selwyn. Can. Geol. Surv., Rept. 1877-78, p. 10A. 1879.
- Canada.
- Ottawa beds, Ami. Ottawa Field Nat. Club, Trans., 1879-83, vol. i, pp. 63-65. 1880-83.
- Silurian. Canada. Included in Utica.

- Ottawa limestone, Haworth. Kan. Univ. Quart. vol. ii, pp. 121-122, 125. 1894.
Carboniferous. Kansas.
- Otter Creek** shale, Weed. Geol. Soc. Am., Bull., vol. iii, p. 307. 1892.
Carboniferous. Montana.
- Otter shale, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 295. 1900.
Carboniferous. Montana. Included in Quadrant group.
- Otterdale** sandstone, Shaler and Woodworth. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 435-436. 1899.
Juratrias. Virginia. Included in Chesterfield group. Exact syn. Araucarioxylon beds.
- Ouray** limestone, Girty. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 31-38. 1900.
Devonian. Colorado.
- Oxmoor** sandstone, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1889.
Lower Carboniferous. Tennessee and Alabama.
- Oxmoor sandstone, Hayes. Ala. Geol. Surv., Bull. No. 4, p. 47. 1892.
Carboniferous. Alabama. Included in Mississippian series.
- Oxmoor, Gibson. Ala. Geol. Surv., Rept. on Murphrees Valley, p. 22. 1893.
Carboniferous. Alabama. Included in Eocarboniferous. Exact syn. Lagrange.
- Oxmoor sandstone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896.
Carboniferous. Alabama.
- Oxmoor shale and sandstone, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 54-55, 246-249, 299-306, 442-451, 477-478, 504-505, 527-531, 645-648, 745-748, 811-812. 1897.
Carboniferous. Alabama. Included in Upper Carboniferous. Exact syn. Floyd shale and Hartselle sandstone.
- Ozark** series, Broadhead. Am. Geol., vol. viii, p. 33. 1891.
Cambrian and Silurian. Missouri. Includes First Magnesian limestone, First sandstone, Second Magnesian limestone, Second sandstone, Third Magnesian limestone, Third sandstone, and Fourth Magnesian limestone.
- Ozark series, Winslow. Mo. Geol. Surv., vol. ii, pp. vii, 12, 17, 93. 1892.
Cambrian. Missouri.
- Ozark series, Winslow. Am. Jour. Sci., 3d ser., vol. xlv, pp. 221-226. 1893.
Cambrian and Silurian. Missouri.
- Ozark series, Broadhead. Am. Jour. Sci., 3d ser., vol. xlv, pp. 57-60. 1893.
Cambro-Silurian. Missouri.
- Ozark series, Nason. Am. Geol., vol. xii, p. 141. 1893.
Cambrian. Missouri, Arkansas.
- Ozark series, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 32-37. 1894.
Cambrian. Missouri. Includes First Magnesian limestone, Sacchoroidal sandstone, Second sandstone, Third Magnesian limestone, Third sandstone, Fourth limestone.
- Ozark stage, Keyes. Mo. Geol. Surv., vol. vi, pp. 378-385. 1894.
Cambrian. Missouri.
- Ozark sand, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., p. 56. 1894.
Pleistocene. Alabama.
- Ozark series, Keyes. Jour. of Geol., vol. iii, pp. 519-526. 1895.
Cambro-Silurian. Missouri.
- Ozark sandstone, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.
Carboniferous. Arkansas. Included in Sebastian stage.
- Ozark series, Shepard. Mo. Geol. Surv., vol. xii, p. 49. 1898.
Silurian. Missouri. Includes First Magnesian limestone, First sandstone, Second Magnesian limestone, Second sandstone, and Third Magnesian limestone.

- Ozarkian**, Le Conte. Am. Assoc. Adv. Sci., Proc., vol. xlviii, p. 229. 1898.
Pleistocene. General.
- Ozarkian**, Le Conte. Jour. of Geol., vol. vii, pp. 525-544. 1899.
Pleistocene.
- Packer clay**, Williams. Geol. Soc. Am., Bull., vol. v, pp. 280, 286. 1894.
Pleistocene. Pennsylvania.
- Packsaddle series**, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvii. 1890.
Algonkian. Texas. Included in Texas system.
- Paine shale**, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 290. 1900.
Carboniferous. Montana. Included in Madison group.
- Paint Rock bed**, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 428-429. 1893.
Carboniferous. Texas. Included in Albany division.
- Palisades conglomerate**, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, p. 199. 1898.
Tertiary. Alaska.
- Palmer gneiss**, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 514. 1895.
Archean. Lake Superior region.
- Palmer gneiss**, Van Hise. Geol. Soc. Am., Bull., vol. ix, p. 307. 1898.
Archean. Michigan.
- Palo Duro**, Scott. Geol. Soc. Am., Bull., vol. v, p. 595. 1894.
Tertiary. Texas. Included in Loup Fork and Upper Miocene.
- Palo Duro beds**, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 338. 1898.
Tertiary. Texas. Exact syn. Goodnight beds.
- Paluxy sands**, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 510. 1891.
Cretaceous. Texas. Included in Fredericksburg division.
- Paluxy sand**, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 292-294, 338-340. 1892.
Cretaceous. Texas. Included in Bosque division of Lower Cretaceous.
- Paluxy sands**, Hill. Artesian Invest., Final Rept., pt. iii, p. 84, 52d Cong., 1st Sess. Ex. Doc. 41, pt. 3. 1892.
Cretaceous. Texas. Included in Trinity division.
- Paluxy beds**, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 368-370. 1893.
Cretaceous. Texas.
- Paluxy stage**, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 378. 1895.
Cretaceous. Texas. Included in Lower Cretaceous.
- Pamunkey**, Darton. Geol. Soc. Am., Bull., vol. ii, pp. 431, 435, 439. 1891.
Tertiary. Virginia and Maryland. Included in Eocene.
- Pamunkey formation**, McGee. U. S. Geol. Surv., 12th Ann. Rept., pt. i, p. 418. 1891.
Tertiary. Coastal Plain.
- Pamunkey**, McGee, Williams and Darton. Int. Cong. of Geol., 5th Sess., pp. 237, 247. 1893.
Tertiary. Maryland, District of Columbia.
- Pamunkey**, Williams and Clark. Maryland; Its Resources, Industries and Institutions, pp. 77-80. 1893.
Tertiary. Maryland. Included in Eocene.
- Pamunkey**, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios No. 13, 23. 1894, 1896.
Included in Eocene. Virginia and Maryland.
- Pamunkey**, Darton. U. S. Geol. Surv., Bull. No. 138, pp. 119, 125, 163. 1896.
Tertiary. Atlantic Coastal Plain. Included in Eocene.
- Pamunkey formation**, Clark. Am. Jour. Sci., 4th ser., vol. i, pp. 365, 366. 1896.
Eocene. Virginia and Maryland. Includes Aquia Creek and Woodstock stages.

Pamunkey formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 195. 1897.

Tertiary. Maryland. Included in Eocene. Includes Aquia Creek stage, Woodstock stage.

Pamunkey formation, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 346. 1898.

Tertiary. Maryland, Virginia. Included in Eocene.

Panama conglomerate, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 57-79. 1880.

Devonian. Pennsylvania and New York.

Panama conglomerate, Carll. 2d Pa. Geol. Surv., Rept. I⁴, pp. 195-203. 1883.

Carboniferous. Pennsylvania.

Panama conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1519-1529. 1892.

Devonian. Pennsylvania. Included in Venango.

Panama conglomerate, Randall. Regents Univ. of N. Y., 47th Ann. Rept., pp. 713-714. 1894.

New York.

Panola formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 46, 47. 1898.

Siluro-Devonian. Kentucky.

Panther Creek coal beds, Ashburner. 2d Pa. Geol. Surv., Rept. A², pp. 83-107. 1883.

Carboniferous. Pennsylvania.

Para-Miocene, Dutton. Smithsonian Inst., Rept., 1877, p. 78. 1877 (1878).

Tertiary. Utah. Included in Miocene.

Parian group (older), Wall and Sawkins. Geol. of Trinidad, pp. 33-35. 1860. Trinidad.

Parian group (newer), Wall and Sawkins. Geol. of Trinidad, pp. 35-60. 1860.

Tertiary. Trinidad. Includes Nariva, Naparima, Tamana, Caroni, and Moruga series.

Park shale, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 286. 1900.

Cambrian. Montana.

Parks Mountain bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 410. 1893.

Carboniferous. Texas. Included in Cisco division.

Parkville limestone, Gallaher. Mo. Geol. Surv., Bien. Rept., p. 51. 1898.

Upper Carboniferous. Missouri. Included in Upper Coal Measures.

Parkville shale, Keyes. Am. Geol., vol. xxiii, p. 305. 1899.

Carboniferous. Mississippi Valley. Included in Missourian series.

Parkville shales, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 87. 1900.

Carboniferous. Mississippi Valley. Included in Coal Measures.

Parma sandstone, Winchell. Mich. Geol. Surv., 1st Bien. Rept. Prog., pp. 112, 133. 1861.

Carboniferous. Michigan.

Parma sandstone, Lane. Mich. Geol. Surv., Rept. State Board for 1891-92, p. 66. 1893.

Carboniferous. Michigan.

Parma sandstone, Lane. U. S. Geol. Surv., Water-Supply Papers, No. 30, pl. vi. 1899.

Carboniferous. Michigan.

Parting quartzite, Emmons. U. S. Geol. Surv., 2d Ann. Rept., p. 216. 1882.

Silurian. Colorado.

Parting quartzite, Emmons. U. S. Geol. Surv., Mon., vol. xii, p. 61. 1886.

Silurian. Colorado.

Parting quartzite series, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, pp. 13-22. 1898.

Devonian. Colorado.

Pascagoula, Smith. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 295-296. 1894.

Tertiary. Alabama. Included in Grand Gulf.

Pascagoula, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., p. 91. 1894.

Tertiary. Alabama. Included in Miocene.

Pascagoula clays, Dall and Stanley-Brown. Geol. Soc. Am., Bull., vol. v, p. 167. 1894.

Tertiary. Florida.

Paskapoo series, Tyrrell. Can. Geol. Surv., new ser., vol. ii, pp. 74E, 84E, 127E, 135E-137E. 1887.

Canada. Included in Laramie. Includes Porcupine Hills series, Willow Creek series, and greater part of St. Marys River series of Dawson.

Paso Robles formation, Fairbanks. Jour. of Geol., vol. vi, pp. 565-566. 1898.

Tertiary. California. Included in late Miocene.

Patapsco, Clark. Md. Geol. Surv., vol. i, p. 156. 1897.

Cretaceous. Maryland.

Patapsco formation, Clark and Bibbins. Jour. of Geol., vol. v, pp. 489-492. 1897.

Cretaceous. Maryland. Included in Potomac group.

Patoot series, White and Schuchert. Geol. Soc. Am., Bull., vol. ix, p. 360. 1898.

Cretaceous. Greenland. Included in Upper Cretaceous. Part. syn. Montana.

Patuxent group, Heilprin. Phil. Acad. Nat. Sci., Proc., vol. xxxii, p. 23. 1880.

Tertiary. Maryland.

Patuxent formation, Clark. Md. Geol. Surv., vol. 1, pp. 156, 190. 1897.

Juratrias. Maryland.

Patuxent formation, Clark and Bibbins. Jour. of Geol., vol. v, pp. 481-485. 1897.

Jurassic. Maryland. Included in Potomac group, Upper Jurassic.

Paupack sandstone, White. 2d Pa. Geol. Surv., Rept. G⁵, p. 68. 1881.

Devonian. Pennsylvania. Included in Catskill.

Paupack sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 158. 1892.

Devonian. Pennsylvania. Included in Catskill, No. ix.

Pawhuski limestone, Smith. Jour. of Geol., vol. ii, p. 199. 1894.

Carboniferous. Indian Territory. Included in Upper Carboniferous.

Paw Paw, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.

Cretaceous. Indian Territory. Included in Washita division. Denison beds.

Pawnee limestone, Swallow. Kan. Geol. Surv., Prelim. Rept., pp. 24-25. 1866.

Carboniferous. Kansas.

Pawnee limestone, Haworth. Am. Jour. Sci., 3d ser., vol. 1, p. 457. 1895.

Carboniferous. Kansas. Included in Coal Measures.

Pawnee limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 92-93. 1896.

Carboniferous. Kansas.

Pawnee limestone, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 43-44, 153, 165. 1896.

Carboniferous. Kansas.

Pawnee limestone, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 37-39, 85, 92, 94. 1898.

Carboniferous. Kansas. Included in Marmaton formation.

Pawnee, Bain and Leonard. Geol. Soc. Am., Bull., vol. x, p. 11. 1899.

Upper Carboniferous. Kansas. Included in Henrietta, Des Moines series.

Pawtucket shale, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 162. 1899.

Carboniferous. Rhode Island. Included in Cranston beds of Coal Measures.

Payette formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 45. 1898.

Included in Neocene. Idaho.

Payette formation, Lindgren. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 632-634. 1898.

Tertiary. Idaho. Included in Miocene.

Payette formation, Knowlton. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 721-736. 1898.

Tertiary. Idaho. Included in Upper Miocene.

Payette formation, Lindgren. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, pp. 97-98. 1900.

Tertiary. Idaho. Included in Miocene.

Peace Creek beds, Dall. Phil. Acad. Nat. Sci., Proc., 1891, p. 120. 1891.

Tertiary. Florida. Included in Pliocene.

Peace Creek, Scott. Geol. Soc. Am., Bull., vol. v, p. 595. 1894.

Tertiary. Florida. Included in Pliocene.

Peace River sandstone, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 47D-50D, 55D-58D. 1893.

Cretaceous. Canada. Included in Colorado group.

Peach Bottom slate, Frazer. Am. Inst. Mg. Engrs., Trans., vol. xii, p. 355. 1884. Silurian. Pennsylvania.

Peach Bottom slate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 137-141. 1892.

Cambrian. Pennsylvania.

Peach Bottom slate, Clark. Md. Geol. Surv., vol. ii, p. 215. 1898.

Maryland.

Pearl River series, Hitchcock. Geol. Soc. Am., Bull., vol. xi, pp. 31-34. 1900.

Tertiary. Hawaiian Islands. Included in Pliocene.

Pearlette ash, Cragin. Colo. Coll. Stud., vol. vi, p. 54. 1896.

Tertiary. Kansas. Included in Tule division of Cummins (Equus beds of Cope).

Part. syn. Huerfano Park beds of R. C. Hills.

Pedee bed, Ruffin. Agric. Surv. of S. C., 1843, p. 7. 1843.

Cretaceous. South Carolina.

Pelham, McCalley. Ala. Geol. Surv., Rept. on Valley regions of Ala., pt. i, pp. 27, 29. 1896.

Lower Silurian. Alabama. Included in Trenton. Includes Nashville.

Pelham limestone, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 47-48, 118-119, 199-202, 264-272, 336-342, 464-466, 496-500, 521-525, 639-642, 725-729, 793-796. 1897.

Silurian. Alabama. Included in Lower Silurian. Exact syn. Hayes's Chickamauga limestone and Rockmart slate.

Pelham saxonite, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pl. xxxiv. 1898.

Carboniferous. Massachusetts.

Pelham quartzite, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 45-47. 1898.

Cambrian. Massachusetts.

Pelican shale, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, p. 29D. 1893.

Cretaceous. Canada. Included in Colorado group.

Pelican sandstone, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 28D-29D. 1893.

Cretaceous. Canada. Included in Colorado group.

Pella beds, Bain. Am. Geol., vol. xv, p. 318. 1895.

Carboniferous. Iowa. Included in Mississippian series, St. Louis.

Pella beds, Bain. Iowa Geol. Surv., vol. v, pp. 150-151. 1896.

Carboniferous. Iowa. Included in St. Louis.

Pelodian, Whitney and Wadsworth. Harvard Coll. Mus. Comp. Zool., Bull., vol. vii, 1880-84, p. 562. 1884.

Included in Azoic system.

Pemigewasset series, Hitchcock. Geol. of N. H., pt. ii, pp. 142-148. 1877.

Eozoic. New Hampshire. Includes Conway granite, Albany granite, and Chocoma granite. Exact syn. Labrador system.

Pendleton sandstone, Cox. Indiana Geol. Surv., 8th, 9th, and 10th Ann. Repts. for 1876, 1877, 1878, p. 62. 1879.

Indiana.

Pendleton sandstone, Brown. Indiana Dept. Geol. and Nat. Hist., 14th Ann. Rept., 1884, pp. 26, 34. 1884.

Indiana.

Pendleton sandstone, Thompson. Indiana Dept. Geol. and Nat. Hist., 17th Ann. Rept., 1891, p. 39. 1892.

Indiana.

Pennington shale, Campbell. U. S. Geol. Surv., Bull. No. 111, p. 37. 1893.

Carboniferous. Virginia. Included in Coal Measures.

Pennington shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.

Carboniferous. Kentucky, Virginia, and Tennessee.

Pennington scale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 27, 33. 1896.

Carboniferous. Tennessee.

Pennington, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 40. 1897.

Carboniferous. Tennessee.

Pennington shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 46, 47. 1898.

Carboniferous. Kentucky.

Pennington shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 53, 59. 1899.

Carboniferous. Tennessee. Included in Mississippian series. Exact syns. Bangor limestone, Pikeville and McMinnville folios.

Pennsylvanian series, Branner. Ark. Geol. Surv., 1888, vol. iv, p. xiii. 1888.

Carboniferous. Arkansas. Included in Carboniferous or Pennine. Includes

Pennsylvanian series, Williams. U. S. Geol. Surv., Bull. No. 80, pp. 82-121. 1891.

Carboniferous. Exact syn. Coal Measures.

Millstone grit.

Pennsylvanian series, Keyes. Iowa Geol. Surv., vol. i, pp. 80-123. 1893.

Carboniferous. Iowa. Included in Upper Carboniferous. Includes Des Moines formation, Missouri formation. Exact syn. Coal Measures.

Pennsylvanian slate, Keyes. Mo. Geol. Surv., vol. vi, p. 358. 1894.

Cambrian. Missouri. Included in Ozark series.

Pennsylvanian series, Keyes. Iowa Geol. Surv., vol. ii, pp. 91-98, 112 et seq. 1894.

Carboniferous. Iowa. Includes Missourian and Des Moines formations.

Pennsylvanian, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, p. 323. 1898.

Upper Carboniferous. Missouri. Includes Moberly sandstone and Des Moines series. (Middle and Lower Coal Measures.)

Pennsylvanian series, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 53. 1899.

Carboniferous. Tennessee. Includes Lee formation, Bonair and Rockcastle conglomerate lentils.

Penokee, Irving. U. S. Geol. Surv., 3d Ann. Rept., p. 166. 1883.

Archean. Michigan. Included in Huronian. Exact syn. Animikie, Marquette, and Menominee.

Penokee series, Chamberlin. Geol. of Wis., vol. i, p. 81. 1883.

Huronian. Wisconsin.

Penokee, Van Hise. U. S. Geol. Surv., 10th Ann. Rept., p. 402. 1890.

Algonkian. Wisconsin, Minnesota. Exact syn. Animikie.

Penokee series, Irving and Van Hise. U. S. Geol. Surv., Mon., vol. xix. 1892.

Algonkian. Lake Superior region. Includes Cherty limestone, Quartz slate member, and Iron-bearing member, Upper slate member. Exact syns. Animikie and Upper Original Huronian. Part. syn. Upper Huronian of Lake Superior region.

Penokee schists, Van Hise. Int. Cong. of Geol., 5th sess., pl. xiv. 1893.

Algonkian. Lake Superior. Included in Huronian.

Penokee-Gogebic series, Van Hise. Am. Jour. Sci., 3d ser., vol. xxxvii, pp. 32-33. 1889.

Michigan and Wisconsin.

Penokee-Gogebic, Walcott. Geol. Soc. Am., Bull., vol. x, p. 222. 1899.

Algonkian. Wisconsin, Michigan. Exact syns. Upper Huronian, Upper Marquette, and Western Menominee. Part. syn. Animikie.

Pensauken, Salisbury. N. J. Geol. Surv., Rept. 1894, pp. 57-60, 67-72. 1894.

Pleistocene. New Jersey. Included in Yellow gravel.

Pensauken formation, Salisbury. Geol. Soc. Am., Bull., vol. vi, p. 483. 1895.

Tertiary(?). New Jersey. Included in Pliocene or Pleistocene.

Pensauken formation, Salisbury. N. J. State Geol., Ann. Rept. for 1894, pp. 105-118. 1895.

Tertiary. New Jersey. Exact syn. Lafayette.

Pensauken formation, Salisbury. N. J. Geol. Surv., Rept., 1895, pp. 7-13. 1896.

New Jersey.

Pensauken formation, Salisbury and Knapp. N. J. Geol. Surv., Rept., 1896, pp. 4-13. 1897.

New Jersey.

Pensauken formation, Salisbury. N. J. Geol. Surv., Rept., 1897, pp. 15-17. 1898.

New Jersey.

Pentacrinus beds, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 623. 1879.

Juratrias. Idaho, Wyoming. Included in Jurassic.

Pentamerus limestone, Vanuxem. Geol. of N. Y., pt. iii, pp. 117-119. 1842.

Paleozoic. New York. Included in New York system. Part. syn. No. vi, Pennsylvania Survey.

Pentamerus limestone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 144. 1843.

Paleozoic. New York. Included in New York system. Part. syn. No. vi, Pennsylvania Survey.

Pentamerus limestone, Mather. Geol. of N. Y., pt. i, pp. 346-349. 1843.

Paleozoic. New York. Included in Helderberg division.

Pentamerus limestone, Emmons. Agric. of N. Y., vol. i, pp. 166-167. 1846.

New York. Included in Helderberg division of New York system.

Pentamerus limestone, Owen. Am. Jour. Sci., 2d ser., vol. i, p. 48. 1846.

Silurian. New York. Included in Helderberg series of the New York system.

Part. syn. Part of No. 6, Pennsylvania Survey.

Pentamerus limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 52. 1890.

Silurian. Arkansas. Included in Lower Helderberg.

Pentamerus limestone, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 246-247, 305. 1894.

Devonian. New York. Included in Helderberg.

Pentamerus oblongus beds, Norton. Iowa Geol. Surv., vol. iv, p. 128. 1895.

Silurian. Iowa. Included in Upper Silurian.

Pentremital limestone, Owen. Rept. Geol. Recon. State of Indiana in 1837, pp. 20, 21. 1859.

Indiana. Included in Sub-carboniferous limestone.

Pentremital limestone, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 83, 151. 1888.

Carboniferous. Arkansas. Included in Lower Carboniferous.

Pentremital limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 91, 92. 1890.

Carboniferous. Arkansas. Included in Lower Carboniferous.

- Peorian zone**, Leverett. Jour. of Geol., vol. vi, pp. 244-249. 1898.
Pleistocene. Illinois. Included in Toronto formation(?).
- Peorian soil**, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 185-190. 1899.
Pleistocene. Mississippi Valley.
- Peorian soil**, Leverett. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 67. 1900.
Pleistocene. Illinois, Indiana.
- Pepino formation**, Hill. Nat. Geog. Mag., vol. x, p. 109. 1899.
Miocene. Porto Rico. Included in Upper Oligocene of Dall.
- Pequawket series**, Hitchcock. Geol. of N. H., pt. ii, p. 235. 1877.
Eozoic. New Hampshire.
- Perkasie shale**, Lyman. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2608-2609. 1895.
Juratrias. Pennsylvania. Included in New Red.
- Perry beds**, Dawson. Rept. on Geol. of Maine, 1861, p. 251. 1861.
Devorian.
- Perry sandstone**, Hitchcock. Rept. on Geol. of Maine, 1861, p. 256. 1861.
Devonian. Exact syn. Perry beds.
- Perry beds**, Dawson. Rept. on Geol. of Maine, 1862, p. 403. 1862.
Upper Devonian. Exact syn. Upper member of St. Johns series.
- Perry sandstone**, Bailey and Matthew. Can. Geol. Surv., Rept., 1870-71, pp. 207-211. 1873.
Lower Carboniferous. New Brunswick.
- Perry limestone**, Wheeler. Mo. Geol. Surv., vol. xi, p. 41. 1896.
Silurian. Missouri. Part. syn. Niagara and Clear Creek.
- Peru**, Lesley. 2d Pa. Geol. Surv., Rept. F, p. xix. 1878.
Devonian. Pennsylvania.
- Pescadero series**, Ashley. Jour. of Geol., vol. iii, pp. 436-439. 1895.
Tertiary. California. Included in Eocene(?).
- Pescadero series**, Ashley. Cal. Acad. Sci., Proc., 1895, 2d ser., vol. v, pp. 285, 286, 298. 1896.
Miocene-Cretaceous. California. Includes Upper part of San Francisco limestone.
- Pewabic quartzite**, Winchell. Minn. Geol. and Nat. Hist. Surv., Bull., vol. iv, p. 118. 1891.
Minnesota. Included in Taconic.
- Pewabic quartzite**, Lawson. Minn. Geol. and Nat. Hist. Surv., 19th Ann. Rept., p. 208. 1892.
Minnesota.
- Pewabic quartzite**, Spurr. Minn. Geol. and Nat. Hist. Surv., Bull., vol. x, p. 4. 1894.
Minnesota.
- Phelps sandstone**, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 77-82. 1898.
Devonian. Missouri. Included in Hamilton stage.
- Philadelphia red gravel**, Lewis. Phil. Acad. Nat. Sci., Proc., vol. xxxii, pp. 266, 288, 296. 1880.
Pennsylvania. Included in Champlain.
- Philadelphia brick clay**, Lewis. Phil. Acad. Nat. Sci., Proc., vol. xxxii, pp. 296, 297. 1880.
Pennsylvania. Included in Champlain.
- Philadelphia brick clay**, Hall. 2d Pa. Geol. Surv., Rept. C⁶, pp. 16-17. 1881.
Pleistocene. Pennsylvania.
- Philadelphia mica schist**, Hall. 2d Pa. Geol. Surv., Rept. C⁶, pp. 28-31. 1881.
Pennsylvania.
- Philadelphia clay**, Chester. Am. Jour. Sci., 3d ser., vol. xxvii, p. 190. 1884.
Pleistocene. Delaware and Maryland.

Philadelphia subdivision, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. i, pp. 121-122. 1892.

Archean. Pennsylvania.

Phillipsburg series, Ells. Can. Geol. Surv., new sér., vol. vii, pp. 16J-17J, 30J-32J. 1896.

Cambro-Silurian. Prov. of Quebec, Canada. Included in Quebec group. Includes Lower Phillipsburg (Calciferos), Upper Phillipsburg (Chazy).

Phillipsburg group, Marcou. Am. Geol., vol. xix, pp. 43-45. 1897.

Cambrian. Canada. Exact syn. Pointe Levis group.

Phlipsburg limestone, Jackson. Rept. on Geol. of Maine, vol ii, pp. 61-62. 1838.

Pickens sandstone, Taff and Brooks. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34. 1896.

Carboniferous. West Virginia.

Pictou freestones, Ami. Brit. Assoc. Adv. Sci., Rept. 1899, p. 756. 1899.

Carboniferous. Nova Scotia.

Pictou formation, Ami. Can. Rec. Sci., vol. viii, pp. 162-163. 1900.

Carboniferous. Canada. Included in Neo-Carboniferous.

Pictured Cliff group, Holmes. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., pp. 246, 248, 251. 1877.

Cretaceous. Colorado.

Piedmont group, Kerr. N. C. Geol. Surv., Rept., 1866-67, pp. 33-35. 1869. North Carolina.

Piedmont sandstone, Stevenson. 2d Pa. Geol. Surv., Rept. K³, pp. 44, 68, 73, 79-80, 87. 1878.

Piedmont gneiss, McGee. Smithsonian Inst., Ann. Rept., 1890, p. 73. 1891.

Archean. District of Columbia. Included in Azoic.

Pierce limestone, Safford. Geol. of Tenn., by Safford, p. 261. 1869.

Silurian. Tennessee. Included in Trenton or Lebanon.

Pierre shales, Dawson. Can. Geol. Surv., Rept., 1880-81-82, p. 7B. 1883.

Cretaceous. Canada.

Pierre group, Dawson. Science, vol. i, p. 429. 1883.

Cretaceous. Canada. Part. syn. Chico(?).

Pierre shales, Dawson. Can. Geol. Surv., Rept., 1882-83-84, p. 115. 1885.

Cretaceous. Canada.

Pierre group, Gilbert and Gulliver. Geol. Soc. Am., Bull., vol. vi, p. 333. 1895.

Cretaceous. Colorado.

Pierre, Emmons, Cross and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, p. 69. 1896.

Cretaceous. Colorado. Included in Montana group.

Pierre group, Gilbert. U. S. Geol. Surv., 17th Ann. Rept. pt. ii, p. 567. 1896.

Cretaceous. Colorado.

Pierre formation, Gilbert. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 36. 1897.

Cretaceous. Colorado.

Pierre, Williston. Kan. Univ. Geol. Surv., vol. ii, p. 246. 1897.

Upper Cretaceous. Kansas. Exact syn. Fort Pierre.

Pierre shale, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25-27. 1898.

Upper Cretaceous. Kansas.

Pierre shale, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.

Cretaceous. Colorado.

Pierre shale, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.

Cretaceous. Colorado.

(See also Fort Pierre.)

Pigeon slate, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.

Algonkian. Tennessee. Included in Ocoee series.

- Pigeon slate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25. 1895, 1896.
Tennessee, North Carolina. Included in Ocoee group.
- Pilgrim** limestone, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 286. 1900.
Cambrian. Montana.
- Pilot Knob** conglomerate, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 31. 1894.
Algonkian. Missouri.
- Pine Creek** limestone, White. 2d Pa. Geol. Surv., Rept. Q, p. 32. 1878.
Carboniferous. Pennsylvania. Exact syn. Coleman(?) limestone.
- Pine Creek conglomerate, Udden. Iowa Acad. Sci., Proc., vol. vi, pp. 54-56. 1898.
Pre-Glacial and Post-Carboniferous. Iowa.
- Pine Creek conglomerate, Udden. Iowa Geol. Surv., vol. ix, p. 316. 1899.
Cretaceous(?). Iowa.
- Pine Creek conglomerate, Udden. Iowa Acad. Sci., Proc., vol. vi, pp. 54-56. 1899.
Iowa.
- Pine Mountain** group, Crandall. Ky. Geol. Surv. (Proctor), Geol. of Whitley Co.
Carboniferous. Kentucky. Exact syn. Rockcastle group(?).
- Pink Cliff** series, Dutton. U. S. Geol. and Geol. Surv., Geol. of High Plateaus of Utah, p. 204. 1880.
Tertiary. Utah. Included in Eocene. Exact syn. Bitter Creek beds.
- Pinnacle** system, Russell. Nat. Geog. Mag., vol. iii, p. 167, pp. 170-173. 1891.
Pliocene or Pleistocene. Alaska.
- Pinnacle(?), Upham. Geol. Soc. Am., Bull., vol. iv, p. 196. 1893.
Pleistocene. Alaska.
- Pinon** conglomerate, Smith. Jour. of Geol., vol. viii, p. 464. 1900.
Tertiary. Wyoming. Included in Eocene.
- Pinon Mesa** group, Holmes. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., pp. 248, 249, 251. 1877.
Cretaceous. Colorado.
- Pinyon** conglomerate, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Tertiary. Wyoming. Included in Eocene.
- Pinto** limestone, Dumble. Geol. Soc. Am., Bull., vol. iii, pp. 219, 222. 1892.
Cretaceous. Texas. Included in Upper Cretaceous. Exact syn. Austin limestone.
- Pinto limestone, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 383. 1895.
Cretaceous. Texas. Included in Upper Cretaceous.
- Pipestone** quartzite, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, p. xxii. 1888.
Minnesota. Included in Potsdam.
- Piscataway**, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 124-127. 1884.
Tertiary. Maryland. Included in Eocene. Part. syn. Buhrstone or Folignitic.
- Pithole** grit, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 91-97. 1880.
Carboniferous. Pennsylvania and Ohio. Exact syn. Berea grit.
- Pitt** formation, Smith. Jour. of Geol., vol. ii, pp. 601-604. 1894.
Carboniferous and Trias. California.
- Pittsburg** series, Rogers. Pa. State Geol., 3d Ann. Rept., pp. 88-108. 1839.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Pittsburg limestone, Rogers. Geol. of Pa., vol. ii, p. 634. 1858.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Pittsburg limestone and sandstone, Stevenson. Am. Phil. Soc., Trans., vol. xv, pp. 20-21. 1873.
Carboniferous. West Virginia. Included in Monongahela River series.
- Pittsburg sandstone, Platt. 2d Pa. Geol. Surv., Rept., H⁴, p. 312. 1878.
Carboniferous. Pennsylvania.

Pittsburg series, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept., 1886, pp. 74-79, 208, 265, 295-296. 1887.

Carboniferous. Pennsylvania. Exact syn. Barren Measures.

Pittsburg sandstone, Lovejoy. Ohio Geol. Surv., vol. vi, pp. 627, 631, 632. 1888.

Carboniferous. Ohio.

Pittsburg coal, White. U. S. Geol. Surv., Bull., No. 65, pp. 63, 87. 1891.

Carboniferous. Ohio, Pennsylvania, and West Virginia. Included in Upper Coal Measures, Monongahela River series.

Pittsburg measures, D'Inwilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2406-2447. 1895.

Carboniferous. Pennsylvania. Exact syns. No. xiv, Barren Measures, Elk River series of W. Va.

Pittsburg coal bed, White. Am. Assoc. Adv. Sci., Proc., vol. xvi, pp. 187-198. 1898.

Carboniferous. Pennsylvania and West Virginia. Included in Monongahela River series.

Plant beds, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mountains, pp. 40, 45. 1876.

Tertiary. Utah. Included in Upper Green River.

Plastic clay series, Morton. Phil. Acad. Nat. Sci., Jour., vol. vi, p. 113. 1829.
New Jersey and Delaware.

Plateau gravel, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 35-42. 1888.

Post-Tertiary. Arkansas.

Plateau gravel, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.

Tertiary. Indian Territory. Included in Neocene.

Platte River formation, Engelmann. Eng. Dept. U. S. A., Simpson's Expl. of Great Basin, p. 282. 1876.

Cretaceous or Tertiary. Wyoming.

Platte series, Cragin. Colo. Coll. Stud., vol. vi, p. 49. 1896.

Cretaceous. Kansas. Includes Dakota to Laramie.

Platte series, Williston. Kan. Univ. Quart., vol. iv, pp. 251-252. 1896.

Upper Cretaceous. Kansas. Includes Dakota, Benton, Colorado, Montana, and Laramie groups.

Platte shale, Keyes. Am. Geol., vol. xxiii, p. 308. 1899.

Carboniferous. Mississippi Valley. Included in Missourian series.

Platte shales, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 92. 1900.

Carboniferous. Mississippi Valley. Included in Coal Measures.

Plattsburg group and limestone, Broadhead. St. Louis Acad. Sci., Trans., vol. ii, pp. 317, 327. 1868.

Carboniferous. Missouri.

Plattsburg limestone, Broadhead. St. Louis Acad. Sci., Trans., vol. iv, p. 483. 1884.

Carboniferous. Kansas.

Plattsburg limestone, Broadhead. Mo. Geol. Surv., vol. viii, p. 378. 1895.

Carboniferous. Missouri. Included in Coal Measures.

Plattsburg limestone, Keyes. Am. Geol., vol. xxiii, pp. 305-306. 1899.

Carboniferous. Mississippi Valley. Included in Missourian series.

Plattsmouth limestone, Keyes. Am. Geol., vol. xxiii, p. 306. 1899.

Carboniferous. Mississippi Valley. Included in Missourian series.

Plattsmouth limestone, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 90. 1900.

Carboniferous. Mississippi Valley. Included in Coal Measures.

Pleasanton shale, Haworth. Am. Jour. Sci., 3d ser., vol. i, p. 457. 1895.

Carboniferous. Kansas. Included in Coal Measures.

Pleasanton shales, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 44-45, 153-154, 224. 1896.

Carboniferous. Kansas.

- Pleasanton shales, Adams. Kan. Univ. Geol. Surv., vol. i, p. 22. 1896.
Carboniferous. Kansas.
- Pleasanton shales, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 74-75. 1896.
Carboniferous. Kansas.
- Pleasanton shales, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 93-95. 1896.
Carboniferous. Kansas.
- Pleasanton shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 39-44, 92, 94, 100. 1898.
Included in Marmaton formation. Includes Lower Pleasanton shales and Upper Pleasanton shales.
- Pleasanton shale, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 34, 120, 121, 209, 214, 248, 271, 274. 1898.
Upper Carboniferous. Missouri. Included in Des Moines series.
- Pleasanton shale, Orton. Geol. Soc. Am., Bull., vol. x, p. 104. 1899.
Upper Carboniferous. Kansas.
- Pleasanton, Bain and Leonard. Geol. Soc. Am., Bull., vol. x, p. 11. 1899.
Upper Carboniferous. Kansas and Missouri.
- Pleurocoelus** beds, Marsh. Am. Jour. Sci., 4th ser., vol. ii, pp. 296, 435-436. 1896.
Maryland. Included in Jurassic. Includes Raritan clay of New Jersey.
- Pliohippus** beds, Marsh. U. S. Geol. Surv., Mon., vol. xxvii, p. 480. 1896.
Tertiary. Colorado. Included in Pliocene.
- Plymouth** marble, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 182. 1890.
Arkansas.
- Pocahontas**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
Carboniferous. Virginia and West Virginia. Included in Coal-bearing strata, Pottsville series.
- Pocahontas formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Carboniferous. Virginia, West Virginia. Part. syn. No. xii, Great conglomerate of Rogers.
- Pochuck** gneiss, Wolff and Brooks. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 439. 1898.
Pre-Cambrian. New Jersey.
- Pocono**, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 105-109. 1877.
Carboniferous. Pennsylvania. Included in Lower Carboniferous. Exact syn. Vespertine.
- Pocono sandstone, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 522, 541. 1877.
Carboniferous. Pennsylvania. Includes New River coal series. Exact syn. Vespertine.
- Pocono sandstone, Platt. 2d Pa. Geol. Surv., Rept. H², p. xxiv-xxvi. 1877.
- Pocono, Ashburner. 2d Pa. Geol. Surv., Rept. F, pp. 206-216. 1878.
Carboniferous. Pennsylvania. Exact syn. Vespertine.
- Pocono, Stevenson. 2d Pa. Geol. Surv., Rept. K³, pp. 54-57. 1878.
Carboniferous. Pennsylvania. Exact syn. Vespertine.
- Pocono, Ashburner. 2d Pa. Geol. Surv., Rept. R, pp. 64-71. 1880.
Carboniferous. Pennsylvania. Includes Sub-Olean conglomerate, Marvin Creek limestone. Exact syn. No. 10, Vespertine.
- Pocono, Chance. 2d Pa. Geol. Surv., Rept. G⁴, pp. 97-101. 1880.
Carboniferous. Pennsylvania. Exact syn. No. 10, Vespertine.
- Pocono, White. 2d Pa. Geol. Surv., Rept. G⁵, pp. 56-59. 1881.
Carboniferous. Pennsylvania. Includes Griswold Gap conglomerate, Mount Pleasant conglomerate. Exact syn. No. 10.

- Pocono, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 22-26. 1881.
Carboniferous. Pennsylvania. Exact syn. No. 10.
- Pocono, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 89-91. 1882.
Carboniferous. Pennsylvania. Includes Mount Pleasant conglomerate.
- Pocono, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 69-72. 1882.
Carboniferous. Pennsylvania.
- Pocono, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 46-52. 1883.
Carboniferous. Pennsylvania. Exact syn. No. 10.
- Pocono, White. 2d Pa. Geol. Surv., Rept. T³, pp. 77-88. 1885.
Carboniferous. Pennsylvania.
- Pocono, Ashburner. 2d Pa. Geol. Surv., Rept. R², pp. 398-399. 1885.
Carboniferous. Pennsylvania. Exact syn. No. 10.
- Pocono sandstone, Winslow. 2d Pa. Geol. Surv., Ann. Rept., 1886, pt. iv, pp. 1337, 1343, 1353, 1355, 1357, 1361, 1363. 1887.
Carboniferous. Pennsylvania. Exact syn. No. 10.
- Pocono, Darton. Am. Geol., vol. x, p. 18. 1892.
Carboniferous. Virginia. Part. syn. Montgomery grits of Rogers.
- Pocono, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Carboniferous. New York, Pennsylvania. Included in Lower Carboniferous.
Includes Mount Pleasant conglomerate.
- Pocono, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1629-1789. 1895.
Carboniferous. Pennsylvania. Exact syn. No. x, Pennsylvania Survey.
- Pocono sandstone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios No. 14, 32. 1894, 1896.
Carboniferous. Virginia, West Virginia. Exact syns. Montgomery grits, Rogers' No. x and Vespertine.
- Pocono sandstone, Taff and Brooks. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34. 1896.
Carboniferous. West Virginia.
- Pocono sandstone, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
Carboniferous. West Virginia and Maryland.
- Pocono formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 184-185. 1897.
Carboniferous. Maryland.
- Pocono, Clark. Md. Geol. Surv., vol. ii, pp. 199, 208. 1898.
Carboniferous. Maryland.
- Pocono sandstone, White. West Va. Geol. Surv., vol. i, p. 204. 1899.
Carboniferous. West Virginia.
- Pocono sandstone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
Carboniferous. Virginia and West Virginia.
- Pocono, Clark. Md. Geol. Surv., vol. iii, p. 100. 1899.
Carboniferous. Maryland.
- Pocono formation, O'Harra. Md. Geol. Surv., Allegany Co., p. 109. 1900.
Carboniferous. Maryland.
- Pogonip** limestone, Hague. U. S. Geol. Expl. of 40th Parallel, vol. ii, p. 542. 1877.
Silurian-Cambrian. Nevada.
- Pogonip limestone, King. U. S. Expl. of 40th Parallel, vol. i, pp. 127-248. 1878.
Silurian-Cambrian. Utah, Nevada. Part syn. Ute limestone.
- Pogonip limestone, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 260-262. 1883.
Silurian. Nevada.
- Pogonip limestone, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 48. 1892.
Silurian. Nevada.

- Point Aux Gres** limestone, Douglass. Mich. Legis., Doc., vol. i, No. 11 (4th Ann. Rept. State Geol., for 1840), p. 547. 1841.
Michigan.
- Point of Rocks**, Powell. U. S. Geol. and Geog. Surv., Geol. of Unita Mountains, pp. 40, 47, 155. 1876.
Cretaceous. Utah. Includes Upper Hogback sandstone, Middle Hogback sandstone, and Golden Wall sandstone.
- Point of Rocks** group, Stanton and Knowlton. Geol. Soc. Am., Bull., vol. viii, p. 146. 1897.
Cretaceous. Wyoming. Included in Laramie.
- Point Pleasant**, James. Am. Assoc. Adv. Sci., Proc., vol. xl, p. 283. 1891.
Silurian. Ohio.
- Point Pleasant** beds, James. Cin. Soc. Nat. Hist., Jour., vol. xiv, no. ii, p. 93. 1891.
Ordovician. Ohio.
- Pointe Levis** group, Marcou. Am. Geol., vol. xix, pp. 43-45. 1897.
Cambrian. Canada. Exact syn. Phillipsburg group.
- Poison Cañon** beds, Hills. Colo. Sci. Soc., Proc., vol. iii, pp. 148-164. 1888.
Tertiary. Colorado.
- Poison Cañon** beds, Hills. Colo. Sci. Soc., Proc., vol. iv, p. 9. 1891.
Tertiary. Colorado. Included in Huerfano series, Lower Eocene.
- Poison Cañon** beds, Orton. Am. Nat., vol. xxxi, p. 967. 1897.
Cretaceous. Colorado.
- Poison Cañon** formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Tertiary. Colorado. Included in Eocene(?).
- Pokegama** quartzite, Culver. Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., p. 102. 1894.
Minnesota. Exact syn. Pewabic.
- Pokegama** quartzite, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 366, 375, 391. 1899.
Cambrian. Minnesota. Included in Animikie.
- Pokegama** quartzite, Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 181, 347, 351. 1899.
Minnesota. Included in Animikie.
- Pokegama** quartzite, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., pt. v, p. 45. 1900.
Cambrian. Minnesota. Included in Taconic.
- Polk Bayou** limestone, Williams. Ark. Geol. Surv., 1892, vol. v, pp. 278-284. 1900.
Silurian. Arkansas. Included in Ordovician.
- Polk County** ash beds, Williams. Ark. Geol. Surv., 1890, vol. ii, pp. 375, 376. 1890.
Arkansas.
- Pomeroy** sandstone, Lovejoy. Ohio Geol. Surv., vol. vi, p. 635. 1888.
Carboniferous. Ohio.
- Ponderosa** marl, Dumble. Tex. Geol. Surv., 1st Ann. Rept., pl. iii, p. xlvii. 1890.
Cretaceous. Texas. Included in Black Prairie series.
- Pondville** group, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 135-141. 1899.
Carboniferous. Rhode Island.
- Ponent** series, Rogers. Am. Jour. Sci., 1st ser., vol. xlvii, p. 156. 1844.
Carboniferous. Includes Ponent sandstone and conglomerate.
- Ponent** series, Rogers. Geol. of Pa., vol. i, pp. 108, 141-142 et seq.; vol. ii, p. 756. 1858.
Devonian. Pennsylvania. Exact syn. Catskill.

Ponet, Lower, Claypole. Am. Nat., vol. xvii, 1883, p. 274. 1883.

Pennsylvania.

Pope Hollow rock, Randall. Regents Univ. of N. Y., 47th Ann. Rept., p. 714. 1894. New York.

Porcupine Hill series, Dawson. Can. Geol. Surv., Repts. 1880-81-82, p. 4B. 1883. Canada. Included in Laramie.

Porcupine Hill series, Dawson. Can. Geol. Surv., Repts. 1882-83-84, pp. 82C, 96C, 112C-113C. 1885.

Canada. Included in Laramie.

Porcupine beds, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, p. 197. 1898. Tertiary. Alaska. Included in Miocene(?). Exact syn. Twelvemile beds.

Porphyrian, Whitney and Wadsworth. Harvard Coll. Mus. Com. Zool., Bull., vol. vii, 1880-84, p. 562. 1884.

Included in Azoic system.

Port Hudson group, Hilgard. Am. Jour. Sci., 2d ser., vol. xlviii, p. 332. 1869. Quaternary. Louisiana.

Port Hudson, Smith. Am. Assoc. Adv. Sci., Proc., vol. xx, p. 252. 1871. Pleistocene(?). Mississippi.

Port Hudson group, Hilgard. Am. Jour. Sci., 3d ser., vol. ii, pp. 401-403. 1871. Pleistocene. Gulf region.

Port Hudson group, Loughridge. Ky. Geol. Surv., Jackson Purchase region, pp. 73-76. 1888.

Quaternary. Kentucky. Exact syn. Port Hudson.

Port Hudson beds, McGee. St. Louis Acad. Sci., Trans., vol. v, p. 316. 1892. Missouri.

Port Hudson, Upham. Geol. Soc. Am., Bull., vol. v, p. 95. 1894.

Tertiary(?). Minnesota. Part syn. Lafayette(?).

Port Hudson, Harris and Veatch. La. State Exp. Sta., pt. v, p. 111. 1899.

Pleistocene. Louisiana.

Portage group, Hall. N. Y. Geol. Surv., 4th Ann. Rept., pp. 391-392, 401. 1840. Devonian. New York. Exact syn. Upper Fusoidal group.

Portage group, Hall. N. Y. Geol. Surv., 5th Ann. Rept., pp. 166-167. 1841. Devonian. New York.

Portage, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 55. 1842.

Ohio. Exact syn. Waverly sandstone.

Portage group, Vanuxem. Geol. of N. Y., pt. iii, pp. 172-174. 1842.

Paleozoic. New York. Included in New York system. Includes Cashaqua shale, Gardeau group, and Sherburne flagstones and shale. Exact syn. Nunda group.

Portage sandstone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 228-230. 1843.

Paleozoic. New York. Included in Portage group.

Portage group, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 224-241. 1843.

Paleozoic. New York. Included in New York system. Includes Sherburne flagstone and shale, Cashaqua shale, and Gardeau group. Exact syn. Nunda group.

Part syn. No. ix, Pennsylvania Survey.

Portage group, Emmons. Agric. of N. Y., vol. i, pp. 188-190. 1846.

Devonian. New York. Included in Catskill division of N. Y. system.

Portage, Whittlesey. Am. Assoc. Adv. Sci., Proc., vol. v, p. 207. 1851.

Devonian. Ohio.

Portage and Chemung group, Logan. Can. Geol. Surv., Rept. 1843-63, pp. 387-389. 1863.

Devonian. Canada. Included in Upper Devonian. Includes Portage and Chemung of N. Y.

- Portage and Chemung group, Chapman. Can. Inst., new ser., vol. viii, pp. 449-450. 1863.
Devonian. Canada.
- Portage group, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada.
- Portage, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 69. 1873.
Devonian. Ohio.
- Portage, Lesley. 2d Pa. Geol. Surv., Rept. I, pp. 82-87. 1875.
Devonian. Pennsylvania, New York. Exact syn. No. viii.
- Portage, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 527, 549. 1877.
Devonian. Appalachian region. Exact syn. Vergent.
- Portage flags, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 119-120. 1881.
Devonian. Pennsylvania.
- Portage flags, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 29-30. 1881.
Devonian. Pennsylvania.
- Portage, White. 2d Pa. Geol. Surv., Rept. T³, pp. 99-104. 1885.
Devonian. Pennsylvania.
- Portage, Williams. U. S. Geol. Surv., Bull. No. 41, p. 31. 1887.
Devonian. New York.
- Portage group, Miller. N. A. Geol. and Pal., p. 62. 1889.
- Portage, Harris. Am. Geol., vol. vii, p. 168. 1891.
Devonian. New York.
- Portage, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1337-1370. 1892.
Devonian. Pennsylvania. Includes Cashaqua and Gardeau shales. Exact syn. No. viiif.
- Portage, Brumell. Geol. Soc. Am., Bull., vol. iv, p. 227. 1893.
Devonian. Ontario.
- Portage, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 94, 108, 116. 1893.
Devonian. New York.
- Portage, Prosser. Am. Jour. Sci., 3d ser., vol. xlvi, pp. 212-230. 1893.
Devonian. New York.
- Portage group, Luther. N. Y. State Geol., 13th Ann. Rept., pp. 31-34. 1894.
Devonian. New York.
- Portage beds, Lincoln. N. Y. State Mus., 48th Ann. Rept., pt. ii, pp. 99-102. 1895.
Devonian. New York.
- Portage beds, Lincoln. N. Y. State Geol., 14th Ann. Rept., pp. 99-102. 1895.
Devonian. New York.
- Portage sandstones, Luther. N. Y. State Geol., 15th Ann. Rept., pp. 237-304. 1897.
Devonian. New York.
- Portage group, Clarke. N. Y. State Geol., 15th Ann. Rept., pp. 27-82. 1897.
Devonian. New York.
- Portage group, Bishop. N. Y. State Geol., 15th Ann. Rept., pp. 320-322. 1897.
Devonian. New York.
- Portage, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1898.
Devonian. New York.
- Portage lake conglomerate, Hubbard. Mich. Geol. Surv., vol. vi, pt. ii, pp. 107-110. 1898.
Michigan.
- Portage series, Clarke. N. Y. State Geol., 16th Ann. Rept., pp. 31-37. 1899.
Devonian. New York.
- Portage group, Luther. N. Y. State Geol., 16th Ann. Rept., p. 223. 1899.
Devonian. New York.

Portage beds, Clarke and Schuchert. *Science*, new ser., vol. x, pp. 876-878. 1899.
Devonian. New York. Included in Senecan. Includes Naples, Ithaca, and Oneonta beds.

Porters Creek group, Safford. *Am. Jour. Sci.*, 2d ser., vol. xxxvii, pp. 368-369. 1864.

Tertiary(?). Tennessee. Part. syn. Northern Lignitic.

Porters Creek group, Safford. *Geol. of Tenn.*, pp. 422-424. 1869.

Tertiary. Tennessee. Part syn. Northern lignite.

Porters Creek group, Heilprin. *Phil. Acad. Nat. Sci., Jour.*, vol. ix, p. 153. 1884.

Tertiary. Tennessee. Included in Eocene. Exact syn. Flatwoods of Mississippi.

Portland clays, Hitchcock. *Rept. on Geol. of Maine*, 1861, pp. 275-276. 1861.
Pliocene.

Portland series, Matthew. *Can. Nat.*, vol. viii, pp. 244, 246. 1863.

Pre-Carboniferous. New Brunswick.

Portland quartzite, Chamberlin. *Geol. of Wis.*, vol. ii, pp. 252-256. 1877.

Archean. Wisconsin.

Portland stone, Hopkins. *Indiana Dept. Geol. and Nat. Res.*, 20th Ann. Rept., 1895, p. 306. 1896.

Carboniferous. Indiana.

Porus formation, Hill. *Harvard Coll. Mus. Comp. Zool. Bull.*, vol. xxxiv, p. 85. 1899.

Pleistocene or Pliocene. Jamaica. Included in Coastal series.

Post-medial series, Rogers. *Am. Jour. Sci.*, 1st ser., vol. xlvii, p. 155. 1844.

Devonian. Includes Marcellus shales, Hamilton group, Tully limestone, Genesee shale, Portage group, and Chemung group.

Post-Meridian series, Rogers. *Geol. of Pa.*, vol. i, pp. 107, 273, et seq., vol. ii, p. 755. 1858.

Silurian. Pennsylvania. Includes Cauda-galli and Schoharie grits, and Upper Helderberg or Corniferous. Cliff limestone in part.

Poteau stage, Stevenson. *N. Y. Acad. Sci., Trans.*, vol. xv, p. 51. 1896.

Carboniferous. Arkansas.

Poteau group, Drake. *Am. Phil. Soc., Proc.*, vol. xxxvi, p. 378. 1897.

Carboniferous. Indian Territory. Included in Upper Coal Measures.

Potomac formation, McGee. *U. S. Geol. Surv.*, 7th Ann. Rept., p. 613. 1888.

Cretaceous. Maryland.

