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UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

A

BIBLIOGRAPHIC INDEX

OF

NORTH AMERICAN CARBONIFEROUS INVERTEBRATES.

BY

STUART WELLER.



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PREFACE.

This bibliographic list was begun some years ago to supply a want felt by the compiler in his own researches among the Carboniferous faunas of North America. It was at first intended for private use only, but as it became more and more nearly complete and its usefulness became more and more apparent, it was decided to put it in shape for publication.

Like all works of its kind, this list is not perfect. Errors and omissions will doubtless be discovered, and those making these discoveries will confer a favor upon the compiler by reporting them to him. The most confusing questions which have arisen during the progress of the work have been in regard to the synonymy. No attempt has been made to eliminate all synonyms; this could be accomplished only through a complete revision of all the genera in all the classes of organisms represented. In so far as special groups have been studied by competent authorities their identifications of good species and synonyms have been followed. For the Crinoidea, the work of Wachsmuth and Springer has been the standard; for the Brachiopoda, Hall and Clarke, and Schuchert's Synopsis of American Fossil Brachiopoda; for the Cephalopoda, the work of Hyatt, so far as possible; and for the Bryozoa, the work of Ulrich. Except for some possible accidental omissions, references to all publications to January 1, 1898, have been included. References of species to their proper genera, not accompanied by descriptions or illustrations, have ordinarily been omitted, and for these the student is referred to the special works of the authors above mentioned.

In some groups many names have been recently added to our literature, and these have been included in the list, as published by their respective authors, though some of them will doubtless prove to be synonyms. Many species published by the earlier authors have never been properly illustrated, and as the descriptions of these species are often inadequate, it is next to impossible to identify many of them with certainty. These names have all been included in the list at their proper places, though many of them, doubtless, will finally be eliminated.

The first part of the bulletin is devoted to a list of the titles of papers from which references have been obtained. These are first arranged chronologically, followed by an alphabetical list of the authors, the years in which his publications have appeared being placed after each author's name. Following these lists is a tabulation of the genera of each class, with the number of species in each genus.

The second part of the bulletin is the bibliographic list proper, in which all North American Carboniferous genera of invertebrates have been arranged alphabetically, with the species arranged alphabetically under each genus. In the printing of this list a distinction is made in the type used for the species which have been illustrated and those which have not. All references which have not been actually examined are designated by an asterisk.

Special acknowledgment is due Mr. C. D. Walcott, who has furnished the means of publication of the list as a bulletin of the United States Geological Survey. To Mr. E. M. Kindle, of New Haven, Connecticut, acknowledgments are due for looking up some references in the Yale University library. The following gentlemen rendered aid by the loan of rare papers or by the donation of their own publications: Prof. H. S. Williams, Mr. Frank Springer, Prof. S. Calvin, Mr. W. F. E. Gurley, Capt. A. W. Vogdes, Mr. Gilbert van Ingen, Mr. R. R. Rowley, Dr. C. R. Keyes, Mr. E. O. Ulrich, and Sir J. W. Dawson. Acknowledgments are also due to the librarians of the Field Columbian Museum and of the Chicago Academy of Sciences, who have kindly permitted the compiler to have access to the books in their care.

S. W.

THE UNIVERSITY OF CHICAGO, *February 4, 1898.*

A BIBLIOGRAPHIC INDEX OF NORTH AMERICAN CARBONIFEROUS INVERTEBRATES.

By STUART WELLER.

PART I.

CHRONOLOGICAL CATALOGUE OF PAPERS CONTAINING DESCRIPTIONS AND ILLUSTRATIONS OF NORTH AMERICAN CARBONIFEROUS INVERTEBRATES.

1823.

SAY (T.). Paleontological notes. (Footnotes in Long's Exped. to Rocky Mts., Vol. I, pp. 84, 85, 106, 107, 146-152.)

1825.

SAY (T.). On two genera and several new species of Crinoidea. (Jour. Acad. Nat. Sci. Phil. (1), Vol. IV, pp. 289-296.)

1835.

CONRAD (T. A.). Description of five new species of fossil shells in the collection presented by Mr. Edward Miller to the Geological Society. (Trans. Geol. Soc. Penn., Vol. I, pt. 2, pp. 267-270, Pl. 12.)

TROOST (G.). On the *Pentremites rhienwardtii*, a new fossil; with remarks on the genus *Pentremites* (Say) and its geognostic position in the States of Tennessee, Alabama, and Kentucky. (Trans. Geol. Soc. Penn., Vol. I, pt. 2, pp. 224-231, Pl. 10.)

1836.

MORTON (S. G.). Notice and description of the organic remains embraced in the preceding paper. Appendix to paper entitled "Observations on the bituminous coal deposits of the valley of the Ohio and the accompanying rock strata, with notices of the fossil organic remains and the relics of vegetable and animal bodies, illustrated by a geological map, by numerous drawings of plants and shells, and by views of interesting scenery; by Dr. S. P. Hildreth, of Marietta, Ohio." (Am. Jour. Sci. (1), Vol. XXIX, pp. 149-154.)

1838.

SHEPARD (C. U.). Geology of Upper Illinois. (Am. Jour. Sci. (1), Vol. XXXIV, pp. 134-161.)

1842.

CONRAD (T. A.). Observations on the Silurian and Devonian systems of the United States, with descriptions of new organic remains. (Jour. Acad. Nat. Sci. Phil. (1), Vol. VIII, pp. 228-280, Pls. 12-17.)

1843.

CONRAD (T. A.). Observations on the lead-bearing limestone of Wisconsin, and descriptions of a new genus of trilobites and fifteen new Silurian fossils. (Proc. Acad. Nat. Sci. Phil., pp. 329-335.)

1844.

CONRAD (T. A.). Descriptions of eight new fossil shells of the United States. (Proc. Acad. Nat. Sci. Phil., pp. 173-175.)

OWEN (D. D.). Descriptions and figures of some organic remains supposed to be new. (Rep. Geol. Expl. of part of Wis., Iowa, and Minn. Appendix, pp. 69-86, Pls. 11-18.)

1846.

CONRAD (T. A.). Descriptions of new species of fossil and recent shells and corals. (Proc. Acad. Nat. Sci. Phil., pp. 19-27, Pl. 1.)

NORWOOD (J. G.) and OWEN (D. D.). Description of a remarkable fossil echinoderm, from the limestone formation of St. Louis, Missouri. (Am. Jour. Sci. (2), Vol. II, pp. 225-228.)

1847.

KONINCK (L. De). Recherches sur les animaux fossiles. Première partie. Monographie des genres *Productus* et *Chonetes*. (Pp. 1-246, Pls. 1-20.)

YANDELL (L. P.) and SHUMARD (B. F.). Contributions to the geology of Kentucky. (Pp. 1-36, Pl. 1.)

1848.

CHRISTY (D.). Letters on Geology; being a series of communications originally addressed to Dr. John Lock, of Cincinnati, giving an outline of the geology of the west and southwest, together with an essay on the erratic rocks of North America, addressed to M. De Verneuil. Illustrated by geological sections and engravings of some rare fossils. (Pp. 1-72, 1-11, Pls. 1-5, Sections 1-3.)

1850.

OWEN (D. D.) and SHUMARD (B. F.). Descriptions of fifteen new species of Crinoidea from the Subcarboniferous limestones of Iowa, Wisconsin, and Minnesota, in the years 1848-49. (Jour. Acad. Nat. Sci. Phil. (2), Vol. II, pp. 57-70, Pl. 7.)

1851.

- MILNE-EDWARDS and HAIME.** Monographie des polypiers fossiles des terrains paléozoïques, précédée d'un tableau général de la classification des polypes. (Archives du Muséum d'Histoire Naturelle, tom. V, pp. 1-502, Pls. 1-20.)

1852.

- HALL (J.).** Notes upon some of the fossils collected on the route from the Missouri River to the Great Salt Lake, and in the vicinity of the latter place, by the expedition under the command of Capt. Howard Stansbury, T. E. (Stansbury's Expl. and Surv. Vall. Gt. Salt Lake Utah, App. E., pp. 407-414, Pls. 1-4.)
- OWEN (D. D.).** Description of new and imperfectly known genera and species of organic remains, collected during the geological surveys of Wisconsin, Iowa, and Minnesota. (Owen's Geol. Rep. of Wis., Iowa, and Minn., pp. 573-587, Pls. 1-5, 7-8 A.)
- and **SHUMARD (B. F.).** Description of one new genus and twenty-two new species of Crinoidea, from the Subcarboniferous limestone of Iowa. (Owen's Geol. Rep. of Wis., Iowa, and Minn., pp. 587-598, Pls. 5 A-5 B.)
- ———. Descriptions of seven new species of Crinoidea from the Subcarboniferous limestone of Iowa and Illinois. (Jour. Acad. Nat. Sci. Phil. (2), Vol. II, pp. 89-94, Pl. 11.)
- ROEMER (F.).** Die Kreidebildungen von Texas und ihre organischen Einschlüsse. (Pp. 1-100, Pls. 1-11.)

1853.

- LEA (I.).** On some new fossil molluscs in the Carboniferous slates of the anthracite seams of the Wilkesbarre Coal Formation. (Jour. Acad. Nat. Sci. Phil. (2), Vol. II, pp. 203-206, Pl. 20.)

1854.

- CASEDAY (S. A.).** Beschreibung eines neuen Crinoidengeschlechts aus dem Kohlenkalkstein Nordamerikas. (Zeitschrift d. Deutsch. Geol. Ges., Bd. VI, pp. 237-242, Pl. 2.)
- DAWSON (J. W.).** Acadian Geology. The geological structure, organic remains, and mineral resources of Nova Scotia, New Brunswick, and Prince Edwards Island. First edition.
- SHUMARD (B. F.).** Description of the species of Carboniferous and Cretaceous fossils collected. (Marcy's Rep. of the U. S. Expl. of the Red River of Louisiana, App. E, pp. 173-185, Pls. 1-6.)

1855.

- LEA (I.).** Description of a new mollusk from the Red Sandstone near Pottsville, Pennsylvania. (Proc. Acad. Nat. Sci. Phil., pp. 340-341, Pl. 4.)

NORWOOD (J. G.) and PRATTEN (H.). Notice of the Producti found in the Western States and Territories, with descriptions of twelve new species. (Jour. Acad. Nat. Sci. Phil. (2), Vol. III, pp. 5-22, Pls. 1-2.)

———. Notice of the genus *Chonetes* as found in the Western States and Territories, with descriptions of eleven new species. (Jour. Acad. Nat. Sci. Phil. (2), Vol. III, pp. 23-32, Pl. 2.)

———. Notice of fossils from the Carboniferous series of the Western States, belonging to the genera *Spirifer*, *Bellerophon*, *Pleurotomaria*, *Macrocheilus*, *Natica*, and *Loxonema*, with descriptions of eight new characteristic species. (Jour. Acad. Nat. Sci. Phil. (2), Vol. III, pp. 71-77, Pl. 9.)

SALTER (J. W.). Account of the Arctic Carboniferous fossils. (In the "Last of the Arctic Voyages," by Sir Edward Belcher, C. B., Vol. II, pp. 377-389, Pl. 36.)

SCHIEL (J.). List and description of organic remains collected during the exploration of the Central Pacific Railroad line. (Pac. R. R. Rep., Vol. II, pp. 108-109, Pls. 1-4.)

SHUMARD (B. F.). Description of new species of organic remains. (First and Second Ann. Reps. of the Geol. Surv. Mo., by G. C. Swallow, pt. 2, pp. 185-208, Pls. A-C.)

YANDELL (L. P.). Description of a new genus of Crinoidea. (Am. Jour. Sci. (2), Vol. XX, pp. 135-137.)

1856.

HALL (J.). Description of new species of fossils from the Carboniferous limestones of Indiana and Illinois. (Trans. Albany Inst., Vol. IV, pp. 1-36.)

———. Descriptions and notices of the fossils collected upon the route. (Pacific R. R. Reports, Vol. III, pp. 99-105, Pls. 1-2.)

1857.

CONRAD (T. A.). Description of a new species of *Myacites*. (Proc. Acad. Nat. Sci. Phil., p. 166.)

COX (E. T.). A description of some of the most characteristic shells of the principal coal seams in the Western Basin of Kentucky. (Ky. Geol. Surv., Vol. III, pp. 566-576, Pls. 8-10.)

HALL (J.). Observations on the genus *Archimedes*, or *Fenestella*, with description of species, etc. (Proc. Am. Ass. Adv. Sci., Vol. X, pp. 176-180.)

LYON (S. S.). Description of new species of organic remains. (Ky. Geol. Surv., Vol. III, pp. 467-498, Pls. 1-5.)

PROUT (H. A.). Description of a new species of *Productus* from the Carboniferous limestone of St. Louis. (Trans. St. Louis Acad. Sci., Vol. I, pp. 43-45, Pl. 2.)

SHUMARD (B. F.). Description of new fossil Crinoidea from the Paleozoic rocks of the western and southern portions of the United States. (Trans. St. Louis Acad. Sci., Vol. I, pp. 71-80, Pl. 1.)

1858.

HALL (J.). Paleontology of Iowa. (Geol. Surv. Iowa, Vol. I, pt. 2, pp. 473-724, Pls. 1-29.)

MARCOU (J.). Paleontology. (Geology of North America; with two reports on the prairies of Arkansas and Texas, the Rocky Mountains of New Mexico, and the Sierra Nevada of California. Chap. III, pp. 32-53, Pls. 1-7.)

MEEK (F. B.) and HAYDEN (F. V.). Description of new organic remains from northeastern Kansas, indicating the existence of Permian rocks in that Territory. (Trans. Albany Inst. Vol. IV, pp. 73-88.)

———. Remarks on the Lower Cretaceous beds of Kansas and Nebraska, together with descriptions of some new species of Carboniferous fossils from the valley of Kansas River. (Proc. Acad. Nat. Sci. Phil., pp. 256-264.)

PROUT (H. A.). Description of new species of Bryozoa from Texas and New Mexico, collected by Dr. George G. Shumard, geologist of the United States expedition for boring artesian wells along the 32d parallel, under the direction of Capt. John Pope, U. S. Corps of Top. Eng. (Trans. St. Louis Acad. Sci., Vol. I, pp. 228-235.)

———. First of a series of descriptions of Carboniferous Bryozoa. (Trans. St. Louis Acad. Sci., Vol. I, pp. 235-237.)

———. Second series of descriptions of Bryozoa, from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., Vol. I, pp. 266-273.)

SHUMARD (B. F.). Descriptions of new species of Blastopoda from the Paleozoic rocks of the Western States, with some observations on the structure of the summit of the genus *Pentremites*. (Trans. St. Louis Acad. Sci., Vol. I, pp. 238-248, Pl. 9.)

———. Notice of new fossils from the Permian strata of New Mexico and Texas, collected by Dr. George G. Shumard, geologist of the United States Government expedition for obtaining water by means of artesian wells along the 32d parallel, under the direction of Capt. John Pope, U. S. Corps Top. Eng. (Trans. St. Louis Acad. Sci., Vol. I, pp. 290-297.)

——— and **SWALLOW (G. C.).** Descriptions of new fossils from the Coal Measures of Missouri and Kansas. (Trans. St. Louis Acad. Sci., Vol. I, pp. 198-227.)

STEVENS (R. P.). Description of new Carboniferous fossils from the Appalachian, Illinois, and Michigan coal fields. (Am. Jour. Sci. (2), Vol. XXV, pp. 258-265.)

SWALLOW (G. C.) and HAWN (F.). The rocks of Kansas. (Trans. St. Louis Acad. Sci., Vol. I, pp. 173-197.)

1859.

- GABB (W. M.).** Descriptions of two new species of Carboniferous fossils, brought from Fort Belknap, Texas, by Dr. Moore. (Proc. Acad. Nat. Sci. Phil., p. 297.)
- HAUGHTON (S.).** Geological account of the Arctic Archipelago, drawn up principally from the specimens collected by Capt. F. L. McClintock, R. N., from 1849 to 1859. (Appendix to "The Voyage of the *Fox* in the Arctic Seas," by Capt. F. L. McClintock; also, Jour. Geol. Soc. Dublin, Vol. I, pp. 196-213.)
- LYON (S. S.) and CASSEDAY (S. A.).** Description of nine new species of Crinoidea from the Subcarboniferous rocks of Indiana and Kentucky. (Am. Jour. Sci. (2), Vol. XXVIII, pp. 233-246.)
- MEEK (F. B.) and HAYDEN (F. V.).** Geological explorations in Kansas Territory. (Proc. Acad. Nat. Sci. Phil., pp. 8-30.)
- PROUT (H. A.).** Third series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., Vol. I, pp. 443-452, Pls. 15-18.)
- ROEMER (F.).** Dorycrinus, ein neues Crinoiden-Geschlecht aus dem Kohlenkalke Nord-Americas. (Archiv für Naturgeschichte, Jahrg. 19, Bd. 1, pp. 207-220, Pl. 10.)
- SHUMARD (B. F.).** Notice of fossils from the Permian strata of Texas and New Mexico, obtained by the United States expedition under Capt. John Pope for boring artesian wells along the 32d parallel, with descriptions of new species from these strata and the Coal Measures of that region. (Trans. St. Louis Acad. Sci., Vol. I, pp. 387-402, Pl. 1.)

1860.

- CONRAD (T. A.) and GABB (W. M.).** Illustrations of some fossils described in the Proceedings of the Academy of Natural Science. (Proc. Acad. Nat. Sci. Phil., p. 55, Pl. 1.)
- DAWSON (J. W.).** On a terrestrial mollusk, a chilognathous myriapod, and some new species of reptiles, from the Coal formation of Nova Scotia. (Quart. Jour. Geol. Soc. Lond., Vol. XVI, pp. 268-277, Pls. 14-17.)
- HALL (J.).** Notes and observations upon the fossils of the Goniatite limestone in the Marcellus shale of the Hamilton Group, in the eastern and central parts of the State of New York, and those of the Goniatite beds of Rockford, Indiana; with some analogous forms from the Hamilton Group proper. (13th Rep. N. Y. State Cab. Nat. Hist., pp. 95-112; also supplementary note on p. 125.)
- . Observations upon a new genus of Crinoidea; *Cheirocrinus*. (13th Rep. N. Y. State Cab. Nat. Hist., pp. 121-124.)
- . Contributions to the palæontology of Iowa, being descriptions of new species of Crinoidea and other fossils. (Supp. to Vol. I, pt. 2, Geol. Rep. Iowa, pp. 1-92, Pls. 1-3.)

- LESQUEREUX (L.).** Description of new species of fossil plants collected in the shales overlying the subconglomerate coal of Arkansas. (2d Rep. Geol. Surv. Ark., pp. 308-314, Pls. 1-6.)
- LYON (S. S.).** Descriptions of four new species of Blastoidea, from the Subcarboniferous rocks of Kentucky. (Trans. St. Louis Acad. Sci., Vol. I, pp. 628-634, Pl. 20.)
- and **CASEDAY (S. A.).** Description of nine new species of Crinoidea, from the Subcarboniferous rocks of Indiana and Kentucky. (Am. Jour. Sci. (2), Vol. XXIX, pp. 68-79.)
- McCHESNEY (J. H.).** Descriptions of new species of fossils from the Palæozoic rocks of the Western States. (Pp. 1-76.)
- MEEK (F. B.).** Descriptions of new fossil remains collected in Nebraska and Utah, by the exploring expeditions under the command of Capt. J. H. Simpson, of U. S. Topographical Engineers [extracted from the officer's forthcoming report]. (Proc. Acad. Nat. Sci. Phil., pp. 308-315.)
- and **HAYDEN (F. V.).** Descriptions of new organic remains from the Tertiary, Cretaceous, and Jurassic rocks of Nebraska. (Proc. Acad. Nat. Sci. Phil., pp. 175-185.)
- and **WORTHEN (A. H.).** Descriptions of new Carboniferous fossils from Illinois and other Western States. (Proc. Acad. Nat. Sci. Phil., pp. 447-472.)
- ———. Descriptions of new species of Crinoidea and Echinoidea from the Carboniferous rocks of Illinois, and other Western States. (Proc. Acad. Nat. Sci. Phil., pp. 379-397.)
- MILNE-EDWARDS (H.).** Histoire naturelle des Coralliaires ou Polypes proprement dits, Vol. III, pp. 1-560.
- PROUT (H. A.).** Fourth series of descriptions of Bryozoa from the Palæozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., Vol. I, pp. 571-581.)
- SHUMARD (B. F.).** Description of five new species of Gasteropoda from the Coal Measures, and a Brachiopod from the Potsdam sandstone of Texas. (Trans. St. Louis Acad. Sci., Vol. I, pp. 624-627.)
- SWALLOW (G. C.).** Descriptions of new fossils from the Carboniferous and Devonian rocks of Missouri. (Trans. St. Louis Acad. Sci., Vol. I, pp. 635-660.)
- WHITE (C. A.).** Observations upon the Geology and Paleontology of Burlington, Iowa, and its vicinity. (Jour. Bost. Soc. Nat. Hist., Vol. VII, pp. 209-235.)
- WORTHEN (A. H.).** Notice of a new species of Platycrinus and other fossils, from the Mountain limestone of Illinois and Iowa; being an extract from the Second Annual Report of the Illinois Geological Survey. (Trans. St. Louis Acad. Sci., Vol. I, pp. 569-571.)

1861.

- GABB (W. M.).** Descriptions of new species of American Tertiary fossils and a new Carboniferous cephalopod from Texas. (Proc. Acad. Nat. Sci. Phil., pp. 367-372.)
- HALL (J.).** Descriptions of new species of Crinoidea and other fossils, from the Carboniferous rocks of the Mississippi Valley. (Pp. 1-18.)
- . Descriptions of new species of Crinoidea from the Carboniferous rocks of the Mississippi Valley. (Jour. Bost. Soc. Nat. Hist., Vol. VII, pp. 261-328.)
- McCHESNEY (J. H.).** Descriptions of new fossils from the Palæozoic rocks of the Western States, from the transactions of the Chicago Academy of Sciences, October 11, 1859. Contributed by J. H. McChesney. Extract No. 2. (Pp. 77-96.)
- MEEK (F. B.) and WORTHEN (A. H.).** Descriptions of new Palæozoic fossils from Illinois and Iowa. (Proc. Acad. Nat. Sci. Phil., pp. 128-148.)
- NEWBERRY (J. S.).** Paleontology. (Chap. 11 of Lieutenant Ives's Report on the Colorado River of the West, pp. 116-129, pls. 1-2.)
- ROEMER (F.).** Ueber den Bau von Melonites multipora, ein Echinid des amerikanischen Kohlenkalkes. (Archiv für Naturgeschichte, Jahrg. 21, Bd. 1, pp. 312-330, Pl. 12.)

1862.

- JONES (T. R.).** A monograph of the fossil Estheriæ. (Paleontographical Society, Vol. XIV, pp. 1-134, Pls. 1-5.)
- LYON (S. S.) and CASSEDAY (S. A.).** Description of two genera and eight new species of fossil Crinoidea, from the rocks of Indiana and Kentucky. (Proc. Am. Acad. Arts and Sci. Boston, Vol. V, pp. 16-31.)
- OWEN (R.).** Description of fossils. (Geol. Reconnaissance of Indiana, pp. 362-365.)
- WHITE (C. A.).** Description of new species of fossils from the Devonian and Carboniferous rocks of the Mississippi Valley. (Proc. Bost. Soc. Nat. Hist., Vol. IX, pp. 8-33.)
- . Observations on the summit structure of Pentremites, the structure and arrangement of certain parts of crinoids, and descriptions of new species, from the Carboniferous rocks at Burlington, Iowa. (Jour. Bost. Soc. Nat. Hist.; Vol. VII, pp. 481-506.)
- and **WHITFIELD (R. P.).** Observations upon the rocks of the Mississippi Valley which have been referred to the Chemung Group of New York, together with descriptions of new species of fossils from the same horizon at Burlington, Iowa. (Proc. Bost. Soc. Nat. Hist., Vol. VIII, pp. 289-306.)

WINCHELL (A.). Descriptions of fossils from the Marshall and Huron groups of Michigan. (Proc. Acad. Nat. Sci. Phil., pp. 405-430.)

———. Notice of the rocks lying between the Carboniferous limestone of the Lower Peninsula of Michigan and the limestones of the Hamilton Group; with descriptions of some Cephalopods supposed to be new to science. (Am. Jour. Sci. (2), Vol. XXXIII, pp. 352-366.)

1863.

BILLINGS (E.). Description of a new species of *Phillipsia*, from the Lower Carboniferous rocks of Nova Scotia. (Can. Nat., Vol. VIII, pp. 209-210.)

DAVIDSON (T.). On the Lower Carboniferous Brachiopoda of Nova Scotia. (Quart. Jour. Geol. Soc. Lond., Vol. XIX, pp. 158-175, Pl. 9.)

HALL (J.). Observations upon the genera *Uphantænia* and *Dictyophyton*; with notices of some species from the Chemung Group of New York and the Waverly sandstone of Ohio. (16th Rep. N. Y. State Cab. Nat. Hist., pp. 84-91.)

SALTER (J. W.). On some fossil Crustacea from the Coal Measures and Devonian rocks of British North America. (Quart. Jour. Geol. Soc. Lond., Vol. XIX, pp. 75-80.)

SHUMARD (B. F.). Descriptions of new Palæozoic fossils. (Trans. St. Louis Acad. Sci., Vol. II, pp. 108-113.)

SWALLOW (G. C.). Descriptions of some new fossils from the Carboniferous and Devonian rocks of Missouri. (Trans. St. Louis Acad. Sci., Vol. II, pp. 81-100.)

WINCHELL (A.). Descriptions of fossils from the yellow sandstones lying beneath the "Burlington limestone" at Burlington, Iowa. (Proc. Acad. Nat. Sci. Phil., pp. 2-25.)

1864.

DANA (J. D.). On fossil insects from the Carboniferous formation in Illinois. (Am. Jour. Sci. (2), Vol. XXXVII, pp. 34-35.)

HALL (J.). Preliminary notice of some species of Crinoidea from the Waverly sandstone series of Summit County, Ohio, supposed to be of the age of the Chemung Group of New York. (17th Rep. N. Y. State Cab. Nat. Hist., pp. 50-60.)

MEEK (F. B.). Description of the Carboniferous fossils. (Pal. of California, Vol. I, pp. 1-16, Pls. 1, 2.)

——— and **HAYDEN (F. V.).** Palæontology of the Upper Missouri. (Smithsonian Contributions to Knowledge (172), pp. 1-135, Pls. 1-5.)

1865.

- HARTT (C. F.).** Paleontological Appendices (A and B) to "Observations on the Geology of Southern New Brunswick," by L. W. Bailey.
- McCHESNEY (J. H.).** Plates illustrating in part the new species of fossils from the Palæozoic rocks of the Western States, and two new species noticed March, 1860, published April, 1865. (Title page and Pls. 1-11, with explanations.)
- MEEK (F. B.) and WORTHEN (A. H.).** Note in relation to a genus of crinoids from the Coal Measures of Illinois and Nebraska, proposed on page 174 of the last number of this journal. (Am. Jour. Sci. (2), Vol. XXXIX, p. 350.)
- . Notice of some new types of organic remains from the Coal Measures of Illinois. (Proc. Acad. Nat. Sci. Phil., pp. 41-53.)
- . Descriptions of new Crinoidea, etc., from the Carboniferous rocks of Illinois and some of the adjoining States. (Proc. Acad. Nat. Sci. Phil., pp. 155-166.)
- . Descriptions of new species of Crinoidea, etc., from the Palæozoic rocks of Illinois and some of the adjoining States. (Proc. Acad. Nat. Sci. Phil., pp. 143-155.)
- . Contributions to the Palæontology of Illinois and other Western States. (Proc. Acad. Nat. Sci. Phil., pp. 245-273.)
- . Note on a new Crinoid referred to on page 164. (Am. Jour. Sci. (2), Vol. XXXIX, pp. 173-174.)
- WINCHELL (A.).** Descriptions of new species of fossils, from the Marshall Group of Michigan, and its supposed equivalent in other States; with notes on some fossils of the same age previously described. (Proc. Acad. Nat. Sci. Phil., pp. 109-133.)

1866.

- GEINITZ (H. B.).** Carbonformation und Dyas in Nebraska. (Verhandl. der kaiserlichen Leopoldino-Carolinischen deutschen Akademie der Naturforscher, Bd. XXXIII, pp. i-xii and 1-91, Pls. 1-5.)
- MEEK (F. B.).** On the affinities of the Bellerophonidæ. (Proc. Chicago Acad. Sci., pp. 9-11.)
- and **WORTHEN (A. H.).** Contributions to the Paleontology of Illinois and other Western States. (Proc. Acad. Nat. Sci. Phil., pp. 251-275.)
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- . On the attachment of *Platyceras* to Palæocrinoids, and its effects in modifying the form of the shell. (Proc. Am. Phil. Soc., Vol. XXV, pp. 231-243, Pl. 1.)
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- KEYES (C. R.).** Lower Carbonic Gasteropoda from Burlington, Iowa. (Proc. Acad. Nat. Sci. Phil., pp. 284-298.)
- . The American species of *Polyphemopsis*. (Proc. Acad. Nat. Sci. Phil., pp. 299-302.)
- . *Sphærodoma* a genus of fossil Gasteropods. (Proc. Acad. Nat. Sci. Phil., pp. 303-309.)
- . Variation exhibited by a Carbonic Gasteropod. (Am. Geol., Vol. III, pp. 330-333.)
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- . Generic relations of *Platyceras* and *Capulus*. (Am. Geol., Vol. VI, pp. 6-9.)
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- HYATT (A.).** Phylogeny of an acquired characteristic. (Proc. Am. Phil. Soc., Vol. XXII, pp. 349-647, Pls. 1-14.)
- KEYES (C. R.).** Synopsis of American Paleozoic echinoids. (Proc. Iowa Acad. Sci., Vol. II, pp. 178-194, Pls. 18-20.)
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- . New and interesting species of Palaeozoic fossils. (Bull. No. 7, Ill. State Mus. Nat. Hist., pp. 1-89, Pls. 1-5.)
- ROWLEY (R. R.).** Description of a new genus and five new species of fossils from the Devonian and Subcarboniferous rocks of Missouri. (Am. Geol., Vol. XVI, pp. 217-223.)
- SCUDDER (S. H.).** Revision of the American fossil cockroaches, with descriptions of new forms. (Bull. U. S. Geol. Surv. No. 124, pp. 1-145, Pls. 1-12.)
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- JACKSON (R. T.).** Studies of Palaeochinoidea. (Bull. Geol. Soc. Am., Vol. VII, pp. 171-246, Pls. 4-9.)
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GENERAL SUMMARY OF CLASSES AND GENERA.

PROTOZOA AND SPONGES.

Genera.	No. of species.	Genera.	No. of species.
Amblysiphonella	1	Lasiocladia	1
Batospongia	1	Loftusia	1
Belemnosporgia	1	Lyrodictya	1
Biopalla	8	Megastroma	1
Cidarosporgia	1	Miliolites	2
Cleodictya	2	Nodosinella	1
Conopterium	1	Nullipora	1
Cucumulites	2	Palaeacis	6
Dictyophyton	6	Phragmodictya	3
Ectenodictya	4	Physospongia	3
Endothyra	2	Ptychostylus	2
Fusulina	6	Thamnodictya	1
Hystriosporgia	1	Valvulina	5

CORALS.

Acervularia	1	Filicites	1
Amplexus	7	Hadrophylum	3
Anisophyllum	1	Leptopora	2
Aulopora	1	Lithostrotion	8
Axophyllum	2	Lophophyllum	3
Campophyllum	3	Michelinia	2
Chetetes	4	Microcyclus	1
Chonophyllum	1	Millepora	1
Clisiophyllum	2	Pleurodictyum	1
Cyathaxonia	2	Striatopora	1
Cyathophyllum	4	Stylastrea	1
Cystelasma	1	Syringopora	2
Dictyonema	1	Trachypora	1
Faviphyllum	1	Trochophyllum	1
Favosites	2	Zaphrentis	37

CYSTOIDEA.

Agelacrinus	4	Echinodiscus	3
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BLASTOIDEA.

Codaster	5	Orophocrinus	8
Cryptoblastus	4	Pentremites	32
Granatocrinus	14	Phaenoscisma	1
Heteroblastus	1	Schizoblastus	7
Mesoblastus	1	Tricœlocrinus	3
Metablastus	6	Troostocrinus	1

General summary of classes and genera—Continued.

CRINOIDEA.

Genera.	No. of species.	Genera.	No. of species.
Abrotocrinus	1	Graphiocrinus	9
Acrocrinus	3	Halysioocrinus	5
Actinocrinus	44	Hydreionocrinus	12
Agaricocrinus	35	Ichthyocrinus	6
Agassizocrinus	11	Lecythiocrinus	2
Allageerinus	2	Lobocrinus	11
Alloprosallocrinus	3	Macrocrinus	6
Amphoracrinus	8	Megistocrinus	3
Aocrinus	10	Melocrinus	2
Atelestocrinus	2	Mespilocrinus	2
Barycrinus	33	Missouricrinus	1
Batocrinus	132	Nipterocrinus	2
Belemnocrinus	5	Onychocrinus	11
Blaiocrinus	1	Parisocrinus	4
Bursacrinus	2	Periechocrinus	2
Cactocrinus	23	Phialocrinus	6
Calceocrinus	1	Physetocrinus	7
Camptocrinus	2	Platycrinus	97
Catillocrinus	3	Poteriocrinus	56
Cerlocrinus	6	Pterotocrinus	11
Cœliocrinus	5	Rhodocrinus	20
Cromyocrinus	4	Sampsonocrinus	1
Cyathocrinus	41	Scaphiocrinus	76
Decadocrinus	15	Scytalocrinus	13
Dichocrinus	32	Steganoocrinus	11
Dizygoocrinus	22	Stemmatoocrinus	1
Dorycrinus	15	Strotocrinus	5
Eretmocrinus	22	Synbathocrinus	12
Erisocrinus	4	Talarocrinus	9
Eucladocrinus	6	Taxocrinus	20
Eupachycrinus	21	Teleiocrinus	6
Eutrochoocrinus	4	Ulocrinus	4
Forbesiocrinus	12	Vasocrinus	2
Gilbertsocrinus	9	Woodocrinus	21
Goniocrinus	1	Zeacrinus	25

ASTEROIDEA.

Aganaster	1	Palæaster	1
Cholaster	1	Schœnaster	3
Compsaster	1	Tremataster	1
Onychaster	5		

ECHINOIDEA.

Archæocidaris	22	Melonites	7
Eocidaris	2	Oligoporus	9
Hybochinus	1	Perischodomus	1
Lepidochinus	2	Pholidocidaris	2
Lepidesthes	4	Rhœchinus	2
Lepidocidaris	1		

General summary of classes and genera—Continued

VERMES.

Genera.	No. of species.	Genera.	No. of species.
Cornulites	1	Serpulites	5
Serpula	1	Spirorbis	9

BRYOZOA.

Acanthocladia	2	Hemitrypa	8
Acanthoclema	1	Heterodictya	1
Actinotrypa	1	Leioclema	6
Anisotrypa	4	Lyropora	7
Archimedes	17	Meekopora	4
Bactropora	1	Pinnatopora	15
Batostomella	4	Polypora	29
Berenicea	1	Prismopora	5
Chamodictyon	2	Proutella	1
Cheilotrypa	1	Ptilodictya	1
Cœloconus	2	Ptilopora	5
Coscinium	4	Ramipora	1
Cyclopora	2	Rhombopora	25
Cycloporella	2	Septopora	11
Cystodictya	10	Sphragiopora	1
Dichotrypa	5	Stenopora	18
Diplopora	2	Stictopora	1
Eridopora	2	Stictoporella	2
Eschara	2	Streblotrypa	12
Evactinopora	4	Strotopora	2
Fenestella	48	Tæniodictya	6
Fenestralia	2	Thamniscus	6
Fistulipora	6	Trematopora	3
Glyptopora	10	Worthenopora	2
Heliotrypa	1		

BRACHIOPODA.

Acambona	2	Cyrtina	4
Ambocœlia	3	Derbya	11
Athyris	15	Dielasma	11
Atrypa	1	Enteleutes	1
Aulacorhynchus	1	Eumetria	3
Barroisella	1	Glossina	4
Beecheria	1	Hartina	1
Camarophorella	1	Hustedia	4
Camarophoria	10	Leiorhynchus	2
Canarothoechia	5	Leptæna	2
Centronella	3	Lingula	16
Chonetes	22	Lingulodiscina	3
Chonopectus	1	Martina	2
Cleiothyris	10	Meekella	3
Conchidium	1	Orbiculoidea	20
Crania	6	Orthis	1
Craniella	1	Orthothetes	6
Cryptacanthia	1	Productella	6
Cryptonella	3	Productus	106

General summary of classes and genera—Continued.

BRACHIOPODA—Continued.

Genera.	No. of species.	Genera.	No. of species.
Ptychospira	2	Seminula	11
Pugnax	12	Spirifer	75
Reticularia	10	Spiriferina	16
Retzia	2	Streptorhynchus	2
Rhipidomella	15	Stricklandinia	1
Rhynchonella	32	Strophalosia	7
Rhynchopora	1	Strophomena	1
Rhynchospira	2	Syringothyris	8
Romingerina	1	Terebratula	7
Schizophoria	3	Torynifer	1

PELECYPODA.

Allorisma	32	Lunulicardium	1
Anatina	1	Lyriopecten	1
Anthracomya	5	Macrodon	20
Arca	4	Martesia	1
Astartella	5	Microdon	10
Avicula	14	Modiola	7
Aviculopecten	73	Modiomorpha	5
Aviculopinna	2	Monopteria	4
Axinus	1	Monotis	5
Bakevellia	4	Myalina	30
Blairiella	1	Mytilarca	3
Carbonarca	1	Mytilus	2
Carbonicola	2	Naiadites	5
Cardinia	9	Nucula	17
Cardiola	1	Nuculana	14
Cardiomorpha	14	Nuculites	2
Cardiopsis	3	Oracardia	2
Cardium	1	Orthonota	2
Chænocardia	1	Ostrea	1
Chænomya	6	Palæonello	14
Clinopistha	2	Palæosolen	1
Conocardium	15	Pararca	2
Crenipecten	6	Pernopecten	7
Cypricardia	9	Pholadella	1
Cypricardinia	5	Pinna	11
Dexiobia	3	Placunopsis	2
Edmondia	35	Pleurophorus	15
Elymella	2	Posidonia	4
Euchondria	1	Posidonomya	9
Glossites	1	Promacrus	5
Goniodon	1	Prothyris	2
Goniophora	1	Pseudomonotis	4
Grammysia	8	Pterinea	7
Isocardia	2	Pterinopecten	6
Leiopteria	6	Pteronites	6
Leptodesma	2	Ptychopteria	1
Lima	2	Sanguinolaria	5
Limatulina	1	Sanguinolites	23
Lithophaga	3	Schizodus	38

General summary of classes and genera—Continued.

PELECYPODA—Continued.

Genera.	No. of species.	Genera.	No. of species.
Sedgwickia	4	Sphenotus	8
Solen	1	Spirodomus	1
Solenomya	12	Streblapteria	5
Solenopsis	3	Tellinomya	1
Spathella	1	Yoldia	7

GASTROPODA.

Aclisina	5	Naticopsis	12
Ampullaria	1	Omphalotrochus	2
Anomphalus	1	Orthonema	4
Anthracopupa	1	Orthonychia	6
Bellerophon	53	Phanerotinus	3
Bulimorpha	10	Physa	1
Capulus	19	Platyschisma	2
Chiton	2	Pleurotomaria	84
Cyclonema	3	Porcellia	5
Cyrtolites	1	Pupa	4
Dawsonella	1	Rotella	1
Dentalium	12	Soleniscus	20
Eotrochus	1	Sphaerodoma	10
Holopea	5	Straparollus	30
Holopella	1	Streptaxis	1
Igoceras	5	Strophostylus	10
Lepetopsis	3	Trachydomia	4
Loxonema	25	Trochita	1
Metoptoma	2	Turbo	5
Microdoma	1	Zaptychius	1
Murchisonia	27	Zonites	1

PTEROPODA.

Colcolus	1	Hyalithes	3
Conularia	25		

CEPHALOPODA.

Actinoceras	1	Goniatites	51
Aphelæceras	1	Gyroceras	2
Asymptoceras	3	Koninckioceras	1
Brancoeras	1	Leuroceras	1
Coloceras	2	Medlicottia	1
Cyrtoceras	9	Metacoceras	6
Discites	1	Munsteroceras	2
Donatoceras	5	Nautilus	25
Edaphoceras	1	Oncodoceras	1
Endolobus	3	Orthoceras	42
Ephippioceras	2	Paralogoceras	1
Gastrioceras	7	Phacoceras	1
Glyphioceras	4	Phragmoceras	2
Gomphoceras	2	Popanoceras	2

General summary of classes and genera—Continued.

CEPHALOPODA—Continued.

Genera.	No. of species.	Genera.	No. of species.
Poterioceras	2	Tainoceras	3
Pronorites	1	Temnocheilus	8
Remeleceras	1	Thrinoceras	2
Solenoceras	1	Titanoceras	1
Solenocheilus	6	Trematoceras	10
Stearoceras	1	Triboloceras	1
Stroboceras	3	Waagenoceras	1

TRILOBITA.