Potomac formation, McGee. *Am. Jour. Sci.*, 3d ser., vol. xxxv, pp. 126-143. 1888.

Cretaceous. Atlantic Coastal region.

Potomac formation, Ward. *Am. Jour. Sci.*, 3d ser., vol. xxxvi, pp. 119-131. 1888.

Jurassic(?). Atlantic Coastal Plain.

Potomac, Fontaine. *U. S. Geol. Surv., Mon.*, vol. xv, pp. 33-62. 1889.

Cretaceous. Atlantic Coastal Plain.

Potomac, Clark. *Johns Hopkins Univ. Circs.*, vol. ix, p. 69; vol. x, pp. 105-108. 1890.

Mesozoic. Virginia, Maryland.

Potomac, White. *U. S. Geol. Surv., Bull. No. 82*, pp. 89, 251. 1891.

Cretaceous. Atlantic coast.

Potomac, McGee. *Smithsonian Inst., Rept.* 1890, p. 73. 1891.

Cretaceous. District of Columbia.

Potomac, Darton. *U. S. Geol. Surv.*, Baltimore, Md., Geologic sheet. 1892.

Cretaceous. Maryland.

Potomac, Uhler. *Md. Acad. Sci., Trans.*, vol. i, p. 194. 1892.

Cretaceous. Maryland.

Potomac, McGee, Williams and Darton. *Int. Cong. of Geol.*, 5th Sess., pp. 237-239, 248. 1893.

Cretaceous. Maryland, District of Columbia, and Virginia.

- Potomac, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, pp. 74-75. 1893.
Cretaceous. Maryland. Included in Lower Cretaceous.
- Potomac, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 13, 23. 1894, 1896.
Cretaceous. Virginia and Maryland.
- Potomac, Ward. U. S. Geol. Surv., 15th Ann. Rept., p. 318. 1895.
Cretaceous. Atlantic Coastal Plains. Includes James River series, Rappahannock, Mount Vernon, Aquia Creek, Iron ore, and Albirupian series.
- Potomac formation, Bibbins. Johns Hopkins Univ. Circ., vol. xv, pp. 17-18. 1895.
Mesozoic. Maryland.
- Potomac, Darton. U. S. Geol. Surv., Bull. No. 138, pp. 125, 162. 1896.
Cretaceous. Atlantic Coastal Plain.
- Potomac, Hollick. Science, new ser., vol. iv, p. 571. 1896.
Cretaceous. Rhode Island and Maryland.
- Potomac, Ward. Science, new ser., vol. iv, pp. 757-760. 1896.
Cretaceous. Atlantic Coastal Plain.
- Potomac, Gilbert. Science, new ser., vol. iv, pp. 875. 1896.
Cretaceous. Atlantic Coastal Plain.
- Potomac, Marcou. Science, new ser., vol. iv, p. 945. 1896.
Juratrias, Cretaceous. Atlantic Coastal Plain.
- Potomac, Hill. Science, new ser., vol. iv, p. 918. 1896.
Cretaceous. Atlantic Coastal Plain, Texas.
- Potomac, Fontaine. U. S. Geol. Surv., Bull. 145. 1896.
Cretaceous. Virginia. Exact syn. Neocomian.
- Potomac, Marsh. Science, new ser., vol. iv, p. 805. 1896.
Cretaceous. Atlantic Coastal Plain.
- Potomac, Marsh. Am. Jour. Sci., 4th ser., vol. ii, pp. 436-437. 1896.
Maryland. Part. syn. Alantosaurus.
- Potomac group, Clark. Md. Geol. Surv., vol. i, p. 156. 1897.
Cretaceous, Jurassic(?). Maryland. Includes Raritan, Patapsco, Arundel, and Patuxent.
- Potomac formation, Stanton. Jour. of Geol., vol. v, pp. 587-592. 1897.
Cretaceous. Included in Lower Cretaceous.
- Potomac marble, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 56. 1890.
Triassic. Arkansas.
- Potomac marble, Clark. Md. Geol. Surv., vol. ii, p. 171. 1898.
Triassic. Maryland. Included in Red beds, Newark formation. Exact syns. Potomac breccia, and Calico rock.
- Potosi** limestone, Keyes. Mo. Geol. Surv., vol. vi, p. 331. 1894.
Cambrian. Missouri. Included in St. François limestone, Ozark series. Part. syns. Jefferson City limestone and Moreau sandstone.
- Potosi limestone, Winslow. U. S. Geol. Surv., Bull. No. 132, p. 17. 1896.
Missouri.
- Potosi rhyolite series, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 57. 1899.
Tertiary. Colorado.
- Potsdam** sandstone, Emmons. N. Y. Geol. Surv., 2d Ann. Rept., pp. 214-215. 1838.
Cambrian. New York.
- Potsdam sandstone, Mather. N. Y. Geol. Surv., 5th Ann. Rept., pp. 101-103. 1841.
Cambrian. New York.
- Potsdam, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, p. 230. 1842.
Lower Silurian.

Potsdam sandstone, Emmons. Geol. of N. Y., pt. ii, pp. 102-105, 177, 266, 331, 360, 377. 1842.

Paleozoic. New York. Included in New York Transition system, Champlain group.

Potsdam sandstone, Vanuxem. Geol. of N. Y., pt. iii, pp. 28-29. 1842.

Paleozoic. New York. Included in New York system. Includes Potsdam and Keeseville sandstone, No. 1, Pennsylvania Survey.

Potsdam sandstone, Mather. Geol. of N. Y., pt. i, pp. 418-421. 1843.

Paleozoic. New York. Included in Champlain division.

Potsdam sandstone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 27. 1843.

Paleozoic. New York. Included in New York system. Exact syn. No. 1, Pennsylvania Survey.

Potsdam sandstone, Emmons. Agric. of N. Y., vol. i, pp. 117-118. 1846.

New York. Included in Champlain division of New York system.

Potsdam sandstone, Murray. Can. Geol. Surv., Rept. of Prog., pp. 1847-48. 1849. Ontario.

Potsdam sandstones, Foster and Whitney. Rept. on Geol. of Lake Superior dist., pt. ii, p. 113, Special Sess., Mar. 1851. Ex. Doc. No. 4. 1851.

Lake Superior region.

Potsdam sandstone, Foster and Whitney. Am. Jour. Sci., 2d ser., vol. xvii, p. 29. Abstract. 1854.

Silurian. Michigan.

Potsdam sandstone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 47-49. 1858.

Cambrian. Iowa.

Potsdam sandstone, Whitney. Iowa Geol. Surv., vol. i, pt. i, pp. 328-331. 1858.

Cambrian, Iowa.

Potsdam sandstone, Shumard. Am. Jour. Sci., 2d ser., vol. xxxii, p. 216. 1861.

Silurian. Texas.

Potsdam, Hall. Am. Jour. Sci., 2d ser., vol. xxxi, p. 222. 1861.

Vermont.

Potsdam sandstone, Hayden. Am. Jour. Sci., 2d ser., vol. xxxi, p. 233. 1861.

Silurian. South Dakota.

Potsdam sandstone, Marcou. Boston. Soc. Nat. Hist., Proc., vol. viii, 1861-62, pp. 241-242. 1861.

Vermont and Canada. Included in Upper Taconic of Marcou.

Potsdam sandstone, Hitchcock. Geol. of Vt., vol. i, pp. 264-266. 1861.

Paleozoic. Vermont. Included in Potsdam period.

Potsdam sandstone, Whitney. Rept. on Upper Mississippi Lead region, p. 140. 1862.

Cambrian. Wisconsin. Exact syn. Lower sandstone.

Potsdam, Billings. Am. Jour. Sci., 2d ser., vol. xxxii, pp. 100-105. 1862.

Silurian. Vermont.

Potsdam sandstone, Hayden. Am. Jour. Sci., 2d ser., vol. xxxiii, pp. 68-79. 1862.

Silurian. South Dakota.

Potsdam sandstone, Hayden. Am. Phil. Soc., Trans., new ser., vol. xii, pp. 36-38. 1863.

Cambrian. Black Hills. Included in Lower Silurian.

Potsdam, Hall. Regents Univ. of N. Y., 16th Ann. Rept., pp. 210-220. 1863.

Silurian. Lake Superior region, Mississippi Valley. Included in Lower Silurian.

Includes Lower sandstone of Upper Mississippi Valley, Second sandstone, Third Magnesian limestone, Third sandstone, and Fourth Magnesian limestone of Missouri.

Potsdam group, Chapman. Can. Inst., new ser., vol. viii, pp. 186-190. 1863.

Cambrian. Canada. Included in Lower Silurian. Includes Beauharnois and Kaminstiquia formations.

- Potsdam group, Logan. Can. Geol. Surv., Rept., 1843-63, pp. 87-109. 1863.
 Cambrian. Canada. Included in Lower Silurian.
- Potsdam sandstone, Winchell. Am. Jour. Sci., 2d ser., vol. xxxvii, pp. 226-232. 1864.
 Silurian. Wisconsin.
- Potsdam, Buckley. Prelim. Rept. on Geol. of Texas, pp. 16-22. 1866.
 Cambrian. Texas.
- Potsdam sandstone, Cook. Geol. of N. J., pp. 71-89. 1868.
 Cambrian. New Jersey.
- Potsdam sandstone, Perry. Am. Jour. Sci., 2d ser., vol. xlvii, p. 344. 1869.
 Silurian. Vermont.
- Potsdam group, Safford. Geol. of Tenn., by Safford, pp. 182-226. 1869.
 Silurian. Tennessee. Included in Lower Silurian. Includes Ocoee conglomerate and slates, Chilhowee sandstone, and Knox group.
- Potsdam sandstone, White. Iowa Geol. Surv., vol. i, pp. 171-172. 1870.
 Cambrian. Iowa. Included in Primordial group of Lower Silurian.
- Potsdam group, Richardson. Can. Geol. Surv., Rept., 1866-69, pp. 120-130. 1871.
 Cambrian. Canada. Included in Lower Silurian.
- Potsdam sandstone, Brooks. Am. Jour. Sci., 3d ser., vol. iv, pp. 22-26. 1872.
 Cambrian. New York.
- Potsdam sandstone, Irving. Wis. Acad. Sci., Trans., vol. i-ii, 1870-72, pp. 129-137. 1872.
 Wisconsin.
- Potsdam sandstone, Eaton. Wis. Acad. Sci., Trans., vol. i-ii, 1870-72, p. 125. 1872.
 Wisconsin.
- Potsdam sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Ann. Rept., 1872, pp. 68-80. 1873.
 Silurian. Minnesota.
- Potsdam, Lower, Ford. Am. Jour. Sci., 3d ser., vol. vi, p. 134. 1873.
 Cambrian. New York. Exact syn. Olenellus or Georgia slates of Vermont, Olenellus limestones, and Labrador.
- Potsdam sandstone, Eaton. Am. Jour. Sci., 3d ser., vol. v, p. 446. 1873.
 Cambrian. Wisconsin.
- Potsdam, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 58, 112. 1873.
 Silurian. Ohio.
- Potsdam sandstone, Winchell. Rept. of a Recon. of the Black Hills by Capt. Ludlow, pp. 63-64. 1875.
 Cambrian. South Dakota.
- Potsdam sandstone, Irving. Am. Jour. Sci., 3d ser., vol. ix, p. 441. 1875.
 Cambrian. Wisconsin. Included in Primordial.
- Potsdam sandstone, Fontaine. Am. Jour. Sci., 3d ser., vol. ix, pp. 367-368, 419-421, 424. 1875.
 Cambrian. Virginia.
- Potsdam, Prime. 2d Pa. Geol. Surv., Rept. D, pp. 5-7. 1875.
 Cambrian. Pennsylvania. Exact syn. No. 1.
- Potsdam, Hotchkiss. A Geogr. and Political Summary of Virginia, p. 22. 1876.
 Cambrian and Lower Silurian. Virginia. Exact syns. Primal, Formation No. i, Rogers.
- Potsdam, Smith. Ala. Geol. Surv., Rept., 1875, pp. 13, 132, 173. 1876.
 Cambrian. Alabama.
- Potsdam sandstone, Chamberlin. Geol. of Wis., vol. ii, pp. 257-267. 1877.
 Lower Silurian. Wisconsin. Includes Madison sandstone and Mendota limestone.
- Potsdam, Prime. Am. Phil. Soc., Proc., vol. xvi, p. 248. 1877.
 Pennsylvania. Exact syn. No. 1.

- Potsdam, Emmons. U. S. Geol. Expl. of 40th Parallel, vol. ii, p. 343 et seq. 1877.
Cambrian. Utah.
- Potsdam sandstone, Prime. Am. Jour. Sci., 3d ser., vol. xv, p. 262. 1878.
Cambrian. Pennsylvania.
- Potsdam, Prime. 2d Pa. Geol. Surv., Rept. D², pp. 7-10. 1878.
Cambrian. Pennsylvania. Exact syn. No. 1.
- Potsdam, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 70, 101, 118. 1879.
Silurian. Wyoming.
- Potsdam sandstone, Wadsworth. Harvard Coll. Mus. Comp. Zool., Bull., vol. vii, 1880-1884, p. 60. 1880.
- Potsdam sandstone, Newton. Geol. of Black Hills, pp. 80-107. 1880.
Cambrian. South Dakota.
- Potsdam sandstone, Strong. Geol. of Wis., vol. iii, pp. 395-397. 1880.
Cambrian. Wisconsin. Includes Madison sandstone and Mendota limestone.
- Potsdam sandstone, Whittlesey. Geol. of Wis., vol. iii, p. 220. 1880.
Cambrian. Wisconsin.
- Potsdam, Hall. 2d Pa. Geol. Surv., Rept. C⁶, pp. 38-46. 1881.
Cambrian. Pennsylvania. Exact syn. Rogers's Primal.
- Potsdam group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, p. 267. 1881.
Ordovician.
- Potsdam, Platt. 2d Pa. Geol. Surv., Rept. T, p. 51. 1881.
Cambrian. Pennsylvania.
- Potsdam sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 10th Ann. Rept., pp. 123-136. 1882.
Minnesota.
- Potsdam sandstone, Wooster. Geol. of Wis., vol. iv, pp. 109-123. 1882.
Cambrian. Wisconsin.
- Potsdam sandstone, Strong. Geol. of Wis., vol. iv, pp. 38-64. 1882.
Cambrian. Wisconsin.
- Potsdam, Selwyn. Science, vol. i, p. 11. 1883.
Cambrian. Canada.
- Potsdam, Lesley. 2d Pa. Geol. Surv., Rept. C⁴, pp. 144-160. 1883.
Cambrian. Pennsylvania. Exact syn. Primal slate of Rogers.
- Potsdam, D'Invilliers. 2d Pa. Geol. Surv., Rept. D³, pt. ii, pp. 99-136. 1883.
Cambrian. Pennsylvania. Exact syn. No. 1.
- Potsdam, Prime. 2d Pa. Geol. Surv., Rept. D³, pt. i, pp. 205-214. 1883.
Cambrian. Pennsylvania. Exact syn. No. 1.
- Potsdam, Chamberlin. Geol. of Wis., vol. i, p. 119. 1883.
Cambrian. Wisconsin.
- Potsdam quartzite, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 537. 1884.
Minnesota.
- Potsdam quartzite, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 572. 1884.
Minnesota.
- Potsdam group, Campbell. The Virginias, vol. vi, p. 99. 1885.
Cambrian. Virginia.
- Potsdam group, Campbell. Am. Jour. Sci., 3d ser., vol. xxix, pp. 470-474. 1885.
Cambrian. Virginia.
- Potsdam, Dwight. Am. Jour. Sci., 3d ser., vol. xxxi, pp. 125-132. 1886.
Cambrian. New York.

- Potsdam, Dwight. Am. Assoc. Adv. Sci., Proc., vol. xxxiv, p. 204. 1886.
Cambrian. New York.
- Potsdam sandstone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. 117, 157. 1888.
Cambrian. Minnesota.
- Potsdamic, Hitchcock. Boston Soc. Nat. Hist., Proc., vol. xxiv, 1888-90, p. 37. 1888.
- Potsdam group, Miller. N. A. Geol. and Pal., p. 29. 1889.
- Potsdam, Winchell. Minn. Geol. and Nat. Hist. Surv., 17th Ann. Rept., pp. 49-56. 1889.
Minnesota.
- Potsdam sandstone, Hall. Minn. Acad. Nat. Sci., Bull., vol. iii, p. 135. 1889.
Cambrian. Minnesota.
- Potsdam, Walcott. U. S. Geol. Surv., Bull. No. 87, pp. 113, 180, 202, 214, 217, 244. 1891.
Cambrian. Lake Superior, Rocky Mts., Texas, Appalachian region. Included in Upper Cambrian.
- Potsdam sandstone, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 333. 1891.
Cambrian. Iowa.
- Potsdam sandstone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, p. 335. 1892.
Cambrian. Minnesota. Included in Upper Cambrian.
- Potsdam, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 108, 110. 1893.
Cambrian. New York.
- Potsdam sandstone, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 410-417. 1894.
Cambrian. New York.
- Potsdam sandstone, Cushing. N. Y. State Geol., 13th Ann. Rept., pp. 478-479. 1894.
Cambrian. New York.
- Potsdam, Cushing. Geol. Soc. Am., Bull., vol. vi, p. 287. 1895.
Cambrian. New York.
- Potsdam, Udden. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 839. 1896.
Cambrian. Illinois.
- Potsdam sandstone, Cushing. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 510. 1897.
Cambrian. New York.
- Potsdam sandstone, Buckley. Wis. Geol. and Nat. Hist. Surv., Bull. No. 4, Econ. ser., No. ii, pp. 167-248. 1898.
Cambrian. Wisconsin.
- Potsdam sandstone, Wadsworth. Am. Inst. Mg. Engrs., Trans., vol. xxvii, p. 683. 1898.
Cambrian. Lake Superior region.
- Potsdam formation, Walcott. Geol. Soc. Am., Bull., vol. x, p. 225. 1899.
Cambrian. Wisconsin.
- Potsdam sandstone, Salisbury and Atwood. Wis. Geol. and Nat. Hist. Surv., Bull. No. 5, Ed. ser., no. i, pp. 27-31. 1900.
Cambrian. Wisconsin.
- Pottawatomie** formation, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 92-93, 94. 1898.
Carboniferous. Kansas. Included in Upper Coal Measures. Includes Garnett limestones, Lane shales, Iowa limestones, Thayer shales, and Erie limestone.
- Potters Clay** formation, Rogers. N. J. Geol. Surv., Final Rept., pp. 179-186. 1840.
Cretaceous. New Jersey.
- Pottery** shale, Wheeler. Mo. Geol. Surv., vol. ix, Sheet Rept., No. 2, p. 65. 1896.
Carboniferous. Missouri. Included in Coal Measures.
- Pottstown** shale, Lyman. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2607-2608. 1895.
Juratrias. Pennsylvania. Included in New Red.

Pottsville conglomerate, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 520, 535. 1877.

Carboniferous. Pennsylvania. Included in Piedmont sandstone, Kanawha River coal series. Exact syns. Seral, Millstone grit.

Pottsville conglomerate, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 91-95. 1877.

Carboniferous. Pennsylvania. Exact syn. Seral.

Pottsville conglomerate, Platt. 2d Pa. Geol. Surv., Rept. H², pp. xxiv-xxvi. 1877.

Pottsville conglomerate, Stevenson. 2d Pa. Geol. Surv., Rept. K³, pp. 44-46. 1878.

Carboniferous. Pennsylvania. Exact syn. Seral.

Pottsville conglomerate, Ashburner. 2d Pa. Geol. Surv., Rept. F, pp. 191-194. 1878.

Carboniferous. Pennsylvania. Exact syn. Seral conglomerate.

Pottsville conglomerate, Chance. 2d Pa. Geol. Surv., Rept. V, pp. 31-34. 1879.

Carboniferous. Pennsylvania. Includes Homewood sandstone, Mercer group, Connoquenessing sandstone. Exact syn. No. 12.

Pottsville, Chance. 2d Pa. Geol. Surv., Rept. V², pp. 59-63, 1880.

Carboniferous. Pennsylvania.

Pottsville, Ashburner. 2d Pa. Geol. Surv., Rept. R, pp. 49-62 1880.

Carboniferous. Pennsylvania. Includes Johnson River sandstone, Kinzua Creek sandstone, and Olean conglomerate. Exact syns. Seral, Millstone grit.

Pottsville, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 55-65. 1881.

Carboniferous. Pennsylvania. Includes Homewood sandstone, Mercer group, Connoquenessing group, and Sharon group. Exact syn. No. 12.

Pottsville conglomerate, White. 2d Pa. Geol. Surv., Rept. G⁵, pp. 45-53. 1881.

Carboniferous. Pennsylvania. Exact syn. No. 12.

Pottsville, Platt. 2d Pa. Geol. Surv., Rept. H⁶, pp. xxxiii-xxxiv. 1881.

Carboniferous. Pennsylvania. Exact syn. No. 12.

Pottsville, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 65-67. 1882.

Carboniferous. Pennsylvania.

Pottsville, Carll. 2d Pa. Geol. Surv., Rept. I⁴, pp. 185-189. 1883.

Carboniferous. Pennsylvania. Includes Johnsons River rock, Kinzua Creek sandstone, and Olean conglomerate. Exact syn. No 12.

Pottsville, White. 2d Pa. Geol. Surv., Rept. T³, pp. 69-73. 1885.

Carboniferous. Pennsylvania. Includes Homewood (Johnson River) sandstone, Connoquenessing (Kinzua Creek) sandstones, and Sharon conglomerate.

Pottsville conglomerate, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 399. 1885.

Carboniferous. Pennsylvania. Exact syn. No. 12.

Pottsville conglomerate, Winslow. 2d Pa. Geol. Surv., Ann. Rept., 1886, pt. iv, pp. 1337, 1363. 1887.

Carboniferous. Pennsylvania. Exact syn. No. 12.

Pottsville, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 111-112, 126-128. 1890.

Carboniferous. Pennsylvania.

Pottsville conglomerate, White. U. S. Geol. Surv., Bull. No. 65, p. 179. 1891.

Carboniferous. Ohio, Pennsylvania, West Virginia. Included in Homewood sandstone, Mercer group, Connoquenessing sandstone, New River Coal group, and Sharon conglomerate.

Pottsville conglomerate, White. Geol. Soc. Am., Bull., vol. iii, p. 190. 1892.

Upper Carboniferous. West Virginia.

Pottsville, Williams and Clark. Maryland. Its Resources, Industries, and Institutions, p. 72. 1893.

Carboniferous. Maryland. Part syn. No. xii.

Pottsville conglomerate, Smith. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1853-1855, 1949-1951 et seq. 1895.

Carboniferous. Pennsylvania. Exact syn. No. xii.

- Pottsville conglomerate, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1857-1915. 1895.
- Carboniferous. Pennsylvania. Includes Homewood or Johnson River sandstone, Connoquenessing or Kinzua sandstone, and Sharon, Olean, or Garland conglomerate. Exact syn. No. 12, Seral conglomerate of Rogers.
- Pottsville formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 185-186. 1897.
- Carboniferous. Maryland. Exact. syn. Blackwater formation.
- Pottsville, Clark. Md. Geol. Surv., vol. ii, p. 208. 1898.
- Carboniferous. Maryland. Included in Coal Measures.
- Pottsville conglomerate, White. W. Va. Geol. Surv., vol. i, p. 202. 1899.
- Carboniferous. West Virginia.
- Pottsville, Clark. Md. Geol. Surv., vol. iii, p. 100. 1899.
- Carboniferous. Maryland. Included in Coal Measures.
- Pottsville formation, White. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 755-865. 1900.
- Carboniferous. Pennsylvania. Includes Clark, Quinnemont, Sewell, and Lookout formations, and Fayette sandstone.
- Pottsville formation, O'Harra. Md. Geol. Surv., Allegany County, p. 113. 1900.
- Carboniferous. Maryland.
- Poughquag** limestone and quartzite, Dana. Am. Jour. Sci., 3d ser., vol. iii, pp. 252-253, 255. 1872.
- Silurian. New York.
- Powelson** shale, White. 2d Pa. Geol. Surv., Rept. T³, pp. 61-62. 1885.
- Carboniferous. Pennsylvania.
- Poxono Island** shale, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 145-147. 1882.
- Silurian. Pennsylvania. Included in Upper Helderburg or No. vi.
- Poxono Island shale and limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 934-935. 1892.
- Silurian. Pennsylvania. Included in No. vi.
- Poxono Island shale, Weller. N. J. Geol. Surv., Rept. 1899, pp. 5-6. 1900.
- Silurian. New Jersey.
- Prairie Bluff** limestone, Winchell. Am. Assoc. Adv. Sci., Proc., vol. x, p. 90. 1856.
- Cretaceous. Alabama. Included in Upper Cretaceous.
- Prairie d'Ane** or White Clay till, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 32-33. 1888.
- Post-Tertiary. Arkansas.
- Pre-Meridian** series, Rogers. Geol. of Pa., vol. i, pp. 107, 136-137, 272 et seq., vol. ii, p. 754. 1858.
- Silurian. Pennsylvania. Exact. syn. Lower Helderberg.
- Preston** beds, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.
- Cretaceous. Texas. Included in Washita division. Includes Duck Creek and Kiamitia.
- Price** sandstone, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 177. 1894.
- Lower Carboniferous. Virginia. Included in Pocono.
- Price, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
- Carboniferous. Virginia and West Virginia.
- Price sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
- Carboniferous. Virginia and West Virginia. Exact syn. No. x, Montgomery grits.
- Primal** series, Rogers. Am. Jour. Sci., 1st ser., vol. xlvii, p. 155. 1844.
- Primal series, Rogers. Geol. of Pa., vol. i, pp. 104, 122-123, 150-207 et seq., vol. ii, p. 751. 1858.
- Cambrian. Pennsylvania. Part. syn. Potsdam.

Primal, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 126, 251, 288. 1891.

Cambrian. Appalachian region.

Primedidial series, Rogers. Am. Jour. Sci., 1st ser., vol. xlvii, p. 155. 1844.

Silurian. Includes Pentamerus and Catskill shaly limestone and Oriskany limestone.

Princeton conglomerate, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.

Carboniferous. Virginia and West Virginia.

Princeton conglomerate, Campbell and Mendenhall. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 489. 1896.

Carboniferous. West Virginia. Included in No. xii of Rogers, Conglomerate series of Fontaine.

Princeton conglomerate, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Carboniferous. Virginia and West Virginia. Part. syns. No. xi, Greenbrier shale Rogers.

Procamelus beds, Cope. U. S. Geol. and Geog. Surv. of Terr., vol. v, pp. 51-52. 1879.

Tertiary. Included in Loup Fork.

Proctor limestone, Keyes. Mo. Geol. Surv., vol. vi, p. 331. 1894.

Cambrian. Missouri. Included in Gasconade limestone, Ozark series.

Productal limestone, Owen. Geol. Recon. State of Indiana, Rept. in 1837, p. 22. 1859.

Indiana. Included in Subcarboniferous limestone.

Productive coal measures, Upper and Lower, Rogers. Geol. of Pa., vol. 1, p. 109. 1856.

Carboniferous. Pennsylvania. Included in Seral series.

Productive measures, Upper, Stevenson. 2d Pa. Geol. Surv., Rept. K, pp. 57-74, 84-88. 1876.

Carboniferous. Pennsylvania. Includes Waynesburg sandstone, Great limestone, Fishpot limestone, and Pittsburg sandstone.

Productive series, Upper, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 30-63. 1877.

Carboniferous. Pennsylvania. Includes Waynesburg sandstone and limestone, Great limestone, Fishpot limestone, and Redstone limestone.

Productive series, Lower, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 73-90. 1877.

Carboniferous. Pennsylvania and West Virginia. Includes Mahoning sandstone, Freeport limestone, and Piedmont sandstone (= Tionesta).

Productive series, Lower, White. 2d Pa. Geol. Surv., Rept. Q², pp. 27-51. 1877.

Carboniferous. Pennsylvania. Includes Freeport or Butler sandstone and limestone, Kittanning sandstone, and Ferriferous limestone.

Productive measures, Lower, Ashburner. 2d Pa. Geol. Surv., Rept. F, pp. 184-191. 1878.

Carboniferous. Pennsylvania. Exact syn. Allegheny River series.

Productive series, Upper, White. 2d Pa. Geol. Surv., Rept. Q, pp. 21-22. 1878.

Carboniferous. Pennsylvania.

Productive series, Lower, White. 2d Pa. Geol. Surv., Rept. Q, pp. 39-64. 1878.

Carboniferous. Pennsylvania. Includes Freeport limestone, Butler sandstone and limestone, Kittanning sandstone, and Ferriferous limestone.

Productive series, Upper, Stevenson. 2d Pa. Geol. Surv., Rept. K³, pp. 14-17. 1878.

Carboniferous. Pennsylvania.

- Productive series, Lower, Stevenson. 2d Pa. Geol. Surv., Rept. K³, pp. 27-43. 1878.
Carboniferous. Pennsylvania. Includes Mahoning sandstone, Freeport limestone and sandstone, Kittanning limestone, Bolivar sandstone, and Clarion sandstone.
- Productive measures, Upper, Platt. 2d Pa. Geol. Surv., Rept. H⁴, pp. 155-165. 1878.
Carboniferous. Pennsylvania.
- Productive measures, Lower, Platt. 2d Pa. Geol. Surv., Rept. H⁴, pp. 175-231. 1878.
Carboniferous. Pennsylvania.
- Productive measures, Lower, Chance. 2d Pa. Geol. Surv., Rept. V, pp. 15-29. 1879.
Carboniferous. Pennsylvania. Includes Freeport group, Mahoning sandstone, Kittanning group, and Ferriferous limestone.
- Productive measures, Lower, White. 2d Pa. Geol. Surv., Rept. Q³, pp. 22-32. 1880.
Carboniferous. Pennsylvania. Includes Ferriferous limestone.
- Productive measures, Lower, Ashburner. 2d Pa. Geol. Surv., Rept. R, pp. 45-48. 1880.
Carboniferous. Pennsylvania.
- Productive measures, Lower, Chance. 2d Pa. Geol. Surv., Rept. V², pp. 31-56. 1880.
Carboniferous. Pennsylvania. Includes Freeport group, Kittanning group, Johnstown cement limestone, Clarion group, and Ferriferous limestone.
- Productive measures, Upper, Platt. 2d Pa. Geol. Surv., Rept. H⁵, pp. 43-291. 1880.
Carboniferous. Pennsylvania.
- Productive measures, Lower, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 313. 1880.
Carboniferous. Pennsylvania.
- Productive measures, Lower, Chance. 2d Pa. Geol. Surv., Rept. H⁷, pp. 25-80. 1884.
Carboniferous. Pennsylvania.
- Productive measures, Lower, Ashburner. 2d Pa. Geol. Surv., Rept. R², p. 393. 1885.
Carboniferous. Pennsylvania.
- Productive measures, Upper, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept., 1885, pp. 171-177. 1886.
Carboniferous. Pennsylvania.
- Productive measures, Lower, Platt. 2d Pa. Geol. Surv., Rept. H⁶, pp. xxix-xxxii. 1887.
Carboniferous. Pennsylvania. Included in Freeport group, Kittanning group, and Clarion group.
- Productive measures, Upper, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept., 1886, pp. 63-74, 206-208, 264-265, 291-295, 336-341. 1887.
Carboniferous. Pennsylvania. Exact syn. Monongahela River series.
- Productive measures, Lower, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept., 1886, pp. 79-81. 1887.
Carboniferous. Pennsylvania. Exact syn. Allegheny River series.
- Productive measures, Upper, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 122-123. 1890.
Carboniferous. Pennsylvania. Exact syn. Monongahela series.
- Productive measures, Lower, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 125-126. 1890.
Carboniferous. Pennsylvania. Exact syn. Allegheny series.
- Productive group, Squire. Ala. Geol. Surv., Rept. on Cahaba coal field, p. 14 et seq. 1890.
Carboniferous. Alabama. Included in Coal Measures.
- Productive series, Upper, D'Inwilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2448-2564. 1895.
Carboniferous. Pennsylvania. Exact syns. No. xv, Monongahela River series.
- Productive measures, Lower, D'Inwilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, pp. 2155-2405. 1895.
Carboniferous. Pennsylvania. Exact syns. No. xiii, Allegheny River series.

Prospect Mountain limestone and quartzite, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 254. 1883.

Cambrian. Nevada.

Prospect, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 252, 313. 1891.

Cambrian. Nevada.

Prospect Mountain limestone, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 36. 1892.

Cambrian. Nevada.

Prospect Mountain quartzite, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 35. 1892.

Cambrian. Nevada.

Proteau group, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., pp. 374-375. 1840.

Silurian. New York.

Proteau group, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 60. 1842.

New York and Ohio.

Protoceras beds, Wortman. Am. Mus. Nat. Hist., Bull., vol. v, 1893, pp. 101-102. 1893.

Lower Miocene. South Dakota. Included in White River sediments. Includes Uppermost strata of Oreodon beds.

Protoceras, Wortman. Am. Mus. Nat. Hist., Bull., vol. v, pp. 96, 101. 1893.

Tertiary. Included in White River or Lower Miocene.

Pteranodon beds, Marsh. U. S. Geol. Surv., Mon., vol. xxvii, p. 476. 1896.

Cretaceous. Colorado.

Pteranodon beds, Logan. Jour. of Geol., vol. vii, pp. 90-91. 1899.

Cretaceous. Kansas and Nebraska. Included in Niobrara. Exact syns. Apishapa and Upper Timber beds.

Puckwunge conglomerate, Winchell. Am. Geol., vol. xx, pp. 50-51. 1897.

Algonkian. Minnesota.

Puckwunge conglomerate, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 13, 517. 1899.

Cambrian. Minnesota. Included in Keweenaw.

Puckwunge conglomerate, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. v, p. 54. 1900.

Cambrian. Minnesota.

Puerco marl, Cope. Rept. of Secy. of War to 44th Cong., vol. ii, pt. ii, p. 1012. 1875.

Tertiary. New Mexico. Included in Eocene.

Puerco marl, Holmes. U. S. Geol. and Geog. Surv. of Terr., 9th Ann. Rept., p. 248. 1877.

Cretaceous. Colorado. Exact syn. Bad Land group.

Puerco marl, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., p. 123. 1878.

Tertiary. Colorado. Included in Wahsatch group.

Puerco, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. iii, pp. 3-6. 1881.

Tertiary.

Puerco, Clark. U. S. Geol. Surv., Bull. No. 83, p. 137. 1891.

Tertiary. Colorado and New Mexico.

Puerco beds, Osborn and Earle. Am. Mus. Nat. Hist., Bull., vol. vii, 1895, pp. 1-3. 1895.

New Mexico. Included in Basal Eocene.

Puerco beds, Marcou. Am. Geol., vol. xix, pp. 120-121. 1897.

Tertiary.

Puerco, Matthew. Am. Mus. Nat. Hist., Bull., vol. ix, 1897, pp. 259-323. 1897.

Eocene. New Mexico. Included in Basal Eocene.

Puerco beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 347. 1898.

Tertiary. New Mexico and Colorado. Included in Eocene. Part. syn. Torregon formation.

- Puerco formation, Smith. Jour. of Geol., vol. viii, pp. 448-449. 1900.
Tertiary. Western North America. Included in Eocene.
- Puget** group, White. Am. Jour. Sci., 3d ser., vol. xxxvi, pp. 443-450. 1888.
Cretaceous. Washington. Exact syn. Laramie.
- Puget** group, White. U. S. Geol. Surv., Bull. No. 51, pp. 49-63. 1889.
Cretaceous. Washington.
- Puget**, White. U. S. Geol. Surv., Bull. 51, p. 49, 1889. U. S. Geol. Surv., Bull. No. 82, p. 196. 1891.
Cretaceous. Pacific coast. Included in Upper Cretaceous.
- Puget**, Clark. U. S. Geol. Surv., Bull. No. 83, p. 107. 1891.
Tertiary. Washington. Included in Eocene. Exact syn. Tejon (?).
- Puget** group, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 229. 1892.
Tertiary. Washington.
- Puget** group, Kimball. Am. Geol., vol. xix, pp. 305-306. 1897.
Cretaceous or Eocene. Washington.
- Puget** group (epoch), Willis. Geol. Soc. Am., Bull., vol. ix, p. 2. 1897.
Tertiary. Washington. Part. syn. Tejon.
- Puget** group, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 347. 1898.
Tertiary. Washington. Included in Eocene.
- Puget** formation, Willis. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 400-412. 1898.
Tertiary. Washington.
- Puget** formation, Willis and Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 54. 1899.
Tertiary. Washington. Included in Eocene.
- Puget** formation, Smith. Jour. of Geol., vol. viii, pp. 457-459. 1900.
Tertiary. Washington. Included in Eocene.
- Pugh**, Taff and Brooks. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34. 1896.
Carboniferous. West Virginia.
- Pulaski** shales, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., pp. 373-374. 1840.
New York.
- Pulaski** shale, Vanuxem. Geol. of N. Y., pt. iii, p. 64. 1842.
Paleozoic. New York. Included in Hudson River group.
- Pulaski** shale, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 178. 1894.
Lower Carboniferous. Virginia. Part. syn. Umbral.
- Pulaski** shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
Carboniferous. Virginia and West Virginia.
- Pulaski** formation, Diller. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 319-320. 1899.
Tertiary. Oregon. Included in Arago, Eocene.
- Pulliam** formation, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Cretaceous. Texas. Included in Gulf series.
- Purgatory** conglomerate, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 363-374. 1899.
Carboniferous. Rhode Island.
- Putnam Hill** limestone, Andrews. Ohio Geol. Surv., Rept. Prog., 1869, p. 84. 1870.
Ohio.
- Putnam Hill** limestone, Andrews. Ohio Geol. Surv., Rept., 1869, p. 88. 1871.
Ohio.
- Putnam Hill** limestone, Andrews. Ohio Geol. Surv., vol. i, pt. i, p. 315. 1873.
Carboniferous. Ohio. Included in Coal Measures.
- Putnam Hill** limestone, Orton. Ohio Geol. Surv., vol. v, p. 20. 1884.
Carboniferous. Ohio.
- Putnam Hill** limestone, White. The Virginias, vol. vi, p. 15. 1885.
Carboniferous. West Virginia. Included in Coal Measures.

- Putnam Hill limestone, clay and shales, Orton. Ohio Geol. Surv., vol. vii, p. 63. 1893.
Carboniferous. Ohio.
- Putnamville** stone, Collett. Indiana Dept. Statistics and Geology, 2d Ann. Rept., 1880, p. 409. 1880.
Indiana.
- Puyallup** epoch (sands), Willis. Geol. Soc. Am. Bull., vol. ix, pp. 145, 146. 1898.
Pleistocene. Washington.
- Quadrant**, Peale. U. S. Geol. Surv., Bull. No. 110, p. 39. 1893.
Carboniferous. Montana.
- Quadrant quartzite, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Carboniferous. Montana.
- Quadrant, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.
Carboniferous. Montana.
- Quadrant quartzite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Carboniferous. Wyoming.
- Quadrant, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 41. 1896.
Carboniferous. Montana.
- Quadrant formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folios No. 55, 56. 1899.
Carboniferous. Montana.
- Quadrant formation, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59, 149-164. 1899.
Carboniferous. Yellowstone Park.
- Quadrant group, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, pp. 294-298. 1900.
Carboniferous. Montana. Includes Kibbey sandstone and Otter shale.
- Quakertown** shale, White. 2d Pa. Geol. Surv., Rept. Q², p. 66. 1877.
Carboniferous. Pennsylvania. Included in No. 12, or Pottsville.
- Quakertown coal group, Platt. 2d Pa. Geol. Surv., Rept. H⁵, p. 326. 1880.
Carboniferous. Pennsylvania.
- Quakertown coal and sandstone, Orton. Ohio Geol. Surv., vol. vii, pp. 59, 60. 1893.
Carboniferous. Ohio.
- Quarry Creek** limestone, Worthen. Ill. Geol. Surv., vol. vi, pp. 10-11, 12-17. 1875.
Carboniferous. Illinois. Included in Coal Measures.
- Quarry Creek and Martinsville limestone, Worthen. Econ. Geol. of Ill., vol. iii, p. 339. 1882.
Carboniferous. Illinois. Included in Coal Measures.
- Quartz** rock, Hitchcock. Geol. of Vt., vol. i, pp. 342-357. 1861.
Cambrian (?). Vermont. Exact syns. Granular quartz and Potsdam sandstone.
- Quartz slate member, Van Hise. U. S. Geol. Surv., 10th Ann. Rept., p. 370. 1890.
Algonkian. Wisconsin and Minnesota. Included in Penokee.
- Quartz slate member, Irving and Van Hise. U. S. Geol. Surv., Mon., vol. xix, p. 143. 1892.
Algonkian. Lake Superior region. Included in Penokee series.
- Quebec** group, Logan. Can. Inst., new ser., vol. vi, pp. 40-46. 1861.
Cambro-Silurian. Canada.
- Quebec group, Logan. Am. Jour. Sci., 2d ser., vol. xxxi, pp. 216-220. 1861.
Silurian. Canada.
- Quebec group, Hall. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 185. 1861.
Paleozoic.
- Quebec group, Hall. Am. Jour. Sci., 2d ser., vol. xxxi, pp. 220-226. 1861.
Silurian. Vermont.

- Quebec group, Logan. Can. Geol. Surv., Rept., 1843-1863, pp. 225-297, 844-880. 1863.
- Lower Silurian. Canada (eastern). Included in Canadian formation. Includes Lévis and Sillery formations. Part. syns. Chazy and Calciferous.
- Quebec group, Logan. Am. Jour. Sci., 2d ser., vol. xxxvi, p. 368. 1863.
- Silurian. Canada.
- Quebec group, Chapman. Can. Inst., new ser., vol. viii, pp. 186, 191-195. 1863.
- Silurian. Canada. Included in Lower Silurian. Includes Chazy or Sillery, and Calciferous or Lévis.
- Quebec group, Hind. Geol. of New Brunswick, p. 143. 1865.
- Silurian. New Brunswick. Included in Lower Silurian.
- Quebec group, Richardson. Can. Geol. Surv., Rept., 1863-1866, pp. 29-48. 1866.
- Lower Silurian. Canada (Eastern). Includes Lévis, Lauzon, and Sillery divisions.
- Quebec group, Logan. Can. Geol. Surv., Rept., 1863-1866, pp. 4-5. 1866.
- Lower Silurian. Canada. Includes Lévis, Lauzon, and Sillery divisions.
- Quebec group, Richardson. Can. Geol. Surv., Rept., 1866-1869, pp. 145-155. 1871.
- Lower Silurian. Canada. Includes Lévis, Lauzon, and Sillery formations.
- Quebec group, Hunt. Boston Soc. Nat. Hist., Proc., vol. xix, 1876-1878, pp. 2-4. 1876.
- Quebec, Hunt. 2d Pa. Geol. Surv., Rept. E, pp. 101-108. 1878.
- Cambrian. Canada.
- Quebec, St. John. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 481. 1879.
- Silurian. Idaho. Included in Canadian. Includes Upper and Lower Quebec.
- Quebec group, Selwyn. Can. Geol. Surv., Rept., 1877-78, p. 1A. 1879.
- Cambro-Silurian. Canada. Includes 3 groups of strata, Lower Silurian group, Volcanic group, Crystalline Schist group [Huronian (?)].
- Quebec group, Macfarlane. Can. Nat., 2d ser., vol. ix, pp. 91-102. 1880.
- Cambro-Silurian. Canada.
- Quebec group, Selwyn. Can. Nat., 2d ser., vol. ix, pp. 17-31. 1880.
- Cambro-Silurian. Canada. Included in Lower Silurian. Includes Lower Silurian group, Lévis formation, Volcanic group, and Crystalline Schist group.
- Quebec group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. iv, pp. 270, 277. 1881.
- Quebec group, Ells. Can. Geol. Surv., Rept., 1880-81-82, pp. 16DD-31DD. 1883.
- Cambro-Silurian. New Brunswick. Includes Lévis, Lauzon, and Sillery formations.
- Quebec group, Selwyn. Can. Roy. Soc., Proc. and Trans., 1882-83, vol. i, sec. iv, pp. 1-13. 1883.
- Cambro-Silurian. Canada. Includes Pre-Cambrian, Cambrian and Cambro-Silurian.
- Quebec group, Selwyn. Science, vol. ix, p. 267. 1887.
- Silurian. Canada.
- Quebec group, Miller. N. A. Geol. and Pal., p. 34. 1889.
- Quebec group, Ells. Can. Geol. Surv., new ser., vol. iii, pt. ii, pp. 25K-84K. 1889.
- Cambro-Silurian. Canada. Includes Lévis, Lauzon, and Sillery formations.
- Quebec, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 50. 1890.
- Silurian. Arkansas. Included in Silurian group. Part. syn. Knox group.
- Quebec group, Matthew. Can. Rec. Sci., vol. iv, pp. 339-343. 1891.
- Cambro-Silurian. New Brunswick.
- Quebec terrane, Ami. Geol. Soc. Am., Bull., vol. ii, pp. 491, 495. 1891.
- Cambrian (?). Quebec. Included in Quebec.
- Quebec group, Ami. Ottawa Field Nat. Club., Trans., 1892-93, vol. viii, pp. 41-43. 1892.
- Cambro-Silurian. Canada. Included in Lower Ordovician.

- Quebec Group, Low. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 26L-33L. 1893.
Cambro-Silurian. Canada. Includes Lévis and Sillery divisions.
- Quebec group, Bailey and McInnes. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 5M-6M, 13M-23M. 1893.
Cambro-Silurian. Eastern Canada and parts of New Brunswick and Maine.
Includes Lévis and Sillery divisions. Part. syns. Sillery=Upper Cambrian,
Lévis=Cambro-Silurian.
- Quebec group, Weston. Ottawa Field Nat. Club., Trans., vol. x, 1894-95, pp. 81-82. 1894.
Cambro-Silurian. Canada.
- Quebec group, Ellis. Can. Geol. Surv., new ser., vol. vii, pp. 15J-64J. 1896.
Cambro-Silurian. Province of Quebec, Canada. Includes Sillery, Lévis and Lower
Phillipsburg, Upper Phillipsburg, Bedford and Mystic slates, and Farnham
slates and limestones.
- Quebec group, Dawson. Can. Roy. Soc., Trans., new ser., vol. ii, sec. iv, pp. 91-129.
1896.
Cambro-Silurian. Canada. Includes Sillery series, Lévis series and Marsouin
series.
- Quebec group, Marcou. Am. Geol., vol. xix, pp. 111-113. 1897.
Cambro-Silurian.
- Queen Charlottes Island** formation. Dawson. Am. Jour. Sci., 3d ser., vol.
xxxviii, pp. 120-127. 1889.
Cretaceous. British Columbia.
- Queen Charlotte, Stanton. Geol. Soc. Am., Bull., vol. iv, p. 245. 1893.
Cretaceous. British Columbia. Exact syn. Shasta.
- Queen Charlotte Islands, group, Diller and Stanton. Geol. Soc. Am., Bull., vol. v,
p. 461. 1894.
Cretaceous. British Columbia. Part. syn. Shasta-Chico.
- Queen Charlotte Island formation, Dawson. Can. Geol. Surv., new ser., vol. vii,
p. 26B, 64B-65B. 1896.
Cretaceous. British Columbia. Included in Lower Cretaceous. Part. syns.
Jackass Mountain group and Shasta group of California.
- Queen City** beds, Kennedy. Phil. Acad. Nat. Sci., Proc., p. 135. 1895.
Lower Eocene. Texas. Included in Lignitic.
- Queens River** moraine, Woodworth and Marbut. Jour. of Geol., vol. iv, pp.
691-703. 1896.
Pleistocene. Rhode Island.
- Quesnel** Lake crystalline series, Bowman. Can. Geol. Surv., new ser., vol. iii, pt. i,
p. 25C. 1889.
Archean. British Columbia.
- Quesnel River beds, Bowman. Can. Geol. Surv., new ser., vol. iii, pt. i, pp. 17C-
19C. 1889.
Cretaceous. British Columbia. Part. syn. Shasta group of California, upper part.
- Quinnemont**, Stevenson. Am. Phil. Soc., Proc., vol. xix, pp. 229, 498. 1881.
Carboniferous. Virginia. Exact syns. Seral, Pottsville.
- Quinnemont group, Stevenson. The Virginias, vol. ii, pp. 25, 186. 1881.
Carboniferous. Virginia. Exact syns. Seral (Pottsville), conglomerate.
- Quinnemont-Fire Creek horizon, White. Geol. Soc. Am., Bull., vol. vi, p. 310.
1895.
Upper Carboniferous. West Virginia. Included in Pottsville formation.
- Quinnemont, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26.
1896.
Carboniferous. Virginia, West Virginia. Included in Coal-bearing strata, Potts-
ville series.

- Quinnemont formation, White. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, p. 815. 1900.
- Carboniferous. Virginia and West Virginia.
- Quinnesec** schists, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 62. 1900.
- Archean. Michigan.
- Quitman** bed, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 728-730. 1891.
- Cretaceous. Texas. Included in Washita division.
- Quitman limestone, Gallaher. Mo. Geol. Surv., Bien. Rept., p. 54. 1898.
- Upper Carboniferous. Missouri. Included in Upper Coal Measures.
- Quitman-Muerto** series, Hill. Geol. Soc. Am., Bull., vol. iii, p. 97. 1892.
- Tertiary. Texas, New Mexico.
- Raccoon** shales, Hicks. Am. Jour. Sci., 3d ser., vol. xvi, pp. 216-219. 1878.
- Carboniferous. Ohio. Included in Waverly group.
- Racine** limestone, Hall. Regents Univ. of N. Y., 20th Ann. Rept., pp. 305-308. 1867.
- Silurian. Wisconsin. Included in Niagara. Exact syns. Guelph, Leclaire (Ia.) limestone.
- Racine beds. Geol. of Wis., vol. ii, pp. 360-377. 1877.
- Upper Silurian. Wisconsin. Included in Niagara.
- Racine beds, Chamberlin. Geol. of Wis., vol. i, p. 187. 1883.
- Silurian. Wisconsin. Included in Niagara.
- Radiolarian** chert, Ransome. Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 193-240. 1894.
- California.
- Radiolarian cherts, Lawson. U. S. Geol. Surv., 15th Ann. Rept., p. 420. 1895.
- Mesozoic. California. Included in Franciscan series.
- Radiolarian chert, Ashley. Cal. Acad. of Sci., Proc., 1895, 2d ser., vol. v, p. 293. 1896.
- Cretaceous or Jurassic. California.
- Rainy Mountain** limestone, Bain. Geol. Soc. Am., Bull., vol. xi, pp. 135, 138-140. 1900.
- Silurian. Oklahoma. Included in Ordovician.
- Raleigh** sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
- Carboniferous. Virginia and West Virginia. Included in Coal-bearing strata, Pottsville series.
- Raleigh sandstone, Campbell and Mendenhall. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 493. 1896.
- Carboniferous. West Virginia. Included in No. xii of Rogers, Conglomerate series of Fontaine.
- Raleigh sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
- Carboniferous. Virginia and West Virginia. Part. syns. No. xii, Great Conglomerate of Rogers.
- Rampart** series, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 155-169. 1898.
- Alaska.
- Rampart series, Emmons. Nat. Geog. Mag., vol. ix, p. 157. 1898.
- Alaska.
- Rancocas**, Clark. N. J. Geol. Surv., Rept., 1893, pp. 337-338. 1894.
- Cretaceous. New Jersey. Exact syn. Middle marl bed.
- Rancocas formation, Clark. Jour. of Geol., vol. ii, p. 166. 1894.
- Cretaceous. New Jersey. Exact syn. Middle marl bed.
- Rancocas formation, Clark. Geol. Soc. Am., Bull., vol. vi, pp. 479, 480. 1895.
- Cretaceous. New Jersey. Includes Middle marl bed.

- Rancocas formation, Shattuck. Johns Hopkins Univ. Circs., vol. iv, p. 15. 1895.
Cretaceous. New Jersey. Exact syn. Middle marl bed.
- Rancocas, Darton. U. S. Geol. Surv., Bull. No. 138, p. 41. 1896.
Cretaceous. New Jersey. Exact syn. Middle marl.
- Rancocas formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 194-195. 1897.
Cretaceous. Maryland.
- Rancocas formation, Clark, Baggs and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 315, 336. 1897.
Cretaceous. New Jersey. Included in Upper Cretaceous. Includes Sewell marls and Vincentown lime sands.
- Rancocas formation, Clark, Bagg and Shattuck. N. J. Geol. Surv., Rept. 1897, pp. 186-190. 1898.
Cretaceous. New Jersey. Included in Upper Cretaceous. Includes Sewell marls and Vincentown lime sands.
- Random** terrane, Walcott. Geol. Soc. Am., Bull., vol. xi, pp. 3-5. 1900.
Algonkian. Newfoundland.
- Randville** dolomite, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16. 1899.
Algonkian. Michigan. Included in Lower Huronian.
- Randville dolomite, Clements. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 50-53. 1899.
Lower Huronian. Michigan.
- Randville dolomite, Smyth. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 406-410, 431-434. 1899.
Michigan.
- Randville dolomite, Clements and Smyth. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 34-36, 110, 126. 1899.
Algonkian. Michigan. Included in Lower Huronian series.
- Randville dolomite, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 62. 1900.
Algonkian. Michigan. Included in Lower Menominee series.
- Rapids** schist, Schrader. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 473. 1900.
Alaska.
- Rappahannock** series, Ward. U. S. Geol. Surv., 15th Ann. Rept., p. 321. 1895.
Cretaceous. Virginia and Maryland. Included in Potomac.
- Raritan** clay, Conrad. Am. Jour. Sci., 2d ser., vol. xlvii, p. 360. 1869.
Cretaceous. New Jersey. Part. syn. Post Wealden.
- Raritan, Uhler. Md. Acad. Sci., Trans., vol. i, p. 206. 1892.
Cretaceous. Includes Upper member of Albirupean. Exact syn. Alternate clay series.
- Raritan formation, Clark. N. J. State Geol., Rept., 1892, pp. 181-186. 1893.
Cretaceous. New Jersey.
- Raritan, Clark. N. J. Geol. Surv., Rept., 1893, p. 335. 1894.
Cretaceous. New Jersey. Exact syn. Plastic clay.
- Raritan formation, Clark. Geol. Soc. Am., Bull., vol. vi, pp. 479-480. 1895.
Cretaceous. New Jersey. Included in Potomac.
- Raritan formation, Shattuck. Johns Hopkins Univ. Circs., vol. xv, p. 14. 1895.
Cretaceous. New Jersey. Included in Greensand series. Exact syn. Plastic clays.
- Raritan, Darton. U. S. Geol. Surv., Bull. No. 138, p. 40. 1896.
Cretaceous. New Jersey.
- Raritan formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 192. 1897.
Cretaceous. Maryland.
- Raritan formation, Clark and Bibbins. Jour. of Geol., vol. v, pp. 492-494. 1897.
Cretaceous. Maryland. Included in Potomac group.