Brachymetopus	5	Phillipsia	17
Dalmanites	1	Proetus	10
Griffithides	7		

CRUSTACEA (NOT TRILOBITES).

Acanthotelson	2	Dithyrocaris	1
Anthropalæmon	2	Estheria	1
Archæocaris	1	Eurypterus	5
Bairdia	1	Kirkbya	5
Belinurus	1	Leaia	3
Beyrichia	7	Leperditia	5
Bollia	1	Macrocaris	1
Candona	1	Mesothyra	1
Carbonia	3	Moërea	1
Ceratiocaris	1	Palæocaris	1
Colpocaris	3	Palæopalæmon	1
Cryptozoe	1	Pontocypris	1
Cyclus	1	Prestwichia	3
Cypridina	1	Primitia	5
Cythere	5	Rachura	1
Cytherella	2	Rusichnites	2
Cytherellina	1	Solenocaris	2
Dipeltis	1	Tropidocaris	1
Diplostylus	1	Ulrichia	2

ARACHNOIDEA.

Anthracomartus	3	Geratarbus	2
Architarbus	2	Græophonus	1
Arthrolycosa	1	Kustarachne	1
Eoscorpis	1	Mazonia	1
Geralinura	1	Poliochera	1
Geraphrynus	1		

MYRIAPODA.

Acantherpestes	2	Ilyodes	2
Amynilyspes	1	Latzelia	1
Anthracerpes	1	Palæocampa	1
Archiulus	2	Palenarthrus	1
Elleticus	2	Xylobius	6
Euphoberia	11		

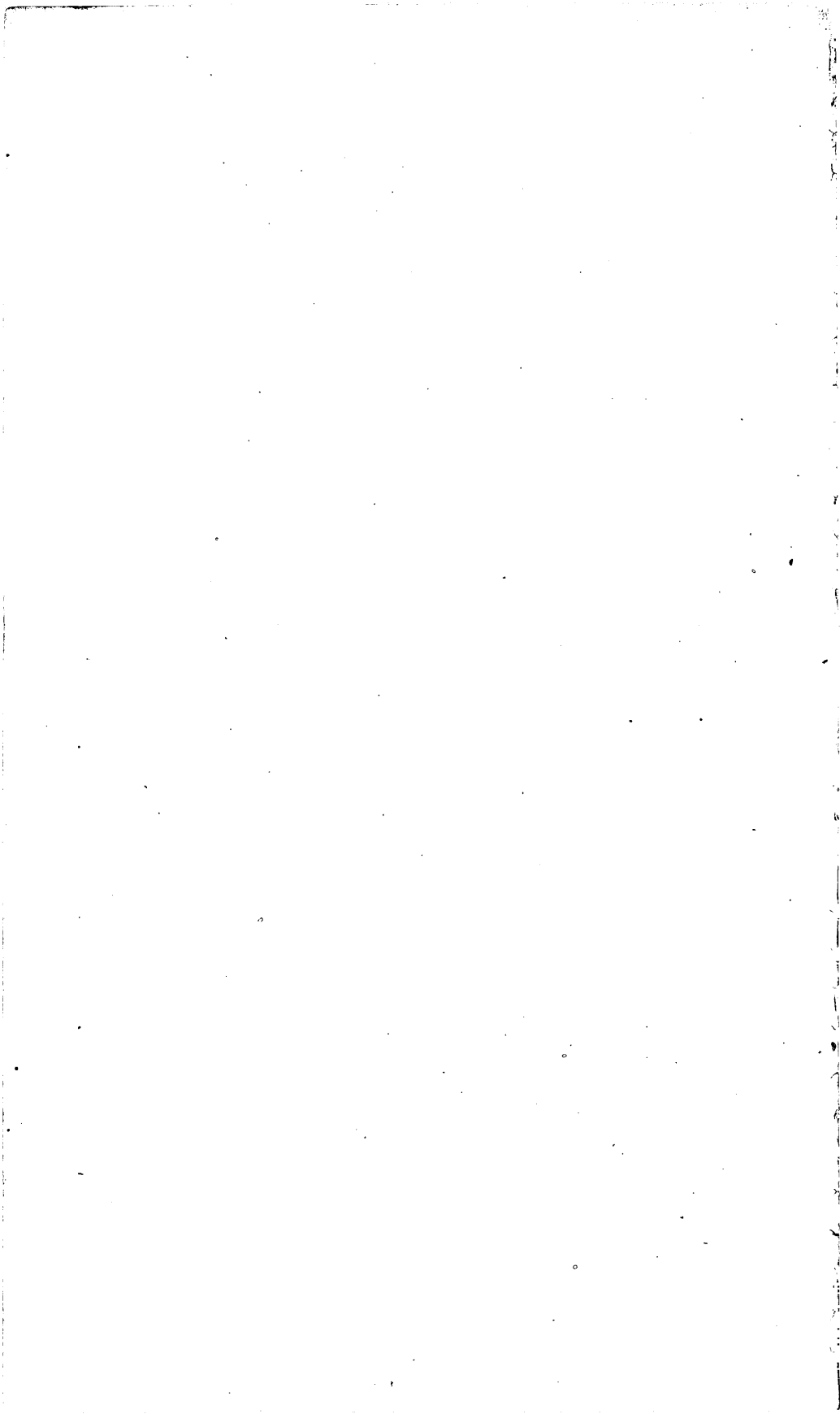
General summary of classes and genera—Continued.

INSECTA.

Genera.	No. of species.	Genera.	No. of species.
Adiphebia	1	Lithomylacris	4
Zethophlebia	1	Megathentomum	1
Anthracoblattina	2	Miamia	1
Anthracothremma	1	Microblattina	1
Archegogryllus	1	Mylacris	14
Archimylacris	3	Necymylacris	2
Cheliphlebia	2	Oryctoblattina	2
Chrestotes	1	Paolia	4
Didymophleps	1	Paralogus	1
Dieconeura	2	Paromylacris	5
Etblattina	66	Petrablattina	2
Eucænus	1	Phthanocoris	1
Genopteryx	1	Polyernus	2
Genentomum	1	Poroblattina	5
Gerablattina	21	Progonoblattina	1
Gerapompus	2	Promylacris	4
Gerarus	3	Propteticus	1
Haplophlebiium	2	Rhaphidiopsis	1
Hemeristia	1	Titanophama	1

RÉSUMÉ OF CLASSES AND GENERA.

	Genera.	Species.
Protozoa and sponges	26	64
Corals	30	98
Cystoidea	2	7
Blastoidea	12	83
Crinoidea	70	1,021
Astroidea	7	13
Echinoidea	11	53
Vermes	4	16
Bryozoa	49	308
Brachiopoda	58	503
Pelecypoda	88	623
Gastropoda	42	386
Pteropoda	3	29
Cephalopoda	42	221
Trilobita	5	40
Crustacea (not Trilobites)	38	78
Arachnoidea	11	15
Myriopoda	11	30
Insecta	38	166
Total number	547	3,754



PART II.

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1862. *Acambona prima*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 27, figs. 1, 2.
L. Burlington L. S.: Burlington, Iowa.
1894. *Acambona prima*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37,
figs. 21, 22.
Burlington L. S.: Burlington, Iowa.
1895. *Acambona prima*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 40, 41.
Burlington L. S.: Burlington, Iowa.

ACANTHERPESTES Meek and Worthen, 1868.

Acantherpestes inequalis Scudder.

1890. *Acantherpestes inequalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 424,
425, pl. 33, figs. 2-4.
Carboniferous: Mazon Creek, Illinois.
1890. *Acantherpestes inequalis*. Scudder, Foss. Insc. N. A., vol. 1, pp. 400, 401, pl. 25,
figs. 2-4.
Carboniferous: Mazon Creek, Illinois.

Acantherpestes major Meek and Worthen.

1868. *Euphoberia major*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 26.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1868. *Euphoberia?? major*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 558, fig.
Coal Measures.

Acantherpestes major Meek and Worthen—Continued.

1882. *Acantherpestes major*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, pp. 150-156, pl. 10, 11, figs. 1-4, 6-8, 10, 11.
Carboniferous: Mazon Creek, Illinois.
1890. *Acantherpestes major*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 424.
1890. *Acantherpestes major*. Scudder, Foss. Insc. N. A., vol. 1, pp. 202-208, 400, pl. 7a, 8, figs. 1-4, 6-8, 10, 11.
Carboniferous: Mazon Creek, Illinois.

ACANTHOCLADIA King, 1849.**Acanthocladia americana Shumard.**

1858. *Acanthocladia anceps* (?) Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 180.
L. Permian: Valley of Cottonwood, Kansas.
1859. *Acanthocladia americana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
Gray Permian L. S.: Guadalupe Mountains.
1859. *Acanthocladia americana*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
Upper Coal Measures: Cottonwood Creek, Kansas.

Acanthocladia fruticosa Ulrich.

1890. *Acanthocladia fruticosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 635, pl. 65, figs. 2, 2c.
Upper Coal Measures: Near Springfield, Illinois.

ACANTHOCLEMA Hall, 1887.**Acanthoclema confluens Ulrich.**

1888. *Rhombopora confluens*. Ulrich, Bull. Den. Univ., vol. 4, p. 91, pl. 14, fig. 17.
Cuyahoga Shale: Lodi, Ohio.
Keokuk Group: Warsaw, Illinois.
1890. *Acanthoclema confluens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 662, pl. 70, figs. 5, 5b.
Keokuk Group: Nauvoo, Illinois.

ACANTHOTELSON Meek and Worthen, 1860.

Acanthotelson eveni Meek and Worthen. See *Acanthotelson stimpsoni*.

Acanthotelson inequalis Meek and Worthen. See *Palæocaris typus*.

Acanthotelson? magister Packard.

1886. *Acanthotelson? magister*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 127, pl. 1, fig. 2; pl. 2, figs. 4, 5.
Carboniferous: Mazon Creek, Illinois.

Acanthotelson stimpsoni Meek and Worthen.

1865. *Acanthotelson Stimpsoni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 47.
Coal Measures: Morris, Illinois.
1866. *Acanthotelson Stimpsoni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 401, pl. 32, figs. 6-6f.
Lower Coal Measures: Morris, Grundy County, Illinois.
1868. *Acanthotelson Eveni*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 28.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1868. *Acanthotelson Stimpsoni*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 549, figs. A-B.
Coal Measures: Mazon Creek, Grundy County, Illinois.

Acanthotelson stimpsoni Meek and Worthen—Continued.

1868. *Acanthotelson Eveni*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 551, figs. A-D.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1880. *Acanthotelson Stimpsoni*. Brocchi, Bull. Soc. Geol. France (3), vol. 8, p. 10, pl. 1, fig. 11.
1884. *Acanthotelson Stimpsoni*. White, 13th Rep. Geol. Surv. Ind., p. 176, pl. 37, figs. 4, 5.
Coal Measures: Grundy County, Illinois.
1884. *Acanthotelson Eveni*. White, 13th Rep. Geol. Surv. Ind., p. 177, pl. 38, figs. 4-7.
Coal Measures: Grundy County, Illinois.
1886. *Acanthotelson Stimpsoni*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 123, pl. 1, figs. 1-1d; pl. 2, figs. 1-3.
Carboniferous: Mazon Creek, Illinois.

ACERVULARIA Schweigger, 1820.**Acervularia adjunctiva** White.

1880. *Acervularia adjunctiva*. White, Proc. U. S. Nat. Mus., vol. 2, p. 255, pl. 1, figs. 1-3.
Carboniferous: Blackfoot Range, south of Yellowstone National Park.
1880. *Acervularia adjunctiva*. White, Cont. to Pal., No. 6, p. 120, pl. 35, figs. 1a-d.
Carboniferous: Blackfoot Range, south of Yellowstone National Park.

Acervularia (species undetermined).

1876. *Acervularia* —? —. White, Powell's Geol. Rep. Uinta Mts., p. 88.
L. Aubrey Group: Split Mountain Canyon, Green River, Utah.

(ACLIS Leven, 1846.)

Aclis minuta Stevens. See *Aclisina minuta*.

Aclis robusta Stevens. See *Aclisina robusta*.

Aclis stevensoni White. See *Aclisina stevensana*.

Aclis swallowiana Meek. See *Aclisina swallowana*.

ACLISINA De Koninck, 1881.**Aclisina bellilineata** Miller.

1891. *Aclisina bellilineata*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 85, pl. 14, fig. 10.
Chouteau L. S.: Sedalia, Missouri.
1892. *Aclisina bellilineata*. Miller, 17th Rep. Geol. Surv. Ind., p. 695, pl. 14, fig. 10.
Chouteau L. S.: Sedalia, Missouri.
1894. *Aclisina?? bellilineata*. Keyes, Mo. Geol. Surv., vol. 5, p. 202.
Kinderhook L. S.: Sedalia, Missouri.

Aclisina minuta Stevens.

1858. *Aclis minuta*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.
1858. *Murchisonia minima*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 203.
Middle Coal Measures: Lexington, Missouri.
1888. *Aclisina minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.

***Aclisina minuta* Stevens—Continued.**

1891. *Aclisina minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 259.
Lower Coal Measures: Des Moines, Iowa.
1894. *Aclisina minuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 202.
Upper Coal Measures: Lexington, Missouri.

***Aclisina robusta* Stevens.**

1858. *Aclis robusta*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.
1873. *Aclis robusta*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 596, pl. 29,
fig. 6.
Coal Measures: Danville, Illinois.
1888. *Aclisina robusta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.
1894. *Aclisina robusta*. Keyes, Mo. Geol. Surv., vol. 5, p. 202.
Upper Coal Measures: Kansas City, Missouri.

***Aclisina stevensana* Meek and Worthen.**

1866. *Turritella* ?? *Stevensana*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 382,
pl. 27, figs. 8-8a.
Upper Coal Measures: North Branch Saline Creek, Gallatin County,
Illinois.
1881. *Aclis* ? *stevensoni*. White, U. S. Geog. Surv. w. 100 Merid., vol. 3, Supp.
Appendix, p. xxxv, pl. 3, figs. 9a-b.
Carboniferous: Coyote Creek, New Mexico.
1894. *Aclisina stevensana*. Keyes, Mo. Geol. Surv., vol. 5, p. 202.
Upper Coal Measures: Kansas City, Missouri.

***Aclisina swallovana* Geinitz.**

1866. *Turbonilla swallovana*. Geinitz, Carb. und Dyas in Nebr., p. 5, Tab. 1,
fig. 19.
Nebraska City, Nebraska.
1872. *Aclis swallovana*. Meek, U. S. Geol. Surv. Nebr., p. 229, pl. 11, figs. 7a-b.
Upper Coal Measures: Nebraska City, Nebraska.

ACROCRINUS Yandell, 1855.***Acrocrinus amphora* Wachsmuth and Springer.**

1897. *Acrocrinus amphora*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 808,
pl. 80, figs. 4-9.
St. Louis Group: Near Huntsville, Alabama.

***Acrocrinus shumardi* Yandell.**

1847. Yandell and Shumard, Cont. to Geol. of Ky., p. 25, pl., fig. 3.
Grayson, Kentucky.
1855. *Acrocrinus Shumardi*. Yandell, Am. Jour. Sci. (2), vol. 20, p. 136, fig.
Carboniferous L. S.: Grayson County, Kentucky.
1858. *Acrocrinus urnaeformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 690, pl. 25, figs.
9a-b.
Kaskaskia L. S.: Pope County, Illinois.
1897. *Acrocrinus Shumardi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 806,
pl. 80, figs. 1-3.
Kaskaskia Group: Grayson and Pulaski counties, Kentucky.

Acrocrinus urnaeformis*. See *Acrocrinus shumardi*.**Acrocrinus wortheni* Wachsmuth.**

1882. *Acrocrinus wortheni*. Wachsmuth, Bull. No. 1, Ill. State Mus. Nat. Hist.,
p. 40.
Coal Measures: Peoria County, Illinois.

Acrocrinus wortheni Wachsmuth—Continued.

1883. *Acrocrinus Wortheni*. Wachsmuth, Geol. Surv. Ill., vol. 7, p. 343, pl. 30, fig. 13.

Coal Measures: Peoria County, Illinois.

1897. *Acrocrinus Wortheni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 807, pl. 80, figs. 10a-b.

Coal Measures: Peoria County, Illinois.

(ACROCULIA Phillips, 1841.)

Acroculia ovalis Stevens. See *Capulus ovalis*.

Acroculia trigonalis Stevens. See *Capulus trigonalis*.

(ACTÆONINA D'Orbigny.)

Actæonina minuta Meek and Worthen. See *Bulimorpha minuta*.

ACTINOCERAS Bronn, 1837.

Actinoceras inops Dawson.

1868. *Actinoceras inops*. Dawson, Acad. Geol., p. 314, fig. 133a.

Carboniferous L. S.: East River, Pictou, Nova Scotia.

1888. *Actinoceras inops?* Foord, Cat. Foss. Ceph. in Brit. Mus., vol. 1, p. 193.

Carboniferous L. S.: Brookfield, Nova Scotia.

Actinoceras expansum Meek and Worthen. See *Orthoceras expansum*.

ACTINOCRINUS Miller, 1821.

Actinocrinus ægilops. See *Teleiocrinus umbrosus*.

Actinocrinus æqualis. See *Batocrinus æqualis*.

Actinocrinus æquibrachiatus. See *Lobocrinus æquibrachiatus*.

Actinocrinus æquibrachiatus var. *alatus*. See *Lobocrinus æquibrachiatus* var. *asteriscus*.

Actinocrinus albersi Miller and Gurley.

1895. *Actinocrinus albersi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 46, pl. 2, figs. 21-23.

Chouteau L. S.: Sedalia, Missouri.

Actinocrinus althea. See *Teleiocrinus althea*.

Actinocrinus amplus. See *Periechocrinus whitei*.

Actinocrinus andrewsianus. See *Batocrinus andrewsianus*.

Actinocrinus angustatus Miller and Gurley.

1894. *Actinocrinus angustatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 11.

Keokuk L. S.: Green County, Illinois.

Actinocrinus araneolus. See *Steganocrinus araneolus*.

Actinocrinus arnoldi. See *Cactocrinus arnoldi*.

Actinocrinus arrosus Miller.

1892. *Blairocrinus arrosus*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 41, pl. 7, figs. 1-5.

Chouteau L. S.: Sedalia, Missouri.

Actinocrinus arrosus Miller—Continued.

1892. *Blairocrinus bullatus*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 41, pl. 7, figs. 6-7.
Chouteau L. S.: Sedalia, Missouri.
1894. *Blairocrinus arrosus*. Miller, 18th Rep. Geol. Surv. Ind., p. 295, pl. 7, figs. 1-5.
Chouteau L. S.: Sedalia, Missouri.
1894. *Blairocrinus bullatus*. Miller, 18th Rept. Geol. Surv. Ind., p. 295, pl. 7, figs. 6-7.
Chouteau L. S.: Sedalia, Missouri.
1894. *Actinocrinus arrosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 186.
Kinderhook Group: Sedalia, Missouri.
1897. *Actinocrinus arrosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 577, pl. 55, figs. 7, 8a-c.
Chouteau L. S.: Sedalia, Missouri.

Actinocrinus arrosus Miller and Gurley.

1894. *Actinocrinus arrosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 15, pl. 2, fig. 4.
Burlington Group: Burlington, Iowa.

Actinocrinus asperrimus Meek and Worthen.

1869. *Strotocrinus? asperrimus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 160.
Burlington L. S.: Quincy, Illinois.
1873. *Strotocrinus? asperrimus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 349, pl. 8, fig. 3.
Burlington L. S.: Quincy, Illinois.
1897. *Actinocrinus asperrimus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 575, pl. 60, figs. 5-6.
L. Burlington L. S.: Burlington, Iowa.

Actinocrinus asterius. See *Actinocrinus verrucosus*.

Actinocrinus asteriscus. See *Lobocrinus æquibrachiatus* var. *asteriscus*.

Actinocrinus bischoffi Miller and Gurley.

1896. *Actinocrinus bishoffi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 8, pl. 3, figs. 1-2.
Burlington Group: Burlington, Iowa.

Actinocrinus biturbinatus. See *Batocrinus biturbinatus*.

Actinocrinus blairi. See *Cactocrinus glans*.

Actinocrinus botruosus Miller and Gurley.

1895. *Actinocrinus botruosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 22, pl. 2, figs. 1-2.
Keokuk Group: Tennessee.

Actinocrinus brevicornis. See *Megistocrinus evansii*.

Actinocrinus brevis. See *Agaricocrinus brevis*.

Actinocrinus brittsi. See *Physetocrinus ornatus*.

Actinocrinus brontes. See *Actinocrinus lowei*.

Actinocrinus calyculoides. See *Eretmocrinus calyculoides*.

Actinocrinus calyculus. See *Batocrinus calyculus*.

Actinocrinus calyculus var. *hardinensis*. See *Batocrinus calyculus*.

Actinocrinus carica. See *Macrocrinus carica*.

Actinocrinus caroli. See *Batocrinus caroli*.

Actinocrinus chloris. See *Actinocrinus tenuisculptus*.

***Actinocrinus chouteauensis* Miller.**

1892. *Actinocrinus* (?) *chouteauensis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 18, pl. 3, figs. 9-11.

Chouteau L. S.: Near Sedalia, Missouri.

1894. *Actinocrinus* (?) *chouteauensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 272, pl. 3, figs. 9-11.

Chouteau L. S.: Near Sedalia, Missouri.

1894. *Dorycrinus chouteauensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 169.

Kinderhook L. S.: Sedalia, Missouri.

1897. (?) *Actinocrinus chouteauensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 570, pl. 46, figs. 11a-b.

Chouteau L. S.: Sedalia, Missouri.

Actinocrinus christyi. See *Eutrochocrinus christyi*.

Actinocrinus clarus. See *Cactocrinus clarus*.

Actinocrinus clavigerus. See *Batocrinus similis*.

Actinocrinus clio. See *Eretmocrinus clio*.

Actinocrinus clivosus. See *Teleiocrinus rudis*.

Actinocrinus clælia. See *Eretmocrinus clælia*.

Actinocrinus clypeatus. See *Batocrinus clypeatus*.

Actinocrinus cælatus. See *Cactocrinus cælatus*.

Actinocrinus concavus. •See *Aorocrinus concavus*.

Actinocrinus concinnus. See *Steganocrinus concinnus*.

Actinocrinus copei. See *Physetocrinus copei*.

Actinocrinus corbulis. See *Eretmocrinus corbulis*.

Actinocrinus coreyi. See *Agaricocrinus coreyi*.

Actinocrinus corniculus. See *Agaricocrinus brevis*.

Actinocrinus cornigerus. See *Dorycrinus cornigerus*.

Actinocrinus coronatus. See *Eretmocrinus coronatus*.

Actinocrinus dalyanus. See *Cactocrinus proboscidualis*.

***Actinocrinus daphne* Hall.**

1864. *Actinocrinus daphne*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 52. Waverly Group: Richfield, Ohio.

1875. *Actinocrinus Daphne*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 162, pl. 11, fig. 11.

Waverly Group: Richfield, Ohio.

1897. *Actinocrinus daphne*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 574, pl. 56, fig. 1.

Waverly Group: Richfield, Ohio.

Actinocrinus decornis. See *Dorycrinus cornigerus*.

Actinocrinus delicatus. See *Teleiocrinus umbrosus*.

Actinocrinus desideratus. See *Dorycrinus missouriensis*.

Actinocrinus discoideus. See *Batocrinus subæqualis*.

Actinocrinus divaricatus. See *Dorycrinus cornigerus*.

Actinocrinus divergens. See *Amphorocrinus divergens*.

Actinocrinus dodecadactylus. See *Dizygocrinus dodecadactylus*.

Actinocrinus doris. See *Batocrinus æqualis*.

Actinocrinus equibrachiatus var. *alatus*. See *Lobocrinus æquibrachiatus* var. *asteriscus*.

Actinocrinus eris. See *Aorocrinus helice*.

Actinocrinus erodus. See *Teleiocrinus rudis*.

***Actinocrinus erraticus* Miller and Gurley.**

1894. *Actinocrinus erraticus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 14, pl. 2, figs. 2-3.

Burlington Group: Drift at Danville, Illinois.

Actinocrinus eryx. See *Cactocrinus glans*.

Actinocrinus euconus. See *Batocrinus euconus*.

Actinocrinus evensii. See *Megistocrinus evensii*.

Actinocrinus excerptus. See *Cactocrinus proboscidalis*.

Actinocrinus fiscellus. See *Agaricocrinus fiscellus*.

Actinocrinus formosus. See *Batocrinus subæqualis*.

Actinocrinus fossatus. See *Cactocrinus fossatus*.

***Actinocrinus fosteri* McChesney.**

1860. *Actinocrinus fosteri*. McChesney, Desc. New Pal. Foss., p. 19.

Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus fosteri*. McChesney, Ill. New Spéc. Foss., pl. 5, figs. 2a-b.

1868. *Actinocrinus fosteri*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 14, pl. 15, figs. 2a-b.

Burlington L. S.: Burlington, Iowa.

***Actinocrinus foveatus* Miller and Gurley.**

1895. *Actinocrinus foveatus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 49, pl. 2, figs. 25-26.

Burlington Group: Sedalia, Missouri.

Actinocrinus gemmiformis. See *Eretmocrinus gemmiformis*.

***Actinocrinus gibsoni* Miller and Gurley.**

1894. *Actinocrinus gibsoni*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 10, pl. 2, fig. 1.

Keokuk Group: Indian Creek, near Crawfordsville, Indiana.

Actinocrinus glans. See *Cactocrinus glans*.

Actinocrinus glyptus. See *Strotocrinus glyptus*.

Actinocrinus gouldi. See *Dorycrinus gouldi*.

***Actinocrinus gracilis* Wachsmuth and Springer.**

1897. *Actinocrinus gracilis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 572, pl. 56, fig. 11.

Lower Burlington L. S.: Burlington, Iowa.

***Actinocrinus grandis* Miller and Gurley.**

1890. *Actinocrinus grandis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 346, pl. 5, fig. 1; pl. 6, fig. 1.

Keokuk Group: Washington County, Indiana.

Actinocrinus griffithi Wachsmuth and Springer.

1897. *Actinocrinus Griffithi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 568, pl. 52, fig. 7.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Actinocrinus hageri. See *Lobocrinus hageri*.

Actinocrinus helice. See *Aorocrinus helice*.

Actinocrinus helice var. *eris*. See *Aorocrinus helice*.

Actinocrinus hurdianus McChesney.

1860. *Actinocrinus hurdianus*. McChesney, Desc. New Pal. Foss., p. 24.
Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus hurdianus*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 9a-b, pl. 11, fig. 1.

1868. *Actinocrinus Hurdianus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 17, pl. 5, figs. 9a-b.

Burlington L. S.: Burlington, Iowa.

Actinocrinis indianaensis. See *Dizygocrinus indianaensis*.

Actinocrinus inflatus. See *Amphorocrinus spinobrachiatus*.

Actinocrinus infrequens. See *Cactocrinus thalia*.

Actinocrinus inornatus. See *Batocrinus clypeatus*.

Actinocrinus insculptus. See *Teleiocrinus rudis*.

Actinocrinus jessiae Miller and Gurley.

1896. *Actinocrinus jessiae*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 30, pl. 2, figs. 15-16.

Burlington Group: Sedalia, Missouri.

Actinocrinus jugosus Hall.

1860. *Actinocrinus jugosus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Iowa, p. 49.
Keokuk L. S.: Warsaw, Illinois.

1894. *Actinocrinus jugosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 190.
Keokuk L. S.: Keokuk, Iowa.

1897. *Actinocrinus jugosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 563, pl. 54, fig. 1.

Keokuk Group: Keokuk, Iowa; Missouri; Illinois.

Actinocrinus konincki. See *Macrocrinus konincki*.

Actinocrinus lagena. See *Cactocrinus proboscidealialis*.

Actinocrinus lagunculus. See *Macrocrinus lagunculus*.

Actinocrinus laura. See *Batocrinus laura*.

Actinocrinus lepidus. See *Batocrinus lepidus*.

Actinocrinus leucosia. See *Eretmocrinus leucosia*.

Actinocrinus limabrachiatus. See *Cactocrinus limabrachiatus*.

Actinocrinus liratus. See *Teleiocrinus liratus*.

Actinocrinus lobatus Hall.

1860. *Actinocrinus lobatus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Iowa, p. 51.
Keokuk L. S.: Warsaw? Illinois.

1890. *Actinocrinus lobatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 97, pl. 12, figs. 8-8a.

Keokuk L. S.: Green County, Illinois.

Actinocrinus lobatus Hall—Continued.

1894. *Actinocrinus lobatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 190.
Keokuk L. S.: Kahoka, Missouri; Keokuk, Iowa; Warsaw, Illinois.
1897. *Actinocrinus lobatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 557,
pl. 52, figs. 1a-b; pl. 54, fig. 3; pl. 55, figs. 1a-b.
Burlington and Keokuk transition bed: Pleasant Grove, Iowa; Nauvoo,
Illinois; Canton, Indiana.

Actinocrinus locellus. See *Cactocrinus reticulatus*.

Actinocrinus longirostris. See *Lobocrinus longirostris*.

Actinocrinus longus. See *Cactocrinus longus*.

Actinocrinus lowei Hall.

1858. *Actinocrinus lowei*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 611, pl. 15, figs. 5a-b.
Keokuk L. S.: Near Warsaw, Illinois.
1860. *Actinocrinus brontes*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Iowa, p. 47.
Keokuk L. S.: Nauvoo, Illinois.
1894. *Actinocrinus lowei*. Keyes, Mo. Geol. Surv., vol. 4, p. 189.
Keokuk L. S.: Kahoka, Missouri; Keokuk, Iowa.
1897. *Actinocrinus Lowei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 562,
pl. 54, fig. 2.
Keokuk Group: Keokuk, Iowa; Missouri; Illinois.

Actinocrinus lucina. See *Cactocrinus lucina*.

Actinocrinus magnificus Wachsmuth and Springer.

1897. *Actinocrinus magnificus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 567, pl. 53, fig. 2.
Keokuk Group: Indian Creek, Montgomery County, Indiana.

Actinocrinus matuta. See *Eretmocrinus matuta*.

Actinocrinus matuta var. *attenuata*. See *Eretmocrinus attenuatus*.

Actinocrinus minor. See *Megistocrinus evansii*.

Actinocrinus mississippiensis var. *spiniger*. See *Dorycrinus mississippiensis*.

Actinocrinus missouriensis. See *Dorycrinus missouriensis*.

Actinocrinus monticuliferus Miller and Gurley.

1894. *Actinocrinus monticuliferus*. Miller and Gurley, Bull. No. 5, Ill. State Mus.
Nat. Hist., p. 46, pl. 4, fig. 1.
Keokuk Group: Tennessee.

Actinocrinus multibrachiatus. See *Cactocrinus multibrachiatus*.

Actinocrinus multibrachiatus var. *echinatus*. See *Cactocrinus multibrachiatus*.

Actinocrinus multiradiatus Shumard.

- *1857. *Actinocrinus multiradiatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 75, pl. 1, fig. 5.
1858. *Actinocrinus multiradiatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 579, pl. 10, fig. 9.
Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus multiradiatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.
Upper Burlington L. S.: Ash Grove, Missouri; Quincy, Illinois; Burlington,
Iowa.
1897. *Actinocrinus multiradiatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 555, pl. 52, figs 3, 4a-b, 5, 6.
Upper Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Hannibal,
Missouri.

Actinocrinus multiramus Wachsmuth and Springer.

1897. *Actinocrinus multiramus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 564, pl. 53, fig. 1; pl. 55, fig. 3.

Keokuk Group: Indian Creek, Montgomery County, Indiana; Canton, Indiana.

Actinocrinus mundulus. See *Batocrinus mundulus*.

Actinocrinus nashvillae. See *Lobocrinus nashvillae*.

Actinocrinus nashvillae var. *subtractus*. See *Batocrinus subtractus*.

Actinocrinus nodobrachiatus. See *Cactocrinus nodobrachiatus*.

Actinocrinus nodosus. See *Cactocrinus thalia*.

Actinocrinus obesus. See *Cactocrinus obesus*.

*Actinocrinus oblatu*s. See *Dizygocrinus rotundus*.

Actinocrinus olliculus. See *Periechocrinus whitei*.

Actinocrinus opusculus. See *Cactocrinus opusculus*.

Actinocrinus ornatissimus. See *Cactocrinus ornatissimus*.

Actinocrinus ornatus. See *Physetocrinus ornatus*.

Actinocrinus ovatus. See *Cactocrinus reticulatus* var. *ovatus*.

Actinocrinus pallubrum Miller and Gurley.

1896. *Actinocrinus pallubrum*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 26, pl. 1, figs. 25-27.

Burlington Group: Sedalia, Missouri.

Actinocrinus papillatus. See *Batocrinus clypeatus*.

Actinocrinus parvus. See *Aorocrinus parvus*.

Actinocrinus pendens. See *Dorycrinus unicornis*.

Actinocrinus penicillus Meek and Worthen.

1869. *Actinocrinites penicillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 155.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Actinocrinites penicillus*. Meek and Worthen, Geol. Surv., Ill., vol. 5, p. 342, pl. 8, fig. 2.

Lower Burlington L. S.: Burlington, Iowa.

Actinocrinus pentagonus. See *Steganocrinus pentagonus*.

Actinocrinus pernodosus Hall.

1858. *Actinocrinus pernodosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 608, pl. 15, figs. 3a-b.

Keokuk L. S.: Warsaw, Illinois.

1858. *Actinocrinites pernodosus* var. ? Hall, Geol. Iowa, vol. 1, pt. 2, p. 617, pl. 16, fig. 7.

Keokuk L. S.: Warsaw, Illinois.

1894. *Actinocrinus pernodosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 190.

Keokuk L. S.: Wayland, Missouri.

1897. *Actinocrinus pernodosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 561, pl. 55, figs. 2a-b.

Keokuk Group: Keokuk, Iowa; Nauvoo, Hamilton, and Warsaw, Illinois.

Actinocrinus perumbrosus. See *Strotocrinus regalis*.

Actinocrinus pettensis Miller and Gurley.1896. *Actinocrinus pettensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus.

Nat. Hist., p. 6, pl. 1, figs. 3-4.

Burlington Group: Sedalia, Missouri.

Actinocrinus pistilliformis. See *Lobocrinus pyriformis*.*Actinocrinus pistillus*. See *Batocrinus pistillus*.**Actinocrinus plagosus** Miller and Gurley.1894. *Actinocrinus plagosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.

Hist., p. 16, pl. 2, figs. 5-6.

Burlington Group: Burlington, Iowa.

Actinocrinus planobasilis. See *Amphorocrinus divergens*.*Actinocrinus planodiscus*. See *Eutrochocrinus planodiscus*.*Actinocrinus proboscidualis*. See *Cactocrinus proboscidualis*.*Actinocrinus puteatus*. See *Cactocrinus lucina*.*Actinocrinus pyramidatus*. See *Agarocrinus pyramidatus*.*Actinocrinus pyriformis*. See *Lobocrinus pyriformis*.*Actinocrinus pyriformis* var. *rudis*. See *Lobocrinus pyriformis*.*Actinocrinus quadrispinus*. See *Amphorocrinus divergens*.*Actinocrinus quarternarius*. See *Cactocrinus proboscidualis*.*Actinocrinus quarternarius* var. *spiniferus*. See *Cactocrinus proboscidualis*.*Actinocrinus quinquelobus*. See *Dorycrinus quinquelobus*.*Actinocrinus ramulosus*. See *Eretmocrinus ramulosus*.*Actinocrinus regalis*. See *Strotocrinus regalis*.*Actinocrinus remibrachiatus*. See *Eretmocrinus remibrachiatus*.*Actinocrinus reticulatus*. See *Cactocrinus reticulatus*.*Actinocrinus rotundus*. See *Dizygocrinus rotundus*.*Actinocrinus rudis*. See *Teleiocrinus rudis*.*Actinocrinus rusticus*. See *Actinocrinus scitulus*.**Actinocrinus sampsoni** Miller and Gurley.1896. *Actinocrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.

Hist., p. 5, pl. 1, figs. 1-2.

Burlington Group: Sedalia, Missouri.

Actinocrinus scitulus Meek and Worthen.1860. *Actinocrinus scitulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 386.
Burlington L. S.: Cedar Creek, Warren County, Illinois.1861. *Actinocrinus Sillimani*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 134.

Burlington L. S.: Clear Creek, Warren County, Illinois.

1861. *Actinocrinus rusticus*. Hall, Desc. New Spec. Crin., p. 2.1861. *Actinocrinus rusticus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 267.
Burlington L. S.: Burlington, Iowa.1862. *Actinocrinus wachsmuthi*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 15.
Upper Burlington L. S.: Burlington, Iowa.1866. *Actinocrinus scitulus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 202,
pl. 15, figs. 7a-b.

Burlington L. S.: Burlington, Iowa.

Actinocrinus scitulus Meek and Worthen—Continued.

1893. *Actinocrinus rusticus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 10, pl. 1, fig. 13.
1894. *Actinocrinus scitulus*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.
Upper Burlington L. S.: Ste. Genevieve, Missouri.
1897. *Actinocrinus scitulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 559, pl. 55, figs. 5, 6a-b.
Upper Burlington L. S.: Burlington, Iowa.

Actinocrinus sculptus. See *Steganocrinus sculptus*.

Actinocrinus securis. See *Cactocrinus thetis*.

Actinocrinus sedaliensis Miller.

1892. *Actinocrinus sedaliensis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 16, pl. 3, figs. 1-3.
Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus sedaliensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 270, pl. 3, figs. 1-3.
Burlington Group: Sedalia, Missouri.

Actinocrinus senarius. See *Physetocrinus ornatus*.

Actinocrinus senectus Miller and Gurley.

1897. *Actinocrinus senectus*. Miller and Gurley, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 36, pl. 2, figs. 23-25.
Chouteau L. S.: Sedalia, Missouri.

Actinocrinus sexarmatus. See *Cactocrinus sexarmatus*.

Actinocrinus sillimani. See *Actinocrinus scitulus*.

Actinocrinus similis. See *Batocrinus mundulus*.

Actinocrinus sinuosus. See *Batocrinus laura* var. *sinuosus*.

Actinocrinus sobrinus Miller and Gurley.

1896. *Actinocrinus sobrinus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 10, pl. 3, figs. 4-5.
Burlington Group: Burlington, Iowa.

Actinocrinus speciosus. See *Strotocrinus regalis*.

Actinocrinus spectabilis Miller and Gurley.

1896. *Actinocrinus spectabilis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 9, pl. 3, fig. 3.
Burlington Group: Burlington, Iowa.

Actinocrinus spinobrachiatus. See *Amphoracrinus spinobrachiatus*.

Actinocrinus spinosulus. See *Aorocrinus spinosulus*.

Actinocrinus spinotentaculus. See *Cactocrinus cœlatus* var. *spinotentaculus*.

Actinocrinus steropes. See *Batocrinus steropes*.

Actinocrinus subaculeatus. See *Aorocrinus subaculeatus*.

Actinocrinus subæqualis. See *Batocrinus subæqualis*.

Actinocrinus subpulchellus Miller and Gurley.

1896. *Actinocrinus subpulchellus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 13, pl. 3, figs. 12-14.
Burlington Group: Burlington, Iowa.

Actinocrinus subrotundatus. See *Batocrinus subrotundatus*.

Actinocrinus subscitulus Miller and Gurley.

1896. *Actinocrinus subscitulus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 12, pl. 3, figs. 6-8.

Burlington Group: Burlington, Iowa.

Actinocrinus subturbatus. See *Dorycrinus subturbatus*.

Actinocrinus subumbrosus. See *Teleocrinus liratus*.

Actinocrinus subventricosus. See *Physetocrinus ventricosus*.

Actinocrinus superlatus. See *Megistocrinus evansii*.

Actinocrinus symmetricus. See *Aorocrinus parvus*.

Actinocrinus tenuidiscus. See *Periechocrinus tenuidiscus*.

Actinocrinus tenuiradiatus. See *Teleocrinus tenuiradiatus*.

Actinocrinus tenuisculptus McChesney.

1860. *Actinocrinus tenuisculptus*. McChesney, Desc. New Pal. Foss., p. 15.

Burlington L. S.: Columbia, Missouri.

1861. *Actinocrinus chloris*. Hall, Desc. New Spec. Crin., p. 3.

Burlington L. S.

1861. *Actinocrinus chloris*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 275.

Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus tenuisculptus*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 1a-b.

1868. *Actinocrinus tenuisculptus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 11, pl. 5, figs. 1a-b.

Burlington L. S.: Columbia, Missouri.

1894. *Actinocrinus tenuisculptus*. Keyes, Mo. Geol. Surv., vol. 4, p. 187.

Lower Burlington L. S.: Columbia, Missouri.

1897. *Actinocrinus tenuisculptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 571, pl. 55, figs. 4 a-b.

Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Actinocrinus thalia. See *Cactocrinus thalia*.

Actinocrinus themis. See *Cactocrinus proboscidalis*.

Actinocrinus thetis. See *Cactocrinus thetis*.

Actinocrinus thoas. See *Actinocrinus reticulatus*.

Actinocrinus tholus. See *Cactocrinus glans*.

Actinocrinus tricornis. See *Dorycrinus unicornis*.

Actinocrinus trijugis Miller.

1891. *Blairocrinus trijugis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 69, pl. 11, figs. 1-3.

Chouteau L. S.: Near Sedalia, Missouri.

1892. *Blairocrinus trijugis*. Miller, 17th Rep. Geol. Surv. Ind., p. 679, pl. 11, figs. 1-3.

Chouteau L. S.: Near Sedalia, Missouri.

1894. *Gennæocrinus trijugis*. Keyes, Mo. Geol. Surv., vol. 4, p. 174, pl. 23, figs. 3a-b.

Chouteau L. S.: Sedalia, Missouri.

1897. *Actinocrinus trijugis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 576, pl. 54, figs. 4a-b.

Chouteau L. S.: Near Sedalia, Missouri.

Actinocrinus trinodus. See *Dorycrinus parvus*.

Actinocrinus tuberculosus Wachsmuth and Springer.

1897. *Actinocrinus tuberculosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 573, pl. 52, figs. 8a-c.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Actinocrinus turbinatus. See *Batocrinus turbinatus*.

Actinocrinus turbinatus var. *elegans*. See *Batocrinus turbinatus*.

Actinocrinus umbrosus. See *Teleocrinus umbrosus*.

Actinocrinus unicarinatus Hall.

1860. *Actinocrinus unicarinatus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 48.

Keokuk L. S.: Nauvoo, Illinois.

Actinocrinus unicornus. See *Dorycrinus unicornis*.

Actinocrinus unispina. See *Dorycrinus unispina*.

Actinocrinus urnæformis. See *Macrocrinus konincki*.

Actinocrinus validus. See *Steganocrinus concinnus*.

Actinocrinus ventricosus. See *Physetocrinus ventricosus*.

Actinocrinus ventricosus var. *cancellatus*. See *Physetocrinus ventricosus*.

Actinocrinus ventricosus var. *internodius*. See *Physetocrinus ventricosus*.

Actinocrinus ventricosus var. *reticulatus*. See *Physetocrinus ventricosus*.

Actinocrinus verneuillianus. See *Macrocrinus verneuillianus*.

Actinocrinus verrucosus Hall.

1858. *Actinocrinus verrucosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 578, pl. 10, figs. 7a-b. Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus asterius*. McChesney, Desc. New Pal. Foss., p. 13.

Burlington L. S.: Monmouth, Illinois.

1865. *Actinocrinus asterius*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 6a-b.

1868. *Actinocrinus asterias*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 9, pl. 5, figs. 6a-b.

Burlington L. S.: Monmouth, Illinois.

1894. *Actinocrinus verrucosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 189, pl. 24, fig. 3.

Upper Burlington L. S.: Hannibal, Ash Grove, Ste. Genevieve, and Howard County, Missouri.

1897. *Actinocrinus verrucosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 558, pl. 52, figs. 2a-c.

Upper Burlington L. S.: Burlington, Iowa; Monmouth and Quincy, Illinois.

Actinocrinus viaticus White.

1874. *Actinocrinus viaticus*. White, Prelim. Rep. Inv. Foss., p. 16.

Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

1877. *Actinocrinus viaticus*. White, U. S. Geog. Surv. w. 100 Merid., vol. 4, p. 82, pl. 5, fig. 1.

Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

Actinocrinus viminalis. See *Amphorocrinus viminalis*.

Actinocrinus wachsmuthi. See *Batocrinus grandis* and *Actinocrinus scitulus*.

Actinocrinus whitei. See *Periechocrinus whitei*.

Actinocrinus yandelli. See *Lobocrinus yandelli*.

Actinocrinus (species undetermined).

1848. *Actinocrinites*. Christy, Letters on Geol., pl. 1, figs. 5-6.

Carboniferous Limestone: Oquawaka, Illinois.

1859. *Actinocrinus* sp. nobis. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28, p. 240.

Subcarboniferous: Quarries near Louisville and Nashville Railroad, Clear Creek, Hardin County, Kentucky.

ACTINOTRYPA Ulrich, 1890.**Actinotrypa peculiaris Rominger.**

1866. *Fistulipora peculiaris*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 123.

Keokuk L. S.: La Grange, Missouri.

1890. *Actinotrypa peculiaris*. Ulrich, Geol. Surv. Ill., vol. 8, p. 503, pl. 77, figs. 3, 3a-5.

Keokuk L. S.: Keokuk, Iowa; La Grange, Missouri; Warsaw and Nauvoo, Illinois.

1894. *Actinotrypa peculiaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 18, pl. 34, fig. 6.

Keokuk L. S.: La Grange, Missouri; Keokuk, Iowa.

ADIPHELEBIA Scudder, 1885.**Adiphelebia lacoana Scudder.**

1885. *Adiphelebia lacoana*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 345, pl. 32, fig. 6.

Carboniferous: Mazon Creek, Illinois.

1890. *Adiphelebia lacoana*. Scudder, Foss. Insc. N. A., vol. 1, p. 309, pl. 18, fig. 6.

Carboniferous: Mazon Creek, Illinois.

(ÆSIOCRINUS Miller and Gurley, 1890.)

Æsiocrinus angulatus. See *Phialocrinus angulatus*.

Æsiocrinus basilicus. See *Phialocrinus basilicus*.

Æsiocrinus harii. See *Phialocrinus harii*.

Æsiocrinus lykinsi. See *Phialocrinus lykinsi*.

Æsiocrinus magnificus. See *Phialocrinus magnificus*.

ÆTHOPHELEBIA Scudder, 1885.**Æthophelebia singularis Scudder.**

1885. *Æthophelebia singularis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 338, pl. 31, fig. 9.

Carboniferous: Mazon Creek, Illinois.

1890. *Æthophelebia singularis*. Scudder, Foss. Insc. N. A., vol. 1, p. 302, pl. 17, fig. 9.

Carboniferous: Mazon Creek, Illinois.

AGANASTER Miller and Gurley, 1890.**Aganaster gregarius Meek and Worthen.**

1869. *Protaster? gregarius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 169.

Keokuk Group: Crawfordsville, Indiana.

1873. *Protaster? gregarius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 509, pl. 16, fig. 5.

Keokuk Group: Crawfordsville, Indiana.

1890. *Aganaster gregarius*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 372, pl. 9, figs. 10-11.

Aganaster (species undetermined).

1890. *Aganaster?* sp. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 372, pl. 9, figs. 12-13.

AGARICOCRINUS Troost, 1850.**Agaricocrinus adamsensis Miller and Gurley.**

1896. *Agaricocrinus adamsensis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 24, pl. 1, figs. 7-9.
Burlington Group: Adams County, Illinois.

Agaricocrinus americanus Roemer.

- *1855. *Amphoracrinus americanus*. Roemer, Lethaea. Geog., Aug. 3, p. 250, pl. 41, figs. 15a-b.
1881. *Agaricocrinus americanus*. Wachsmuth and Springer, Rev. Palaeocr., pt. 3, p. 111.
1890. *Agaricocrinus americanus*. Gordon, Am. Geol., vol. 5, p. 261, figs. 2-5.
Keokuk Group.
1890. *Agaricocrinus americanus*. Gordon, Proc. Iowa Acad. Sci., vol. 1, pt. 1, p. 101.
Keokuk L. S.
1891. *Agaricocrinus dissimilis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 55, pl. 8, fig. 11.
Keokuk Group: Allen County, Kentucky.
1892. *Agaricocrinus dissimilis*. Miller, 17th Rep. Geol. Surv. Ind., p. 665, pl. 8, fig. 11.
Keokuk Group: Allen County, Kentucky.
1894. *Agaricocrinus americanus*. Keyes, Mo. Geol. Surv., vol. 4, p. 168, pl. 22, figs. 8a-b.
Keokuk L. S.; Wayland, Missouri.
1897. *Agaricocrinus americanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 488, pl. 42, figs. 1, 2a-b.
Keokuk Group: White's Creek, near Nashville, Tennessee; Pilot Knob, near Louisville, Kentucky.

Agaricocrinus americanus var. tuberosus Hall.

1858. *Agaricocrinus tuberosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 617, pl. 16, figs. 2a-c.
Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois; White Creek Springs, Tennessee.
1897. *Agaricocrinus americanus* var. *tuberosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 489, pl. 40, fig. 6; pl. 42, fig. 4.
Keokuk Group: Keokuk, Iowa; Hamilton, Nauvoo and Niota, Illinois.

Agaricocrinus arcula Miller and Gurley.

1895. *Agaricocrinus arcula*. Miller and Gurley, Bull. No. 6. Ill. State Mus. Nat. Hist., p. 30, pl. 3, figs. 7-8.
Keokuk Group: Tennessee.

Agaricocrinus bellatrema. See Agaricocrinus ornotrema.**Agaricocrinus bellatrema var. major. See Agaricocrinus ornotrema var. major.****Agaricocrinus blairi. See Agaricocrinus planoconvexus.****Agaricocrinus brevis Hall.**

1858. *Actinocrinus brevis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 567, pl. 10, figs. 3a-b.
Burlington L. S.: Burlington, Iowa.
1858. *Actinocrinus corniculus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 566, pl. 10, figs. 1a-c.
Burlington L. S.: Burlington, Iowa.

Agaricocrinus brevis Hall—Continued.

1860. *Actinocrinus brevis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 3.
 1860. *Actinocrinus corniculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 2.
 1894. *Agaricocrinus brevis*. Keyes, Mo. Geol. Surv., vol. 4, p. 167.
 Lower Burlington L. S.: Louisiana and Hannibal, Missouri; Kinderhook,
 Illinois; Burlington, Iowa.
 1897. *Agaricocrinus brevis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 511,
 pl. 38, figs. 2a-c.
 Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Agaricocrinus bullatus Hall.

1858. *Agaricocrinus bullatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 562, pl. 9, figs.
 11a-b.
 Burlington L. S.: Burlington, Iowa.
 1860. *Agaricocrinus pentagonus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 57.
 Burlington L. S.: Burlington, Iowa.
 1893. *Agaricocrinus pentagonus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p.
 25, pl. 2, figs. 17, 18.
 Burlington L. S.: Burlington, Iowa.
 1894. *Agaricocrinus pentagonus*. Keyes, Mo. Geol. Surv., vol. 4, p. 167, pl. 22, fig. 9.
 Upper Burlington L. S.: Ash Grove and Ste. Genevieve, Missouri.
 1897. *Agaricocrinus bullatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 493,
 pl. 41, figs. 2a-d.
 Upper Burlington L. S.: Burlington, Iowa.

Agaricocrinus chouteauensis Miller.

1892. *Agaricocrinus chouteauensis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind.,
 p. 43, pl. 7, figs. 11-13.
 Chouteau L. S.: Sedalia, Missouri.
 1894. *Agaricocrinus chouteauensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 297, pl. 7,
 figs. 11-13.
 Chouteau L. S.: Sedalia, Missouri.

Agaricocrinus conicus Wachsmuth and Springer.

1897. *Agaricocrinus conicus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 501,
 pl. 39, figs. 7-8.
 Keokuk Group: Indian Creek, Montgomery County, Indiana.

Agaricocrinus convexus Hall.

1860. *Agaricocrinus pentagonus* var. *convexus*. Supp. vol. 1, pt. 2, Geol. Rep. Iowa,
 p. 58.
 1872. *Agaricocrinus pentagonus* var. *convexus*. Hall, Photo. Plates of Crinoids, pl.
 4, figs. 14-17.
 1897. *Agaricocrinus convexus*. Wachsmuth and Springer, N. Am. Crin. Cam., p.
 508, pl. 38, figs. 1a-b.
 Upper Burlington L. S.: Burlington, Iowa.

Agaricocrinus coreyi Lyon and Casseday.

1860. *Actinocrinus Coreyi*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 76.
 Subcarboniferous L. S.: Hardin and Allen counties, Kentucky; Washing-
 ton County, Indiana.
 1882. *Agaricocrinus springeri*. White, 11th Rep. Geol. Surv. Ind., p. 362, pl. 40,
 figs. 2-4.
 Keokuk or Burlington Group: Clinton, Vermilion County, Indiana, in
 "terrace drift."
 1897. *Agaricocrinus Coreyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 510,
 pl. 39, figs. 1a-b.
 Keokuk Group: Hardin and Allen counties, Kentucky; Vermilion County,
 Indiana.

Agaricocrinus corrugatus. See *Agaricocrinus pyramidatus*.

***Agaricocrinus crassus* Wetherby.**

1881. *Agaricocrinus crassus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 178, pl. 5, figs. 1-1b.

Keokuk Group: Tennessee.

1897. *Agaricocrinus crassus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 499, pl. 39, figs. 2 a, b; pl. 40, fig. 4.

Keokuk Group: Keokuk, Iowa; Barren and Metcalfe counties, Kentucky; White's Creek, Tennessee; Indian Creek, Montgomery County, Indiana.

Agaricocrinus decornis. See *Agaricocrinus planconvexus*.

Agaricocrinus dissimilis. See *Agaricocrinus americanus*.

***Agaricocrinus elegans* Wetherby.**

1881. *Agaricocrinus elegans*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 179, pl. 5, figs. 4-4b.

Keokuk Group: Tennessee.

1897. *Agaricocrinus elegans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 500, pl. 40, figs. 3a-b.

Keokuk Group: Keokuk, Iowa; Niota, Illinois.

Agaricocrinus eris. See *Aorocrinus helice*.

***Agaricocrinus excavatus* Hall.**

1861. *Agaricocrinus excavatus*. Hall, Desc. New Spec. Crin., p. 3. Burlington L. S.

1861. *Agaricocrinus (Amphoracrinus) excavatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 282.

Upper Burlington L. S.: Brush Creek and Flint River, Iowa.

1893. *Agaricocrinus excavatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 26, pl. 2, figs. 14-16.

Upper Burlington L. S.: Brush Creek and Flint River, Iowa.

1897. *Agaricocrinus excavatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 491, pl. 39, figs. 3-5.

Upper Burlington L. S.: Burlington, Augusta, and Pleasant Grove, Iowa.

***Agaricocrinus fiscellus* Hall.**

1861. *Actinocrinus fiscellus*. Hall, Desc. New Spec. Crin., p. 2. Burlington L. S.

1861. *Actinocrinus fiscellus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 272. Burlington L. S.: Burlington, Iowa.

1897. *Agaricocrinus fiscellus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 512, pl. 38, figs. 3a-c.

Lower Burlington L. S.: Burlington, Iowa, Southern Missonri.

Agaricocrinus geometricus. See *Agaricocrinus stellatus*.

***Agaricocrinus germanus* Miller.**

1892. *Agaricocrinus germanus*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 42, pl. 7, figs. 8-10.

Chouteau L. S.: Sedalia, Missouri.

1894. *Agaricocrinus germanus*. Miller, 18th Rep. Geol. Surv. Ind., p. 296, pl. 7, figs. 8-10.

Chouteau L. S.: Sedalia, Missouri.

Agaricocrinus gorbyi. See *Agaricocrinus splendens*.

***Agaricocrinus gracilis* Meek and Worthen.**

1861. *Agaricocrinus gracilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 135.

Burlington L. S.: Burlington, Iowa.

Agaricocrinus gracilis Meek and Worthen—Continued.

1897. *Agaricocrinus gracilis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 513, pl. 41, figs. 3a-c.
Upper Burlington L. S.: Burlington, Iowa.

Agaricocrinus helice. See Aorocrinus helice.**Agaricocrinus hodgsoni Miller and Gurley.**

1896. *Agaricocrinus hodgsoni*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 23, pl. 1, figs. 17-20.
Burlington Group: Adams County, Illinois.

Agaricocrinus illinoisensis Miller and Gurley.

1896. *Agaricocrinus illinoisensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 25, pl. 1, figs. 21-23.
Burlington Group: Adams County, Illinois.

Agaricocrinus indianensis. See Agaricocrinus splendens.**Agaricocrinus inflatus Hall.**

1861. *Agaricocrinus inflatus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Agaricocrinus (Amphorocrinus) inflatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol., 7, p. 284.
Burlington L. S.: Burlington, Iowa.
1897. *Agaricocrinus inflatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 502, pl. 41, figs. 1a-d.
Upper Burlington L. S.: Burlington, Iowa.

Agaricocrinus iowensis Miller and Gurley.

1897. *Agaricocrinus iowensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1-3.
Keokuk Group: Keokuk, Iowa.

Agaricocrinus keokukensis Miller and Gurley.

1897. *Agaricocrinus keokukensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 4-6.
Keokuk Group: Keokuk, Iowa.

Agaricocrinus macadamsi. See Agaricocrinus nodulosus var. macadamsi.**Agaricocrinus nodosus Meek and Worthen.**

1869. *Agaricocrinus nodosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 167.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Agaricocrinus nodosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 397, pl. 10, fig. 7.
Burlington L. S.: Burlington, Iowa.
1897. *Agaricocrinus nodosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 493, pl. 43, fig. 9.
Upper Burlington L. S.: Pleasant Grove, Iowa.

Agaricocrinus nodulosus Worthen.

1890. *Agaricocrinus nodulosus*. Worthen, Geol. Surv. Ill., vol. 8, p. 94, pl. 13, figs. 1-1a.
Keokuk L. S.: Keokuk, Iowa.
1897. *Agaricocrinus nodulosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 497, pl. 40, fig. 2, pl. 43, figs. 7a-b.
Keokuk Group: Keokuk, Iowa; Jersey County, Illinois; Montgomery County, Indiana; White's Creek, Tennessee; Canton, Indiana.

Agaricocrinus nodulosus var. macadamsi Worthen.

1890. *Agaricocrinus macadamsi*. Worthen, Geol. Surv. Ill., vol. 8, p. 94, pl. 13, figs. 2-2a.

Keokuk L. S.: Jersey County, Illinois.

1897. *Agaricocrinus nodulosus* var. *macadamsi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 498, pl. 39, fig. 6.

Keokuk Group: Hamilton, Illinois; Keokuk, Iowa; Montgomery County, Indiana.

Agaricocrinus ornotrema Hall.

1861. *Agaricocrinus ornotrema*. Hall, Desc. New Spec. Crin., p. 3.

Burlington L. S.

1861. *Agaricocrinus* (*Amphorocrinus*) *bellatrema*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 281.

Burlington L. S.: Burlington, Iowa.

1893. *Agaricocrinus ornotrema*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 24, pl. 2, figs. 19-22.

Burlington L. S.

1897. *Agaricocrinus bellatrema*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 506, pl. 41, figs. 4a-d.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Agaricocrinus ornotrema var. major Wachsmuth and Springer.

1897. *Agaricocrinus bellatrema* var. *major*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 507, pl. 41, fig. 5.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Agaricocrinus pentagonus*. See *Agaricocrinus bullatus*.**Agaricocrinus pentagonus* var. *convexus*. See *Agaricocrinus convexus*.****Agaricocrinus planoconvexus Hall.**

1861. *Agaricocrinus planoconvexus*. Hall, Desc. New Spec. Crin., p. 3.

Burlington L. S.

1861. *Agaricocrinus* (*Amphorocrinus*) *planoconvexus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 280.

Burlington L. S.: Burlington, Iowa.

1891. *Agaricocrinus decornis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 117, pl. 3, fig. 10.

Lower Burlington L. S.: Louisiana, Missouri.

1892. *Agaricocrinus blairi*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 21, pl. 3, figs. 12-14.

Chouteau L. S.: Sedalia, Missouri.

1894. *Agaricocrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 27, pl. 3, figs. 12-14.

Chouteau L. S.: Sedalia, Missouri.

1894. *Agaricocrinus planoconvexus*. Keyes, Mo. Geol. Surv., vol. 4, p. 167, pl. 22, figs. 7a, b.

Kinderhook L. S.: Sedalia, Missouri.

Lower Burlington L. S.: Hannibal, Missouri.

1897. *Agaricocrinus planoconvexus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 503, pl. 38, figs. 6a-c.

Lower Burlington L. S.: Burlington, Iowa.

Agaricocrinus profundus Miller and Gurley.

1895. *Agaricocrinus profundus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 26, pl. 3, figs. 1-3.

Keokuk Group: Tennessee.

Agaricocrinus pyramidatus Hall.

1858. *Actinocrinus pyramidatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 565.
Burlington L. S.: Burlington, Iowa.
1861. *Agaricocrinus corrugatus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Agaricocrinus (Amphoracrinus) corrugatus*. Hall, Jour. Bost. Soc. Nat. Hist.,
vol. 7, p. 283.
Burlington L. S.: Burlington, Iowa.
1893. *Agaricocrinus pyramidatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1,
p. 23, pl. 2, figs. 23-25.
Burlington L. S.: Burlington, Iowa.
1897. *Agaricocrinus pyramidatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 512, pl. 38, figs. 4a-c, 5a-c.
Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Agaricocrinus sampsoni Miller.

1892. *Agaricocrinus sampsoni*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind.,
p. 20, pl. 3, fig. 8.
Chouteau L. S.: Near Chouteau Springs, Missouri.
1894. *Agaricocrinus sampsoni*. Miller, 18th Rep. Geol. Surv. Ind., p. 274, pl. 3,
fig. 8.
Chouteau L. S.: Near Chouteau Springs, Missouri.
1897. *Agaricocrinus Sampsoni*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 505, pl. 46, fig. 5.
Chouteau L. S.: Near Chouteau Springs, Missouri.

Agaricocrinus splendens Miller and Gurley.

1890. *Agaricocrinus splendens*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist.,
vol. 13, p. 18, pl. 4, figs. 1, 2.
Keokuk Group: Crawford ville, Indiana.
1890. *Agaricocrinus splendens*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p.
340, pl. 4, figs. 1, 2.
Keokuk Group: Crawfordsville, Indiana.
1891. *Agaricocrinus indianensis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind.,
p. 53, pl. 8, fig. 5.
Keokuk Group: Washington County, Indiana.
1891. *Agaricocrinus gorbyi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p.
54, pl. 8, fig. 9.
Keokuk Group: Indian Creek, Montgomery County, Indiana.
1891. *Agaricocrinus splendens*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind.,
p. 55, pl. 8, fig. 10.
Keokuk Group: Crawfordsville, Ind.
1892. *Agaricocrinus indianensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 663, pl. 8,
fig. 5.
Keokuk Group: Washington County, Indiana.
1892. *Agaricocrinus gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 664, pl. 8, fig. 9.
Keokuk Group: Indian Creek, Montgomery County, Indiana.
1892. *Agaricocrinus splendens*. Miller, 17th Rep. Geol. Surv. Ind., p. 665, pl. 8,
fig. 10.
Keokuk Group: Crawfordsville, Indiana.
1897. *Agaricocrinus splendens*. Wachsmuth and Springer, N. Am. Crin. Cam., p.
495, pl. 40, figs. 1a-c.
Keokuk Group: Indian Creek, Montgomery County, Indiana.

Agaricocrinus springeri. See *Agaricocrinus coreyi*.

Agaricocrinus stellatus Hall.

1858. *Agaricocrinus stellatus*. Hall, Geol. Iowa., vol. 1, pt. 2, p. 564.
Burlington L. S.: Quincy, Illinois.
1860. *Agaricocrinus geometricus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 56.
Burlington L. S.: Quincy, Illinois.
1897. *Agaricocrinus stellatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 508, pl. 38, figs. 7a-e.
Upper Burlington L. S.: Burlington, Iowa; Illinois; Missouri.

Agaricocrinus tuberosus. See *Agaricocrinus americanus* var. *tuberosus*.

Agaricocrinus tugurium Miller and Gurley.

1895. *Agaricocrinus tugurium*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 28, pl. 3, figs. 4-6.
Keokuk Group: Boone County, Kentucky.

Agaricocrinus whitfieldi Hall.

1858. *Agaricocrinus whitfieldi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 621.
Keokuk L. S.: Greene County, Illinois.
1860. *Agaricocrinus whitfieldi*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 3, fig. 5.
1873. *Agaricocrinus Whitfieldi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 499, pl. 12, figs. 1a, b, pl. 15, fig. 8.
Keokuk Group: Greene County, Illinois.
1897. *Agaricocrinus Whitfieldi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 496, pl. 42, fig. 3, pl. 43, figs. 8a, b.
Keokuk Group: Greene County, Illinois; Keokuk, Iowa.

Agaricocrinus wortheni Hall.

1858. *Agaricocrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 619, pl. 16, fig. 1.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1890. *Agaricocrinus wortheni*. Gordon, Am. Geol., vol. 5, p. 260, fig. 1.
Keokuk Group.
1894. *Agaricocrinus wortheni*. Keyes, Mo. Geol. Surv. vol. 4, p. 168.
Keokuk L. S.: Wayland, Missouri; Keokuk, Iowa.
1897. *Agaricocrinus wortheni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 490, pl. 39, fig. 9, pl. 40, figs. 5a-d.
Keokuk Group: Keokuk, Iowa; Hamilton, Illinois.

AGASSIZOCRINUS Troost, 1850.**Agassizocrinus carbonarius Worthen.**

1873. *Agassizocrinus carbonarius*. Worthen, Geol. Surv. Ill., vol. 5, p. 566, pl. 24, fig. 4.
Upper Coal Measures: Shelby County, Illinois.

Agassizocrinus chesterensis Worthen.

1873. *Agassizocrinus Chesterensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 558, pl. 21, fig. 9.
Chester L. S.: Chester, Illinois.

Agassizocrinus conicus Owen and Shumard.

1852. *Agassizocrinus conicus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 93, pl. 11, fig. 6.
Subcarboniferous L. S.: Chester, Illinois.
1852. *Agassizocrinus conicus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 597, Tab. 5B, fig. 6.
Subcarboniferous L. S.: Chester, Illinois.
1873. *Agassizocrinus conicus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 557, pl. 21, fig. 8.
Chester Group: Chester, Illinois.

Agassizocrinus constrictus Hall.

1858. *Agassizocrinus constrictus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 687, pl. 25, fig. 10.
Kaskaskia L. S.: Chester, Illinois.

Agassizocrinus dactyliformis Shumard.

1854. *Agassizocrinus dactyliformis*. Shumard, Marcy's Expl. Red River of Louis., p. 173, pl. 1, fig. 7.
Carboniferous: Washington County, Arkansas.
1873. *Agassizocrinus dactyliformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 21, figs. 7a, b.
Chester Group.
1894. *Agassizocrinus dactyliformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 221.
Kaskaskia L. S.: Chester, Illinois.

Agassizocrinus gibbosus Hall.

1858. *Agassizocrinus gibbosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 686, pl. 25, figs. 6-6b.
Kaskaskia L. S.: Chester, Illinois.
1873. *Agassizocrinus gibbosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 558, pl. 21, fig. 11.
Chester Group: Chester, Illinois.

Agassizocrinus globosus. See *Cromyocrinus globosus*.

Agassizocrinus hemisphericus. See *Cromyocrinus hemisphericus*.

Agassizocrinus lævis Roemer.

- *1855. *Astylocrinus lævis*. Roemer, Lethæa. Geog., Aug. 3, p. 229, pl. 4, fig. 13.

Agassizocrinus occidentalis Owen and Shumard.

1852. *Poteriocrinus occidentalis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 92, pl. 11, figs. 5a, b.
Carboniferous L. S.: Chester, Illinois.
1852. *Poteriocrinus occidentalis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 596, Tab. 5B, figs. 5a, b.
Carboniferous L. S.: Chester, Illinois.

Agassizocrinus ovalis Miller and Gurley.

1896. *Agassizocrinus ovalis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 36, pl. 2, figs. 13, 14.
Kaskaskia Group: Randolph County, Illinois.

Agassizocrinus papillatus. See *Cromyocrinus papillatus*.

Agassizocrinus pentagonus Worthen.

1873. *Agassizocrinus pentagonus*. Worthen, Geol. Surv. Ill., vol. 5, p. 556, pl. 21, fig. 10.
Chester Group: Chester, Illinois.

Agassizocrinus tumidus Owen and Shumard.

1852. *Poteriocrinus tumidus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 90, pl. 11, figs. 3a, b.
Carboniferous L. S.: Chester, Illinois.
1852. *Poteriocrinus tumidis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 595, Tab. 5B, figs. 3a, b.
Carboniferous L. S.: Chester, Illinois.

AGELACRINUS Vanuxem, 1842.**Agelacrinus blairi Miller.**

1892. *Agelacrinus blairi*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 12, pl. 2, fig. 9.
Keokuk Group: Boonville, Missouri.

Agelacrinus blairi Miller—Continued.

1894. *Agelacrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 266, pl. 2, fig 9.
Keokuk Group: Boonville, Missouri.

Agelacrinus kaskaskiensis. See *Echinodiscus kaskaskiensis*.

Agelacrinus legrandensis Miller and Gurley.

1894. *Agelacrinus legrandensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 15, pl. 3, figs. 13, 14.
Kinderhook Group: Legrand, Iowa.

Agelacrinus pulaskiensis Miller and Gurley.

1894. *Agelacrinus pulaskiensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 16, pl. 3, fig. 18.
Kaskaskia Group: Pulaski County, Kentucky.

Agelacrinus squamosus Meek and Worthen.

1868. *Agelacrinites (Lepidodiscus) squamosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 357.
Keokuk Group: Crawfordsville, Indiana.
1873. *Agelacrinites (Lepidodiscus) squamosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 513, pl. 16, fig 1.
Keokuk Group: Crawfordsville, Indiana.

ALLAGECRINUS Etheridge and Carpenter, 1881.**Allagecrinus carpenteri** Wachsmuth.

1882. *Allagecrinus carpenteri*. Wachsmuth, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 40.
Chester or Kaskaskia L. S.: Monroe County, Illinois.
1883. *Allagecrinus Carpenteri*. Wachsmuth, Geol. Surv. Ill., vol. 7, p. 341, pl. 29, fig. 14.
Chester L. S.: Monroe County, Illinois.

Allagecrinus americanus Rowley.

1895. *Allagecrinus americanus*. Rowley, Am. Geol., vol. 16, p. 219, figs. 3-10.
Louisiana L. S.: Louisiana, Missouri.

ALLOPROSALLOCRINUS Lyon and Casseday, 1860.**Alloprosallocrinus celsus** Miller and Gurley.

1894. *Alloprosallocrinus celsus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 47, pl. 4, figs. 9-11.
Warsaw Group: Tennessee.

Alloprosallocrinus conicus Lyon and Casseday.

1860. *Alloprosallocrinus conicus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 29.
Top of the Knobstone: Clear Creek, Hardin County, also near Scottville, Allen County, Kentucky.
1891. *Alloprosallocrinus gurleyi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 58, pl. 10, figs. 1, 2.
Keokuk or Warsaw Group: Brown County, Kentucky.
1892. *Alloprosallocrinus gurleyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 668, pl. 10, figs. 1, 2.
Keokuk or Warsaw Group: Brown County, Kentucky.
1897. *Alloprosallocrinus conicus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 407, pl. 42, figs. 14a-c.
Keokuk Group: Pilot Knob, near Louisville, Kentucky; White's Creek, near Nashville, Tennessee; New Ross, Montgomery County, Indiana.

***Alloprosallocrinus depressus* Lyon and Casseday.**

1860. *Alloprosallocrinus depressus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 31.

Subcarboniferous: Clear Creek, Hardin County, Kentucky.

Alloprosallocrinus gurleyi. See *Alloprosallocrinus conicus*.

ALLORISMA King, 1844.

Allorisma altirostrata. See *Sedgwickia altirostrata*.

***Allorisma andrewsi* Whitfield.**

1882. *Allorisma Andrewsii*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 222.
Maxville L. S.: Newtonville, Ohio.
1888. *Allorisma Andrewsii*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 12.
Chester L. S.: Ohio.
1891. *Allorisma Andrewsii*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 588, pl. 14,
fig. 6.
Maxville, L. S.: Newtonville, Ohio.
1895. *Allorisma Andrewsii*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 475, pl. 10, fig. 6.
Maxville L. S.: Newtonville, Ohio.

***Allorisma antiquum* Swallow.**

1863. *Allorisma antiqua*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 95.
Kaskaskia L. S.: Illinois and Missouri.
1894. *Allorisma antiqua*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.
Keokuk, L. S.: Ste. Genevieve, Missouri.

***Allorisma arkansana* Weller.**

1897. *Allorisma arkansana*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 265, pl. 20,
figs. 4, 5.
Batesville S. S.: Batesville, Arkansas.

***Allorisma capax* Newberry.**

1861. *Allorisma capax*. Newberry, Ives's Colo. Expl. Exped., p. 120, pl. 1, figs. 9-9a.
Upper Carboniferous or Permian L. S.: Agua Azul, near the base of Mount
Taylor.

***Allorisma clavatum* McChesney.**

1860. *Allorisma clavata*. McChesney, Desc. New Pal. Foss., p. 56.
Kaskaskia L. S.: Chester, Illinois.
1865. *Allorisma (Sanguinaria) clavata*. McChesney, Ill. New Spec. Foss., pl. 6,
figs. 9a-b.
1868. *Allorisma clavata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 43, pl. 6,
figs. 9a, b.
Chester L. S.: Chester, Illinois.

***Allorisma consanguinatum* Herrick.**

1888. *Allorisma consanguinatus*. Herrick, Bull. Den. Univ., vol. 4, p. 29, pl. 11,
fig. 13.
Waverly Group: Ohio.

***Allorisma convexa* Herrick.**

1888. *Allorisma convexa*. Herrick, Bull. Den. Univ., vol. 3, p. 74, pl. 12, fig. 27.
Waverly Group: Licking County, Ohio.
1895. *Allorisma convexa*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 19.
Middle Waverly Group: Licking County, Ohio.

Allorisma cooperi Meek and Hayden. See *Chænomya cooperi*.

***Allorisma cooperi* Herrick.**

1888. *Allorisma cooperii*. Herrick, Bull. Den. Univ., vol. 3, p. 72, pl. 6, fig. 10.
Waverly Group: Licking County, Ohio.

Allorisma costatum Meek and Worthen.

1869. *Allorisma costata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 171.
Lower Coal Measures: Warren County, Illinois.
1873. *Allorisma costata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 585, pl. 26, fig. 15.
Coal Measures: Warren County, Illinois.
1875. *Allorisma costata*. Meek, Pal. Ohio, vol. 2, p. 344, pl. 19, figs. 6a, b.
Coal Measures: Greentown, Starke County, Ohio; Illinois; Iowa.
1887. *Allorisma costata*. Herrick, Bull. Den. Univ., vol. 2, p. 33, pl. 3, fig. 7; pl. 4, fig. 28; p. 146, pl. 14, fig. 25.
Coal Measures: Flint Ridge, Ohio.
1894. *Allorisma costata*. Keyes, Mo. Geol. Surv., vol. 5, p. 128, pl. 46, fig. 12.
Upper Coal Measures: Kansas City, Missouri.

Allorisma cuneatum Swallow.

1858. *Allorisma cuneata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 210.
Middle Coal Measures: Near Lexington, Missouri.

Allorisma curtum Swallow.

1858. *Allorisma* (?) *curta*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 194.
Permian: Near Council Grove, Kansas.

Allorisma cuyahoga Herrick.

1888. *Allorisma cuyahoga*. Herrick, Bull. Den. Univ., vol. 4, p. 28, pl. 10, fig. 34.
Waverly Group: Cuyahoga River, Ohio.
1895. *Allorisma cuyahoga*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 17.
Near base of Cuyahoga Shale, lower falls of Cuyahoga River, Ohio.

Allorisma elegans. See *Allorisma geinitzi*.**Allorisma elongatum** Morton.

1836. *Pholadomya elongata*. Morton, Am. Jour. Sci. (1), vol. 29, p. 153, pl. 26, fig. 37.
Coal Measures: Ohio Valley.

Allorisma elongatum Worthen. See *Allorisma worthenianum*.*Allorisma ensiforme*. See *Allorisma subcuneatum*.**Allorisma geinitzi** Meek.

1866. *Allorisma elegans*. Geinitz, Carb. und Dyas in Nebr., p. 13, tab. 1, fig. 31.
(not *A. elegans* King, 1844.)
Nebraska City, Nebraska.
1872. *Allorisma* (*Sedgwickia*) *Geinitzii*. Meek, U. S. Geol. Surv. Nebr., p. 219, pl. 10, figs. 16a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Upper Middle and Lower Coal Measures: Illinois.
1873. *Allorisma Geinitzii*. Meek, Geol. Surv. Ill., vol. 5, p. 586, pl. 26, fig. 23.
Coal Measures: Knox County, Illinois.
1887. *Allorisma Geinitzii*. Herrick, Bull. Den. Univ., vol. 2, p. 33, pl. 4, fig. 27.
Coal Measures: Flint Ridge, Ohio.

Allorisma gilberti White.

1879. *Allorisma* ? *gilberti*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 217.
Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of Pipe Spring.
1880. *Allorisma* ? *gilberti*. White, Cont. to Inv. Pal., No. 6, p. 137, pl. 33, figs. 9a, b.
Upper Carboniferous: Wild Band Pockets, Northern Arizona, 15 miles south from Pipe Spring.

Allorisma granosum Shumard.

1858. *Leptodomus granosus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 207.
Upper Coal Measures: Valley of Verdigris River, Kansas.
1872. *Allorisma (Sedgwickia) granosa*. Meek, U. S. Geol. Surv. Nebr., p. 220, pl. 2, fig. 8.
Upper Coal Measures: Rock Bluff, Nebraska; Verdigris River, Kansas.
1894. *Allorisma granosum*. Keyes, Mo. Geol. Surv., vol. 5, p. 128.
Upper Coal Measures: Kansas City, Missouri.

Allorisma hannibalense. See *Grammysia hannibalensis*.

Allorisma hybridum Meek and Worthen.

1865. *Chaenomya? hybrida*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 250.
Keokuk Group: Nauvoo, Illinois.
1868. *Allorisma (Chaenomya?) hybrida*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 538, pl. 19, fig. 3a.
Keokuk Group: Nauvoo, Illinois.

Allorisma illinoiense Worthen.

1884. *Allorisma illinoiense*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 11.
Keokuk L. S.: Warsaw, Illinois.
1890. *Allorisma illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 132, pl. 18, figs. 1, 1a.
Keokuk L. S.: Warsaw, Illinois.

Allorisma lanceolatum Swallow.

1858. *Allorisma lanceolata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 194.
Permian: Valley of Cottonwood, Kansas.

Allorisma latum Swallow.

1858. *Allorisma lata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 210.
Middle Coal Measures: Near Lexington, Missouri.

Allorisma leavenworthense. See *Chaenomya leavenworthensis*.

Allorisma marionense White.

1876. *Allorisma marionensis*. White, Proc. Acad. Nat. Sci. Phil., p. 31.
St. Louis L. S.: Marion and Mahaska counties, Iowa.
1880. *Allorisma marionensis*. White, Cont. to Inv. Pal., No. 8, p. 167, pl. 41, figs. 3a, b.
St. Louis Group: Marion and Mahaska counties, Iowa.
1894. *Allorisma marionensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.
St. Louis L. S.: St. Louis, Missouri.

Allorisma maxvillense Whitfield.

1882. *Allorisma Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 222.
Maxville L. S.: Newtonville, Ohio.
1891. *Allorisma Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 588, pl. 14, figs. 7, 8.
Maxville L. S.: Newtonville, Ohio.
1895. *Allorisma Maxvillensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 475, pl. 10, figs. 7, 8.
Maxville L. S.: Newtonville, Ohio.

Allorisma minnehaha. See *Chaenomya minnehaha*.

Allorisma nobilis. See *Sanguinolites nobilis*.

Allorisma pleuropistha Meek.

1871. *Allorisma (Sedgwickia?) pleuropistha*. Meek, Proc. Acad. Nat. Sci. Phil., p. 70.
Waverly Group: Rushville, Ohio.

Allorisma pleuropistha Meek—Continued.

1875. *Allorisma (Cercomyopsis) pleuropistha*. Meek, Pal. Ohio, vol. 2, p. 309, pl. 13, figs. 4a-c.

Waverly Group: Rushville, Ohio.

Allorisma reflexum Meek.

1872. *Allorisma (Sedgwickia) reflexa*. Meek, U. S. Geol. Surv. Nebr., p. 217, pl. 10, fig. 15.

Upper Coal Measures: Nebraska City, Nebraska; Illinois.

Lower Coal Measures: Illinois.

Allorisma regularis*. See *Allorisma subcuneata*.*Allorisma sinuatum McChesney.**

1860. *Allorisma sinuata*. McChesney, Desc. New Pal. Foss., p. 56.

Kaskaskia L. S.: Kaskaskia and Chester, Illinois.

1865. *Allorisma (Sanguinaria) sinuata*. McChesney, Ill., New Spec. Foss., pl. 6, figs. 8a-b.

1868. *Allorisma sinuata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 44, pl. 6, figs. 8a, b.

Chester L. S.: Kaskaskia and Chester, Illinois.

1873. *Allorisma sinuata?* Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 22, figs. 2a, b.

St. Louis Group.

Allorisma subcuneatum Meek and Hayden.

1852. *Allorisma regularis?* Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 13.
Carboniferous: Missouri River at Wayne City.

1858. *Allorisma subcuneata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 263.
Upper Coal Measures: Leavenworth, Kansas.

1860. *Allorisma ensiformis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 656.
Coal Measures: Clay City, Missouri.