- Reading** sandstone, Walcott. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 38-40. 1894.
Cambrian. Pennsylvania. Included in Lower Cambrian. Exact syns. South Mountain and Chickis quartzites.
- Receptaculites** limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 410. 1857.
Lower Silurian. Missouri.
- Receptaculite limestone, Shumard. Mo. Geol. Surv., Rept., 1855-1871, pp. 265, 282, 297. 1873.
Silurian. Missouri. Included in Hudson River group.
- Receptaculite limestone, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 28. 1874.
Silurian. Missouri. Included in Lower Silurian. Part. syn. Galena group.
- Receptaculite limestone, Keyes. Mo. Geol. Surv., vol. vi, p. 331. 1894.
Silurian. Missouri. Included in Trenton.
- Red beds**, Marvine. U. S. Geol. and Geog. Surv. of Terr., 1873, p. 96. 1874.
Colorado. Included in Trias.
- Red beds, King. U. S. Geol. Expl. of 40th Parallel, vol. i, p. 544. 1878.
Colorado, Utah. Included in Trias. Includes Star Peak, Koipato.
- Red beds, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 72, 128. 1878.
Colorado.
- Red beds, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 623. 1879.
Idaho, Wyoming. Included in Jurassic. Exact syn. Star Peak group.
- Red beds, Newton. Geol. of Black Hills, pp. 131-151. 1880.
South Dakota. Included in Trias.
- Red Bluff** beds, Cragin. Colo. Coll. Stud., vol. vi, pp. 3, 40-44. 1896.
Permian. Kansas. Included in Cimarron series.
- Red bluff formation, Cragin. Am. Geol., vol. xix, pp. 360-361. 1897.
Permian. Kansas, Oklahoma. Included in Kiger division of Cimarron series.
- Red Creek** quartzite, Powell. U. S. Geog. and Geol. Surv. of Uinta Mts., pp. 42, 62, 137. 1876.
Paleozoic. Utah.
- Red Mountain** group, Tuomey. Ala. Geol. Surv., 1st Bien. Rept., p. 10. 1850.
Silurian. Alabama.
- Red Mountain series, Spencer. Ga. Geol. Surv., The Paleozoic Group, pp. 48, 94, 113, 117, 121, 124, 132, 142, 177. 1893.
Silurian. Georgia. Included in Upper Silurian. Includes Medina, Clinton, and Lower Niagara. Exact syns. Clinch Mountain, White Oak Mountain, Dye-stone, and Rockwood.
- Red Mountain, McCalley. Ala. Geol. Surv., Rept. on Valley regions of Ala., pt. i, pp. 27, 30. 1896.
Silurian. Alabama. Included in Niagara. Exact syn. Clinton.
- Red Mountain formation, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 48-50, 119-167, 202-237, 272-291, 342-442, 466-475, 500-503, 642-643, 729-735, 796-809. 1897.
Silurian. Alabama. Included in Upper Silurian. Exact syns. Clinton and Rockwood.
- Red River** group, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 589. 1857.
Cretaceous. Texas.
- Red River group, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 89. 1861.
Cretaceous. Texas. Included in Lower Cretaceous (Middle Cretaceous) according to Marcou.

- Red River group, Shumard. St. Louis Acad. Sci., Trans., vol. ii, 1868, p. 140. 1868.
Cretaceous. Texas.
- Red River loess, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 29-32. 1888.
Post-Tertiary. Arkansas, Texas, and Indian Territory.
- Red River division, Taff. Texas Geol. Surv., 3d Ann. Rept., p. 349. 1892.
Cretaceous. Texas. Included in Upper Cretaceous. Exact syn. Lower Cross
Timber division.
- Red sandrock** series, Hitchcock. Geol. of Vt., vol. i, pp. 326-342. 1861.
Silurian. Vermont. Includes Gray sandstone, Red sandrock, Medina sandstone,
Quebec group.
- Red Sand, Cook. Geol. of N. J., pp. 243, 267-269. 1868.
- Red sandstone, Cook. N. J. State Geol., Rept. 1879, pp. 18-36. 1879.
Juratrias. New Jersey.
- Red sandstone, Cook. N. J. State Geol., Rept. 1888, pp. 11-15. 1889.
Juratrias. New Jersey.
- Red sandstone, Nason. N. J. State Geol., Rept. 1888, pp. 16-44. 1889.
Juratrias. New Jersey.
- Red sandstone, Nason. N. J. State Geol., Rept. 1889, pp. 66-72. 1889.
Juratrias. New Jersey.
- Red shale beds, White. U. S. Geol. Surv., Bull. No. 65, p. 92. 1891.
Carboniferous. Ohio, Pennsylvania, and West Virginia. Included in Barren
Measures, Elk River series.
- Red sandrock, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 96, 250, 277. 1891.
Cambrian. Appalachian region.
- Red Sand formation, Clark. N. J. State Geol., Ann. Rept., 1892, pp. 199-201. 1893.
Cretaceous. New Jersey.
- Red Wall**, Gilbert. U. S. Geog. and Geol. Surv., W. of 100th M., vol. iii, p. 178.
1875.
Carboniferous. Utah.
- Red Wall, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mountains, pp. 41,
56, 57-60, 147. 1876.
Carboniferous. Utah.
- Red Wall group, Dutton. U. S. Geol. Surv., 6th Ann. Rept., p. 132. 1885.
Carboniferous. Northwest New Mexico. Included in Lower Carboniferous.
- Red Wall limestone, Walcott. Geol. Soc. Am. Bull., vol. i, p. 50. 1889.
Lower Carboniferous. Arizona. Included in Carboniferous.
- Redbank**, Clark. N. J. Geol. Surv., Rept., 1893, p. 337. 1894.
Cretaceous. New Jersey. Exact syn. Red sand.
- Redbank formation, Clark. Jour. of Geol., vol. ii, pp. 165-166. 1894.
Cretaceous. New Jersey. Exact syn. Red sand.
- Redbank formation, Clark. Geol. Soc. Am., Bull., vol. vi, p. 479. 1895.
Cretaceous. New Jersey.
- Redbank formation, Shattuck. Johns Hopkins Univ. Circs., vol. xv, p. 15. 1895.
Cretaceous. New Jersey. Exact syn. Red sand.
- Redbank, Darton. U. S. Geol. Surv., Bull. No. 138, p. 41. 1896.
Cretaceous. New Jersey. Exact syn. Red sand.
- Redbank sands, Clark, Baggs and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp.
315, 334. 1897.
Cretaceous. New Jersey. Included in Monmouth formation.
- Redbank sands, Clark, Baggs and Shattuck. N. J. Geol. Surv., Rept., 1897, pp. 184-
185. 1898.
Cretaceous. New Jersey. Included in Monmouth formation.
- Redrock** sandstone, Keyes. Am. Jour. Sci., 3d ser., vol. xli, pp. 273-276. 1891.
Carboniferous. Iowa.

- Redstone** limestone, Platt. 2d Pa. Geol. Surv., Rept. H³, p. 62. 1877.
Carboniferous. Pennsylvania.
- Redstone** limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 62. 1891.
Carboniferous. Pennsylvania and West Virginia. Included in Upper Coal Measures, Monongahela River series.
- Redstone** limestone, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.
Upper Carboniferous. West Virginia. Included in Upper Coal Measures.
- Reeder** sandstone, Gould. Am. Jour. Sci., 4th ser., vol. v, pp. 170-174. 1898.
Cretaceous. Kansas. Included in Medicine beds.
- Relief** formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.
Carboniferous. California. Included in Calaveras formation.
- Rensselaer** grit, Dale. U. S. Geol. Surv., 13th Ann. Rept., pt. ii, p. 306. 1893.
Silurian. New York and Vermont.
- Republic** formation, Wadsworth. Mich. Geol. Surv., Rept. State Board for 1891, 1892, pp. 63, 65, 66, 84, 102. 1893.
Azoic or Archean. Michigan. Exact syn. Lower Marquette series. Part. syn. Keewatin hematites and jaspilites of Michigan.
- Republic** series, Van Hise. Geol. Soc. Am., Bull., vol. v, p. 6. 1893.
Archean. Michigan. Included in Marquette.
- Requienia** limestone, Hill. Wash. Biol. Soc., vol. viii, p. 15. 1893.
Cretaceous. Texas. Included in Trinity division, Glen Rose beds.
- Reynosa** limestone, Penrose. Texas Geol. Surv., 1st Ann. Rept., p. 63. 1890.
Tertiary. Mexico.
- Reynosa**, Dumble. Geol. Soc. Am., Bull., vol. iii, p. 219. 1892.
Neocene. Texas. Part. syn. Lafayette(?).
- Reynosa** division, Dumble. Jour. of Geol., vol. ii, pp. 560-563. 1894.
Tertiary. Texas. Included in Pliocene.
- Reynosa** conglomerate, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 377. 1895.
Post-Cretaceous. Texas.
- Reynosa** limestone, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 337. 1898.
Tertiary. Texas. Included in Pliocene.
- Rhomboidal** limestone, Broadhead. Mo. Geol. Surv., Rept. 1873-74, p. 214. 1874.
Carboniferous. Missouri. Included in Coal Measures.
- Riceville** shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1777. 1895.
Carboniferous. Pennsylvania. Included in No. 10, Pocono.
- Richland** sandstone, Tarr. Am. Geol., vol. vi, p. 149. 1890.
Carboniferous. Texas. Included in Upper Carboniferous.
- Richland-Gordon** sandstones, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxv. 1890.
Cretaceous. Texas. Included in Coal Measures.
- Richmond** shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.
Silurian. Kentucky.
- Richmond** beds, Clarke and Schuchert. Science, new ser., vol. x, p. 876. 1899.
Ordovician. Ohio, Indiana. Included in Cincinnati.
- Richmond**, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, 1899, pp. 53-56. 1899.
Tertiary, Eocene. Jamaica. Included in Blue Mountain series.
- Richmondville** sandstone, Lane. Mich. Geol. Surv., Rept. State Board for 1891, 1892, p. 66. 1893.
Subcarboniferous. Michigan.
- Richmondville** sandstone, Lane. Mich. Geol. Surv., vol. v, pt. ii, p. 20. 1895.
Michigan. Exact syn. The Berea grit of northern Ohio.

- Ricker** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 386. 1893.
Carboniferous. Texas. Included in Strawn division.
- Rico** formation, Cross and Spencer. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 59. 1900.
Carboniferous. Colorado.
- Ridley** limestone, Safford. Geol. of Tenn., by Safford, pp. 261-262. 1869.
Silurian. Tennessee. Included in Trenton or Lebanon.
- Riga** schist, Hobbs. Jour. of Geol., vol. i, pp. 726-727. 1893.
Silurian. Massachusetts. Included in Mount Washington series, Ordovician.
- Riley** series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxi. 1890.
Cambrian. Texas.
- Riley** series, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 286-289. 1890.
Cambrian. Texas. Included in Middle Cambrian(?).
- Riley** series, Comstock. Texas Geol. Surv., 2d Ann. Rept., p. 564. 1891.
Cambrian. Texas. Included in Middle Cambrian.
- Riley**, Walcott. U. S. Geol. Surv., Bull. No. 81, p. 246. 1891.
Cambrian. Texas.
- Ripley** group, Hilgard. Rept. on Geol. and Agric. of Miss., pp. 62, 83-95. 1860.
Cretaceous. Mississippi.
- Ripley** group, Gabb. Phil. Acad. Nat. Sci., Proc., vol. xiii, p. 124. 1862.
Cretaceous. New Jersey.
- Ripley** group, Safford. Am. Jour. Sci., 2d ser., vol. xxxvii, pp. 366-368. 1864.
Cretaceous. Tennessee.
- Ripley** group, Shumard. St. Louis Acad. Sci., Trans., vol. ii, p. 152. 1868.
Cretaceous. Alabama.
- Ripley** group, Safford. Geol. of Tenn., pp. 417-421. 1869.
Cretaceous. Tennessee.
- Ripley** group, Hilgard. Am. Jour. Sci., 3d ser., vol. ii, pp. 391-394. 1871.
Cretaceous. Mississippi, Alabama, Georgia, Texas, and Arkansas. Exact syns.
Fox Hill beds, highest Cretaceous in New Jersey.
- Ripley** group, Killebrew and Safford. Res. of Tenn., p. 44. 1874.
Cretaceous. Tennessee.
- Ripley** formation, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 71. 1887.
Cretaceous. Alabama.
- Ripley**, Loughridge. Ky. Geol. Surv., Jackson Purchase region, pp. 32-36. 1888.
Cretaceous. Kentucky.
- Ripley** series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 34. 1891.
Cretaceous. Georgia.
- Ripley** series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 92. 1891.
Tertiary. Georgia.
- Ripley**, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 592. 1891.
Cretaceous. Alabama.
- Ripley**, Smith. Ala. Geol. Surv., Bull. No. 2, p. 15. 1892.
Cretaceous. Alabama.
- Ripley**, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 257, 359, 423. 1894.
Cretaceous. Alabama.
- Ripley** stage, Harris and Veatch. La. State Exp. Sta., pt. v, pp. 52-62. 1899.
Cretaceous. Louisiana.
- Riversdale** formation, Ami. Can. Rec. Sci., vol. viii, pp. 154-160. 1900.
Carboniferous. Canada. Included in Eocarboniferous.
- Riversdale** formation, Ami. N. S. Inst. Sci., Proc. and Trans., vol. x, pt. 2, pp. 162-178. 1900.

- Riverside** sandstone, Hopkins. Indiana Dept. Geol. and Nat. Res., 20th Ann. Rept. (1895), pp. 196, 317. 1896.
Carboniferous. Indiana.
- Riverside** sandstone, Kindle. Am. Pal., Bull. No. 12, p. 6. 1899.
Devonian. Indiana. Included in Knobstones.
- Robinett** flags, Haworth and Kirk. Kan. Univ. Quart., vol. ii, p. 108. 1894.
Carboniferous. Kansas.
- Robinson** beds, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
Carboniferous. California.
- Robinson** formation, Turner. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 447. 1894.
Carboniferous. California.
- Robinson**, Diller. U. S. Geol. Surv., Geol. Atlas of U. S.; Folio No. 15. 1895.
Carboniferous. California.
- Robinson** formation, Turner. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 626. 1896.
Juratrias. California.
- Robinson** formation, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 37. 1897.
Carboniferous, or older. California. Included in Bed Rock series.
- Robinson** quartzite, Tower and Smith. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 620-622. 1899.
Cambrian. Utah.
- Robinson** limestone, Beede. Kan. Acad. Sci., Trans., vol. xvi, p. 83. 1899.
Carboniferous. Kansas. Exact syn. Burlingame limestone.
- Rochdale** group, Dwight. Vassar Bros. Inst., Trans., vol. iv, p. 213. 1887.
Silurian. New York. Exact syn. Calciferous(?)
- Rochdale** group, Dwight. Am. Jour. Sci., 3d ser., vol. xxxiv, p. 32. 1887.
Silurian. New York.
- Roche Percée** group, Dawson. Can. Geol. Surv., Rept., 1879-80, p. 12A-55A. 1879.
Tertiary. Canada. Included in Lignite Tertiary. Exact syn. Fort Union group of Missouri.
- Rochelle** conglomerate, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 388. 1893.
Carboniferous. Texas. Included in Canyon division.
- Rock Creek** limestone, Worthen. Econ. Geol. of Ill., vol. iii, p. 325. 1882.
Carboniferous. Illinois. Included in Coal Measures.
- Rock Falls** series, Lane. Mich. Geol. Surv., vol. vii, pt. ii, p. 253. 1900.
Carboniferous. Michigan. Exact syn. Cuyahoga.
- Rockcastle** group, Crandall. Ky. Geol. Surv. (Proctor), Geol. of Whitley Co.
Carboniferous. Kentucky. Exact syns. Conglomerate, Pine Mountain group(?)
- Rockcastle** conglomerate lentil, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio Nos. 46, 47. 1898.
Carboniferous. Kentucky. Included in Pennsylvanian series.
- Rockcastle** conglomerate lentil, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 53. 1899.
Carboniferous. Tennessee. Included in Pennsylvanian series. Exact syn. Walden sandstone.
- Rockford** shales, Webster. Davenport (Iowa) Acad. Sci., Proc., vol. v, pp. 100-109. 1889.
Devonian. Iowa.
- Rockford** goniatite limestone, Hopkins and Siebenthal. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rept., 1896, p. 296. 1897.
Carboniferous. Indiana.
- Rockford** limestone, Kindle. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, p. 408. 1898.
Carboniferous. Indiana.

Rockford goniatite limestone, Blatchley and Ashley. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, p. 16. 1898.

Carboniferous. Indiana.

Rockford goniatite limestone, Ashley. Indiana Dept. Geol. and Nat. Res., 23d Ann. Rept., 1898, pp. 74, 79. 1899.

Carboniferous. Indiana.

Rockford limestone, Kindle. Am. Pal., Bull. No. 12, p. 7. 1899.

Devonian. Indiana.

Rockingham mica schist, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, 1881-86, p. 179. 1884.

Vermont and New Hampshire.

Rockingham mica schist, Hitchcock. Jour. of Geol., vol. iv, p. 54. 1896.

Algonkian or Cambrian. New Hampshire. Included in Montalban.

Rockmart slate, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.

Silurian. Tennessee. Included in Trenton.

Rockmart slate, Spencer. Ga. Geol. Surv., The Paleozoic Group. 1893.

Ordovician. Georgia. Included in Chickamauga.

Rockmart slate, Hayes. Geol. Soc. Am., Bull., vol. v, p. 469. 1894.

Silurian. Georgia and Alabama.

Rockville conglomerate, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 304. 1891.

Cretaceous. Iowa. Exact syns. Nishnabotany sandstone, Fort Dodge gypsum.

Rockville conglomerate, Calvin. Iowa Geol. Surv., vol. viii, pp. 160-162. 1898.

Cretaceous(?) Iowa.

Rockwood formation, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.

Silurian. Tennessee. Exact syn. Clinton = Dyestone.

Rockwood, Hayes. Ala. Geol. Surv., Bull. No. 4, p. 43. 1892.

Silurian. Alabama. Includes Dyestone, White Oak, Clinch Mountain, Clinton, and Red Mountain.

Rockwood formation, Hayes. Geol. Soc. Am., Bull., vol. v, p. 470. 1894.

Silurian. Georgia and Alabama.

Rockwood sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.

Silurian. Kentucky, Virginia and Tennessee.

Rockwood, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 176. 1894.

Silurian. Virginia. Included in Clinton.

Rockwood formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 12, 26. 1894, 1896.

Silurian. Kentucky, Virginia and Tennessee.

Rockwood, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 14, 32. 1894, 1896.

Silurian. Virginia and West Virginia. Exact syns. Clinton; Rogers No. v; and Surgent.

Rockwood formation, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 8, 19, 20, 21, 35. 1894, 1895, 1896.

Silurian. Georgia, Tennessee, Alabama.

Rockwood, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 25, 27, 33. 1896.

Silurian. Tennessee.

Rockwood, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.

Silurian. West Virginia and Maryland.

- Rockwood formation, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896.
- Silurian. Alabama. Exact syns. Clinton or Red Mountain group, Dyestone group, and White Oak Mountain sandstone.
- Rockwood formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
- Silurian. Virginia, West Virginia.
- Rockwood formation, Clark. Md. Geol. Surv., vol. i, pp. 181-182. 1897.
- Silurian. Maryland. Exact syn. Clinton shales.
- Rockwood formation, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
- Silurian. Virginia and West Virginia.
- Rockwood formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
- Silurian. Virginia, Tennessee.
- Rocky Comfort** chalk, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 89-95. 1888.
- Cretaceous. Arkansas. Included in Chalky marl beds.
- Rogersville** shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.
- Cambrian. Kentucky, Virginia, and Tennessee.
- Rogersville shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
- Cambrian. Tennessee and North Carolina.
- Rogersville shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
- Cambrian. Virginia and Tennessee.
- Rome** sandstone, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.
- Cambrian(?). Tennessee. Part. syn. Chilhowee(?).
- Rome sandstone, Walcott. U. S. Geol. Surv., Bull. No. 81, p. 247. 1891.
- Cambrian. Tennessee. Exact syn. Knox.
- Rome sandstone, Hayes. Ala. Geol. Surv., Bull. No. 4, pp. 34, 37. 1892.
- Cambrian. Alabama. Includes Weisner quartzite.
- Rome sandstone, Hayes. Geol. Soc. Am., Bull., vol. v, p. 467. 1894.
- Cambrian. Georgia.
- Rome formation, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 20. 1894-5.
- Cambrian. Georgia, Tennessee.
- Rome, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
- Cambrian. Tennessee, North Carolina.
- Rome formation, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.
- Cambrian. Tennessee. Exact syn. Knox sandstone.
- Romney** shale, Darton. Am. Geol., vol. x, p. 17. 1892.
- Devonian. Virginia. Part. syn. Hamilton.
- Romney shale, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 14, 32. 1894, 1896.
- Devonian. Virginia and West Virginia. Exact syns. Hamilton, Rogers Cadent. Part. syn. Rogers, No. viii.
- Romney shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.
- Devonian. Virginia and West Virginia.
- Romney shale, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
- Devonian. West Virginia and Maryland.
- Romney shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
- Devonian. Virginia and West Virginia.

- Romney formation, Clark. Md. Geol. Surv., vol. 1, p. 183. 1897.
Devonian. Maryland. Exact syn. Hamilton shales.
- Romney shale, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
Devonian. Virginia and West Virginia.
- Romney formation, O'Harra. Md. Geol. Surv., Allegany Co., p. 103. 1900.
Devonian: Maryland.
- Rondout** waterlime, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Silurian. New York. Included in Cayuga.
- Rondout waterlime formation, Weller. N. J. Geol. Surv., Rept., 1899, p. 20. 1900.
Silurian. New Jersey.
- Rondout waterlime, Grabau. Geol. Soc. Am., Bull., vol. xi, pp. 349-350. 1900.
Silurian. New York. Included in Upper Silurian.
- Rose Island** arkose, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 380. 1899.
Carboniferous. Rhode Island.
- Roslyn** sandstone, Russell. U. S. Geol. Surv., 20th Ann. Rept., p. ii, pp. 123-127. 1900.
Tertiary. Washington.
- Rossville** shales and sandstone, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 31. 1898.
Carboniferous. Kansas.
- Rotten** limestone, Winchell. Am. Assoc. Adv. Sci., Proc., vol. x, p. 91. 1856.
Cretaceous. Alabama. Included in Upper Cretaceous.
- Rotten limestone group, Hilgard. Rept. on Geol. and Agric. of Miss., pp. 62, 76-83. 1860.
Cretaceous. Mississippi.
- Rotten limestone, Hilgard. Am. Jour. Sci., 3d ser., vol. ii, pp. 391-394. 1871.
Cretaceous. Georgia, Alabama, Mississippi, Texas, and Arkansas. Exact syn. Ft. Pierre group. Part. syn. Niobrara division (?).
- Rotten limestone, Killebrew and Safford. Res. of Tenn., p. 43. 1874.
Cretaceous. Tennessee.
- Rotten limestone, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 83. 1887.
Cretaceous. Alabama.
- Rotten limestone series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., 1890-91. 1891.
Cretaceous. Georgia.
- Rotten limestone, White. U. S. Geol. Surv., Bull. No. 82, p. 106. 1891.
Cretaceous. Gulf region.
- Rotten limestone, Smith. Ala. Geol. Surv., Bull. No. 2, p. 14. 1892.
Cretaceous. Alabama. Exact syn. Chalk.
- Rotten limestone, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 15, 276, 360, 430, 455. 1894.
Cretaceous. Alabama. Exact syn. Chalk.
- Roubidoux** sandstone, Winslow. Mo. Geol. Surv., Rept., vol. ii, pp. vii, 114, 115. 1892.
Cambrian. Missouri. Includes First sandstone and Second sandstone.
- Roubidoux, Nason. Am. Geol., vol. xi, p. 94. 1893.
Missouri.
- Roubidoux sandstone, Keyes. Mo. Geol. Surv., vol. iv, p. 30. 1894.
Lower Silurian. Missouri. Included in Calciferous stage.
- Roubidoux sandstone, Keyes. Mo. Geol. Surv., vol. vi, p. 378. 1894.
Cambrian. Missouri.

Rough Creek bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 383. 1893.

Carboniferous. Texas. Included in Strawn division.

Rowe schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.

Silurian. Massachusetts.

Rowe schists, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 5. 1895.

Cambrian(?). Massachusetts. Part. syn. Stockbridge limestone.

Rowe schist, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 76-78. 1898.

Silurian. Massachusetts. Included in Lower Silurian.

Rowe schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.

Silurian. Massachusetts.

Roxbury conglomerate, Crosby. Rept. on Geol. Map of Mass., p. 41. 1876.

Paleozoic. Massachusetts. Included in Carboniferous(?).

Roxbury conglomerate, Burr and Burke. Boston Soc. Nat. Hist., Proc., vol. xxix, pp. 179-184. 1900.

Carboniferous. Massachusetts.

Royal formation, Campbell and Mendenhall. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 490. 1896.

Carboniferous. West Virginia. Included in No. xii of Rogers, Conglomerate series of Fontaine.

Ruby, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.

Cretaceous. Colorado.

Ruby, Cross. U. S. Geol. Surv., Mon., vol. xxvii, p. 219. 1896.

Cretaceous. Colorado.

Rushville group, Andrews. Am. Jour. Sci., 3d ser., vol. xviii, p. 137. 1879.

Carboniferous. Ohio.

Russell, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 12, 26. 1894; 1896.

Cambrian. Kentucky, Virginia, Tennessee.

Russell formation, Cragin. Colo. Coll. Stud., vol. vi, p. 49. 1896.

Cretaceous. Kansas. Included in Benton. Includes Downs limestone or Fence-post limestone and Lincoln marble.

Russell formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.

Cambrian. Virginia and West Virginia.

Russell serpentines, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 90. 1898.

Silurian. Massachusetts. Included in Chester amphibolites.

Russell group, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25-26. 1898.

Upper Cretaceous. Kansas. Included in Benton.

Russell formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.

Cambrian. Virginia and Tennessee.

Russellville shale, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.

Carboniferous. Arkansas. Included in Appleton shale.

Rutledge limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.

Cambrian. Kentucky, Virginia and Tennessee.

Rutledge limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.

Cambrian. Tennessee and North Carolina.

Rutledge limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.

Cambrian. Virginia and Tennessee.

- Sabine** river beds, Penrose. Texas Geol. Surv., 1st Ann. Rept., pp. 22-47. 1890.
Tertiary. Texas. Exact syn. Timber belt beds.
- Sabine** river beds, Dumble. Texas Geol. Surv., 2d Ann. Rept., pp. 25-57. 1891.
Tertiary. Texas. Included in Eocene. Exact syn. Timber belt beds.
- Sac** limestone, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 74-77. 1898.
Devonian. Missouri. Included in Hamilton stage.
- Saccharoidal** sandstone, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts, pt. ii, p. 160. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Saccharoidal** sandstone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 117, 197. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Saccharoidal** sandstone, Meek. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, p. 105. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Saccharoid** sandstone, Shumard. Mo. Geol. Surv., Rept., 1855-1871, pp. 191, 207, 215, 234, 245, 268, 284, 298, 308. 1873.
Silurian. Missouri. Included in Lower Silurian and Calciferous sand rock.
- Saccharoidal** sandstone, Broadhead. Mo. Geol. Surv., Rept., 1855-1871, pp. 10, 26, 54. 1873.
Silurian. Missouri. Included in Lower Silurian and Calciferous sand rock.
- Saccharoidal** sandstone, Meek. Mo. Geol. Surv., Rept., 1855-1871, pp. 118, 142. 1873.
Silurian. Missouri. Included in Lower Silurian.
- Saccharoidal** sandstone, Broadhead. Mo. Geol. Surv., Rept., 1873-74, pp. 29. 1874.
Lower Silurian. Missouri. Included in Magnesian limestone series.
- Saccharoidal** sandstone, Ladd. Mo. Geol. Surv., Bull. No. 3, pp. 14, 15. 1890.
Lower Silurian. Missouri.
- Saccharoidal** sandstone, Simonds and Hopkins. Ark. Geol. Surv., 1891, vol. ii, pp. 30-33. 1891.
Silurian. Arkansas.
- Sachuest** arkose, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 379. 1899.
Carboniferous. Rhode Island.
- Sacramento** formation, Smith. Jour. of Geol., vol. ii, pp. 591-593. 1894.
Devonian. California. Includes Kennett limestones and shales.
- Saddle Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 416. 1893.
Carboniferous. Texas. Included in Cisco division.
- Sailor Canyon**, Turner. Am. Geol., vol. xiii, p. 232. 1894.
Juratrias. California.
- Sailor Canyon** formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 39. 1897.
Juratrias. California. Included in Bed Rock series.
- Sailor Canyon** formation, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.
Juratrias. California. Included in Bed Rock series.
- St. Albans** group, Marcou. Boston Soc. Nat. Hist., Proc., vol viii, 1861-62, pp. 241, 246, 251. 1861.
Vermont and Canada. Included in Upper Taconic of Marcou.
- St. Anthony** sandstone, Hopkins. Indiana Dept. Geol. and Nat. Res., 20th Ann. Rept., 1895, p. 312. 1896.
Indiana.
- St. Clair** marble (limestone), Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 50, 212-252. 1890.
Silurian. Arkansas.

- St. Clair limestone, Penrose. Ark. Geol. Surv., 1890, vol. i, pp. 124-128, 166-184. 1890.
 Silurian. Arkansas.
- St. Clair shales, Lane. Mich. Geol. Surv., Rept. State Board, 1891, 1892, p. 66. 1893.
 Devonian. Michigan.
- St. Clair limestone, Williams. Am. Jour. Sci., 3d ser., vol. xlvii, pp. 326-329. 1894.
 Silurian. Arkansas. Included in Ordovician.
- St. Clair shales, Lane. Mich. Geol. Surv., vol. v, pt. ii, p. 21. 1895.
 Michigan.
- St. Clair shales, Lane. U. S. Geol. Surv., Water-Supply Papers, No. 30, pl. vi. 1899.
 Carboniferous. Michigan. Part. syns. Ohio and Black shale.
- St. Clair shales, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 25-30. 1900.
 Devonian. Michigan. Exact syn. Genesee.
- St. Clair limestone, Williams. Ark. Geol. Surv., 1892, vol. v, pp. 281-301. 1900.
 Silurian. Arkansas. Included in Niagara.
- St. Croix** sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 1st Ann. Rept., 1872, pp. 68-80. 1873.
 Lower Silurian. Minnesota.
- St. Croix sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 31. 1876.
 Lower Silurian. Minnesota.
- St. Croix sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 5th Ann. Rept., pp. 29-34. 1877.
 Lower Silurian. Minnesota.
- St. Croix sandstone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 424. 1884.
 Minnesota.
- St. Croix sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, pp. 223, 257, 281. 1884.
 Minnesota.
- St. Croix formation, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. xxi, 13, 31. 1888.
 Minnesota. Includes Jordan sandstone, St. Lawrence limestone + certain sands and sandy shales.
- St. Croix sandstone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, p. 407. 1888.
- St. Croix sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 17th Ann. Rept., pp. 56-64. 1889.
 Minnesota.
- St. Croix shales, Hall. Minn. Acad. Nat. Sci., Bull., vol. iii, No. 1, p. 134. 1889.
 Cambrian. Minnesota. Included in St. Croix formation as middle member.
 Part. syn. 4th Magnesian limestone of Missouri.
- St. Croix sandstones, Hall. Minn. Acad. Nat. Sci., Bull., vol. iii, No. 1, p. 134. 1889.
 Cambrian. Minnesota. Included in St. Croix formation as lowest of three members.
- St. Croix, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 245, 330. 1891.
 Cambrian. Mississippi Valley.
- St. Croix sandstone, Keyes. Iowa Geol. Surv., 1st Ann. Rept., vol. i, pp. 20-21. 1893.
 Cambrian. Iowa. Included in Upper Cambrian. Exact syn. Potsdam.
- St. Croix sandstone, Calvin. Iowa Geol. Surv., vol. iv, pp. 54-61. 1895.
 Cambrian. Iowa. Included in Potsdam series.
- St. Croix sandstone, Norton. Iowa Geol. Surv., vol. iii, pp. 184-186. 1895.
 Cambrian. Iowa.

- St. Elias schist**, Russell. Nat. Geog. Mag., vol. iii, pp. 167, 173-174. 1891.
Alaska.
- St. Elias schist**, Upham. Geol. Soc. Am., Bull., vol. iv, p. 190. 1893.
Pleistocene(?). Alaska.
- St. Francois limestone**, Keyes. Mo. Geol. Surv., vol. vi, pp. 331, 349, 352. 1894.
Cambrian. Missouri. Included in Ozark series. Includes Potosi limestone and St. Joseph limestone.
- St. Francois**, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 649. 1894.
Lower Silurian. Missouri.
- St. Genevieve limestone**, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 406. 1857.
Lower Carboniferous. Missouri. Included in Mountain limestone.
- St. Genevieve limestone**, Shumard. Mo. Geol. Surv., Rept., 1855-1871, p. 293. 1873.
Carboniferous. Missouri. Included in Lower Carboniferous.
- St. Genevieve**, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 284, 287. 1892.
Lower Carboniferous. Missouri.
- St. Genevieve limestone**, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 76. 1894.
Lower Carboniferous. Missouri. Included in St. Louis stage.
- St. Genevieve limestone**, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Lower Carboniferous. Missouri. Included in St. Louis stage.
- St. Joe marble**, Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 252-350. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous.
- St. Joe limestone**, Gallagher. Mo. Geol. Surv., Bien. Rept., p. 52. 1898.
Upper Carboniferous. Missouri. Included in Upper Coal Measures.
- St. Johns slate**, Jukes. General Rept. on Geol. of Newfoundland, p. 51 et seq. 1843.
Cambrian(?). Newfoundland.
- St. John shales**, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada. Included in St. John group or series.
- St. John group**, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada. Includes St. John shales.
- St. John group**, Matthew. Can. Nat., vol. viii, pp. 244, 247-251. 1863.
Cambrian. New Brunswick.
- St. John series**, Dawson. Regents Univ. of N. Y., 16th Ann. Rept., pp. 97-109; Quart. Jour. Geol. Soc., vol. xviii, p. 296. 1863.
Devonian or Upper Silurian. New Brunswick. Included in Middle and Lower Devonian, Upper Silurian. Includes Catskill, Chemung, Portage, Genesee, Hamilton, Corniferous, Oriskany and Schoharie.
- St. Jean (John) group**, Bailey and Matthew. Can. Geol. Surv., Rept. 1870-71, pp. 138-148. 1873.
Lower Silurian. New Brunswick. Exact syn. Acadian group.
- St. John group**, Matthew. Can. Geol. Surv., Rept. 1876-77, p. 342. 1878.
New Brunswick.
- St. John group**, Bailey. Can. Geol. Surv., Rept. 1877-78, p. 28D². 1879.
Cambrian. New Brunswick. Included in Primordial Silurian. Exact syn. Acadian group.
- St. John group**, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. 4, p. 271. 1881.
- St. John group**, Matthew. Can. Roy. Soc., Proc. and Trans., vol. i, sec. iv, pp. 87-108, 271-279; vol. ii, sec. iv, pp. 99-124; vol. iii, sec. iv, pp. 29-84; vol. v, sec. iv, pp. 115-166; vol. viii, sec. iv, pp. 123-166; vol. ix, sec. iv, pp. 95-110; vol. xi, sec. iv, pp. 85-130. 1883-1893.
Cambrian. New Brunswick.
- St. John group**, Matthew. N. B. Nat. Hist. Soc. Bull., vol. i, 1882-86, pp. 97-102. 1885.
Cambrian. New Brunswick.

- St. John group, Matthew. Can. Rec. Sci., vol. ii, pp. 357-363. 1887.
Cambrian. New Brunswick.
- St. John group, Matthew. Can. Roy. Soc., Proc. and Trans., vol. vii, sec. iv, pp. 123-129. 1890.
Cambrian. New Brunswick.
- St. John, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 248, 264. 1891.
Cambrian. Newfoundland.
- St. John group, Matthew. Can. Roy. Soc., Trans., new ser., vol. iii, sec. iv, pp. 165-211. 1897.
Cambrian. New Brunswick.
- St. John group, Matthew. Can. Roy. Soc., Trans., new ser., vol. iv, sec. iv, p. 123. 1898.
Cambrian. New Brunswick.
- St. John group, Walcott. Wash. Acad. Sci., Proc., vol. i, p. 324. 1900.
Cambrian. Newfoundland.
- St. Joseph** limestone, Keyes. Mo. Geol. Surv., vol. vi, p. 331. 1894.
Cambrian. Missouri. Included in St. Francois limestone, Ozark series. Part. syn. Osage limestone, Cole Camp limestone.
- St. Joseph limestone, Winslow. U. S. Geol. Surv., Bull. No. 132, p. 14. 1896.
Missouri.
- St. Lawrence** limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 2d Ann. Rept., pp. 152-155. 1874.
Lower Silurian. Minnesota.
- St. Lawrence limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., pp. 32-34. 1876.
Lower Silurian. Minnesota. Included in Lower Magnesian as lowest portion.
- St. Lawrence limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 5th Ann. Rept., p. 29. 1877.
Lower Silurian. Minnesota.
- St. Lawrence, Upham. Minn. Geol. and Nat. Hist. Surv., 8th Ann. Rept., p. 103. 1880.
Lower Silurian. Minnesota.
- St. Lawrence limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, pp. 222, 253, 282. 1884.
Minnesota.
- St. Lawrence limestone, Harrington. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 334. 1884.
Cambrian. Minnesota.
- St. Lawrence limestone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 424. 1884.
Minnesota.
- St. Lawrence, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. 70, 381. 1888.
Cambrian. Minnesota.
- St. Lawrence limestone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. 119, 160. 1888.
Cambrian. Minnesota.
- St. Lawrence limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, p. xxii. 1888.
Minnesota. Included in St. Croix. Exact syn. Mendota limestone of Wisconsin Survey.
- St. Lawrence formation, Hall. Minn. Acad. Nat. Sci., Bull., vol. iii, No. 1, p. 134. 1889.
Cambrian. Minnesota. Exact syn. Mendota limestone of Irving.

- St. Lawrence formation, Hopkins. Ark. Geol. Surv., 1890, vol. iv., p. 50. 1890.
Cambrian. Arkansas.
- St. Lawrence limestone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, p. 341. 1892.
Ordovician. Minnesota. Included in Magnesian series.
- St. Lawrence limestone, Keyes. Iowa Geol. Surv., vol. i, p. 23. 1893.
Cambrian. Iowa. Included in St. Croix sandstone. Exact syn. Mendota limestone.
- St. Lawrence stage, Upham. Am. Geol., vol. xvi, p. 106. 1895.
Pleistocene. Included in Champlain epoch.
- St. Lawrence, Hall and Sardeson. Geol. Soc. Am., Bull., vol. vi, pp. 167, 172. 1895.
Cambrian(?). Minnesota. Included in Magnesian series.
- St. Louis** limestone, Englemann. Am. Jour. Sci., 2d ser., vol. iii, pp. 119-120. 1847.
Lower Carboniferous. Illinois. Included in Mountain limestone.
- St. Louis limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 93, 174. 1855.
Carboniferous. Missouri. Included in Mountain or Lower Carboniferous limestone.
- St. Louis limestone, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, pp. 139, 170, 181. 1855.
Carboniferous. Missouri.
- St. Louis, Hall. Am. Assoc. Adv. Sci., Proc., vol. x, p. 56. 1856.
Carboniferous. Mississippi Valley. Exact syn. Concretionary limestone.
- St. Louis limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 407. 1857.
Lower Carboniferous. Missouri. Included in Mountain limestone.
- St. Louis limestone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 98-100. 1858.
Carboniferous. Iowa. Exact syn. Concretionary limestone.
- St. Louis limestone, Hall. Albany Inst., Trans., vol. iv, pp. 2-3. 1864.
Carboniferous. Mississippi Valley. Exact syn. Concretionary limestone.
- St. Louis group, Worthen. Ill. Geol. Surv., vol. i, pp. 41-43, 83-89. 1866.
Carboniferous. Illinois. Includes Warsaw limestone.
- St. Louis limestone, Worthen. Ill. Geol. Surv., vol. i, pp. 292, 321, 333-334, 352, 353-354. 1866.
Carboniferous. Illinois.
- St. Louis group, Engelm. Ill. Geol. Surv., vol. i, pp. 378-381, 413-414, 435-438, 459. 1866.
Carboniferous. Illinois.
- St. Louis, limestone, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 189. 1868.
Lower Carboniferous. Illinois.
- St. Louis limestone, White. Am. Jour. Sci., 2d ser., vol. xlv, p. 333. 1868.
Carboniferous. Iowa.
- St. Louis limestone, Worthen. Ill. Geol. Surv., vol. iii, pp. 42-44, 64-65, 111-112, 127-128, 138-140. 1868.
Carboniferous. Illinois.
- St. Louis group, Worthen. Ill. Geol. Surv., vol. iv, pp. 15, 32, 51, 68, 84, 103. 1870.
Carboniferous. Illinois.
- St. Louis limestone, White. Iowa Geol. Surv., vol. i, pp. 215-222, 225-230. 1870.
Carboniferous. Iowa. Included in Subcarboniferous. Exact syn. concretionary limestone. Part. syn. Warsaw limestone.
- St. Louis limestone, Shumard. Mo. Geol. Surv., Rept., 1855-1871, pp. 293, 320. 1873.
Carboniferous. Missouri. Included in Lower Carboniferous.
- St. Louis limestone, Worthen. Ill. Geol. Surv., vol. v, pp. 260, 274-277. 1873.
Carboniferous. Illinois.

- St. Louis limestone, Broadhead. Mo. Geol. Surv., Rept., 1873-1874, pp. 24, 184. 1874.
Carboniferous. Missouri. Included in Lower Carboniferous Mountain limestone.
- St. Louis or Coral limestone, Killebrew and Safford. Res. of Tenn., pp. 40-41. 1874.
Carboniferous. Tennessee. Included in Lower Carboniferous period.
- St. Louis group, Norwood. Ky. Geol. Surv., new ser., vol. i, pp. 362-366. 1876.
Carboniferous. Kentucky. Included in Lower Carboniferous.
- St. Louis limestone, Shaler. Ky. Geol. Surv., new ser., vol. iii, p. 54. 1877.
Carboniferous. Kentucky. Included in Subcarboniferous limestone.
- St. Louis group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. 4, p. 290. 1881.
- St. Louis series, Vogdes. N. Y. Acad. Sci., Annals, vol. iv, pp. 72-73. 1889.
Carboniferous. Mississippi Valley, Kentucky. Includes Spergen Hill limestone of Illinois.
- St. Louis group, Miller. N. A. Geol. and Pal., p. 71. 1889.
- St. Louis, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous. Exact syn. Warsaw + Concretionary limestone.
- St. Louis limestone, Ladd. Mo. Geol. Surv., Bull. No. 3, pp. 14, 15. 1890.
Lower Carboniferous. Missouri.
- St. Louis limestone, Sullivan. Ky. Geol. Surv. (Proctor), Geol. of Jackson and Rockcastle Cos. 1891.
Carboniferous. Kentucky.
- St. Louis group, Orton. Ky. Geol. Surv., Rept. on Petroleum, etc., p. 135. 1891.
Carboniferous. Kentucky.
- St. Louis, Gordon. Am. Geol., vol. ix, p. 185. 1892.
Carboniferous. Iowa.
- St. Louis limestone, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 283, 294. 1892.
Lower Carboniferous. Missouri. Includes St. Genevieve limestone, St. Louis limestone, and Warsaw limestone in part from St. Louis group.
- St. Louis slates, Van Hise. Int. Cong. of Geol., 5th sess., pl. xiv. 1893.
Algonkian. Lake Superior region. Included in Huronian.
- St. Louis limestone, Bain. Iowa Geol. Surv., vol. i, pp. 173-179. 1893.
Carboniferous. Iowa.
- St. Louis, Keyes. Am. Geol., vol. xii, p. 99. 1893.
Carboniferous. Iowa.
- St. Louis limestone, Keyes. Iowa Geol. Surv., vol. i, p. 72. 1893.
Carboniferous. Iowa. Included in Mississippian series.
- St. Louis stage, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 71-72, 76. 1894.
Lower Carboniferous. Missouri. Includes St. Genevieve sandstone, St. Louis limestone, and Warsaw (in part).
- St. Louis stage, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Lower Carboniferous. Missouri. Included in St. Genevieve limestone, St. Louis, and Warsaw (in part).
- St. Louis limestone, Keyes. Iowa Geol. Surv., vol. iii, pp. 264-265, 345-352, 447-448. 1895.
Carboniferous. Iowa. Included in Mississippian series.
- St. Louis, Bain. Iowa Geol. Surv., vol. iv, pp. 277-282, 333-336. 1895.
Carboniferous. Iowa. Included in Mississippian series. Includes Springvale and Pella beds and Verdi beds.
- St. Louis formation, Gordon. Jour. of Geol., vol. iii, pp. 289-311. 1895.
Carboniferous. Iowa.
- St. Louis, Gordon. Iowa Geol. Surv., vol. iv, pp. 214-222. 1895.
Carboniferous. Iowa.
- St. Louis, Bain. Iowa Geol. Surv., vol. v, pp. 143-151. 1896.
Carboniferous. Iowa. Included in Mississippian series. Includes Springvale, Verdi, and Pella beds.

- St. Louis conglomerate, Hubbard. Mich. Geol. Surv., vol. vi, pt. ii, p. 79. 1898.
Michigan.
- St. Louis-stage, Beyer. Iowa Geol. Surv., vol. ix, p. 182. 1899.
Carboniferous. Iowa. Included in Mississippian series.
- St. Louis, Macbride. Iowa Geol. Surv., vol. ix, p. 127. 1899.
Carboniferous. Iowa. Included in Mississippian series.
- St. Marys** group, Heilprin. Phil. Acad. Nat. Sci., Proc., vol. xxxii, p. 23. 1880.
Maryland.
- St. Mary River series, Dawson. Can. Geol. Surv., Rept., 1880-81-82, p. 5B. 1883.
Canada. Included in Laramie.
- St. Mary River beds, Dawson. Can. Geol. Surv. Rept., 1882-83-84, pp. 56C-57C, 58C, 65C-68C, 112C-114C. 1885.
Canada. Included in Laramie.
- St. Peters** sandstone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 52-54. 1858.
Silurian. Iowa.
- St. Peters sandstone, Whitney. Iowa Geol. Surv., vol. i, pt. i, pp. 337-341. 1858.
Silurian. Iowa.
- St. Peters sandstone, Hall and Whitney. Am. Jour. Sci., 2 ser., vol. xxvii, p. 107. 1859.
Silurian. Iowa.
- St. Peters sandstone, Everett. Ill. Nat. Hist. Soc., Trans., vol. i, ser. i, pp. 54-56. 1861.
- St. Peters, Hall. Regents Univ. of N. Y., 16th Ann. Rept., pp. 119-123. 1863.
Silurian. Upper Mississippi Valley. Exact syn. Chazy.
- St. Peters sandstone, Freeman. Ill. Geol. Surv., vol. iii, pp. 279-280. 1866.
Silurian. Illinois.
- St. Peter sandstone, Whitney. Ill. Geol. Surv., vol. i, pp. 164-165. 1866.
Silurian. Illinois.
- St. Peters sandstone, Worthen. Ill. Geol. Surv., vol. i, pp. 149-151. 1866.
Silurian. Illinois. Exact syn. Saccharoidal sandstone. Part. syn. Calciferous series.
- St. Peters sandstone, Worthen. Ill. Geol. Surv., vol. iv, p. 3, 1870.
Silurian. Illinois.
- St. Peters sandstone, White. Iowa Geol. Surv., vol. i, p. 174. 1870.
Silurian. Iowa. Included in Primordial group of Lower Silurian.
- St. Peter sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 1st Ann. Rept., pp. 88-92. 1873.
Lower Silurian. Minnesota.
- St. Peters sandstone, Shaw. Ill. Geol. Surv., vol. v, pp. 23-24, 115-118, 126-128. 1873.
Silurian. Illinois.
- St. Peter sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 2d Ann. Rept., pp. 132-135. 1874.
Lower Silurian. Minnesota.
- St. Peters sandstone, Irving. Am. Jour. Sci., 3d ser., vol. ix, p. 443. 1875.
Silurian. Wisconsin. Included in Canadian.
- St. Peter sandstone, Harrington. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 88. 1876.
Lower Silurian. Minnesota.
- St. Peter sandstone, Winchell. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 40. 1876.
Lower Silurian. Minnesota.
- St. Peter sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., 5th Ann. Rept., p. 26. 1877.
Lower Silurian. Minnesota.

- St. Peters sandstone, Irving. *Geol. of Wis.*, vol. ii, p. 555. 1877.
Lower Silurian. Wisconsin.
- St. Peters sandstone, Chamberlin. *Geol. of Wisconsin*, vol. ii, pp. 285-290. 1877.
Lower Silurian. Wisconsin.
- St. Peters sandstone, Miller. *Cin. Soc. Nat. Hist., Jour.*, vol. iv, No. 4, p. 280. 1881.
- St. Peters sandstone, Wooster. *Geol. of Wis.*, vol. iv, p. 129. 1882.
Wisconsin.
- St. Peters sandstone, Strong. *Geol. of Wis.*, vol. iv, pp. 81-90. 1882.
Canadian. Wisconsin.
- St. Peters sandstone, Chamberlin. *Geol. of Wis.*, vol. i, p. 145. 1883.
Silurian. Wisconsin. Included in Ordovician.
- St. Peter sandstone, Harrington. *Minn. Geol. and Nat. Hist. Surv., Final Rept.*, vol. i, p. 337. 1884.
Minnesota.
- St. Peter sandstone, Winchell. *Minn. Geol. and Nat. Hist. Surv., Final Rept.*, vol. i, pp. 218, 251, 288, 656. 1884.
Minnesota.
- St. Peter sandstone, Winchell. *Minn. Geol. and Nat. Hist. Surv., Final Rept.*, vol. ii, pp. 10, 39, 75, 28, 63, 88. 1888.
Cambrian. Minnesota.
- St. Peters sandstone, Hall. *Minn. Acad. Nat. Sci., Bull.*, vol. iii, No. 1, p. 112. 1889.
Lower Silurian. Minnesota.
- St. Peter sandstone, Phinney. *U. S. Geol. Surv., 11th Ann. Rept.*, pt. i, p. 625. 1891.
Silurian. Indiana.
- St. Peter sandstone, McGee. *U. S. Geol. Surv., 11th Ann. Rept.*, pt. i, p. 330. 1891.
Silurian. Iowa.
- St. Peter sandstone, Hall and Sardeson. *Geol. Soc. Am., Bull.*, vol. iii, pp. 331, 350. 1892.
Upper Silurian. Minnesota.
- St. Peter sandstone, Keyes. *Iowa Geol. Surv.*, vol. i, pp. 24-25. 1893.
Silurian. Iowa.
- St. Peters sandstone, James. *Cin. Soc. Nat. Hist., Jour.*, vol. xvii, No. 2, p. 115. 1894.
Ordovician.
- St. Peter, Hershey. *Am. Geol.*, vol. xiv, pp. 169, 174. 1894.
Cambrian. Illinois.
- St. Peter sandstone, Calvin. *Iowa Geol. Surv.*, vol. iv, pp. 68-73. 1895.
Silurian. Iowa. Included in Ordovician.
- St. Peter sandstone, Norton. *Iowa Geol. Surv.*, vol. iii, pp. 180-182. 1895.
Silurian. Iowa.
- St. Peter sandstone, Udden. *U. S. Geol. Surv., 17th Ann. Rept.*, pt. ii, p. 837. 1896.
Silurian. Illinois.
- St. Peter sandstone, Winchell and Ulrich. *Minn. Geol. and Nat. Hist. Surv., Final Rept.*, vol. iii, pt. ii, pl. xxxvii. 1897.
Lower Silurian. Minnesota. Included in Chazy group.
- St. Peter sandstone, Gallaher. *Mo. Geol. Surv., Bien. Rept.*, p. 21. 1898.
Silurian(?). Missouri.
- St. Peters sandstone, Blatchley and Ashley. *Indiana Dept. Geol. and Nat. Res.*, 22d Ann. Rept., 1897, pp. 16, 17. 1898.
Lower Silurian. Indiana.
- St. Peters sandstone, Buckley. *Wis. Geol. and Nat. Hist. Surv., Bull. No. iv, Econ. ser.*, No. 2, pp. 249-254. 1898.
Wisconsin.