1864. *Allorisma subcuneata*. Meek and Hayden, Pal. Up. Mo., p. 37, pl. 1, figs. 10a, b.

Coal Measures: Leavenworth City, Kansas.

1866. *Allorisma subcuneata*. Geinitz, Carb. und Dyas in Nebr., p. 14.
Plattsmouth and Wyoming, Nebraska: Kansas.

1872. *Allorisma subcuneata*. Meek, U. S. Geol. Surv. Nebr., p. 221, pl. 2, figs. 10a, b.
Upper Coal Measures: Rock Bluff, 2½ miles southwest of Nebraska City, Wyoming and Plattsmouth, Nebraska; Leavenworth and Atchison, Kansas.

Upper and Lower Coal Measures: Illinois.

1876. *Allorisma subcuneata*. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

1877. *Allorisma subcuneata* (var.). White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 155, pl. 12, figs. 7a, b.

Carboniferous: Near Agua Azul, New Mexico.

1881. *Allorisma subcuneata?* White, 2d Ann. Rep. Dept. Stat. and Geol. Ind., p. 518, pl. 8, figs. 1, 2.

Coal Measures: Edwardsport, Knox County, Indiana.

1884. *Allorisma subcuneata*. White, 13th Rep. Geol. Surv. Ind., p. 148, pl. 31, figs. 1-3.

Coal Measures: Indiana.

1886. *Allorisma subcuneata*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 457, p. 456, fig. 10a, p. 444, fig. 10.

Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

1886. *Allorisma subcuneata*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 272, fig. 10, p. 276, fig. 10a.

Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Allorisma subcuneatum Meek and Hayden—Continued.

1887. *Allorisma subcuneata*. Herrick, Bull. Den. Univ., vol. 2, p. 34, pl. 4, figs. 1, 2.
Coal Measures: Flint Ridge, Ohio.
1894. *Allorisma subcuneatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 129, pl. 47, figs. 5a-c.
Upper Coal Measures: Kansas City, Missouri.

Allorisma subelegans Meek.

1872. *Allorisma* (*Sedgwickia*?) *subelegans*. Meek, U. S. Geol. Surv. Nebr., p. 220, pl. 10, fig. 14.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Illinois.

Allorisma terminale Hall.

1852. *Allorisma terminalis*. Hall, Stans. Exped. Gt. Salt Lake, p. 413, pl. 2, figs. 4a, b.
Carboniferous: Big Blue River.

Allorisma topekaensis. See *Sedgwickia topekensis*.**Allorisma ventricosum** Meek.

1871. *Allorisma ventricosa*. Meek, Proc. Acad. Nat. Sci. Phil., p. 168.
Waverly Group: Rushville, Ohio.
1875. *Allorisma ventricosa*. Meek, Pal. Ohio, vol. 2, p. 312, pl. 16, figs. 4a, b.
Waverly Group: Rushville, Ohio.
1888. *Allorisma ventricosa*. Herrick, Bull. Den. Univ., vol. 3, p. 73, pl. 8, fig. 6, pl. 7, fig. 33.
Waverly Group: Licking County, Ohio.

Allorisma walkeri Weller.

1897. *Allorisma walkeri*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 265, pl. 19, figs. 6, 7.
Batesville S. S.: Batesville, Arkansas.

Allorisma winchelli Meek.

1871. *Allorisma winchelli*. Meek, Proc. Acad. Nat. Sci. Phil., p. 167.
Upper Waverly Group: Rushville and Newark, Ohio.
1875. *Allorisma winchelli*. Meek, Pal. Ohio, vol. 2, p. 311, pl. 16, figs. 3a-c.
Upper Waverly Group: Rushville and Newark, Ohio.
1888. *Allorisma winchelli*. Herrick, Bull. Den. Univ., vol. 3, p. 72, pl. 8, figs. 2-4.
Waverly Group: Licking County, Ohio.

Allorisma worthenianum Miller.

1884. *Allorisma elongata*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 12.
(Not *A. elongatum* Morton, 1836.)
Keokuk L. S.: Warsaw, Illinois.
1889. *Allorisma worthenianum*. Miller, N. A. Geol. and Pal., p. 460.
1890. *Allorisma elongata*. Worthen, Geol. Surv. Ill., vol. 8, p. 133, pl. 19, fig. 10.
Keokuk L. S.: Warsaw, Illinois.

Allorisma (species undetermined).

1866. *Allorisma* (sp. undt.) Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 350, pl. 27, figs. 9-9a.
Upper Coal Measures: North Branch of Saline Creek, Gallatin County, Illinois.
1887. *Allorisma* sp. Herrick, Bull. Den. Univ., vol. 2, pl. 1, fig. 22.
Coal Measures: Flint Ridge, Ohio.
1887. *Allorisma*? Herrick, Bull. Den. Univ., vol. 2, pl. 5, fig. 1.
Coal Measures: Flint Ridge, Ohio.

AMBLYSIPHONELLA Steinman, 1882.

Amblysiphonella prosseri Clarke.

1897. *Amblysiphonella prosseri*. Clarke, Am. Geol., vol. 20, p. 391, pl. 23, figs. 1-9.
Wabaunsee Formation: Nehawka and Weeping Water, Nebraska.

AMBOCCELIA Hall, 1860.

Ambocœlia gemmula. See *Ambocœlia planoconvexa*.

Ambocœlia minuta White.

1862. *Ambocœlia* (*Spirifer*?) *minuta*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 26.
Chemung Group: Burlington, Iowa; Hamburg, Illinois; Hannibal, Missouri.
1894. *Ambocœlia minuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 90.
Kinderhook Group: Hannibal, Missouri.

Ambocœlia planoconvexa (Shumard.)

1855. *Spirifer planoconvexa*. Shumard, Geol. Rep. Mo., p. 202.
Upper Coal Measures: On Missouri River, near mouth of Platte River.
1859. *Spirifer planoconvexa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Manhattan, Juinata, and Leavenworth, Kansas.
1860. *Ambocœlia gemmula*. McChesney, Desc. New Pal. Foss., p. 41.
Coal Measures: Peoria and Bureau counties, Illinois.
1864. *Spirifer* (*Martinia*) *planoconvexa*. Meek and Hayden, Pal. Up. Mo., p. 20, figs. a-e.
Coal Measures: Manhattan and Upper Mill Creek, Kansas.
1866. *Spirifer plano-convexa*. Geinitz, Carb. und Dyas in Nebr., p. 42, Tab. 3, figs. 10-18.
Nebraska City, Nebraska.
1868. *Martinia planoconvexa*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 34, pl. 1, figs. 3a-c.
Coal Measures: Peoria and Bureau counties, Illinois.
1872. *Spirifer* [*Martinia*] *planoconvexus*. Meek, U. S. Geol. Surv. Nebr., p. 184, pl. 4, figs. 4a, b, pl. 8, figs. 2a, b.
Upper Coal Measures: Nebraska City, Bennetts Mill, Wyoming, Cedar Bluff, Rock Bluff, Plattsmouth, Brownville, Otoe City, Rulo, Bellevue, and Omaha, Nebraska.
Coal Measures: Iowa; Missouri; Kansas; Pittsburg, Pennsylvania; West Virginia.
1874. *Spirifera* (*Martinia*) *planoconvexa*. Dérøy, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 19, pl. 8, figs. 12, 16, 18; pl. 9, fig. 7.
Coal Measures: Bomjardim and Itaitúba, Brazil, and Pichis River, Peru.
1877. *Spirifer* (*Martinia*) *planoconvexus*. White, U. S. Geog. Surv. w. 100 Merid., vol. 4, p. 135, pl. 10, figs. 3a-c.
Carboniferous: Near Santa Fe, New Mexico; Elko Mountain, Nevada.
1884. *Spirifer* (*Martinia*) *planoconvexa*. White, 13th Rep. Geol. Surv. Ind., p. 134, pl. 32, figs. 23-24.
Coal Measures: Indiana. Occurs from Virginia to Utah and New Mexico.
1887. *Spirifera* (*Martinia*) *planoconvexa*. Herrick, Bull. Den. Univ., vol. 2, p. 46, pl. 1, fig. 12.
Coal Measures: Flint Ridge, Ohio.
1894. *Ambocœlia planoconvexa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 31, figs. 14-17.
Coal Measures: Illinois; Kansas.

Ambocælia planoconvexa. Shumard—Continued.

1894. *Spirifera planoconvexus*. Keyes, Mo. Geol. Surv., vol. 5, p. 85.
Upper Coal Measures: Kansas City, Missouri.
1895. *Ambocælia planoconvexa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 39,
figs. 10-15.
Coal Measures: Springfield, Illinois; Manhattan, Kansas.

Ambocælia umbonata Conrad.

1842. *Orthis umbonata*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 264.
1867. *Ambocælia umbonata*. Hall, Pal. N. Y., vol. 4, p. 259, pl. 44, figs. 7-18.
Hamilton Group: New York.
1888. *Martinia umbonata*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 3.
Bedford Shale: Central College, Ohio.
1889. *Ambocælia (umbonata)*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 3.
1895. *Martinia umbonata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 3.
Bedford Shale: Central College, Ohio.

(AMMONITES Lamark, 1801.)

Ammonites bellicosus. See *Goniatites bellicosus*.

Ammonites colubrellus. See *Goniatites colubrellus*.

Ammonites hildrethi. See *Goniatites hildrethi*.

Ammonites parkeri. See *Popanoceras parkeri*.

AMPHORACRINUS Austin, 1848.

Amphoracrinus americanus. See *Agaricocrinus americanus*.

Amphoracrinus blairi Miller and Gurley.

1896. *Amphoracrinus blairi*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat.
Hist., p. 26, pl. 1, figs. 45-50.
Burlington Group: Sedalia, Missouri.

Amphoracrinus divergens Hall.

1860. *Actinocrinus divergens*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 36.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus planobasilis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 19.
Burlington L. S.: Burlington, Iowa.
1862. *Actinocrinus quadrispinus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 15.
Lower Burlington L. S.: Burlington, Iowa.
1868. *Amphoracrinus divergens*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 348.
1872. *Actinocrinus planobasilis*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 10, 11.
1873. *Amphoracrinus divergens*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 388, pl. 6, fig. 6.
Burlington L. S.
1873. *Amphoracrinus divergens* var. *multiramus*. Meek and Worthen, Geol.
Surv. Ill., vol. 5, p. 389, pl. 6, figs. 6-6c.
1893. *Amphoracrinus divergens*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1,
p. 21, pl. 2, figs. 12, 13.
Burlington L. S.: Burlington, Iowa.
1894. *Amphoracrinus divergens*. Keyes, Mo. Geol. Surv., vol. 4, p. 166, pl. 22,
fig. 4.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Amphoracrinus divergens*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 588, pl. 62, figs. 5, 6a-b, 7a-b, 8a-c, 9, 10.
Lower Burlington L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Amphoracrinus divergens var. *multiramosus*. See *Amphoracrinus divergens*.

Amphoracrinus inflatus. See *Amphoracrinus spinobrachiatus*.

Amphoracrinus jerseyensis Worthen.

1890. *Amphoracrinus jerseyensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 96, pl. 14, figs 8-8a.

Kinderhook Group: Jersey County, Illinois.

Amphoracrinus jessiae Miller and Gurley.

1896. *Amphoracrinus jessiae*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 21, pl. 3, figs. 18, 19.

Chouteau L. S.: Sedalia, Missouri.

Amphoracrinus sampsoni Miller and Gurley.

1896. *Amphoracrinus sampsoni*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 27, pl. 1, figs. 28-29.

Chouteau L. S.: Sedalia, Missouri.

Amphoracrinus sedaliensis Miller and Gurley.

1895. *Amphoracrinus sedaliensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 54, pl. 5, figs. 34-37.

Chouteau L. S.: Sedalia, Missouri.

Amphoracrinus spinobrachiatus Hall.

1860. *Actinocrinus spinobrachiatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep., Iowa, p. 6. Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus inflatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 20. Burlington L. S.: Burlington, Iowa.

1873. *Amphoracrinus*? *spinobrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 389, pl. 6, fig. 5.

Burlington L. S.: Burlington, Iowa.

1893. *Amphoracrinus inflatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 22, pl. 2, figs. 10, 11.

Burlington L. S.: Burlington, Iowa.

1897. *Amphoracrinus spinobrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 591, pl. 62, figs. 1-4.

Lower Burlington L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Amphoracrinus subturbinatus. See *Dorycrinus subturbinatus*.

Amphoracrinus viminalis Hall.

1864. *Actinocrinus viminalis*. Hall, 17th Rept. N. Y. State Cab. Nat. Hist., p. 54. Waverly Group: Richfield, Ohio.

1875. *Actinocrinus viminalis*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 165, pl. 11, figs. 12-14.

Waverly Group: Richfield, Ohio.

1897. *Amphoracrinus viminalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 590, pl. 54, fig. 8.

Waverly Group: Richfield, Ohio.

AMPLEXUS Sowerby, 1814.

Amplexus bicostatus Miller. See *Amplexus fragilis*.

Amplexus blairi Miller.

1891. *Amplexus blairi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 8, pl. 1, fig. 7.

Chouteau L. S.: Near Sedalia, Missouri.

Amplexus blairi Miller—Continued.

1892. *Amplexus blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 618, pl. 1, fig. 7.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Amplexus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 108, pl. 13, fig. 1.
Burlington L. S.: Springfield, Sedalia, and Louisiana, Missouri; Burlington, Iowa.
- Kinderhook L. S.: Sedalia, Missouri.

Amplexus coralloides Sowerby. See *Amplexus fragilis* and *Amplexus* (species undetermined).**Amplexus corniculum** Miller.

1891. *Amplexus corniculum*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 9, pl. 1, figs. 21, 22.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Amplexus corniculum*. Miller, 17th Rep. Geol. Surv. Ind., p. 619, pl. 1, figs. 21, 22.
Chouteau L. S.: Near Sedalia, Missouri.

Amplexus fragilis White and St. John.

1851. *Amplexus coralloides*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 342. (Not *A. coralloides* Sowerby.)
Carboniferous: Warsaw, Illinois.
1860. *Amplexus coralloides*. Milne-Edwards, Hist. Nat. des Corall., vol. 3, p. 348.
Carboniferous: North America.
1868. *Amplexus fragilis*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 116.
Keokuk L. S.: Near Keokuk, Iowa.
1891. *Amplexus bicostatus*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 8, pl. 1, fig. 10.
Burlington Group: Near Sedalia, Missouri.
1892. *Amplexus bicostatus*. Miller, 17th Rep. Geol. Surv. Ind., p. 618, pl. 1, fig. 10.
Burlington Group: Near Sedalia, Missouri.
1894. *Amplexus fragilis*. Keyes, Mo. Geol. Surv., vol. 4, p. 109.
Burlington L. S.: Sedalia and Louisiana, Missouri.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.

Amplexus geniculatus Worthen.

1890. *Amplexus geniculatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 82, pl. 10, figs. 7, 7a.
Chester L. S.: Pope County, Illinois.

Amplexus rockfordensis Miller and Gurley.

1897. *Amplexus* (?) *rockfordensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 53, pl. 3, figs. 22, 23.
Kinderhook Group: Rockford, Indiana.

Amplexus yandelli Milne-Edwards and Haime.

1851. *Amplexus yandelli*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 344, pl. 3, figs. 2, 2a.
Devonian: Falls of the Ohio.
1860. *Amplexus yandelli*. Milne-Edwards, Hist. Nat. des Corall., vol. 3, p. 349.
Devonian: Falls of the Ohio.
1876. *Amplexus yandelli*. Rominger, Geol. Surv. Mich., vol. 3, pt. 2, p. 155, pl. 54.
Devonian: Ann Arbor, Michigan (Drift); Falls of the Ohio.
1894. *Amplexus yandelli*? Keyes, Mo. Geol. Surv., vol. 4, p. 108, pl. 13, fig. 2.
Chouteau L. S.: Curryville, Missouri.

Amplexus zaphrentiformis White.

1876. *Amplexus zaphrentiformis*. White, Powell's Geol. Rep. Uinta Mts., p. 107.
Lower Aubrey Group: Split Mountain Canyon, and near Echo Park, Utah.

Amplexus zaphrentiformis White—Continued.

1880. *Amplexus zaphrentiformis*. White, Cont. to Pal., No. 6, p. 120, pl. 33, figs. 1a, d.
Lower Aubrey Group: Split Mountain Canyon, and near Echo Park,
Green River, where that stream traverses the Uinta mountain chain.

Amplexus (species undetermined).

1858. *Amplexus coralloides?* Marcou, Geol. N. A., p. 53.
Mountain L. S.: Pecos Village, New Mexico.

AMPULLARIA Lamark, 1801.**Ampullaria powelli** Walcott.

1883. *Ampullaria? Powellii*. Walcott, Science, vol. 2, p. 808, figs. 3, 3a.
Base of Carboniferous: Eureka District, Nevada.
1884. *Ampullaria? Powellii*. Walcott, Pal. Eureka Dist., p. 261, figs. 4, 5.
Lower Carboniferous: Eureka District, Nevada.

AMYNILYSPES Scudder, 1885.**Amynilyspes wortheni** Scudder.

1882. *Amynilyspes Wortheni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 178,
pl. 13, figs. 1-4, 9.
Carboniferous: Mazon Creek, Illinois.
1890. *Amynilyspes Wortheni*. Scudder, Foss. Insc. N. A., vol. 1, p. 230, pl. 10,
figs. 1-4, 9.
Carboniferous: Mazon Creek, Illinois.

ANATINA Lamark, 1809.**Anatina leda** Hall.

1860. *Anatina leda*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 110.
Goniatite, L. S.: Rockford, Indiana.

(ANODONTA Lamark, 1799.)**(Anodonta abyssina** Morton.)

1836. *Anodonta? abyssina*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, figs.
22, 23.
Coal Measures: Ohio Valley.

(ANCILLA Lamark, 1799.)

Ancella crassicollis Owen. See *Capulus equilateralis*.

ANISOPHYLLUM Edwards and Haime, 1851.**Anisophyllum? iovaensis** Worthen.

1890. *Anisophyllum? iovaensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 80, pl. 9, fig. 7.
St. Louis L. S.: Pella, Iowa.

ANISOTRYPA Ulrich, 1883.**Anisotrypa fistulosa** Ulrich.

1890. *Anisotrypa fistulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 448, pl. 72, figs. 6-6c.
St. Louis Group: Pella, Iowa.

Anisotrypa ramulosa Ulrich.

1890. *Anisotrypa ramulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 449, pl. 72, figs. 7-7a.
St. Louis Group: Pella, Iowa.

Anisotrypa solida Ulrich.

1890. *Anisotrypa solida*. Ulrich, Geol. Surv. Ill., vol. 8, p. 449, pl. 72, figs. 9-9c.
Chester Group: Sloan's Valley, Pulaski County, Kentucky.
1894. *Anisotrypa solida*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.
Kaskaskia L. S.: Ste. Genevieve County, Missouri; Chester, Illinois.

Anisotrypa symmetrica Ulrich.

1883. *Anisotrypa symmetrica*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 6, p. 276,
pl. 13, figs. 5-5c.
Kaskaskia Group: Grayson Springs and Tateville, Kentucky.

ANOMPHALUS Meek and Worthen, 1866.

Anomphalus meeki Bradley. See *Dawsonella meeki*.

Anomphalus rotulus Meek and Worthen.

1866. *Anomphalus rotulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 268.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Anomphalus rotulus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 597,
pl. 29, fig. 10.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1874. *Anomphalus rotulus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 583.
1888. *Anomphalus rotulus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 241.
Lower Coal Measures: Des Moines, Iowa.
1894. *Anomphalus rotulus*. Keyes, Mo. Geol. Surv., vol. 5, p. 154.
Lower Coal Measures: Clinton, Missouri.

ANTHRACERPES Meek and Worthen, 1865.**Anthracerpes typus Meek and Worthen.**

1865. *Anthracerpes typus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 51.
Coal Measures: Morris, Illinois.
1866. *Anthracerpes typus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 409, pl. 32,
figs. 1-1a.
Lower Coal Measures: Morris, Grundy County, Illinois.
1882. *Anthracerpes typus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 180.
Carboniferous: Mazon Creek, Illinois.
1890. *Anthracerpes typus*. Scudder, Foss. Insc. N. A., vol. 1, p. 232.
Carboniferous: Mazon Creek, Illinois.

ANTHRACOBLATTINA Scudder, 1879.**Anthracoblattina americana Scudder.**

1895. *Anthracoblattina americana*. Scudder, Bull. U. S. Geol. Surv., No. 124,
p. 129, pl. 11, fig. 7.
Lower Coal Measures: Near Clinton, Missouri.

Anthracoblattina virginensis Scudder.

1895. *Anthracoblattina virginensis*. Scudder, Bull. U. S. Geol. Surv., No. 124,
p. 130, pl. 11, fig. 8.
Lower Permian: Cassville, West Virginia.

ANTHRACOMARTUS Karsch, 1882.**Anthracomartus pustulatus Scudder.**

1884. *Anthracomartus pustulatus*. Scudder, Proc. Am. Acad. Arts and Sci., vol.
20, p. 18.
Carboniferous: Mazon Creek, Illinois.
1890. *Anthracomartus pustulatus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4,
p. 452, pl. 40, figs. 5, 8.
Carboniferous: Mazon Creek, Illinois.

Anthracomartus pustulatus Scudder—Continued.

1890. *Anthracomartus pustulatus*. Scudder, Foss. Insc. N. A., vol. 1, p. 428, pl. 32, figs. 5, 8.

Carboniferous: Mazon Creek, Illinois.

Anthracomartus trilobitus Scudder.

1884. *Anthracomartus trilobitus*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 17.

Carboniferous: Fayetteville, Arkansas.

1890. *Anthracomartus trilobitus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 451, pl. 39, figs. 7-10.

Carboniferous: Fayetteville, Arkansas.

1890. *Anthracomartus trilobitus*. Scudder, Foss. Incs. N. A., vol. 1, p. 427, pl. 31, figs. 7-10.

Carboniferous: Fayetteville, Arkansas.

Anthracomartus woodruffi Scudder.

1893. *Anthracomartus Woodruffi*. Scudder, Bull. U. S. Geol. Surv., No. 101, p. 9, pl. 1, fig. f.

Carboniferous: Pawtucket, Rhode Island.

ANTHRACOMYA Salter, 1861.**Anthracomya arenacea Dawson.**

1868. *Naiadites arenacea*. Dawson, Acad. Geol., p. 205, fig. 45.

Coal Measures: Joggins, Nova Scotia.

1894. *Anthracomya arenacea*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, pl. 20, figs. 4-6.

Coal Measures: Joggins, Nova Scotia.

1894. *Anthracomya arenacea*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 12, fig. 10.

Coal Measures: Pictou and Sydney.

Anthracomya elongata Dawson.

- *1860. *Naiadites elongata*. Dawson, Supp. Acad. Geol., p. 43.

Coal Measures: Nova Scotia.

1863. *Anthracomya elongata*. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 79, fig. 1.

Coal Measures: Nova Scotia.

1868. *Naiadites (Anthracomya) elongata*. Dawson, Acad. Geol., p. 204, fig. 43.

Middle Coal Measures: Joggins and Sidney, Nova Scotia.

1883. *Naiadites elongata*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 425, pl. 2, fig. 16.

1894. *Anthracomya elongata*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 441, pl. 20, figs. 7-11.

1894. *Anthracomya elongata*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 10, figs. 6-8.

Coal Measures: South Joggins, Pictou, Sydney, Glace Bay, Mahon, Riversdale, Swan Creek, and Parrsboro, Nova Scotia.

Anthracomya lævis Dawson.

- *1860. *Naiadites lævis*. Dawson, Supp. Acad. Geol.

Coal Measures: Nova Scotia.

1863. *Naiadites lævis*. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 79, fig. 2.

Coal Measures: Nova Scotia.

1868. *Naiadites (Anthracopectera) lævis*. Dawson, Acad. Geol., p. 204, fig. 44.

Middle Coal Measures: Joggins, Nova Scotia.

Anthracomya lævis Dawson—Continued.

1883. *Naiadites lævis*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 425, pl. 2, fig. 17.
 1894. *Anthracomya lævis*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 442, pl. 20, fig. 12.
 1894. *Anthracomya lævis*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 11, fig. 9.
 Coal Measures: South Joggins, Nova Scotia.

Anthracomya obtenta Dawson.

1868. *Naiadites obtusa*. Dawson, Acad. Geol., p. 205 (name preoccupied).
 Lower Coal Measures: McLellan's Brook, Pictou.
 1894. *Anthracomya obtenta*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 13, figs. 12-13.
 Coal Measures: McLellan's Brook, Pictou, and Mabon, Cape Breton.

Anthracomya ovalis Dawson.

- * 1860. *Naiadites ovalis*. Dawson, Supp. Acad. Geol.
 Coal Measures: Nova Scotia.
 1868. *Naiadites ovalis*. Dawson, Acad. Geol., p. 205.
 Coal Measures: Joggins, Nova Scotia.
 1894. *Anthracomya ovalis*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 442, pl. 20, fig. 13.
 1894. *Anthracomya ovalis*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 13, fig. 11.
 Lower Carboniferous and Coal Measures: South Joggins, Riversdale, and Parrsboro, Nova Scotia.

(ANTHRACOPTERA Salter, 1862.)

Anthracoptera carbonaria. See *Naiadites carbonaria*.

Anthracoptera fragilis. See *Naiadites fragilis*.

Anthracoptera polita. See *Naiadites polita*.

ANTHRACOPUPA Whitfield, 1881.**Anthracopupa ohioensis Whitfield.**

1881. *Anthracopupa Ohioensis*. Whitfield, Am. Jour. Sci. (3), vol. 21, p. 126, figs. 1-4.
 Coal Measures: near Marietta, Ohio.
 1883. *Anthracopupa ohioensis*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 456, pl. 2, figs. 5-8.
 1891. *Anthracopupa Ohioensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 607, pl. 16, figs. 15-17.
 Coal Measures: Marietta, Ohio.
 1895. *Anthracopupa Ohioensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 491, pl. 12, figs. 15-17.
 Coal Measures: Near Marietta, Ohio.

(ANTHRACOSIA King, 1844.)

Anthracosia bradorica. See *Carbonicola bradorica*.

ANTHRACOTHREMMA Scudder, 1884.**Anthracothremma robusta Scudder.**

1885. *Anthracothremma robusta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 327, pl. 30, figs. 1, 5, 6.
 Carboniferous: Mazon Creek, Illinois.

Anthracothremma robusta Scudder—Continued.

1890. *Anthracothremma robusta*. Scudder, Foss. Insc. N. A., vol. 1, p. 291, pl. 16, figs. 1, 5, 6.

Carboniferous: Mazon Creek, Illinois.

ANTHRAPALÆMON Salter, 1861.**Anthrapalæmon gracilis** Meek and Worthen.

1865. *Anthrapalæmon gracilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 50.

Coal Measures: Morris, Illinois.

1866. *Anthrapalæmon gracilis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 407, pl. 32, figs. 4-4c.

Lower Coal Measures: Morris, Grundy County, Illinois.

1868. *Anthrapalæmon gracilis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 554, figs. A-B.

Coal Measures.

1884. *Anthrapalæmon gracilis*. White, 13th Rep. Geol. Surv. Ind., p. 180, pl. 38, figs. 8, 9.

Coal Measures: Grundy County, Illinois.

1885. *Anthrapalæmon gracilis*. Packard, Am. Nat., vol. 19, p. 880.

Carboniferous: Mazon Creek, Illinois.

1886. *Anthrapalæmon gracilis*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 135, pl. 4, figs. 1-6; pl. 7, figs. 4-6.

Carboniferous: Mazon Creek, Illinois.

Anthrapalæmon hillianus Dawson.

1877. *Anthrapalæmon (Palaeocarabus) Hilliana*. Dawson, Geol. Mag. (2), vol. 4, p. 56, fig. 1.

Carboniferous: South Joggins, Nova Scotia.

1878. *Anthracopalæmon (Palaeocarabus) Hillianus*. Dawson, Supp. to 2d Ed. Acad. Geol., p. 55, fig. 10.

Coal Measures: South Joggins, Nova Scotia.

AOROCRINUS Wachsmuth and Springer, 1897.**Aorocrinus canaliculatus** Meek and Worthen.

1869. *Dorycrinus canaliculatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 166.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Dorycrinus canaliculatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 381, pl. 6, fig. 4.

Burlington L. S.: Burlington, Iowa.

1897. *Aorocrinus canaliculatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 475, pl. 45, figs. 6a, b.

Lower Burlington L. S.: Burlington, Iowa.

Aorocrinus concavus Meek and Worthen.

1861. *Actinocrinus (Amphorocrinus?) concavus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 132.

Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus (Sphaerocrinus) concavus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 154.

1866. *Calocrinus concavus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 215, pl. 15, figs. 10a-c.

Burlington L. S.: Burlington, Iowa.

1897. *Aorocrinus concavus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 482, pl. 42, figs. 13a-c.

Lower Burlington L. S.: Burlington, Iowa.

Aorocrinus elegans Miller.

1892. *Dorycrinus elegans*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 17, pl. 3, figs. 4, 5.
Burlington Group: Near Sedalia, Missouri.
1894. *Dorycrinus elegans*. Miller, 18th Rep. Geol. Surv. Ind., p. 271, pl. 3, figs. 4, 5.
Burlington Group: Near Sedalia, Missouri.
1894. *Dorycrinus elegans*. Keyes, Mo. Geol. Surv., vol. 4, p. 170.
Burlington L. S.: Sedalia, Missouri.
1897. *Aorocrinus elegans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 480, pl. 34, figs. 7a, b.
Upper Burlington L. S.: Near Sedalia, Missouri.

Aorocrinus helice Hall.

1864. *Actinocrinus helice*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 53.
Waverly Group: Richfield, Ohio.
1864. *Actinocrinus helice* var. *eris*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 53.
Waverly Group: Richfield, Ohio.
1875. *Actinocrinus helice*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 162, pl. 11, figs. 5-8.
Waverly Group: Richfield, Ohio.
1875. *Actinocrinus Eris*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 164, pl. 11, figs. 9, 10.
Waverly Group: Richfield, Ohio.
1897. *Aorocrinus helice*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 481, pl. 45, figs. 2, 5.
Waverly S. S.: Richfield and Royalton, Ohio.

Aorocrinus immaturus Wachsmuth and Springer.

1890. *Dorycrinus immaturus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 175, pl. 16, fig. 5; pl. 17, figs. 6, 17.
Kinderhook Group: Legrand, Iowa.
1897. *Aorocrinus immaturus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 471, pl. 45, figs. 4a, b.
Kinderhook Group: Legrand, Marshall County, Iowa.

Aorocrinus parvibasis Wachsmuth and Springer.

1890. *Dorycrinus parvibasis*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 177, pl. 17, figs. 7, 9, 9a.
Kinderhook Group: Legrand, Iowa.
1897. *Aorocrinus parvibasis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 473, pl. 45, figs. 3a, b.
Kinderhook Group: Legrand, Marshall County, Iowa.

Aorocrinus parvus Shumard.

1855. *Actinocrinus parvus*. Shumard, Geol. Rep. Mo., p. 193, pl. A, fig. 9.
St. Louis L. S.: St. Louis, Missouri.
1858. *Actinocrinus symmetricus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 574, pl. 10, figs. 8a-b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus symmetricus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 10.
1891. *Dorycrinus amœnus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 35, pl. 5, figs. 5, 6.
Burlington Group: Sedalia, Missouri.
1894. *Dorycrinus parvus*. Keyes, Mo. Geol. Surv., vol. 4, p. 171.
Upper Burlington L. S.: Palmyra, Sedalia, Ash Grove, and St. Louis County, Missouri.

Aorocrinus parvus Shumard—Continued.

1897. *Aorocrinus parvus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 477, pl. 45, fig. 11a, b.

Upper Burlington L. S.: Burlington, Iowa.

Aorocrinus radiatus Wachsmuth and Springer.

1890. *Dorycrinus radiatus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 176, pl. 17, figs. 5, 5a.

Kinderhook Group: Legrand, Iowa.

1897. *Aorocrinus radiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 472, pl. 45, fig. 1.

Kinderhook Group: Legrand, Marshall County, Iowa.

Aorocrinus spinosulus Hall.

1860. *Actinocrinus spinosulus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 52. Keokuk L. S.: Nauvoo, Illinois.

1875. *Dorycrinus Kelloggi*. Worthen, Geol. Surv. Ill., vol. 6, p. 513, pl. 29, fig. 8. Keokuk L. S.: Keokuk, Iowa.

1894. *Dorycrinus kelloggi*. Keyes, Mo. Geol. Surv., vol. 4, p. 173. Keokuk L. S.: Keokuk, Iowa.

1897. *Aorocrinus spinosulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 478, pl. 43, fig. 4; pl. 44, fig. 8a, b.

Keokuk Group: Keokuk, Iowa; Nauvoo, Illinois.

Aorocrinus subaculeatus Hall.

1858. *Actinocrinus subaculeatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 570, pl. 10, figs. 2a, b.

Burlington L. S.: Burlington, Iowa.

1894. *Dorycrinus subaculeatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 170.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Aorocrinus subaculeatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 476, pl. 45, figs. 7a, b.

Lower Burlington L. S.: Burlington, Iowa.

APHELÆCERAS Hyatt, 1883.**Aphelæceras disciformis** Meek and Worthen.

1865. *Nautilus (Discites) disciformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 261.

Keokuk Group: Niota, Illinois.

1873. *Nautilus (Discites) disciformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 522, pl. 18, fig. 1.

Keokuk Group: Niota, Hancock County, Illinois.

1893. *Aphelæceras (Disc.) disciforme*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 413.

ARCA Linne, 1758.**Arca carbonaria**. See *Macrodon carbonarius*.**Arca cuspidata** Swallow.

1858. *Arca cuspidata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 209.

Upper Coal Measures: Near Burlingame, Kansas.

Arca modesta Winchell.

1863. *Arca modesta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 15.

Yellow S. S.: Burlington, Iowa.

Arca ornata Herriek.

1888. *Arca ornata*. Herriek, Bull. Den. Univ., vol. 3, p. 83, pl. 9, fig. 18.

Waverly Group: Licking County, Ohio.

***Arca punctifera* Dawson.**1868. *Arca punctifer*. Dawson, Acad. Geol., p. 304.

Carboniferous L. S.: Windsor, Nova Scotia.

Arca striata. See *Macrodon tenuistriata*.**ARCHÆOCARIS Meek, 1872.*****Archæocaris vermiformis* Meek.**1872. *Archæocaris vermiformis*. Meek, Proc. Acad. Nat. Sci. Phil. for 1871, p. 335.

Base of Waverly Group: Danville, Kentucky.

1875. *Archæocaris vermiformis*. Meek, Pal. Ohio, vol. 2, p. 321, pl. 18, fig. 7.

Waverly Group: Danville, Kentucky.

ARCHÆOCIDARIS McCoy, 1844.***Archæocidaris aculeata* Shumard.**1858. *Archæocidaris verneuilliana*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 180. (Not *A. verneuilliana* King.)

Middle Permian: West of Council Grove, Kansas.

1858. *Archæocidaris aculeatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 223.

Upper Coal Measures: Verdigris River valley; Santa Fé road, near Rock Creek; 25 miles west of Council Grove, in valley of Cottonwood Creek, Kansas; Fort Belknap, Texas.

1894. *Archæocidaris aculeata*. Keyes, Mo. Geol. Surv., vol. 4, p. 130, pl. 15, fig. 3.

Upper Coal Measures: New Point, Jackson County, Missouri.

1895. *Archæocidaris aculeata*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 188, pl. 18, fig. 3.

Upper Coal Measures: New Point, Jackson County, Missouri.

***Archæocidaris agassizi* Hall.**1858. *Archæocidaris agassizi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 698, pl. 26, figs. 1a-d.

Burlington L. S.: Burlington, Iowa.

1894. *Archæocidaris agassizi*. Keyes, Mo. Geol. Surv., vol. 4, p. 127, pl. 15, fig. 5.

Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.

1895. *Archæocidaris agassizi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 185, pl. 18, fig. 5.

Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.

1896. *Archæocidaris agassizi*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 213.***Archæocidaris biangulata* Shumard.**1858. *Archæocidaris biangulatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 224.

Middle Coal Measures: Lexington, Missouri.

1894. *Archæocidaris biangulata*. Keyes, Mo. Geol. Surv., vol. 4, p. 130, pl. 15, figs. 1a-c.

Upper Coal Measures: Lexington and Kansas City, Missouri.

1895. *Archæocidaris biangulata*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 189, pl. 15, figs. 1a-c.

Upper Coal Measures: Lexington and Kansas City, Missouri.

***Archæocidaris cratis* White.**1876. *Archæocidaris cratis*. White, Powell's Rep. Geol. Uinta Mts., p. 109.

Lower Aubrey Group: Confluence of Grand and Green Rivers, Utah.

1880. *Archæocidaris cratis*. White, Cont. to Inv. Pal., No. 6, p. 130, pl. 33, fig. 2a.

Middle Carboniferous: Confluence of Grand and Green rivers, Utah.

1895. *Archæocidaris cratis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 188.

Coal Measures (Lower Aubrey): Utah.

Archæocidaris dininni White.

1880. *Archæocidaris dininni*. White, Proc. U. S. Nat. Mus., vol. 2, p. 260, pl. 1, figs. 13-15.

Upper Coal Measures: Near Tecumseh, Nebraska; western Iowa.

1880. *Archæocidaris dininni*. White, Cont. to Inv. Pal., No. 6, p. 131, pl. 35, figs. 6a-c.

Upper Coal Measures: Tecumseh, Nebraska.

1894. *Archæocidaris dininni*. Keyes, Mo. Geol. Surv., vol. 4, p. 130, pl. 15, figs. 6a-c.

Upper Coal Measures: Kansas City, Missouri.

1895. *Archæocidaris dininni*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 190, pl. 18, figs. 6a-c.

Upper Coal Measures: Kansas City, Missouri; Tecumseh, Nebraska; Red Oak, Iowa.

Archæocidaris edgarensis Worthen and Miller.

1883. *Archæocidaris edgarensis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 337, pl. 30, figs. 15a-c.

Upper Coal Measures: 1 mile east of Baldwinville, Edgar County, Illinois.

1891. *Archæocidaris edgarensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 245.

Lower Coal Measures: Des Moines, Iowa.

Archæocidaris gracilis Newberry.

1861. *Archæocidaris gracilis*. Newberry, Ives' Colo. Expl. Exped., p. 117, pl. 1, figs. 4, 4a.

Upper Carboniferous L. S.: Banks of Colorado River.

Archæocidaris hallianus*. See *Eocidaris hallanus*.*Archæocidaris illinoiensis Worthen and Miller.**

1883. *Archæocidaris illinoiensis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 338, pl. 31, figs. 1a-b.

St. Louis L. S. (black beds): Near Illinois Furnace, Hardin County, Illinois.

1895. *Archæocidaris illinoiensis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 187.

St. Louis L. S.: Hardin County, Illinois.

Archæocidaris keokuk Hall.

1858. *Archæocidaris keokuk*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 699, pl. 26, figs. 2a, b. Keokuk L. S.: Warsaw, Illinois.

1894. *Archæocidaris keokuk*. Keyes, Mo. Geol. Surv., vol. 4, p. 128.

Keokuk L. S.: Clark County, Missouri (?); Warsaw, Illinois.

1895. *Archæocidaris keokuk*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 186.

Keokuk L. S.: Clark County and Boonville, Missouri; Warsaw, Illinois.

Archæocidaris legrandensis Miller and Gurley.

1890. *Archæocidaris legrandensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 373, pl. 10, fig. 15.

Kinderhook Group: Le Grand, Iowa.

1895. *Archæocidaris legrandensis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 185.

Kinderhook L. S.: Le Grand, Marshall County, Iowa.

Archæocidaris longispina Newberry.

1861. *Archæocidaris longispinus*. Newberry, Ives' Colo. Expl. Exped., pt. 3, p. 116, pl. 1, figs. 1, 1a.

Upper Carboniferous L. S.: Banks of Colorado River.

1895. *Archæocidaris longispinus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.

Carboniferous: Junction of the two Colorado rivers, Arizona.

Archæocidaris megastylus Shumard.

1858. *Archæocidaris megastylus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 225.

Archæocidaris megastylus Shumard—Continued.

1858. Upper Coal Measures: Headwaters of Verdigris River, and in valley of Cottonwood Creek, Kansas.
1894. *Archæocidaris megastylus*. Keyes, Mo. Geol. Surv., vol. 4; p. 129, pl. 15, figs. 2a, b.
- Upper Coal Measures: Independence, Missouri.
1895. *Archæocidaris megastylus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 189, pl. 18, figs. 2a, b.
- Upper Coal Measures: Independence, Jackson County, Missouri.

Archæocidaris mucronata Meek and Worthen.

1860. *Archæocidaris mucronata*. Meek and Worthen, Proc. Acad. Nat. Sci., Phil., p. 395.
- Chester L. S.: Liberty, Randolph County, Illinois.
1866. *Archæocidaris mucronata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 295, pl. 23, figs. 3a-c.
- Chester Group: Liberty, Randolph County, Illinois.
1895. *Archæocidaris mucronata*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 188.
- Kaskaskia L. S.: Liberty and Chester, Illinois.

Archæocidaris newberryi Hambach.

1884. *Archæocidaris newberryi*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 551, pl. D, fig. 1.
- St. Louis L. S.: St. Louis, Missouri.
1894. *Archæocidaris newberryi*. Keyes, Mo. Geol. Surv., vol. 4, p. 129.
- St. Louis L. S.: St. Louis, Missouri.
1895. *Archæocidaris newberryi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 187.
- St. Louis L. S.: St. Louis, Missouri.

Archæocidaris norwoodi Hall.

1858. *Archæocidaris norwoodi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 701, pl. 26, figs. 5a-e.
- Kaskaskia L. S.: Chester, Illinois.
1894. *Archæocidaris norwoodi*. Keyes, Mo. Geol. Surv., vol. 4, p. 129.
- Kaskaskia L. S.: Kaskaskia, Illinois; near St. Louis, Missouri.
1895. *Archæocidaris norwoodi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 188.
- Kaskaskia L. S.: Chester, Illinois.

Archæocidaris ornata Newberry.

1861. *Archæocidaris ornatus*. Newberry, Ives' Colo. Expl. Exped., p. 116, pl. 1, figs. 2, 3, 3a.
- Upper Carboniferous L. S.: Banks of Colorado River.
1877. *Archæocidaris ornatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 104, pl. 6, fig. 7.
- Carboniferous: Ojo del Oso, near Fort Wingate, New Mexico.
1895. *Archæocidaris ornatus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.
- Carboniferous: Ojo del Oso, New Mexico.

Archæocidaris shumardana Hall.

1858. *Archæocidaris shumardana*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 699, pl. 26, figs. 3a-d.
- Warsaw L. S.: Warsaw, Illinois.
1884. *Archæocidaris*, cf. *Shumardana*. Walcott, Pal. Eureka Dist., p. 212.
- Lower Carboniferous L. S.: Eureka District, Nevada.
1894. *Archæocidaris shumardana*. Keyes, Mo. Geol. Surv., vol. 4, p. 128.
- Keokuk L. S.: La Grange, Missouri.
1895. *Archæocidaris shumardana*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 186.
- Keokuk L. S.: La Grange, Lewis County, Missouri; Warsaw, Illinois.

Archæocidaris spinoclavata Worthen and Miller.

1873. *Archæocidaris?* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 24, figs. 13a-c.

Coal Measures.

1883. *Archæocidaris spino-clavatus*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 337, pl. 30, figs. 14a-c.

Middle and Lower Coal Measures: St. Clair and Marshall counties, Illinois.

1895. *Archæocidaris spinoclavatus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 190.

Upper Coal Measures: St. Clair and Marshall counties, Illinois.

Archæocidaris triplex White.

1881. *Archæocidaris triplex*. White, U. S. Geog. Surv., W. 100 Merid., vol. 3, Supp., Appendix, p. xxii, pl. 4, figs. 3a-c.

Carboniferous: New Mexico.

1895. *Archæocidaris triplex*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.

Upper Coal Measures: New Mexico.

Archæocidaris triserrata Meek.

1872. *Archæocidaris? triserrata*. Meek, U. S. Geol. Surv. Nebr., p. 151, pl. 1, figs. 6a-c.

Upper Coal Measures: Omaha, and 3 miles above mouth of Platte River, Nebraska.

Coal Measures: Vermilion County, Illinois.

1895. *Archæocidaris triserata*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 190.

Upper Coal Measures: Nebraska City, Nebraska; Kansas City, Missouri.

Archæocidaris tridifer White.

1874. *Archæocidaris tridifer*. White, Prelim. Rep. Inv. Foss., p. 17.

Carboniferous (Coal Measures): Camp Apache, Arizona.

1876. *Archæocidaris tridifer*. White, Powell's Rep. Geol. Uinta Mts., p. 89.

Lower Aubrey Group: Confluence of Grand and Green Rivers, Utah.

1877. *Archæocidaris tridifer*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 104, pl. 6, figs. 8a, b.

Carboniferous (Red Wall L. S.): Camp Apache, Arizona.

1895. *Archæocidaris tridifer*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.

Lower Carboniferous: "Camp Apache," Arizona.

Archæocidaris verneuilliana. See *Archæocidaris aculeata*.**Archæocidaris wortheni** Hall.

1858. *Archæocidaris wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 700, pl. 26, figs. 4a-g.

St. Louis L. S.: Near St. Louis, Missouri.

1884. *Archæocidaris* cf. *wortheni*. Walcott, Pal. Eureka Dist., p. 212.

Lower Carboniferous L. S.: Eureka District, Nevada.

1894. *Archæocidaris wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 128, pl. 16, figs. 3a, b.

St. Louis L. S.: St. Louis, Missouri.

1895. *Archæocidaris wortheni*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 187, pl. 20, figs. 3a, b.

St. Louis L. S.: St. Louis, Missouri.

1896. *Archæocidaris wortheni*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 214, pl. 8, figs. 43-46.

St. Louis Group: St. Louis, Missouri.

Archæocidaris (species undetermined).

1859. *Archæocidaris* —? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Cottonwood Creek, Kansas.

1859. *Archæocidaris* —? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Cottonwood Creek and Manhattan, Kansas.

1874. *Archæocidaris?* (sp. undet.) Meek, Am. Jour. Sci. (3), vol. 7, p. 486.

ARCHEGOGRYLLUS Scudder, 1868.

Archegogryllus priscus Scudder.

1868. *Archegogryllus priscus*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 11, p. 402.
Coal Measures: Tallmadge, Ohio.
1885. *Archegogryllus priscus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 323,
pl. 29, figs. 2, 3.
Carboniferous: Tallmadge, Ohio.
1890. *Archegogryllus priscus*. Scudder, Foss. Insc. N. A., vol. 1, p. 287, pl. 15,
figs. 2, 3.
Carboniferous: Tallmadge, Ohio.

ARCHIMEDES Le Sueur, 1842.

Archimedes archimedes Owen.

1852. *Retepora Archimedes*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 4,
figs. 1, 1a.
Near top of lower series of Carboniferous L. S.: Keokuk Rapids, Iowa.

Archimedes communis Ulrich.

1890. *Archimedes communis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 573, pl. 63, figs. 1-1d.
Chester Group: Most localities, especially at Sloan's Valley, Pulaski
County, Kentucky.

Archimedes compactus Ulrich.

1890. *Archimedes compactus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 572, pl. 63, figs. 2-2e.
Chester Group: Sloan's Valley, Kentucky.

Archimedes distans Ulrich.

1890. *Archimedes distans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 578, pl. 63, figs. 9-9b.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.

Archimedes grandis Ulrich.

1890. *Archimedes grandis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 569, pl. 63, fig. 10.
Keokuk Group: Jersey County, Illinois.

Archimedes intermedius Ulrich.

1890. *Archimedes intermedius*. Ulrich, Geol. Surv. Ill., vol. 8, p. 574, pl. 63, fig. 2c.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.

Archimedes invaginatus Ulrich.

1890. *Archimedes invaginatus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 575, pl. 63, figs. 11a-
11c.
Chester Group: Chester, Illinois.

Archimedes laxus Hall.

1857. *Fenestella (Archimedes) laxa*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 178.
Kaskaskia L. S.: Chester, Illinois.
1882. *Archimedes laxa*. White, 11th Rep. Geol. Surv. Ind., p. 361, pl. 41, fig. 7.
Subcarboniferous: Indiana.
1883. *Helicopora archimediiformis*. Claypole, Quart. Jour. Geol. Soc. Lond.,
vol. 39, p. 34, pl. 4, figs. 3, 4.
Kaskaskia Group: Litchfield, Kentucky.
1890. *Archimedes laxus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 580, pl. 63, figs. 15, 15a.
Chester Group: Chester, Illinois; Litchfield, Kentucky.
1894. *Archimedes laxus*. Keyes, Mo. Geol. Surv., vol. 5, p. 27.
Chester Group: Chester, Illinois.

Archimedes meekanus Hall.

1857. *Fenestella (Archimedes) Meekana*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10,
p. 178.
Kaskaskia L. S.: Chester, Illinois.

Archimedes meekanus Hall—Continued.

1890. *Archimedes meekanus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 578, pl. 63, fig. 4.
Chester Group: Chester, Illinois; Sloan's Valley and Grayson Springs, Kentucky.

Archimedes negligens Ulrich.

1890. *Archimedes negligens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 569, pl. 63, figs. 7, 7a.
Keokuk Group: Bentonsport and Keokuk, Iowa.

Archimedes owenanus Hall.

1857. *Fenestella* (*Archimedes*) *Owenana*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 178.
Keokuk L. S.: Keokuk, Iowa; Appanoose, Illinois.
1890. *Archimedes owenanus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 570, pl. 63, figs. 6-6c.
Keokuk Group: Keokuk, Iowa; Appanoose, and 3 miles northeast of Quincy, Illinois.
1894. *Archimedes owenanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 26, pl. 33, fig. 2.
Keokuk L. S.: St. Francisville, Missouri.

Archimedes perminimus Ulrich.

1890. *Archimedes perminimus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 572, pl. 63, figs. 11, 13.
Chester Group: Chester, Illinois.

Archimedes proutanus Ulrich.

1890. *Archimedes proutanus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 576, pl. 63, figs. 3, 3d, 11, 11b.
Chester Group: Sloan's Valley, Kentucky; Chester, Illinois.

Archimedes reversus*. See *Archimedes wortheni*.*Archimedes sublaxus Ulrich.**

1890. *Archimedes sublaxus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 579, pl. 63, fig. 14.
Chester Group: Chester, Illinois.

Archimedes swallovanus Hall.

1857. *Fenestella* (*Archimedes*) *Swallowana*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 178.
Kaskaskia Group: Kaskaskia and Chester, Illinois; Crittenden County, Kentucky.
1890. *Archimedes swallovanus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 574, pl. 63, figs. 12-12d.
Chester Group: Chester, Illinois.
1894. *Archimedes swallovanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 26.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Archimedes terebriformis Ulrich.

1890. *Archimedes terebriformis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 575, pl. 63, figs. 5-5c.
Chester Group: Chester, Illinois; Sloan's Valley, and Grayson Springs, Kentucky.

Archimedes wortheni Hall.

1857. *Fenestella* (*Archimedes*) *Wortheni*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 178.
Warsaw L. S.: Warsaw, Illinois.
1858. *Archimedes wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 651, pl. 22, figs. 3, 4a, b, 5a, b.
Warsaw L. S.: Warsaw, Illinois.
1858. *Archimedes reversa*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 652, pl. 22, fig. 2.
Warsaw L. S.: Warsaw, Illinois.

Archimedes wortheni Hall—Continued.

1890. *Archimedes wortheni*. Ulrich, Geol. Surv. Ill., vol. 8, p. 571, pl. 63, figs. 8, 8a. Warsaw Beds.
1894. *Archimedes wortheni*. Keyes, Mo. Geol. Surv., vol. 5, p. 26, pl. 33, fig. 1. Keokuk L. S.: Wayland and Lagrange, Missouri.

Archimedes (species undetermined).

1842. *Archimedes*, cf. *Lesueur*. Owen, Amer. Jour. Sci. (1), vol. 43, p. 19, fig. 2. St. Louis, Missouri.
1876. *Archimedes* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 89. Lower Aubrey Group: Near Echo Park, Utah.
1879. *Archimedes* — ? White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 213. Carboniferous: Mount Darby, Wyoming Range, Western Wyoming.

(ARCHIMEDIPORA D'Orbigny, 1850.)**(Archimediopora archimedes Shumard.)**

1854. *Archimediopora archimedes*. Shumard, Marcy's Expl. Red Riv. of Louis., p. 175, pl. 1, fig. 6. Carboniferous: Washington County, Arkansas. (This is some species of *Archimedes*.)

Archimediopora sp.

1876. *Archimediopora* — (?) Meek, Simp. Expl. Gt. Basin Utah, p. 348, pl. 1, fig. 11. Camp Floyd.

ARCHIMYLACRIS Scudder, 1868.**Archimylacris acadicum Scudder.**

1868. *Archimylacris Acadicus*. Scudder, Dawson's Acad. Geol., p. 388, fig. 153. Coal Measures: East River of Pictou, Nova Scotia.
1868. *Archimylacris Acadica*. Scudder, Am. Nat., vol. 1, p. 630, pl. 16, fig. 2. Coal Measures: Nova Scotia.
1879. *Archimylacris acadicum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 84, pl. 6, figs. 8, 14. Middle Coal Formation: East River, Pictou, Nova Scotia.
1890. *Archimylacris acadicum*. Scudder, Foss. Insc. N. A., vol. 1, p. 104, pl. 6, figs. 8, 14. Middle Carboniferous: Pictou, Nova Scotia.
1895. *Archimylacris acadica*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 59. Coal Measures: East River, Pictou, Nova Scotia.

Archimylacris parallelum Scudder.

1879. *Archimylacris parallelum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 85, pl. 6, fig. 6. Lower Coal Measures: Cannelton, Pennsylvania.
1890. *Archimylacris parallelum*. Scudder, Foss. Insc. N. A., vol. 1, p. 105, pl. 6, fig. 6. Lower Coal Measures: Cannelton, Pennsylvania.
1895. *Archimylacris parallela*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 58. Millstone Grit: Campbell's Ledge, near Pittston, Pennsylvania.

Archimylacris paucinervis Scudder.

1890. *Archimylacris paucinervis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 411, pl. 31, fig. 5. Carboniferous: Mazon Creek, Illinois.

Archimylacris paucinervis Scudder—Continued.

1890. *Archimylacris paucinervis*. Scudder, Foss. Insc. N. A., vol. 1, p. 387, pl. 23, fig. 5.
Carboniferous: Mazon Creek, Illinois.
1895. *Archimylacris paucinervis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 59.
Lower Coal Measures: Mazon Creek, Illinois.

ARCHITARBUS Scudder, 1868.**Architarbus elongatum** Scudder.

1890. *Architarbus elongatum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 449, pl. 40, fig. 4.
Carboniferous: Mazon Creek, Illinois.
1890. *Architarbus elongatum*. Scudder, Foss. Insc. N. A., vol. 1, p. 425, pl. 32, fig. 4.
Carboniferous: Mazon Creek, Illinois.

Architarbus rotundatum Scudder.

1868. *Architarbus rotundatus*. Scudder, Geol. Surv. Ill., vol. 3, p. 568, fig. 4.
Carboniferous: Mazon Creek, Grundy County, Illinois.
1890. *Architarbus rotundatum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 449.
Carboniferous: Mazon Creek, Illinois.
1890. *Architarbus rotundatum*. Scudder, Foss. Insc. N. A., vol. 1, p. 425.
Carboniferous: Mazon Creek, Illinois.

ARCHIULUS Scudder, 1868.*Archiulus dawsoni*. See *Xylobius dawsoni*.**Archiulus glomeratus** Scudder.

1890. *Archiulus? glomeratus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 436, pl. 37, figs. 2, 3.
Carboniferous: Mazon Creek, Illinois.
1890. *Archiulus? glomeratus*. Scudder, Foss. Insc. N. A., vol. 1, p. 412, pl. 29, figs. 2, 3.
Carboniferous: Mazon Creek, Illinois.

Archiulus xylobioides Scudder.

1868. *Archiulus xylobioides*. Scudder, Dawson's Acad. Geol., p. 496.
Carboniferous: Nova Scotia.
1873. *Archiulus xylobioides*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 236.
Carboniferous: Nova Scotia.
1878. *Archiulus xylobioides*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, figs. 5-7.
Carboniferous: Joggins, Nova Scotia.
1890. *Archiulus xylobioides*. Scudder, Foss. Insc. N. A., vol. 1, p. 26, 31, figs. 5-7.
Carboniferous: Joggins, Nova Scotia.

Archiulus (species undetermined).

- *1883. *Archiulus* — (2 sp.). Scudder, Trans. Phil. Soc. for 1882, p. 649.
Carboniferous: Joggins, Nova Scotia.
1890. *Archiulus* sp. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 437, pl. 37, fig. 1.
Carboniferous: Malden Mine, Kanawha Co., W. Va.
1890. *Archiulus* sp. Scudder, Foss. Insc. N. A., vol. 1, p. 413, pl. 29, fig. 1.
Carboniferous: Malden Mine, Kanawha Co., W. Va.

ARTHROLYCOSA Harger, 1874.**Arthrolycosa antiqua** Harger.

1874. *Arthrolycosa antiqua*. Harger, Am. Jour. Sci. (3), vol. 7, p. 219, fig.
Coal Measures: Mazon Creek, Grundy County, Illinois.

Arthrolycosa antiqua Harger—Continued.

1884. *Arthrolycosa antiqua*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 15.
Carboniferous: Mazon Creek, Illinois.
1889. *Arthrolycosa antiqua*. Beecher, Am. Jour. Sci. (3), vol. 38, p. 219, figs. 1-3.
Coal Measures: Illinois.

(ASTARTE Sowerby, 1818.)

Astarte mortonensis. See *Edmondia mortonensis*.

Astarte nebrascensis. See *Edmondia nebrascensis*.

ASTARTELLA Hall, 1858.

Astartella concentrica McChesney.

1860. *Edmondia concentrica*. McChesney, Desc. New Pal. Foss., p. 55.
Coal Measures: Carnahan's Coal Mine, Mercer County, Illinois; Big Creek, Indiana; Charbonier, Missouri.
1865. *Edmondia concentrica*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 21a-b.
1868. *Astartella concentrica*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 43, pl. 2, figs. 21a, b.
Coal Measures: Mercer County, Illinois; Big Creek, Indiana; Charbonier, Missouri.
1894. *Astartella concentrica*. Keyes, Mo. Geol. Surv., vol. 5, p. 126. *Pl. 46, fig. 5.*
Lower Coal Measures: Charbonier, Missouri.

Astartella gurleyi White.

1878. *Astartella Gurleyi*. White, Proc. Acad. Nat. Sci. Phil., p. 35.
Coal Measures: Danville, Illinois.
1880. *Astartella gurleyi*. White, Cont. to Inv. Pal., No. 8, p. 166, pl. 42, figs. 6a-b.
Coal Measures: Danville, Illinois.

Astartella newberryi Meek.

1875. *Astartella Newberryi*. Meek, Pal. Ohio, vol. 2, p. 340, pl. 19, fig. 3.
Coal Measures: Newark, Ohio.
1887. *Astartella Neuberryi*. Herrick, Bull. Den. Univ., vol. 2, p. 39, pl. 4, fig. 33.
Coal Measures: Flint Ridge, Ohio.
1897. *Astartella newberryi*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Upper Coal Measures: Poteau Mountain, Indian Territory.
Lower Coal Measures: Conway County, Arkansas.

Astartella varica McChesney.

1860. *Astartella varica*. McChesney, Desc. New Pal. Foss., p. 55.
Coal Measures: Springfield, Illinois.
1865. *Astartella varica*. McChesney, Ill. New Spec. Foss., pl. 2, fig. 7.
1868. *Astartella varica*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 42, pl. 2, fig. 7.
Coal Measures: Springfield, Illinois.
1875. *Astartella varica*. Meek, Pal. Ohio, vol. 2, p. 341, pl. 19, fig. 2.
Coal Measures: Newark, Ohio.
1887. *Astartella varica*. Herrick, Bull. Den. Univ., vol. 2, p. 39, pl. 4, fig. 31.
Coal Measures: Flint Ridge, Ohio.

Astartella vera Hall.

1858. *Astartella vera*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 715, pl. 29, figs. 1a-c.
Coal Measures: Illinois and Indiana.
1887. *Astartella vera* (??). Herrick, Bull. Den. Univ., vol. 2, p. 39,
Coal Measures: Flint Ridge, Ohio,

Astartella vera Hall—Continued.

1891. *Astartella vera*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 250.
Lower Coal Measures: Des Moines, Iowa.
1894. *Astartella vera*. Keyes, Mo. Geol. Surv., vol. 5, p. 125, pl. 46, fig. 6.
Lower Coal Measures: Clinton, Missouri.
1897. *Astartella vera*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Astartella (species undetermined).

1875. *Astartella (undetermined sp.)* Meek, Pal. Ohio, vol. 2, p. 341, pl. 19, figs. 1a-b.
Coal Measures: Newark, Ohio.

(ASTEROCRINUS Lyon, 1857).

Asterocrinus capitalis. See *Pterotocrinus capitalis*.

Asterocrinus coronarius. See *Pterotocrinus coronarius*.

ASYMPTOCERAS Ryckholt, 1852.**Asymptoceras capax Meek and Worthen.**

1865. *Nautilus (Cryptoceras) capax*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 262.
Coal Measures: Charboniere, Missouri.
1875. *Nautilus (Cryptoceras) capax*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 532, pl. 33, fig. 1.
Coal Measures: Charboniere, Missouri.
1891. *Asymptoceras capax*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 346.

Asymptoceras newloni Hyatt.

1891. *Asymptoceras Newloni*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 346, figs. 48, 49.
Coal Measures: Oswego, Kansas.
1893. *Asymptoceras Newloni*. Hay, Trans. Kans. Acad. Sci., vol. 13, p. 45.
Coal Measures: Oswego, Kansas.

Asymptoceras springeri White and St. John.

1868. *Nautilus (Cryptoceras) Springeri*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 124, fig. 10.
Upper Coal Measures: Adair County, Iowa.
1891. *Asymptoceras Springeri*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 346.

ATELESTOCRINUS Wachsmuth and Springer, 1886.**Atelestocrinus delicatus Wachsmuth and Springer.**

1886. *Atlelostocrinus delicatus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 147; Rev. Palæocr. pt. 3, p. 223.
Lower Burlington L. S.: Burlington, Iowa.

Atelestocrinus robustus Wachsmuth and Springer.

1886. *Atelestocrinus robustus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 147; Rev. Palæocr., pt. 3, p. 223.
Burlington and Keokuk Transition bed: Near Burlington, Iowa.
Base of Keokuk L. S.: White's Creek Spring, near Nashville, Tennessee.

ATHYRIS McCoy, 1844.

Athyris americana. See *Cleiothyris roissyi*.

Athyris argentea. See *Seminula subtilita*. *argentea*

Athyris ashlandensis. See *Athyris lamellosa*.

Athyris biloba Winchell.

1865. *Spirigera biloba*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 118.
Goniatite L. S.: Rockford, Indiana.

Athyris corpulenta Winchell.

1863. *Spirigera corpulenta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 6.
Yellow S. S.: Burlington, Iowa.

Athyris crassicardinalis. See *Cleiothyris crassicardinalis*.

Athyris densa Hall.

1894. *Athyris densa*. Hall, 13th Rep. N. Y. State Geol., p. 651.
St. Louis Group: Washington County, Indiana; Colesburg, Kentucky.
1895. *Athyris densa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 364, pl. 46,
figs. 6-12.
St. Louis Group: Washington County, Indiana; Colesburg, Kentucky;
Lanesville, Indiana.
1897. *Athyris densa*. Hall, 14th Rep. N. Y. State Geol., p. 358, pl. 9, figs. 3-9.
St. Louis Group: Washington County, Indiana; Colesburg, Kentucky.

Athyris differentius. See *Seminula subtilita*.

Athyris formosa. See *Seminula formosa*.

Athyris hannibalensis Swallow.

1860. *Spirigera Hannibalensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 649.
Chemung Rocks: Hannibal, Louisiana, and Sulphur Springs, Missouri.
1865. *Spirigera Hannibalensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 118.
Lithographic L. S.: Clarksville, Missouri.
1870. *Spirigera Hannibalensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Sciotoville, Ohio.
1894. *Athyris hannibalensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 91, pl. 41, fig. 9.
Louisiana L. S.: Hannibal, Louisiana, and Sulphur Springs, Missouri.
1895. *Athyris Hannibalensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46,
figs. 13-15.
Choteau L. S.: Louisiana, Missouri.

Athyris hirsuta. See *Cleiothyris hirsuta*.

Athyris incrassata Hall.

1858. *Athyris incrassatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 600, pl. 12, fig. 6.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Hannibal, Missouri.
1895. *Athyris incrassata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, fig. 21;
pl. 83, fig. 39.
Burlington L. S.: Burlington, Iowa.
Warsaw L. S.: Des Moines River, Iowa.
See *Athyris lamellosa*.

Athyris intervarica McChesney.

1861. *Athyris intervarica*. McChesney, Desc. New Spec. Foss., p. 78.
Burlington L. S.: Burlington, Iowa.

Athyris jacksoni Swallow.

1860. *Spirigera Jacksoni*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 651.
Upper Coal Measures: Cass County, Missouri.

Athyris lamellosa Leveille.

1875. *Athyris lamellosa?* Meek, Pal. Ohio, vol. 2, p. 283, pl. 14, figs. 6a, b.
Waverly Group: Sciotoville, Ohio.
1888. *Athyris lamellosa*. Herrick, Bull. Den. Univ., vol. 3, p. 49, pl. 2, fig. 7.
Waverly Group: Licking County, Ohio.

Athyris lamellosa Leveille—Continued.

1888. *Athyris ashlandensis*. Herrick, Bull. Den. Univ., vol. 4, p. 24, pl. 3, fig. 6.
Waverly Group: Ashland County and Moots Run, Licking County, Ohio.
1894. *Athyris incrassatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 91, pl. 41, fig. 10.
Burlington L. S.: Hannibal, Missouri.
1895. *Athyris ashlandensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 10.
Cuyahoga Shale: Ashland and Licking counties, Ohio.
1895. *Athyris lamellosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, figs. 16-20.
Waverly Group: Sciotoville, Ohio.
Keokuk Group: Crawfordsville, Indiana.

Athyris missouriensis Winchell.

1865. *Spirigera Missouriensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Lithographic L. S.: Louisiana, Missouri.
Marshall Group: Weymouth, Medina County, Ohio, 60 feet below conglomerate.

Athyris monticola White.

1874. *Spirigera monticola*. White, Prelim. Rep. Inv. Foss., p. 16.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirigera monticola*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 91, pl. 5, figs. 11a-d.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

Athyris obmaxima. See *Cleiothyris obmaxima*.**Athyris obvia**. See *Cleiothyris obvia*.**Athyris ohioensis** Winchell.

1865. *Spirigera Ohiensis*. Winchell, Proc. Acaa. Nat. Sci. Phil., p. 118.
Marshall Group: Akron, Ohio.
1870. *Spirigera Ohiensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Sciotoville, Ohio.
1888. *Athyris ohioensis*. Herrick, Bull. Den. Univ., vol. 3, p. 49, pl. 2, figs. 1-3.
Waverly Group: Licking County, Ohio.

Athyris orbicularis. See *Cleiothyris orbicularis*.**Athyris papilioniformis** McChesney.

1860. *Athyris spiriferoides*. McChesney, Desc. New Pal. Foss., p. 46. (Not *A. spiriferoides* Eaton.)
Kaskaskia L. S.: Fountain Bluff, Illinois.
1865. *Athyris papilioniformis*. McChesney, Ill. New Spec. Foss., pl. 6, fig. 4a-c.
1868. *Athyris ? papilioniformis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 33, pl. 6, figs. 4a-c.
Chester L. S.: Fountain Bluff, Illinois.

Athyris parvirostra. See *Cleiothyris roissyi*.**Athyris perinflata** McChesney.

1861. *Athyris perinflata*. McChesney, Desc. New Spec. Foss., p. 81
Keokuk Group: Nanvoo, Illinois.

Athyris persinuata. See *Seminula persinuata*.**Athyris planosulcata**. See *Cleiothyris roissyi*.**Athyris proutii** Swallow.

1860. *Spirigera Proutii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 649.
Chemung Rocks: St. Louis County, near Sulphur Springs, Missouri.
1894. *Athyris proutii*. Keyes, Mo. Geol. Surv., vol. 5, p. 91.
Louisiana L. S.: Hannibal, Louisiana; Clarksville, and Sulphur Springs, Missouri.

Athyris roissyi. See *Cleiothyris roissyi*.

Athyris spiriferoides. See *Athyris papilioniformis*.

Athyris squamosa. See *Cleiothyris squamosa*.

Athyris sublamellosa. See *Cleiothyris roissyi*.

Athyris subquadrata. See *Seminula subquadrata*.

Athyris subtilita. See *Seminula subtilita* and *Seminula dawsoni*.

Athyris trinuclea. See *Seminula trinuclea*.

Athyris ultravarica McChesney.

1861. *Athyris ultravarica*. McChesney, Desc. New Spec. Foss., p. 79.
Keokuk Group: Keokuk, Iowa; Ste. Genevieve, Missouri.

Athyris (species undetermined).

1859. *Spirigera* — ? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Fort Riley, Kansas.
1888. *Athyris* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, figs. 19, 34; pl. 12, fig. 28.
Waverly Group: Licking County, Ohio.
1888. *Athyris* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 23.
Waverly Group: Cuyahoga Falls, Ohio.

ATRYPA Dalman, 1827.

Atrypa reticularis Linnæus.

1888. *Atrypa reticularis* ?? Herrick, Bull. Den. Univ., vol. 3, p. 41, pl. 3, fig. 11.
Waverly Group: Licking County, Ohio.
1888. *Atrypa reticularis*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 7.
Shales above Berea Grit: Central College, Ohio.
1889. *Atrypa reticularis*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 7.
1895. *Atrypa reticularis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 7.
Shale above Berea Grit: Ohio.

(AUCELLA Keyserling, 1846.)

Aucella hausmani. See *Myalina swallowi*.

AULACORHYNCHUS Dittmar, 1871.

Aulacorhynchus millepunctatus Meek and Worthen.

1870. *Chonetes* ?? *millepunctatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 35.
Upper Coal Measures: Marion County, Illinois.
1873. *Chonetes* ?? *millepunctata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 566, pl. 25, fig. 3.
Upper Coal Measures: Marion County, Illinois.
1873. *Isogramma millepunctata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 568.
1886. *Chonetes* (?) *millepunctata*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 452, p. 440, fig. 3.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Chonetes* (?) *millepunctata*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 268, fig. 3.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Aulacorhynchus millepunctatus*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 54, figs. 23, 24.
Coal Measures: Crooked Creek, Illinois.

Aulacorhynchus millepunctatus Meek and Worthen—Continued.

1894. *Chonetes millepunctatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 54.

Upper Coal Measures: Kansas City, Missouri.

1895. *Aulacorhynchus millepunctatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 83, figs. 14, 15.

Coal Measures: Crooked Creek, Illinois.

AULOPORA Goldfuss, 1826.**Aulopora gracilis** Keyes.

1894. *Aulopora gracilis*. Keyes, Mo. Geol. Surv., vol. 4, p. 123, pl. 14, fig. 8.

Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.

Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.

(**AULOSTEGES** Helmerston, 1847.)

Aulosteges guadalupensis. See *Strophalosia guadalupensis*.

Aulosteges spondyliiformis. See *Strophalosia spondyliiformis*.

AVICULA Klein, 1753.

Avicula acanthoptera. See *Pterinea spinalata*.

Avicula acosta Cox.

1857. *Avicula acosta*. Cox, Geol. Rep. Ky., vol. 3, p. 572, pl. 9, fig. 3.

Coal Measures: Union County, Kentucky; Gallatin County, Illinois.

Avicula circulus. See *Pernopecten circulus*.

Avicula cooperensis. See *Pernopecten cooperensis*.

Avicula custa Hall.

1852. *Avicula* ? *custa*. Hall, Stansb. Exped. Gt. Salt Lake, p. 412, pl. 2, figs. 1a, b.

Carboniferous: Between Fort Laramie and Great Salt Lake, Utah.

Avicula gryphæata Münster.

1858. *Avicula gryphæata* (?). Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.

Upper Permian: Kansas.

Avicula longa Geinitz.

1866. *Gervillia longa*. Geinitz, Carb. und Dyas in Nebr., p. 32, tab. 2, fig. 15.

Nebraska City.

1872. *Avicula longa*. Meek, U. S. Geol. Surv. Nebr., p. 199, pl. 9, fig. 8.

Upper Coal Measures: Nebraska City and Riverside, Nebraska.

Coal Measures: Atchison, Kansas; Illinois.

1873. *Avicula longa*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 578, pl. 26, fig. 1.

Coal Measures: Danville, Illinois.

1891. *Avicula longa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 248.

Middle Coal Measures: Des Moines, Iowa.

1891. *Gervillia longa*. White, Bull. U. S. Geol. Surv., No. 77, p. 29, pl. 4, fig. 2.

Permian: Goodwin Creek, Baylor County, Texas.

1894. *Avicula longa*. Keyes, Mo. Geol. Surv., vol. 5, p. 113.

Upper Coal Measures: Kansas City, Missouri.

Avicula magna. See *Aviculopecten magna*.

Avicula morganensis Meek and Worthen.

1866. *Pteria* (*Pterinea* ?) *morganensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 259.

Coal Measures: Morgan County, Illinois.

***Avicula morganensis* Meek and Worthen—Continued.**

1873. *Avicula Morganensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 576, pl. 26, fig. 14.

Coal Measures: Morgan County, Illinois.

Avicula oblonga*. See *Aviculopecten oblongus*.**Avicula ohioense* Herrick.**

1887. *Gervillia* (?) *ohioense*. Herrick, Bull. Den. Univ., vol. 2, p. 36, pl. 4, fig. 13; pl. 3, fig. 12

Coal Measures: Flint Ridge, Ohio.

1887. *Avicula* (*Gervillia*) *ohioense*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14, fig. 22.

Coal Measures: Flint Ridge, Ohio.

***Avicula orbiculus* Stevens.**

1858. *Avicula orbiculus*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 264.

Coal Measures: Summit, Ohio, and Springfield, Illinois.

Avicula pinnæformis*. See *Aviculopinna americana*.**Avicula recta* Herrick.**

1888. *Avicula* ? *recta*. Herrick, Bull. Den. Univ., vol. 4, p. 115, pl. 10, fig. 13.

Cuyahoga Shale: Cuyahoga Falls, Ohio.

1895. *Avicula recta*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 5.

Cuyahoga Shale: Cuyahoga Falls, Ohio.

Avicula rectalaterarea*. See *Aviculopecten rectalaterarius*.**Avicula scutella*. See *Leptodesma scutella*.*****Avicula semielliptica* Shumard.**

1858. *Avicula semielliptica*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 210.

Upper Coal Measures: Valley of the Verdigris River, Kansas.

***Avicula shawneensis* Shumard.**

1858. *Avicula Shawneensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 211.

Upper Coal Measures: Clifton Park, Kansas.

Avicula speluncaria*. See *Pseudomonatis radialis*.**Avicula subspatulata* Herrick.**

1888. *Leiopteria* sp. Herrick, Bull. Den. Univ., vol. 3, p. 62, pl. 3, fig. 6.

Waverly Group: Licking County, Ohio.

1888. *Avicula* ? *subspatulata*. Herrick, Bull. Den. Univ., vol. 4, p. 30, pl. 5, fig. 11.

Waverly Group: Newark, Ohio.

1889. *Avicula* ? *subspatulata*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 11.

1895. *Avicula subspatulata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 2.

Burlington: Newark, Ohio.

***Avicula sulcata* Geinitz.**

1866. *Gervillia* (an *Avicula*) *sulcata*. Geinitz, Carb. und Dyas in Nebr., p. 33, tab. 2, fig. 16.

Nebraska City.

1872. *Avicula* ? *sulcata*. Meek, U. S. Geol. Surv. Nebr., p. 200, pl. 9, fig. 9.

Upper Coal Measures: Nebraska City, Nebraska.

***Avicula triplistriata* Stevens.**

1858. *Avicula triplistriata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 265.

Coal Measures: Summit, Ohio.

***Avicula whitei* Winchell.**

1863. *Avicula Whitei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 8.

Yellow S. S.: Burlington, Iowa.

Avicula (species undetermined).

1852. *Avicula* (sp. undetermined). Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 3A, fig. 3.

Carboniferous L. S. (oolite): 3 miles below Augusta, Iowa.

AVICULOPECTEN McCoy, 1851.**Aviculopecten acadicus Hartt.**

1868. *Aviculopecten Acadicus*. Hartt, Dawson's Acad. Geol., p. 307, fig. 114.
Carboniferous L. S.: Windsor, Nova Scotia.

Aviculopecten acutialatus Swallow.

1858. *Pecten acutialatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 185.
Permian: Valley of Kansas River, Kansas.

Aviculopecten affinis Walcott.

1884. *Aviculopecten affinis*. Walcott, Pal. Eureka Dist., p. 229, pl. 19, figs. 1, 1a.
Lower Carboniferous: Eureka District, Nevada.

Aviculopecten amplus Meek and Worthen.

1860. *Aviculopecten amplus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 454.
Keokuk L. S.: Monroe County, Illinois.
1866. *Aviculopecten amplus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 257, pl. 18, figs. 4a-c.
Keokuk Group: Monroe County, Illinois.

Aviculopecten armigerus Conrad.

1835. *Pecten armigerus*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 268, pl. 12, fig. 3.

Aviculopecten batesvillensis Weller.

1897. *Aviculopecten batesvillensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 263, pl. 19, figs. 3, 4.
Batesville S. S.: Batesville, Arkansas.

Aviculopecten burlingtonensis Meek and Worthen.

1860. *Aviculopecten Burlingtonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 453.
Burlington L. S.: Burlington, Iowa.
1866. *Aviculopecten burlingtonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 231, pl. 16, figs 1a, b.
Burlington L. S.: Burlington, Iowa.

Aviculopecten cancellatus*. See *Crenipecten cancellatus*.*Aviculopecten carboniferus Stevens.**

1858. *Pecten carboniferus*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 261.
Coal Measures: Crooked Creek, Marion County, Illinois.
1863. *Pecten Broadheadii*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 97.
Upper Coal Measures: Harrison County, Missouri.
1866. *Pecten Hawni*. Geinitz, Carb. und Dyas in Nebr., p. 36, tab. 2, figs. 19a, b.
Nebraska City, Nebraska.
1872. *Aviculopecten carboniferus*. Meek, U. S. Geol. Surv. Nebr., p. 193, pl. 4, fig. 8; pl. 9, figs. 4a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Iowa, Illinois, West Virginia.
1874. *Aviculopecten carboniferus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 489.
1884. *Aviculopecten carboniferus*. White, 13th Rep. Geol. Surv. Ind., p. 144, pl. 28, figs. 5-6.
Coal Measures: Lick Branch, near Silverwood, Fountain County, and in Vermilion County, Indiana.

Aviculopecten carboniferus Stevens—Continued.

1887. *Aviculopecten carboniferus*. Herrick, Bull. Den. Univ., vol. 2, p. 67, pl. 3, fig. 13.
Coal Measures: Flint Ridge, Ohio.
1894. *Aviculopecten carboniferus*. Keyes, Mo. Geol. Surv., vol. 5, p. 111, pl. 43, figs. 4a, b.
Upper Coal Measures: Kansas City, Missouri.
1897. *Aviculopecten carboniferus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 33.
Lower Coal Measures: White and Conway counties, Arkansas.

Aviculopecten caroli Winchell.

1863. *Aviculopecten Caroli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 9.
Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.
1865. *Aviculopecten Caroli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 125.
Base of Burlington L. S.: Burlington, Iowa.
1870. *Aviculopecten Caroli*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.
Waverly Group: Newark, Sciotoville, and Granville, Ohio.
1884. *Aviculopecten Caroli*. Hall, Pal. N. Y., vol. 5, pt. 1, Lam. I, p. 29, pl. 9, fig. 5.
Waverly S. S.: Newark, Ohio.
1888. *Crenipecten caroli*. Herrick, Bull. Den. Univ., vol. 4, pl. 5, fig. 9.
Waverly Group: Gann, Ohio.
1889. *Crenipecten caroli*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 9.
1895. *Crenipecten caroli*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 4.
Kinderhook: Gann, Ohio.

Aviculopecten catactus Meek.

1877. *Aviculopecten catactus*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 93, pl. 3, figs. 10, 10a.
Devonian or Carboniferous: Hamilton, White Pine Mountains, Nevada.

Aviculopecten chesterensis Worthen.

1884. *Aviculopecten chesterensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 20.
Lower Chester L. S.: Chester, Illinois.
1890. *Aviculopecten chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 115, pl. 21, figs. 5, 5a.
Chester L. S.: Chester, Illinois.

Aviculopecten colletti Worthen.

1884. *Aviculopecten colletti*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 21.
Keokuk Shale: Crawfordsville, Indiana.
1890. *Aviculopecten colletti*. Worthen, Geol. Surv. Ill., vol. 8, p. 119, pl. 22, figs. 8b, 13.
Keokuk Group: Crawfordsville, Indiana.

Aviculopecten coloradoensis Newberry.

1861. *Pecten (Monotis?) Coloradensis*. Newberry, Ives' Colo. Expl. Exped., p. 129, pl. 1, figs. 6, 6a.
Upper Carboniferous?: Region of Colorado River?

Aviculopecten cooperi Herrick.

1888. *Aviculopecten cooperi*. Herrick, Bull. Den. Univ., vol. 3, p. 51, pl. 12, figs. 16, 17.
Waverly Group: Licking County, Ohio.
1895. *Crenipecten (Aviculopecten?) cooperi*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, figs. 1-4.
(Cuyahoga Shale): Cuyahoga Falls, Ohio.