- St. Peters sandstone, Ashley. Indiana Dept. Geol. and Nat. Res., 23d Ann. Rept., 1898, pp. 74, 77. 1899.
Lower Silurian. Indiana.
- St. Peters sandstone, Calvin and Bain. Iowa Geol. Surv., vol. x, p. 400. 1900.
Silurian. Iowa. Included in Ordovician.
- St. Stephens**, Conrad. Phil. Acad. Nat. Sci., Proc., vol. vii, p. 257. 1856.
Eocene. Mississippi.
- St. Thomas** sandstone. Mo. Bur. Geol. and Mines, Rept. on Structural and Economic Geology, p. 124. 1900.
Ordovician. Missouri.
- Salamanca** conglomerate, Carll. 2d Pa. Geol. Surv., Rept. I⁴, pp. 203-208. 1883.
Pennsylvania.
- Salamanca conglomerate, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1523-1529. 1892.
Devonian. Pennsylvania. Included in Venango.
- Salem** stone, Gorby. Indiana Dept. Geol. and Nat. Hist., 1886, 15th Ann. Rept., p. 144. 1886.
Carboniferous. Indiana.
- Salida** schists, Cross. Colo. Sci. Soc., Proc., vol. iv, p. 293. 1893.
Algonkian. Colorado.
- Saliferous** group, Newberry. Senate Ex. Doc., 36th Cong., 1st sess., Ives's Rept. on Colorado River, p. 106. 1861.
Cretaceous. New Mexico.
- Salina** period, Dana. Manual of geology. Revised edition, 1864, p. 246.
Salina, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 63, 132. 1873.
Silurian. Ohio.
- Salina shale, Winchell. Ohio Geol. Surv., vol. ii, pp. 230, 374. 1874.
Silurian. Ohio.
- Salina, Newberry. Ohio Geol. Surv., vol. ii, p. 194. 1874.
Silurian. Ohio.
- Salina, Hotchkiss. A Geographical and Political Summary of Virginia, p. 22. 1876.
Upper Silurian. Virginia. Exact syns. Scalent (Formation V—Rogers).
- Salina, Newberry. Ohio Geol. Surv., vol. iii, p. 8. 1878.
Silurian. Ohio. Included in Upper Silurian.
- Salina, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 101-110. 1883.
Silurian. Pennsylvania. Included in Lower Helderberg or No. vi.
- Salina, Hopkins. Ark. Geol. Surv., 1890, vol. iv, pp. 51, 52. 1890.
Silurian. Arkansas. Part. syn. Onondaga salt group.
- Salina group, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 20-21. 1890.
Silurian. Ohio.
- Salina, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, p. 71. 1893.
Silurian. Maryland.
- Salina, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 206, 216-218, 248. 1894.
Silurian. New York.
- Salina group, Lincoln. N. Y. State Geol., 14th Ann. Rept., pp. 84-87. 1895.
Silurian. New York.
- Salina group, Bishop. N. Y. State Geol. 15th Ann. Rept., pp. 311-312. 1897.
Silurian. New York.
- Salina group, Luther. N. Y. State Geol., 15th Ann. Rept., pp. 250-251. 1897.
Silurian. New York.
- Salina, Clark. Md. Geol. Surv., vol. iii, pp. 97, 98. 1899.
Silurian. Maryland.

- Salina group, Luther. N. Y. State Geol., 16th Ann. Rept., p. 205. 1899.
 Silurian. New York.
- Salina formation, O'Harra. Md. Geol. Surv., Allegany County, p. 92. 1900.
 Silurian. Maryland.
- Salmon River** sandstone, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., p. 374. 1840.
 Silurian. New York.
- Salmon river, Walcott. Geol. Soc. Am., Bull., vol. i, p. 344. 1889.
 Silurian. New York. Exact syn. Hudson River.
- Salt Creek** gravel, Logan. Kan. Univ. Geol. Surv., vol. ii, pp. 218-219. 1897.
 Pleistocene. Kansas.
- Salt Fork**, Cragin. Colo. Coll. Stud., vol. vi, pp. 3, 19. 1896.
 Permian. Kansas. Included in Lower Division of Cimarron series.
- Salt Fork division, Cragin. Am. Geol., vol. xix, pp. 352-358. 1897.
 Permian. Kansas, Oklahoma. Included in Cimarron series. Includes Dog Creek, Cave Creek, Glass Mountain, and Kingfisher formations.
- Salt Lake** group, Peale. U. S. Geol. Surv. of Terr., 11th Ann. Rept., p. 635. 1879.
 Tertiary. Utah. Included in Pliocene.
- Salt Lake conglomerate, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 641. 1879.
 Pleistocene. Utah. Included in Quaternary.
- Salt Lake group, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 286. 1892.
 Tertiary. Idaho.
- Salt Plain** measures, Cragin. Colo. Coll. Stud., vol. vi, pp. 3, 20-24. 1896.
 Permian. Kansas. Included in Cimarron series.
- Salt Plain formation, Cragin. Am. Geol., vol. xix, pp. 352-355. 1897.
 Permian. Kansas, Oklahoma. Included in Kingfisher formation of Cimarron series.
- Salt Wells**, Powell. U. S. Geol. and Geog. Surv., Geol. of Uinta Mts., pp. 40, 49, 154. 1876.
 Cretaceous. Utah.
- Saltsburg** sandstone, Stevenson. 2d Pa. Geol. Surv., Rept. K³, p. 22. 1878.
 Carboniferous. Pennsylvania. Included in Lower Barren series.
- Saltsburg sandstone, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. ii, p. 2430. 1895.
 Carboniferous. Pennsylvania. Included in No. xiv, Barren or Pittsburg measures.
- San Diego** beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 337. 1898.
 Tertiary. California. Included in Pliocene.
- San Fernando** beds, Guppy. Lond. Geol. Soc., Quart. Jour., vol. xxii, p. 572. 1866.
 Tertiary. Trinidad. Included in Miocene.
- San Fernando beds, Jukes-Browne. Lond. Geol. Soc., Quart. Jour., vol. lv, pp. 177-181. 1899.
 Tertiary. Trinidad.
- San Francisco** sandstone, Blake. Pac. R. R. Surv., vol. v, pp. 145-156. 1856.
 California.
- San Francisco sandstone, Whitney. Cal. Geol. Surv., vol. i, p. 77. 1865.
 Cretaceous(?). California. Included in Franciscan series of Lawson and Golden Gate series of Fairbanks.
- San Francisco sandstone, Ransome. Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 193-240. 1894.
 California.
- San Francisco sandstone, Lawson. U. S. Geol. Surv., 15th Ann. Rept., p. 417. 1895.
 Mesozoic. California. Included in Franciscan series.

San Francisco sandstone, Ashley. Jour. of Geol., vol. iii, pp. 437-438, 1895.

Tertiary. California. Included in Miocene.

San Juan formation, Cross. Colo. Sci. Soc., Proc., vol. v, pp. 225-228. 1896.

Tertiary. Colorado.

San Juan formation, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 57 1899.

Colorado. Included in Eocene or Neocene.

San Miguel beds, Dumble. Geol. Soc. Am., Bull., vol. iii, pp. 219, 225. 1892.

Cretaceous. Texas. Included in Upper Cretaceous. Eagle Pass division.

San Miguel beds, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 383. 1895.

Cretaceous. Texas. Included in Upper Cretaceous.

San Miguel formation, Cross. Colo. Sci. Soc., Proc., vol. v, pp. 235-241. 1896.

Tertiary. Colorado.

San Miguel formation, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 57. 1899.

Tertiary. Colorado. Included in Eocene.

San Miguel formation, Smith. Jour. of Geol., vol. viii, pp. 464-465. 1900.

Tertiary. Colorado. Included in Eocene.

San Miguel beds, Vaughan. U. S. Geol. Surv., Bull. No. 164, p. 21. 1900.

Cretaceous. Texas. Included in Eagle Pass formation.

San Pablo formation, Turner. Jour. of Geol., vol. vi, pp. 493-499. 1898.

Tertiary. California. Included in Pliocene.

San Pablo formation, Fairbanks. Jour. of Geol., vol. vi, pp. 563-565. 1898.

Tertiary. California. Included in Middle Neocene.

San Pablo formation, Merriam. Univ. of Cal., Dept. of Geol., Bull., vol. ii, pp. 109-118. 1898.

Middle Neocene. California.

San Pedro beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 335. 1898.

Pleistocene. Pacific Coast.

San Saba series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxxii. 1890.

Silurian. Texas. Includes Deep Creek and Hinton.

San Saba series, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 301-302. 1890.

Silurian. Texas. Includes Hinton and Deep Creek divisions.

San Saba series, Comstock. Texas Geol. Surv., 2d Ann. Rept., pp. 566-568. 1891.

Silurian. Texas. Includes Hinton and Deep Creek divisions.

Sand Hill deposits, Clark and Shattuck. Johns Hopkins Univ. Circs., No. 128, pp. 13-16. 1897.

Cretaceous. New Jersey.

Sand Mountain conglomerate, Campbell and Ruffin. Physical Survey across Alabama and Mississippi, p. 57. 1883.

Carboniferous. Alabama.

Sandpond gneiss, Wolff and Brooks. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 439. 1898.

Pre-Cambrian. New Jersey.

Sandstone, Upper, Percival. Wis. Geol. Surv., Rept., 1854, p. 17. 1855.

Silurian. Wisconsin.

Sandstone, Lower, Percival. Wis. Geol. Surv., Rept., 1854, p. 19; 1856, pp. 92-101. 1855.

Silurian. Wisconsin.

Sandstone, Second, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 125, 197. 1855.

Salurian. Missouri. Included in Lower Silurian.

Sandstone, Third, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 128. 1855.

Silurian. Missouri. Included in Lower Silurian.

- Sandstone, Upper, Whitney. Rept. on Upper Mississippi lead region, p. 151. 1862.
Silurian. Wisconsin.
- Sandstone, Second, Shumard. Mo. Geol. Surv., Rept. 1855-1871, pp. 194, 209, 217, 226, 235, 246, 269, 299, 309. 1873.
Silurian. Missouri. Included in Lower Silurian, Calciferous sandrock.
- Sandstone, Second, Meek. Mo. Geol. Surv., Rept., 1855-1871, pp. 121, 144. 1873.
Silurian. Missouri. Included in Lower Silurian.
- Sandstone, Third, Meek. Mo. Geol. Surv., Rept., 1855-1871, pp. 127, 147. 1873.
Silurian. Missouri. Included in Lower Silurian.
- Sandstone, Second, Broadhead. Mo. Geol. Surv., Rept., 1855-1871, pp. 12, 31, 56. 1873.
Silurian. Missouri. Included in Lower Silurian, Calciferous sandrock.
- Sandstone, First, Broadhead. Mo. Geol. Surv., Rept., 1873-74, pp. 29, 325. 1874.
Silurian. Missouri. Included in Magnesian limestone series, Calciferous sandrock. Exact syn. Saccharoidal sandstone.
- Sandstone, Second, Broadhead. Mo. Geol. Surv., Rept., 1873-74, pp. 30, 327, 364. 1874.
Silurian. Missouri. Included in Magnesian limestone series, Calciferous sandrock.
- Sandstone, Third, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 30. 1874.
Silurian. Missouri. Included in Magnesian limestone series, Potsdam.
- Sandstone, Lower, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 352. 1874.
Silurian. Missouri. Included in Primordial, Potsdam.
- Sandstone, First, Broadhead. Am. Geol., vol. xi, p. 262. 1893.
Cambrian. Missouri.
- Sandstone, Second, Broadhead. Am. Geol., vol. xi, p. 264. 1893.
Cambrian. Missouri.
- Sandstone, First, Broadhead. Am. Geol., vol. xii, p. 77. 1893.
Cambrian. Missouri. Included in Magnesian series or Ozark.
- Sandstone, Second, Broadhead. Am. Geol., vol. xii, p. 77. 1893.
Cambrian. Missouri. Included in Magnesian series or Ozark.
- Sandstone, First, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 57-61. 1898.
Silurian. Missouri. Included in Ozark series.
- Sandstone, Second, Shepard. Mo. Geol. Surv., vol. xii, pp. 49, 51-52. 1898.
Silurian. Missouri. Included in Ozark series.
- Sandsuck** shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
Cambrian. Tennessee. Included in Chilhowee series.
- Sandsuck shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25. 1895, 1896.
Cambrian. Tennessee and North Carolina.
- Sandusky** bluestone, Orton. Ohio Geol. Surv., vol. vi, p. 763. 1888.
Ohio. Part. syn. Delaware bluestone.
- Sandusky limestone, Newberry. Cin. Soc. Nat. Hist., Jour., vol. xii, Nos. 2, 3, p. 49. 1889.
Devonian. Ohio.
- Sangamon** weathered zone, Leverett. Jour. of Geol., vol. vi, pp. 176-181. 1898.
Pleistocene. Illinois.
- Sangamon soil, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 125-130. 1899.
Pleistocene. Mississippi Valley.
- Sangamon soil, Udden. Iowa Geol. Surv., vol. ix, p. 349. 1899.
Pleistocene. Iowa.
- Sangamon, Norton. Iowa Geol. Surv., vol. ix, p. 480. 1899.
Pleistocene. Iowa.
- Sangamon soil, Leverett. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 67. 1900.
Pleistocene. Illinois, Indiana.

- Sankaty** beds, Woodworth. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 976. 1896.
Pleistocene. Massachusetts.
- Sankaty** epoch, Woodworth. Géol. Soc. Am., Bull., vol. viii, pp. 197, 206. 1897.
Pleistocene. Massachusetts.
- Santa Anna** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 419-420. 1893.
Carboniferous. Texas. Included in Cisco division.
- Santa Anna** limestone, Smith. Jour. of Geol., vol. vi, pp. 779-780. 1898.
Juratrias. California. Included in Trias.
- Santa Clara** lake beds, Cooper. Cal. Acad. of Sci., Proc., 1893-94, 2d ser., vol. iv, p. 171. 1895.
Pliocene. California.
- Santa Cruz** formation, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 342. 1898.
Tertiary. Patagonia, South America. Included in Vicksburgian stage, Oligocene.
Exact syn. Supra-Patagonian.
- Santa Fe** marls, Cope. Phil. Acad. Nat. Sci., Proc., vol. xxvi, p. 147. 1874.
Tertiary. Exact syn. Pliocene.
- Santa Fe** marls, Cope. Rept. of Sec. of War to 44th Cong., vol. ii, pt. ii, p. 986. 1875.
Tertiary. New Mexico. Exact syn. Loup Fork.
- Santa Fe** marl, Stevenson. U. S. Geog. and Geol. Surv. W. of 100th M., vol. iii, Suppl., p. 162. 1881.
Tertiary. New Mexico. Included in Pliocene. Exact syn. Loup Fork.
- Santa Fe** marl, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 302. 1892.
Tertiary. New Mexico.
- Santee** beds, Toumey. Geol. of S. C.; 1848.
Tertiary. South Carolina. Included in Eocene.
- Santee** beds, Pratt. Ashley River phosphates. 1868.
Tertiary. South Carolina. Included in Eocene.
- Santee** beds, Shaler. Boston Soc. Nat. Hist., Proc., vol. xiii, 1869-71, p. 229. 1870.
South Carolina.
- Santee River** beds, Holmes. Phosphate Rock of S. C. 1878.
Tertiary. South Carolina. Included in Eocene. Part. syn. Eocene marl.
- Santee** beds, Clark. U. S. Geol. Surv., Bull. No. 83, p. 52. 1891.
Tertiary. South Carolina. Included in Eocene. Includes Ashley and Cooper beds.
- Santee** beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 342. 1898.
Tertiary. South Carolina. Included in Jacksonian stage, Eocene.
- Saskatchewan** gravels, McConnell. Can. Geol. Surv., new ser., vol. i, pp. 70C-71C. 1886.
Pliocene(?). Canada.
- Saskatchewan**, Upham. Geol. Soc. Am., Bull., vol. v, pp. 87, 89. 1894.
Tertiary. Minnesota.
- Saskatchewan** gravels, Dawson. Jour. of Geol., vol. iii, pp. 507-511. 1895.
Pleistocene. Western British America. Included in Albertan formation.
- Saskatchewan**, Dawson. Geol. Soc. Am., Bull., vol. vii, p. 40, 1895.
Pleistocene. Alberta. Exact syn. Lafayette(?).
- Sassafras** River greensand, McGee. U. S. Geol. Surv., 7th Ann. Rept., p. 612. 1888.
Cretaceous. Maryland.
- Saugeen** clay, Logan. Can. Geol. Surv., Rept., 1843-63, pp. 887, 896-907. 1863.
Canada. Included in Drift (Upper stratified portion).
- Saugeen**, Spencer. Wash. Phil. Soc., Bull., vol. xi, 1891, p. 506. 1892.
Pleistocene. Ontario, Canada.

- Sault St. Mary** sandstone, Selwyn. Science, vol. i, p. 11. 1883.
Canada.
- Savage**, Darton and Taff. U. S. Geol. Surv., Geol. Atlas U. S., Folio No. 28. 1896.
Carboniferous. West Virginia and Maryland.
- Savage**, Clark. Md. Geol. Surv., vol. i, p. 156. 1897.
Carboniferous. Maryland. Included in Coal Measures.
- Savage** formation, Clark. Md. Geol. Surv., vol. i, p. 186. 1897.
Carboniferous. Maryland.
- Savanna** sandstone, Taff. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 437. 1899.
Carboniferous. Indian Territory. Included in Coal Measures.
- Savanna** formation, Taff and Adams. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 276. 1900.
Carboniferous. Indian Territory.
- Savoy** schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Silurian. Massachusetts.
- Savoy** schist, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Silurian. Massachusetts.
- Savoy** schist, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 156-163. 1898.
Silurian. Massachusetts. Included in Lower Silurian.
- Sawatch** quartzite, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Cambrian. Colorado.
- Sawatch** quartzite, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.
Cambrian. Colorado.
- Saxicava** sand, Dawson. Can. Nat., vol. ii, pp. 405-414. 1857.
Tertiary. Canada. Included in Pliocene.
- Saxicava** sand, Dawson. Can. Nat., new ser., vol. vi, pp. 22, 37-39. 1872.
Post-Pliocene. Canada.
- Saxicava** sand, Matthew. Can. Geol. Surv., Rept., 1877-78, p. 31EE. 1879.
Quaternary. New Brunswick.
- Saxicava** sand, Chalmers. Can. Geol. Surv., new ser., vol. vii, pp. 111M-116M. 1896.
Pleistocene. New Brunswick, Nova Scotia.
- Scalet** series, Rogers. Geol. of Pa., vol. i, pp. 106, 134-136 et seq.; vol. ii, p. 754. 1858.
Silurian. Pennsylvania. Includes Onondaga and Waterlime.
- Schoharie** grit, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 151. 1843.
Paleozoic. New York. Included in New York system. Includes Grit shale.
- Schoharie** grit, Mather. Geol. of N. Y., pt. i, p. 340. 1843.
Paleozoic. New York. Included in Helderberg division.
- Schoharie** grit, Owen. Am. Jour. Sci., 2d ser., vol. i, p. 56. 1846.
New York. Included in Helderberg division of the New York system.
- Schoharie** grit, Emmons. Agric. of N. Y., vol. i, p. 174. 1846.
New York. Included in Helderberg division of New York system.
- Schoharie** sandstone, Dawson. Am. Jour. Sci., 2d ser., vol. xxxv, pp. 314-319. 1863.
Devonian. Canada.
- Schoharie** grit, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 67. 1873.
Devonian. Ohio.
- Schoharie**, Claypole. Am. Phil. Soc., Proc., vol. xx, p. 534. 1883.
Devonian. Pennsylvania.

Schoharie grit, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1040 et seq. 1892.

Devonian. Pennsylvania. Included in Oriskany.

Schoharie grit, Darton. Geol. Soc. Am., Bull., vol. iv, p. 437. 1893.

Silurian. New York.

Schoharie grit, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 208-209, 243-244. 1894.

Devonian. New York.

Schooner Head series, Shaler. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 1041. 1889.

Maine.

Schreyfogels limestone, Platt. 2d Pa. Geol. Surv., Rept. G², p. 187. 1880.

Carboniferous. Pennsylvania.

Scioto slates and shales, Owen. Rept. Geol. Recon. State of Indiana, 1838, pt. ii, p. 59. 1859.

Ohio. Exact syn. black slate at base of knobs in Indiana.

Scott shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.

Carboniferous. Tennessee. Part syn. Walden sandstone.

Scott shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 40. 1897.

Carboniferous. Tennessee.

Scotts Creek flint, Orton. Rev. of Strat. Geol. of eastern Ohio, p. 22. 1880.

Carboniferous. Ohio. Exact syn. Logan flint.

Scutella limestone, Owen. Am. Jour. Sci., 2d ser., vol. i, p. 50. 1846.

Silurian. New York. Included in Catskill shaly limestone.

Sea Urchin limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, p. 64. 1896.

Carboniferous. Kansas.

Sebastian stage, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.

Carboniferous. Arkansas. Includes Greenwood sandstone, Tomlinson shale, Hartwell sandstone, Belva shale, and Ozark sandstone.

Secret Cañon shale, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 255. 1883.

Cambrian. Nevada.

Secret Cañon, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 246, 315. 1891.

Cambrian. Nevada. Included in Middle Cambrian.

Secret Cañon shale, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 39. 1892.

Cambrian. Nevada.

Secret Cañon shale, Walcott. U. S. Nat. Mus., Proc., vol. xxi, p. 413. 1898.

Cambrian. Vermont. Included in Middle Cambrian.

Sedalia limestone, Vogdes. St. Louis Acad. Sci., Trans., vol. v, p. 615. 1892.

Missouri.

Selinsgrove, White. 2d Pa. Geol. Surv., Rept. G¹, p. 441. 1883.

Devonian. Pennsylvania.

Selinsgrove, sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1255 et seq. 1892.

Devonian. Pennsylvania. Included in No. VIIIc. Exact syn. Monteballo sandstone.

Selkirk series, Dawson. Geol. Soc. Am., Bull., vol. ii, pp. 165, 171. 1891.

Cambro-Silurian. British Columbia.

Selkirk series, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 30B, 32B-33B. 1896.

Cambrian. British Columbia. Part syn. Castle Mountain group.

Selkirk series, McConnell. Can. Geol. Surv., new ser., vol. x, p. 30A. 1898.

British Columbia.

Sellersburg beds, Kindle. Am. Pal., Bull. No. 12, pp. 8, 110. 1899.

Devonian. Indiana.

- Seneca** limestone, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 292-295, 310. 1839.
Devonian(?). New York.
- Seneca** limestone, Vanuxem. N. Y. Geol. Surv., 3d Ann. Rept., pp. 275-278. 1839.
Devonian? New York.
- Seneca** freestone, Owen. 30th Cong., 1st sess., Sen. Misc. No. 23, p. 39. 1848.
Triassic. Maryland. Included in New Red sandstone.
- Seneca** limestone, Lincoln. N. Y. State Mus., 48th Ann. Rept., pt. ii, pp. 90-92. 1895.
Devonian. New York.
- Senecan**, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.
Devonian. New York. Included Tully limestone, Genesee shale, Portage beds.
- Sequoayah** formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Carboniferous. Virginia and West Virginia. Part. syn. No. xiii, Lower Coal group, of Rogers.
- Seral** series, Rogers. Am. Jour. Sci., 1st ser., vol. xlvii, p. 156. 1844.
- Seral** conglomerate, Rogers. Geol. of Pa., vol. i, pp. 109, 146-148 et seq.; vol. ii, p. 758. 1858.
Carboniferous. Pennsylvania. Includes Lower Coal Measures. Exact syn. Coal Measures.
- Seral** conglomerate, Rogers. Geol. of Pa., vol. ii, p. 16 et seq. 1858.
Carboniferous. Pennsylvania.
- Sespe** brownstone formation, Watts. Cal. State Mg. Bur., Bull. 11, pp. 25-26, etc. 1897.
Oligocene(?). California.
- Setters** quartz schist, Williams. U. S. Geol. Surv., Baltimore, Md., Geologis sheet. 1892.
Maryland.
- Setters** Ridge quartzite, Mathews. Md. Geol. Surv., vol. ii, p. 213. 1898.
Maryland.
- Severn**, Darton. Geol. Soc. Am., Bull., vol. ii, pp. 431, 438. 1891.
Cretaceous. Virginia and Maryland.
- Severn**, McGee, Williams, Darton. Int. Cong. of Geol., 5th sess., pp. 237, 247-248. 1893.
Tertiary. Maryland, District of Columbia and Virginia.
- Severn**, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, pp. 75-77. 1893.
Cretaceous. Maryland. Included in Upper Cretaceous.
- Severn**, Darton. U. S. Geol. Surv., Bull. No. 138, p. 125. 1896.
Cretaceous. Atlantic Coastal Plain.
- Severy** shales, Haworth. Kan. Univ. Geol. Surv., vol. iii, p. 66. 1894.
Carboniferous. Kansas.
- Sevier**, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 176. 1894.
Silurian. Virginia. Included in Hudson River.
- Sevier** shale, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
Silurian. Tennessee.
- Sevier** shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 12, 26. 1894, 1896.
Silurian. Kentucky, Virginia and Tennessee.
- Sevier** shale, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
Silurian. Tennessee and North Carolina.
- Sevier** shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Silurian. Virginia and West Virginia.

Sevier shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Silurian. Virginia and West Virginia.

Sewanee division, White. Geol. Soc. Am., Bull., vol. viii, p. 290. 1897.

Upper Carboniferous. Tennessee. Included in Pottsville.

Sewell, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.

Carboniferous. Virginia and West Virginia. Included in Coal-bearing strata, Pottsville series.

Sewell formation, Campbell and Mendenhall. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 494. 1896.

Carboniferous. West Virginia. Included in No. xii of Rogers, Conglomerate series of Fontaine.

Sewell marls, Clark, Baggs and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 316-338. 1897.

Cretaceous. New Jersey. Included in Rancocas formation.

Sewell marls, Clark, Baggs and Shattuck. N. J. Geol. Surv., Rept. 1897, p. 188. 1898.

Cretaceous. New Jersey. Included in Rancocas formation.

Sewell formation, White. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 816-817. 1900.

Carboniferous. Virginia and West Virginia.

Sewickley sandstone, White. U. S. Geol. Surv., Bull. No. 60, p. 65. 1891.

Carboniferous. Pennsylvania. Included in Upper Coal Measures, Monongahela River series.

Seymour beds, Cummins. Texas Geol. Surv., 4th Ann. Rept., pp. 181-190. 1893.
Pleistocene. Texas.

Shadrick mill sandstone, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 376-378. 1893.

Carboniferous. Texas. Included in Strawn division.

Shakopee limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 2d Ann. Rept., pp. 138-147. 1874.

Lower Silurian. Minnesota. Included in Lower Magnesian limestone.

Shakopee sandstone, Winchell. Am. Jour. Sci., 3d ser., vol. ix, p. 443. 1875.

Silurian. Minnesota. Part. syn. Lower Magnesian limestone on Mississippi Bluffs.

Shakopee limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 38. 1876.

Lower Silurian. Minnesota. Included in Lower Magnesian limestone.

Shakopee limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 5th Ann. Rept., p. 26. 1877.

Lower Silurian. Minnesota. Part. syn. Chazy limestone.

Shakopee limestone, Upham. Minn. Geol. and Nat. Hist. Surv., 8th Ann. Rept., p. 106. 1880.

Lower Silurian. Minnesota.

Shakopee limestone, Harrington. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, p. 336. 1884.

Cambrian. Minnesota.

Shakopee limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, pp. 219, 252, 285, 657. 1884.

Minnesota.

Shakopee limestone, Upham. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, pp. 429, 636. 1884.

Minnesota.

Shakopee limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. xvi-xxii, 10, 38, 73, 388. 1888.

Minnesota.

- Shakopee formation, Hall. Minn. Acad. Nat. Sci., Bull., vol. iii, No. 1, p. 132. 1889.
Cambrian. Minnesota.
- Shakopee formation, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 50. 1890.
Cambrian. Arkansas.
- Shakopee limestone, Chaney. Minn. Acad. Nat. Sci., vol. iii, 2d ser., pp. 280-284. 1891. Minnesota.
- Shakopee limestone, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, p. 341. 1892.
Ordovician (?). Minnesota. Included in Magnesian series.
- Shakopee dolomite, Hall and Sardeson. Geol. Soc. Am., Bull., vol. vi, pp. 167, 180. 1895.
Cambrian. Minnesota. Included in Magnesian series.
- Shaly** limestone, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 246, 303-304. 1894.
Devonian. New Jersey.
- Shark River** marl, Clark. N. J. State Geol., Ann. Rept. for 1892, pp. 208-210. 1893.
Tertiary. New Jersey. Included in Eocene (?). Includes Blue marl.
- Shark River formation, Clark. Jour. of Geol., vol. ii, p. 167. 1894.
Tertiary. New Jersey. Included in Eocene.
- Shark River, Clark. N. J. Geol. Surv., Rept. 1893, pp. 338-339. 1894.
Eocene. New Jersey. Part. syn. Upper marl bed.
- Shark River, Darton. U. S. Geol. Surv., Bull. No. 138, p. 41. 1896.
Cretaceous. New Jersey. Included in Eocene. Exact syn. Upper marl in part.
- Shark River formation, Clark, Bagg and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 316, 341. 1897.
Tertiary. New Jersey. Included in Eocene.
- Shark River formation, Clark, Bagg and Shattuck. N. J. Geol. Surv., Rept. 1897, pp. 192-193. 1898.
Tertiary. New Jersey. Included in Eocene.
- Sharon** group, Rogers. Geol. of Pa., vol. ii, p. 489, et seq. 1858.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Sharon coal group, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 103-105. 1877.
Carboniferous. Pennsylvania. Included in Lower Carboniferous.
- Sharon-Olean conglomerate, Carll. 2d Pa. Geol. Surv., Ann. Rept. 1886, pt. ii, pp. 636-639. 1887.
Carboniferous. Pennsylvania.
- Sharon conglomerate, White. U. S. Geol. Surv., Bull. No. 65, p. 204. 1891.
Carboniferous. Pennsylvania, Ohio. Included in Pottsville conglomerate series.
Exact syns. Olean conglomerate, Garland conglomerate.
- Sharon conglomerate, Orton. Ohio Geol. Surv., vol. vii, pp. 36, 59, 60. 1893.
Carboniferous. Ohio. Included in Conglomerate group.
- Sharpsville** sandstone, White. 2d Pa. Geol. Surv., Rept. Q³, pp. 61-62. 1880.
Carboniferous. Pennsylvania. Included in Subconglomerate Measures.
- Sharpsville sandstone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1761. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono.
- Shasta** group, Whitney. Cal. Geol. Surv., Pal., vol. ii, p. xiv. 1869.
Cretaceous. California.
- Shasta group, Becker. Geol. Soc. Am., Bull., vol. ii, p. 201. 1891.
Cretaceous. California.
- Shasta, White. U. S. Geol. Surv., Bull. No. 82, pp. 183, 255. 1891.
Cretaceous. Pacific coast. Included in Lower Cretaceous.
- Shasta formation, Stanton. Geol. Soc. Am., Bull., vol. iv, p. 245. 1893.
Cretaceous. California. Exact syn. Queen Charlotte formation.

Shasta group, Stanton. Jour. of Geol., vol. v, pp. 594-599. 1897.

Cretaceous. Included in Lower Cretaceous.

Shasta-Chico series, Diller. Geol. Soc. Am., Bull., vol. iv, p. 205. 1893.

Cretaceous. California.

Shasta-Chico series, Diller and Stanton. Geol. Soc. Am., Bull., vol. v, p. 436. 1894.

Jurassic. California and Oregon. Includes Chico, Horsetown, and Knoxville beds. Part. syns. Potomac and Comanche.

Shawangunk grit, Mather. N. Y. Geol. Surv., 4th Ann. Rept., pp. 246-255. 1840. Silurian. New York.

Shawangunk grit, Mather. Geol. of N. Y., pt. i, pp. 355-365. 1843.

Paleozoic. New York. Included in Ontario division. Includes No. 4, Pennsylvania Surv.

Shawangunk conglomerate, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 31. 1843.

Paleozoic. New York. Included in New York system. Exact syn. Oneida conglomerate.

Shawangunk grit, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 220-221, 308. 1894.

Silurian. New York.

Shawnee limestone, Orton. Ohio Geol. Surv., vol. iii, p. 895. 1878.

Carboniferous. Ohio. Exact syn. Buff limestone.

Shawnee formation, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 93-94. 1898.

Carboniferous. Kansas. Included in Upper Coal Measures. Includes Osage shales, Topeka limestone, Calhoun shale, Dee Creek limestone, Tecumseh shale, and LeCompton limestone and shale.

Shelby bed, Foerste. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, p. 235. 1898.

Devonian. Indiana.

Shelbyville moraine, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 192-217. 1899.

Pleistocene. Illinois.

Shell Bluff group, Conrad. Am. Jour. Sci., 2d ser., vol. xli, p. 96. 1866.

Tertiary. Upper Eocene. Mississippi.

Shell Bluff group, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 341, 342. 1898.

Tertiary. Georgia.

Shenandoah limestone, Darton. Am. Geol., vol. x, p. 13. 1892.

Silurian. Virginia. Part. syns. Trenton, Chazy, Lévis, and Calciferous.

Shenandoah limestone, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 337. 1894.

Cambrian-Silurian. Virginia and Maryland.

Shenandoah limestone, Campbell. Geol. Soc. Am., Bull., vol. v, p. 171. 1894.

Ordovician? Virginia.

Shenandoah limestone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 14, 32. 1894, 1896.

Cambrian-Silurian. Virginia, West Virginia. Exact syns. Montgomery grits, Rogers, No. X, and Vespertine.

Shenandoah limestone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.

Cambrian-Silurian. Virginia, Maryland, and West Virginia. Included in Cambro-Silurian.

Shenandoah limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 26. 1896.

Cambro-Silurian. Virginia and West Virginia.

Shenandoah formation, Clark. Md. Geol. Surv., vol. i, pp. 157-178-180. 1897.

Cambro-Silurian. Maryland. Includes Upper and Lower.

- Shenandoah, Clark. Md. Geol. Surv., vol. ii, p. 170. 1898.
Cambro-Silurian. Maryland.
- Shenandoah, Clark. Md. Geol. Surv., vol. iii, pp. 93, 97. 1899.
Silurian-Cambrian. Maryland.
- Shenandoah limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Cambro-Silurian. Virginia, Tennessee.
- Shenandoah limestone, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
Silurian. Virginia and West Virginia.
- Shenandoah limestone, Prosser. Jour. of Geol., vol. viii, pp. 653-663. 1900.
Silurian. Maryland and Virginia. Included in Ordovician.
- Shenango** sandstone, White. 2d Pa. Geol. Surv., Rept. Q³, pp. 60-61. 1880.
Carboniferous. Pennsylvania. Included in Subconglomerate Measures.
- Shenango group, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 77-81. 1881.
Carboniferous. Pennsylvania. Included in Pocono.
- Shenango shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1749. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono.
- Sherburne** sandstone, Clarke. N. Y. State Geol., 15th Ann. Rept., p. 43. 1897.
Devonian. New York.
- Sheridan** quartzite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Algonkian. Wyoming.
- Sheridan beds, Scott. Geol. Soc. Am., Bull., vol. ix, p. 406. 1898.
Pleistocene. Texas, New Mexico. Exact syn. Equus beds.
- Sheridan, Matthew. Am. Mus. Nat. Hist., Bull., vol. xii, p. 20. 1900.
Pleistocene. Western U. S. Exact syn. Equus.
- Sheridan sandstone, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 132. 1900.
Maine.
- Sheridan sandstone, Williams. U. S. Geol. Surv., Bull. No. 165, p. 47. 1900.
Silurian. Maine.
- Shiloh** marl, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Miocene. Florida(?). Included in Chipola epoch, Tampa group. Part syn. Tampa group.
- Shiloh marl, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, pp. 40-41. 1892.
Tertiary. New Jersey.
- Shiloh marl, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 340. 1898.
Tertiary. New Jersey. Included in Chipola stage, Oligocene.
- Shimer** gypsum, Cragin. Am. Geol., vol. xix, pp. 356-358. 1897.
Permian. Kansas, Oklahoma. Included in Cave Creek formation of Cimarron series.
- Shinarump**, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 41, 54, 150. 1876.
Utah. Includes Upper and Lower Shinarump, Shinarump conglomerate.
- Shinarump conglomerate, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., p. 41. 1876.
Utah. Included in Shinarump.
- Shinarump group, Gilbert. U. S. Geog. and Geol. Surv., Rept. on Henry Mts., p. 6. 1877.
Utah.
- Shinarump, Dutton. U. S. Geog. and Geol. Surv., Geol. of High Plateaus of Utah, pp. 144, 207. 1880.
Trias or Permian. Utah.
- Shinarump, Walcott. Geol. Soc. Am., Bull., vol. i, p. 62. 1889.
Trias. Arizona.

Shinersville conglomerate, Platt. 2d Pa. Geol. Surv., Rept. G², pp. 186-187. 1880.
Carboniferous. Pennsylvania. Included in Pottsville.

Shinersville conglomerate, D'Invilliers. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, p. 1864. 1895.

Carboniferous. Pennsylvania. Included in Pottsville.

Shirley stage, Knight. Geol. Soc. Am., Bull., vol. xi, pp. 385-387. 1900.
Jurassic. Wyoming.

Shoal Creek limestone, Engelmann. Ill. Geol. Surv., vol. iii, pp. 149, 159-164, 175, 220. 1868.

Carboniferous. Illinois. Included in Coal Measures.

Shoal Creek limestone, Broadhead. Ill. Geol. Surv., vol. vi, p. 133. 1875.

Carboniferous. Illinois. Included in Coal Measures.

Shoal Creek limestone, Engelmann. Econ. Geol. of Ill., vol. ii, p. 76; vol. iii, p. 488. 1882.

Carboniferous. Illinois. Included in Coal Measures.

Shoal Creek limestone, Worthen. Ill. Geol. Surv., vol. vii, p. 11. 1883.

Carboniferous. Illinois. Included in Coal Measures.

Shoal Creek limestone, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 129-130. 1890.

Cretaceous. Texas. Included in Washita division of Comanche series.

Shoal Creek limestone, Hill. Geol. Soc. Am., Bull., vol. v, pp. 298, 319. 1894.

Cretaceous. Texas.

Shoal Creek limestone, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 237-238. 1898.

Cretaceous. Texas. Included in Washita division of Comanche series.

Shoo Fly beds, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.

Carboniferous (?). California.

Shunganunga shale, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 29. 1898.

Carboniferous. Kansas. Included in base of Wabaunsee formation.

Shunganunga shales, Beede. Kan. Acad. Sci., Trans., vol. xvi, pp. 78-79. 1899.

Carboniferous. Kansas.

Shushitna slates, Eldridge. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 15-16. 1900.

Alaska.

Shuswap series, Dawson. Can. Geol. Surv., new ser., vol. iv, pp. 29B, 31B. 1890.
Archean. British Columbia, Canada.

Shuswap series, Dawson. Geol. Soc. Am., Bull., vol. ii, pp. 165, 168, 170. 1891.
Archean. Canada.

Shuswap series, McConnell. Can. Geol. Surv., new ser., vol. vii, p. 33C. 1896.
Archean. Canada.

Shuswap series, McConnell. Can. Geol. Surv., new ser., vol. x, p. 30A. 1898.
British Columbia.

Siamo slate, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 554. 1895.

Algonkian. Lake Superior region. Included in Lower Marquette series.

Siamo slate, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 313-327. 1897.

Algonkian. Michigan. Included in Lower Marquette series.

Siderian, Whitney and Wadsworth. Harvard Coll. Mus. Comp. Zool., Bull., vol. vii, 1880-84, p. 562. 1884.

Included in Azoic system.

Signal Hill sandstone, Jukes. Gen. Rept. of Geol. of Newfoundland, p. 51 et seq. 1843.

Algonkian. Newfoundland.

Signal Hill sandstone, Murray. Geol. of Newfoundland, p. 146. 1881.

Algonkian. Newfoundland.

- Signal Hill sandstone, Walcott. Geol. Soc. Am., Bull., vol. x, p. 219. 1899.
 Algonkian. Newfoundland. Included in Avalon terrane.
- Siliceous** beds, Safford. Am. Jour. Sci., 2d ser., vol. xii, p. 359. 1851.
 Devonian (?). Tennessee. Included in Siliceous group.
- Siliceous group, Safford. Am. Jour. Sci., 2d ser., vol. xii, pp. 359-361. 1851.
 Silurian (?). Tennessee. Includes Siliceous beds, Cherty limestone.
- Siliceous or sandy limestone, Safford. Am. Jour. Sci., 2d ser., vol. vii, p. 356. 1851.
 Silurian. Tennessee.
- Siliceous group, Safford. Geol. Recon. in the State of Tenn., 1st Rept., p. 159. 1856.
 Carboniferous. Tennessee.
- Siliceous group, Safford. Geol. of Tenn., pp. 338-351. 1869.
 Silurian. Tennessee. Included in Lower Carboniferous. Exact syn. Siliceous stratum. Part. syns. Keokuk, Burlington, and St. Louis limestone.
- Siliceous group, Smith. Ala. Geol. Surv., Rept., 1875, pp. 26, 100, 119. 1876.
 Carboniferous. Alabama. Included in Subcarboniferous.
- Siliceous group, Upper, Smith. Ala. Geol. Surv., Rept., 1877, 1878, pp. 14, 21. 1879.
 Carboniferous. Alabama. Includes St. Louis or Coral limestone.
- Siliceous group, Lower, Smith. Ala. Geol. Surv., Rept., 1877, 1878, p. 13. 1879.
 Carboniferous. Alabama. Includes Keokuk, Burlington, and Barren group.
- Siliceous, Upper, McCalley. Ala. Geol. Surv., Rept., 1879-1880, pp. 76, 88, 101, 109, 127, 132, 143, 149. 1881.
 Carboniferous. Alabama. Included in Subcarboniferous. Exact syn. St. Louis.
- Siliceous group, Stevenson. Am. Phil. Soc., Proc., vol. xix, pp. 231, 242. 1881.
 Carboniferous. Virginia. Included in Upper Carboniferous.
- Siliceous dolomite and chert, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 44-47, 116-118, 192-199, 256-264, 314-336, 456-464, 486-496, 516-521, 593-639, 713-725, 769-793. 1897.
- Silurian. Alabama. Included in Lower Silurian. Exact syn. Knox dolomite and chert (including Hayes' Upper Connesauga).
- Sillery** formation, Logan. Can. Geol. Surv., 1843-1863, pp. 225-297. 1863.
 Lower Silurian. Canada (eastern). Included in Quebec group. Exact syn. Chazy (?).
- Sillery division, Richardson. Can. Geol. Surv., Rept. 1863-1866, pp. 37-43. 1866.
 Lower Silurian. Canada (Eastern). Included in Quebec group.
- Sillery, Hunt. 2d Pa. Geol. Surv., Rept. E, pp. 112-116. 1878.
 Cambrian. Canada.
- Sillery formation, Ells. Can. Geol. Surv., new ser., vol. iii, pt. ii, pp. 25K-84K, 89K-93K. 1889.
 Cambrian. Canada. Included in Quebec group, Cambro-Silurian. Includes Upper and Lower Sillery.
- Sillery, Ells. Geol. Soc. Am., Bull., vol. i, p. 466. 1889.
 Cambrian. Canada. Included in Quebec group.
- Silver Lake** shale, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 30. 1898.
 Carboniferous. Kansas.
- Silveria** formation, Hershey. Am. Jour. Sci., 4th ser., vol. ii, pp. 324-330. 1896.
 Pleistocene. Illinois. Exact syn. Kansas.
- Silveria formation, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 111-118. 1899.
 Pleistocene. Mississippi Valley.
- Similkameen** beds, Dawson. Can. Roy. Soc., Proc. and Trans., vol. vii, sec. iv, pp. 75-91. 1890.
 Tertiary. British Columbia. Included in Miocene.
- Similkameen beds, Dawson. Can. Roy. Soc., Trans., vol. viii, sec. iv, pp. 75-91. 1891.
 British Columbia.

Similkameen formation, Russell. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 114-117. 1900.

Cretaceous. Washington.

Simmons Bluff beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 336. 1898. Pleistocene. South Carolina.

Sioux quartzite, Hayden. Am. Jour. Sci., 2d ser., vol. xliii, pp. 15-22. 1867. Huronian. South Dakota.

Sioux quartzite, White. Iowa Geol. Surv., vol. i, pp. 167-171. 1870. Archean. Iowa. Included in Huronian.

Sioux quartzite, Keyes. Iowa Geol. Surv., vol. i, p. 17. 1893. Archean. Iowa.

Sioux quartzite, Van Hise. Int. Cong. of Geol., 5th Sess., pl. xiv. 1893. Algonkian. Lake Superior region. Included in Huronian.

Sioux quartzite, Beyer. Iowa Geol. Surv., vol. vi, p. 111. 1896. Archean(?). Iowa. Included in Pre-Cretaceous.

Sioux quartzite, Beyer. Iowa Geol. Surv., vol. vi, pp. 71-112. 1897. Algonkian. Iowa.

Sioux quartzite, Wilder. Iowa Geol. Surv., vol. x, p. 98. 1900. Algonkian. Iowa.

Skaneateles shale, Hall. Am. Jour. Sci., 1st ser., vol. xlii, p. 57. 1842. Devonian. New York. Included in Ludlowville group.

Skunnemunk conglomerate, Darton. Geol. Soc. Am., Bull., vol. v, pp. 367, 371. 1894.

Devonian. New York, New Jersey. Included in Middle Devonian.

Skunnemunk conglomerate, Ries. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 404. 1897.

Devonian. New York.

Skwentna series, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 149-152, 180. 1900.

Juratrias. Alaska.

Smalls Brook limestone, Am. Brit. Assoc. Adv. Sci., Rept., 1899, p. 756. 1899. Carboniferous. Nova Scotia.

Smelt Brook shales, Ami. Brit. Assoc. Adv. Sci., Rept., 1899, p. 756. 1899. Carboniferous. Nova Scotia.

Smelt Brook formation, Ami. Can. Rec. Sci., vol. viii, pp. 162-163. 1900. Carboniferous. Canada. Included in Neo-Carboniferous.

Smith River lake beds, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.

Included in Neocene. Montana.

Smith River lake beds, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.

Montana. Included in Neocene.

Smithfield limestone, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 107. 1899.

Algonkian. Rhode Island. Included in Blackstone series.

Smoky Hill chalk, Cragin. Colo. Coll. Stud., vol. vi, p. 51. 1896.

Cretaceous. Kansas. Included in Niobrara, Upper formation.

Smoky Hill chalk, Williston. Kan. Univ. Quart., vol. iv, p. 251. 1896.

Upper Cretaceous. Kansas. Included in Niobrara. Exact syn. Pteranodon beds.

Smoky Hill chalk, Logan. Kan. Univ. Geol. Surv., vol. ii, pp. 220-221. 1897.

Upper Cretaceous. Kansas. Included in Niobrara. Exact syn. Pteranodon beds.

Smoky River series, Dawson. Can. Geol. Surv., Rept., 1879-80, pp. 115B, 125B. 1881.

Cretaceous. British Columbia. Included in Colorado group. Exact syn. Upper dark shales. Part. syn. Pierre.

Smoky River shales, Dawson. Am. Jour. Sci., 3d ser., vol. xxi, p. 392. 1881.

Cretaceous. Canada. Exact syn. Pierre.

Smoky River shales, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 50D, 53D-54D. 1893.

Cretaceous. Canada. Included in Montana group.

Sneedville limestone, Safford. Geol. Recon. of the State of Tenn., 1st Rept., p. 157. 1856.

Tennessee. Included in Dyestone and Gray limestone group.

Sneedville limestone(?), Safford. Geol. of Tenn., p. 312. 1869.

Silurian. Tennessee. Included in Niagara group. Exact syn. Meniscus limestone.

Snyder Creek shales. Mo. Bur. Geol. and Mines, Rept. on Structural and Economic Geology, p. 153. 1900.

Missouri. Devonian.

Sockanosset sandstones, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 163. 1899.

Carboniferous. Rhode Island. Included in Cranston beds.

Soldier Creek shales, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 30. 1898.

Carboniferous. Kansas.

Sooke beds, Merriam. Univ. of Cal., Dept. of Geol., Bull., vol. ii, p. 106. 1896.

Tertiary. British Columbia. Included in Neocene.

Sooke beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 338. 1898.

Tertiary. British Columbia. Included in Miocene.

Sopchoppy limestone, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 119. 1892.

Tertiary. Florida.

South Carrollton limestone, Norwood. Ky. Geol. Surv., new ser., vol. iv, pp. 296-297. 1878.

Carboniferous. Kentucky. Included in Coal Measures. Exact syn. Madisonville limestone(?).

South Mountain gneiss, Hall. 2d Pa. Geol. Surv., Rept. D³, pt. i, pp. 215-255. 1883.

Archean. Pennsylvania.

South Valley Hill mica schists, Hall. 2d Pa. Geol. Surv., Rept. C⁶, pp. 31-33. 1881.

Pennsylvania. Exact syn. Hudson River group.

South Valley Hill slate, Lesley. 2d Pa. Geol. Surv., Final Rept., pp. 199-204. 1892.

Cambrian. Pennsylvania. Exact syn. Primal Lower slate.

Spadra stage, Stevenson. N. Y. Acad. Sci., Trans., vol. xv, p. 51. 1896.

Carboniferous. Arkansas.

Sparry limestone, Emmons. Agric. of N. Y., vol. i, pp. 72-74. 1846.

New York, New England. Included in Taconic system.

Sparry limestone, Dana. Am. Jour. Sci., 3d ser., vol. xiii, pp. 343-414. 1877.

Silurian. Vermont. Included in Folian limestone. Exact syn. Trenton.

Sparta sands, Vaughan. U. S. Geol., vol. xv, p. 225. 1895.

Louisiana.

Sparta sands, Vaughan. U. S. Geol. Surv., Bull., No. 142, p. 25. 1896.

Tertiary or Pleistocene. Louisiana.

Speck Mountain bed, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 407-408. 1893.

Carboniferous. Texas. Included in Cisco division.

Sphinx conglomerate, Peale. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 24. 1896.

Included in Eocene. Montana.

Sphinx conglomerate, Smith. Jour. of Geol., vol. viii, p. 464. 1900.

Tertiary. Montana. Included in Eocene.

- Spirifera Pennata** beds, Calvin. Am. Geol., vol. viii, p. 143. 1891.
Devonian. Iowa.
- Spokane** shale, Walcott. Geol. Soc. Am., Bull., vol. x, pp. 199, 207. 1899.
Algonkian, Pre-Cambrian. Montana. Included in Belt terrane.
- Spokane shale, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 282. 1900.
Algonkian. Montana. Included in Belt terrane.
- Spring Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 381. 1893.
Carboniferous. Texas. Included in Strawn division.
- Spring Creek clays, Gould. Am. Jour. Sci., 4th ser., vol. v, pp. 170-173. 1898.
Cretaceous. Kansas. Included in Medicine beds.
- Spring Creek limestone, Williams. Ark. Geol. Surv., 1892, vol. v, pp. 341-354. 1900.
Carboniferous. Arkansas. Exact syn. Fayetteville shale.
- Spring River** sandstone, White. Geol. Soc. Am., Bull., vol. viii, p. 288. 1897.
Upper Carboniferous. Missouri. Included in Des Moines series.
- Spring Rock** series, Swallow. Kan. Geol. Surv., Prelim. Rept., pp. 21, 77. 1866.
Carboniferous. Kansas.
- Springfield** stone, Orton. Ohio Geol. Surv., Rept. Prog., 1870, pp. 271, 301. 1871.
Silurian. Ohio. Included in Niagara series.
- Springfield, Orton. Ohio Geol. Surv., vol. ii, p. 671. 1874.
Silurian. Ohio. Included in Niagara.
- Springfield beds, Phinney. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept., 1883, pp. 142, 147. 1884.
Upper Silurian. Indiana.
- Springfield clay, James. Cin. Soc. Nat. Hist., Jour., vol. ix, no. 2, p. 27. 1886.
Glacial. Ohio.
- Springfield strata, Foerste. Denison Univ. Sci. Lab., Bull., vol. iii, p. 6. 1888.
Ohio.
- Springfield limestone, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas, p. 21. 1886.
Ohio. Included in Niagara series.
- Springfield rock, Foerste. Cin. Soc. Nat. Hist., Jour., vol. xviii, Nos. 3, 4, pp. 178, 190. 1896.
Silurian. Ohio.
- Springvale** beds, Bain. Am. Geol., vol. xv, p. 320. 1895.
Carboniferous. Iowa. Included in Mississippian series, St. Louis.
- Springvale beds, Bain. Iowa Geol. Surv., vol. iv, pp. 277-279. 1895.
Carboniferous. Iowa. Included in St. Louis.
- Springvale beds, Bain. Iowa Geol. Surv., vol. v, pp. 147-149. 1896.
Carboniferous. Iowa. Included in St. Louis.
- Squanjum** marl, Conrad. Am. Jour. Sci., 2d ser., vol. xlvii, p. 363. 1869.
Tertiary. New Jersey.
- Square Lake** limestone, Williams. U. S. Geol. Surv., Bull. No. 165, p. 54. 1900.
Silurian. Maine.
- Stafford** limestone, Bishop. N. Y. State Geol., 15th Ann. Rept., p. 314. 1897.
Devonian. New York. Included in Marcellus formation.
- Stamford** gneiss, Wolff. U. S. Geol. Surv., Mon., vol. xxiii, p. 45. 1894.
Pre-Cambrian. Massachusetts.
- Stanford** conglomerate, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 55. 1899.
Pleistocene. Montana.
- Stanton** limestone, Swallow and Hawn. Geol. of Miami Co., Kan., p. 6. 1865.
Carboniferous. Kansas. Included in Coal Measures.

- Stanton limestone series, Swallow. Kan. Geol. Surv., Prelim. Rept., pp. 20, 74. 1866.
Carboniferous. Kansas.
- Stanton limestone, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 30. 1898.
Carboniferous. Kansas.
- Stanton limestones, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 88. 1900.
Carboniferous. Mississippi Valley. Included in Coal Measures.
- Star Peak**, Hague. U. S. Geol. Expl., 40th Parallel, vol. ii, pp. 645, 682, 693, 717-733. 1877.
Trias. Nevada.
- Star Peak, King. U. S. Geol. Expl. of 40th Parallel, vol. i, p. 544. 1878.
Trias. Included in Red beds.
- Starr** conglomerate, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
Cambrian. Tennessee. Included in Chilhowee series.
- Starucca** shale, White. 2d Pa. Geol. Surv., Rept. G⁵, p. 70. 1881.
Devonian. Pennsylvania. Included in Catskill.
- Starucca, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 102-103. 1882.
Devonian. Pennsylvania. Included in Catskill.
- Starucca shale. Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, p. 1152. 1892.
Devonian. Pennsylvania. Included in Catskill, No. 9.
- Starucca sandstone, Prosser. U. S. Geol. Surv., Bull. No. 120, p. 78. 1894.
Devonian. New York, Pennsylvania. Included in Chemung, Upper Devonian.
- State Quarry** limestone, Calvin. Iowa Geol. Surv., vol. vii, pp. 72-69. 1897.
Devonian. Iowa.
- State Quarry limestone, Calvin. Iowa Acad. Sci., Proc., vol. iv, pp. 16-21. 1897.
Devonian. Iowa.
- Steep Rock** series, Smyth. Am. Jour. Sci., 3d ser., vol. xlii, pp. 319-331. 1891.
Ontario.
- Steep Rock series, Smith. Geol. Soc. Am., Bull., vol. iv, pp. 333, 344. 1893.
Archean. Ontario.
- Steep Rock series, McInnes. Can. Geol. Surv., new ser., vol. x, pp. 20H-23H. 1898.
Ontario.
- Steilacoom**, gravels, Willis and Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 54. 1899.
Pleistocene. Washington.
- Stellarton** formation, Ami. Can. Rec. Sci., vol. viii, p. 162. 1900.
Carboniferous. Canada. Included in Middle Carboniferous.
- Stockbridge** limestone, Emmons. Agric. of N. Y., vol. i, pp. 78-83. 1846.
New England. Included in Taconic system.
- Stockbridge limestone, Dana. Am. Jour. Sci., 3d ser., vol. iii, pp. 179, 184, 186, 253. 1872.
Silurian. New York.
- Stockbridge limestone, Dana. Am. Jour. Sci., 3d ser., vol. iv, pp. 362-370, 450-453; vol. v, pp. 47-52, 84-90; vol. vi, pp. 257-278. 1872-73.
Silurian. Massachusetts. Included in Hudson River group. Part. syn. Trenton limestone.
- Stockbridge limestone, Julien. N. Y. Acad. Sci., Trans., vol. vii, pp. 21-39. 1888.
Cambrian. Massachusetts and Vermont.
- Stockbridge limestone, Dale. Geol. Soc. Am., Bull., vol. iii, pp. 514-518. 1892.
Cambro-Silurian. Vermont.
- Stockbridge limestone, Dale. U. S. Geol. Surv., 13th Ann. Rept., pt. ii, p. 301. 1893.
Cambrian. New York.

Stockbridge limestone, Dale. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, pls. 67, 69, 71. 1894.

Cambro-Silurian. Vermont, Massachusetts.

Stockbridge limestone, Wolff. U. S. Geol. Surv., Mon., vol. xxiii, pp. 20, 64-65, 69, 72, 84-98, 179-182. 1894.

Silurian. Massachusetts.

Stockbridge limestone, Marcou. Am. Geol., vol. xix, pp. 113-116. 1897.

Cambrian. New England.

Stockbridge limestone, Emerson. U. S. Geol. Surv., Bull. No. 159, pp. 84-85. 1899.

Silurian. Massachusetts.

Stockton series, Kummel. Jour. of Geol., vol. v, pp. 543-544. 1897.

Juratrias. New Jersey. Included in Newark system.

Stockton series, Kummel. N. J. Geol. Surv., Rept., 1896, pp. 35-40. 1897.

Juratrias. New Jersey. Included in Newark system.

Stockton series, Kummel. N. J. Geol. Surv., Rept., 1897, pp. 30-36. 1898.

Juratrias. New Jersey. Included in Newark system.

Stockton group, Kummel. Jour. of Geol., vol. vii, pp. 24-25. 1899.

Juratrias. New York, New Jersey. Included in Newark.

Stockwether bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 417. 1893.

Carboniferous. Texas. Included in Cisco division.

Stokes sandstone, Cragin. Am. Geol., vol. xvi, p. 367. 1895.

Cretaceous. Kansas. Included in Elk Creek beds, Cheyenne sandstone, and Belvidere beds.

Stones River beds, Safford. Am. Jour. Sci., 2d ser., vol. xii, p. 254. 1851.

Silurian. Tennessee. Included in Stones River group.

Stones River group, Safford. Am. Jour. Sci., 2d ser., vol. xii, pp. 354-356. 1851.

Silurian. Tennessee. Includes Stones River beds, Lower Lebanon limestone, and Upper Lebanon limestone.

Stones River group, Safford. Am. Assoc. Adv. Sci., Proc., vol. vii, p. 153. 1853.

Silurian. Tennessee. Exact syns. Lower Trenton and Black River group.

Stones River, Safford. Geol. Reconm. of the State of Tenn., 1st Rept., p. 155. 1856.

Silurian. Tennessee. Included in Central limestone and shale group. Part. syns. Black River and Lower Trenton of New York.

Stony Brook group, White. 2d Pa. Geol. Surv., Rept. G⁷, p. 439. 1883.

Devonian. Pennsylvania. Included in Chemung.

Stony Brook beds, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1564-1566. 1892.

Devonian. Pennsylvania. Included in Chemung.

Stonybrook quartzite, Hobbs. Am. Geol., vol. xxiii, p. 110. 1899.

Cambrian. Massachusetts.

Stormville, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 131-137. 1882.

Silurian. Pennsylvania. Included in Lower Helderberg or No. vi.

Stormville, White. 2d Pa. Geol. Surv., Rept. G⁷, pp. 94-97. 1883.

Silurian. Pennsylvania. Included in Lower Helderberg or No. vi.

Stormville shale, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 924-925, 944, 948, 959, 1048, 1065, 1074. 1892.

Silurian. Pennsylvania. Included in No. vi; includes Bastard limestone. Exact syn. Oriskany shale.

Stormville sandstone, Weller. N. J. Geol. Surv., Rept. 1899, p. 39. 1900.

Devonian. New Jersey.

Strawn division, Cummins. Texas Geol. Surv., 2d Ann. Rept., p. 374. 1891.

Carboniferous. Texas. Included in Coal Measures.

Strawn division, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 374-387. 1893.

Carboniferous. Texas. Includes Ricker, Antelope Creek, Indian Creek, Comanche Creek, Wilbarger Creek, Buffalo Creek, Rough Creek, Hanna Valley, Cottonwood Creek, Spring Creek, Brown Creek, Big Valley, Bull Creek, Horse Creek, Fox Ford, Bed No. VIII, Shadrick Mill, Elliott Creek, Burnt Branch, and Lynch Creek beds.

Strawn limestone, Haworth and Kirk. Kan. Univ. Quart., vol. ii, p. 110. 1894.

Carboniferous. Kansas.

Strawn, limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, p. 79. 1896.

Carboniferous. Kansas.

Strong flint, Prosser. Kan. Univ. Quart., vol. vi, pp. 152-154. 1896.

Carboniferous. Kansas. Included in Lower part of Chase formation=Permian.

Strong limestone, Prosser. Kan. Univ. Quart., vol. vi, pp. 162-163, 166-167, 168-170. 1896.

Carboniferous. Kansas. Included in Base of Chase formation=Permian.

Stuntz conglomerate, Winchell. Minn. Geol. and Nat. Hist. Surv., 16th Ann. Rept., p. 350. 1888.

Minnesota.

Stuntz conglomerate, Winchell. Am. Geol., vol. xx, pp. 48-50. 1897.

Algonkian. Minnesota.

Stuntz conglomerate, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 528. 1899.

Archean. Minnesota. Included in Keewatin.

Sturgeon quartzite, Smyth. U. S. Geol. Surv., Mon., vol. xxxvi, pp. 398-405. 1899. Michigan.

Sturgeon quartzite, Clements and Smyth. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, pp. 105, 125. 1899.

Algonkian. Michigan.

Sturgeon quartzite, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 62. 1900.

Algonkian. Michigan. Included in Lower Menominee series.

Styliolina limestone, Grabau. Buff. Soc. Nat. Hist., Bull., vol. vi, pp. 11, 13. 1898. Devonian. New York.

Subconglomerate measures, White. 2d Pa. Geol. Surv., Rept. Q³, pp. 59-63. 1880.

Carboniferous. Pennsylvania. Includes Shenango shale and sandstone, Crawford shale, Sharpsville sandstone.

Subconglomerate, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 67-116. 1881.

Carboniferous. Pennsylvania. Includes Shenango, Meadville, and Oil Lake groups, and Venango oil sand.

Sucarnochee series, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 348. 1898. Tertiary. Alabama. Included in Eocene.

Sugar Loaf arkose, Emerson. Geol. Soc. Am., Bull., vol. ii, p. 452. 1891.

Trias. Massachusetts.

Sugar Loaf arkose, Emerson. Geol. Soc. Am., Bull., vol. vii, p. 6. 1895.

Trias. Massachusetts.

Sugar Loaf arkose, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 354-358. 1898.

Juratrias. Massachusetts. Included in Connecticut River sandstone.

Sugar Loaf arkose, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.

Juratrias. Massachusetts.

Suisure marble, Whitney. Cal. Geol. Surv., vol. i, p. 104. 1865.

Cretaceous (?). California.

Sukonk beds, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, p. 173. 1899.

Carboniferous. Rhode Island. Included in Coal Measures.

Sulphur Creek, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 40, 50, 154. 1876.

Cretaceous. Utah.

Summit limestone, White. 2d Pa. Geol. Surv., Rept. Q², pp. 25-26. 1877.

Carboniferous. Pennsylvania. Included in Lower Barren series.

Summit limestone, McGee. St. Louis Acad. Sci., Trans., vol. v, p. 331. 1892.

Carboniferous. Missouri.

Sumner, Cragin. Colo. Coll. Stud., vol. vi, pp. 3, 9. 1896.

Permian. Kansas. Included in Upper division of Big Blue series.

Sunbury slate, Hicks. Am. Jour. Sci., 3d ser., vol. xvi, pp. 216, 220. 1878.

Carboniferous. Ohio. Included in Waverly group.

Sundance formation, Darton. Geol. Soc. Am., Bull., vol. x, pp. 387-393. 1899.

Jurassic. Black Hills.

Sunrise series, Mendenhall. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 305-307. 1900.

Alaska. Included in Upper Paleozoic.

Superjacent series, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 31. 1896.

Cretaceous and Tertiary. California.

Superjacent series, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 37. 1897.

Cretaceous and younger. California.

Superjacent series, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 41. 1897.

Cretaceous and younger. California. Includes Tejon and Ione formations.

Superjacent series, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 39. 1897.

Tertiary and Pleistocene. California.

Superjacent series, Turner. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 43. 1898.

Cretaceous and younger. California.

Superjacent series, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 51. 1898.

Included in Neocene. California.

Superjacent series, Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 63. 1900.

Cretaceous to Pleistocene. California.

Superjacent series, Lindgren. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 66. 1900.

California.

Surgent series, Rogers. Geol. of Pa., vol. i, pp. 106, 131-134, 272 et seq.; vol. ii, p. 753. 1858.

Silurian. Pennsylvania. Includes Clinton group.

Suttons Island series, Shaler. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 1041. 1889.

Maine.

Swallow limestone, Haworth and Kirk. Kan. Univ. Quart., vol. ii, pp. 104-105. 1894.

Carboniferous. Kansas.

Swanton slate, Perry. Boston Soc. Nat. Hist. Proc., vol. xi, 1866-68, p. 347 et seq. 1867.

Vermont.

Swauk sandstone, Russell. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 118-123. 1900.

Tertiary. Washington.

Swauk sandstone, Smith and Curtis. Geol. Soc. Am., Bull., vol. xi, p. 219. 1900.

Tertiary. Washington. Included in Eocene.

Swearinger slate, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.

Trias. California. Included in Upper Noric.

Swearinger shale, Smith. Jour. of Geol., vol. ii, pp. 605-606. 1894.

Trias. California. Included in Cedar formation.

Sweetland Creek beds, Udden. Jour. of Geol., vol. vii, pp. 65-78. 1899.

Devonian. Iowa. Included in Chemung.

Sweetland Creek beds, Udden. Iowa Geol. Surv., vol. ix, p. 289. 1899.

Devonian. Iowa.

Sweetwater, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 110. 1879.

Tertiary. Wyoming.

Sweetwater group, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 310. 1892.

Tertiary. Wyoming.

Swift Water series, Hitchcock. Am. Jour. Sci., 3d ser., vol. vii, pp. 568-571. 1874.
New Hampshire.

Swift Water series, Hitchcock. Geol. of N. H., pt. ii, pp. 320-325. 1877.

Paleozoic. New Hampshire.

Swift Water series, Hitchcock. Geol. Soc. Am., Bull., vol. vii, p. 512. 1896.

Cambrian(?). New Hampshire.

Sylamore sandstone, Williams. Am. Jour. Sci., 4th ser., vol. viii, pp. 149-151. 1898.
Carboniferous. Arkansas. Included in Upper Devonian.

Sylamore sandstone, Williams. Ark. Geol. Surv., 1892, vol. v, pp. 302-322. 1900.
Devonian. Arkansas.

Sylvania sandstone, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 18. 1888.

Upper Silurian. Ohio. Included in Lower Helderberg limestone.

Sylvania sand, Neff. Geol. Soc. Am., Bull., vol. i, p. 32. 1889.

Silurian. Ohio. Included in Niagara limestone.

Sylvania sandstone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 23-24. 1890.

Silurian. Ohio. Exact syns. Monclova or Holland sandstone.

Sylvania sandstone, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 14. 1893.

Upper Silurian. Ohio. Included in Lower Helderberg limestone.

Sylvania sandstone, Sherzer. Geol. Soc. Am., Bull., vol. ix, p. 10. 1897.

Silurian. Ohio.

Sylvania sandstone, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 53-66. 1900.

Silurian. Michigan.

Syntrialasina limestone, Bennett. Kan. Univ. Geol. Surv., vol. i, pp. 111-113. 1896.
Carboniferous. Kansas.

Syrtsensian, Matthew. Can. Nat., 2d ser., vol. vii, pp. 438-441. 1875.

Canada. Included in Quaternary.

Tachatna series, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 157-159, 179. 1900.

Devonian-Carboniferous. Alaska.

Taconic system, Emmons. Geol. of N. Y., pt. ii, pp. 135-163. 1842.

New York. Includes Stockbridge limestone, Sperry limestone, Magnesian slate, and Granular quartz. Part. syns. Lower Cambrian and Lower Silurian.

Taconic system, Mather. Geol. of N. Y., pt. i, pp. 422-438. 1843.

New York.

- Taconic system, Emmons. Agric. of N. Y., vol. i, pp. 45-112. 1846.
New York and New England. Includes Black and Taconic slate, Sparry limestone, Magnesian slate, Stockbridge limestone, Granular quartz.
- Taconic slate, Emmons. Agric. of N. Y., vol. i, pp. 65-71. 1846.
New York. Included in Taconic system.
- Taconic, Emmons. Geol. Rept. of Midland Cos. of N. C., p. 49 et seq. 1856.
Cambrian. North Carolina.
- Taconic system, Hitchcock. Geol. of Vt., vol. i, pp. 434-447. 1861.
Cambrian. Vermont.
- Taconic system, Barrande. Am. Jour. Sci., 2d ser., vol. xxxi, pp. 212-215. 1861.
Vermont.
- Taconic system, Stevens. Lyceum of Nat. Hist. of N. Y., Annals, vol. vii, pp. 276-283. 1862.
New York, Massachusetts.
- Taconic, Lesley. Am. Phil. Soc., Proc., vol. ix, p. 5. 1862.
New York, New England.
- Taconic, Perry. Boston Soc. Nat. Hist., Proc., vol. xi, 1866-1868, p. 352. 1867.
Vermont.
- Taconic series (western portion), Ford. Am. Jour. Sci., 3d ser., vol. ii, pp. 32-34. 1871.
Cambrian. New York. Exact syn. Lower Potsdam.
- Taconic, Dana. Am. Nat., vol. vi, p. 177. 1872.
- Taconic, Dana. Am. Assoc. Adv. Sci., Proc., vol. xxii, p. 27. 1873.
Silurian. Massachusetts. Included in Hudson River and Trenton.
- Taconic slate, Crosby. Rept. on Geol. Map of Mass., p. 40. 1876.
Pre-Cambrian. Massachusetts.
- Taconic slates, Dana. Am. Jour. Sci., 3d ser., vol. xiv, pp. 202-203. 1877.
Silurian. Vermont, Massachusetts. Part. syn. Hudson River or Cincinnati group.
- Taconic, Hunt. 2d Pa. Geol. Surv., Rept. E, pp. 43-62. 1878.
Cambrian. Pennsylvania and general.
- Taconian, Hunt. Boston Soc. Nat. Hist., Proc., vol. xix, 1876-1878, p. 278. 1878.
Exact syn. Lower Taconic.
- Taconic system, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. 4, p. 271. 1881.
- Taconian, Hunt. Smithsonian Inst. Ann. Rept., 1882, pp. 331, 336. 1882 (1884).
Pre-Potsdam. New York. Exact syn. Hastings series of Canada.
- Taconian, Whitney and Wadsworth. Harvard Coll. Mus. Comp. Zool., Bull., vol. vii, 1880-1884, p. 561. 1884.
Included in Azoic system.
- Taconic, Dana. Am. Jour. Sci., 3d ser., vol. xxix, pp. 205-222, 437-443. 1885.
Silurian. New York, New England.
- Taconic, Winchell. Am. Assoc. Adv. Sci., Proc., vol. xxxiii, pt. ii, pp. 363-379. 1885.
- Taconic, Marcou. Am. Acad. Arts and Sciences, Proc., vol. xx, pp. 174-256. 1885.
- Taconic, Ford and Dwight. Am. Jour. Sci., 3d ser., vol. xxxi, pp. 248-257. 1886.
Silurian. New York.
- Taconic, Dana. Am. Jour. Sci., 3d ser., vol. xxxiii, pp. 270-276, 393-419. 1887.
Silurian. New York and New England. Included in Lower Silurian.
- Taconic, Hunt. Am. Nat., vol. xxi, pp. 114, 238, 312. 1887.
- Taconic, Marcou. Boston Soc. Nat. Hist., Proc., vol. xxiii, 1884-1888, p. 343. 1887.
- Taconic, Winchell. Am. Geol., vol. i, p. 347. 1888.
- Taconic, Winchell. Am. Geol., vol. i, pp. 162-172, 173-178. 1888.
Includes Potsdam, Barraboo, Barren County, Wanswangoning, Sioux, and Black Hills quartzite.
- Taconic, Marcou. Am. Geol., vol. ii, pp. 10-23, 67-88. 1888.

- Taconic, Miller. Am. Geol., vol. i, pp. 235-245. 1888.
- Taconic, Dana. Am. Geol., vol. ii, p. 198. 1888.
- Taconic, Walcott. Am. Jour. Sci., 3d ser., vol. xxxv, pp. 229-242, 307-328, 394-401. 1888.
- Cambrian and Silurian.
- Taconic, Walcott. Am. Assoc. Adv. Sci., Proc., vol. xxxvi, p. 212. 1888.
- Cambrian. Vermont. Included in Ordovician.
- Taconic system, Miller. N. A. Geol. and Pal., p. 22. 1889.
- Taconic, Winchell. Minn. Geol. and Nat. Hist. Surv., 19th Ann. Rept., p. 47. 1889.
- Minnesota. Exact syns. Animike and Huronian.
- Taconic, Marcou. Am. Geol., vol. iii, p. 118. 1889.
- Taconic, Marcou. Am. Geol., vol. v, p. 357; vol. vi, pp. 78, 221. 1890.
- Taconic, Winchell. Minn. Geol. and Nat. Hist. Surv., Bull., vol. iv, pp. 113, 116. 1891.
- Minnesota. Exact syn. Animike.
- Taconic, Walcott. U. S. Geol. Surv., Bull. No. 81, p. 242. 1891.
- Cambrian.
- Taconian, Pumpelly. Geol. Soc. Am., Bull., vol. iv, p. 383. 1893.
- Archean(?). Canada(?).
- Taconic, Nitze and Hanna. N. C. Geol. Surv., Bull. No. 3, pp. 28-32, 43. 1896.
- Cambrian. North Carolina. Includes Upper and Lower Taconic.
- Taconic, Marcou. Am. Geol., vol. xix, pp. 38-39. 1897.
- Taconic, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 295. 1899.
- Cambrian. Minnesota. Includes Animikie and Keweenawan. Exact syn. Lower Cambrian.
- Taconyte**, Grant. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 354. 1899.
- Cambrian. Minnesota. Included in Animikie.
- Taconyte, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 367, 391. 1899.
- Cambrian. Minnesota. Included in Animikie.
- Tahkandit** series, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 169-174. 1898.
- Alaska.
- Tahkandit series, Emmons. Nat. Geog. Mag., vol. ix, pp. 157, 158. 1898.
- Carboniferous or Devonian. Alaska.
- Talcoid** schists, Hitchcock. Geol. of Vt., vol. i, pp. 424-434, 504-525. 1861.
- Cambrian(?). Vermont. Exact syn. Magnesian slate.
- Talcose conglomerate, Hitchcock. Geol. of Vt., vol. i, pp. 386-394. 1861.
- Cambrian(?). Vermont. Exact syn. Magnesian slates. Part. syns. Quebec group, Sillery sandstone.
- Talladega** slates, McCalley. Ala. Geol. Surv., Rept. on valley regions, pt. ii, pp. 36-38 537-541, 672-674. 1897.
- Alabama. Exact syn. Ocoee slates.
- Tallahatta** formation, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 344. 1898.
- Tertiary. Georgia, Alabama. Included in Claibornian stage, Eocene. Exact syns. Orangeburg formation, Buhrstone.
- Taloga** formation, Cragin. Am. Geol., vol. xix, pp. 362-363. 1897.
- Permian. Kansas, Oklahoma. Included in Kiger division of Cimarron series.
- Talpa** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 428. 1893.
- Carboniferous. Texas. Included in Albany division.
- Tamana** series, Wall and Sawkins. Geol. of Trinidad, pp. 39-41, 1860.
- Tertiary. Trinidad. Included in Newer Parian group.

- Tampa beds**, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Miocene. Florida. Included in Chipola epoch, Tampa group. Part. syn. Tampa group.
- Tampa group**, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Miocene. Florida. Included in Chipola epoch. Includes Shiloh marls, Tampa and Chipola beds.
- Tampa group**, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 112. 1892.
Tertiary. Florida. Includes Tampa, Chipola, and Alum Bluff beds.
- Tampa limestone**, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 117. 1892.
Tertiary. Florida. Included in Miocene.
- Tampa limestone**, Dall and Stanley-Brown. Geol. Soc. Am., Bull., vol. v, p. 164. 1894.
Tertiary. Florida. Included in Chattahoochee.
- Tanana schists**, Brooks. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 468-469, 478. 1900.
Alaska. Included in Nasina series.
- Tanana schists**, Mendenhall. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 313-315. 1900.
Pre-Silurian. Alaska.
- Tar spring and shot pouch sandstone**, Owen. Ky. Geol. Surv., vol. ii, pp. 85-88. 1851.
Carboniferous. Kentucky. Included in Subcarboniferous.
- Tar spring sandstone**, Moore. Ky. Geol. Surv., vol. iv, new ser., p. 392. 1878.
Carboniferous. Kentucky. Included in Chester group. Exact syn. Big Clifty sandstone.
- Tar sands**, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, pp. 32D-34D-36D, 53D, 58D-59D. 1893.
Cretaceous. Canada. Exact syn. Dakota.
- Tassajara lake(?) bed**, Cooker. Cal. Acad. Sci., Proc., 1893-4, 2d ser., vol. iv, p. 170. 1895.
Pliocene. California.
- Taunton clays**, Woodworth. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 986. 1896.
Massachusetts.
- Taylor marl**, Hill. Artesian Invest., Final Rept., pt. iii, p. 73, 52d Cong., 1st sess., Ex. Doc. 41, pt. iii. 1892.
Cretaceous. Southwest. Exact syn. *Exogyra ponderosa* marls.
- Taylor, Hill**. Geol. Soc. Am., Bull., vol. v, p. 301. 1894.
Cretaceous. Indian Territory.
- Taylor formation**, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 240. 1898.
Cretaceous. Texas. Included in Montana division of Gulf series. Exact syn. *Exogyra ponderosa* marls.
- Taylor's ridge**, Little. Handbook of Ga., Com. of Agric., 1876, p. 41. 1876.
Silurian. Georgia. Included in Upper Niagara. Part. syn. Medina.
- Taylorville slate**, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
Silurian(?). California.
- Teay formation**, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 69. 1900.
Pleistocene(?). West Virginia and Ohio.
- Tecumseh shales**, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 73, 94. 1898.
Carboniferous. Kansas. Included in Shawnee formation.
- Tecumseh shales**, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 28. 1898.
Carboniferous. Kansas.

- Tehachipa** marble, Hanks. Cal. State Min. Bur., 6th Ann. Rept., pt. i, p. 23. 1885.
California.
- Tejon** group, Whitney. Cal. Geol. Surv., Pal., vol. ii, p. xiii. 1869.
Cretaceous(?). California.
- Tejon, Heilprin. Phil. Acad. Nat. Sci., Proc., 1882, pp. 196-214. 1882.
- Tejon, Clark. U. S. Geol. Surv., Bull. No. 83, p. 100. 1891.
Tertiary. Pacific coast. Included in Eocene. Exact syn. Puget(?).
- Tejon, Diller. Geol. Soc. Am., Bull., vol. iv, p. 218. 1893.
Tertiary. California, Oregon. Included in Eocene.
- Tejon, Turner. Am. Geol., vol. xiii, p. 238. 1894.
Tertiary. California. Included in Eocene.
- Tejon, Diller and Stanton. Geol. Soc. Am., Bull., vol. v, p. 436. 1894.
Tertiary. California and Oregon. Included in Eocene.
- Tejon, Emmons and Merrill. Geol. Soc. Am., Bull., vol. v, p. 496. 1894.
Tertiary. Mexico. Included in Eocene.
- Tejon formation, Turner and Ransome. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 41. 1897.
Included in superjacent series, Eocene. California.
- Tejon group, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 346-347. 1898.
Tertiary. California. Included in Eocene.
- Tejon formation, Smith. Jour. of Geol., vol. viii, pp. 461-462. 1900.
Tertiary. California. Included in Eocene.
- Tellico** sandstone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
Silurian. Tennessee.
- Tellico sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25, 27. 1895, 1896.
Silurian. Tennessee, North Carolina.
- Tellico sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.
Silurian. Virginia and Tennessee.
- Tellowa** formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Carboniferous. Virginia, West Virginia. Part. syns. No. xiii, Lower Coal group of Rogers.
- Temple Butte** limestone, Walcott. Geol. Soc. Am., Bull., vol. i, p. 50. 1889.
Devonian. Arizona.
- Tenmile River** beds, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 164-173. 1899.
Carboniferous. Rhode Island. Included in Coal Measures.
- Tentaculite** limestone, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 247-248, 305. 1894.
Devonian. New York. Included in Helderberg.
- Terra Cotta** series, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 156-157, 180. 1900.
Juratrias. Alaska.
- Terrace** period, Hitchcock. Smithsonian Inst. Contrib., vol. ix, No. 2, p. 2. 1857.
Quaternary. Massachusetts.
- Terrace formations, Lawson. Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 1-59. 1893.
Pliocene(?). California.
- Terranovan** series, Hunt. Am. Jour. Sci., 3d ser., vol. i, pp. 182-191. 1871.
Archean. Maine, New Brunswick.

- Teton**, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Juratrias. Wyoming.
- Teton formation**, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59, 149-164. 1899.
Juratrias. Yellowstone Park.
- Texan system**, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvii. 1890.
Algonkian. Texas. Includes Packsaddle, Llano, and Mason series.
- Texan system**, Comstock. Texas Geol. Surv., 1st Ann. Rept., p. 276. 1890.
Algonkian. Texas. Included in Algonkian. Includes Packsaddle, Llano, and Mason series.
- Texana bed**, Taff. Texas Geol. Surv., 2d Ann. Rept., p. 718. 1891.
Cretaceous. Texas. Included in Fredericksburg division.
- Texana limestone**, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 249-256. 1893.
Cretaceous. Texas. Included in Fredericksburg division of Lower Cretaceous.
Exact syn, Goodland limestone.
- Texanan beds**, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 368-370. 1893.
Cretaceous. Texas.
- Texian system**, Comstock. Texas Geol. Surv., 2d Ann. Rept., pp. 562-563, 658-659. 1891.
Algonkian. Texas. Includes Mason, Llano, and Packsaddle series.
- Thayer shales**, Haworth. Am. Jour. Sci., 3d ser., vol. 1, p. 459. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Thayer shales**, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 131-132, 157-158, 225. 1896.
Carboniferous. Kansas.
- Thayer shales**, Adams. Kan. Univ. Geol. Surv., vol. i, p. 24. 1896.
Carboniferous.
- Thayer shales**, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 76-77. 1896.
Carboniferous. Kansas.
- Thayer shales**, Bennett. Kan. Univ. Geol. Surv., vol. i, p. 97. 1896.
Carboniferous. Kansas.
- Thayer shales**, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 49-50, 92, 94, 103. 1898.
Carboniferous. Kansas. Included in Pottawatomie formation.
- Thayer shale**, Orton. Geol. Soc. Am., Bull., vol. x, p. 104. 1899.
Upper Carboniferous. Kansas.
- Thayer shale**, Keyes. Am. Geol., vol. xxiii, p. 304. 1899.
Carboniferous. Mississippi Valley. Included in Missourian series.
- Thayer shales**, Keyes. Iowa Acad. Sci., Proc., vol. vii, p. 87. 1900.
Carboniferous. Mississippi Valley. Included in Coal Measures.
- Thebes sandstone and shale**, Worthen. Ill. Geol. Surv., vol. iii, pp. 27-28. 1868.
Silurian. Illinois. Included in Lower Silurian.
- Thebes sandstone and shale**, Engelmann and Worthen. Econ. Geol. of Ill., vol. i, p. 466. 1882.
Silurian. Illinois.
- Thessalon schists**, Barlow. Geol. Soc. Am., Bull., vol. iv, p. 328. 1893.
Huronian. Ontario.
- Third Moraine**, Todd. U. S. Geol. Surv., Bull. No. 144, p. 45. 1896.
Pleistocene. Dakotas.
- Thomas Hill fire clay**, Wheeler. Mo. Geol. Surv., Sheet Rept. No. 2, p. 58. 1893.
Upper Carboniferous. Missouri. Included in Lower Coal Measures.
- Thomas Hill shales**, Wheeler. Mo. Geol. Surv., vol. ix, Sheet Rept. No. 2, p. 63. 1896.
Carboniferous. Missouri. Included in Coal Measures.

- Thompson** limestone, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.
Jurassic. California. Included in Oolite.
- Thomson** slates, Spurr. Minn. Geol. and Nat. Hist. Surv., 22d Ann. Rept., p. 121. 1894.
Minnesota. Exact syn. Keewatin(?).
- Thomson** slates, Spurr. Am. Jour. Sci., 3d ser., vol. xlviii, pp. 159-166. 1894.
Algonkian. Minnesota. Included in Keewatin.
- Thompson** limestone, Hyatt. Geol. Soc. Am., Bull., vol. v, p. 413. 1894.
Jurassic. California. Included in Lower Oolite.
- Thompson** slates, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, pp. 7, 551. 1899.
Archean-Cambrian. Minnesota.
- Three Forks** shale, Peale. U. S. Geol. Surv., Bull. No. 110, p. 29. 1893.
Devonian. Montana.
- Three Forks** shale, Iddings and Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 1. 1894.
Devonian. Montana.
- Three Forks** limestone, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 30. 1896.
Devonian. Wyoming.
- Three Forks** shale, Weed and Pirsson. U. S. Geol. Surv., Bull. No. 139, p. 38. 1896.
Devonian. Montana.
- Three Forks** limestone, Weed. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, p. 469. 1898.
Devonian. Montana.
- Three Forks** limestone, Hague. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 52. 1899.
Devonian. Wyoming.
- Three Forks** limestone, Iddings and Weed. U. S. Geol. Surv., Mon., vol. xxxii, pt. ii, pp. 1-59, 149-164. 1899.
Devonian. Yellowstone Park.
- Threeforks** shale, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 289. 1900.
Siluro-Devonian. Montana.
- Thunder Bay** limestone, Douglass. Mich. Legis., Doc. vol. i, No. 11 (4th Ann. Rept. State Geol., 1840), p. 547. 1841.
Devonian. Michigan.
- Thunderhead** conglomerate and slate, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
Algonkian(?). Tennessee. Included in Ocoee series.
- Thunderhead** conglomerate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 16. 1895.
Tennessee, North Carolina. Included in Ocoee group.
- Thurman** sandstone, Taff. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 439. 1899.
Carboniferous. Indian Territory. Included in Coal Measures.
- Ticholeptus** beds, Cope. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. v, pp. 51-52. 1879.
Tertiary. Included in Loup Fork.
- Ticholeptus**, Cope. Am. Phil. Soc., Proc., vol. xxiii, p. 357. 1886.
Tertiary. Oregon. Included in Miocene.
- Ticholeptus** bed, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 282. 1892.
Tertiary. Oregon.
- Timber Belt** beds, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. xxxvi-xli. 1890.
Tertiary. Texas. Included in Eocene.

- Timber Belt beds, Penrose. Texas Geol. Surv., 1st Ann. Rept., pp. 22-47. 1890.
Tertiary. Texas. Exact syn. Sabine River beds.
- Timber belt, Clark. U. S. Geol. Surv., Bull. No. 83, p. 78. 1891.
Tertiary. Texas. Included in Eocene. Exact syn. Sabine River beds.
- Timber Belt beds, Dumble. Texas Geol. Surv., 2d Ann. Rept., pp. 25-27. 1891.
Tertiary. Texas. Included in Eocene. Exact syn. Sabine River beds.
- Timber Belt division, Dumble. Texas Geol. Surv., Rept. on brown coal, pp. 128-148. 1892.
Tertiary. Texas. Included in Eocene.
- Timber Belt beds, Kennedy. Texas Geol. Surv., 3d Ann. Rept., pp. 50-57. 1892.
Tertiary. Texas. Included in Eocene. Includes Mount Selman and Cooks Mountain series.
- Timber Creek** beds, White. Phil. Acad. Nat. Sci., Proc., 1887, p. 40. 1887.
Cretaceous. Texas. Included in Gulf series. Exact syns. Eutaw, Dakota.
- Timber Creek group, Hill. Am. Jour. Sci., 3d ser., vol. xxxiii, p. 298. 1887.
Cretaceous. Texas. Included in Gulf series.
- Timber Creek formation, White. U. S. Geol. Surv., Bull. No. 82, p. 121. 1891.
Cretaceous. Texas. Exact syn. Lower Cross Timber sands.
- Timber Creek beds, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 288-298. 1893.
Cretaceous. Texas. Included in Dakota formation, Upper Cretaceous.
- Timpas** formation, Gilbert. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 566. 1896.
Cretaceous. Colorado. Included in Niobrara group.
- Timpas formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
Cretaceous. Colorado. Included in Niobrara.
- Timpas formation, Hills. Geol. Atlas of U. S., Folio No. 68. 1900.
Cretaceous. Colorado. Included in Niobrara formation.
- Tintic quartzite**, Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 65. 1900.
Cambrian. Utah.
- Tionesta** group, Rogers. Geol. of Pa., vol. ii, pp. 489, 558, 561. 1851.
Carboniferous. Pennsylvania. Included in Coal Measures.
- Tionesta series, Platt. 2d Pa. Geol. Surv., Rept. H, pp. 8-9. 1875.
Carboniferous. Pennsylvania. Included in Coal Measures. Exact syn. Sharon series.
- Tionesta (sandstone, coal, clay, and shale), Orton. Ohio Geol. Surv., vol. vii, pp. 59, 62. 1893.
Carboniferous. Ohio. Included in Carboniferous conglomerate group.
- Tisbury** beds, Woodworth. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 977. 1896.
Pleistocene. Massachusetts.
- Tisbury beds, Woodworth. Geol. Soc. Am., Bull., vol. viii, pp. 197, 207. 1897.
Pleistocene. Massachusetts. Included in Columbia.
- Titanotherium** beds, Hatcher. Am. Nat., vol. xxvii, pp. 204-221. 1893.
- Titanotherium, Wortman. Am. Mus. Nat. Hist., Bull., vol. v, p. 96. 1893.
Tertiary. Included in White River or Lower Miocene.
- Tiverton** arkose, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 378-379. 1899.
Carboniferous. Rhode Island.
- Todos Santos**, Emmons and Merrill. Geol. Soc. Am., Bull., vol. v, p. 514. 1894.
Cretaceous. Mexico. Included in Chico.
- Togiak** gravels, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, p. 177. 1900.
Pleistocene. Alaska.
- Tok** sandstone, Brooks. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, p. 473. 1900.
Tertiary(?). Alaska.
- Tok sandstone, Brooks. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 362. 1900.
Tertiary. Alaska.

- Tolenas** marble, Watts. Cal. State Mg. Bur., 10th Ann. Rept., vol. x, p. 668. 1890. California.
- Tolleston** beach, Blatchley. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., 1897, p. 36. 1898. Glacial. Indiana.
- Tombigbee** sand group, Hilgard. Rept. on Geol. and Agric. Miss., pp. 61, 68-75. 1860. Cretaceous. Mississippi.
- Tombigbee**, White. U. S. Geol. Surv., Bull. No. 82, p. 106. 1891. Cretaceous. Gulf region. Exact syn. Upper Eutaw of Alabama.
- Tomlinson** shale, Stevenson. N. Y. Acad. Sci., Trans., vol. xvi, p. 51. 1896; Carboniferous. Arkansas. Included in Sebastian stage.
- Tonto**, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 43, 61. 1876. Utah.
- Tonto**, Walcott. Am. Jour. Sci., 3d ser., vol. xxvi, p. 439. 1883. Cambrian. Grand Canyon of Colorado.
- Tonto**, Walcott. Geol. Soc. Am., Bull., vol. i, p. 50. 1889. Cambrian. Arizona.
- Tonto**, Walcott. U. S. Geol. Surv., Bull. No. 81, pp. 245, 356. 1891. Cambrian. Grand Canyon region. Included in Upper Cambrian.
- Tonto**, Walcott. Geol. Soc. Am., Bull., vol. x, p. 214. 1899. Cambrian. Arizona.
- Tonto**, Crosby. Geol. Soc. Am., Bull., vol. x, p. 158. 1899. Cambrian. Colorado.
- Topeka** limestone, Bennett. Kan. Geol. Surv., vol. i, pp. 117-118. 1896. Carboniferous. Kansas.
- Topeka** limestones, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 94, 105. 1898. Carboniferous. Kansas. Included in Shawnee formation. Exact syn. Howard limestone.
- Topeka** limestone, Beede. Kan. Univ. Quart., vol. vii, p. 232. 1898. Carboniferous. Nebraska.
- Topeka** limestone, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 29. 1898. Carboniferous. Kansas.
- Topeka** limestone, Beede. Kan. Acad. Sci., Trans., vol. xvi, pp. 77-79, 84. 1899. Carboniferous. Kansas, Nebraska.
- Torbay** slates, Walcott. Geol. Soc. Am., Bull., vol. x, p. 219. 1899. Algonkian. Newfoundland. Included in Avalon terrane.
- Tordrillo** series, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 153-155, 183. 1900. Cretaceous. Alaska.
- Toronto** limestone, Haworth and Piatt. Kan. Univ. Quart., vol. ii, p. 117. 1894. Carboniferous. Kansas.
- Toronto** stage, Upham. Am. Geol., vol. xvi, p. 105. 1895. Pleistocene. Included in Champlain epoch.
- Toronto** formation, Chamberlin. Jour. of Geol., vol. iii, pp. 273-275. 1895. Pleistocene. Included in Glacial.
- Toronto** epoch, Todd. Mo. Geol. Surv., vol. x, p. 215. 1896. Pleistocene. Missouri.
- Toronto** formation, Coleman. Geol. Soc. Am., Bull., vol. x, p. 171. 1899. Pleistocene. Ontario.
- Torregon** formation, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 347. 1898. Tertiary. New Mexico. Included in Puerco beds of Eocene.
- Towanda** sandstone, Sherwood. 2d Pa. Geol. Surv., Rept. G, p. 38. 1875. Devonian. Pennsylvania. Included in Chemung.

Tower sandstone, Powell. U. S. Geog. and Geol. Surv., Geol. of the Uinta Mts., pp. 40, 45. 1876.

Tertiary. Utah. Included in Upper Green River.

Trail, Diller. Geol. Soc. Am., Bull., vol. iii, p. 372. 1892.

Trias. California.

Tranquille beds, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 26B, 72B-73B, 165B-182B. 1896.

Tertiary. British Columbia. Exact syn. Miocene.

Trap Tuff, Hitchcock. Am. Jour. Sci., 2d ser., vol. iv, pp. 199-207. 1847.

Jurassic. Connecticut.

Trappean series, Pumpelly. Am. Jour. Sci., 3d ser., vol. ii, pp. 188-198. 1871.

Michigan.

Traverse group, Lane. Mich. Geol. Surv., Rept. State Board for 1891-92, p. 66. 1893.

Devonian. Michigan.

Traverse group, Lane. Mich. Geol. Surv., vol. v, pt. ii, p. 24. 1895.

Traverse, Lane. U. S. Geol. Surv., Water-supply Papers, No. 30, pl. vi. 1899.

Devonian. Michigan. Exact syn. Hamilton.

Traverse group, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 31-35. 1900.

Devonian. Michigan. Exact syns. Hamilton and Little Traverse.

Travis Peak sands, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 118-120. 1890.

Cretaceous. Texas. Included in Trinity division of Comanche series.

Travis Peak formation, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 219-221. 1898.

Cretaceous. Texas. Included in Trinity division of Comanche series.

Trego zone, Williston. Kan. Univ. Quart., vol. iv, p. 251. 1896.

Upper Cretaceous. Kansas. Included in Smoky Hill chalk.

Trenton limestone, Vanuxem. N. Y. Geol. Surv., 4th Ann. Rept., pp. 364-367, 371. 1840.

Silurian. New York.

Trenton limestone, Conrad. Am. Jour. Sci., 1st ser., vol. xxxviii, pp. 87-88. 1840. Silurian.

Trenton limestone, Mather. N. Y. Geol. Surv., 5th Ann. Rept., p. 97. 1841.

Silurian. New York.

Trenton, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, pp. 229-232. 1842.

Lower Silurian.

Trenton limestone. Vanuxem. Geol. of N. Y., pt. iii, pp. 45-56. 1842.

Paleozoic. New York. Included in New York system. Includes Metalliferous limerock, No. 2, Pennsylvania Survey.

Trenton limestone, Emmons. Geol. of N. Y., pt. ii, pp. 112-116, 182, 277, 319, 387. 1842.

Paleozoic. New York. Included in New York transition system, Champlain group.

Trenton limestone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 29. 1843.

Paleozoic. New York. Included in New York system.

Trenton limestone, Mather. Geol. of N. Y., pt. i, pp. 397-402. 1843.

Paleozoic. New York. Included in Champlain division. Includes Metalliferous limerock, No. 2, Pennsylvania Survey, and Cliff limestone of Ohio and Indiana.

Trenton, Emmons. Agric. of N. Y., vol. i, p. 123. 1846.

Silurian. New York. Included in Champlain division of New York system.

Trenton limestone, Hough. Am. Jour. of Agric. and Sci., vol. v, p. 316. 1847.

Silurian. New York.

Trenton, Hall. Pal. of N. Y., vol. i, p. 61. 1847.

Silurian. New York. Includes Trenton limestone, Utica slate, and Hudson River group.

- Trenton limestone, Murray. Can. Geol. Surv., Rept. 1847-48. 1849.
Silurian. Ontario.
- Trenton limestone, Hall. Am. Jour. Sci., 2d ser., vol. xvii, pp. 181-193. 1354.
Silurian. Michigan.
- Trenton limestone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., p. 112. 1855.
Silurian. Missouri. Included in Lower Silurian.
- Trenton limestone, Shumard. Mo. Geol. Surv., 1st and 2d Ann. Repts., pt. ii, pp. 143-145, 159. 1855.
Silurian. Missouri.
- Trenton limestone, Hall. Iowa Geol. Surv., vol. i, pt. i, pp. 54-60. 1858.
Silurian. Iowa. Includes Black River and Birdseye limestone.
- Trenton limestone, Whitney. Iowa Geol. Surv., vol. i, pt. i, pp. 287-288, 298-302, 341. 1858.
Silurian. Iowa. Exact syn. Blue limestone.
- Trenton limestone, Hall and Whitney. Am. Jour. Sci., 2d ser., vol. xxvii, p. 108. 1859.
Silurian. Iowa.
- Trenton limestone, Hitchcock. Geol. of Vt., vol. i, pp. 281-301. 1861.
Paleozoic. Vermont. Included in Trenton period.
- Trenton limestone, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, pp. 241, 242, 249. 1861.
Lower Silurian. Vermont and Canada.
- Trenton limestone, Whitney. Rept. on Upper Mississippi lead region, p. 162. 1862.
Silurian. Wisconsin. Exact syn. Blue limestone.
- Trenton group, Logan. Can. Geol. Surv., Rept. 1843-63, pp. 136-197. 1863.
Lower Silurian. Canada. Includes Birdseye, Black River, and Trenton formations in New York.
- Trenton group, Chapman. Can. Inst., new ser., vol. viii, pp. 196-203. 1863.
Silurian. Canada. Included in Lower Silurian, Ontario group.
- Trenton group, Worthen. Ill. Geol. Surv., vol. i, pp. 141-149. 1866.
Silurian. Illinois. Included in Lower Silurian. Includes Galena limestone and Blue and Buff limestone, and Cape Girardeau marble in Missouri.
- Trenton group, Bell. Can. Geol. Surv., Rept. 1863-66, pp. 170-171, 1866; Rept. 1866-69, p. 125. 1871.
Silurian. Canada.
- Trenton limestone, Freeman. Ill. Geol. Surv., vol. iii, pp. 276-279. 1866.
Silurian. Illinois.
- Trenton group, Worthen. Ill. Geol. Surv., vol. i, pp. 141-149. 1866.
Silurian. Illinois. Includes Trenton limestone and Galena limestone.
- Trenton limestone, Worthen. Ill. Geol. Surv., vol. iii, pp. 28-29, 118. 1868.
Silurian. Illinois.
- Trenton or Lebanon, Safford. Geol. of Tenn., by Safford, pp. 228-290. 1869.
Silurian. Tennessee. Includes Central limestone, Pierce limestone, Ridley limestone, Glade limestone, and Carters Creek limestone (in middle Tennessee).
- Trenton group, Bannister. Ill. Geol. Surv., vol. iv, p. 143. 1870.
Silurian. Illinois.
- Trenton limestone, Bradley. Ill. Geol. Surv., vol. iv, p. 201. 1870.
Silurian. Illinois.
- Trenton group, Worthen. Ill. Geol. Surv., vol. iv, p. 4. 1870.
Silurian. Illinois.
- Trenton group, White. Iowa Geol. Surv., vol. i, pp. 174-176. 1870.
Silurian. Iowa. Includes Trenton limestone.

- Trenton limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 1st Ann. Rept., pp. 92-104. 1873.
 Lower Silurian. Minnesota.
- Trenton limestone, Worthen. Ill. Geol. Surv., vol. v, pp. 279-280. 1873.
 Silurian. Illinois.
- Trenton formation or group, Shaw. Ill. Geol. Surv., vol. v, pp. 86-90, 111-115. 1873.
 Silurian. Illinois. Includes Galena, Blue and Buff limestones.
- Trenton limestone, Shumard. Mo. Geol. Surv., Rept. 1855-1871, pp. 266, 283, 297, 307. 1873.
 Silurian. Missouri.
- Trenton limestone, Broadhead. Mo. Geol. Surv., Rept. 1855-1871, p. 49. 1873.
 Silurian. Missouri. Included in Lower Silurian. Includes Charrette limestone, and Middle and Lower Trenton.
- Trenton, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 59. 1873.
 Silurian. Ohio.
- Trenton limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 2d Ann. Rept., p. 131. 1874.
 Lower Silurian. Minnesota.
- Trenton or Lebanon group, Killebrew and Safford. Res. of Tenn., pp. 33-37. 1874.
 Silurian. Tennessee. Included in Trenton period.
- Trenton group, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 29. 1874.
 Silurian. Missouri. Includes Trenton, Black River, and Birdseye limestone.
- Trenton, Hotchkiss. A Geog. and Political Summary of Va., p. 22. 1876.
 Cambrian and Lower Silurian. Virginia. Exact syns. Auroral, Formation II, Rogers.
- Trenton limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., pp. 42-49. 1876.
 Lower Silurian. Minnesota. Exact syn. Blue limestone.
- Trenton limestone, Harrington. Minn. Geol. and Nat. Hist. Surv., 4th Ann. Rept., p. 90. 1876.
 Lower Silurian. Minnesota.
- Trenton, Smith. Ala. Geol. Surv., Rept. 1875, pp. 25, 99, 111. 1876.
 Silurian. Alabama.
- Trenton limestone, Irving. Geol. of Wis., vol. ii, pp. 558-562. 1877.
 Lower Silurian. Wisconsin.
- Trenton limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., 5th Ann. Rept., p. 25. 1877.
 Lower Silurian. Minnesota.
- Trenton, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 532, 558. 1877.
 Silurian. Appalachian region. Part. syn. Matinal in part.
- Trenton, Prime. Am. Phil. Soc., Proc., vol. xvi, p. 250. 1877.
 Silurian. Pennsylvania. Exact syn. No. 2.
- Trenton limestone, Chamberlin. Geol. of Wis., vol. ii, pp. 290-304. 1877.
 Lower Silurian. Wisconsin.
- Trenton limestone, Prime. 2d Pa. Geol. Surv., Rept. D², pp. 57-58. 1878.
 Silurian. Pennsylvania.
- Trenton limestone, Prime. Am. Jour. Sci., 3d ser., vol. xv, pp. 266-269. 1878.
 Silurian. Pennsylvania.
- Trenton gravel, Lewis. Phil. Acad. Nat. Sci., Proc., vol. xxxii, pp. 296-309. 1880.
 Pleistocene. New Jersey.
- Trenton gravel, Hall. 2d Pa. Geol. Surv., Rept. C⁶, p. 16. 1881.
 Pleistocene. Pennsylvania.

- Trenton, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 51-55. 1881.
Silurian. Pennsylvania.
- Trenton, McCalley. Ala. Geol. Surv., 1879-1880, pp. 142, 146. 1881.
Silurian. Alabama. Includes Nashville.
- Trenton group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, no. 4, pp. 269, 270, 283. 1881.
- Trenton, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 93-94. 1882.
Silurian. Pennsylvania.
- Trenton group, Linney. Ky. Geol. Surv. (Proctor), Geol. of Mercer Co., 1882.
Silurian. Kentucky. Includes Siliceous limestone, Blue grass beds, Granular limestones, and Upper Birdseye beds.
- Trenton limestone, Linney. Ky. Geol. Surv., Geol. of Garrard Co., p. 13. 1883.
Silurian. Kentucky. Included in Trenton period.
- Trenton period, Chamberlin. Geol. of Wis., vol. i, p. 150. 1883.
Silurian. Wisconsin. Included in Lower Silurian, Cambro-Silurian, Ordovician. Includes Hudson River, Galena, Trenton, and St. Peters.
- Trenton formation, Chamberlin. Geol. of Wis., vol. i, pp. 151-165. 1883.
Lower Silurian or Cambro-Silurian. Wisconsin. Includes Lower Bluff limestone, Lower Blue limestone, Upper Bluff limestone, and Upper Blue limestone.
- Trenton limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, pp. 218, 289, 655. 1884.
Minnesota.
- Trenton limestone, Harrington. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. i, pp. 339-343. 1884.
Lower Silurian. Minnesota.
- Trenton limestone, Linney. Ky. Geol. Surv. (Proctor), Geol. of Clark and Montgomery Cos., 1884.
Silurian or Cambrian. Kentucky. Included in Trenton period.
- Trenton limestone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. ii, pp. 10, 39, 82, 288, 388. 1888.
Lower Silurian. Minnesota.
- Trenton limestone, Hall. Minn. Acad. Nat. Sci., Bull., vol. iii, no. 1, pp. 113-124. 1889.
Lower Silurian. Minnesota.
- Trenton group, Miller. N. A. Geol. and Pal., p. 40. 1889.
- Trenton limestone, Orton. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 547. 1889.
Silurian. Ohio, Indiana.
- Trenton limestone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 11-14. 1890.
Silurian. Ohio.
- Trenton, Smith. Ala. Geol. Surv., Rept. on Cahaba coal field, p. 152. 1890.
Silurian. Alabama. Exact syn. Pelham.
- Trenton, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 50. 1890.
Silurian. Arkansas. Includes Maclurea, East Tennessee, Nashville, St. Clair, Iazard and Galena, Cincinnati, Birdseye, Hudson River, Black River, Cape Girardeau limestones, and Glens Falls black marble.
- Trenton limestone, Orton. Ky. Geol. Surv., Rept. on Petroleum, etc., p. 130. 1891.
Silurian. Kentucky.
- Trenton, D'Inwilliers. 2d Pa. Geol. Surv., Rept. F⁴, pp. 80-82. 1891.
Silurian. Pennsylvania. Exact syn. No. 2.
- Trenton limestone, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 627. 1891.
Silurian. Indiana.
- Trenton, McGee. U. S. Geol. Surv., 11th Ann. Rept., pt. ii, p. 329. 1891.
Silurian. Iowa.