***Aviculopecten cora* Dawson.**

1868. *Aviculopecten cora*. Dawson, Acad. Geol., p. 307, fig. 115.
Carboniferous L. S.: Shubenacadie, Nova Scotia.

***Aviculopecten coreyanus* White.**

1874. *Aviculopecten Coreyana*. White, Prelim. Rep. Inv. Foss., p. 21.
Carboniferous (Coal Measures): East of Mount Taylor, 1 mile south of Pajunata, New Mexico.
1877. *Aviculopecten Coreyanus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 147, pl. 11, figs. 1a, b.
Carboniferous: Bear Spring, near Camp Wingate, New Mexico.
1894. *Aviculopecten coryanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 113.
Upper Coal Measures: Kansas City, Missouri.

***Aviculopecten coxanus* Meek and Worthen.**

1860. *Aviculopecten Coxanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 453.
Coal Measures: Adams County, Illinois.
1866. *Aviculopecten Coxanus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 326, pl. 26, figs. 6a, b.
Lower Coal Measures: Adams County, Illinois.
1872. *Aviculopecten Coxanus*. Meek, U. S. Geol. Surv. Nebr., p. 196, pl. 9, figs. 2a, b.
Upper Coal Measures: Nebraska City, Nebraska; Illinois.
Lower Coal Measures: Adams County, Illinois.
1886. *Aviculopecten coxanus*. Claypole, Proc. and Coll., Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 247.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Aviculopecten coxanus*. Herrick, Bull. Den. Univ., vol. 2, p. 26, pl. 1, figs. 4, 17.
Coal Measures: Flint Ridge, Ohio.
1888. *Aviculopecten coxanus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 232.
Lower Coal Measures: Des Moines, Iowa.
1894. *Aviculopecten coxanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 112.
Upper Coal Measures: Kansas City, Missouri.
1897. *Aviculopecten coxanus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 33.
Upper Coal Measures: Poteau Mountain, Indian Territory.

***Aviculopecten crenistriatus* Meek.**

1871. *Aviculopecten crenistriatus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 60.
Upper Waverly Group: Sciotoville, Ohio.
1875. *Aviculopecten crenistriatus*. Meek, Pal. Ohio, vol. 2, p. 295, pl. 15, figs. 7a, b.
Upper Waverly Group: Sciotoville, Ohio.
1888. *Crenipecten crenistriatus*. Herrick, Bull. Den. Univ., vol. 4, p. 34, pl. 5, fig. 14.
Waverly Group: Newark, Ohio.
1889. *Crenipecten crenistriatus*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 14.
1895. *Crenipecten crenistriatus*. Herrick, Geol. Surv., Ohio, vol. 7, pl. 24, fig. 3.
Burlington: Newark, Ohio.

***Aviculopecten curtocardinalis* Hall and Whitfield.**

1877. *Aviculopecten curto-cardinalis*. Hall and Whitfield, U. S. Geol. Expl., 40 Par., vol. 4, p. 273, pl. 6, fig. 4.
Upper Coal Measures: Foothills southeast of Salt Lake City, Wahsatch Range, Utah.

***Aviculopecten debertianus* Dawson.**

1868. *Aviculopecten Debertianus*. Dawson, Acad. Geol., p. 307, fig. 116.
Carboniferous L. S.: De Bert River, Nova Scotia.

***Aviculopecten edwardsi* Worthen.**

1884. *Aviculopecten edwardsi*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 22.
Upper Keokuk L. S.: Warsaw, Illinois.
1890. *Aviculopecten edwardsi*. Worthen, Geol. Surv. Ill., vol. 8, p. 119, pl. 22, fig. 2.
Keokuk L. S.: Warsaw, Illinois.

***Aviculopecten elsahensis* Worthen.**

1884. *Aviculopecten elsahensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 19.
Kinderhook Group?: one-half mile above Elsah, Jersey County, Illinois.
1890. *Aviculopecten elsahensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 115, pl. 22, fig. 3.
Kinderhook? Group: one-half mile above Elsah, Jersey County, Illinois.

***Aviculopecten eurekensis* Walcott.**

1884. *Aviculopecten Eurekensis*. Walcott, Pal. Eureka Dist., p. 227, pl. 19, figs. 2, 3.
Lower Carboniferous: Eureka District, Nevada.

***Aviculopecten fasciculatus* Keyes.**

1894. *Aviculopecten fasciculatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 113, pl. 42, fig. 7. (Not *A. fasciculatus* Hall, 1883.)
Upper Coal Measures: Kansas City, Missouri.

***Aviculopecten germanus* Miller and Faber.**

1892. *Aviculopecten germanus*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 15, p. 81, pl. 1, fig. 9.
Coal Measures: Elkhorn Creek, Kentucky.
1897. *Aviculopecten germanus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 33.
Upper Coal Measures: Poteau Mountain, Indian Territory.

***Aviculopecten gradocostus* White.**

1862. *Aviculopecten gradocostus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 31.
Chemung S. S.: Burlington, Iowa.

***Aviculopecten granvillensis* Herrick.**

1888. *Aviculopecten granvillensis*. Herrick, Bull. Den. Univ., vol. 3, p. 50, pl. 10, fig. 8.
Waverly Group: Licking County, Ohio.
1888. *Crenipecten granvillensis*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 22.
Waverly Group: Licking County, Ohio.

***Aviculopecten haguei* Walcott.**

1884. *Aviculopecten Haguei*. Walcott, Pal. Eureka Dist., p. 226, pl. 19, fig. 4.
Lower Carboniferous: Eureka District, Nevada.

***Aviculopecten halli* Swallow.**

1860. *Pecten Halli*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 656.
Coal Measures: Willow Springs, Kansas.

***Aviculopecten hardinensis* Worthen.**

1890. *Aviculopecten hardinensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 117, pl. 22, figs. 5, 5a.
St. Louis L. S.: Hardin County, Illinois.

***Aviculopecten hertzeri* Meek.**

1871. *Aviculopecten (Streblopteria ?) hertzeri*. Meek, Proc. Acad. Nat. Sci. Phil., p. 61.

Lower Coal Measures: Newark, Ohio.

1875. *Aviculopecten (Streblopteria ?) Hertzeri*. Meek, Pal. Ohio, vol. 2, p. 330, pl. 19, figs. 13a-c.

Lower Coal Measures: Newark, Ohio.

1887. *Aviculopecten hertzeri*. Herrick, Bull. Den. Univ., vol. 2, p. 25, pl. 1, figs. 5, 10.

Coal Measures: Flint Ridge, Ohio.

***Aviculopecten indianensis* Meek and Worthen.**

1868. *Aviculopecten Indianensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 532, pl. 19, figs. 6a, b.

Keokuk Group: Crawfordsville, Indiana.

***Aviculopecten interlineatus* Meek and Worthen.**

1860. *Aviculopecten interlineatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 454.

Upper Coal Measures: Lasalle, Illinois.

1866. *Aviculopecten interlineatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 329, pl. 26, figs. 7a, b.

Upper Coal Measures: Lasalle, Illinois.

1877. *Aviculopecten ? interlineatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 149, pl. 11, fig. 3a.

Carboniferous: Confluence of White Mountain and Black rivers, Arizona.

1884. *Aviculopecten (?) interlineatus*. White, 13th Rept. Geol. Surv. Ind., p. 145, pl. 30, fig. 9.

Coal Measures: Indiana (?).

1891. *Aviculopecten interlineatus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 604, pl. 16, figs. 10, 11.

Coal Measures: Hocking County, Ohio.

1894. *Aviculopecten ? interlineatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 112, pl. 42, fig. 6.

Upper Coal Measures: Kansas City, Missouri.

1895. *Aviculopecten interlineatus*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 489, pl. 12, figs. 10, 11.

Coal Measures: Falls township, Hocking County, Ohio.

***Aviculopecten iowensis* Miller.**

1863. *Aviculopecten occidentalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 9. (Not *A. occidentalis* Shumard, 1855.)

Oolitic L. S.: Burlington, Iowa.

1865. *Aviculopecten occidentalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.

1870. *Aviculopecten occidentalis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255. Waverly Group: Newark, Ohio.

1883. *Aviculopecten iowensis*. Miller, Am. Pal. Foss., 2d ed., p. 310.

***Aviculopecten konincki* Meek and Worthen.**

1860. *Aviculopecten Koninckii*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 453.

Lower Coal Measures: Alpine, Iowa.

1866. *Aviculopecten Koninckii*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 328, pl. 26, fig. 8.

Lower Coal Measures: Alpine, Iowa.

***Aviculopecten limaformis*. See *Pernopecten limaformis*.**

Aviculopecten lyelli Dawson.

1868. *Aviculopecten Lyelli*. Dawson, Acad. Geol., p. 305, figs. 111a-c.
Carboniferous L. S.: Windsor, Shubenacadie, etc., Nova Scotia.

Aviculopecten lyelli var. alternans Dawson.

1883. *Aviculopecten Lyelli* (var. *alternans*). Dawson, Rep. Peter Redpath Mus., No. 2, p. 12.
Lower Carboniferous: Brookfield and Shubenacadie, Nova Scotia.

Aviculopecten macwhorteri Worthen.

1890. *Aviculopecten mac-whorteri*. Worthen, Geol. Surv. Ill., vol. 8, p. 118, pl. 22, fig. 4.
Kinderhook Group: Kinderhook, Illinois.

Aviculopecten magnus Swallow.

1863. *Avicula magna*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 98.
Archimedes L. S.: Knox County, Missouri.
1894. *Aviculopecten magnus*. Keyes, Mo. Geol. Surv., vol. 5, p. 110, pl. 43, fig. 7.
Burlington L. S.: Springfield, Missouri.

Aviculopecten mazonensis Worthen.

1890. *Aviculopecten mazonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 117, pl. 22, fig. 9.
Coal Measures: Mazon Creek, Grundy County, Illinois.

Aviculopecten mccoyi Meek and Hayden.

1864. *Aviculopecten McCoyi*. Meek and Hayden, Pal. Upper Mo., p. 50, pl. 2, fig. 9.
Permian: South Cottonwood Creek, Kansas.
1877. *Aviculopecten McCoyi*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 149, pl. 11, fig. 2a.
Carboniferous: Near Bear Spring, Camp Wingate, New Mexico.

Aviculopecten menardi Worthen.

1884. *Lima? menardi*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 22.
Coal Measures: Menard County, Illinois.
1890. *Aviculopecten menardi*. Worthen, Geol. Surv. Ill., vol. 8, p. 120, pl. 22, fig. 12.
Coal Measures: Menard County, Illinois.

Aviculopecten missouriensis Shumard.

1855. *Pecten Missouriensis*. Shumard, Geol. Rep. Mo., p. 207, pl. C, fig. 16.
St. Louis L. S.: St. Louis County, Missouri.
1886. *Pecten missouriensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 247.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Aviculopecten missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 110.
St. Louis L. S.: St. Louis, Missouri.

Aviculopecten monroensis Worthen.

1884. *Aviculopecten monroensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 21.
St. Louis L. S. (oolitic beds): Monroe County, Illinois.
1890. *Aviculopecten monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 114, pl. 22, figs. 8, 8a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Aviculopecten neglectus*. See *Euchondria neglecta*.*Aviculopecten newarkensis Winchell.**

1870. *Aviculopecten Newarkensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.
Waverly Group: Newark, Ohio.
1888. *Aviculopecten (Crenipecten) newarkensis?* Herrick, Bull. Den. Univ., vol. 3, p. 52, pl. 3, fig. 31.
Waverly Group: Licking County, Ohio.

Aviculopecten niotensis Worthen.

1884. *Aviculopecten niotense*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 19.

Keokuk L. S.: Niota, Hancock County, Illinois.

1890. *Aviculopecten niotensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 113, pl. 22, fig. 10.

Keokuk L. S.: Niota, Hancock County, Illinois.

Aviculopecten nodocostatus White and Whitfield.

1862. *Aviculo-pecten nodocostatus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 296.

Chemung Group: Burlington, Iowa.

Aviculopecten oblongus Meek and Worthen.

1860. *Avicula oblonga*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 454.

Warsaw L. S.: Warsaw, Illinois.

1866. *Aviculopecten oblongus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 258, pl. 18, figs. 3a, b.

Keokuk Group: Warsaw, Illinois.

Aviculopecten occidaneus Meek.

1877. *Aviculopecten occidaneus*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 96, pl. 12, figs. 13-13b.

Upper Coal Measure, L. S.: Weber Cañon, Wasatch Range, Nevada.

Aviculopecten occidentalis Shumard.

1855. *Pecten occidentalis*. Shumard, Geol. Rep. Mo., p. 207, pl. C, fig. 18.

Coal Measures: Near Plattsburg, Clinton County, Missouri.

1858. *Pecten Cleavelandicus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 184.

Permian: Valley of South Cottonwood, Kansas.

1861. *Pecten occidentalis*. Newberry, Ives' Colo. Expl. Exped., p. 128.

Coal Measures: Banks of the Stranger, above Easton, Kansas.

1864. *Aviculopecten* — ? Meek and Hayden, Pal. Upper Mo., p. 50, pl. 2, fig. 10.

Permian: Near Chapman's Creek, 18 miles above Fort Riley, Kansas.

1866. *Aviculopecten occidentalis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 331, pl. 27, figs. 4, 5, 5a.

Upper Coal Measures: Saline Creek, Gallatin County, Illinois.

1866. *Pecten Missouriensis?* Geinitz, Carb. und Dyas in Nebr., p. 35, tab. 2, fig. 18.

Nebraska City, Nebraska.

1872. *Aviculopecten occidentalis*. Meek, U. S. Geol. Surv. Nebr., p. 191, pl. 9, fig. 10.

Upper Coal Measures: Rock Bluff, Bennett's Mill, Wyoming and Nebraska City, Nebraska; Illinois, Missouri, Iowa, Kansas, Kentucky.

Coal Measures: Black Hills, Dakota.

1876. *Aviculopecten occidentalis*. White, Powell's Rep. Geol. Uinta Mts., p. 90.

Lower Aubrey Group: Two miles above Belleview, Utah.

1877. *Aviculopecten occidentalis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 146, pl. 12, figs. 8a, b.

Carboniferous: Camp Apache, Arizona.

1884. *Aviculopecten occidentalis*. White, 13th Rep. Geol. Surv. Ind., p. 143, pl. 28, fig. 2.

Coal Measures: Pike and Gibson counties, Indiana.

1886. *Aviculopecten occidentalis*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 455, fig. 5a, p. 442, fig. 5.

Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

1886. *Aviculopecten occidentalis*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 270, fig. 5, p. 271, fig. 5a.

Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Aviculopecten occidentalis Shumard—Continued.

1891. *Aviculopecten occidentalis*. White, Bull. U. S. Geol. Surv., No. 77, p. 29, pl. 4, fig. 1.
Permian: Military Crossing, Baylor County, Texas.
1894. *Aviculopecten occidentalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 110, pl. 42, fig. 3.
Upper Coal Measures: Plattsburg and Kansas City, Missouri.
1897. *Aviculopecten occidentalis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Lower Coal Measures: Conway County, Arkansas.

Aviculopecten occidentalis Winchell. See *Aviculopecten iowensis*.

Aviculopecten orestes Worthen.

1884. *Aviculopecten orestes*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 18.
Keokuk L. S.: Warsaw, Illinois.
1890. *Aviculopecten orestes*. Worthen, Geol. Surv. Ill., vol. 8, p. 112, pl. 22, fig. 6.
Keokuk L. S.: Warsaw, Illinois.

Aviculopecten oweni Meek and Worthen.

1860. *Aviculopecten Oweni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 452.
Keokuk L. S.: Near Warsaw, Illinois.
1866. *Aviculopecten Oweni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 256, pl. 18, figs. 2a-c.
Keokuk Group: Near Warsaw, Illinois.
1888. *Aviculopecten* (cf. *oweni*). Herrick, Bull. Den. Univ., vol. 3, p. 52, pl. 3, fig. 5.
Waverly Group: Licking County, Ohio.

Aviculopecten parvulus Hall and Whitfield.

1877. *Aviculopecten parvulus*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 274, pl. 6, fig. 6.
Upper Coal Measures L. S.: Foothills southeast of Salt Lake City, Wahsatch Range, Utah.

Aviculopecten pellucidus Meek and Worthen.

1860. *Aviculopecten pellucidus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 455.
Coal Measures: Adams County, Illinois.
1866. *Aviculopecten pellucidus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 327, pl. 26, figs. 5a, b.
Lower Coal Measures: Adams County, Illinois.

Aviculopecten perelongatus Herrick.

1888. *Aviculopecten perelongatus*. Herrick, Bull. Den. Univ., vol. 3, p. 50.
Waverly Group: Licking County, Ohio.

Aviculopecten perocidens Walcott.

1884. *Aviculopecten perocidens*. Walcott, Pal. Eureka Dist., p. 227, pl. 8, fig. 8.
Lower Carboniferous: Eureka District, Nevada.

Aviculopecten pintœnsis Walcott.

1884. *Aviculopecten Pintœnsis*. Walcott, Pal. Eureka Dist., p. 228, pl. 8, fig. 6.
Lower Carboniferous: Eureka District, Nevada.

Aviculopecten providencesis Cox.

1857. *Pecten providencesis*. Cox, Geol. Rep. Ky., vol. 3, p. 566, pl. 8, fig. 1.
Coal Measures: Providence, Hopkins County, Kentucky.

Aviculopecten rectalaterarius Cox.

1857. *Avicula recta-laterarea*. Cox, Geol. Rep. Ky., vol. 3, p. 571, pl. 9, fig. 2.
Coal Measures: Union County, Kentucky; Gallatin County, Illinois.

Aviculopecten reticulatus Dawson.

1868. *Aviculopecten reticulatus*. Dawson, Acad. Geol., p. 306, fig. 112.
Carboniferous L. S.: Gay's River, Nova Scotia.

Aviculopecten ringens Swallow.

1858. *Pecten ringens*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 184.
Permian: Valley of Cottonwood, Kansas.

Aviculopecten scalaris Herrick.

1887. *Aviculopecten scalaris*. Herrick, Bull. Den. Univ., vol. 2, p. 26, pl. 1, fig. 8.
Coal Measures: Flint Ridge, Ohio.

Aviculopecten sculptilis Miller.

1891. *Aviculopecten sculptilis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 92, pl. 20, fig. 5.
Coal Measures: Kansas City, Missouri.
1892. *Aviculopecten sculptilis*. Miller, 17th Rep. Geol. Surv. Ind., p. 702, pl. 20, fig. 5.
Coal Measures: Kansas City, Missouri.

Aviculopecten simplex Dawson.

1868. *Aviculopecten simplex*. Dawson, Acad. Geol., p. 306, figs. 13a, b.
Carboniferous L. S.: Shubenacadie, Windsor, etc., Nova Scotia.

Aviculopecten sorer Herrick.

1887. *Aviculopecten sorer*. Herrick, Bull. Den. Univ., vol. 2, p. 27, pl. 1, fig. 7; pl. 3, fig. 16.
Coal Measures: Flint Ridge, Ohio.

Aviculopecten spinuliferus Meek and Worthen.

1870. *Aviculopecten spinuliferus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 39.
Keokuk Group: Crawfordsville, Indiana.
1884. *Aviculopecten spinuliferus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 20.
Keokuk Shale: Crawfordsville, Indiana.
1890. *Aviculopecten spinuliferus*. Worthen, Geol. Surv. Ill., vol. 8, p. 116, pl. 22, fig. 1.
Keokuk Shale: Crawfordsville, Indiana.

Aviculopecten talboti Worthen.

1884. *Aviculopecten talboti*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 21.
St. Louis L. S. (oolite beds): Monroe County, Illinois.
1890. *Aviculopecten talboti*. Worthen, Geol. Surv. Ill., vol. 8, p. 114, pl. 22, figs. 11, 11a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Aviculopecten tenuicostus Winchell.

1863. *Aviculopecten tenuicostus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 10.
Yellow S. S.: Burlington, Iowa.
1865. *Aviculopecten tenuicostus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 125.
Marshall Group: Rockford, Indiana; Hillsdale, Michigan.

Aviculopecten utahensis Meek.

1860. *Pecten Utahensis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.
Upper Carboniferous: Summit Spring Pass, between Long and Ruby valleys; latitude, $39^{\circ} 33'$; longitude, $115^{\circ} 12'$.
1876. *Aviculopecten Utahensis*. Meek, Simpson's Expl. Gt. Basin Utah, p. 354, pl. 1, figs. 9a-c.
Upper Carboniferous: Summit Spring Pass, between Long and Ruby valleys.

***Aviculopecten utahensis* Meek—Continued.**

1877. *Aviculopecten Utahensis*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 95, pl. 9, figs. 7, 7d.
Carboniferous L. S.: Latitude, 39° 33' north; longitude, 115° 12' west, Nevada.

***Aviculopecten varsoviensis* Worthen.**

1883. *Aviculopecten Varsoviensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 321, fig. Keokuk L. S.: Near Warsaw, Illinois.

***Aviculopecten weberensis* Hall and Whitfield.**

1877. *Aviculopecten Weberensis*. Hall and Whitfield, U. S. Geol. Expl., 40 Par., vol. 4, p. 273, pl. 6, fig. 5.
Upper Coal Measures: Foothills of Wahsatch Range, southeast of Salt Lake City, Utah.

***Aviculopecten whitei* Meek.**

1868. *Avicula*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 689.
1872. *Aviculopecten Whitei*. Meek, U. S. Geol. Surv. Nebr., p. 195, pl. 4, figs. 11a-c.
Upper Coal Measures: Brownville, Nebraska.
Coal Measures: Iowa, Illinois, Pennsylvania.
1891. *Aviculopecten whitei*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 248.
Lower Coal Measures: Des Moines, Iowa.

***Aviculopecten williamsi* Meek.**

1871. *Aviculopecten? williamsi*. Meek, Proc. Acad. Nat. Sci. Phil., p. 178.
Chouteau L. S.: Chouteau Springs, Boone County, Missouri.

Aviculopecten winchelli*. See *Crenipecten winchelli*.**Aviculopecten* (species undetermined).**

1868. *Aviculopecten*. Dawson, Acad. Geol., p. 307.
Carboniferous L. S.: Shubenaçadie, Nova Scotia.
1887. *Aviculopecten? sp.?* Herrick, Bull. Den. Univ., vol. 2, p. 25, pl. 3, fig. 18.
Coal Measures: Flint Ridge, Ohio.
1887. *Aviculopecten sp.?* Herrick, Bull. Den. Univ., vol. 2, p. 27, pl. 1, fig. 6.
Coal Measures: Flint Ridge, Ohio.
1887. *Aviculopecten?* Herrick, Bull. Den. Univ., vol. 2, pl. 1, fig. 3.
Coal Measures: Flint Ridge, Ohio.
1887. *Aviculopecten sp.?* Herrick, Bull. Den. Univ., vol. 2, pl. 3, fig. above No. 19.
Coal Measures: Flint Ridge, Ohio.
1888. *Aviculopecten*, right valve. Herrick, Bull. Den. Univ., vol. 3, pl. 3, fig. 7.
Waverly Group: Licking County, Ohio.
1888. *Aviculopecten sp.* Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 28.
Waverly Group: Licking County, Ohio.
1888. *Aviculopecten sp.* Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 10.
Waverly Group: Cuyahoga Falls, Ohio.
1888. *Aviculopecten sp.* Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 11.
Waverly Group: Cuyahoga Falls, Ohio.
1888. *Aviculopecten sp.* Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 12.
Waverly Group: Cuyahoga Falls, Ohio.
1897. *Aviculopecten? sp.* Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 264, pl. 19, fig. 13.
Batesville S. S.: Batesville, Arkansas.

AVICULOPINNA Meek, 1867:***Aviculopinna americana* Meek.**

1866. *Avicula pinnaeformis*. Geinitz, Carb. und Dyas in Nebr., p. 31, tab. 2, fig. 13.
Nebraska City, Nebraska. (Not *Solen pinnaeformis* Geinitz, 1848.)

Aviculopinna americana Meek—Continued.

1867. *Aviculopinna Americana*. Meek, Am. Jour. Sci. (2), vol. 44, p. 282.
 1872. *Aviculopinna Americana*. Meek, U. S. Geol. Surv. Nebr., p. 197, pl. 9, figs. 12a-d.
 Upper Coal Measures: Nebraska City, Nebraska; Iowa.
 1875. *Aviculopinna Americana*. Meek, Pal. Ohio, vol. 2, p. 337, pl. 20, fig. 2.
 Lower Coal Measures: Ohio.
 Upper Coal Measures: Nebraska City, Nebraska; Western Iowa.
 1887. *Aviculopinna americana*. Herrick, Bull. Den. Univ., vol. 2, p. 38, pl. 1, fig. 20.
 Coal Measures: Flint Ridge, Ohio.
 1894. *Aviculopinna americana*. Keyes, Mo. Geol. Surv., vol. 5, p. 115.
 Upper Coal Measures: Forest City, Missouri.

Aviculopinna illinoiensis Worthen.

1884. *Aviculopinna illinoiensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 13.
 Coal Measures: Peoria County, Illinois.
 1890. *Aviculopinna illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 128, pl. 20, figs. 5, 5a.
 Coal Measures: Peoria County, Illinois.

(AXINUS Sowerby, 1821.)

Axinus ovatus. See *Schizodus ovatus*.**(Axinus securus Shumard.)**

1859. *Axinus securus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 397.
 White Permian L. S.: Guadalupe Mountains.

AXOPHYLLUM Edwards and Haime, 1850.

Axophyllum infundibulum Worthen.

1875. *Axophyllum infundibulum*. Worthen, Geol. Surv. Ill., vol. 6, p. 525, pl. 32, fig. 7.
 Coal Measures: Clark County, Illinois.

Axophyllum rude White and St. John.

1868. *Axophyllum rudis*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 115.
 Upper Coal Measures: Madison, Ringgold, and Pottawattamie counties Iowa.
 1875. *Axophyllum rudis*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 525, pl. 32, figs. 6a-c.
 Coal Measures: Near Collinsville, St. Clair County, Illinois.
 1884. *Axophyllum rudis*. White, 13th Rep. Geol. Surv. Ind., p. 118, pl. 23, figs. 8, 9.
 Coal Measures: Newport, Indiana.
 1894. *Axophyllum rude*. Keyes, Mo. Geol. Surv., vol. 4, p. 107, pl. 12, figs. 5a, b.
 Upper Coal Measures: Kansas City, Missouri.

BACTROPORA Hall, 1887.

Bactropora simplex Ulrich.

1890. *Bactropora simplex*. Ulrich, Geol. Surv. Ill., vol. 8, p. 663, pl. 70, figs. 14-14b, pl. 71, figs. 6, 6a.
 Keokuk Group: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
 1894. *Bactropora simplex*. Keyes, Mo. Geol. Surv., vol. 5, p. 35.
 Keokuk L. S.: Clark County, Missouri.

BAIRDIA McCoy, 1844.**Bairdia cestriensis Ulrich.**

1891. *Bairdia cestriensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 210, pl. 17, figs. 6a-c, 7a, b.

Chester Group: Near Grayson Springs, Kentucky.

Bairdia (species undetermined).

1859. *Bairdia* sp. (?). Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
White Permian L. S.: Guadalupe Mountains.

BAKEVELLIA King, 1849.**Bakevellia antiqua Munster.**

1858. *Bakevellia antiqua*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.

Upper Permian: Near Smoky Hill Fork, Kansas.

1868. *Bakevellia antiqua*. Dawson, Acad. Geol., p. 301.

Carboniferous L. S.: Gay's River and Windsor, Nova Scotia.

Bakevellia illinoiensis Worthen.

1884. *Bakevellia illinoiensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 14.
Upper Coal Measures: Lasalle, Illinois.

1890. *Bakevellia illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 126, pl. 18, figs. 4, 4a.

Upper Coal Measures: Lasalle, Illinois.

Bakevellia parva Meek and Hayden.

1858. *Bakevellia parva*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 78.

Permian: Near mouth of Smoky Hill Fork of Kansas River.

1864. *Bakevellia parva*. Meek and Hayden, Pal. Upper Mo., p. 57, pl. 2, figs. 12a, b.
Permian: Near mouth of Smoky Hill Fork of Kansas River and on Cottonwood Creek, Kansas.

1877. *Bakevellia parva*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 153, pl. 11, figs. 7a, b.

Carboniferous: Bear Spring, Camp Wingate, New Mexico, and near Jacob's Pool, Arizona.

Bakevellia pulchra Swallow.

1858. *Bakevellia* (?) *pulchra*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.

Lower Permian: Valley of Kansas, Kansas.

BARROISELLA Hall, 1892.**Barroisella subspatulata Meek and Worthen.**

1868. *Lingula subspatulata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 437, pl. 13, fig. 1.

Black Shale: Near Jonesboro, Union County, Illinois.

1869. *Lingula Subspatulata*? Winchell, Safford's Geol. of Tenn., p. 444.

Shales just above Black Shale: Hickman and Maury counties, Tennessee.

1870. *Lingula subspatulata*? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 248.

Waverly Group: Tennessee; Rockville, Ohio.

1892. *Barroisella subspatulata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 63, pl. 2, figs. 14-16, and p. 164.

Black Shale: White River, near Rockford, Indiana.

BARYCRINUS Wachsmuth, 1868.**Barycrinus angulatus Meek and Worthen.**

1860. *Cyathocrinus angulatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 393.

Keokuk L. S.: Nauvoo, Illinois.

Barycrinus angulatus Meek and Worthen—Continued.

1866. *Cyathocrinus angulatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 234, pl. 12, fig. 4.

Keokuk L. S.: Nauvoo, Illinois.

Barycrinus blairi Miller.

1891. *Barycrinus Blairi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 25, pl. 3, figs. 11-13.

Keokuk Group: Boonville, Missouri.

Barycrinus boonvillensis Miller.

1891. *Barycrinus Boonvillensis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 24, pl. 3, fig. 5.

Keokuk Group: Boonville, Missouri.

Barycrinus bullatus Hall.

1858. *Cyathocrinus bullatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 624, pl. 18, fig. 1a.

Keokuk L. S.: Green County, Illinois.

1858. *Cyathocrinus protuberans*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 626, pl. 18, fig. 9.

Keokuk L. S.: Warsaw, Illinois.

Barycrinus cornutus Owen and Shumard.

1850. *Cyathocrinus cornutus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 63, pl. 7, fig. 8.

Carboniferous L. S.: Burlington, Iowa.

1852. *Cyathocrinus cornutus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 591, tab. 5A, figs. 8a, b.

Carboniferous L. S.: Burlington, Iowa.

Barycrinus crassibrachiatus Hall.

1860. *Cyathocrinus crassibrachiatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 60.

Keokuk L. S.: Warsaw, Illinois.

Barycrinus elrodi Miller and Gurley.

1896. *Barycrinus elrodi*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 38, pl. 2, figs. 25-27.

St. Louis Group: Spargen Hill, Indiana.

Barycrinus expansus Miller and Gurley.

1894. *Barycrinus expansus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 41, pl. 4, fig. 2.

Keokuk Group: Tennessee.

Barycrinus formosus Miller and Gurley.

1894. *Barycrinus formosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 33, pl. 3, fig. 6.

Keokuk Group: Washington County, Indiana.

Barycrinus geometricus Meek and Worthen.

1868. *Cyathocrinus*? (sp. undetermined). Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 518, pl. 20, figs. 5a-c.

Keokuk Group: Warsaw, Illinois.

1873. *Barycrinus geometricus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 485, pl. 12, fig. 3.

Keokuk Group: Near Warsaw, Illinois.

Barycrinus herculeus Meek and Worthen.

1868. *Barycrinus Hoveyi* var. *Herculeus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 341.

Keokuk Group: Crawfordsville, Indiana.

1873. *Barycrinus Hoveyi* var. *Herculeus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 485, pl. 13, fig. 2.

Keokuk Group: Crawfordsville, Indiana.

Barycrinus hoveyi Hall.

1861. *Cyathocrinus hoveyi*. Hall, Desc. New Spec. Crin., p. 5.
Keokuk L. S.
1861. *Cyathocrinus Hoveyi*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 293.
Keokuk L. S.: Crawfordsville, Indiana.
1872. *Scaphiocrinus Hoveyi*. Hall, Photo. Plates of Crinoids, pl. 5, fig. 11.
1873. *Barycrinus Hoveyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 486, pl. 13, fig. 1.
Keokuk Group: Crawfordsville, Indiana.
1894. *Barycrinus hoveyi*. Keyes, Mo. Geol. Surv., vol. 4, p. 209.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.

Barycrinus hoveyi* var. *herculeus*. See *Barycrinus herculeus*.*Barycrinus kelloggi White.**

1862. *Cyathocrinus Kelloggi*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 8.
Keokuk L. S.: Near Burlington, Iowa.

Barycrinus magister Hall.

1858. *Cyathocrinus magister*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 628, pl. 18, figs. 2a-b, 3a-b.
Keokuk L. S.: Keokuk, Iowa; opposite Madison in Illinois.

Barycrinus magnificus Meek and Worthen.

1868. *Barycrinus magnificus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 340.
Keokuk Group: Near Biggsville, Illinois.
1873. *Barycrinus magnificus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 483, pl. 12, fig. 2.
Keokuk Group: Near Biggsville, Henderson County, Illinois.
1894. *Barycrinus magnificus*. Keyes, Mo. Geol. Surv., vol. 4, p. 210, pl. 26, fig. 4.
Keokuk L. S.: Keokuk, Iowa.

Barycrinus mammatus Worthen.

1873. *Barycrinus mammatus*. Worthen, Geol. Surv. Ill., vol. 5, p. 486, pl. 15, fig. 4.
Keokuk Group: Otter Creek, Jersey County, Illinois.

Barycrinus meekianus Shumard.

1855. *Poteriocrinus meekianus*. Shumard, Geol. Rep. Mo., p. 188, Pl. A, figs. 7a, b.
Chouteau or Encrinital L. S.: Mount Vernon, Moniteau County, Missouri.
1892. *Cyathocrinus meekianus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 44.
Chouteau L. S.: Pettis County, Missouri.
1894. *Cyathocrinus meekianus*. Miller, 18th Rep. Geol. Surv. Ind., p. 298.
Chouteau L. S.: Pettis County, Missouri.
1894. *Barycrinus meekianus*. Keyes, Mo. Geol. Surv., vol. 4, p. 211.
Burlington L. S.: Mount Vernon, Missouri.

Barycrinus neglectus Miller and Gurley.

1896. *Barycrinus neglectus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 28, pl. 2, figs. 10-12.
Keokuk Group: Crawfordsville, Indiana.

Barycrinus pentagonus Worthen.

1873. *Barycrinus pentagonus*. Worthen, Geol. Surv. Ill., vol. 5, p. 487, pl. 15, fig. 3.
Keokuk L. S.: Otter Creek, Jersey County, Illinois.

Barycrinus princeps Miller and Gurley.

1890. *Barycrinus princeps*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 368, pl. 9, figs. 2, 3.
Keokuk Group: Crawfordsville, Indiana.

Barycrinus rhombiferus Owen and Shumard.

1852. *Poteriocrinus rhombiferus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 89, pl. 11, fig. 2.
Carboniferous L. S.: Burlington, Iowa.
1852. *Poteriocrinus rhombiferus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 595, tab. 5B, figs. 2a-c.
Carboniferous L. S.: Burlington, Iowa.
1894. *Barycrinus rhombiferus*. Keyes, Mo. Geol. Surv., vol. 4, p. 210.
Burlington L. S.: Louisiana, Missouri.

Barycrinus sampsoni Miller and Gurley.

1896. *Barycrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 81, pl. 5, figs. 1-3.
Burlington Group: Sedalia, Missouri.

Barycrinus sculptilis Hall.

1860. *Cyathocrinus sculptilis*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 59.
Burlington L. S.: Burlington, Iowa.
1860. *Cyathocrinus scitulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 393.
Burlington L. S.: Burlington, Iowa.
1861. *Cyathocrinus latus*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Cyathocrinus latus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 292.
Burlington L. S.: Burlington, Iowa.
1861. *Cyathocrinus sculptilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
1866. *Cyathocrinus sculptilis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 178, pl. 15, figs. 2a, b.
Burlington L. S.: Burlington, Iowa.
1873. *Cyathocrinus sculptilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 401, pl. 4, fig. 5.
Burlington L. S.: Burlington, Iowa.
1893. *Barycrinus sculptilis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 29, pl. 3, fig. 12.
Burlington L. S.: Burlington, Iowa.

Barycrinus solidus Hall.

1861. *Cyathocrinus solidus*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Cyathocrinus solidus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 293.
Burlington L. S.: Burlington, Iowa.

Barycrinus spectabilis Meek and Worthen.

1870. *Barycrinus spectabilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 23.
St. Louis Group: Otter Creek, Jersey County, Illinois.
1873. *Barycrinus spectabilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 530, pl. 20, fig. 8.
St. Louis Group: Otter Creek, Jersey County, Illinois.

Barycrinus spurius Hall.

1858. *Cyathocrinus spurius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 625, pl. 18, figs. 7, 8.
Keokuk L. S.: Warsaw, Illinois.
1890. *Barycrinus spurius*. Worthen, Geol. Surv. Ill., vol. 8, p. 99, pl. 14, fig. 4.
Keokuk L. S.: Warsaw, Illinois.
1894. *Barycrinus spurius*. Keyes, Mo. Geol. Surv., vol. 4, p. 209.
Keokuk L. S.: Wayland, Missouri; Keokuk, Iowa.

Barycrinus stellatus Hall.

1858. *Cyathocrinus stellatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 623, pl. 16, figs. 3, 8.
Keokuk L. S.: Warsaw, Illinois.
1865. *Cyathocrinus quinquelobus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 150.
Keokuk Group: Warsaw, Illinois.
1868. *Cyathocrinus quinquelobus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p.
519, pl. 20, fig. 6a, b.
Keokuk Group: Warsaw, Illinois.
1894. *Barycrinus stellatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 210.
Keokuk L. S.: Boonville and Curryville, Missouri; Keokuk, Iowa.

Barycrinus stellifer Miller.

1892. *Barycrinus stellifer*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 46,
pl. 8, figs. 6-9.
Keokuk Group: Harrison County, Indiana.

Barycrinus striatus Worthen.

1875. *Barycrinus striatus*. Worthen, Geol. Surv. Ill., vol. 6, p. 515, pl. 29, fig. 5.
Keokuk L. S.: Otter Creek, Jersey County, Illinois.

Barycrinus subtumidus. See *Cyathocrinus subtumidus*.

Barycrinus thomæ Hall.

1860. *Cyathocrinus thomæ*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia, p. 61.
Warsaw L. S.: Warsaw, Illinois.

Barycrinus tumidus Hall.

1858. *Cyathocrinus tumidus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 624, pl. 18, figs.
1b-c.
Keokuk L. S.: Warsaw, Illinois.
1890. *Barycrinus tumidus*. Worthen, Geol. Surv. Ill., vol. 8, p. 100, pl. 14, fig. 6.
Keokuk L. S.: Near Hamilton, Illinois.

Barycrinus wachsmuthi Meek and Worthen.

1861. *Cyathocrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 136.
Burlington L. S.: Burlington, Iowa.
1868. *Cyathocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p.
482, pl. 16, fig. 5.
Burlington Group: Burlington, Iowa.

Barycrinus washingtonensis Miller and Gurley.

1895. *Barycrinus washingtonensis*. Miller and Gurley, Bull. No. 6, Ill. State Mus.
Nat. Hist., p. 49, pl. 4, figs. 18, 19.
Keokuk Group: Washington County, Indiana.

BATOCRINUS Casseday, 1854.

Batocrinus abscissus. See *Dizygocrinus euconus* var. *abscissus*.

Batocrinus adamsensis Miller and Gurley.

1896. *Batocrinus adamsensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat.
Hist., p. 14, pl. 1, figs. 34, 35.
Burlington Group: Adams County, Illinois.

Batocrinus æqualis. See *Batocrinus subæqualis*.

Batocrinus æqualis Hall.

1858. *Actinocrinus æqualis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 592, pl. 11, figs.
4a, b.
Burlington L. S.: Burlington, Iowa.

Batocrinus æqualis Hall—Continued.

- *1861. *Actinocrinus doris*. Hall, Desc. New Spec. Crin., p. 15.

Burlington L. S.

1894. *Batocrinus æqualis*. Keyes, Mo. Geol. Surv., vol. 4, p. 179.

Lower Burlington L. S.: Hannibal, Louisiana, and Sedalia, Missouri.

1897. *Batocrinus æqualis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 371, pl. 28. figs. 5, 6.

Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Batocrinus æquibrachiatus. See *Lobocrinus æquibrachiatus*.

Batocrinus affinis Miller and Gurley.

1896. *Batocrinus affinis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 55, pl. 4, figs. 8, 9.

Burlington Group: Sagetown, Illinois.

Batocrinus agnatus. See *Macrocrinus jucundus*.

Batocrinus albersi Miller and Gurley.

1896. *Batocrinus albersi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 38, pl. 2, figs. 6-8.

Burlington Group: Burlington, Iowa.

Batocrinus altiusculus. See *Eutrochocrinus christyi*.

Batocrinus approximatus Miller and Gurley.

1896. *Batocrinus approximatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 56, pl. 4, figs. 10-12.

Burlington Group: Burlington, Iowa.

Batocrinus arcula Miller and Gurley.

1895. *Batocrinus arcula*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 16, pl. 2, figs. 3-5.

St. Louis Group: Washington County, Indiana.

Batocrinus argutus Miller and Gurley.

1896. *Batocrinus argutus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 9, pl. 1, figs. 8, 9.

Burlington Group: Sedalia, Missouri.

1896. *Batocrinus argutus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 66.

Batocrinus asper Miller and Gurley.

1896. *Batocrinus asper*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 13, pl. 1, figs. 15, 16.

Burlington Group: Sedalia, Missouri.

Batocrinus asperatus Miller and Gurley.

1896. *Batocrinus asperatus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 12, pl. 1, figs. 13, 14.

Burlington Group: Adams County, Illinois.

Batocrinus aspratilis. See *Batocrinus clypeatus*.

Batocrinus basilicus Miller and Gurley.

1896. *Batocrinus basilicus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 11, pl. 1, figs. 10-12.

Burlington Group: Sedalia, Missouri.

Batocrinus bisbrachiatus. See *Eutrochocrinus christyi*.

Batocrinus biturbinatus. See *Dizygocrinus biturbinatus*.

Batocrinus blairi. See *Eretmocrinus leucosia*.

Batocrinus boonvillensis. See *Dizygocrinus originarius* var. *adultus*.

***Batocrinus brittsi* Miller.**

1892. *Batocrinus brittsi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 33, pl. 5, figs. 21-23.

Burlington Group: Sedalia, Missouri.

1894. *Batocrinus brittsi*. Miller, 18th Rep. Geol. Surv. Ind., p. 287, pl. 5, figs. 21-23.

Burlington Group: Sedalia, Missouri.

***Batocrinus broadheadi* Miller and Gurley.**

1895. *Batocrinus broadheadi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 15, pl. 1, figs. 10, 11.

Keokuk Group: Boonville, Missouri.

Batocrinus bulbosus. See *Lobocrinus inflatus*.

***Batocrinus burketi* Miller and Gurley.**

1895. *Batocrinus burketi*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 19, pl. 2, fig. 9.

Keokuk Group: Hamilton, Illinois.

***Batocrinus calvini* Rowley.**

1890. *Batocrinus calvini*. Rowley, Am. Geol., vol. 5, p. 146, fig.

Lower Burlington L. S.: Louisiana, Missouri.

1894. *Batocrinus calvini*. Keyes, Mo. Geol. Surv., vol. 4, p. 180, pl. 23, fig. 4.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Batocrinus Calvini*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 373, pl. 46, figs. 8a, b.

Lower Burlington L. S.: Louisiana, Missouri.

***Batocrinus calyculus* Hall.**

1860. *Actinocrinus calyculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 55, pl. 1, figs. 12a-c.

Warsaw L. S.: Spargen Hill, Indiana.

1866. *Actinocrinus calyculus* var. *hardinensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 253.

Upper St. Louis Group: Hardin County, Illinois.

***Batocrinus cantonensis* Miller and Gurley.**

1890. *Batocrinus cantonensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 354, pl. 6, fig. 9.

Keokuk Group: Near Canton, Indiana.

1897. *Batocrinus cantonensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 383, pl. 27, figs. 7a, b.

Keokuk Group: Canton, Indiana.

***Batocrinus caroli* Hall.**

1860. *Actinocrinus caroli*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 54, pl. 1, fig. 11.

Warsaw L. S.: Warsaw, Illinois.

Batocrinus cassedayanus. See *Lobocrinus longirostris*.

***Batocrinus casualis* Miller and Gurley.**

1895. *Batocrinus casualis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 15, pl. 1, figs. 17, 18.

Keokuk Group: Tennessee.

***Batocrinus casula* Miller and Gurley.**

1895. *Batocrinus casula*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 7, 8.

Keokuk Group: Little Barren River, Kentucky.

Batocrinus christyi. See *Eutrochocrinus christyi*.

***Batocrinus cistula* Miller and Gurley.**

1896. *Batocrinus cistula*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 18, pl. 1, figs. 24-26.

St. Louis Group: Lanesville, Indiana.

***Batocrinus clypeatus* Hall.**

1860. *Actinocrinus clypeatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 12.
Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus inornatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 24.
Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus papillatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 29.
Burlington L. S.: Burlington, Iowa.

1872. *Actinocrinus clypeatus*. Hall, Photo. Plates of Crinoids, pl. 3, fig. 12.

1872. *Actinocrinus papillatus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 10, 11.

1892. *Batocrinus comparilis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 32, pl. 5, figs. 18-20.

Burlington Group: Sedalia, Missouri.

1893. *Batocrinus inornatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 15, pl. 2, figs. 1-3.

Burlington L. S.: Burlington, Iowa.

1894. *Batocrinus clypeatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 179.

Lower Burlington L. S.: Louisiana, Missouri.

1894. *Batocrinus comparilis*. Miller, 18th Rep. Geol. Surv. Ind., p. 286, pl. 5, figs. 18-20.

Burlington Group: Sedalia, Missouri

1894. *Batocrinus aspratilis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 21, pl. 5, figs. 5, 6.

Burlington Group: Sedalia, Missouri.

1897. *Batocrinus clypeatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 380, pl. 27, figs. 8a-c.

Lower Burlington L. S.: Burlington, Iowa.

***Batocrinus cognatus* Miller and Gurley.**

1896. *Batocrinus cognatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 60, pl. 4, figs. 18-21.

Burlington Group: Burlington, Iowa.

Batocrinus comparilis. See *Batocrinus clypeatus*.

***Batocrinus complanatus* Miller and Gurley.**

1896. *Batocrinus complanatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 27, pl. 1, figs. 19-20.

Burlington Group: Burlington, Iowa.

***Batocrinus consanguineus* Miller and Gurley.**

1896. *Batocrinus consanguineus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 63, pl. 4, figs. 22, 23.

Burlington Group: Burlington, Iowa.

***Batocrinus copiosus* Miller and Gurley.**

1894. *Batocrinus copiosus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 51, pl. 5, figs. 5, 6.

Kaskaskia Group: Little Barren River.

Batocrinus crawfordsvillensis. See *Dizygocrinus crawfordsvillensis*.

***Batocrinus curiosus* Miller and Gurley.**

1895. *Batocrinus curiosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 6, pl. 1, figs. 4-6.

Keokuk Group: Allen County, Kentucky.

Batocrinus davisi. See *Dizygocrinus unionensis*.

Batocrinus decoris Miller.

1891. *Batocrinus decoris*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 61, pl. 10, figs. 7, 8.

Warsaw Group: Spergen Hill, Indiana.

1892. *Batocrinus decoris*. Miller, 17th Rep. Geol. Surv. Ind., p. 671, pl. 10, figs. 7, 8.

Warsaw Group: Spergen Hill, Indiana.

Batocrinus decrepitus Miller.

1892. *Batocrinus decrepitus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 34, pl. 5, fig. 24.

Keokuk Group: Montgomery County, Indiana.

1894. *Batocrinus decrepitus*. Miller, 18th Rep. Geol. Surv. Ind., p. 288, pl. 5, fig. 24.

Keokuk Group: Montgomery County, Indiana.

Batocrinus delicatulus Miller and Gurley.

1896. *Batocrinus delicatulus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 12, pl. 1, figs. 20, 21.

Keokuk Group: Boonville, Missouri.

Batocrinus discoideus. See *Batocrinus subæqualis*.

Batocrinus divalis. See *Dizygocrinus unionensis* var. *divalis*.

Batocrinus dodecadactylus. See *Dizygocrinus dodecadactylus*.

Batocrinus douglassi Miller and Gurley.

1897. *Batocrinus douglassi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 29, pl. 2, fig. 26.

Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Batocrinus elegans. See *Batocrinus turbinatus*.

Batocrinus enodatus Miller and Gurley.

1896. *Batocrinus enodatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 46, pl. 2, figs. 21-23.

Burlington Group: Sagetown, Illinois.

Batocrinus enodis Miller and Gurley.

1896. *Batocrinus enodis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 25, pl. 1, figs. 16-18.

Burlington Group: Burlington, Iowa.

Batocrinus euconus. See *Dizygocrinus euconus*.

Batocrinus faberi Miller and Gurley.

1896. *Batocrinus faberi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 18, pl. 2, figs. 3, 4.

Burlington Group: Adams County, Illinois.

Batocrinus facetus. See *Dizygocrinus facetus*.

Batocrinus folliculus Miller and Gurley.

1896. *Batocrinus folliculus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 15, pl. 1, figs. 36-38.

Burlington Group: Sedalia, Missouri.

Batocrinus formaceus Miller and Gurley.

1895. *Batocrinus formaceus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 24, pl. 1, figs. 23, 24.

Burlington Group: Sedalia, Missouri.

Batocrinus germanus Miller and Gurley.

1896. *Batocrinus germanus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1, 2.

Burlington Group: Sedalia, Missouri.

Batocrinus glaber Miller and Gurley.

1896. *Batocrinus glaber*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 32, pl. 1, figs. 26-28.

Burlington Group: Iowa and Illinois.

Batocrinus gorbyi. See *Dizygocrinus gorbyi*.**Batocrinus grandis** Wachsmuth and Springer.

1859. *Actinocrinus* sp. nobis. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28, p. 240. Clear Creek, Hardin County, Kentucky.

1880. *Actinocrinus wachsmuthi*. White, Cont. to Inv. Pal. No. 8, p. 162, pl. 40, figs. 1a, b. (Not *A. wachsmuthi* White, 1862.)

Keokuk Group: Crawfordsville, Indiana.

1881. *Actinocrinus wachsmuthi*. 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 510, pl. 7, fig. 6.

Keokuk Group: Crawfordsville, Indiana.

1885. *Batocrinus grandis*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 335. (Rev. Palaeogr. III, p. 113.)

1897. *Batocrinus grandis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 381, pl. 27, figs. 1a-b, 2a-b.

Keokuk Group: Crawfordsville, Indiana.

Batocrinus gurleyi. See *Dizygocrinus gurleyi* and *Dizygocrinus montgomeryensis*.**Batocrinus heteroclitus** Miller and Gurley.

1895. *Batocrinus heteroclitus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 31, pl. 1, figs. 37-39.

Keokuk Group: Boonville, Missouri.

Batocrinus hodgsoni Miller and Gurley.

1896. *Batocrinus hodgsoni*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 6, 7.

Burlington Group: Adams County, Illinois.

Batocrinus honorabilis Miller and Gurley.

1895. *Batocrinus honorabilis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 9, 10.

Keokuk Group: Tennessee.

Batocrinus icosadactylus Casseday.

1854. *Batocrinus icosadactylus*. Casseday, Zeitsch. d. deutsch. geol. Ges., Band 6, p. 238, taf. 2, figs. 1-1c, 3.

St. Louis Group: Spergen Hill, Indiana.

1892. *Batocrinus icosidactylus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 24, pl. 4, figs. 1-5.

St. Louis Group: Spergen Hill, Indiana.

1894. *Batocrinus icosidactylus*. Miller, 18th Rep. Geol. Surv. Ind., p. 278, pl. 4, figs. 1-5.

St. Louis Group: Spergen Hill, Indiana.

1897. *Batocrinus icosidactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 368, pl. 27, figs. 3a-c.

Warsaw L. S.: Spergen Hill, Indiana; Barren County, Kentucky.

Batocrinus ignotus Miller and Gurley.

1895. *Batocrinus ignotus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 28, pl. 1, figs. 31-33.

Keokuk Group: Boonville, Missouri.

Batocrinus imparalis Miller and Gurley.

1895. *Batocrinus imparalis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 20, pl. 1, figs. 17, 18.

Burlington Group: Sedalia, Missouri.

Batocrinus inconsuetus Miller and Gurley.

1895. *Batocrinus inconsuetus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 25, pl. 1, figs. 25-27.
Keokuk Group: Boonville, Missouri.

Batocrinus incultus Miller and Gurley.

1895. *Batocrinus incultus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 21, pl. 1, figs. 19, 20.
Burlington Group: Sedalia, Missouri.

Batocrinus inflatus. See *Lobocrinus inflatus*.**Batocrinus inopinatus** Miller and Gurley.

1895. *Batocrinus inopinatus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 36, pl. 2, figs. 4-6.
Keokuk Group: Boonville, Missouri.

Batocrinus inornatus. See *Batocrinus clypeatus*.**Batocrinus insolens** Miller and Gurley.

1896. *Batocrinus insolens*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 35, pl. 2, figs. 1, 2.
Burlington Group: Burlington, Iowa.

Batocrinus insperatus Miller and Gurley.

1895. *Batocrinus insperatus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 22, pl. 1, figs. 21, 22.
Burlington Group: Sedalia, Missouri.

Batocrinus insuetus Miller and Gurley.

1895. *Batocrinus insuetus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 14, pl. 1, figs. 8, 9.
Keokuk Group: Boonville, Missouri.

Batocrinus irregularis Caseday.

1854. *Batocrinus irregularis*. Caseday, Zeitsch. d. deutsch. geol. Ges., Band 6, p. 240, taf. 2, figs 2-2c.
St. Louis Group: Spergen Hill, Indiana.
1892. *Batocrinus irregularis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 26, pl. 4, figs. 6-9.
St. Louis Group: Spergen Hill, Indiana.
1894. *Batocrinus irregularis*. Miller, 18th Rep. Geol. Surv. Ind., p. 280, pl. 4, figs. 6-9.
St. Louis Group: Spergen Hill, Indiana.
1897. *Batocrinus irregularis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 369, pl. 27, figs. 4a-c.
Warsaw L. S.: Spergen Hill, Indiana; Barren County, Kentucky.

Batocrinus jessiae Miller and Gurley.

1896. *Batocrinus jessiae*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 20, pl. 1, figs. 27-32.
Burlington Group: Sedalia, Missouri.

Batocrinus jucundus. See *Macrocrinus jucundus*.**Batocrinus labellum** Miller and Gurley.

1895. *Batocrinus labellum*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 21, pl. 2, figs. 10-12.
Keokuk Group: Washington County, Indiana.

Batocrinus laciniosus Miller and Gurley.

1895. *Batocrinus laciniosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 14, pl. 1, figs. 15, 16.
Keokuk Group: Tennessee.

Batocrinus lætus. See *Batocrinus turbinatus*.

***Batocrinus laterna* Miller and Gurley.**

1895. *Batocrinus laterna*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 12, pl. 1, figs. 13, 14.

Keokuk Group: White Creek Springs, Tennessee.

***Batocrinus laura* Hall.**

- *1861. *Actinocrinus laura*. Hall, Desc. New Spec. Crin., p. 15.

Burlington L. S.

1893. *Batocrinus laura*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 17, pl. 1, figs. 15, 16.

Brown beds of Burlington L. S.: Burlington, Iowa.

1894. *Batocrinus scyphus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 23, pl. 5, figs. 7-9.

Burlington Group: Sedalia, Missouri.

1894. *Batocrinus laura*. Keyes, Mo. Geol. Surv., vol. 4, p. 182, pl. 23, fig. 8.

Upper Burlington L. S.: Lagrange, Missouri; Quincy, Illinois.

1897. *Batocrinus laura*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 384, pl. 29, figs. 5a-d.

Upper Burlington L. S.: Burlington, Iowa.

***Batocrinus laura* var. *sinuosus* Hall.**

1860. *Actinocrinus sinuosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 26.

Burlington L. S.: Burlington, Iowa.

1872. *Actinocrinus sinuosus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 8, 9.

1897. *Batocrinus laura* var. *sinuosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 385.

Upper Burlington L. S.: Burlington, Iowa.

***Batocrinus lepidus* Hall.**

1860. *Actinocrinus lepidus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 32.

Burlington L. S.: Burlington, Iowa.

1893. *Batocrinus lepidus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 16, pl. 1, figs. 17, 18.

Burlington L. S.: Burlington, Iowa.

1897. *Batocrinus lepidus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 372, pl. 28, figs. 2, 3.

Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

***Batocrinus levigatus* Miller and Gurley.**

1896. *Batocrinus levigatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 29, pl. 1, figs. 21, 22.

Burlington Group: Burlington, Iowa.

***Batocrinus levis* Miller and Gurley.**

1896. *Batocrinus levis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 23, pl. 1, figs. 13-15.

Burlington Group: Burlington, Iowa.

Batocrinus longirostris. See *Lobocrinus longirostris*.

Batocrinus lovei. See *Eutrochocrinus lovei*.

Batocrinus lyonanus. See *Dizygocrinus biturbinatus*.

***Batocrinus macbridei* Wachsmuth and Springer.**

1890. *Batocrinus macbridei*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 172, pl. 15, fig. 4; pl. 16, figs. 11, 12.

Kinderhook Group: Legrand, Iowa.

Batocrinus macbridei Wachsmuth and Springer—Continued.

1897. *Batocrinus Macbridei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 376, pl. 30, figs. 1-3.

Kinderhook Group: Legrand, Marshall County, Iowa.

Batocrinus marinus Miller and Gurley.

1890. *Batocrinus marinus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 19, pl. 4, figs. 3, 4.

Keokuk Group: Crawfordsville, Indiana.

1890. *Batocrinus marinus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 340, pl. 4, figs. 3, 4.

Keokuk Group: Crawfordsville, Indiana.

Batocrinus mediocris. See *Dizygocrinus originarius* var. *adultus*.

Batocrinus modestus Miller and Gurley.

1895. *Batocrinus modestus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 30, pl. 1, figs. 34-36.

Keokuk Group: Boonville, Missouri.

Batocrinus modulus Miller and Gurley.

1896. *Batocrinus modulus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 16, pl. 1, figs. 39-41.

Burlington Group: Adams County, Illinois.

Batocrinus montgomeryensis. See *Dizygocrinus montgomeryensis*.

Batocrinus mundulus Hall.

1860. *Actinocrinus mundulus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 39.

Keokuk L. S.: Warsaw, Illinois.

1860. *Actinocrinus similis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 40.

Keokuk L. S.: Warsaw, Illinois.

1860. *Actinocrinus clavigerus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 44.

Keokuk L. S.: Nauvoo, Illinois.

1897. *Batocrinus mundulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 382, pl. 30, figs. 4a-b, 5.

Keokuk Group: Keokuk, Iowa; Nauvoo, Illinois.

Batocrinus nanus Miller and Gurley.

1896. *Batocrinus nanus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 17, pl. 1, figs. 42-44.

Burlington Group: Sedalia, Missouri.

Batocrinus nashvillae. See *Lobocrinus nashvillae*.

Batocrinus neglectus. See *Eretmocrinus neglectus*.

Batocrinus niteus Miller and Gurley.

1896. *Batocrinus niteus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 15, pl. 1, figs. 30-32.

Burlington Group: Burlington, Iowa.

Batocrinus nitidulus Miller and Gurley.

1895. *Batocrinus nitidulus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 17, pl. 1, figs. 12, 13.

Keokuk Group: Boonville, Missouri.

Batocrinus nodosarius Miller and Gurley.

1896. *Batocrinus nodosarius*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 22, pl. 1, figs. 11, 12.

Burlington Group: Adams County, Illinois.

Batocrinus nodosus Miller and Gurley.

1896. *Batocrinus nodosus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1-3.
Burlington Group: Adams County, Illinois.

Batocrinus nodulosus Miller and Gurley.

1896. *Batocrinus nodulosus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 6, pl. 1, figs. 4-6.
Burlington Group: Adams County, Illinois.

Batocrinus oblatum. See *Dizygocrinus rotundus*.**Batocrinus parilis** Miller and Gurley.

1896. *Batocrinus parilis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 17, pl. 2, figs. 1, 2.
Keokuk Group: Boonville, Missouri.

Batocrinus peculiaris Miller and Gurley.

1895. *Batocrinus peculiaris*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 18, pl. 1, figs. 14-16.
Keokuk Group: Boonville, Missouri.

Batocrinus pettisensis Miller and Gurley.

1896. *Batocrinus pettisensis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 19, pl. 2, figs. 5, 6.
Burlington Group: Sedalia, Missouri.

Batocrinus pileus Miller and Gurley.

1895. *Batocrinus pileus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 18, pl. 2, figs. 6-8.
St. Louis Group: Washington County, Indiana.

Batocrinus pistilliformis. See *Lobocrinus pyriformis*.**Batocrinus pistillus** Meek and Worthen.

1865. *Actinocrinus pistillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 152.
Burlington L. S.: Burlington, Iowa.
1868. *Actinocrinus (Batocrinus) pistillus*. Meek and Worthen, Geol. Surv. Ill., vol. 8, p. 472, pl. 16, figs. 4a, b.
Burlington Group: Burlington, Iowa.
1897. *Batocrinus pistillus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 378, pl. 31, figs. 4a, b.
Upper Burlington L. S.: Burlington, Iowa.

Batocrinus planodiscus. See *Eutrochocrinus planodiscus*.**Batocrinus planus** Miller and Gurley.

1895. *Batocrinus planus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 37, pl. 2, figs. 11-14.
Burlington Group: Sedalia, Missouri.

Batocrinus poculum Miller and Gurley.

1890. *Batocrinus poculum*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 352, pl. 6, figs. 6, 7.
Kinderhook Group: Legrand, Iowa.
1897. *Batocrinus poculum*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 378, pl. 30, fig. 6.
Kinderhook Group: Legrand, Marshall County, Iowa.

Batocrinus politus Miller and Gurley.

1896. *Batocrinus politus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 31, pl. 1, figs. 23-25.
Burlington Group: Burlington, Iowa.

Batocrinus polydactylus Miller and Gurley.

1895. *Batocrinus polydactylus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 5, pl. 1, fig. 1.

Keokuk Group: Boonville, Missouri.

Batocrinus procerus Miller and Gurley.

1895. *Batocrinus procerus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 33, pl. 1, figs. 40-42.

Keokuk Group: Boonville, Missouri.

Batocrinus prodigialis Miller and Gurley.

1895. *Batocrinus prodigialis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 39, pl. 3, figs. 4-6.

Keokuk Group: Button Mould Knob, Kentucky.

Batocrinus proximus Miller and Gurley.

1896. *Batocrinus proximus*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 4, 5.

Burlington Group: Sedalia, Missouri.

Batocrinus pulchellus. See *Dizygocrinus unionensis*.

Batocrinus pyriformis. See *Lobocrinus pyriformis*.

Batocrinus quasillus Meek and Worthen.

1868. *Batocrinus quasillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 352.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Batocrinus quasillus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 369, pl. 5, fig. 2.

Burlington L. S.: Burlington, Iowa.

1897. *Batocrinus quasillus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 372, pl. 28, figs. 4a, b.

Lower Burlington L. S.: Burlington, Iowa.

Batocrinus regalis Miller and Gurley.

1896. *Batocrinus regalis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 14, pl. 1, figs. 22-24.

Burlington Group: Sedalia, Missouri.

Batocrinus reliquus Miller and Gurley.

1897. *Batocrinus reliquus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 22, pl. 1, figs. 15-17.

Burlington Group: Near Sharon, Missouri.

Batocrinus remibrachiatus. See *Eretmocrinus remibrachiatus*.

Batocrinus remotus Miller and Gurley.

1896. *Batocrinus remotus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 43, pl. 2, figs. 15-17.

Burlington Group: Burlington, Iowa.

Batocrinus repertus Miller and Gurley.

1896. *Batocrinus repertus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 70, pl. 4, figs. 28-30.

Burlington Group: Sedalia, Missouri.

Batocrinus repositus Miller and Gurley.

1896. *Batocrinus repositus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 45, pl. 2, figs. 18-20.

Burlington Group: Burlington, Iowa.

Batocrinus reservatus Miller and Gurley.

1897. *Batocrinus reservatus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 25, pl. 1, figs. 22-25.
Burlington Group: Near Sharon, Missouri.

Batocrinus rotadentatus Rowley and Hare.

1891. *Batocrinus rotadentatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 102, pl. 2, figs. 17, 18.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Batocrinus rotadentatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 374, pl. 46, fig. 7.
Lower Burlington L. S.: Louisiana, Missouri.

Batocrinus rotuliformis Miller and Gurley.

1897. *Batocrinus rotuliformis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 26, pl. 1, figs. 26, 27; pl. 2, figs. 1, 2.
Burlington Group: Near Sharon, Missouri.

Batocrinus rotundus. See *Dizygocrinus rotundus*.**Batocrinus rudis** Miller and Gurley.

1896. *Batocrinus rudis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 52, pl. 4, fig. 4.
Keokuk Group: Little Barren River, Kentucky.

Batocrinus rusticellus Miller and Gurley.

1897. *Batocrinus rusticellus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 23, pl. 1, figs. 18-21.
Burlington Group: Near Sharon, Missouri.

Batocrinus rusticus Miller and Gurley.

1897. *Batocrinus* (?) *rusticus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 28, pl. 2, figs. 3-6.
Burlington Group: Near Sharon, Missouri.

Batocrinus saccellus Miller and Gurley.

1896. *Batocrinus saccellus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 40, pl. 2, figs. 9-11.
Burlington Group: Burlington, Iowa.

Batocrinus sacculus Miller and Gurley.

1894. *Batocrinus sacculus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 52, pl. 5, figs. 7-9.
Warsaw Group: Washington County, Indiana.

Batocrinus sagetownensis Miller and Gurley.

1896. *Batocrinus sagetownensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 54, pl. 4, figs. 5-7.
Burlington Group: Sagetown, Illinois.

Batocrinus salemensis Miller and Gurley.

1896. *Batocrinus salemensis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 10-12.
Warsaw Group: Salem, Indiana.

Batocrinus sampsoni Miller and Gurley.

1895. *Batocrinus sampsoni*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 2, 3.
Keokuk Group: Boonville, Missouri.

Batocrinus scitulus Miller and Gurley.

1897. *Batocrinus scitulus*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 19, pl. 1, figs. 10, 11.
Burlington Group: Near Sharon, Missouri.

Batocrinus scyphus. See *Batocrinus laura*.

***Batocrinus sedaliensis* Miller and Gurley.**

1896. *Batocrinus sedaliensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 71, pl. 4, figs. 31, 32.

Burlington Group: Sedalia, Missouri.

***Batocrinus selectus* Miller and Gurley.**

1896. *Batocrinus selectus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 37, pl. 2, figs. 3-5.

Burlington Group: Sagetown, Illinois.

***Batocrinus senex* Miller and Gurley.**

1897. *Batocrinus senex*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 21, pl. 1, figs. 12-14.

Burlington Group: Near Sharon, Missouri.

***Batocrinus serratus* Miller and Gurley.**

1895. *Batocrinus serratus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 27, pl. 1, figs. 28-30.

Keokuk Group: Boonville, Missouri.

***Batocrinus sharonensis* Miller and Gurley.**

1897. *Batocrinus sharonensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 18, pl. 1, figs. 7-9.

Burlington Group: Near Sharon, Missouri.

***Batocrinus shepardi* Rowley.**

1893. *Batocrinus shepardi*. Rowley, Am. Geol., vol. 12, p. 305, pl. 14, fig. 3.

Burlington L. S.: Springfield, Missouri.

***Batocrinus signatus* Miller and Gurley.**

1896. *Batocrinus signatus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 16, 17.

Keokuk Group: Keokuk, Iowa.

***Batocrinus solitarius* Miller and Gurley.**

1896. *Batocrinus solitarius*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 22, pl. 2, figs. 8-11.

Burlington Group: Adams County, Illinois.

***Batocrinus speciosus* Miller and Gurley.**

1896. *Batocrinus speciosus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 47, pl. 2, figs. 24-26.

Burlington Group: Burlington, Iowa.

***Batocrinus spergenensis* Miller.**

1891. *Batocrinus spergenensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 60, pl. 10, figs. 5, 6.

Warsaw Group: Spergen Hill, Indiana.

1892. *Batocrinus spergenensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 670, pl. 10, figs. 5, 6.

Warsaw Group: Spergen Hill, Indiana.

***Batocrinus spinosus* Miller and Gurley.**

1895. *Batocrinus spinosus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 5, pl. 1, figs. 1-3.

Keokuk Group: Little Barren River, Kentucky.

***Batocrinus spurius* Miller and Gurley.**

1896. *Batocrinus spurius*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 20, pl. 2, figs. 7-9.

Burlington Group: Burlington, Iowa.

Batocrinus stelliformis Miller and Gurley.

1896. *Batocrinus stelliformis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 9, pl. 1, figs. 13-15.
Keokuk Group: Boonville, Missouri.

Batocrinus steropes Hall.

1860. *Actinocrinus steropes*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 43.
Keokuk L. S.: Opposite Keokuk, Iowa, in Illinois.

Batocrinus strenuus Miller and Gurley.

1896. *Batocrinus strenuus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 11, pl. 1, figs. 18, 19.
Keokuk Group: Boonville, Missouri.

Batocrinus subaequatus Miller and Gurley.

1896. *Batocrinus subaequatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 72, pl. 4, figs. 33-35.
Burlington Group: Sedalia, Missouri.

Batocrinus subaequalis McChesney.

1858. *Actinocrinus discoideus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 594. (Crushed specimen.)
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus subaequalis*. McChesney, Desc. New Pal. Foss., p. 17.
Burlington L. S.: Monmouth, Illinois; Burlington, Iowa.
1860. *Actinocrinus discoideus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 9.
1860. *Actinocrinus formosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 30.
Burlington L. S.: Burlington, Iowa.
1865. *Actinocrinus subaequalis*. McChesney, Ill. New. Spec. Foss., pl. 5, figs. 7a, b.
1868. *Actinocrinus subaequalis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 13, pl. 5, figs. 7a, b.
Burlington L. S.: Monmouth, Illinois; Burlington, Iowa.
1872. *Actinocrinus formosus*. Hall, Photo. Plates of Crinoids, pl. 3, fig. 1.
1893. *Batocrinus discoideus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 14, pl. 1, figs. 19, 20, p. 28, fig.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus equabilis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 25, pl. 5, figs. 13-15.
Burlington Group: Sedalia, Missouri.
1897. *Batocrinus subaequalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 369, pl. 28, figs. 7a, b, 8a, b, 9.
Lower Burlington L. S.: Burlington, Iowa; Southern Missouri.

Batocrinus subconicus. See *Dizygocrinus euconus*.**Batocrinus sublævis** Miller and Gurley.

1896. *Batocrinus sublævis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 41, pl. 2, figs. 12-14.
Burlington Group: Sagetown, Illinois.

Batocrinus subovatus Miller and Gurley.

1896. *Batocrinus subovatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 50, pl. 2, figs. 30, 31.
Burlington Group: Burlington, Iowa.

Batocrinus subrotundatus Hall.

1860. *Actinocrinus subrotundatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 4. (Diagram.)

Batocrinus subrotundatus Miller and Gurley.

1896. *Batocrinus subrotundatus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 48, pl. 2, figs. 27-29.
Burlington Group: Burlington, Iowa.

Batocrinus subscitulus Miller and Gurley.

1896. *Batocrinus subscitulus*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 51, pl. 3, figs. 9-11.
Burlington Group: Sedalia, Missouri.

Batocrinus subtractus. See *Lobocrinus nashvillæ* var. *subtractus*.

Batocrinus sweeti. See *Dizygocrinus montgomeryensis*.

Batocrinus trochiscus. See *Eutrochocrinus christyi* var. *trochiscus*.

Batocrinus tuberculatus Wachsmuth and Springer.

1897. *Batocrinus tuberculatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 379, pl. 28, figs. 10a, b.
Lower Burlington L. S.: Burlington, Iowa.

Batocrinus turbinatus Hall.

1858. *Actinocrinus turbinatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 587, pl. 11, fig. 1.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus laetus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 24, pl. 5, figs. 10-12.
Burlington Group: Sedalia, Missouri.
1897. *Batocrinus turbinatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 375, pl. 27, figs. 5a-c.
Lower Burlington L. S.: Louisiana, Missouri.

Batocrinus turbinatus var. *elegans* Hall.

1858. *Actinocrinus turbinatus* var. *elegans*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 588, pl. 11, fig. 5.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus elegans*. Keyes, Mo. Geol. Surv., vol. 4, p. 180.
Lower Burlington L. S.: Sedalia and Louisiana, Missouri.
1897. *Batocrinus turbinatus* var. *elegans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 376, pl. 27, figs. 6a, b.
Lower Burlington L. S.: Louisiana, Missouri.

Batocrinus unionensis. See *Dizygocrinus unionensis*.

Batocrinus variabilis Miller and Gurley.

1896. *Batocrinus variabilis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 58, pl. 4, figs. 13-17.
Burlington Group: Iowa, Missouri, Illinois.

Batocrinus venustulus Miller and Gurley.

1895. *Batocrinus venustulus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 12, pl. 1, fig. 7.
Keokuk Group: Boonville, Missouri.

Batocrinus venustus. See *Dizygocrinus euconus* var. *abscissus*.

Batocrinus verneuillianus. See *Macrocrinus verneuillianus*.

Batocrinus veterator Miller and Gurley.

1895. *Batocrinus veterator*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 8, pl. 1, fig. 4.
Keokuk Group: Boonville, Missouri.

Batocrinus vetustus Miller and Gurley.

1895. *Batocrinus vetustus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 5, 6.
Keokuk Group: Boonville, Missouri.

Batocrinus vicinus Miller and Gurley.

1895. *Batocrinus vicinus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 1-3.
Keokuk Group: Boonville, Missouri.

Batocrinus wetherbyi Miller and Gurley.

1895. *Batocrinus wetherbyi*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 11, pl. 1, figs. 11, 12.

Keokuk Group: White Creek Springs, Tennessee.

Batocrinus whitei. See *Dizygocrinus whitei*.**Batocrinus** (species undetermined.)

1896. *Batocrinus* (an abnormal specimen). Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 64, pl. 4, figs. 24, 25.

Burlington Group: Burlington, Iowa.

1896. *Batocrinus* (an abnormal specimen). Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 66, pl. 4, figs. 26, 27.

Burlington Group: Burlington, Iowa.

BATOSPONGIA Ulrich, 1890.**Batospongia spicata** Ulrich.

1890. *Batospongia spicata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 246, pl. 6, figs. 2-2b.

Base of Coal Measures: Seville, Illinois.

BATOSTOMELLA Ulrich, 1890.**Batostomella abrupta** Ulrich.

1890. *Batostomella abrupta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 435, pl. 75, figs. 2-2e.

Chester Group: Sloan's Valley, Pulaski County, Kentucky.

Batostomella interstincta Ulrich.

1890. *Batostomella interstincta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 434, pl. 75, figs. 4-4c.

St. Louis Group: Pella, Iowa.

Batostomella nitidula Ulrich.

1890. *Batostomella nitidula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 436, pl. 75, figs. 3-3b.

Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.

1894. *Batostomella nitidula*. Keyes, Mo., Geol. Surv., vol. 5, p. 14.

Chester Shales: Chester, Illinois; Ste. Genevieve, Missouri.

Batostomella spinulosa Ulrich.

1890. *Batostomella spinulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 434, pl. 75, figs. 1-1e.

Chester Group: Sloan's Valley, Pulaski County, Kentucky; Chester, Illinois.

BEECHERIA Hall, 1893.**Beecheria davidsoni** Hall and Clarke.

1894. *Beecheria Davidsoni*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53, figs. 1-3.

Carboniferous L. S.: Windsor, Nova Scotia.

1895. *Beecheria Davidsoni*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 79, figs. 33-36.

Carboniferous L. S.: Windsor, Nova Scotia.

1897. *Beecheria Davidsoni*. Hall, 14th Rep. N. Y. State Geol., p. 372, pl. 14, figs. 7-11.

Carboniferous L. S.: Windsor, Nova Scotia.

BELEMNOCRINUS White, 1862.**Belemnocrinus florifer** Wachsmuth and Springer.

1877. *Belemnocrinus florifer*. Wachsmuth and Springer, Am. Jour. Sci. (3), vol. 13, p. 256.

Upper Burlington L. S.: Burlington, Iowa.

Belemnocrinus portalesi Wachsmuth and Springer.

1877. *Belemnocrinus Portalesi*. Wachsmuth and Springer, Am. Jour. Sci. (3), vol. 13, p. 258.

Lower Burlington L. S.: Burlington, Iowa.

Belemnocrinus sampsoni Miller.

1891. *Belemnocrinus Sampsoni*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 26, pl. 3, fig. 8.

Burlington Group: Sedalia, Missouri.

1894. *Belemnocrinus? sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 207, pl. 25, fig. 9.

Lower Burlington L. S.: Sedalia, Missouri.

Belemnocrinus typus White.

1862. *Belemnocrinus typus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 14, figs. 1, 2, p. 13.

Upper Burlington L. S.: Burlington, Iowa.

Belemnocrinus whitii Meek and Worthen.

1866. *Belemnocrinus Whitii*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 251.

Lower Burlington L. S.: Burlington, Iowa.

1868. *Belemnocrinus Whitii*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 463, pl. 18, figs. 4a-c.

Burlington L. S.: Burlington, Iowa.

BELEMNOSPONGIA Ulrich, 1890.**Belemnospongia fascicularis** Ulrich.

1890. *Belemnospongia fascicularis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 248, pl. 3, figs. 2-2b.

Burlington L. S.: Burlington, Iowa; Montezuma, Illinois.

BELINURUS Konig, 1825.*Belinurus danae*. See *Prestwichia danae*.**Belinurus lacoei** Packard.

1885. *Belinurus lacoei*. Packard, Am. Nat., vol. 19, p. 292.

Carboniferous: Mazon Creek, Illinois.

1886. *Belinurus lacoei*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 149, pl. 5, fig. 5.

Carboniferous: Mazon Creek, Illinois.

1889. *Belinurus lacoei*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 211.

Coal Measures: Mazon Creek, Illinois.

BELLEROPHON Montfort, 1808.**Bellerophon alternodosus** Whitfield.

1882. *Bellerophon alternodosus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 225.

Maxville L. S.: Newtonville, Ohio.

1891. *Bellerophon alternodosus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 593, pl. 14, figs. 17-19.

Maxville L. S.: Newtonville, Ohio.

1895. *Bellerophon alternodosus*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 479, pl. 10, figs. 17-19.

Maxville L. S.: Newtonville, Ohio.

Bellerophon barquensis Winchell.

1862. *Bellerophon Barquensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.

Marshall Group: Pt. aux Barques, Michigan.

Bellerophon bellus Keyes.

1894. *Bellerophon bellus*. Keyes, Mo. Geol. Surv., vol. 5, p. 148, pl. 50, fig. 7.
Upper Coal Measures: Kansas City, Missouri.

Bellerophon bilabiatus White and Whitfield.

1862. *Bellerophon bilabiatu*s. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 304.
Chemung Group: Burlington, Iowa.
1889. *Bellerophon bilabiatu*s. Keyes, Proc. Acad. Nat. Sci. Phil., p. 297.
Kinderhook Group: Burlington, Iowa.
1894. *Bellerophon bilabiatu*s. Keyes, Mo. Geol. Surv., vol. 5, p. 147, pl. 50, fig. 3.
Kinderhook Group: Chouteau Springs, Missouri.
Burlington L. S.: Louisiana, Missouri.

Bellerophon blairi Miller and Gurley.

1896. *Bellerophon blairi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 21, pl. 3, figs. 7, 8.
Chouteau L. S.: Sedalia, Missouri.

Bellerophon blaneyanus McChesney. See *Bellerophon carbonarius*.**Bellerophon branneri** Weller.

1897. *Bellerophon branneri*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 269, pl. 20, fig. 9,
Batesville S. S.: Batesville, Arkansas.

Bellerophon cancellatus Hall. See *Bellerophon textilis*.**Bellerophon carbonarius** Cox.

1855. *Bellerophon Urvii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 75, pl. 9, figs. 6a-c. (Not *B. urvi*, Fleming, 1828.)
Coal Measures: Galatia and Grayville, Illinois; and 5 miles below New Harmony, Indiana.
1857. *Bellerophon carbonarius*. Cox, Geol. Surv. Ky., vol. 3, p. 562.
Coal Measures: Kentucky.
1860. *Bellerophon vittatus*. McChesney, Desc. New Pal. Foss., p. 59.
Coal Measures: Mouth of Rush Creek, Indiana; Graysville, Illinois.
1860. *Bellerophon blaneyanus*. McChesney, Desc. New Pal. Foss., p. 60.
Coal Measures: Saline and Peoria counties, and Danville and Graysville, Illinois.
1865. *Bellerophon blaneyanus*. McChesney, Ill., New Spec. Foss., pl. 2, figs. 5a-c.
1866. *Bellerophon carbonarius*. Geinitz, Carb. und Dyas in Nebr., p. 6, tab. 1, fig. 8.
Upper Carboniferous: Nebraska City, Nebraska.
1868. *Bellerophon Blaneyanus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 45, pl. 2, figs. 5a-c.
Coal Measures: Saline and Peoria counties, Illinois; Danville and Graysville, Illinois.
1872. *Bellerophon carbonarius*. Meek, U. S. Geol. Surv. Nebr., p. 224, pl. 4, fig. 16, pl. 11, figs. 11a-c.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Iowa, Kansas, Missouri, Illinois, Kentucky, and Indiana.
Lower Coal Measures: West Virginia.
1884. *Bellerophon carbonarius*. White, 13th Rep. Geol. Surv. Ind., p. 158, pl. 33, figs. 6-8.
Coal Measures: Indiana.
1887. *Bellerophon carbonarius*. Herrick, Bull. Den. Univ., vol. 2, p. 19, pl. 2, fig. 20.
Coal Measures: Flint Ridge, Ohio.