- Trenton limestone, Keyes. Iowa Geol. Surv., vol. i, pp. 25-26. 1893.
Silurian. Iowa.
- Trenton gravel, Salisbury. N. J. State Geol., Ann. Rept., 1892, pp. 106-125. 1893.
Pleistocene. New Jersey.
- Trenton, Gibson. Ala. Geol. Surv., Geol. Structure of Murphrees Valley, pp. 25, 92. 1893.
Silurian. Alabama. Exact syn. Pelham.
- Trenton limestone, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, pp. 68, 70. 1893.
Silurian. Maryland.
- Trenton, Hershey. Am. Geol., vol. xiv, p. 175. 1894.
Silurian. Illinois. Exact syn. Blue limestone.
- Trenton limestone, Cushing. N. Y. State Geol., 13th Ann. Rept., pp. 483-486. 1894.
Silurian. New York.
- Trenton group, Darton. N. Y. State Geol., 13th Ann. Rept., pp. 422-429. 1894.
Silurian. New York. Includes Birdseye, Black River, and Trenton limestones.
- Trenton limestone, Calvin. Iowa Geol. Surv., vol. iv, pp. 73-80. 1895.
Silurian. Iowa. Included in Ordovician. Exact syn. St. Peter shell limestone.
- Trenton limestone, Udden. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 836. 1896.
Silurian. Illinois.
- Trenton limestone, Cushing. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 514. 1897.
Silurian. New York.
- Trenton limestone, Winchell and Ulrich. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iii, pt. ii, p. xcii-ci. 1897.
Lower Silurian. Minnesota.
- Trenton limestone, Buckley. Wis. Geol. and Nat. Hist. Surv., Bull. No. 4, Econ. ser., no. 2, pp. 270-297. 1898.
Wisconsin.
- Trenton, Barlow. Can. Geol. Surv., new ser., vol. x, p. 122I. 1898.
Silurian. Ontario and Quebec.
- Trenton formation, White. N. Y. State Mus., 51st Ann. Rept., vol. i, p. r29. 1899.
Ordovician. New York.
- Trenton limestone, Calvin and Bain. Iowa Geol. Surv., vol. x, p. 402. 1900.
Silurian. Iowa. Included in Ordovician.
- Trenton limestone, Cummings. N. Y. State Mus., Bull., vol. vii, no. 34, p. 424. 1900.
Silurian. New York.
- Trincheras** division, Dumble. Am. Inst. Mg. Engrs., Trans., vol. xxix, p. 131. 1900.
Tertiary. Mexico.
- Trinidad** formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 58. 1899.
Cretaceous. Colorado.
- Trinidad formation, Hills. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 68. 1900.
Cretaceous. Colorado.
- Trinity** division, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 116-152, 176, 179. 1888.
Lower Cretaceous. Included in Comanche series.
- Trinity division, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lii. 1890.
Cretaceous. Texas. Included in Comanche series.
- Trinity, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503-505-509. 1891.
Cretaceous. Texas.
- Trinity division, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 715-717. 1891.
Cretaceous. Texas. Included in Lower Cretaceous.

- Trinity, White. U. S. Geol. Surv., Bull. No. 82, p. 118. 1891.
Cretaceous. Texas. Exact syn. Dinosaur sands.
- Trinity beds, Dumble and Cummins. Am. Geol., vol. ix, p. 349. 1892.
Cretaceous. Texas.
- Trinity sand, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 282-289, 319, 335-336. 1892.
Cretaceous. Texas. Included in Bosque division of Lower Cretaceous.
- Trinity division, Hill. Artesian Invest., Final Rept., pt. iii, p. 81, 52d Cong., 1st Sess., Ex. Doc. 41, pt. iii. 1892.
Cretaceous. Southwest. Includes Glen Rose beds, Paluxy sands, Comanche Peak chalk and Caprina limestone. Exact syn. Upper Cross Timber sands.
- Trinity sands, Hill. Science, vol. xxii, p. 23. 1893.
Cretaceous. Texas.
- Trinity division, Hill. Wash. Biol. Soc., Proc., vol. viii, p. 9. 1893.
Cretaceous. Texas. Included in Comanche series.
- Trinity, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 362-368. 1893.
Cretaceous. Texas.
- Trinity division, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.
Cretaceous. Texas. Includes Glen Rose.
- Trinity sands, Hill. Geol. Soc. Am., Bull., vol. v, pp. 297, 303. 1894.
Cretaceous. Texas.
- Trinity division, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 378. 1895.
Cretaceous. Texas. Included in Lower Cretaceous.
- Trough Creek** limestone, White. 2d Pa. Geol. Surv., Rept. T³, pp. 73-76. 1885.
Carboniferous. Pennsylvania.
- Truckee** group, King. U. S. Geol. Expl. of 40th Parallel, vol. i, p. 412. 1878
Tertiary. Nevada. Included in Miocene.
- Truckee group, White. U. S. Nat. Mus., Proc., vol. v, pp. 99-102. 1882.
Tertiary. California. Included in Miocene. Part. syn. Miocene(?).
- Truckee group, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, pp. 282, 285, 313. 1892.
Tertiary. Idaho, Oregon, Nevada. Exact syn. Idaho group.
- Truro** series, Shaler. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 541-548. 1898.
Pleistocene. Massachusetts. Included in Glacial, Cape Cod series.
- Tuckahoe** group, Shaler and Woodworth. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, pp. 423-435. 1899.
Juratrias. Virginia. Included in Newark. Includes Boscabel boulder beds.
- Tucumcari** beds, Cummins. Texas Geol. Surv., 3d Ann. Rept., pp. 201-210. 1892.
Cretaceous and Tertiary. Texas.
- Tucumcari shale, Cragin. Am. Geol., vol. xvi, p. 381. 1895.
Cretaceous. Kansas. Included in Belvidere beds.
- Tule** division, Cummins. Texas Geol. Surv., 4th Ann. Rept., pp. 199-200. 1893.
Tertiary. Texas.
- Tully** limestone, Vanuxem. N. Y. Geol. Surv., 3d Ann. Rept., p. 278. 1839.
Devonian. New York.
- Tully limestone, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 300-301, 313. 1839.
Devonian. New York.
- Tully limestone, Conrad. Phil. Acad. Nat. Sci., Jour., vol. viii, pp. 229, 232. 1842
Upper Silurian.
- Tully limestone, Vanuxem. Geol. of N. Y., pt. iii, pp. 163-167. 1842.
Paleozoic. New York. Included in New York system.
- Tully limestone, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 212-215. 1843.
Paleozoic. New York. Included in New York system.

- Tully limestone, Emmons. Agric. of N. Y., vol. i, p. 186. 1846.
New York. Included in Erie division of New York system.
- Tully limestone, Owen. Am. Jour. Sci., 2d ser., vol. iii, p. 72. 1847.
Devonian. New York. Included in Erie division of New York system.
- Tully limestone, Winchell. Ohio Geol. Surv., vol. ii, p. 426. 1874.
Devonian. Ohio.
- Tully limestone, Williams. N. Y. State Geol., Rept. for 1886, pp. 13-29. 1887.
Devonian. New York.
- Tully limestone, White. 2d Pa. Geol. Surv., Rept. G⁶, pp. 109-110. 1882.
Devonian. Pennsylvania. Included in Hamilton.
- Tully limestone, Williams. Am. Assoc. Adv. Sci., Proc., vol. xxxv, p. 213. 1887.
Devonian. New York.
- Tully limestone, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1307-1322. 1892.
Devonian. Pennsylvania. Exact syn. No. 8d.
- Tully limestone, Prosser. U. S. Geol. Surv., Bull. No. 120, pp. 7, 71, 78. 1894.
Devonian. Pennsylvania, New York. Included in Hamilton.
- Tully limestone, Luther. N. Y. State Geol., 13th Ann. Rept., pp. 38-40. 1894.
Devonian. New York.
- Tully limestone, Lincoln. N. Y. State Mus., 48th Ann. Rept., pt. ii, pp. 95-97. 1895.
Devonian. New York.
- Tully limestone, Lincoln. N. Y. State Geol., 14th Ann. Rept., pp. 95-97. 1895.
Devonian. New York.
- Tully limestone, Luther. N. Y. State Geol., 16th Ann. Rept., p. 220. 1899.
Devonian. New York.
- Tuna conglomerate**, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1531-1532. 1892.
Devonian. Pennsylvania. Included in Venango.
- Tunnel Point beds**, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 340. 1898.
Tertiary. Oregon. Included in Chipolan stage, Oligocene.
- Tu-Nunk**, Gilbert. U. S. Geog. and Geol. Surv., Rept. on Henry Mts., p. 4. 1877.
Cretaceous. Utah.
- Tusahoma series**, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 96. 1891.
Tertiary. Georgia. Exact syn. Bells Landing series.
- Tusahoma, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 596. 1891.
Tertiary. Alabama. Included in Lower Eocene.
- Tusahoma series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., p. 27. 1891.
Cretaceous. Georgia. Exact syn. Potomac.
- Tusahoma, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 162, 237, 402, 490. 1894.
Tertiary. Alabama. Included in Eocene, Lignitic. Exact syn. Bells Landing.
- Tusahoma series, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 346. 1898.
Tertiary. Alabama. Included in Eocene. Exact syn. Bells Landing series.
- Tuscaloosa formation**, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 95. 1887.
Cretaceous (?). Alabama.
- Tuscaloosa, Langdon. Geol. Soc. Am., Bull., vol. ii, pp. 588, 589. 1891.
Cretaceous. Alabama.
- Tuscaloosa series, Langdon. Ga. Geol. Surv., 1st Rept. of Prog., p. 91. 1891.
Tertiary. Georgia.
- Tuscaloosa series, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., 1890-91. 1891.
Cretaceous. Georgia. Exact syn. Potomac.
- Tuscaloosa, Smith. Ala. Geol. Surv., Bull. No. 2, p. 13. 1892.
Cretaceous. Alabama.

- Tuscaloosa, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 14, 307, 362, 433, 454. 1894.
Cretaceous. Alabama.
- Tuscaloosa formation, Stanton. Jour. of Geol., vol. v, pp. 592-593. 1897.
Cretaceous. Included in Lower Cretaceous.
- Tuscaloosa formation, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 481-487, 506. 1897.
Cretaceous. Alabama.
- Tuscan**, Diller. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 412. 1894.
Tertiary. California. Included in Neocene.
- Tuscan, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 15. 1895.
California. Included in Neocene.
- Tuscan tuff, Turner. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 540. 1896.
California.
- Tuscarora** quartzite, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 32. 1896.
Silurian. Virginia, West Virginia.
- Tuscarora quartzite, Darton and Taff. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 28. 1896.
Silurian. West Virginia, Maryland.
- Tuscarora formation, Clark. Md. Geol. Surv., vol. i, p. 181. 1897.
Silurian. Maryland. Exact syn. White Medina sandstone.
- Tuscarora, Clark. Md. Geol. Surv., vol. i, p. 157. 1897.
Silurian. Maryland. Part. syn. White Medina.
- Tuscarora, Clark. Md. Geol. Surv., vol. ii, pp. 199, 208. 1898.
Silurian. Maryland. Part. syn. White Medina.
- Tuscarora quartzite, Darton. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 61. 1899.
Silurian. Virginia, West Virginia.
- Tuscarora, Clark. Md. Geol. Surv., vol. iii, p. 99. 1899.
Silurian. Maryland. Part. syn. White Medina.
- Tuscarora formation, O'Harra. Md. Geol. Surv., Allegany Co., p. 87. 1900.
Silurian. Maryland.
- Tuscumbia**, McCalley. Ala. Geol. Surv., Rept. on Valley regions of Ala., pt. i, pp. 27, 36. 1896.
Carboniferous. Alabama. Exact syn. St. Louis limestone.
- Tuscumbia limestone, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 172-183, 240-246, 292-299. 1897.
Carboniferous. Alabama. Included in Fort Payne chert.
- Twelvemile** beds, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, p. 196. 1898.
Tertiary. Alaska. Included in Miocene or Pliocene.
- Tyre** sandstone, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 49. 1898.
Tertiary. Oregon. Included in Eocene.
- Tyre sandstone, Smith. Jour. of Geol., vol. viii, p. 463. 1900.
Tertiary. Oregon. Included in Eocene.
- Tymochtee** slate, Winchell. Ohio Geol. Surv., vol. ii, pp. 399, 407. 1874.
Silurian. Ohio. Included in Niagara.
- Tyonek** beds, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 171-172, 184. 1900.
Tertiary. Alaska. Included in Neocene.
- Tyringham** gneiss, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.
Algonkian. Massachusetts. Part. syn. Stamford gneiss.

Tyringham gneiss, Emerson. U. S. Geol. Surv., Bull. No. 159, p. 34. 1899.

Pre-Cambrian. Massachusetts.

Uinta, Powell. U. S. Geol. and Geol. Surv., Geol. of Uinta Mts., pp. 41, 61, 141. 1876.

Paleozoic. Utah.

Uinta group, King. U. S. Geol. Expl. of 40th Parallel, vol. i, p. 405. 1878.

Tertiary. Utah. Included in Eocene.

Uinta group, White. U. S. Geol. and Geol. Surv. of Terr., 10th Ann. Rept., pp. 19, 20, 22, 37. 1878.

Tertiary. Utah, Colorado. Exact syn. Browns Park group.

Uinta, Cope. U. S. Geol. and Geol. Surv. of Terr., Mon., vol. iii, pp. 12-13. 1881.

Tertiary.

Uinta sandstone, White. U. S. Geol. Surv., 9th Ann. Rept., p. 687. 1889.

Carboniferous or older. Colorado. Exact syn. Weber quartzite.

Uinta, Scott and Osborn. Am. Phil. Soc., Trans., vol. xvi, pp. 462-470. 1890. Wyoming.

Uinta group, Clark. U. S. Geol. Surv., Bull. No. 83, p. 143. 1891.

Tertiary. Interior region. Included in Eocene.

Uinta, Peterson. Am. Mus. Nat. Hist., Bull., vol. v, p. 74. 1895.

Tertiary. Utah. Exact syn. Browns Peak beds.

Uinta beds, Osborn. Am. Mus. Nat. Hist., Bull., vol. vii, 1895, p. 74. 1895.

Upper Eocene. Exact syn. Browns Peak beds.

Uinta formation, Scott. Wagner Free Inst. Sci., Trans., vol. vi, pp. x-xiii. 1899.

Tertiary. Western United States.

Uinta formation, Smith. Jour. of Geol., vol. viii, pp. 452-454. 1900.

Tertiary. Western North America. Included in Eocene. Exact syn. Browns Peak group.

Ulsterian, Clarke and Schuchert. Science, new ser., vol. x, pp. 876-877. 1899.

Devonian. New York. Includes Esopus grit, Schoharie grit, and Onondaga limestone.

Umbral series, Rogers. Geol. of Pa., vol. i, pp. 108, 144-146 et seq.; vol. ii, p. 757. 1858.

Carboniferous. Pennsylvania. Exact syn. Middle Carboniferous.

Umbral beds, Fontaine. Am. Jour. Sci., 3d ser., vol. xi, pp. 276-279. 1876.

Carboniferous. West Virginia.

Umbral, Stevenson. 2d Pa. Geol. Surv., Rept. K², pp. 96-103. 1877.

Carboniferous. Pennsylvania. Included in Lower Carboniferous.

Umbral, Stevenson. Am. Phil. Soc., Proc., vol. xxiv, p. 75. 1887.

Carboniferous. Virginia.

Umpqua formation, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 49. 1898.

Tertiary. Oregon. Included in Eocene.

Umpqua formation, Smith. Jour. of Geol., vol. viii, pp. 462-463. 1900.

Tertiary. Oregon. Included in Eocene.

Unga conglomerate, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 234. 1892.

Tertiary. Alaska.

Unga conglomerate, Dall. U. S. Geol. Surv., 17th Ann. Rept., pt. i, p. 836. 1896.

Tertiary. Alaska. Included in Kenai series.

Unga beds, Becker. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pl. i. 1898. Alaska.

Unicoi sandstone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.

Cambrian. Virginia and Tennessee.

Union formation, Ami. Can. Rec. Sci., vol. viii, pp. 154-160. 1900.

Carboniferous. Canada. Included in Eo-Carboniferous.

Union formation, Ami. N. S. Inst. Sci., Proc. and Trans., vol. x, pt. 2, pp. 162-178. 1900.

Carboniferous. Canada.

Uniontown limestone, Stevenson. 2d Pa. Geol. Surv., Rept. K², p. 405. 1877.

Carboniferous. Pennsylvania. Included in Great limestone.

Uniontown limestone, White. U. S. Geol. Surv., Bull. 65, p. 59. 1891.

Carboniferous. Pennsylvania, West Virginia. Included in Upper Coal Measures, Monongaheia River series, Great limestone.

Uniontown sandstone, White. U. S. Geol. Surv., Bull. 65, p. 58. 1891.

Carboniferous. Pennsylvania. Included in Upper Coal Measures, Monongahela River series.

Unionville sandstone, Shaw. Ill. Geol. Surv., vol. v, pp. 147-149. 1873.

Carboniferous. Illinois. Included in Coal Measures. Exact syn. Millstone grit.

Unkar, Walcott. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 510. 1894.

Algonkian. Grand Canyon of Colorado. Included in Grand Canyon series.

Unkar terrane, Walcott. Jour. of Geol., vol. iii, pp. 322-324. 1895.

Algonkian. Grand Canyon region. Included in Grand Canyon series.

Unkar, Crosby. Geol. Soc. Am., Bull., vol. x, p. 158. 1899.

Algonkian. Colorado. Included in Grand Canyon group.

Unkar terrane, Walcott. Geol. Soc. Am., Bull., vol. x, p. 216. 1899.

Algonkian. Arizona. Included in Grand Canyon group.

Unkpapa sandstone, Darton. Geol. Soc. Am., Bull., vol. x, p. 393. 1899.

Jurassic. Black Hills.

Upshur sandstone, Taff and Brooks. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 34. 1896.

Carboniferous. West Virginia.

Upson clays, Dumble. Geol. Soc. Am., Bull., vol. iii, pp. 219, 224. 1892.

Cretaceous. Texas. Included in Upper Cretaceous, Eagle Pass division.

Upson clay, Vaughan. U. S. Geol. Surv., Bull. No. 164, p. 20. 1900.

Cretaceous. Texas.

Ute limestone, King. Am. Jour. Sci., 3d ser., vol. xi, p. 477. 1876.

Cambro-Silurian. Nevada. Part. syns. Primordial, Quebec, Niagara, and Lower Helderberg.

Ute limestone, Hague. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 399, 410. 1877. Silurian. Utah.

Ute limestone, Emmons. U. S. Geol. Expl. of 40th Parallel, vol. ii, p. 343 et seq. 1877.

Silurian. Utah. Exact syn. Quebec.

Ute limestone, King. U. S. Geol. Expl. of 40th Parallel, vol. i, pp. 127-248. 1878.

Silurian. Utah, Nevada. Exact syn. Quebec group.

Utica slate, Emmons. Geol. of N. Y., pt. ii, pp. 116-118, 183, 278, 319, 397. 1842.

Paleozoic. New York. Included in New York transition system, Champlain group.

Utica slate, Vanuxem. Geol. of N. Y., pt. iii, pp. 56-60. 1842.

Paleozoic. New York. Included in New York system. Includes Black slate, Fairfield slate, Graywacke of Eaton, No. 3, Pennsylvania Survey.

Utica slate, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 29. 1843.

Paleozoic. New York. Included in New York system.

Utica slate, Mather. Geol. of N. Y., pt. i, pp. 390-396. 1843.

Paleozoic. New York. Included in Champlain division. Includes Mohawk slate, Black slate, Fairfield slate, Graptolitic slate, and Transition argillite, No. iii, Pennsylvania Survey.

Utica slate, Emmons. Agric. of N. Y., vol. i, pp. 122-124. 1846.

New York. Included in New York system, Champlain division.

- Utica slate, Murray. Can. Geol. Surv., Rept., 1847-48, p. 116. 1849.
Silurian. Ontario.
- Utica slate, Hitchcock. Geol. of Vt., vol. i, pp. 301-308. 1861.
Paleozoic. Vermont. Included in Hudson period.
- Utica slate, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, pp. 241, 242, 249. 1861.
Lower Silurian. Vermont, Canada.
- Utica formation, Logan. Can. Geol. Surv., Rept. 1843-1863, pp. 198-224. 1863.
Lower Silurian. Canada.
- Utica formation, Chapman. Can. Inst., new ser., vol. viii, pp. 203-205. 1863.
Silurian. Canada. Included in Lower Silurian, Ontario group.
- Utica formation, Bell. Can. Geol. Surv., Rept. 1863-1866, p. 171. 1866.
Lower Silurian. Canada.
- Utica limestone, Borden. Indiana Geol. Surv., 5th Ann. Rept. for 1873, p. 172. 1874.
Indiana.
- Utica, Ashburner. Am. Phil. Soc., Proc., vol. xvi, pp. 532, 558. 1877.
Silurian. Appalachian region. Part. syn. Matinal in part.
- Utica, Prime. Am. Phil. Soc., Proc., vol. xvi, p. 253. 1877.
Silurian. Pennsylvania. Exact syn. No. III in part.
- Utica shale, Prime. Am. Jour. Sci., 3d ser., vol. xv, p. 269. 1878.
Silurian. Pennsylvania.
- Utica shale, Prime. 2d Pa. Geol. Surv., Rept. D², pp. 69-71. 1878.
Silurian. Pennsylvania. Included in No. iii.
- Utica slate, Ami. Ottawa Field Nat. Club, Trans., 1879-83, vol. i, p. 61. 1880-83.
Silurian. Canada. Includes Ottawa beds. Exact syn. Utica shale.
- Utica, Platt. 2d Pa. Geol. Surv., Rept. T, pp. 48-51. 1881.
Silurian. Pennsylvania.
- Utica slate group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. 4, pp. 269, 285. 1881.
Ordovician.
- Utica, Stevenson. 2d Pa. Geol. Surv., Rept. T², pp. 92-93. 1882.
Silurian. Pennsylvania.
- Utica slate, Walcott. Albany Inst., Trans., vol. x, pp. 1-17. 1883.
Silurian. New York. Exact syns. Mohawk slate, Black slate and shale, Frankfort slate, Lorraine shales. Part. syns. Eaton's Transition argillite, Wacke slate, Glazed slate, and Matinal black slate of Pennsylvania Survey.
- Utica, White. 2d Pa. Geol. Surv., Rept. T³, pp. 147-151. 1885.
Silurian. Pennsylvania.
- Utica, Ami. Ottawa Field Nat. Club, Trans., 1887-88, vol. iii, pp. 165-169. 1887-88.
Silurian. Canada.
- Utica shale, Orton. U. S. Geol. Surv., 8th Ann. Rept., pt. ii, p. 556. 1889.
Silurian. Ohio, Indiana.
- Utica slate group, Miller. N. A. Geol. and Pal., p. 44. 1889.
- Utica shale, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 14-15. 1890.
Silurian. Ohio.
- Utica shale, Phinney. U. S. Geol. Surv., 11th Ann. Rept., pt. i, p. 629. 1891.
Silurian. Indiana.
- Utica, Ami. Geol. Soc. Am., Bull., vol. ii, p. 495. 1891.
Ordovician(?). Quebec.
- Utica, Brumell. Geol. Soc. Am., Bull., vol. iv, pp. 227, 234. 1893.
Ordovician. Ontario.
- Utica shale, Prosser. Geol. Soc. Am., Bull., vol. iv, pp. 100, 108, 116. 1893.
Silurian. New York.

- Utica shale, Hershey. Science, vol. xxii, p. 202. 1893.
Silurian. Illinois.
- Utica slate, Cushing. N. Y. State Geol., 15th Ann. Rept., vol. i, p. 515. 1897.
Silurian. New York.
- Utica slate, Prosser and Cumings. N. Y. State Geol., 15th Ann. Rept., vol. i, pp. 619-659. 1897.
Silurian. New York.
- Utica-Hudson formation, White. N. Y. State Mus., 51st Ann. Rept., vol. i, p. r33. 1899.
Ordovician. New York.
- Utica shale, Cumings. N. Y. State Mus., Bull., vol. vii, No. 34, p. 426. 1900.
Silurian. New York.
- Uvalde** formation, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 244-247. 1898.
Late Tertiary or Pleistocene. Texas.
- Uvalde formation, Hill and Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 42. 1898.
Tertiary or Pleistocene. Texas.
- Uvalde formation, Vaughan. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 64. 1900.
Included in Neocene. Texas.
- Val Verde** flags, Dumble. Geol. Soc. Am., Bull., vol. iii, pp. 219-221. 1892.
Cretaceous. Texas. Included in Upper Cretaceous. Exact syn. Eagle Ford shale.
- Val Verde flags, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 383. 1895.
Cretaceous. Texas. Included in Lower Cretaceous.
- Valdes** series, Schrader. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 408-410. 1900.
Alaska.
- Valera** bend, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 426. 1893.
Carboniferous. Texas. Included in Albany division.
- Valley** drift, Whittlesey. Am. Jour. Sci., 2d ser., vol. v, p. 207. 1848.
Recent. Ohio.
- Valley limestone, Rogers. Geol. of the Virginias, p. 209. 1884.
Virginia. Exact syn. Formation II.
- Valley drift, Norton. Iowa Geol. Surv., vol. iv, pp. 172-173. 1895.
Pleistocene. Iowa.
- Valley Spring series, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lvi. 1890.
Archean. Texas. Included in Fernandan system.
- Valparaiso** morain. Blatchley. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept., p. 32. 1898.
Glacial. Indiana.
- Van Wert** stage, Sherzer. Mich. Geol. Surv., vol. vii, pt. i, pp. 133-135. 1900.
Pleistocene. Michigan.
- Vancouver** series, Dawson. Can. Geol. Surv., new ser., vol. ii, pp. 20B, 41B. 1887.
British Columbia. Included in Triassic.
- Vancouver formation, Dawson. Can. Geol. Surv., new ser., vol. vii, pp. 54B-55B. 1896.
Trias. British Columbia. Part syn. Nicola formation.
- Vanport** limestone, White. 2d Pa. Geol. Surv., Rept. Q, pp. 60-63. 1878.
Carboniferous. Pennsylvania. Exact syn. Ferriferous limestone.
- Variegated** limestone, Safford. Am. Jour. Sci., 2d ser., vol. xxxi, p. 207. 1860.
Silurian. Tennessee. Included in Niagara, lower part.
- Variegated sandstone, Norwood. Ky. Geol. Surv., new ser., vol. iv, p. 319. 1878.
Carboniferous. Kentucky. Included in Coal Measures.

Vashon drift, Willis. Geol. Soc. Am., Bull., vol. ix, p. 136. 1898.

Pleistocene. Washington.

Vashon drift, Willis and Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 54. 1899.

Pleistocene. Washington.

Venango oil group, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 127-148, 230-244. 1880.
Devonian. Pennsylvania.

Venango oil group, White. 2d Pa. Geol. Surv., Rept. Q⁴, pp. 99-116. 1881.

Carboniferous. Pennsylvania.

Venango oil group, Carll. 2d Pa. Geol. Surv., Ann. Rept., 1886, pt. ii, pp. 639-663. 1887.

Carboniferous. Pennsylvania.

Venango oil group, Carll. 2d Pa. Geol. Surv., Rept. I³, pp. 74-76, 81-92, 120-121, 129-130. 1890.

Devonian. Pennsylvania.

Venango formation, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. ii, pp. 1405 et seq., 1501. 1892.

Devonian. Pennsylvania.

Ventura formation, Russell. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 113-114. 1900.

Pre-Cretaceous. Washington.

Verdi beds, Bain. Am. Geol., vol. xv, p. 319. 1895.

Carboniferous. Iowa. Included in Mississippian series, St. Louis.

Verdi beds, Bain. Iowa Geol. Surv., vol. iv, pp. 279-282. 1895.

- Carboniferous. Iowa. Included in St. Louis.

Verdi beds, Bain. Iowa Geol. Surv., vol. v, pp. 149-150. 1896.

Carboniferous. Iowa. Included in St. Louis.

Vergent series, Rogers. Geol. of Pa., vol. i, pp. 108, 140 et seq.; vol. ii, p. 756. 1858.
Devonian. Pennsylvania. Includes Portage and Chemung.

Vermicular sandstone, Swallow. Mo. Geol. Surv., 1st and 2d Ann. Repts., pp. 103, 176, 195. 1855.

Devonian. Missouri. Included in Chemung.

Vermicular sandstone, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 408. 1857.
Missouri. Included in Chemung.

Vermicular sandstone, Shumard. Mo. Geol. Surv., Rept. 1855-1871, p. 206. 1873.
Carboniferous. Missouri. Included in Lower Carboniferous.

Vermicular sandstone, Broadhead. Mo. Geol. Surv., Rept. 1873-74, pp. 26, 66. 1874.
Lower Carboniferous. Missouri. Included in Chouteau group.

Vermicular sandstone, Keyes. Geol. Soc. Am., Bull., vol. iii, p. 288. 1892.

Lower Carboniferous. Missouri. Exact syn. Hannibal shales.

Vermicular, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 394 etc. 1894.

Lower Carboniferous. Missouri. Included in Mississippian. Exact syn. Hannibal limestone.

Vermicular sandstone, Weller. St. Louis Acad. Sci., Trans., vol. ix, p. 9. 1899.
Carboniferous. Missouri.

Vermilion cliff, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 41, 53, 151. 1876.

Utah.

Vermilion conglomerate group, Gilbert. U. S. Geog. and Geol. Surv., Rept. on Henry Mts., p. 6. 1877.

Utah.

Vermilion Creek, Emmons. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 203, 225. 1877.

Tertiary. Utah.

- Vermilion Creek, King. U. S. Geol. Expl. of 40th Parallel, vol. i, p. 360. 1878.
Tertiary. Wyoming, Utah. Included in Eocene.
- Vermilion group, Winchell. Minn. Geol. and Nat. Hist. Surv., 10th Ann. Rept., pp. 334-336. 1888.
Minnesota.
- Vermilion schists, Winchell. Minn. Geol. and Nat. Hist. Surv., 17th Ann. Rept., p. 31. 1889.
Minnesota. Exact syn. Couthiching.
- Vermilion series, Winchell. Minn. Acad. Nat. Sci., vol. iii, No. 2, p. 277. 1891.
Minnesota.
- Vermilion moraine, Elftman. Am. Geol., vol. xxi, pp. 94-96. 1898.
Pleistocene. Minnesota.
- Vermilion Creek beds, Davis. Am. Acad. Arts and Sci., Proc., vol. xxxv, p. 354. 1900.
Tertiary. Western States.
- Vermont**, Dale. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, pls. lxvii, lxix. 1894.
Cambrian. Vermont.
- Vermont, Wolff. U. S. Geol. Surv., Mon., vol. xxiii, p. 48. 1894.
Cambrian. Massachusetts.
- Vespertine** series, Rogers. Am. Jour. Sci., 1st ser., vol. xlvii, p. 156. 1844.
Carboniferous.
- Vespertine series, Rogers. Geol. of Pa., vol. i, pp. 108, 142-144 et seq.; vol. ii, p. 756. 1858.
Carboniferous. Pennsylvania. Exact syn. Lower Carboniferous.
- Vespertine beds, Fontaine. Am. Jour. Sci., 3d ser., vol. xi, p. 276. 1876.
Carboniferous. West Virginia.
- Vespertine strata, Fontaine. Am. Jour. Sci., 3d ser., vol. xiii, pp. 37-48, 115-123. 1877.
Carboniferous. Virginia.
- Vespertine sandstone, Stevenson. Am. Jour. Sci., 3d ser., vol. xv, p. 423. 1878.
Carboniferous. Pennsylvania. Exact syn. Pocono sandstone.
- Vespertine, Stevenson. Am. Phil. Soc., Proc., vol. xxi, p. 135. 1885.
Carboniferous. Virginia. Exact syn. Proteau.
- Vespertine, Stevenson. Am. Phil. Soc., Proc., vol. xxiv, p. 77. 1887.
Carboniferous. Virginia.
- Vicarya** beds, Hill. Wash. Biol. Soc., Proc., vol. viii, p. 14. 1893.
Cretaceous. Texas. Included in Glen Rose beds, Trinity division.
- Vicksburg** group, Conrad. Phil. Acad. Nat. Sci., Proc., vol. iii, pp. 280-281. 1846.
Mississippi. Includes Upper Eocene.
- Vicksburg fossiliferous loam, Conrad. Am. Jour. Sci., 2d ser., vol. ii, p. 212. 1846.
Recent. Mississippi.
- Vicksburg, Conrad. Phil. Acad. Nat. Sci., Proc., vol. vi, p. 198. 1854.
Eocene. Mississippi.
- Vicksburg, Conrad. Phila. Acad. Nat. Sci., Proc., vol. vii, p. 257. 1856.
Eocene. Mississippi.
- Vicksburg group, Hilgard. Rept. on Geol. and Agric. of Miss., pp. 138-147. 1860.
Eocene. Mississippi. Includes Vicksburg (proper) crystalline limestone and blue marls, Ferruginous rocks of Red Bluff.
- Vicksburg group, Hilgard. Am. Jour. Sci., 2d ser., vol. xliii, pp. 29-33. 1867.
Tertiary. Alabama and Mississippi.
- Vicksburg group, Hilgard. Am. Jour. Sci., 2d ser., vol. xlviii, p. 338. 1869.
Tertiary. Louisiana.
- Vicksburg group, Hilgard. Am. Jour. Sci., 3d ser., vol. xxii, pp. 58-65. 1881.
Tertiary. Gulf region.

- Vicksburg, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 145, 147-148. 1884.
Tertiary. Mississippi. Included in Oligocene.
- Vicksburg, Meyer. Am. Jour. Sci., 3d ser., vol. xxx, pp. 60-72, 421-435. 1885.
Tertiary. Gulf region.
- Vicksburg group, Aldrich. Cin. Soc. Nat. Hist., Jour., vol. viii, p. 256. 1886.
Tertiary.
- Vicksburg, Langdon. Am. Jour. Sci., 3d ser., vol. xxxi, pp. 203-205. 1886.
Tertiary. Mississippi.
- Vicksburg, Langdon. Geol. Soc. Am., Bull., vol. ii, p. 588. 1891.
Tertiary. Alabama. Included in Upper Eocene.
- Vicksburg, Spencer. Ga. Geol. Surv., 1st Rept. of Prog., 1890-91. 1891.
Tertiary. Georgia. Included in White limestone.
- Vicksburg-Jackson limestone, McGee. U. S. Geol. Surv., 12th Ann. Rept., pt. i, p. 412. 1891.
Tertiary. Coastal plain, Gulf States.
- Vicksburg, Clark. U. S. Geol. Surv., Bull. No. 83, pp. 69, 76. 1891.
Tertiary. Mississippi, Louisiana. Included in Eocene, White limestone.
- Vicksburg group, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209. 1892.
Eocene. Included in Later Eocene. Includes Jackson, Vicksburg, and Salt Hill formations.
- Vicksburg, Upper, Foerste. Am. Jour. Sci., 3d ser., vol. xlviii, pp. 41-54. 1894.
Tertiary. Georgia and Florida. Included in Eocene.
- Vicksburg stage, Vaughan. Am. Geol., vol. xv, p. 221. 1895.
Tertiary. Louisiana. Included in Eocene.
- Vicksburg stage, Vaughan. U. S. Geol. Surv., Bull. No. 142, p. 22. 1896.
Tertiary. Louisiana. Included in Eocene. Exact syn. Lower Oligocene.
- Vicksburg, Harris and Veatch. La. State Exp. Station, pt. v, p. 93. 1899.
Tertiary. Louisiana. Included in Oligocene.
- Vicksburgian** stage, Vaughan. U. S. Geol. Surv., Mon., vol. xxxix, p. 30. 1900.
Tertiary. Gulf States.
- Victoria series**, Dawson. Can. Geol. Surv., Rept. 1876-77, p. 101. 1878.
Carboniferous (?). British Columbia.
- Victoria formation, Cragin. Colo. Coll. Studies, vol. vi, p. 50. 1896.
Cretaceous. Kansas. Included in Benton.
- Victoria shales, Adams. Kan. Univ. Geol. Surv., vol. iv, pp. 25-26. 1898.
Upper Cretaceous. Kansas. Included in Benton. Exact syn. Blue Hills shale.
- Vilas shales**, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 51, 103. 1898.
Carboniferous. Kansas.
- Vincentown** lime-sands, Clark, Bagg and Shattuck. Geol. Soc. Am., Bull., vol. viii, pp. 316, 338. 1897.
Cretaceous. New Jersey. Included in Rancocas formation.
- Vincentown lime-sands, Clark, Bagg and Shattuck. N. J. Geol. Surv., Rept., 1897, pp. 188-189. 1898.
Cretaceous. New Jersey. Included in Rancocas formation.
- Vineyard series**, Shaler. U. S. Geol. Surv., 7th Ann. Rept., p. 328. 1888.
Tertiary. Massachusetts.
- Vinita beds**, Shaler and Woodworth. U. S. Geol. Surv., 19th Ann. Rept., pt. ii, p. 435. 1899.
Juratrias. Virginia. Included in Chesterfield group. Exact syn. Estheria beds.
- Virginian**, Heilprin. Phil. Acad. Nat. Sci., Proc., 1882, pp. 183-184. 1882.
Miocene. Includes Middle Atlantic Miocene. Part. syn. Yorktown.
- Virginian, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 119-120. 1884.
Tertiary. Includes Middle Atlantic Miocene. Part. syn. Yorktown.
- Vishnu**, Walcott. Geol. Soc. Am., Bull., vol. i, p. 50. 1889.
Algonkian. Arizona.

- Vishnu, Crosby. Geol. Soc. Am., Bull., vol. x, p. 158. 1899.
Algonkian. Colorado.
- Vishnu terrane, Walcott. Jour. of Geol., vol. iii, pp. 324-328. 1895.
Algonkian (?). Grand Canyon series.
- Vola** limestone, Taff, Texas Geol. Surv., 3d Ann. Rept., pp. 348-349. 1892.
Cretaceous. Texas. Included in Washita division of Lower Cretaceous.
- Vola** limestone, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 275-283. 1893.
Cretaceous. Texas. Included in Washita division of Lower Cretaceous. Exact
syn. Shoal Creek limestone.
- Volcan** peak group, Emmons and Merrill. Geol. Soc. Am., Bull., vol. v, p. 511.
1894.
Paleozoic (?). Mexico.
- Volcan** group, Merrill. U. S. Nat. Mus., Rept., 1895, p. 985. 1897.
Archean. Lower California.
- Vulcan** formation, Van Hise. U. S. Geol. Surv., 19th Ann. Rept., pt. iii, p. 16.
1899.
Algonkian. Michigan. Included in Lower Huronian.
- Vulcan** formation, Van Hise and Bayley. U. S. Geol. Surv., Geol. Atlas of U. S.,
Folio No. 62. 1900.
Algonkian. Michigan. Included in Upper Menominee series.
- Wabaunsee** formation, Haworth. Am. Jour. Sci., 3d ser., vol. 1, p. 462. 1895.
Carboniferous. Kansas. Included in Coal Measures.
- Wabaunsee** formation, Prosser. Jour. of Geol., vol. iii, pp. 688-697. 1895.
Carboniferous. Kansas.
- Wabaunsee** formation, Prosser. Kan. Univ. Quart., vol. vi, pp. 155-157, 160-163,
169. 1896.
Carboniferous. Kansas.
- Wabaunsee** formation, Haworth. Kan. Univ. Geol. Surv., vol. i, pp. 162-164. 1896.
Carboniferous. Kansas.
- Wabaunsee** formation, Prosser. Jour. of Geol., vol. v, pp. 1-4, 10-11, 148-172. 1897.
Carboniferous. Kansas and Nebraska. Included in Upper Carboniferous.
- Wabaunsee** formation, Beede. Kan. Univ. Quart., vol. vii, pp. 231-233. 1898.
Carboniferous. Nebraska.
- Wabaunsee** formation, Haworth. Kan. Univ. Geol. Surv., vol. iii, pp. 91, 93, 94,
105. 1898.
Carboniferous. Kansas. Included in Upper Coal Measures. Includes Bur-
lingame limestone.
- Wabaunsee** formation, Beede. Kan. Acad. Sci., Trans., vol. xvi, pp. 70-76, 83-84.
1899.
Carboniferous. Nebraska.
- Wabaunsee** formation, Beede. Kan. Univ. Quart., vol. ix, p. 191. 1900.
Carboniferous. Kansas.
- Waccamaw** beds, Dall. Wagner Free Inst. Sci., Trans., vol. iii, pt. ii, p. 209.
1892.
Pliocene. South Carolina. Included in Floridian epoch, Floridian group. Part
syn. Floridian group.
- Waccamaw** beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 337. 1898.
Tertiary. South Carolina. Included in Pliocene.
- Wahsatch** limestone, King. Am. Jour. Sci., 3d ser., vol. xi, pp. 478-480. 1876.
Devonian. Carboniferous. Nevada. Part. syns. Upper Helderberg to Chemung,
Waverly.
- Wahsatch**, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 147.
1876.
Tertiary.

Wahsatch, White. U. S. Geol. and Geog. Surv. of Terr., Bull., vol. iii, pp. 625-629. 1877.

Post-Cretaceous.

Wahsatch, Cope. U. S. Geog. Surv. W. of 100th M., vol. iv, pt. ii, pp. 14, 269. 1877. Tertiary. New Mexico. Included in Eocene. Includes Green River.

Wahsatch limestone, Hague. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 401, 422. 1877.

Carboniferous. Utah.

Wahsatch limestone, Emmons. U. S. Geol. Expl. of 40th Parallel, vol. ii, p. 343, et seq., p. 446. 1877.

Carboniferous. Utah. Included in Lower Carboniferous. Part. syns. Waverly, Lower Coal Measures.

Wahsatch limestone, King. U. S. Expl. of 40th Parallel, vol. i, pp. 127-248. 1878.

Carboniferous. Utah, Nevada.

Wahsatch, Peale. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., p. 184. 1878.

Tertiary. Colorado.

Wasatch, Endlich. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 79, 110, 123. 1878.

Tertiary. Colorado. Included in Eocene.

Wahsatch, White. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., pp. 19, 20, 22, 35. 1878.

Tertiary. Utah, Colorado. Exact syns. Vermilion Creek and Bitter Creek groups.

Wahsatch, Peale. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., p. 635. 1879.

Tertiary. Wyoming.

Wasatch, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 88, 127. 1879.

Tertiary. Wyoming.

Wasatch, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. iii, pp. 6-11. 1881.

Tertiary. Includes Green River.

Wasatch sandstone, Dutton. U. S. Geol. Surv., 6th Ann. Rept., pp. 136-140. 1885.

Tertiary. New Mexico.

Wasatch, White. U. S. Geol. Surv., Bull. No. 34, pp. 9-19. 1886.

Tertiary. Utah. Included in Eocene.

Wasatch, Clark. U. S. Geol. Surv., Bull. No. 83, p. 139. 1891.

Tertiary. Interior region. Included in Eocene.

Wahsatch beds, Osborn and Wortman. Am. Mus. Nat. Hist., Bull., vol. iv, 1892, pp. 138-142. 1892.

Eocene.

Wasatch, Scott. Geol. Soc. Am., Bull., vol. v, p. 595. 1894.

Tertiary. Nebraska.

Wahsatch, Peterson. Am. Mus. Nat. Hist., Bull., vol. v, p. 73. 1895.

Tertiary. Utah. Exact syn. Coryphodon beds.

Wahsatch, Osborn. Am. Mus. Nat. Hist., Bull., vol. vii, 1895, p. 73. 1895.

Eocene. Exact syn. Coryphodon beds.

Wasatch beds, Osborn. Am. Assoc. Adv. Sci., Proc., vol. xlv, pp. 205-206. 1898.

Tertiary. Colorado.

Wasatch formation, Smith. Jour. of Geol., vol. viii, pp. 449-450. 1900.

Tertiary. Western North America. Included in Eocene.

Wakarusa limestone, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 30. 1898.

Carboniferous. Kansas.

Walden sandstone, Hayes. Ala. Geol. Surv., Bull. No. 4, p. 49. 1892.

Carboniferous. Alabama. Included in Coal Measures.

Walden sandstone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 2, 4, 6, 8, 19, 21, 22, 35. 1894-5-6.

Carboniferous. Georgia, Tennessee, Alabama.

Walden sandstone, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 35. 1896.

Carboniferous. Alabama. Exact syns. Upper and Lower Coal Measures of Smith. 1878.

Waldo formation, Dall, Stanley & Brown. Geol. Soc. Am., Bull., vol. v, p. 166. 1894. Tertiary. Florida.

Waldrip coal division, Tarr. Am. Geol., vol. vi, p. 151. 1890.

Carboniferous. Texas. Included in Upper Carboniferous.

Waldrip-Cisco, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxvii. 1890.

Carboniferous. Texas. Included in Coal Measures.

Waldrip bed, Drake. Texas Geol. Surv., 4th Ann. Rept., pp. 412-416. 1893.

Carboniferous. Texas. Included in Cisco division.

Waldron shale, Elrod. Indiana Dept. Geol. and Nat. Hist., 12th Ann. Rept., 1882, p. 109. 1883.

Silurian. Indiana.

Waldron beds, Foerste. Denison Univ. Sci. Lab., Bull., vol. iii, p. 8. 1888. Indiana.

Waldron shale, Elrod. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept., 1883, pp. 93, 95. 1894.

Upper Silurian. Indiana.

Waldron shales, Foerste. Cin. Soc. Nat. Hist., Jour., vol. xviii, Nos. 3, 4, p. 190. 1896.

Silurian. Indiana.

Waldron shale, Foerste. Indiana Dept. Geol. and Nat. Res., 21st Ann. Rept., 1896, pp. 217, 232. 1897.

Upper Silurian. Indiana.

Waldron sandstone, Gallagher. Mo. Geol. Surv., Bien. Rept., p. 52. 1898.

Upper Carboniferous. Missouri. Included in Upper Coal Measures.

Waldron shale, Foerste. Indiana Dept. Geol. and Nat. Res., 22d Ann. Rept. (1897), pp. 197, 207, 214. 1898.

Upper Silurian. Indiana.

Waldron shale, Price. Indiana Dept. Geol. and Nat. Res., 24th Ann. Rept., pp. 81-143. 1900.

Silurian. Indiana. Included in Upper Silurian.

Walker black shale, Campbell. Geol. Soc. Am., Bull., vol. v, pp. 171, 176. 1894. Devonian. Virginia. Part. syn. Hamilton.

Wallala, White. U. S. Geol. Surv., Bull. No. 82, p. 192. 1891.

Cretaceous. Pacific Coast. Included in Upper Cretaceous.

Wallala beds, Fairbanks. Am. Jour. Sci., 3d ser., vol. xlv, pp. 473-478. 1893.

Cretaceous. California.

Wallala formation, Stanton. Geol. Soc. Am., Bull., vol. iv, p. 253. 1893.

Cretaceous. California. Included in Chico.

Wallala beds, Diller. Geol. Soc. Am., Bull., vol. iv, p. 205. 1893.

Cretaceous. California.

Wallala division, Emmons and Merrill. Geol. Soc. Am., Bull., vol. v, p. 490. 1894.

Cretaceous. Mexico.

Wallala beds, Diller and Stanton. Geol. Soc. Am., Bull., vol. v, p. 455. 1894.

Cretaceous. California. Included in Chico.

Wallkill limestone, Wolff and Brooks. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, pp. 443-454. 1898.

Cambrian. New Jersey.

- Walnut** clays, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 512. 1891.
Cretaceous. Texas. Included in Fredericksburg division.
- Walnut** clay, Hill. Artesian Invest., Final Rept., pt. iii, p. 86, 52d Cong., 1st sess., Ex. Doc., 41, pt. iii. 1892.
Cretaceous. Texas. Included in Trinity division.
- Walnut** clays, Hill. Geol. Soc. Am., Bull., vol. v, pp. 297, 303. 1894.
Cretaceous. Texas. Included in Comanche peak beds, Fredericksburg division.
- Walnut** formation, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 226. 1898.
Cretaceous. Texas. Included in Fredericksburg division of Comanche series.
- Wamsutta** group, Shaler, Woodworth and Foerste. U. S. Geol. Surv., Mon., vol. xxxiii, pp. 141-158. 1899.
Carboniferous. Rhode Island.
- Wanswanging** quartzite, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 508. 1899.
Cambrian. Minnesota. Included in Animikie.
- Wapiti River** sandstones, Dawson. Can. Geol. Surv., Rept., 1879-1880, pp. 115B, 122B-127B. 1881.
Cretaceous. British Columbia. Included in Fox Hill and Laramie. Exact syns. Upper sandstones and shales.
- Wapiti River** sandstone, Dawson. Am. Jour. Sci., 3d ser., vol. xxi, p. 392. 1881.
Cretaceous. Canada. Exact syns. Fox Hill and Laramie.
- Wapiti River** sandstones, McConnell. Can. Geol. Surv., new ser., vol. v, pt. i, 53D. 1893.
Laramie. Canada.
- Wappinger Valley** limestone, Dwight. Am. Jour. Sci., 3d ser., vol. xvii, pp. 389-392. 1879.
New York.
- Wappinger Valley** limestone, Dana. Am. Jour. Sci., 3d ser., vol. xvii, p. 377. 1879.
Silurian. New York. Exact syn. Barnegat limestone.
- Wappinger Valley** limestone, Dwight. Am. Jour. Sci., 3d ser., vol. xix, pp. 50-54, 451-454. 1880.
Silurian. New York.
- Wappinger**, Dwight. Am. Assoc. Adv. Sci., Proc., vol. xxxi, p. 384. 1883.
Silurian. New York. Exact syn. Barnegat.
- Wappinger Valley** limestone, Dwight. Am. Jour. Sci., 3d ser., vol. xxxi, pp. 125-132. 1886.
Silurian. New York. Exact syn. Barnegat limestone.
- Wappinger Valley** limestones, Dwight. Vassar Bros. Inst., Trans., vol. iv, pp. 130-141, 206-214. 1887.
Cambrian and Silurian. New York.
- Wappinger Valley** limestone, Dwight. Am. Jour. Sci., 3d ser., vol. xxxviii, pp. 139-143. 1889.
Cambrian. New York.
- Wappinger** limestone, Darton. N. Y. State Geol., 13th Ann. Rept., p. 311. 1894.
Cambrian. New York.
- Wapsipinicon** stage, Norton. Iowa Geol. Surv., vol. iv, p. 155. 1895.
Devonian. Iowa. Includes Upper and Lower Davenport, Kenwood, and Otis.
- Wapsipinicon**, Norton. Iowa Geol. Surv., vol. ix, p. 440. 1899.
Devonian. Iowa. Includes Independence and Davenport.
- Warren County** sandstone, Gorby. Indiana Dept. Geol. and Nat. Hist., 15th Ann. Rept., 1886, p. 86. 1886.
Indiana.

- Warren oil group, Carll. 2d Pa. Geol. Surv., Rept. I⁵, pp. 131-132. 1890.
Devonian. Pennsylvania.
- Warren stage, Upham. Am. Geol., vol. xvi, p. 105. 1895.
Pleistocene. Included in Champlain epoch.
- Warrensburg** sandstone, Winslow. Mo. Geol. Surv., Sheet Rept. No. 1, pp. 22, 45-54. 1892.
Upper Carboniferous. Missouri. Included in Upper Coal Measures.
- Warrensburg sandstone, Winslow. St. Louis Acad. Sci., Trans., vol. vi, map opp., p. 100. 1895.
Carboniferous. Missouri.
- Warrensburg sandstone, Winslow. Mo. Geol. Surv., vol. ix, Sheet Rept. No. 1, p. 45. 1896.
Carboniferous. Missouri. Included in Coal Measures.
- Warrensburg sandstone, Marbut. Mo. Geol. Surv., vol. xii, pt. ii, pp. 123, 210, 275. 1898.
Upper Carboniferous. Missouri. Included in Missourian series.
- Warsaw**, Hall. Am. Assoc. Adv. Sci., Proc., vol. x, p. 56. 1856.
Carboniferous. Mississippi Valley. Exact syn. Second Archimides.
- Warsaw limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, p. 407. 1857.
Lower Carboniferous. Missouri. Included in Mountain limestone. Exact syn. Second Archimides limestone.
- Warsaw limestone, Hall. Iowa Geol. Surv., vol. i, p. 97. 1858.
Carboniferous. Iowa. Exact syn. Second Archimides limestone.
- Warsaw limestone, Worthen. Iowa Geol. Surv., vol. i, p. 192. 1858.
Carboniferous. Iowa.
- Warsaw limestone, Hall. Albany Inst., Trans., vol. iv, pp. 2-3. 1864.
Carboniferous. Mississippi Valley. Exact syns. Second Archimides limestone, Magnesian limestone.
- Warsaw limestone, Engelmann. St. Louis Acad. Sci., Trans., vol. ii, p. 189. 1868.
Lower Carboniferous. Illinois.
- Warsaw beds, Worthen. Ill. Geol. Surv., vol. v, p. 276. 1873.
Carboniferous. Illinois. Included in St. Louis limestone.
- Warsaw limestone, Broadhead. Mo. Geol. Surv., Rept., 1873-74, p. 184. 1874.
Carboniferous. Missouri. Included in St. Louis group.
- Warsaw group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. 4, p. 275. 1881.
Carboniferous.
- Warsaw limestone, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 55. 1890.
Carboniferous. Arkansas. Included in Lower Carboniferous. Exact syn. St. Louis.
- Warsaw, Keyes. Geol. Soc. Am., Bull., vol. iii, pp. 286, 293, 298. 1892.
Lower Carboniferous. Missouri. Included in St. Louis and Osage groups.
- Warsaw, Keyes. Mo. Geol. Surv., vol. iv, pp. 30, 76. 1894.
Lower Carboniferous. Missouri. Included in Augusta stage (part).
- Warsaw, Keyes. Mo. Geol. Surv., vol. vii, pt. ii, p. 390. 1894.
Lower Carboniferous. Missouri. Included partly in St. Louis stage, partly in Augusta stage.
- Warsaw formation, Gordon. Jour. of Geol., vol. iii, pp. 289-311. 1895.
Carboniferous. Iowa.
- Warsaw shale and limestone, Gordon. Iowa Geol. Surv., vol. iv, pp. 213-214. 1895.
Carboniferous. Iowa.
- Washakie**, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 146. 1876.
Tertiary. Rocky Mountains.
- Washakie beds, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 337. 1892.
Tertiary. Wyoming.

Washburn sandstone, Stevenson. N. Y. Geol. Acad. Sci., Trans., vol. xv, p. 51. 1896.

Carboniferous. Arkansas. Included in Appleton stage.

Wartburg sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 33. 1896.

Carboniferous. Tennessee. Part. syn. Walden sandstone.

Wartburg sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 40. 1897.

Carboniferous. Tennessee. Part. syn. Walden sandstone.

Washington County group, Stevenson. 2d Pa. Geol. Surv., Rept. K, pp. 44-56. 1876.

Carboniferous. Pennsylvania. Included in Upper Barren Measures.

Washington County group, Lesley. 2d Pa. Geol. Surv., Rept., H³, p. xxiii, 1877.

Washington County group, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept., 1886, pp. 59-60. 1887.

Carboniferous. Pennsylvania. Included in Upper Barren Measures.

Washington shale and sandstone, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 75-82, 151. 1888.

Carboniferous. Arkansas. Included in Lower Carboniferous.

Washington or High Bluff greensand, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 72-75. 1888.

Cretaceous. Arkansas. Included in Upper Arenaceous beds.

Washington sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 38. 1891.

Carboniferous. Pennsylvania, West Virginia. Included in Permo-Carboniferous, Dunkard Creek.

Washington limestone, White. U. S. Geol. Surv., Bull. No. 65, pp. 35-36. 1891.

Carboniferous. Pennsylvania and West Virginia. Included in Permo-Carboniferous, Dunkard Creek. Includes Upper, Middle, and Lower Washington limestones.

Washington gneiss, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Hawley sheet. 1892.

Algonkian. Massachusetts. Part. syn. Stamford gneiss.

Washington, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.

Cretaceous. Texas. Included in Glauconitic division.

Washington shale, Drake. Am. Phil. Soc., Proc., vol. xxxvi, p. 354. 1897.

Carboniferous. Indian Territory. Included in Boston group of Lower Cretaceous.

Washington gneiss, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pl. xxxiv, p. 20. 1898.

Pre-Cambrian. Massachusetts.

Washington gneiss, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.

Algonkian. Massachusetts.

Washington limestone, Richardson. Am. Assoc. Adv. Sci., Proc., vol. xlvii, pp. 295-296. 1898.

Silurian. Vermont. Included in Trenton.

Washington gneiss, Emerson. U. S. Geol. Surv., Bull. No. 159, p. 34. 1899.

Pre-Cambrian. Massachusetts.

Washita limestone, Shumard. St. Louis Acad. Sci., Trans., vol. i, pp. 583, 586. 1857.

Cretaceous. Texas.

Washita limestone, Marcou. Boston Soc. Nat. Hist., Proc., vol. viii, 1861-62, p. 89. 1861.

Cretaceous. Texas. Included in Upper Cretaceous (Lower Cretaceous, according to Marcou).

- Washita division, White. Phil. Acad. Nat. Sci., Proc., 1887, p. 40. 1887.
Cretaceous. Texas. Included in Comanche series.
- Washita division, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 111-113, 179-180. 1888.
Cretaceous. Arkansas. Included in Lower Cretaceous or Comanche series.
- Washita division, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, pp. i-li. 1890.
Cretaceous. Texas. Included in Comanche series.
- Washita division, Hill. Texas Geol. Surv., 1st Ann. Rept., pp. 126-130. 1890.
Cretaceous. Texas. Included in Comanche series. Includes Shoal Creek limestone, Exogyra Arietna clay, Washita or Fort Worth limestone, Caprotina beds.
- Washita division, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 719-732. 1891.
Cretaceous. Texas. Included in Lower Cretaceous. Includes Caprotina, Arietna, Malone, Etholen, Yucca Bluff, Quitman, and Mountain beds.
- Washita division, Hill. Geol. Soc. Am., Bull., vol. ii, pp. 503, 515-518. 1891.
Cretaceous. Texas. Includes Denison beds, Fort Worth limestone, Duck Creek limestone, and Kiamitia clays.
- Washita division, Hill. Artesian Invest., Final Rept., pt. iii, p. 88, 52d Cong., 1st sess., Ex. Doc. 41, pt. iii. 1892.
Cretaceous. Southwest. Includes Denison beds. Exact syn. Indian Territory division.
- Washita division, Taff. Texas Geol. Surv., 3d Ann. Rept., pp. 276-277. 1892.
Cretaceous. Texas. Includes Vola limestone, Arietna clay, Denison, and Fort Worth.
- Washita, Dumble and Cummins. Am. Geol., vol. xii, p. 310. 1893.
Cretaceous. Texas.
- Washita division, Taff. Texas Geol. Surv., 4th Ann. Rept., pp. 262-283. 1893.
Cretaceous. Texas. Included in Lower Cretaceous. Includes Vola limestone, Exogyra Arietina clay, Fort Worth limestone, and Denison marl.
- Washita stage, Dumble. Geol. Soc. Am., Bull., vol. vi, p. 377. 1895.
Cretaceous. Texas. Included in Lower Cretaceous.
- Wassonville limestone**, Bain. Am. Geol., vol. xv, p. 322. 1895.
Carboniferous. Iowa. Included in Mississippian series, Kinderhook.
- Wassonville limestone, Bain. Iowa Geol. Surv., vol. v, p. 134. 1896.
Carboniferous. Iowa. Included in Kinderhook.
- Water lime**, Gebhard. Am. Jour. Sci., 1st ser., pp. 172-177. 1835.
New York.
- Water lime, Vanuxem. N. Y. Geol. Surv., 3d Ann. Rept., pp. 272-274. 1839.
Silurian. New York.
- Water-lime series, Hall. N. Y. Geol. Surv., 3d Ann. Rept., pp. 292, 306. 1839.
Silurian. New York.
- Water-lime group, Vanuxem. Geol. of N. Y., pt. iii, pp. 110-116. 1842.
Paleozoic. New York. Included in New York system. Includes Water-lime group, Hydraulic limerock. Part. syn. No. vi, Pennsylvania Survey.
- Water-lime group, Mather. Geol. of N. Y., pt. i, pp. 349-352. 1843.
Paleozoic. New York. Included in Helderberg division. Includes Hydraulic limestone, No. vi, Rogers.
- Water-lime group, Hall. Geol. of N. Y., pt. iv, 4th Geol. Dist., pp. 18, 141-143. 1843.
Paleozoic. New York. Includes Water-lime group, Water-lime rock (?). Tentaculite limestone.
- Water-lime group or (Manlius Water lime), Owen. Am. Jour. Sci., 2d ser., vol. i, p. 47. 1846.
Silurian. New York. Included in Helderberg series of the New York system. Part. syn. part of No. vi, Pennsylvania Survey.
- Water lime, Cook. Geol. of N. J., pp. 155-157. 1868.
Silurian. New Jersey.

- Water lime, Winchell. Ohio Geol. Surv., vol. i, pt. i, pp. 599, 617, 632, 642. 1873.
Silurian. Ohio.
- Water lime, Gilbert. Ohio Geol. Surv., vol. i, pt. i, p. 575. 1873.
Silurian. Ohio.
- Water lime, Newberry. Ohio Geol. Surv., vol. i, pt. i, p. 135. 1873.
Silurian. Ohio.
- Water lime, Newberry. Ohio Geol. Surv., vol. ii, p. 193. 1874.
Silurian. Ohio.
- Water lime, Winchell. Ohio Geol. Surv., vol. ii, pp. 230, 301, 317, 329, 374, 388, 399.
1874.
Silurian. Ohio.
- Water lime, Ashburner. Am. Phil. Soc. Proc., vol. xvi, pp. 530, 555. 1877.
Silurian. Appalachian region. Exact syn. Scalent.
- Water lime group, Miller. Cin. Soc. Nat. Hist., Jour., vol. iv, No. 4, p. 274. 1881.
- Water lime group, Tiffany. Sci., vol. ii, p. 323. 1883.
Silurian. Iowa.
- Water lime, Tiffany. Am. Assoc. Adv. Sci., Proc., vol. xxxii, p. 246. 1884.
Silurian. Iowa.
- Water lime group, Hopkins. Ark. Geol. Surv., 1890, vol. iv, p. 52. 1890.
Silurian. Arkansas. Included in Silurian group. Part syn. Lower Helderberg.
- Water lime formation, Luther. N. Y. State Geol., 16th Ann. Rept., p. 211. 1899.
Silurian. New York.
- Waterloo** quartzite, Chamberlin. Geol. of Wis., vol. ii, pp. 252-256. 1877.
Archean. Wisconsin.
- Waterville** slates, Hitchcock. Rept. on Geol. of Maine, 1861, p. 232. 1861.
Lower Silurian.
- Watts Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 419. 1893.
Carboniferous. Texas. Included in Cisco division.
- Waukesha** beds, Chamberlin. Geol. of Wis., vol. ii, pp. 357-360. 1877.
Upper Silurian. Wisconsin. Included in Niagara.
- Waukesha beds, Chamberlin. Geol. of Wis., vol. i, p. 187. 1883.
Silurian. Wisconsin. Included in Niagara.
- Waverly** sandstone series, Mather. Am. Jour. Sci., 1st ser., vol. xxxiv, p. 356.
1838.
Ohio.
- Waverly sandstone series, Briggs. Ohio Geol. Surv., 1st Ann. Rept., by W. W. Mather, p. 79. 1838.
Carboniferous. Ohio.
- Waverly sandstone, Owen. Geol. Recon. Indiana, 2d Rept., 1838, pp. 37, 44. 1839.
- Waverly rock, Owen. Geol. Recon. Indiana, Rept., 1838, pt. ii, p. 59. 1859.
Carboniferous. Ohio. Exact syn. Soft freestone of the knobs (Knob-stone group) of Indiana.
- Waverly group, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 28. 1870.
Carboniferous. Ohio. Includes Cuyahoga shale, Berea grit, Bedford shale, and Cleveland shale.
- Waverly sandstone, Newberry. Ohio Geol. Surv., Rept. Prog., 1869, p. 21. 1870.
Carboniferous. Ohio.
- Waverly black slate, Andrews. Ohio Geol. Surv., Rept. Prog., 1869, p. 66. 1870.
Ohio.
- Waverly sandstones, Andrews. Ohio Geol. Surv., Rept. Prog., 1869, pp. 61, 65.
1870.
Ohio.
- Waverly Sandstone group, Andrews. Ohio Geol. Surv., Rept. Prog., 1870, p. 59.
1871.
Ohio.

- Waverly sandstone, Andrews. Ohio Geol. Surv., Rept., 1869, p. 67. 1871.
Ohio.
- Waverly group, Read. Ohio Geol. Surv., Rept. Prog., 1870, p. 474. 1871.
Ohio.
- Waverly group, Newberry. Ohio Geol. Surv., Rept., 1869, p. 21. 1871.
Carboniferous. Ohio. Includes Cuyahoga shale, Berea grit, Bedford shale, and Cleveland shale.
- Waverly, Andrews. Ohio Geol. Surv., vol. i, pt. i, p. 345. 1873.
Carboniferous. Ohio.
- Waverly, Newberry. Ohio Geol. Surv., vol. i, pt. i, pp. 185, 208. 1873.
Carboniferous. Ohio. Includes Cuyahoga shale, Berea grit, and Bedford and Cleveland shales.
- Waverly, Newberry. Ohio Geol. Surv., vol. ii, pp. 84-99. 1874.
Carboniferous. Ohio. Included in Lower Carboniferous. Includes Cuyahoga shale, Berea grit, Bedford shale and Cleveland shale.
- Waverly, Andrews. Ohio Geol. Surv., vol. ii, pp. 589, 593. 1874.
Carboniferous. Ohio.
- Waverly, Orton. Ohio Geol. Surv., vol. ii, pp. 618, 648. 1874.
Carboniferous. Ohio. Included in Subcarboniferous.
- Waverly group, Rominger. Mich. Geol. Surv., vol. iii, pt. i, p. 69. 1876.
Carboniferous. Michigan. Includes Winchells, Marshall group, and part of his Huron group. Exact syn. Waverly group of Ohio.
- Waverly, Shaler. Ky. Geol. Surv., new ser., vol. iii, pp. 175-178. 1877.
Carboniferous. Kentucky. Exact syn. Siliceous group.
- Waverly group, Hicks. Am. Jour. Sci., 3d ser., vol. xvi, pp. 216-224. 1878.
Carboniferous. Ohio. Includes Licking shales, Black Hand conglomerate, Granville beds, Raccoon shales, Sunbury slate, etc.
- Waverly conglomerate, Read. Ohio Geol. Surv., vol. iii, pp. 317, 337, 523, 545, 816. 1878.
Carboniferous. Ohio.
- Waverly, Hodge. Ohio Geol. Surv., vol. iii, p. 564. 1878.
Carboniferous. Ohio.
- Waverly, Orton. Ohio Geol. Surv., vol. iii, p. 58. 1878.
Carboniferous. Ohio.
- Waverly, Newberry. Ohio Geol. Surv., vol. iii, pp. 19, 763. 1878.
Carboniferous. Ohio.
- Waverly, Orton. Am. Jour. Sci., 3d ser., vol. xviii, pp. 138-139. 1879.
Carboniferous. Ohio.
- Waverly, Orton. Am. Assoc. Adv. Sci., Proc., vol. xxx, pp. 167-174. 1882.
Carboniferous. Ohio. Included in Subcarboniferous. Includes Bedford shale, Berea grit, Berea shale=Waverly black shale, Cuyahoga shale, Logan group, and Maxville limestone.
- Waverly, Hall. Am. Assoc. Adv. Sci., Proc., vol. xxxiii, pt. ii, p. 419. 1885.
Carboniferous. New York and Pennsylvania.
- Waverly series, Orton. Ohio Geol. Surv., Prelim. Rept. Petroleum and Inflammable Gas, p. 24. 1886.
Ohio. Includes Logan series, Cuyahoga shale, Berea shale, Berea grit, and Bedford shale.
- Waverly group, Herrick. Denison Univ. Sci. Lab., Bull., vol. ii, p. 7. 1887.
Ohio.
- Waverly group, Orton. Ohio Geol. Surv., Rept., vol. vi, pp. 3, 33. 1888.
Carboniferous. Ohio. Includes Logan group, Cuyahoga shale, Berea shale; Berea grit, and Bedford shale.
- Waverly group, Herrick. Denison Univ. Sci. Lab., Bull., vol. iii, pp. 13, 23, 101. 1888.
Ohio.

- Waverly group, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, p. 97. 1888.
Ohio. Includes Cuyahoga or Waverly series, and Berea or Transition series.
- Waverly shale, Herrick. Denison Univ. Sci. Lab., Bull., vol. iv, p. 106. 1888.
Ohio. Included in Berea or Transition series.
- Waverly group, Miller. N. A. Geol. and Pal., p. 68. 1889.
- Waverly, Herrick. Am. Geol., vol. iii, pp. 94-99. 1889.
Carboniferous. Ohio. Includes Subcarboniferous limestone (Burlington and Keokuk), Kinderhook, and Chemung in part.
- Waverly, Vogdes. N. Y. Acad. Sci., Annals, vol. iv, p. 71. 1889.
Carboniferous. Mississippi Valley. Includes Chouteau limestones and Vernicular sandstone. Exact syn. Kinderhook group.
- Waverly group, Cooper. Denison Univ. Sci. Lab., Bull., vol. v, p. 24. 1890.
Ohio. Includes Bedford shale, Berea grit, Lower Berea shale, Cuyahoga shale, etc.
- Waverly group, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., pp. 33-42. 1890.
Carboniferous. Ohio. Includes Bedford shale, Berea grit and shale, Cuyahoga shale, and Logan group.
- Waverly, Williams. U. S. Geol. Surv., Bull. No. 80, p. 173. 1891.
Carboniferous.
- Waverly shale and sandstone, Sullivan. Ky. Geol. Surv. (Proctor), Geol. of Jackson and Rockcastle Cos., 1891.
Carboniferous. Kentucky.
- Waverly group, Orton. Ohio. Geol. Surv., vol. vii, pp. 4, 26. 1893. Includes Logan group, Cuyahoga shale, Berea shale, Berea grit, and Bedford shale.
Carboniferous. Ohio.
- Waverly, Lesley. 2d Pa. Geol. Surv., Final Rept., vol. iii, pt. i, pp. 1779-1789. 1895.
Carboniferous. Pennsylvania. Included in No. x, Pocono.
- Waverly shale, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 46, 47. 1898.
Carboniferous. Kentucky. Included in Mississippian series.
- Waverly formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 53. 1899.
Carboniferous. Tennessee. Included in Mississippian series. Part. syn. Fort Payne chert.
- Waverly group, Weller. St. Louis Acad. Sci., Trans., vol. ix, p. 49. 1899.
Carboniferous. Ohio.
- Waynesburg** limestone, D'Inwilliers. 2d Pa. Geol. Surv., Ann. Rept., 1886, pp. 71-73. 1887.
Carboniferous. Pennsylvania. Included in Upper Productive Measures.
- Waynesburg sandstone, Lovejoy. Ohio Geol. Surv., vol. vi, pp. 627, 635. 1888.
Carboniferous. Ohio.
- Waynesburg sandstone, White. U. S. Geol. Surv., Bull. No. 65, p. 40. 1891.
Carboniferous. Pennsylvania, West Virginia. Included in Permo-Carboniferous, Dunkard Creek series.
- Waynesburg limestone, White. U. S. Geol. Surv., Bull. No. 65, p. 58. 1891.
Carboniferous. Pennsylvania, West Virginia. Included in Upper Coal Measures, Monongahela River series.
- Waynesburg sandstone, White. Geol. Soc. Am., Bull., vol. iii, p. 189. 1892.
Upper Carboniferous. West Virginia. Included in Upper Coal Measures.
- Wealden**, Uhler. Johns Hopkins Univ. Circs., No. 21, p. 53. 1883.
Jurassic. Maryland.
- Webb Bluff**, Dumble. Geol. Soc. Am., Bull., vol. iii, p. 230. 1892.
Tertiary. Texas. Included in Eocene.

- Webberville** formation, Hill and Vaughan. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 241. 1898.
Cretaceous. Texas. Included in Montana division of Gulf series.
- Weber** quartzite, King. Am. Jour. Sci., 3d ser., vol. xi, p. 480. 1876.
Carboniferous. Nevada.
- Weber** quartzite, Emmons. U. S. Geol. Expl. of 40th Parallel, vol. ii, p. 343 et seq. 1877.
Carboniferous. Utah. Included in Upper Carboniferous.
- Weber** quartzite, King. U. S. Expl. of 40th Parallel, vol. i, pp. 127-248. 1878.
Carboniferous. Utah, Nevada.
- Weber** quartzite, White. U. S. Geol. and Geog. Surv. of Terr., 10th Ann. Rept., p. 23. 1878.
Carboniferous. Utah.
- Weber** grit, Emmons. U. S. Geol. Surv., 2d Ann. Rept., p. 219. 1882.
Carboniferous. Colorado.
- Weber** conglomerate, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 270. 1883.
Carboniferous. Nevada.
- Weber**, Emmons. U. S. Geol. Surv., Mon., vol. xii, p. 67. 1886.
Carboniferous. Colorado.
- Weber** conglomerate, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 91. 1892.
Carboniferous. Nevada.
- Weber**, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Carboniferous. Colorado.
- Weber** formation, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.
Carboniferous. Colorado.
- Weber** formation, Spurr. U. S. Geol. Surv., Mon., vol. xxxi, pp. 30-33. 1898.
Carboniferous. Colorado.
- Weisner** quartzite, Hayes. Geol. Soc. Am., Bull., vol. ii, p. 143. 1890.
Cambrian (?). Tennessee. Part. syn. Chilhowee (?).
- Weisner** quartzite, Smith. Ala. Geol. Surv., Rept. on Cahaba coal field, p. 149. 1890.
Cambrian. Alabama.
- Weisner**, Walcott. U. S. Geol. Surv., Bull. No. 81, p. 251. 1891.
Cambrian. Appalachian region.
- Weisner** formation, Hayes. Geol. Soc. Am., Bull., vol. v, p. 468. 1894.
Cambrian. Georgia.
- Weisner** sandstone, McCalley. Ala. Geol. Surv., Rept. on Valley regions, pt. ii, pp. 38-39, 484, 509-512, 542-575, 674-692, 754-765, 815-817. 1897.
Cambrian. Alabama. Exact syn. Chilhowee sandstone.
- Welch** formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 44. 1897.
Carboniferous. Virginia, West Virginia. Part. syns. No. xii, Great Conglomerate of Rogers.
- Well** rock series, Swallow. Kan. Geol. Surv., Prelim. Rept., pp. 21-22, 47. 1866.
Carboniferous. Kansas.
- Wellesley** formation, Brooks. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 470-472, 479. 1900.
Devonian or Carboniferous. Alaska.
- Wellington** shale, Cragin. Washburn Coll. Lab. Nat. Hist., Bull., vol. i, No. 3, pp. 85-86. 1885.
Pleistocene. Kansas. Exact syn. Champlain.
- Wellington** shale, Cragin. Kansas City Rev., vol. viii, pp. 678-682. 1885.
Pleistocene. Kansas. Exact syn. Champlain.
- Bull. 191-02—27

Wellington shales, Cragin. Colo. Colleg. Stud., vol. vi, pp. 3, 16. 1896.

Permian. Kansas. Included in Big Blue series. Exact syns. Gray beds or Gray shales.

Wellington formation, Prosser. Kan. Univ. Geol. Surv., vol. ii, pp. 67-68. 1897.

Carboniferous. Kansas. Included in Permian. Includes Wellington shales.

West Elk breccia, Cross. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Tertiary. Colorado.

West Fork series, Schrader. U. S. Geol. Surv., 21st Ann. Rept., pt. ii, p. 475. 1900.
Devonian (?). Alaska.

West Franklin limestone, Collett. Indiana Dept. Geol. and Nat. Hist., 13th Ann. Rept., for 1883, p. 61. 1884.

Carboniferous. Indiana. Exact syn. Carthage limestone (?).

West Jefferson sandstone, Orton. Ohio Geol. Surv., vol. vi, pp. 4, 20. 1888.
Devonian. Ohio.

West Jefferson sandstone, Orton. Ohio Geol. Surv., 3d Organization, 1st Ann. Rept., p. 25. 1890.

Devonian. Ohio. Included in Upper Helderberg.

West Jefferson sandstone, Orton. Ohio Geol. Surv., vol. vii, pp. 4, 18. 1893.

Devonian. Ohio.

West Union limestone, Orton. Ohio Geol. Surv., Rept., 1870, pp. 271, 301. 1871.
Silurian. Ohio. Included in Niagara series.

West Union, Orton. Ohio Geol. Surv., vol. ii, p. 670. 1874.

Silurian. Ohio. Included in Niagara.

West Union beds, Foerste. Denison Univ. Sci. Lab., Bull., vol. iii, p. 8. 1888.
Ohio.

Western sandstone, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept. vol. iv, p. 15. 1899.

Cambrian. Minnesota.

Western Valley gravel, Safford. Am. Jour. Sci., 2d ser., vol. xxxvii, p. 360. 1864.
Recent. Tennessee.

Westerville limestone, Bain. Am. Jour. Sci., 4th ser., vol. v, pp. 437, 439. 1898.
Carboniferous. Missouri. Included in Carboniferous (Missourian series), Bethany limestone.

Westfield serpentine, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 92. 1898.
Silurian. Massachusetts. Included in Chester amphibolites.

Weston limestone, Gallager. Mo. Geol. Surv., Bien. Rept., p. 52. 1898.

Upper Carboniferous. Missouri. Included in Upper Coal Measures.

Westville formation, Ami. Can. Rec. Sci., vol. viii, pp. 162-163, 1900.
Carboniferous. Canada.

Weverton sandstone, Williams and Clark. Maryland; Its Resources, Industries, and Institutions, p. 68. 1893.

Cambrian. Maryland.

Weverton sandstone, Keith. U. S. Geol. Surv., 14th Ann. Rept., pt. ii, p. 329. 1894.
Cambrian. Maryland, Virginia.

Weverton sandstone, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 10. 1894.

Cambrian. Virginia, Maryland, West Virginia.

Weverton formation, Clark. Md. Geol. Surv., vol. i, pp. 157, 177. 1897.

Cambrian. Maryland.

Wewe slate, Van Hise and Bayley. U. S. Geol. Surv., 15th Ann. Rept., p. 530. 1895.
Algonkian. Lake Superior region. Included in Lower Marquette series.

Wewe slate, Van Hise. U. S. Geol. Surv., Mon., vol. xxviii, pp. 256-281. 1897.
Algonkian. Michigan. Included in Lower Marquette series.

- Weyquosque** series, Shaler. U. S. Geol. Surv., 7th Ann. Rept., p. 340. 1888.
Tertiary (?). Massachusetts.
- Whately** bed, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 190. 1898.
Silurian. Massachusetts. Included in Conway schists.
- White** limestone, Tuomey. Am. Jour. Sci., 2d ser., vol. xi, pp. 390-394. 1851.
Eocene. Florida. Exact syns. Orbitolite or Nummulite limestone.
- White** limestone, Winchell. Am. Assoc. Adv. Sci., Proc., vol. x, p. 84. 1856.
Tertiary. Alabama. Included in Upper Eocene.
- White** Cliff, Powell. U. S. Geog. and Geol. Surv., Geol. of Uinta Mts., pp. 41, 51, 151.
1876.
Juratrias. Utah.
- White** limestone, Newberry. Ohio Geol. Surv., vol. iii, p. 797. 1878.
Carboniferous. Ohio. Included in Coal Measures.
- White** limestone, Emmons. U. S. Geol. Surv., 2d Ann. Rept., p. 216. 1882.
Silurian. Colorado.
- White** limestone, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 141-143. 1884.
Tertiary. Alabama. Part. syns. Jacksonian and Vicksburg.
- White** limestone, Emmons. U. S. Geol. Surv., Mon., vol. xii, p. 60. 1886.
Silurian. Colorado.
- White** limestone, Aldrich. Ala. Geol. Surv., Bull. No. 1, p. 42. 1886.
Tertiary. Alabama.
- White** limestone, Smith. Ala. Geol. Surv., Bull. No. 1, p. 7. 1886.
Tertiary. Alabama.
- White** limestone, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, pp. 15, 18,
19. 1887.
Eocene Tertiary. Alabama. Included in Upper Eocene. Includes Vicksburg,
Red Bluff, Jackson, and Coral limestone.
- White** Cliff chalk, Hill. Ark. Geol. Surv., 1888, vol. ii, pp. 87-89. 1888.
Cretaceous. Arkansas. Included in Chalky marl beds. Part. syns. Austin lime-
stone, Dallas limestone, Niobrara beds.
- White** limestone series, Spencer. Ga. Geol. Surv., 1st Rept. Prog., p. 53. 1891.
Tertiary. Georgia. Included in Eocene.
- White** limestone, Clark. U. S. Geol. Surv., Bull. No. 83, p. 58. 1891.
Tertiary. Alabama. Included in Eocene. Includes Coral limestone, Vicksburg,
and Jackson.
- White** limestone, Nason. N. J. State Geol., Ann. Rept., 1890, pp. 25-50. 1891.
Cambrian. New Jersey.
- White** limestone, Nason. Am. Geol., vol. vii, p. 241; vol. viii, p. 166. 1891.
Post-Archean. New Jersey.
- White** limestone series, Langdon. Ga. Geol. Surv., 1st Rept. Prog., p. 97. 1891.
Tertiary. Georgia.
- White** Clay, Leverett. Am. Geol., vol. x, p. 18. 1892.
Pleistocene. Ohio Valley.
- White** limestone, Smith. Ala. Geol. Surv., Bull. No. 2, pp. 53, 63. 1892.
Tertiary. Alabama.
- White** Cliff, Hill. Geol. Soc. Am., Bull., vol. v, p. 302. 1894.
Cretaceous. Indian Terr., Texas. Included in Glauconitic division.
- White** limestone, Nason. Am. Geol., vol. xiv, pp. 154, 161. 1894.
Cambrian. New Jersey.
- White** limestone, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal
Plain of Ala., pp. 107, 232, 376, 492, 495. 1894.
Tertiary. Alabama. Included in Eocene. Includes Vicksburg, Jackson, and Red
Bluff groups.

White limestone, Westgate. N. J. Geol. Surv., Rept., 1895, pp. 36-50. 1896.
Archean. New Jersey.

White Bluff marl, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 343. 1898.
Tertiary. Arkansas. Included in Claibornian stage, Eocene.

White Mountain series, Hitchcock. N. H. State Geol., Rept., 1870, p. 90. 1871.
Eozoic. New Hampshire.

White Mountain series, Hitchcock. N. H. State Geol., Rept. for 1872, pp. 12-13.
1873.

Eozoic. New Hampshire.

White Mountain series, Hitchcock. Geol. of N. H., pt. i, p. 523. 1874.

Eozoic: New Hampshire.

White Oak Mountain sandstone, Safford. Geol. of Tenn., pp. 299-302. 1869.

Silurian. Tennessee. Included in Niagara group.

White Oak Mountain sandstone, Killebrew and Safford. Res. of Tenn., pp. 37-38.
1874.

Silurian. Tennessee. Included in Niagara period.

White Pine shale, Hague. U. S. Geol. Surv., 3d Ann. Rept., pp. 253, 266-267.
1883.

Devonian. Nevada.

White Pine shale, Hague. U. S. Geol. Surv., Mon., vol. xx, p. 68. 1892.

Devonian. Nevada.

White Prairie d'Ane clay, Hill. Ark. Geol. Surv., 1888, vol. ii, p. 33. 1888.

Post-Tertiary. Arkansas.

White River group, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii,
pp. 433, 434. 1862.

Tertiary. Nebraska. Exact syn. Miocene.

White River beds, Hayden. Am. Phil. Soc., Trans., new ser., vol. xii, p. 1 et seq.
1863.

Tertiary. Northwest.

White River, Hayden. Phil. Acad. Nat. Sci., Jour., vol. vii, pp. 12-13. 1869.

Tertiary. Dakota and Nebraska. Exact syn. Miocene.

White River, Hayden. U. S. Geol. Surv. of Wyoming, Rept., p. 93. 1871.

Tertiary. Included in Miocene.

White River, Hayden. U. S. Geol. Surv. of Terr., 1st-3d Ann. Repts., pp. 56, 58, 192.
1873.

Tertiary.

White River group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix,
pp. lxi-lxiv. 1876.

Tertiary.

White River, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 150.
1876.

Tertiary.

White River, Hague. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 65-67. 1877.

Tertiary. Wyoming. Included in Miocene.

White River, King. U. S. Expl. of 40th Parallel, vol. i, p. 408. 1878.

Tertiary. Colorado. Included in Miocene.

White River formation, Cope. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. iii,
pp. 13-16. 1881.

Tertiary.

White River, Dall and Harris. U. S. Geol. Surv., Bull. No. 84, p. 288. 1892.

Tertiary. Dakotas.

White River sediments, Wortman. Am. Mus. Nat. Hist., Bull., vol. v, 1893, pp. 95-105.
1893.

Lower Miocene. South Dakota. Includes Titanotherium beds, Areodon beds,
and Protoceras beds.

- White River, Scott. Geol. Soc. Am., Bull., vol. v, p. 595. 1894.
Tertiary. Nebraska. Part. syn. Oligocene.
- White River limestone, Keyes. Mo. Geol. Surv., vol. vi, p. 331. 1894.
Cambrian. Missouri. Included in Ozark series. Includes Joachim limestone, Crystal City sandstone, Potosi limestone, St. Joseph limestone, La Motte sandstone, and Iron Mountain conglomerate. Part. syn. Gasconade limestone.
- White River, Matthew. Am. Nat., vol. xxxiii, pp. 403-408. 1899.
Tertiary. Kansas, Nebraska, and Colorado.
- White Sand**, Winchell. Am. Assoc. Adv. Sci., Proc., vol. x, p. 90. 1856.
Cretaceous. Alabama. Included in Upper Cretaceous.
- White Silt** formation, Dawson. Can. Geol. Surv., new ser., vol. vii, p. 283B. 1896.
Pleistocene. British Columbia.
- Whitmores Ferry** bed, Emerson. U. S. Geol. Surv., Mon., vol. xxix, p. 190. 1898.
Silurian. Massachusetts. Included in Conway schists.
- Whitsett** limestone lentils, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 49. 1898.
Cretaceous. Oregon.
- Wichita** beds, Dumble. Texas Geol. Surv., 1st Ann. Rept., pl. iii, p. lxix. 1890.
Permo-Carboniferous. Texas.
- Wichita beds, Cummins. Texas Geol. Surv., 1st Ann. Rept., pp. 187-188. 1890.
Permo-Carboniferous. Texas. Included in Permian.
- Wichita beds, Cummins. Texas Geol. Surv., 2d Ann. Rept., pp. 400-401. 1891.
Carboniferous. Texas. Included in Permian.
- Wichita, White. Geol. Soc. Am. Bull., vol. iii, p. 217. 1892.
Permian. Texas. Part. syn. Dunkard Creek.
- Wichita division, Cummins. Texas Geol. Surv., 4th Ann. Rept., pp. 224-226. 1893.
Carboniferous. Texas. Included in Permian.
- Wichita division, Cummins. Texas Acad. Sci., Trans., vol. ii, no. 1, p. 97. 1897.
Permian. Texas. Exact syn. Albany division.
- Wilbarger Creek** bed, Drake. Texas Geol. Surv., 4th Ann. Rept., p. 384. 1893.
Carboniferous. Texas. Included in Strawn division.
- Wilbur Tuff** lentil, Diller. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 49. 1898.
Tertiary. Oregon. Included in Eocene.
- Wild-cat** Mountain conglomerate, Norwood. Ky. Geol. Surv., new ser., vol. ii, pp. 240-243. 1877.
Carboniferous. Kentucky.
- Wildcat series, Lawson. Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 241-272. 1894.
Pliocene. California.
- Wilhite** slate, Walcott. Geol. Soc. Am., Bull., vol. v, p. 196. 1894.
Archean(?). Tennessee. Included in Ocoee(?).
- Wilhite slate, Hayes. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 20. 1895.
Algonkian(?). Tennessee. Included in Ocoee series.
- Wilhite slate, Keith. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 16, 25. 1895, 1896.
Tennessee, North Carolina. Included in Ocoee group.
- Willard** shale, Beede. Kan. Acad. Sci., Trans., vol. xv, p. 31. 1898.
Carboniferous. Kansas.
- Williamsport** sandstone, Gorby. Indiana Dept. Geol. and Nat. Hist., 15th Ann. Rept., 1886, p. 86. 1886.
Indiana.
- Willow Creek** series, Dawson. Can. Geol. Surv., Rept., 1880-81-82, p. 5B. 1883.
Laramie. Canada.

Willow Creek beds, Dawson. Can. Geol. Surv., Rept., 1882-83-84, pp. 37C, 56C-57C, 63C-64C, 65C-68C, 78C, 112C-114C. 1885.

Laramie. Canada.

Willow Creek beds, Eldridge. Colo. Sci. Soc., Proc., vol. iii, p. 97. 1888.

Tertiary. Colorado. Exact syn. Arapahoe.

Willow Creek beds, Dawson. Geol. Soc. Am., Bull., vol. vii, p. 43. 1895.

Cretaceous. Alberta. Included in Laramie.

Willow River limestone, Keyes. Iowa Geol. Surv., vol. i, p. 23. 1893.

Silurian. Iowa. Included in Lower Silurian, St. Peter sandstone, and Lower Magnessian limestone. Exact syn. Shakopee limestone.

Wills Point clays, Penrose. Texas Geol. Surv., 1st Ann. Rept., pp. 19-22. 1890.

Tertiary. Texas.

Wills Point clays, Dumble. Texas Geol. Surv., 2d Ann. Rept., pp. 24-25. 1891.

Tertiary. Texas. Included in Eocene.

Wills Point clays, Clark. U. S. Geol. Surv., Bull. No. 83, p. 78. 1891.

Tertiary. Texas. Included in Eocene.

Wills Point clays or Basal clays, Kennédy. Texas Geol. Surv., 3d Ann. Rept., pp. 47-50. 1892.

Tertiary. Texas. Included in Eocene.

Wills Point clays, Dumble. Texas Geol. Surv., Rept. on brown coal, pp. 124-128. 1892.

Tertiary. Texas. Included in Basal division of Eocene.

Wills Point clays, Dumble. Jour. of Geol., vol. ii, pp. 549-550. 1894.

Tertiary. Texas. Included in Eocene.

Wills Point clays, Kennedy. Phil. Acad. Nat. Sci., Proc., 1895, p. 144. 1895.

Lower Eocene. Texas. Included in Lignitic. Exact syn. Midway.

Wilmington beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 344. 1898.

Tertiary. North Carolina. Included in Claibornian stage, Eocene.

Wiltons Run limestone, Frazer. 2d Pa. Geol. Surv., Rept. C, p. 82. 1876.

Cambrian(?). Pennsylvania.

Winchester limestone, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 46. 1898.

Silurian. Kentucky.

Wind River deposits, Meek and Hayden. Phil. Acad. Nat. Sci., Proc., vol. xiii, pp. 433, 434. 1862.

Tertiary. Nebraska.

Wind River, Hayden. Phil. Acad. Nat. Sci., Jour., vol. vii, pp. 12, 13. 1869.

Tertiary. Dakota, Nebraska.

Wind River, Hayden. U. S. Geol. Surv. of Wyoming, Rept., p. 93. 1871.

Tertiary.

Wind River, Hayden. U. S. Geol. Surv. of Terr., 1st-3d Ann. Repts., pp. 56, 57, 192. 1873.

Tertiary.

Wind River group, Meek. U. S. Geol. and Geog. Surv. of Terr., Mon., vol. ix, p. lxi. 1876.

Tertiary. Wyoming.

Wind River, Peale. U. S. Geol. and Geog. Surv. of Terr., 8th Ann. Rept., p. 148. 1876.

Tertiary.

Wind River group, St. John. U. S. Geol. and Geog. Surv., 12th Ann. Rept., pt. i, p. 259. 1883.

Tertiary. Wyoming.

Wind River, Clark. U. S. Geol. Surv., Bull. No. 83, p. 140. 1891.

Tertiary. Wyoming. Included in Eocene.

- Wind River beds, Osborn and Wortman. *Am. Mus. Nat. Hist., Bull.*, vol. iv, 1892, pp. 142-144. 1892.
Eocene.
- Wind River beds, Osborn. *Am. Nat.*, vol. xxxi, pp. 966-968. 1897.
Tertiary. Colorado. Included in Eocene.
- Wind River sub-stage, Scott. *Geol. Soc. Am., Bull.*, vol. ix, p. 409. 1898.
Tertiary. Wyoming. Exact syn. Green River.
- Wind River beds, Osborn. *Am. Assoc. Adv. Sci., Proc.*, vol. xlv, pp. 205-206. 1898.
Tertiary. Colorado.
- Windsor** formation, Ami. *Can. Rec. Sci.*, vol. viii, p. 160. 1900.
Carboniferous. Canada.
- Windy Gap** limestone, White. *U. S. Geol. Surv., Bull. No. 65*, p. 30. 1891.
Carboniferous. Pennsylvania, West Virginia. Included in Permo-Carboniferous, Dunkard Creek. Exact syn. Limestone XIV, Stevenson.
- Winfield** limestone, Prosser. *Kan. Univ. Quart.*, vol. vi, pp. 158-159, 171-174. 1896.
Carboniferous. Kansas.
- Winfield concretionary limestone, Prosser. *Kan. Univ. Geol. Surv.*, vol. ii, pp. 62-66. 1897.
Carboniferous. Kansas. Included in Permian. Exact syn. Marion limestone.
- Winfield limestone, Keyes. *Iowa Acad. Sci., Proc.*, vol. v, p. 60. 1898.
Cambrian. Iowa.
- Winfield limestone, Harris and Veatch. *La. State Exp. Station*, pt. v, p. 56. 1899.
Cretaceous. Louisiana. Included in Ripley stage.
- Wingate** sandstone, Dutton. *U. S. Geol. Surv., 6th Ann. Rept.*, p. 136. 1885.
Juratrias. N. W. New Mexico. Included in Trias.
- Winnipeg** sandstone, Dowling. *Ottawa Field Nat. Club, Trans.*, 1895-96, vol. xi, pp. 67-68. 1895-96.
Cambro-Silurian. Canada.
- Winnipegosan**, Tyrrell. *Can. Geol. Surv., new ser.*, vol. v, pt. i, pp. 144E-199E. 1893.
Devonian. Canada. Exact syn. Middle Devonian.
- Winnepesaukee** gneiss, Crosby and Fuller. *Inst. Tech. Quart.*, vol. ix, p. 352. 1896.
New Hampshire.
- Winooski** marble or Wakefield marble, Perkins. *Am. Nat.*, vol. xvi, pp. 128-136. 1885.
Cambrian. Vermont. Exact syn. Wakefield marble.
- Winooski marble, Hopkins. *Ark. Geol. Surv.*, 1890, vol. iv, p. 182. 1890.
Arkansas.
- Winterset** limestone, Tilton and Bain. *Iowa Geol. Surv.*, vol. vii, pp. 517-519. 1897.
Carboniferous. Iowa. Included in Bethany limestone.
- Winterset limestone, Bain. *Am. Jour. Sci.*, 4th ser., vol. v, pp. 438, 439. 1898.
Carboniferous. Missouri. Included in Missourian series, Bethany limestone.
- Winthrop** sandstone, Russell. *U. S. Geol. Surv.*, 20th Ann. Rept., pt. ii, pp. 117-118. 1900.
Cretaceous. Washington.
- Wisconsin** drift, Leverett. *Chic. Acad. Sci., Geol. and Nat. Hist. Surv., Bull.*, vol. ii, p. 17. 1887.
Pleistocene.
- Wisconsin Valley slates, Van Hise. *Int. Cong. of Geol.*, 5th sess., pl. xiv. 1893.
Algonkian. Lake Superior region. Included in Huronian.
- Wisconsin formation, Chamberlin. *Jour. of Geol.*, vol. iii, pp. 275-276. 1895.
Pleistocene. Included in Glacial.

Wisconsin stage, Upham. Am. Geol., vol. xvi, p. 104. 1895.

Pleistocene. Included in Champlain epoch.

Wisconsin epoch, Todd. Mo. Geol. Surv., vol. x, p. 216. 1896.

Pleistocene. Missouri.

Wisconsin drift formation, Salisbury. Jour. of Geol., vol. iv, pp. 929-937. 1896.

Pleistocene. Wisconsin.

Wisconsin, Chamberlin. Jour. of Geol., vol. iv, pp. 872-876. 1896.

Pleistocene. Wisconsin.

Wisconsin formation, Beyer. Iowa Geol. Surv., vol. v, pp. 203-205. 1896.

Pleistocene. Iowa.

Wisconsin drift, Bain. Iowa Geol. Surv., vol. vi, pp. 433-467. 1897.

Pleistocene. Iowa.

Wisconsin drift, Bain. Iowa Geol. Surv., vol. vii, pp. 344-350, 466-469. 1897.

Pleistocene. Iowa.

Wisconsin, Beyer. Iowa Geol. Surv., vol. vii, pp. 238-239. 1897.

Pleistocene. Iowa.

Wisconsin drift, Calvin. Iowa Geol. Surv., vol. vii, pp. 176-178. 1897.

Pleistocene. Iowa.

Wisconsin drift, Leonard. Iowa Geol. Surv., vol. viii, pp. 88-89. 1898.

Pleistocene. Iowa.

Wisconsin drift, Calvin. Geol. Soc. Am., Bull., vol. x, pp. 107, 176. 1899.

Pleistocene. Iowa.

Wisconsin, Beyer. Iowa Geol. Surv., vol. ix, p. 203. 1899.

Pleistocene. Iowa.

Wisconsin drift, Macbride. Iowa Geol. Surv., vol. ix, p. 138. 1899.

Pleistocene. Iowa.

Wisconsin drift, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 191-417. 1899.

Pleistocene. Great Lakes region.

Wisconsin drift, Bain. Iowa Geol. Surv., vol. ix, p. 92. 1899.

Pleistocene. Iowa.

Wisconsin drift, Williams. Iowa Geol. Surv., vol. x, p. 363. 1900.

Pleistocene. Iowa.

Wisconsin, Beyer. Iowa Geol. Surv., vol. x, p. 282. 1900.

Pleistocene. Iowa.

Wisconsin drift, Macbride. Iowa Geol. Surv., vol. x, p. 220. 1900.

Pleistocene. Iowa.

Wisconsin drift, Leverett. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 67. 1900.

Pleistocene. Illinois, Indiana.

Wise formation, Campbell. U. S. Geol. Surv., Bull. No. 111, p. 34. 1893.

Carboniferous. Virginia. Included in Coal Measures.

Wise, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 12. 1894.

Carboniferous. Kentucky, Virginia, Tennessee.

Wise formation, Campbell. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 59. 1899.

Carboniferous. Virginia, Tennessee.

Wolf Creek conglomerate, Prosser. Roch. Acad. Sci., Proc., vol. ii, pp. 50-124. 1892.

Devonian. New York.

Wolsey shale, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 285. 1900.

Cambrian. Montana.

Wood River formation, Lindgren. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, pp. 89-90, 193-195. 1900.

Carboniferous. Idaho.

Woodbridge clays, Uhler. Md. Acad. Sci., Trans., vol. i, p. 190. 1892.

Cretaceous. New Jersey. Included in Albirupen.

Woodbury sandstones and shales, White. Iowa Geol. Surv., vol. i, pp. 291-293. 1870.

Cretaceous. Iowa.

Woodbury shale, Keyes. Iowa Geol. Surv., vol. i, pp. 137-138. 1893.

Cretaceous. Iowa. Exact syns. Dakota and Fort Benton.

Woodhurst limestone, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 291. 1900.

Carboniferous. Montana. Included in Madison group.

Woods Bluff deposit, Heilprin. Phil. Acad. Nat. Sci., Jour., vol. ix, pp. 140, 144. 1884.

Tertiary. Alabama. Included in Eocene. Exact syn. Eo-Lignitic.

Woods Bluff group, Aldrich. Ala. Geol. Surv., Bull. No. 1, p. 51. 1886.

Tertiary. Alabama.

Woods Bluff series, Smith and Johnson. U. S. Geol. Surv., Bull. No. 43, p. 43. 1887.

Tertiary. Alabama. Included in Lignitic, Lower Eocene. Exact syn. Bashi series.

Wood Bluff, Langdon. Geol. Soc. Am., Bull., vol. ii, p. 588. 1891.

Tertiary. Alabama. Included in Lower Tertiary.

Woods Bluff, Smith. Ala. Geol. Surv., Bull. No. 2, pp. 49, 61, 71. 1892.

Tertiary. Alabama. Included in Lignitic. Exact syn. Bashi.

Woods Bluff, Smith, Johnson and Langdon. Ala. Geol. Surv., Geol. of Coastal Plain of Ala., pp. 154, 236, 399, 491. 1894.

Tertiary. Alabama. Included in Eocene Lignitic. Exact syn. Bashi.

Woodstock conglomerate, Hind. Geol. of New Brunswick, p. 67. 1865.

Carboniferous. New Brunswick.

Woodstock stage, Clark. Johns Hopkins Univ. circ., vol. xv, p. 3. 1895.

Woodstock stage, Clark. Am. Jour. Sci., 4th ser., vol. i, pp. 369, 370. 1896.

Eocene. Virginia. Included in Pamunkey formation. Part. syn. Middle or Upper Lignitic.

Woodstock, Clark. U. S. Geol. Surv., Bull. No. 141, pp. 54, 57. 1896.

Tertiary. Maryland. Included in Eocene.

Woodville sandstone, Winchell. Mich. Geol. Surv., 1st Bien. Rept. Prog., pp. 126, 138. 1861.

Carboniferous. Michigan.

Woodville sandstone, Lane. Mich. Geol. Surv., Rept. State Board for 1891, 1892, p. 66. 1893.

Carboniferous. Michigan.

Worcester argillite, Emerson. Geol. Soc. Am., Bull., vol. i, p. 560. 1889.

Archean. Massachusetts.

Wrexford limestone, Prosser. Geol. Soc. Am., Bull., voll. vi, pp. 30, 47, 48. 1894.

Permian. Kansas.

Wykoff beds, Hall and Sardeson. Geol. Soc. Am., Bull., vol. iii, pp. 332, 366. 1892.

Silurian. Minnesota. Included in Cincinnati group.

Wykoff limestone, Haworth and Kirk. Kan. Univ. Quart., vol. ii, p. 111. 1894.

Carboniferous. Kansas.

Wykoff limestone, Kirk. Kan. Univ. Geol. Surv., vol. i, pp. 80, 82. 1896.

Carboniferous. Kansas.

Wykoff formation, Sardeson. Am. Geol., vol. xix, pp. 24, 30-33. 1897.

Silurian. Mississippi Valley. Included in Lower Silurian. Includes *Orthis*, *Leptaena*, *Orthoceras*, *Diplograptus*, and *Triplecia* beds.

Wyman sandstone, Simonds. Ark. Geol. Surv., 1888, vol. iv, pp. 38-42. 1888.

Carboniferous. Arkansas. Included in Lower Carboniferous.

Wyman sandstone, Simonds and Hopkins. Ark. Geol. Surv., 1891, vol. ii, pp. 47-50. 1891.

Carboniferous. Arkansas. Included in Lower Carboniferous.

- Wyo** division, Comstock. Texas Geol. Surv., 1st Ann. Rept., pp. 297-298. 1890.
Silurian. Texas.
- Wyoming** conglomerate, Emmons. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 189, 205. 1877.
Tertiary. Colorado, Utah.
Wyoming conglomerate, Hague. U. S. Geol. Expl. of 40th Parallel, vol. ii, pp. 71-72. 1877.
Tertiary(?). Wyoming.
- Wyoming conglomerate, Endlich. U. S. Geol. and Geog. Surv. of Terr., 11th Ann. Rept., pp. 88, 133. 1879.
Tertiary. Wyoming. Included in Pliocene.
- Wyoming, Emmons, Cross and Eldridge. U. S. Geol. Surv., Mon., vol. xxvii, pp. 18, 51. 1896.
Juratrias. Colorado. Included in Trias.
- Wyoming formation, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.
Juratrias. Colorado.
- Wyoming Valley** limestone, Ashburner. 2d Pa. Geol. Surv., Ann. Rept., 1885, pp. 437-450. 1886.
Carboniferous. Pennsylvania.
- Yakutat** system, Russell. Nat. Geog. Mag., vol. iii, pp. 167-170, 172. 1891.
Pliocene or Pleistocene. Alaska.
- Yakutat formation, Upham. Geol. Soc. Am., Bull., vol. iv, p. 196. 1893.
Pleistocene. Alaska.
- Yallahs**, Hill. Harvard Coll. Mus. Comp. Zool., Bull., vol. xxxiv, p. 42. 1899.
Cretaceous. Jamaica. Included in Blue Mountain series.
- Yarmouth** weathered zone, Leverett. Jour. of Geol., vol. vi, pp. 238-243. 1898.
Pleistocene. Iowa.
- Yarmouth zone, Leverett. U. S. Geol. Surv., Mon., vol. xxxviii, pp. 119-123. 1899.
Pleistocene. Mississippi Valley.
- Yarmouth soil, Udden. Iowa Geol. Surv., vol. ix, p. 339. 1899.
Pleistocene. Iowa.
- Yarmouth, Norton. Iowa Geol. Surv., vol. ix, p. 478. 1899.
Pleistocene. Iowa.
- Yegua** division, Dumble. Texas Geol. Surv., Rept. on brown coal, pp. 148-154. 1892.
Tertiary. Texas. Included in Eocene. Includes part of Fayette beds.
- Yegua clay, Dumble. Jour. of Geol., vol. ii, p. 552. 1894.
Tertiary. Texas. Included in Eocene.
- Yegua clays, Kennedy. Phil. Acad. Nat. Sci., Proc., 1895, p. 99. 1895.
Eocene. Texas. Included in Lower Claiborne.
- Yellow** gravel, Cook. N. J. State Geol., Rept., 1886, pp. 127-134. 1887.
New Jersey.
- Yellow gravel, Salisbury. N. J. State Geol., Ann. Rept., 1892, pp. 151-166. 1893.
New Jersey.
- Yellow gravel, Salisbury. N. J. State Geol., Rept., 1893, pp. 39-72. 1894.
Pleistocene. New Jersey. Includes Beacon Hill, Pensanken, and Jamesburg.
- Yellow and Gray** marl, Rogers. Geol. of Virginias and Rept. for 1839, p. 270. 1840.
Tertiary. Virginia.
- Yellow Loam** deposits, Hilgard. Rept. on Geol. and Agric., Miss., pp. 197-200. 1860.
Quaternary. Mississippi.
- Yellow loam, Hilgard. Am. Jour. Sci., 2d ser., vol. xli, pp. 319-323. 1866.
Quaternary. Mississippi.
- Yellow loam, Hilgard. Am. Jour. Sci., 3d ser., vol. ii, p. 403. 1871.
Pleistocene. Mississippi Valley.

- Yellow loam, Mabry. Jour. of Geol., vol. vi, pp. 274-302. 1898.
Tertiary. Gulf States.
- Yellow Sand**, Rogers. N. J. Geol. Surv., Final Rept., pp. 224-226. 1840.
Cretaceous or Tertiary. New Jersey.
- Yellowstone** series, Harris. Phil. Acad. Nat. Sci., Proc., vol. ii, pp. 235-237. 1846.
Cretaceous. Included in Fort Union beds.
- Yellowstone formation, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Cretaceous. Montana.
- Yentna** beds, Spurr. U. S. Geol. Surv., 20th Ann. Rept., pt. vii, pp. 172, 183. 1900.
Tertiary. Alaska. Included in Kenai series.
- Yogo** limestone, Weed. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, p. 286. 1900.
Cambrian. Montana.
- Yonkers** gneiss, Merrill. N. Y. State Mus., 50th Ann. Rept., vol. i, pp. 29-30. 1898.
New York.
- York** limestone, Frazer. 2d Pa. Geol. Surv., Rept. C, p. 130 et seq. 1876.
Silurian. Pennsylvania. Included in No. 2.
- York terrane, Walcott. U. S. Nat. Mus., Proc., vol. xix, p. 715. 1896.
Cambrian. Pennsylvania. Included in Lower Cambrian.
- Yucca** bed, Taff. Texas Geol. Surv., 2d Ann. Rept., pp. 725-727. 1891.
Cretaceous. Texas. Included in Washita division.
- Yukon** silts, Spurr. U. S. Geol. Surv., 18th Ann. Rept., pt. iii, pp. 200-220. 1898.
Pleistocene. Alaska.
- Yule** limestone, Eldridge. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 9. 1894.
Silurian. Colorado.
- Yule limestone, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.
Silurian. Colorado.
- Zapata**, Spencer. Geol. Soc. Am., Bull., vol. vi, p. 129. 1894.
Pleistocene. Cuba. Included in Columbia.
- Zapata formation, Spencer. Geol. Soc. Am., Bull., vol. vii, pp. 67, 84. 1895.
Pleistocene. Cuba. Included in Lafayette(?). Pliocene(?).
- Zeuglodon** beds, Dall. U. S. Geol. Surv., 18th Ann. Rept., pt. ii, p. 342. 1898.
Tertiary. Alabama. Included in Jacksonian stage—Eocene.
- Zoar** limestone, Orton. Ohio Geol. Surv., vol. iii, p. 891. 1878.
Carboniferous. Ohio. Included in Lower Coal Measures.
- Zuñi** sandstone, Dutton. U. S. Geol. Surv., 6th Ann. Rept., p. 137. 1885.
New Mexico.

ADDENDA.

- Aquia Creek** stage, Clark. Johns Hopkins Univ., Circ., vol. xv, p. 3. 1895.
- Arundel** formation, Clark. Md. Geol. Surv., vol. i, pp. 156, 190. 1887.
Jurassic. Maryland.
- Brandon** period, Lewis. Phil. Acad. Nat. Sci., Proc., vol. xxxii, pp. 282-291. 1880.
- Conemaugh**, Platt. 2d Pa. Geol. Surv., Rept. H, p. 8. 1875.
- Elk Lick** coal, Lesley. Manual of coal, pp. 92-93. 1856.
Carboniferous. Pennsylvania. Exact syn. upper Freeport bed.
- Freeport** coal, Lesley. Manual of coal, pp. 95-98. 1856.
- Greenbrier** series, Stevenson. 2d Pa. Geol. Surv., Rept. K, p. 12. 1878.
- Greenbrier limestone, Rogers. Macfarlane Geol. Ry. Guide. 1879.
- Greenbrier shales, Rogers. Macfarlane Geol. Ry. Guide. 1879.
- Greene County** group, Rogers. Geol. of Pa., vol. ii, pt. i, p. 503. 1858.

GEOGRAPHIC NAMES APPLIED TO IGNEOUS MASSES.

- Albany** granite, Hitchcock. Geol. of N. H., pt. ii, p. 143. 1877.
Ezoic. New Hampshire. Included in Pemigewasset series.
- Albany** granite, Huntington. Geol. of N. H., pt. ii, p. 150. 1877.
Azoic. New Hampshire. Included in Pemigewasset series.
- Albany** granite, Hawes. Am. Jour. Sci., 3d ser., vol. xxi, pp. 21-32. 1881.
New Hampshire.
- Aroostook Falls** diabase, Gregory. U. S. Geol. Surv., Bull. No. 165, pp. 115, 175. 1900.
Maine.
- Bald Mountain** dacite, Cross. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 295. 1896.
Colorado.
- Barker** porphyry, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folios Nos. 55, 56. 1899.
Montana.
- Barton** gneiss, Kemp. Am. Inst. Mg. Engrs., Trans., vol. xxviii, p. 178. 1898.
Archean. New York.
- Bassick** agglomerate, Cross. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 307. 1896.
Colorado.
- Bassimenan Lake** granite, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv, p. 286. 1899.
Minnesota. Included in Keewatin.
- Beaver Bay** diabase, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. v, p. 63. 1900.
Minnesota.
- Belchertown** granite, Emerson. Geol. Soc. Am., Bull., vol. i, p. 560. 1889.
Archean. Massachusetts.
- Belchertown** tonalite, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 243-248, and pl. xxxiv. 1898.
Carboniferous. Massachusetts.
- Belchertown** tonalite, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Carboniferous. Massachusetts.
- Bellows Falls** granite, Hitchcock. Am. Jour. Sci., 1st ser., vol. vi, pp. 11, 12. 1822.
- Berlin** gneiss, Hitchcock. Geol. of N. H., pt. ii, p. 111. 1877.
Azoic. New Hampshire. Exact syn. Lake gneiss.
- Berlin** porphyry, Chamberlin. Geol. of Wis., vol. ii, p. 149. 1877.
Archean. Wisconsin.
- Berlin** quartz-porphyry, Irving. Geol. of Wis., pt. ii, p. 520. 1877.
Archean. Wisconsin.
- Berlin** rhyolite-gneiss, Weidman. Wis. Geol. and Nat. Hist. Surv., Bull. No. 3, Sci., ser. ii, pp. 32-47. 1898.
Pre-Cambrian. Wisconsin.
- Bethlehem** gneiss, Hitchcock. Am. Jour. Sci., 3d ser., vol. vii, p. 472. 1874.
New Hampshire.

- Bethlehem gneiss, Hitchcock. Geol. of N. H., pt. ii, pp. 104, 348-355, 428. 1877.
Eozoic. New Hampshire.
- Bethlehem gneiss, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, 1881-1886, p. 179.
1884.
Vermont, New Hampshire.
- Bethlehem gneiss, Hitchcock. Jour. of Geol., vol. iv, pp. 51, 53-54. 1896.
Archean. New Hampshire.
- Bethlehem gneiss, Hitchcock. Geol. Soc. Am., Bull., vol. vii, p. 511. 1896.
Archean. New Hampshire.
- Black Rock** diabase, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pl. xxxiv.
1898.
- Juratrias. Massachusetts.
- Black Rock diabase, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50.
1898.
- Juratrias. Massachusetts.
- Blanford** serpentine and pyroxene, Emerson. U. S. Geol. Surv., Mon., vol. xxix,
p. 85. 1898.
- Bluebird** aplite, Weed. Jour. of Geol., vol. vii, pp. 744-747. 1899.
Montana.
- Bunker** andesite, Cross. Colo. Sci. Soc., Proc., vol. iii, p. 272. 1890.
- Bunker andesite, Cross. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 289. 1896.
Colorado.
- Butte** granite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 38. 1897.
Montana.
- Butte granite, Weed. Jour. of Geol., vol. vii, pp. 740-744. 1899.
Montana.
- Cabotian** lavas, Winchell. Minn. Geol. and Nat. Hist. Surv., Final Rept., vol. iv,
p. 215. 1899.
Minnesota.
- Carrollton Mountain** porphyry, Bain. Geol. Soc. Am., Bull. vol. xi, pp. 135, 136-137.
1900.
Archean (?). Oklahoma.
- Castle** granite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Tertiary. Montana. Included in Neocene.
- Castle Hill** andesite, Gregory. U. S. Geol. Surv., Bull. No. 165, pp. 114, 174. 1900.
Maine.
- Castle Hills** tuffs, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 120. 1900.
Maine.
- Chapman** trachyte, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 110. 1900.
Maine.
- Chocoma** granite, Hitchcock. Geol. of N. H., pt. ii, pp. 154, 230. 1877.
Azoic. New Hampshire.
- Columbia** lava, Russell. U. S. Geol. Surv., Bull. No. 108, pp. 11, 20-22. 1893.
Tertiary. Washington.
- Columbia lava, Russell. U. S. Geol. Surv., Water-Supply and Irrigation Papers No. 4.
pp. 40-50. 1897.
Tertiary. Washington.
- Columbia lava, Lindgren. U. S. Geol. Surv., 20th Ann. Rept., pt. iii, pp. 90-93. 1900.
Idaho.
- Columbia lava, Russell. U. S. Geol. Surv., 20th Ann. Rept., pt. ii, pp. 129-134. 1900.
Washington.
- Concord** granite, Crosby. Inst. of Tech. Quart., vol. ix, p. 330. 1896.
New Hampshire.

Conway granite, Hitchcock. Geol. of N. H., pt. ii, pp. 142, 151. 1877.

Azoic. New Hampshire. Included in Pemigewasset series.

Courtney granite, Hershey. Science, vol. xi, p. 130. 1900.
California.

Coys hill granite, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pl. xxxiv, pp. 319-320. 1898.

Carboniferous. Massachusetts.

Crazy Mountain granite, Weed. U. S. Geol. Surv., Atlas of U. S., Folio No. 56. 1899.

Montana.

Cripple Creek breccia, Cross. Colo. Sci. Soc., Proc., vol. v, p. 30. 1894.
Colorado.

Deerfield diabase, Emerson. Geol. Soc. Am., Bull., vol. ii, p. 452, 1891. U. S. Geol. Surv., Mon., xxix, pp. 418-445. 1898.

Jura trias. Massachusetts.

Drews Lake granite, Gregory. U. S. Geol. Surv., Bull. No. 165, pp. 105, 148. 1900.

Maine.

East-Haven granite, Hitchcock. Am. Jour. Sci., 1st ser., vol. vi, p. 3. 1822.
Connecticut.

Edmunds Hill andesite, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 112. 1900.
Maine.

Elk Mountain porphyry, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.

Colorado.

Fairview diorite, Cross. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 291. 1896.
Colorado.

Fernow rhyolite, Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 65. 1900.
Utah.

Fordham gneiss, Merrill. N. Y. State Mus., 50th Ann. Rept., vol. i, pp. 25-26. 1898.

Pre-Cambrian. New York.

Hampden diabase, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.

Juratrias. Massachusetts.

Harney Peak granite, Van Hise. Geol. Soc. Am., Bull., vol. ix, p. 311. 1898.
Archean. South Dakota.

Harrison diorite, Merrill. N. Y. State Mus., 50th Ann. Rept., vol. i, p. 30. 1898.
New York.

Harvard granite, Emerson. Geol. Soc. Am., Bull., vol. i, p. 560. 1889.
Archean. Massachusetts.

Hatfield batholite, Emerson. Geol. Soc. Am., Bull., vol. i, p. 560. 1889.
Archean. Massachusetts.

Haystack rhyolite, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 107. 1900.
Maine.

Hedgehog trachyte, Gregory. U. S. Geol. Surv., Bull. No. 165, p. 110, 161. 1900.
Maine.

Highwood syenite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 55. 1899.

Montana.

Hobart Hill andesite, Gregory. U. S. Geol. Surv., Bull. 165, p. 113, 1900.
Maine.

Holyoke diabase, Emerson. Geol. Soc. Am., Bull., vol. ii, p. 452. 1891.
Trias. Massachusetts.

- Holyoke diabase, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pp. 461-464. 1898.
Juratrias. Massachusetts.
- Holyoke diabase, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Juratrias. Massachusetts.
- Kawishiwi** agglomerate, Winchell. Am. Geol., vol. ix, p. 359. 1892.
Archean. Minnesota. Included in Keewatin.
- Kekequabic** granite, Winchell. Minn. Geol. and Nat. Hist., Final Rept., vol. v, p. 32. 1900.
Archean. Minnesota.
- Knob Lick** granite, Keyes. Mo. Geol. Surv., Sheet Rept., No. iv, p. 18. 1895.
Archean. Missouri.
- Koochiching** granite, Winchell. Am. Geol., vol. xx, pp. 293-299. 1897.
Archean. Minnesota.
- Leadville** porphyry, Emmons. U. S. Geol. Surv., 2d Ann. Rept., p. 222. 1882.
Colorado.
- Leadville porphyry, Emmons. U. S. Geol. Surv., Mon., vol. xii, pp. 76-78. 1886.
Colorado.
- Lincoln** porphyry, Emmons. U. S. Geol. Surv., Mon., vol. xii, p. 76. 1886.
Colorado.
- Lincoln porphyry, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.
Colorado.
- Loco** diorite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Tertiary. Montana. Included in Eocene.
- Logan** sills, Winchell. Minn. Geol. and Nat. Hist., Surv., Final Rept., vol. v, p. 59. 1900. Minnesota.
- Manitou** eruptives, Winchell. Minn. Geol. and Nat. Hist., Surv., Rept., vol. iv, p. 15. 1899. Minnesota. Exact syn. Keweenawan.
- Mapleton** granite, Gregory. U. S. Geol. Surv., Bull. No. 165, pp. 105, 146. 1900.
Maine.
- Marcellon** quartz-porphyry, Irving. Geol. of Wis., vol. ii, p. 519. 1877.
Archean. Wisconsin.
- Marion** granite, Irving. Geol. of Wis., vol. ii, p. 522. 1877.
Archean. Wisconsin.
- Marquette** quartz-porphyry, Irving. Geol. of Wis., vol. ii, p. 520. 1877.
Archean. Wisconsin.
- Mars Hill** diabase, Gregory. U. S. Geol. Surv., Bull. No. 165, pp. 115, 177. 1900.
Maine.
- Middlefield** granitite, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898.
Carboniferous. Massachusetts.
- Montara** granite, Lawson. Am. Geol., vol. xv, p. 345. 1895. U. S. Geol. Surv., 15th Ann. Rept., p. 408. 1895.
California.
- Montello** granite, Irving. Geol. of Wis., vol. ii, p. 521. 1877.
Archean. Wisconsin.
- Moundville** quartz-porphyry, Irving. Geol. of Wis., vol. ii, p. 520. 1877.
Archean. Wisconsin.
- Mount Arcutney** granite, Hitchcock. Am. Mus. Nat. Hist., Bull., vol. i, pp. 172-176. 1884.
Huronian. New Hampshire and Vermont.
- Muka** granite, Chamberlin. Geol. of Wis., vol. ii, p. 248. 1877.
Archean. Wisconsin.

- Neihart** porphyry, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Montana.
- Newbury** felsite, McDaniel. Essex Inst., Bull., vol. xvi, p. 165. 1884.
Massachusetts.
- Observatory Hill** quartz-porphyry, Irving. Geol. of Wis., vol. ii, p. 519. 1877.
Archean. Wisconsin.
- Packard** rhyolite, Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 65. 1900.
Utah.
- Palisade** porphyry, Irving. U. S. Geol. Surv., Mon., vol. v, p. 146. 1883.
Algonkian. Michigan. Included in Keweenaw series.
- Palisade diabase, Hall and McGee. Geol. map of New York State. 1891.
- Pinto** diorite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Montana.
- Port Deposit** granite gneiss, Grimsley. Cin. Soc. Nat. Hist., Jour., vol. xvii, No. ii, p. 112. 1894.
Maryland.
- Prescott** diorite, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pl. xxxiv. 1898.
Carboniferous. Massachusetts.
- Pringle** andesite, Cross. Colo. Sci. Soc., Proc., vol. iii, p. 276. 1890.
Tertiary. Colorado.
- Pringle andesite, Cross. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 303. 1896.
Colorado.
- Quail** porphyry, Emmons. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 48. 1898.
Colorado.
- Quana** granite, Bain. Geol. Soc. Am., Bull., vol. xi, pp. 135, 137-138. 1900.
Oklahoma.
- Quoggy Joe** quartz-trachyte, Gregory. U. S. Geol. Surv., Bull. No. 165, pp. 111, 164. 1900.
Maine.
- Raggedy Mountain** gabbro, Bain. Geol. Soc. Am., Bull., vol. xi, pp. 135-136. 1900.
Archean. Oklahoma.
- Robinson** diorite, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 56. 1899.
Montana.
- Rosita** andesite, Cross. U. S. Geol. Surv., 17th Ann. Rept., pt. ii, p. 285. 1896.
Colorado.
- Rowlandville** granite, Grimsley. Cin. Soc. Nat. Hist., Jour., vol. xvii, No. ii, p. 112. 1894.
Maryland.
- Saganaga** syenite, Winchell. Am. Jour. Sci., 3d ser., vol. xli, p. 386. 1891.
Archean. Minnesota. Included in Keewatin.
- Saganaga syenite, Selwyn. Am. Jour. Sci., 3d ser., vol. xliii, pp. 319-322. 1892.
Archean. Canada.
- Saganaga granite, Grant. Minn. Geol. and Nat. Hist., Surv., Final Rept., vol. iv, pp. 322, 467. 1899.
Archean. Minnesota.
- Santa Lucia** granite, Lawson. Univ. of Cal., Dept. of Geol., Bull., vol. i, pp. 1-89. 1893.
Pre-Cretaceous. California. Exact syn. Granodiorite(?).
- Seneca** quartz-porphyry, Irving. Geol. of Wis., vol. ii, p. 520. 1877.
Archean. Wisconsin.

- South Hampton** granite, Hitchcock. Am. Jour. Sci., 1st ser., vol. vi, pp. 3-6. 1822. Connecticut.
- South Mapleton** andesite, Gregory. U. S. Geol. Surv., Bull. No. 165, pp. 113, 173. 1900. Maine.
- Swansea** rhyolite, Smith. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 65. 1900. Utah.
- Talcott** diabase, Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898. Juratrias. Massachusetts.
- Temecula Canyon** granite, Goodyear. Cal. State Mg. Bureau, 9th Ann. Rept., p. 149. 1889. California.
- Thoroughfare** volcanics, Smith. Geol. of Fox Islands, pp. 30-45. 1896. Silurian. Maine.
- Tishomingo** granite, Hill. Am. Jour. Sci., 3d ser., vol. xlii, p. 118. 1891. Indian Territory.
- Utley** meta-rhyolite, Weidman. Wis. Geol. and Nat. Hist. Surv., Bull., vol. iii, sci. ser. 2, pp. 4-31. 1898. Pre-Cambrian. Wisconsin.
- Vinal Haven** volcanics, Smith. Geol. of Fox Islands, pp. 46-55. 1896. Maine.
- Waushara** granite, Weidman. Wis. Geol. and Nat. Hist. Surv., Bull., vol. iii, sci. ser. 2, pp. 47-64. 1898. Pre-Cambrian. Wisconsin.
- Williamsburg** granite, Emerson. U. S. Geol. Surv., Mon., vol. xxix, pl. xxxiv. 1898. Carboniferous. Massachusetts.
- Williamstown** granite. Emerson. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 50. 1898. Carboniferous. Massachusetts.
- Wolf** porphyry, Weed. U. S. Geol. Surv., Geol. Atlas of U. S., Folio No. 55. 1899. Montana.
- Woodstock** granite, Williams. U. S. Geol. Surv., Baltimore sheet. 1892. Maryland.



INDEX LIST OF FORMATION NAMES.

Abilene.	Antiguan.	Atlantocaurus.
Acadian.	Antoine.	Atoka.
Adams Branch.	Anvil Rock.	Attleboro.
Adams Lake.	Apishapa.	Aturia.
Admiralty.	Apison.	Aubrey.
Aftonian.	Appanoose.	Auburn.
Ajibik.	Appleton.	Augusta.
Alachua.	Appomattox.	Auriferous.
Albany.	Aquia Creek.	Auriferous slate.
Albert.	Aquidneck.	Auroral.
Albertan.	Arago.	Austin.
Albirupean.	Arapahoe.	Autocene.
Aldrich.	Arcadia.	Aux Vases.
Algoma.	Archer.	Avalon.
Alleghany River.	Archimedes.	Avondale.
Allegrippus.	Ardmore.	Bad Land.
Allouez.	Arenaceous group.	Baden.
Alma.	Arickaree.	Badito.
Alnwick.	Arietna.	Baird.
Altamaha.	Arisaig.	Bakerstown.
Altamont.	Arizonian.	Ballard.
Alton.	Arkadelphia.	Baltimorean.
Altoona.	Arkansas.	Banff.
Amboy.	Arkona.	Bangor.
Americus.	Arlington.	Baptanodon.
Ames.	Aroostook.	Bar Harbor.
Amherst.	Artemisia.	Baraboo.
Amphitheatre.	Arundel.	Barachois.
Amyzon.	Arvonian.	Barbican.
Anacacho.	Ashland.	Barker.
Anamosa.	Ashley.	Barnegate.
Anderson.	Ashley Hill.	Barnstable.
Anderson River.	Ashton.	Barranca.
Animas River.	Aspalaga.	Barree.
Animikie.	Asphalto.	Barren.
Anoma.	Aspidella.	Barrett.
Anorthosite.	Astoria.	Barrington.
Antelope.	Atane.	Bartletts Island.
Antelope Creek.	Atchison.	Barton.
Anthracite.	Athabasca.	Basal.
Anticosti.	Athens.	Bashi.
Antietam.	Atic Oban.	Bastard.
	Atlantic.	Bates Hole.

Batesville.	Birdseye.	Bowling Green.
Baucari.	Birmingham.	Bozeman.
Bay shot.	Bishop Mountain.	Bradford.
Bayard.	Bitter Creek.	Branditown.
Bayou Chicot.	Bituminous.	Brawdon.
Bays.	Black Bluff.	Braxton.
Beacon Hill.	Black Butte.	Breathitt.
Bead Mountain.	Black Hand.	Bretonian.
Bear River.	Black Hill.	Briceville.
Bearwallow.	Black Prairie.	Bridgeport.
Beaver.	Black River.	Bridger.
Beaver River.	Black River Falls.	Bridgeton.
Beavertown.	Black shale, slate.	Brimfield.
Becket.	Blackstone.	Bristol Bay.
Becraft.	Blackwater.	Brito.
Bed Rock.	Blacksville.	Broad Branch.
Bedford.	Blanco.	Broad Top.
Bee Spring.	Blanco Canyon.	Brontotherium.
Beekmantown.	Blanford.	Brown.
Belfast.	Bloomfield.	Brown Creek.
Belle Isle.	Bloomsburg.	Browns Park.
Bellowspipe.	Bloomsbury.	Brownstown.
Bells Landing.	Blossburg.	Brownsville.
Bellton.	Blue.	Browntown.
Bellvale.	Blue Canyon.	Brownwood.
Belly River.	Blue Creek.	Brunswick.
Beloit.	Blue Cut.	Brush Creek.
Belt.	Blue Hills.	Bryant.
Belva.	Blue Mountain.	Bryn Mawr.
Belvidere.	Blue shell.	Buchanan.
Bend.	Bluefield.	Buda.
Benezette.	Bluegate.	Buff.
Benton.	Bluestone.	Buff Bay.
Berea.	Bluff.	Buffalo.
Berkshire.	Bodeville.	Buffalo Creek.
Bernardston.	Boggy.	Buhr.
Bertie.	Bogue Island.	Buhrstone.
Bertram.	Bohemia.	Bull Creek.
Bethany Falls.	Bolivar.	Bull Mountain.
Bettles.	Bolton.	Buncombe.
Beulah.	Bonair.	Bunker Hill.
Bevier.	Bonaventure.	Burlingame.
Bicknell.	Bone Lake.	Burlington.
Big Basin.	Boone.	Burnetan.
Big Blue.	Booneville.	Burnet.
Big Clifty.	Boscabel.	Burnet Branch.
Big Decipher.	Bosque.	Butler.
Big Injun.	Bossardville.	Byron beds.
Big Valley.	Boston Bar.	Cacapon.
Bijiki.	Boston group.	Cache Creek.
Biloxi.	Bottom prairie.	Cache Lake.
Bingen.	Boulder.	Cache Valley.
Birch Creek.	Bow River.	Cadent.
Bird Mountain.	Bowdan.	Cades.

Cairo.
Calaveras.
Calcareous.
Calciferous.
Calderwood Neck.
Calhoun.
Callaway.
Caloosahatchie.
Calumet Beach.
Cambridge.
Camden.
Camp Colorado.
Camp Creek.
Campbell Creek.
Campophyllum.
Canaan.
Canadian.
Canal.
Cananiol.
Cannelton.
Cantera.
Cantwell.
Canyon.
Canyon City.
Cap-au-Grés.
Cape Beaufort.
Cape Cod.
Cape Fairweather.
Cape Girardeau.
Cape Horn.
Cape John.
Cape May.
Capitol.
Caprina.
Caprotina.
Cardiola.
Cariboo.
Carlile.
Carlinville.
Carlyle.
Carmanah Point.
Carmelo.
Carolinian.
Caroni.
Carribean.
Carrizo Creek.
Carrollton.
Carters Creek.
Cascade.
Cascale.
Caseyville.
Cashaqua.
Cason.
Cassville.

Castle.
Castle Mountain.
Cat Head.
Catadupa.
Catocin.
Catskill.
Cauda-Galli.
Cave.
Cave Creek.
Cave Rock.
Cave Spring.
Cayuga.
Cedar.
Cedar Hills.
Cedar Valley.
Cedarton.
Cedarville.
Central.
Ceratops.
Cerro Gordo.
Chaelites.
Chalky.
Chamberlin.
Champion.
Champlain.
Chanute.
Chapelton.
Chapman.
Charette.
Chariton.
Charleston.
Chase.
Chatauquan.
Chattahoochee.
Chattanooga.
Chazy.
Chehalis.
Chemung.
Cherokee.
Cherry.
Cherry Creek.
Cherry Ridge.
Cherryvale.
Chesapeake.
Cheshire.
Chester Valley.
Chester.
Chesterfield.
Chestnut Hill.
Cheyenne.
Chickamauga.
Chickasaw.
Chico.
Chicopee.

Chico-Tejon.
Chiffin.
Chikis.
Chilhowee.
Chipola.
Chippewa.
Chiques.
Chitistone.
Chloritic.
Choctaw.
Chouteau.
Chuar.
Churchill.
Cimarron.
Cincinnati.
Cisco.
Citadel.
Citico.
Claiborne.
Clapsydrops.
Clarion.
Clark.
Clark County.
Clarkes Mill.
Clarksburg.
Clay.
Clayton.
Clear Creek.
Clear Fork.
Clearwater.
Cleveland.
Cleveland County.
Click.
Cliff.
Clinch.
Clinch Mountain.
Clingman.
Clinton.
Clipper Gap.
Clover Canyon.
Coal Bluff.
Coal measures.
Coaledo.
Coast.
Coastal.
Coasters Harbor Island.
Coatzacoalcas.
Cobequid.
Cobscook.
Cobre.
Cochran.
Cochulta.
Cockeysville.
Cocksfield Ferry.

Codorus.	Cove.	Dore.
Coeymans.	Coxville.	Dorset.
Coffee sand.	Crab Orchard.	Dotson.
Coggan.	Cranberry Island.	Double Mountain.
Coldbrook.	Cranston.	Douglas.
Coldwater.	Crawford.	Douty.
Cole Camp.	Cretaceous No. 1, 2, 3.	Dover.
Coleman.	Crinoidal.	Downs.
Coles Brook.	Cripple Creek.	Dresbach.
College Hill.	Croatian.	Dry Bone.
Collinsville.	Cross Plains.	Dry Creek.
Colorado.	Crosswicks.	Duck Creek.
Columbia.	Crystal.	Dun.
Columbus.	Crystal City.	Dundee.
Colvins Run.	Cuboides.	Dunkard Creek.
Comanche.	Cuchara.	Dunlap.
Comanche Peak.	Cumberland.	Dunvegan.
Comet Creek.	Cupriferous.	Duplin.
Como.	Curlew.	Dyestone.
Conanicut.	Curzon.	Eagle.
Conasauga.	Cussewago.	Eagle Ford.
Conception.	Cuyahoga.	Eagle Pass.
Concretionary.	Cypress.	Earlham.
Conemaugh.	Dakota.	Earlton.
Conglomerate.	Dallas.	East Lee.
Connecticut River.	Dalton.	Eastern.
Connellsville.	Damourite.	Eaton.
Connoquenessing.	Danville.	Eau Claire.
Conshohocken.	Davenport.	Ecephora.
Contra Costa.	Day Creek.	Edison.
Conway.	Dayton.	Edmonton.
Cooks Inlet.	De Soto.	Edwards.
Cooks Mountain.	Decker Ferry.	Egremont.
Cooper.	Deep Creek.	Einstine.
Cooper River.	Deep River.	Elevator.
Coos.	Deer Creek.	Elevator B.
Coosa.	Dekalb.	Elgin.
Copper River.	Del Rio.	Elk.
Copper-bearing.	Delaware.	Elk Creek.
Coquina.	Delhi.	Elk Falls.
Coral.	Dellville.	Elk Lick.
Coralline.	Delphi.	Elk Mountain.
Corbin.	Delta.	Elk River.
Cornfield Harbor.	Delthyris.	Elkgarden.
Corniferous.	Denison.	Ellensburg.
Corral.	Denver.	Ellicottsville.
Corry.	Dexter.	Elliott Creek.
Cortlandt.	Diablo-Davis.	Ellis.
Coryphoden.	Diamond Peak.	Elm Creek.
Cottonwood.	Dinosaur.	Elmont.
Cottonwood Creek.	Dismal.	Empire.
Cottonwood Falls.	Dockum.	Emporia.
Courtland.	Dog Creek.	Encrinal.
Coutchiching.	Dolores.	Encrinital.

English River.	Foraminiferal.	Gaspe.
Eolian.	Forbes.	Genesee.
Equing.	Foreman.	Geneva.
Equus.	Forest.	Genevieve.
Erian.	Forest City.	Gentile Valley.
Erie.	Fort Benton.	Geode.
Eryops.	Fort Bridger.	George River.
Escondido.	Fort Dodge.	Georgetown.
Esmerelda.	Fort Ellis.	Georgia.
Esopus.	Fort Hays.	Geronimo.
Estuary.	Fort Knox.	Geuda.
Etcheminian.	Fort Payne.	Giles.
Etholen.	Fort Pierre.	Gillespie.
Eureka.	Fort Riley.	Gilmore.
Eutaw.	Fort St. John.	Girard.
Everett.	Fort Scott.	Girardeau.
Exogyra arietina.	Fort Selden.	Glacian.
Exogyra costata.	Fort Union.	Glade.
Exogyra ponderosa.	Fort Worth.	Gladeville.
Fairfax.	Fortymile.	Glass Mountain.
Fairmount.	Fossiliferous.	Glassboro.
Falls Creek.	Fountain.	Glaconitic.
Falls River.	Fourth Moraine.	Glen Rose.
Falmouth.	Fox Ford.	Glencoe.
Farnham.	Fox Hills.	Glens Falls.
Fayette.	Fragmental.	Godiva.
Fayetteville.	Franciscan.	Golconda.
Federal Creek.	Franconia.	Golden Gate.
Felch Mountain.	Frankenfield.	Golden Wall.
Fence-post.	Frankford.	Goniatite.
Fernandan.	Frankfort.	Goodland.
Ferriferous.	Franklin.	Goodnight.
Ferruginous.	Fredericksburg.	Goodrich.
Fish Creek.	Fredericktown.	Goose Pond.
Fish House.	Freeport.	Goshen.
Fishpot.	Fremont.	Gower.
Flag.	Frickham.	Grainger.
Flagstone.	Frio.	Granby.
Flaming Gorge.	Frog Mountain.	Grand Canyon.
Flanagan.	Frostburg.	Grand Gulf.
Flat Rock.	Fullington.	Grand Portage.
Flathead.	Fusulina.	Grand Prairie.
Flatwoods.	Gale.	Grand Rapids.
Fleming.	Galena.	Grand River.
Flint.	Galisteo.	Grand Tower.
Flint Hill.	Gallatin.	Grandad.
Flint Ridge.	Gallitzen.	Graneros.
Florence.	Galt.	Granular.
Floridian.	Gardeau.	Granville.
Florissant.	Garland.	Grape Creek.
Flower-pot.	Garnett.	Grassmere.
Floyd.	Garrard.	Grassy Creek.
Folley.	Gary.	Gravel.
Fond du Lac.	Gasconade	Gray.

Gray Cliff.	Hardwick.	Hop Brook.
Graydon.	Harlan.	Hopewell.
Graydon Springs.	Harpers.	Hordes Creek.
Grayson.	Harpers Ferry.	Horse Creek.
Graysonton.	Harpeth.	Horsepen.
Great Bend.	Harris City.	Horsetown.
Great Carolina.	Harrodsburg.	Hosmer.
Great Conglomerate.	Hartford.	Hosselkus.
Great Falls.	Hartselle.	Hot Spring.
Green County.	Hartshorn.	Howard.
Green Mountain.	Hartwell.	Hudson.
Green Pond.	Hastings.	Hudson River.
Green River.	Hatchetigbee.	Hueco.
Greenbrier.	Hawley.	Huerfano.
Greenhorn.	Hawpatch.	Humboldt.
Greenleaf.	Hawthorne.	Humbug.
Greensand.	Hay Creek.	Hunker.
Greensburg.	Hayes River.	Huntingdon.
Greenstone.	Hazel.	Huron.
Greenwich.	Hazlet.	Huronian.
Greenwood.	Helderberg.	Hydraulic.
Griggs Landing.	Helderbergian.	Idaho.
Grenville.	Helena.	Illinoian.
Greylock.	Hellem.	Independence.
Greyson.	Hemlock.	Indian Creek.
Griswold Gap.	Henrietta.	Indian River.
Gritstone.	Henry's Fork.	Inoceramus.
Grizzly.	Hermansville.	Intermediate.
Ground Ice.	Hermosa.	Inwood.
Groveland.	Hesse.	Iola.
Guallava.	Hickman.	Ione.
Guelph.	Hickory.	Iowa.
Guertie.	High Park.	Iowan.
Gulf.	High Rock.	Iron Mountain.
Gunnison.	Highbridge.	Irondale.
Gwynedd.	Highland.	Iroquois.
Gypsum.	Hillsboro.	Irvine.
Gyroseras.	Hinchmann.	Island.
Hackberry.	Hinckley.	Isle Lamotte.
Halymenites.	Hindostan.	Ishpeming.
Halysites.	Hinsdale.	Itasca.
Hamburg.	Hinton.	Ithaca.
Hamburg Mountain.	Hog Creek.	Izard.
Hamilton.	Hogback.	Jackass Mountain.
Hampshire.	Holikunk.	Jackson.
Hampton.	Holland.	Jacksonboro.
Hanbury.	Holocene.	Jacksonian.
Hancock.	Holyoke.	Jacksonville.
Hanging Rock.	Home Creek.	Jagger Bend.
Hanna Valley.	Homewood.	James River.
Hannibal.	Honaker.	Jamesburg.
Hardgrave.	Honesdale.	Jefferson.
Harding.	Hoosac.	Jenkins.
Hardistonville.	Hoover.	Jennings.

Jerusalem.	Knob.	Leda.
Joachim.	Knobstone.	Lee.
Johannian.	Knox.	Lehigh.
John Day.	Knoxville.	Leitchfield.
Johnson.	Koipato.	Lenoir.
Johnson River.	Kolmakof.	Leon.
Johnstown.	Kome.	Leona.
Joliet.	Komooks.	Levant.
Jollytown.	Kona.	Levis.
Jonesboro.	Kootanie.	Lewistown.
Jordan.	Kotlo.	Lexington.
Judith River.	Kowak.	Leyden.
Juniata.	Kuskokwim.	Licking.
Kaministiquia.	La Biche.	Lignite.
Kanawha.	La Grange.	Lignitic.
Kanawha Falls.	La Motte.	Lime Creek.
Kanektok.	La Plata.	Limon.
Kansan.	Labette.	Lincoln.
Kansas City.	Labrador.	Lingula.
Kaskaskia.	Labradorian.	Linnville.
Katemcy.	Lackawaxen.	Lisbon.
Kearsarge.	Lady Washington.	Lista Blanca.
Keewatin.	Lafayette.	Lithographic.
Kenai.	Lagarto.	Little Compton.
Kendall Green.	Lagonda.	Little Genesee.
Kennett.	Lake.	Little Grizzly Creek.
Kentucky.	Lake Bonneville.	Little River.
Kenwood.	Lake Huron.	Little Traverse Bay.
Keokuk.	Lake Superior.	Livingston.
Keosauqua.	Lake Winnipiseogie.	Llano.
Kessler.	Lambton.	Llano Estacado.
Kettleman.	Lamont.	Lockatong.
Keweenawan.	Lancaster.	Lodore.
Keweenawian.	Lane.	Loess.
Kiamitia.	Lanphier.	Logan.
Kibbey.	Lansdale.	Logie Green.
Kiger.	L'Anse.	Lohn.
Kimberling.	Lapara.	London.
Kinderhook.	Laramie.	Lone Mountain.
King.	Lauderdale.	Long Grove.
Kingfisher.	Laurel.	Long Meadow.
Kings Mill.	Lauzon.	Long Mountain.
Kings Mountain.	Lawrence.	Longwood.
Kingsdown.	Lawrence-Crawford.	Lookout.
Kingston.	Lawrencian.	Loon River.
Kingstown.	Laurentian.	Lorraine.
Kinzua.	Le Claire.	Losee Pond.
Kiowa.	Le Compton.	Lost Creek.
Kirkby.	Le Grand.	Lost River.
Kitchi.	Le Roy.	Louisian.
Kittanning.	Le Seur.	Louisiana.
Kittitas.	Leadville.	Louisville.
Klondike.	Lebanon.	Louisville-Delphi.
Klutena.	Leboeuf.	Loup Fork.

Loup River.	Mariposa.	Merom.
Lower Cross Timbers.	Marks Mills.	Merrimack.
Lower Green.	Marksburg.	Mertgomist.
Lowville.	Marl.	Mesa.
Ludlowville.	Marl Brook Columbus.	Mesa Verde.
Lufkin.	Marlborough.	Mesabi.
Lynch Creek.	Marmaton.	Mesnard.
Lyman.	Maroon.	Michigamme.
McAlester.	Marquette.	Michigan salt.
McCarthy Creek.	Marquette-Menominee.	Middleboro.
McCloud.	Marquettian.	Middle Conglomerate.
McCoytown.	Marseilles.	Middle Park.
McCum.	Marsh.	Middleton.
McElmo.	Marsh Creek.	Midland.
McKean.	Marshall.	Midway.
Mackinac.	Marshalltown.	Midwayan.
Macluria.	Marsouin.	Miffintown.
Macon City.	Martinez.	Milburn.
McPherson.	Martinsburg.	Milburn-Strawn.
Madison.	Maruga.	Miliolite.
Madisonville.	Marvin Creek.	Mill Creek.
Magnesian.	Marylandinian.	Miller.
Magothy.	Maryville.	Millers River.
Mahoning.	Mascarene.	Millsap.
Main street.	Mason.	Millstone.
Malade Valley.	Massanutten.	Milton.
Malone.	Massillon.	Minbo.
Mammoth.	Masuk.	Mineral King.
Manasquan.	Matanuska.	Minne-Lusa.
Manatee.	Matanzas.	Minnesota River Valley.
Manayunk.	Matawan.	Mionippus.
Manchioneil.	Matinal.	Mispec.
Mancos.	Matthews Landing.	Mission Creek.
Manhattan.	Mauch Chunk.	Mississippian.
Manitoba.	Maxville.	Missouri.
Manitonnuck.	May Pen.	Missourian.
Manitou.	Mayville.	Mitchell.
Manlius.	Meade.	Moberly.
Mansfield.	Meadeville.	Mobile.
Manti.	Meagher.	Moccasin.
Manzanilla.	Medicine.	Moduria.
Maple Hill.	Medicine Lodge.	Mohawk.
Mapleton.	Medina.	Mohawkian.
Maquethian.	Meekoceras.	Mohegan.
Maquoketa.	Megalonyx.	Mojair.
Marais des Cygnes.	Mendon.	Mojave.
Marble.	Mendota.	Momable.
Marble Canyon.	Menevian.	Mona.
Marble Hill.	Meniscus.	Monarch.
Marcellus.	Menominee.	Monclova.
Mareniscan.	Mentor.	Moneague.
Marietta.	Merced.	Monmouth.
Marine.	Mercer.	Monongahela River.
Marion.	Meridian.	Monroe.

Monroe-Harrison.
 Monson.
 Mont Alto.
 Montalban.
 Montana.
 Monte de Oro.
 Monteballo.
 Montego.
 Monterey.
 Montevallo.
 Montgomery.
 Montpelier.
 Montrose.
 Monument Creek.
 Moodys Branch.
 Moose Hide.
 Moose Island.
 Moose River.
 Moreau.
 Morgantown.
 Mormon.
 Morrison.
 Moruga.
 Moscow.
 Mott Haven.
 Mottled.
 Mound Valley.
 Mount Holly.
 Mount Mesnard.
 Mount Morris.
 Mount Pleasant.
 Mount Sand.
 Mount Selman.
 Mount Toby.
 Mount Vernon.
 Mount Washington.
 Mountain.
 Murray.
 Mussel-bearing.
 Myrick.
 Myrtle.
 Mytilus.
 Naheola.
 Naknek.
 Nampa.
 Nanafalia.
 Nanaimo.
 Naparima.
 Naples.
 Napoleon.
 Nariva.
 Nashaquitsa.
 Nashville.
 Nasina.

Natick.
 Navarro.
 Navasota.
 Navesink.
 Nebo.
 Nebraska.
 Necedah.
 Nechacco.
 Neeleytown.
 Negaunee.
 Nehant.
 Neihart.
 Neocomian.
 Neodesha.
 Neosho.
 Nerinaea.
 Neudeckian.
 Nevada.
 New Albany.
 New Glasgow.
 New Milford.
 New Providence.
 New Red.
 New Richmond.
 New River.
 New Scotland.
 New Ulm.
 New York.
 Newark.
 Newland.
 Newman.
 Newport.
 Newport Neck.
 Newtonville.
 Niagara.
 Niagaran.
 Nichols.
 Nicola.
 Nicollet.
 Nilkoko.
 Nineveh.
 Niobrara.
 Nipigon.
 Nisconleth.
 Nishuabotany.
 Nodaway.
 Nolichucky.
 Noix.
 Norian.
 Normandy.
 Norristown.
 North Denison.
 North Park.
 North Valley Hill.

North Vernon.
 Norton.
 Novaculite.
 Nulato.
 Nummulite.
 Nunda.
 Nushagak.
 Nussbaum.
 Nutzotin.
 Oak Creek.
 Oak Grove.
 Oakland.
 Oakville.
 Ocala.
 Oceanic.
 Ocheesee.
 Ocoee.
 Ocoya Creek.
 Odanah.
 Ogden.
 Ogishke.
 Ohio.
 Ohio Creek.
 Oil Creek Lake.
 Oil Lake.
 Oklune.
 Olean.
 Olentangy.
 Old Red.
 Olive.
 Oneida.
 Oneonta.
 Onondaga.
 Ontaric.
 Ontarian.
 Ontario.
 Oostanala.
 Ophian.
 Orange Martin.
 Orange sand.
 Orangeburg.
 Orangeville.
 Orbitoides.
 Orbitoitic.
 Orbitolite.
 Orca.
 Orchard.
 Oread.
 Oreodon.
 Oriskany.
 Orthaulax.
 Orting.
 Osage.
 Osage City.

Osborne.	Pella.	Plymouth.
Osceola.	Pelodian.	Pocahontas.
Osgood.	Pemigewasset.	Pochuck.
Ostrea sellaeformis.	Pendleton.	Pocono.
Oswegatchie.	Pennian.	Pogonip.
Oswegan.	Pennington.	Point aux Gres.
Oswego.	Pennsylvania.	Point of Rocks.
Ottawa.	Penokee.	Point Pleasant.
Otis.	Penokee-Gogebic.	Pointe Levis.
Otter.	Pensauken.	Poison Canyon.
Otter Creek.	Pentacrimus.	Pokegama.
Otterdale.	Pentamerua.	Polk Bayou.
Ouray.	Pentremital.	Polk County.
Oxmoor.	Peorian.	Pomeroy.
Ozark.	Pepino.	Ponderosa.
Ozarkian.	Pequawket.	Pondville.
Packer.	Perkasie.	Ponent.
Packsaddle.	Perry.	Pope Hollow.
Paine.	Peru.	Porcupine.
Paint Rock.	Pescadero.	Porphyrian.
Palisades.	Pewabic.	Port Hudson.
Palmer.	Phelps.	Portage.
Palo Duro.	Philadelphia.	Porters Creek.
Paluxy.	Phillipsburg.	Portland.
Pamunkey.	Phipsburg.	Porus.
Panama.	Pickens.	Postmedial.
Panola.	Pictou.	Postmeridian.
Panther Creek.	Pictured Cliff.	Poteau.
Para.	Piedmont.	Potomac.
Parian.	Pierce.	Potosi.
Park.	Pierre.	Potsdam.
Parks Mountain.	Pigeon.	Pottawatomie.
Parma.	Pilgrim.	Potters.
Parting.	Pilot Knob.	Pottery.
Parkville.	Pine Creek.	Pottstown.
Pascagoula.	Pine Mountain.	Pottsville.
Paskapoo.	Pink Cliff.	Poughquag.
Paso Robles.	Pinnacle.	Powelton.
Patapsco.	Pinon.	Poxono Island.
Patoot.	Pinon Mesa.	Prairie Bluff.
Patuxent.	Pinto.	Prairie d'Ane.
Paupack.	Pipestone.	Premedial.
Paw Paw.	Piscataway.	Pre-Meridian.
Pawhuski.	Pithole.	Preston.
Pawnee.	Pitt.	Price.
Pawtucket.	Pittsburg.	Primal.
Payette.	Plant.	Princeton.
Peace Creek.	Plateau.	Procamelus.
Peach Bottom.	Platte.	Proctor.
Pearl River.	Plattsburgh.	Productal.
Pearlette.	Plattsmouth.	Productive.
Pedee.	Pleasanton.	Prospect Mountain.
Pelham.	Pleurocoelus.	Protean.
Pelican.	Pliohippus.	Protoceras.

Pteranodon.
 Puckwunge
 Puerco.
 Puget.
 Pulaski.
 Pulliam.
 Purgaton.
 Putnam Hill.
 Putnamville.
 Puyallup.
 Quadrant.
 Quakertown.
 Quarry Creek.
 Quartz rock.
 Quartz slate.
 Quebec.
 Queen Charlotte.
 Queen City.
 Queens River.
 Quesnel Lake.
 Quesnel River.
 Quinnemont.
 Quinnesec.
 Quitman.
 Quitman-Muerto.
 Raccoon.
 Racine.
 Radiolarian.
 Rainy Mountain.
 Raleigh.
 Rampart.
 Rancocas.
 Random.
 Randville.
 Rapids.
 Rappahannock.
 Raritan.
 Reading.
 Receptaculites.
 Red.
 Red Bluff.
 Red Creek.
 Red Mountain.
 Red River.
 Red sand rock.
 Red Wall.
 Redbank.
 Redrock.
 Redstone.
 Reeder.
 Relief.
 Rensselaer.
 Republic.
 Requienia.

Reynosa.
 Rhomboidal.
 Riceville.
 Richland.
 Richmond.
 Richmond-Gordon.
 Richmondville.
 Ricker.
 Rico.
 Ridley.
 Riga.
 Riley.
 Ripley.
 Riversdale.
 Riverside.
 Robinett.
 Robinson.
 Rochdale.
 Roche Percee.
 Rochelle.
 Rock Creek.
 Rock Falls.
 Rockcastle.
 Rockford.
 Rockingham.
 Rockmart.
 Rockville.
 Rockwood.
 Rocky Comfort.
 Rogersville.
 Rome.
 Romney.
 Rondout.
 Rose Island.
 Roslyn.
 Rossville.
 Rotten.
 Roubidoux.
 Rough Creek.
 Rowe.
 Roxbury.
 Royal.
 Ruby.
 Rushville.
 Russell.
 Russellville.
 Rutledge.
 Sabine River.
 Sac.
 Saccharoidal.
 Sachuest.
 Sacramento.
 Saddle Creek.
 Sailor Canyon.

St. Albans.
 St. Anthony.
 St. Clair.
 St. Croix.
 St. Elias.
 St. Francois.
 St. Genevieve.
 St. Jean.
 St. Joe.
 St. John.
 St. Joseph.
 St. Lawrence.
 St. Louis.
 St. Marys.
 St. Stephens.
 St. Peters.
 St. Thomas.
 Salamanca.
 Salem.
 Salida.
 Saliferous.
 Salina.
 Salmon River.
 Salt Creek.
 Salt Fork.
 Salt Lake.
 Salt Plain.
 Salt Wells.
 Saltsburg.
 San Diego.
 San Francisco.
 San Miguel.
 San Pablo.
 San Pedro.
 San Saba.
 Sangamon.
 Sand Hill.
 Sand Mountain.
 Sandpond.
 Sandstone.
 Sandsuck.
 Sandusky.
 Sankaty.
 Santa Anna.
 Santa Clara.
 Santa Cruz.
 Santa Fe.
 Santee.
 Saskatchewan.
 Sassafras River.
 Saugeen.
 Sault St. Mary.
 Savage.
 Savanna.

Savoy.	Shunganunga.	Stellarton.
Sawatch.	Shushitna.	Stockbridge.
Saxicava.	Shuswap.	Stockton.
Scalent.	Siamo.	Stockwether.
Schoharie.	Siderian.	Stokes.
Schooner Head.	Signal Hill.	Stones River.
Schreyfogels.	Silicious.	Stony Brook.
Scioto.	Sillery.	Stormville.
Scott.	Silver Lake.	Strawn.
Scotts Creek.	Silveria.	Strong.
Scutella.	Simelkameen.	Stuntz.
Sea Urchin.	Simmons Bluff.	Sturgeon.
Sebastian.	Sioux.	Styliolina.
Secret Canyon.	Skaneateles.	Subconglomerate.
Sedalia.	Skunnemunk.	Sucarnochee.
Selinsgrove.	Skwentna.	Sugarloaf.
Selkirk.	Smalls Brook.	Suisure.
Sellersburg.	Smelt Brook.	Sukonk.
Seneca.	Smith River.	Sulphur.
Senecan.	Smithfield.	Summit.
Sequoayah.	Smoky Hill.	Sumner.
Seral.	Smoky River.	Sunbury.
Sespe.	Sneedville.	Sundance.
Setters.	Snyder Creek.	Sunrise.
Severn.	Sockanosset.	Superjacent.
Severy.	Soldier Creek.	Surgent.
Sevier.	Sooke.	Suttons Island.
Sewanee.	Sopchophy.	Swallow.
Sewell.	South Carrolton.	Swanton.
Sewickley.	South Mountain.	Swauk.
Seymour.	South Valley Hill.	Swearinger.
Shadrick Mill.	Spadra.	Sweetland.
Shakopee.	Sparry.	Sweetwater.
Shark River.	Sparta.	Swift Water.
Sharon.	Speck Mountain.	Sylamon.
Sharpsville.	Sphinx.	Sylamore.
Shasta.	Spirifera pennata.	Sylvania.
Shasta-Chico.	Spokane.	Syntrialasina.
Shawangunk.	Spring Creek.	Syrtensian.
Shawnee.	Spring River.	Tachatna.
Shelby.	Spring Rock.	Taconic.
Shelbyville.	Springfield.	Tacoynte.
Shell Bluff.	Springvale.	Tahkandit.
Shenandoah.	Squanjum.	Talcoid.
Shenango.	Stafford.	Talcose.
Sherburne.	Stamford.	Talladega.
Sheridan.	Stanford.	Tallahatta.
Shiloh.	Stanton.	Taloga.
Shimer.	Star Peak.	Talpa.
Shinarump.	Starr.	Tamana.
Shinersville.	Starucca.	Tampa.
Shirley.	State Quarry.	Tanana.
Shoal Creek.	Steep Rock.	Tar.
Shoo Fly.	Steilacoom.	Tar Spring.

Tassagara.
Taunton.
Taylor.
Taylors Ridge.
Taylorsville.
Teay.
Tecumseh.
Tehachipa.
Tehuelche.
Tejon.
Tellico.
Tellowa.
Temple Butte.
Tenmile River.
Tentaculite.
Terra Cotta.
Terrace.
Terranovan.
Teton.
Texan.
Texana.
Texanan.
Texian.
Thayer.
Thebes.
Thessalon.
Third Moraine.
Thomas Hill.
Thompson.
Three Forks.
Thunder Bay.
Thunderhead.
Thurman.
Ticholeptus.
Timber Belt.
Timber Creek.
Timpas.
Tintic.
Tionesta.
Tisbury.
Titanotherium.
Tiverton.
Todos Santos.
Togiak.
Tok.
Tolenas.
Tolleston.
Tombigbee.
Tomlinson.
Tonto.
Topeka.
Torbay.
Tordrillo.
Toronto.

Torregan.
Towanda.
Tower.
Trail.
Tranquille.
Trap Tuff.
Trappean.
Traverse.
Travis Peak.
Trego.
Trenton.
Trincheras.
Trinidad.
Trinity.
Trough Creek.
Truckee.
Truro.
Tuckahoe.
Tucumcari.
Tule.
Tully.
Tuna.
Tunnel Point.
Tu-nunk.
Tuscahoma.
Tuscaloosa.
Tuscan.
Tuscarora.
Tuscumbia.
Twelvemile.
Tymochtee.
Tyonek.
Tyre.
Tyringham.
Uinta.
Ulsterian.
Umbral.
Umpqua.
Unga.
Unicoi.
Union.
Uniontown.
Unionville.
Unkar.
Unkpaps.
Upshur.
Upson.
Ute.
Utica.
Uvalde.
Val Verde.
Valdes.
Valera Bend.
Valley.

Valley Spring.
Valparaiso.
Van Wert.
Vancouver.
Vanport.
Vashon.
Venango.
Ventura.
Verdi.
Vergent.
Vermilion.
Vermont.
Vernicular.
Vespertine.
Vicarya.
Vicksburg.
Vicksburgian.
Victoria.
Vilas.
Vinal Haven.
Vincetown.
Vineyard.
Vinita.
Virginian.
Vishnu.
Vola.
Volcan.
Vulcan.
Wabaunsee.
Waccamaw.
Wahsatch.
Wakarusa.
Walden.
Waldo.
Waldrip.
Waldron.
Walker Block.
Wallala.
Wallkill.
Walnut.
Wamsutta.
Wapiti.
Wappinger Valley.
Wapsipinicon.
Warren.
Warrensburg.
Warsaw.
Wartburg.
Washakie.
Washburn.
Washington.
Washington County.
Washita.
Wassonville.

Waswangoning.
Waterline.
Waterloo.
Waterville.
Watts Creek.
Waukesha.
Waverly.
Waynesburg.
Webb Bluff.
Webberville.
Weber.
Weisner.
Welch.
Well Rock.
Wellesley.
Wellington.
West Elk.
West Fork.
West Franklin.
West Jefferson.
West Union.
Western.
Western Valley.
Westerville.
Westfield.
Weston.
Weverton.
Wewe.
Weyquosque.
Whateley.
White.
White Bluff.
White Mountain.

White Oak Mountain.
White Pine.
White Prairie d'Ane.
White River.
Whitmores Ferry.
Whitsett.
Wichita.
Wilbarger Creek.
Wilbur.
Wildcat.
Wildcat Mountain.
Wilhite.
Willard.
Williamsport.
Willow Creek.
Willow River.
Wills Point.
Wilmington.
Wiltons Run.
Winchester.
Wind River.
Windsor.
Windy Gap.
Winfield.
Wingate.
Winnipeg.
Winnipegosan.
Winnepesaukee.
Winooski.
Winterset.
Winthrop.
Wisconsin.
Wise.

Wolf Creek.
Wood River.
Woodbridge.
Woodbury.
Woodhurst.
Woods Bluff.
Woodstock.
Woodville.
Worcester.
Wreford.
Wyckoff.
Wykoff.
Wymann.
Wyo.
Wyoming.
Wyoming Valley.
Yakutat.
Yallahs.
Yarmouth.
Yegua.
Yellow.
Yellowstone.
Yentna.
Yogo.
Yonkers.
York.
Yucca.
Yukon.
Yule.
Zapata.
Zeuglodon.
Zoar.
Zuni.