Bellerophon carbonarius Cox—Continued.

1888. *Bellerophon urii*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 235.
Lower Coal Measures: Des Moines, Iowa.
1891. *Bellerophon urii*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 255.
Lower Coal Measures: Des Moines, Iowa.
1894. *Bellerophon urii*. Keyes, Mo. Geol. Surv., vol. 5, p. 149, pl. 50, figs. 5a-c.
Upper Coal Measures: Kansas City, Mo.
1897. *Bellerophon carbonarius*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Lower Coal Measures: Conway County, Arkansas.

Bellerophon carbonarius var. *subpapillosus* White. See *Bellerophon subpapillosus*.

Bellerophon crassus Meek and Worthen.

1860. *Bellerophon crassus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 458.
Lower Coal Measures: Pittsburg, St. Clair County, Illinois.
1866. *Bellerophon crassus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 385,
pl. 31, figs. 16a, b.
Lower Coal Measures: Pittsburg, St. Clair County, Illinois.
1877. *Bellerophon crassus*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 157,
pl. 12, fig. 1a.
Carboniferous: Camp Cottonwood, near Spring Mountain, Nevada.
1884. *Bellerophon crassus*. White, 13th Rep. Geol. Surv. Ind., p. 157, pl. 33,
figs. 1, 2.
Upper Coal Measures: Sullivan and Posey counties, Indiana.
1886. *Bellerophon crassus* (var.)? Heilprin, 2d Geol. Surv. Penn., Ann. Rep.
1885, p. 457.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Bellerophon crassus* (var.)? Heilprin, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, p. 277.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Bellerophon* (cf. *crassus*). Herrick, Bull. Den. Univ., vol. 2, p. 20, pl. 5, fig. 6.
Coal Measures: Flint Ridge, Ohio.
1891. *Bellerophon crassus*. White, Bull. U. S. Geol. Surv., No. 77, p. 26.
Permian: Military Crossing, Baylor County, Texas.
1894. *Bellerophon crassus*. Keyes, Mo. Geol. Surv., vol. 5, p. 151, pl. 50, figs. 1a, b.
Upper Coal Measures: Kansas City and Lexington, Missouri.
1897. *Bellerophon crassus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Lower Coal Measures: Conway County, Arkansas.

Bellerophon cyrtolites Hall.

1860. *Bellerophon cyrtolites*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 107.
Goniatite L. S.: Rockford, Indiana.
1862. *Bellerophon cyrtolites*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 426.
Marshall Group: Moscow, Michigan.
1863. *Bellerophon cyrtolites*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
Yellow S. S.: Burlington, Iowa.
1865. *Bellerophon cyrtolites*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Marshall Group: Hillsdale, Michigan.
1866. *Bellerophon cyrtolites*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 160,
pl. 14, figs. 8a, b.
Goniatite Bed: Rockford, Indiana.
1870. *Bellerophon cyrtolites*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.
Waverly Group: Granville, Ohio.
1888. *Bellerophon cyrtolites*. Herrick, Bull. Den. Univ., vol. 3, p. 88, pl. 2, figs.
27, 29; pl. 8, figs. 20, 21; pl. 9, figs. 29, 31.
Waverly Group: Licking County, Ohio.

Bellerophon decussatus Herrick.

1887. *Bellerophon decussatus*?? Herrick, Bull. Den. Univ., vol. 2, p. 19, pl. 2, fig. 12.
Coal Measures: Flint Ridge, Ohio.

Bellerophon ellipticus McChesney.

1866. *Bellerophon ellipticus*. McChesney, Desc. New Pal. Foss., p. 58.
Coal Measures: Dr. E. Hall's Mill, Pope Creek, Knox County; Carnahan's Mine, Mercer County, and Mr. Fisher's Mine, near Lacon, Illinois.
1865. *Bellerophon ellipticus*. McChesney, Ill., New Spec. Foss., pl. 3, figs. 1-2.
1868. *Bellerophon ellipticus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 44, pl. 3, figs. 1, 2.
Coal Measures: Knox County, Mercer County, and Lacon, Illinois.

Bellerophon galericulatus Winchell.

1862. *Bellerophon galericulatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 426.
Marshall Group: Marshall, Battle Creek, etc., Michigan.
1888. *Bellerophon galericulatus*. Herrick, Bull. Den. Univ., vol. 3, p. 89, pl. 2, fig. 34; pl. 9, fig. 32.
Waverly Group: Licking County, Ohio.

Bellerophon gibsoni White.

1882. *Bellerophon gibsoni*. White, 11th Ann. Rep. Geol. Surv. Ind., p. 360, pl. 41, figs. 4-6.
St. Louis Group: Greencastle, Indiana.

Bellerophon giganteus Worthen.

1884. *Bellerophon giganteus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 8.
Lower Coal Measures: Monroe County, Illinois.
1890. *Bellerophon giganteus*. Worthen, Geol. Surv. Ill., vol. 8, p. 143, pl. 25, figs. 5, 5a.
Lower Coal Measures: Monroe County, Illinois.

Bellerophon globosus Stevens.

1858. *Bellerophon globosa*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 258.
Coal Measures: Lasalle, Illinois.

Bellerophon harrodi Gurley.

1883. *Bellerophon Harrodi*. Gurley, New Carb. Foss. Bull. No. 1, p. 5.
Upper Coal Measures: Near Oakwood, Vermilion County, Illinois.

Bellerophon helena Hall.

1879. *Bellerophon Helena*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 114, pl. 24, fig. 11.
Hamilton Group: Cayuga and Canandaigua lakes, New York.
1888. *Bellerophon helena*? Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 11.
Bedford Shale: Central College, Ohio.
1889. *Bellerophon newberryi*. Am. Geol., vol. 3, pl. 4, fig. 11.
Bedford Shale: Ohio.
1895. *Bellerophon helena*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 11.
Shale above Berea Grit: Ohio.

Bellerophon hiuleus Owen.

1852. *Bellerophon hiuleus*? Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 8.
Lower Carboniferous L. S.: Keokuk rapids of Mississippi River.

Bellerophon incomptus Gurley.

1884. *Bellerophon incomptus*. Gurley, New Carb. Foss. Bull. No. 2, p. 9.
Coal Measures: Danville, Illinois.

Bellerophon inspeciosus White.

1881. *Bellerophon inspeciosus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxx, pl. 4, figs. 1a-d.
Carboniferous: Near Taos and at Taos Peak, New Mexico.

Bellerophon interlineatus Geinitz. See *Bellerophon montfortianus*.

Bellerophon kansasensis Shumard.

1858. *Bellerophon Kansasensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 204.

Upper Coal Measures: Valley of the Verdigris, Kansas.

Bellerophon lineolatus Hall.

1860. *Bellerophon lineolatus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 107. Goniatite L. S.: Rockford, Indiana.

1862. *Bellerophon lineolatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.

Marshall Group: Holland, Michigan.

Bellerophon majusculus Walcott.

1884. *Bellerophon majusculus*. Walcott, Pal. Eureka Dist., p. 256, pl. 23, figs. 1, 1a; pl. 24, fig. 6.

Lower Carboniferous: Eureka District, Nevada.

Bellerophon marcouanus Geinitz.

1866. *Bellerophon Marcouianus*. Geinitz, Carb. und Dyas in Nebr., p. 7, tab. 1, fig. 12.

Nebraska City, Nebraska.

1872. *Bellerophon Marcouianus*. Meek, U. S. Geol. Surv. Nebr., p. 226, pl. 4, fig. 17; pl. 11, figs. 13a, b.

Upper Coal Measures: Nebraska City, Nebraska; Union County, Iowa.

Coal Measures: Illinois.

Lower Coal Measures: West Virginia.

1887. *Bellerophon marcouianus*. Herrick, Bull. Den. Univ., vol. 2, p. 20, pl. 5, fig. 7. Coal Measures: Flint Ridge, Ohio.

1894. *Bellerophon marcouanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 148, pl. 51, fig. 3.

Upper Coal Measures: Kansas City, Missouri.

1897. *Bellerophon marcouanus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.

Upper Coal Measures: Sebastian County, Arkansas.

Bellerophon meekianus Swallow.

1858. *Bellerophon Meekianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 204.

Middle Coal Measures: Lexington, Missouri.

Lower Coal Measures: Howard County, Missouri.

1894. *Bellerophon meekianus*. Keyes, Mo. Geol. Surv., vol. 5, p. 149.

Lower Coal Measures: Howard County and Lexington, Missouri.

Bellerophon michiganensis Winchell.

1862. *Bellerophon Michiganensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.

Marshall Group: Battle Creek, and near Grandville, Mich.

Bellerophon missouriensis Swallow.

1863. *Bellerophon Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 100.

Archimedes L. S.: Chester, Illinois.

Bellerophon montfortianus Norwood and Pratten.

1855. *Bellerophon Montfortianus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 74, pl. 9, figs. 5a-c.

Coal Measures: Galatia, Illinois, and 5 miles below New Harmony, Indiana.

1866. *Bellerophon Montfortianus*. Geinitz, Carb. und Dyas in Nebr., p. 8, Tab. 1, fig. 13.

Coal Measures: Nebraska City, Nebraska.

1866. *Bellerophon interlineatus*. Geinitz, Carb. und Dyas in Nebr., p. 8, tab. 1, fig. 14.

Nebraska City, Nebraska.

Bellerophon montfortianus Norwood and Pratten—Continued.

1872. *Bellerophon Montfortianus*. Meek, U. S. Geol. Surv. Nebr., p. 225, pl. 11, figs. 15 (12 ?).
 Upper Coal Measures: Nebraska City, Nebraska.
 Coal Measures: Nebraska, Kansas, Iowa, Missouri, and Illinois.
 Lower Coal Measures: West Virginia.
1876. *Bellerophon Montfortianus*. White, Powell's Rep. Geol. Uinta Mts., p. 92.
 Upper Aubrey Group: Confluence of Grand and Green rivers, Utah.
1887. *Bellerophon Montfortianus*. Herrick, Bull. Den. Univ., vol. 2, p. 19, pl. 2, fig. 1; pl. 5, fig. 8.
 Coal Measures: Flint Ridge, Ohio.
1888. *Bellerophon montfortianus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 235.
 Lower Coal Measures: Des Moines, Iowa.
1891. *Bellerophon montfortianus*. White, Bull. U. S. Geol. Surv., No. 77, p. 26, pl. 3, figs. 15, 16.
 Permian: Godwin Creek, Baylor County, Texas.
1891. *Bellerophon montfortianus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 254.
 Lower Coal Measures: Des Moines, Iowa.
1894. *Bellerophon montfortianus*. Keyes, Mo. Geol. Surv., vol. 5, p. 151.
 Upper Coal Measures: Kansas City, Missouri.

Bellerophon nautiloides Winchell.

1862. *Bellerophon nautiloides*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.
 Marshall Group: Moscow, Battle Creek, Marshall, and near Grandville, Michigan.
1865. *Bellerophon nautiloides*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
 Marshall Group: Hillsdale, Michigan.
1886. *Bellerophon nautiloides*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 246.
 Lower Coal Measures: Wilkesbarre, Pennsylvania.

Bellerophon newberryi. See *Bellerophon helena*.**Bellerophon nodocarinatus** Hall.

1858. *Bellerophon nodocarinatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 723, pl. 29, figs. 15a-c.
 Coal Measures: Illinois and Iowa.
1884. *Bellerophon nodocarinatus*. White, 13th Rep. Geol. Surv. Ind., p. 159, pl. 33, figs. 3-5.
 Coal Measures: New Harmony, Indiana.
1886. *Bellerophon nodocarinatus*?. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 457, fig. 13.
 Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Bellerophon nodocarinatus*?. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 277, fig. 13.
 Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Bellerophon nodocarinatus*. Herrick, Bull. Den. Univ., vol. 2, p. 18, pl. 3, fig. 3.
 Coal Measures: Flint Ridge, Ohio.
1894. *Bellerophon nodocarinatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 152, pl. 50, figs. 4a-c.
 Upper Coal Measures: Kansas City, Missouri.

Bellerophon nodocostatus Gurley.

1884. *Bellerophon nodocostatus*. Gurley, New Carb. Foss., Bull. No. 2, p. 9.
 Upper Coal Measures: Near Oakwood, Vermilion County, Illinois.

Bellerophon ourayensis Gurley.

1884. *Bellerophon Ourayensis*. Gurley, New Carb. Foss., Bull. No. 2, p. 8.
 Upper Carboniferous: Ouray, Colorado.

Bellerophon panneus White.

1862. *Bellerophon panneus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 21.
Chemung Group: Burlington, Iowa.
1889. *Bellerophon panneus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 297.
Kinderhook Group: Burlington, Iowa.
1894. *Bellerophon panneus*. Keyes, Mo. Geol. Surv., vol. 5, p. 147, pl. 50, fig. 6.
Kinderhook Group: Burlington, Iowa.

Bellerophon percarinatus Conrad.

- *1842. *Bellerophon percarinatus*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 268.
Coal Measures.
1855. *Bellerophon percarinatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 74, pl. 9, figs. 4a-c.
Coal Measures: Grayville, Illinois; Posey County, Indiana, 5 miles below New Harmony.
1872. *Bellerophon percarinatus*. Meek, U. S. Geol. Surv. Nebr., p. 227, pl. 11, fig. 14.
Upper Coal Measures: Nebraska City and Brownville, Nebraska; Grayville, Illinois; Illinois, Iowa, Missouri.
Lower Coal Measures: West Virginia.
1884. *Bellerophon percarinatus*. White, 13th Rep. Geol. Surv. Ind., p. 158, pl. 33, figs. 9-14.
Coal Measures: Indiana.
1886. *Bellerophon percarinatus*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 246.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Bellerophon percarinatus*. Herrick, Bull. Den. Univ., vol. 2, p. 17, pl. 2, fig. 14.
Coal Measures: Flint Ridge, Ohio.
1888. *Bellerophon percarinatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 234.
Lower Coal Measures: Des Moines, Iowa.
1894. *Bellerophon percarinatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 153, pl. 50, figs. 2a-f.
Upper Coal Measures: Kansas City, Missouri.

Bellerophon perelegans White and Whitfield.

1862. *Bellerophon perelegans*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 304.
Chemung Group: Burlington, Iowa.
1888. *Bellerophon perelegans*? Herrick, Bull. Den. Univ., vol. 3, p. 90, pl. 9, fig. 30.
Waverly Group: Licking County, Ohio.

Bellerophon perlatus Conrad.

- *1842. *Bellerophon perlatus*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 270.
Carboniferous: Inclined plane of Allegany Mountains.

Bellerophon rugopleurus Gurley.

1884. *Bellerophon rugopleurus*. Gurley, New Carb. Foss. Bull. No. 2, p. 11.
Upper Coal Measures: Near Oakwood, Vermilion County, Illinois.

Bellerophon rugosiusculus Winchell.

1862. *Bellerophon rugosiusculus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 425.
Marshall Group: Marshall, Michigan.

Bellerophon rugosiusculus var. *tæniatus* Winchell.

1862. *Bellerophon rugosiusculus* var. *tæniatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 425.
Marshall Group: Moscow, Michigan.

Bellerophon scriptiferus White.

1862. *Bellerophon scriptiferus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 21.
Chemung Group: Burlington, Iowa.

Bellerophon scissile Conrad.

1844. *Bellerophon scissile*. Conrad, Proc. Acad. Nat. Sci. Phil., p. 175.
St. Genevieve.

Bellerophon sedaliensis Miller and Gurley.

1896. *Bellerophon sedaliensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 21, pl. 3, figs. 9, 10.
Chouteau L. S.: Near Sedalia, Missouri.

Bellerophon stamineus Conrad.

- *1842. *Bellerophon stamineus*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 269.
Marshall Group.

Bellerophon stevensanus McChesney.

1860. *Bellerophon stevensianus*. McChesney, Desc. New Pal. Foss., p. 61.
Coal Measures: Springfield, Illinois.
1865. *Bellerophon stevensianus*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 18a-c.
1868. *Bellerophon stevensianus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 46,
pl. 2, figs. 18a-c.
Coal Measures: Springfield, Illinois.
1894. *Bellerophon stevensianus*. Keyes, Mo. Geol. Surv., vol. 5, p. 152.
Upper Coal Measures: Kansas City, Missouri.

Bellerophon subcordiformis Herrick.

1887. *Bellerophon subcordiformis*. Herrick, Bull. Den. Univ., vol. 2, p. 18, pl. 2,
figs. 7a-c.
Coal Measures: Flint Ridge, Ohio.

Bellerophon sublævis Hall.

1856. *Bellerophon sublævis*. Hall, Trans. Albany Inst., vol. 4, p. 32.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1858. *Bellerophon sublævis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 666, pl. 23, figs. 15a-c.
Warsaw L. S.: Above Alton, Illinois; Spergen Hill and Bloomington,
Indiana.
1882. *Bellerophon sublævis*. White, 11th Rep. Geol. Surv. Ind., p. 359, pl. 40,
figs. 5-7.
St. Louis Group: Ellettsville, Monroe County, Indiana.
1882. *Bellerophon sublævis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 89,
pl. 8, figs. 6-7.
St. Louis Group: Spergen Hill, Bloomington, Payners Hill, and Elletts-
ville, Indiana; Alton, Illinois.
1883. *Bellerophon sublævis*. Hall, 12th Rep. Geol. Surv. Ind., p. 371, pl. 31,
figs. 6-7.
St. Louis Group: Alton, Illinois; Spergen Hill, Lanesville, and Blooming-
ton, Indiana.
1886. *Bellerophon sublævis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc.,
vol. 2, pt. 2, p. 246.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1891. *Bellerophon sublævis?* Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 592, pl. 14,
figs. 20, 21.
Maxville L. S.: Newtonville and Maxville, Ohio.
1894. *Bellerophon sublævis*. Keyes, Mo. Geol. Surv., vol. 5, p. 148.
St. Louis L. S.: St. Louis, Missouri.
1895. *Bellerophon sublævis?* Whitfield, Geol. Surv. Ohio, vol. 7, p. 479, pl. 10,
figs. 20, 21.
Maxville L. S.: Newtonville and Maxville, Ohio.
1897. *Bellerophon sublævis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 269, pl. 20,
fig. 10.
Batesville S. S.: Batesville, Arkansas.

Bellerophon subpappilosus White.

1876. *Bellerophon carbonarius* var. *subpappilosus*. White, Powell's Rep. Geol. Uinta Mts., p. 92.
Upper Aubrey Group: Beehive Point, near Echo Canyon, and near Echo Park, Utah.
1879. *Bellerophon subpappilosus*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 218.
Carboniferous: Wild Band Pockets, Northern Arizona, 15 miles south of Pipe Spring.
1880. *Bellerophon subpappilosus*. White, Cont. to Inv. Pal., No. 6, p. 138, pl. 34, fig. 3a.
Upper Carboniferous: Northwestern Colorado and Northern Arizona.

Bellerophon tenuilineatus Gurley.

1884. *Bellerophon tenuilineatus*. Gurley, New Carb. Foss. Bull. No. 2, p. 10.
Upper Coal Measures: Near Oakwood, Vermilion County, Illinois.

Bellerophon textiliformis Gurley.

1883. *Bellerophon textiliformis*. Gurley, New Carb. Foss. Bull. No. 1, p. 6.
Upper Coal Measures: Kansas City, Missouri.

Bellerophon textilis Hall.

1856. *Bellerophon cancellatus*. Hall, Trans. Albany Inst., vol. 4, p. 31. (Not *B. cancellatus* Hall, 1847.)
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1877. *Bellerophon textilis*. Hall, Miller's Am. Pal. Foss., p. 243.
1882. *Bellerophon textilis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 90, pl. 8, figs. 4, 5.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Bellerophon textilis*. Hall, 12th Rep. Geol. Surv. Ind., p. 371, pl. 31, figs. 4, 5.
St. Louis Group: Spergen Hill, Lanesville and Bloomington, Indiana.
1884. *Bellerophon textilis*? Walcott, Pal. Eureka Dist., p. 257, pl. 18, fig. 18.
Lower Carboniferous: Eureka District, Nevada.

Bellerophon tricarinatus Shumard.

1858. *Bellerophon tricarinatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 204.
Upper Coal Measures: Kansas.

Bellerophon urii Norwood and Pratten. See Bellerophon carbonarius.**Bellerophon vinculatus White and Whitfield.**

1862. *Bellerophon vinculatus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 304.
Chemung Group: Burlington, Iowa.

Bellerophon vittatus McChesney. See Bellerophon carbonarius.**Bellerophon whittleseyi Winchell.**

1865. *Bellerophon Whittleseyi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 130.
Marshall Group: One mile east of Orange Center, Cuyahoga County, Ohio.

Bellerophon (species undetermined).

1859. *Bellerophon*, sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 399.
Dark Permian L. S.: Guadalupe Mountains.
1861. *Bellerophon*. Newberry, Ives', Colo. Expl. Exped., p. 118.
Carboniferous: Agua Azul, near base of Mount Taylor.
1868. *Bellerophon*. Dawson, Acad. Geol., p. 308.
Carboniferous L. S.: Kennetcook, Nova Scotia.
1873. *Bellerophon* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 23, fig. 2.
St. Louis Group.

Bellerophon (species undetermined)—Continued.

1876. *Bellerophon* — (?) — White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1888. *Bellerophon* sp? Herrick, Bull. Den. Univ., vol. 3, p. 90, pl. 12, fig. 36.
Waverly Group: Licking County, Ohio.
1888. *Bellerophon* sp. · Herrick, Bull. Den. Univ., vol. 3, pl. 2, fig. 30.
Waverly Group: Licking County, Ohio.
1888. *Bellerophon* sp? Herrick, Bull. Den. Univ., vol. 3, pl. 8, fig. 22.
Waverly Group: Licking County, Ohio.
1891. *Bellerophon* — ? White, Bull. U. S. Geol. Surv., No. 77, p. 26.
Permian: Military Crossing, Baylor County, Texas.
1897. *Bellerophon* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Lower Coal Measures: White County, Arkansas.

BERENICEA Lamoureaux, 1821.**Berenicea insueta Dawson.**

1883. *Berenicea insueta*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 12.
Lower Carboniferous L. S.: Windsor, Nova Scotia.

Berenicea (species undetermined).

1868. *Berenicea*, two species. Dawson, Acad. Geol., p. 289.
Carboniferous L. S.: Windsor, Nova Scotia.

BEYRICHIA McCoy, 1844.**Beyrichia foetoidea White and St. John.**

1868. *Beyrichia foetoidea*. White and St. John, Trans. Chicago Acad. Sci., vol. 1,
p. 126, figs. 11a, b.
Upper Coal Measures: Union and Page counties, Illinois.

Beyrichia jonesii Dawson.

1868. *Beyrichia Jonesii*. Dawson, Acad. Geol., p. 312, fig. 132.
Carboniferous L. S.: Windsor, Nova Scotia.

Beyrichia lithofactor White and St. John.

- *1867. *Beyrichia lithofactor*. White and St. John, Prelim. Not. New Gen. and Spec.
Foss., p. 2.
St. Louis L. S.: Pella, Iowa.
1868. *Beyrichia petrifactor*. White and St. John, Trans. Chicago Acad. Sci., vol. 1,
p. 125.
St. Louis L. S.: Pella, Iowa.

Beyrichia lithofactor var. velata White and St. John.

1867. *Beyrichia lithofactor* var. *velata*. White and St. John, Prelim. Not. New
Gen. and Spec. Foss., p. 2.
St. Louis L. S.: Pella, Iowa.
1868. *Beyrichia petrifactor* var. *velata*. White and St. John, Trans. Chicago Acad.
Sci., vol. 1, p. 126.
St. Louis L. S.: Pella, Iowa.

Beyrichia novascotica Jones and Kirkby.

1868. *Beyrichia* sp. Dawson Acad. Geol., p. 256, fig. 78c.
Carboniferous: Horton Bluff, Nova Scotia.
1884. *Beyrichia Nova-scotica*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 358,
pl. 12, figs. 5, 6.

Beyrichia petrifactor White and St. John. See *Beyrichia lithofactor*.

Beyrichia petrifactor var. *velata* White and St. John. See *Beyrichia lithofactor* var. *velata*.

Beyrichia radiata var. *cestriensis* Ulrich.

1891. *Beyrichia radiata* var. *cestriensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 204, pl. 14, figs. 4a, b.

Chester Group: Grayson Springs, Kentucky.

Beyrichia simulatrix Ulrich.

1891. *Beyrichia simulatrix*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 205, pl. 18, figs. 7a, b.

Chester Group: Grayson Springs, Kentucky.

Beyrichia or **Primitia**, sp. Jones and Kirkby.

1884. *Beyrichia* or *Primitia*? sp. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 358, pl. 12, fig. 7.

Lower Coal Measures: Horton, Nova Scotia.

BIOPALLA Wallace, 1878.**Biopalla alicei** Wallace.

1878. *Biopalla Alicei*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla grandis Wallace.

1878. *Biopalla grandis*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Clark County, Missouri.

Biopalla hœckeli Wallace.

1878. *Biopalla Hœckeli*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Canton, Missouri.

Biopalla hyatti Wallace.

1878. *Biopalla Hyatti*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Hamilton, Illinois.

Biopalla keokuk Wallace.

1878. *Biopalla Keokuk*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa; Hamilton, Illinois.

Biopalla palmata Wallace.

1878. *Biopalla palmata*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 370.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla woodmani Wallace.

1878. *Biopalla Woodmani*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Keokuk, Iowa.

Biopalla wortheni Wallace.

1878. *Biopalla Wortheni*. Wallace, Am. Jour. Sci. (3), vol. 15, p. 369.

Keokuk L. S. (Geode Bed): Hamilton, Illinois.

BLAIRELLA Miller and Gurley, 1896.**Blairella sedaliensis** Miller and Gurley.

1896. *Blairella sedaliensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 7, pl. 1, figs. 4-8.

Chouteau L. S.: Near Sedalia, Missouri.

BLAIROCRINUS Miller, 1891.

Blairocrinus arrosus. See *Actinocrinus arrosus*.

Blairocrinus bullatus. See *Actinocrinus arrosus*.

Blairocrinus spinulosus Miller and Gurley.

1894. *Blairocrinus spinulosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 28, pl. 7, figs. 16-18.

Chouteau L. S.: Sedalia, Missouri.

Blairocrinus trijugis. See *Actinocrinus trijugis*.

(BLATTINA Burmeister, 1838.)

Blattina bretonensis Scudder. See *Mylacris bretonensis*.

Blattina fascigera Scudder. See *Gerablattina fascigera*.

Blattina heeri Scudder. See *Mylacris heeri*.

Blattina sepulta Scudder. See *Petrablattina sepulta*.

Blattina venusta Lesquereux. See *Etoblattina venusta*.

Blattina sp. Scudder.

1895. *Blattina sp.* Scudder, Bull. U. S. Geol. Surv. No. 124, p. 142, pl. 10, fig. 16.
Lower Coal Measures: Mazon Creek, Illinois.

BOLLIA Jones and Hall, 1886.

Bollia granifera Ulrich.

1891. *Bollia granifera*. Ulrich, Jour. Ginn. Soc. Nat. Hist., vol. 13, p. 205, pl. 12, figs. 12a, b.

St. Louis L. S.: Elizabethtown, Kentucky.

BRACHYMETOPUS McCoy, 1847.

Brachymetopus armatus Vogdes.

1891. *Brachymetopus armatus*. Vogdes, Trans. St. Louis Acad. Sci., vol. 5, p. 617, pl. 15, figs. 4, 5.

Waverly Group: Sedalia, Missouri.

Brachymetopus immaturus Herrick.

1888. *Phaethonides ? immaturus*. Herrick, Bull. Den. Univ., vol. 4, p. 59, pl. 1, figs. 9, 15.

Waverly Group: Newark and Cuyahoga Falls, Ohio.

1889. *Phaethonides immaturus*. Herrick, Am. Geol., vol. 3, pl. 1, figs. 9, 15.

1894. *Phillipsia ? immaturus*. Keyes, Mo. Geol. Surv., vol. 4, p. 238.

Lower Burlington L. S.: Louisiana, Missouri.

1895. *Phaethonides immaturus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 9.

Cuyahoga Shale: Cuyahoga Falls, Ohio.

Brachymetopus lodiensis Meek.

1875. *Phillipsia (Griffithides ?) lodiensis*. Meek, Pal. Ohio, vol. 2, p. 323, pl. 18, fig. 3.
Cuyahoga Shale: Lodi and Loudonville, Ohio.

1887. *Brachymetopsus lodiensis*. Herrick, Bull. Den. Univ., vol. 2, pl. 3, fig. 4.

1887. *Brachymetopsus lodiensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 102.
Cuyahoga Shale: Lodi, Medina County, Ohio.

Waverly Group: Loudonville, Ohio.

1888. *Phaethonides (?) lodiensis*. Herrick, Bull. Den. Univ., vol. 4, p. 59.

Waverly Group: Ohio.

Brachymetopus occidentalis Herrick.

1888. *Phaethonides occidentalis*. Herrick, Bull. Den. Univ., vol. 4, p. 57, pl. 1, figs. 10a, b.

Waverly Group: Granville and Newark, Ohio.

Brachymetopus occidentalis Herrick—Continued.

1889. *Phaethonides occidentalis*. Herrick, Am. Geol. vol. 3, pl. 1, fig. 10.

1895. *Phaethonides occidentalis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 10, 11.
Waverly Group (Conglomerate I): Granville, Ohio.

Brachymetopus spinosus Herrick.

1888. *Phaethonides spinosus*. Herrick, Bull. Den. Univ., vol. 4, p. 58, pl. 1, figs. 4, 5.
Waverly Group: Licking and Ashland counties, Ohio.

1889. *Phaethonides spinosus*. Herrick, Am. Geol., vol. 3, pl. 1, figs. 4, 5.

1891. *Phaethonides spinosus*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 42, pl. 1, fig. 13.
Cuyahoga Shale: Scioto County, Ohio.

1895. *Phaethonides spinosus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 4, 5
(16b, c)?

Cuyahoga Shale: Licking and Ashland counties, Ohio.

BRANCOCERAS Hyatt, 1883.**Brancoceras ixion** Hall.

1860. *Goniatis rotatorius*?. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 101,
figs. 15-16.

Goniatite L. S.: Rockford, Indiana.

1860. *Goniatis ixion*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 125, figs. 1, 2.
Goniatite L. S.: Rockford, Indiana.

1879. *Goniatis ixion*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 474, pl. 73, figs. 12-14; pl. 74,
fig. 12.

Goniatite L. S.: Rockford, Indiana.

1883. *Brancoceras Ixion*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 326.

1886. *Goniatis Ixion*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (128) 13, fig. 3.
Goniatite L. S.: Rockford, Indiana.

1888. *Goniatis Ixion*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 40, pl. 128, fig. 3.
Goniatite L. S.: Rockford, Indiana.

1897. *Brancoceras Ixion*. Foord and Crick, Cat. Foss. Ceph., pt. 3, p. 141, fig. 62,
p. 132.

Goniatite Limestone, Kinderhook Group: Rockford, Indiana.

(BULIMELLA Hall, 1858.)

Bulimella bulimiformis Hall. See *Bulimorpha bulimiformis*.

Bulimella canaliculata Hall. See *Bulimorpha canaliculata*.

Bulimella elongata Hall. See *Bulimorpha elongata*.

BULIMORPHA Whitfield, 1882.**Bulimorpha bulimiformis** Hall.

1856. *Bulimella bulimiformis*. Hall, Trans. Albany Inst., vol. 4, p. 29.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Bulimorpha bulimiformis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1,
p. 74, pl. 8, figs. 37-39.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Bulimorpha bulimiformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 366, pl. 31,
figs. 37-39.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

1889. *Bulimorpha bulimiformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.

1894. *Bulimorpha bulimiformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 204.
St. Louis L. S.: St. Louis, Missouri.

Bulimorpha canaliculata Hall.

1856. *Bulimella canaliculata*. Hall, Trans. Albany Inst., vol. 4, p. 29.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Bulimorpha canaliculata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1,
p. 74, pl. 8, fig. 41.
St. Louis Group: Spergen Hill, Indiana.
1883. *Bulimorpha canaliculata*. Hall, 12th Rep. Geol. Surv. Ind., p. 367, pl. 31,
fig. 41.
St. Louis Group: Spergen Hill and Lanesville, Indiana.
1889. *Bulimorpha canaliculata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.

Bulimorpha chrysalis Meek and Worthen.

1866. *Polyphemopsis chrysalis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 267.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Polyphemopsis chrysalis*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 596, pl. 28, fig. 7.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1889. *Bulimorpha chrysalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 300.
1891. *Bulimorpha? chrysalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 264.
Lower Coal Measures: Des Moines, Iowa.

Bulimorpha elongata Hall.

1856. *Bulimella elongata*. Hall, Trans. Albany Inst., vol. 4, p. 30.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Bulimorpha elongata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 75,
pl. 8, fig. 40.
St. Louis Group: Spergen Hill, Indiana.
1883. *Bulimorpha elongata*. Hall, 12th Rep. Geol. Surv. Ind., p. 368, pl. 31, fig. 40.
St. Louis Group: Spergen Hill and Lanesville, Indiana.
1889. *Bulimorpha elongata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.

Bulimorpha inornata Meek and Worthen.

1860. *Loxonema inornata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 465.
Upper Coal Measures: Springfield, Illinois.
1866. *Polyphemopsis inornata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 374,
pl. 31, figs. 8a-c.
Upper Coal Measures: Springfield, Illinois.
1887. *Polyphemopsis inornata*. Herrick, Bull. Den. Univ., vol. 2, p. 20, pl. 2, fig. 15.
Coal Measures: Flint Ridge, Ohio.
1889. *Bulimorpha inornata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
1894. *Bulimorpha inornata*. Keyes, Mo. Geol. Surv., vol. 5, p. 205, pl. 55, fig. 6.
Upper Coal Measures: Kansas City, Missouri.
1897. *Polyphemopsis inornata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
Upper Coal Measures: Crawford County, Arkansas.

Bulimorpha? keokuk Worthen.

1884. *Polyphemopsis? keokuk*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 9.
Lower Keokuk L. S.: Keokuk, Iowa.
1889. *Polyphemopsis keokuk*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
1890. *Polyphemopsis? keokuk*. Worthen, Geol. Surv. Ill., vol. 8, p. 144, pl. 23, fig. 3.
Keokuk L. S.: Keokuk, Iowa.

Bulimorpha melanoides Whitfield.

1882. *Polyphemopsis melanoides*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 225.
Maxville L. S.: Newtonville, Ohio.
1891. *Polyphemopsis melanoides*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 592,
pl. 14, fig. 13.
Maxville L. S.: Newtonville, Ohio.

Bulimorpha melanoides Whitfield—Continued.

1895. *Polyphemopsis melanoides*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 478, pl. 10, fig. 13.
Maxville L. S.: Newtonville, Ohio.

Bulimorpha minuta Stevens.

1858. *Loxonema minuta*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
Coal Measures: Sangamon County and Danville, Illinois.
1873. *Actæonina minuta*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 594, pl. 29, fig. 2.
Coal Measures: Danville, Illinois.
1888. *Actæonia minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.
1889. *Bulimorpha minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 301.
1891. *Bulimorpha minuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 263.
Lower Coal Measures: Des Moines, Iowa.

Bulimorpha nitidula Meek and Worthen.

1860. *Loxonema nitidula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 465.
Upper Coal Measures: Springfield, Illinois.
1866. *Polyphemopsis nitidula*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 374, pl. 31, figs. 9a, b.
Upper Coal Measures: Springfield, Illinois.
1882. *Polyphemopsis nitidula*. White, 11th Rep. Geol. Surv. Ind., p. 370, pl. 42, figs. 7, 8.
Coal Measures: Eugene, Vermilion County, Indiana.
1884. *Polyphemopsis nitidula*. White, 13th Rep. Geol. Surv. Ind., p. 163, pl. 27, figs. 7, 8.
Coal Measures: Eugene, Vermilion County, Indiana.
1889. *Bulimorpha nitidula*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 302.

Bulimorpha? peracuta Meek and Worthen.

1860. *Eulima? peracuta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 466.
Lower Coal Measures: Jacksburg, St. Clair County, Illinois.
Upper Coal Measures: Near Springfield, Illinois.
1861. *Polyphemopsis peracuta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
1866. *Polyphemopsis peracuta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 375, pl. 31, figs. 7a, b.
Upper Coal Measures: Near Urbana, St. Clair County, and near Springfield, Illinois.
1884. *Polyphemopsis peracuta*. White, 13th Rep. Geol. Surv. Ind., p. 163, pl. 32, figs. 9, 10.
Coal Measures: Indiana (?).
1889. *Polyphemopsis peracuta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 302.
1894. *Eulima? peracuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 205.
Upper Coal Measures: Sullivan County, Missouri.

BURSACRINUS Meek and Worthen, 1861.**Bursacrinus confirmatus** White.

1862. *Bursacrinus confirmatus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 11.
Lower Burlington L. S.: Burlington, Iowa.

Bursacrinus wachsmuthi Meek and Worthen.

1861. *Bursacrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 137.
Burlington L. S.: Burlington, Iowa.

Bursacrinus wachsmuthi Meek and Worthen—Continued.

1868. *Bursacrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 479, pl. 17, fig. 6.
Burlington Group: Burlington, Iowa.

CACTOCRINUS Wachsmuth and Springer, 1897.**Cactocrinus arnoldi** Wachsmuth and Springer.

1890. *Actinocrinus arnoldi*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 168, pl. 17, fig. 10.
Kinderhook Group: Le Grand, Iowa.
1897. *Cactocrinus Arnoldi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 624, pl. 57, figs. 4a, b.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Cactocrinus clarus Hall.

1861. *Actinocrinus clarus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus clarus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 277.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus Clarus*. Hall, Photo. Plates of Crin., pl. 3, figs. 24, 25.
1893. *Actinocrinus clarus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 8, pl. 1, figs. 4, 5.
Burlington L. S.: Burlington, Iowa.
1897. *Cactocrinus clarus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 612, pl. 57, figs. 9, 10; pl. 58, fig. 1.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus cœlatus Hall.

1858. *Actinocrinus cœlatus*. Geol. Iowa, vol. 1, pt. 2, p. 585, pl. 10, fig. 14a, b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus cœlatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 1.
1894. *Actinocrinus cœlatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 187.
Lower Burlington L. S.: Hannibal and White Ledge, Missouri.
1897. *Cactocrinus cœlatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 618, pl. 59, figs. 8, 9.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus cœlatus var. *spinotentaculus* Hall.

1860. *Actinocrinus spino-tentaculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 86.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus spinotentaculites*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 13-17.
1897. *Cactocrinus cœlatus* var. *spinotentaculus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 619, pl. 59, fig. 10.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus denticulatus Wachsmuth and Springer.

1897. *Cactocrinus denticulatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 606, pl. 57, figs. 5a, b.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus ectypus Meek and Worthen.

1869. *Strotocrinus ectypus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 159.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus ectypus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 353, pl. 7, fig. 5.
Burlington L. S.: Burlington, Iowa.

Cactocrinus ectypus Meek and Worthen—Continued.

1897. *Cactocrinus ectypus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 611, pl. 56, fig. 10.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus extensus Wachsmuth and Springer.

1897. *Cactocrinus extensus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 616, pl. 57, figs. 6, 7.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus fossatus Miller.

1892. *Actinocrinus fossatus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 40, pl. 6, figs. 11, 12.

Burlington Group: Sedalia, Missouri.

1894. *Actinocrinus fossatus*. Miller, 18th Rep. Geol. Surv. Ind., p. 294, pl. 6, figs. 11, 12.

Burlington Group: Sedalia, Missouri.

1894. *Actinocrinus fossatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.

Burlington L. S.: Sedalia, Missouri.

1897. *Cactocrinus fossatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 620, pl. 55, fig. 12.

Lower Burlington L. S.: Sedalia, Missouri.

Cactocrinus glans Hall.

1860. *Actinocrinus glans*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 16.

Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus tholus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 35.

Burlington L. S.: Burlington, Iowa.

1861. *Actinocrinus eryx*. Hall, Desc. New Spec. Crin., p. 12.

Burlington L. S.

1892. *Actinocrinus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 35, pl. 5, figs. 27-29.

Burlington Group: Sedalia, Missouri.

1893. *Actinocrinus glans*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 10, fig. pl. 1, figs. 11, 12.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Actinocrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 289, pl. 5, figs. 27-29.

Burlington Group: Sedalia, Missouri.

1894. *Actinocrinus glans*. Keyes, Mo. Geol. Surv., vol. 4, p. 189, pl. 24, figs. 2a, b.

Upper Burlington L. S.: Ash Grove, Missouri.

1897. *Cactocrinus glans*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 625, pl. 54, figs. 5, 6a-b, 7.

Upper Burlington L. S.: Burlington, Iowa.

Cactocrinus limabrachiatus Hall.

1861. *Actinocrinus limabrachiatus*. Hall, Desc. New Spec. Crin., p. 2.

Burlington L. S.

1861. *Actinocrinus limabrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 268.

Burlington L. S.: Burlington, Iowa.

1893. *Actinocrinus limabrachiatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 5, pl. 1, figs. 8, 9.

Burlington L. S.: Burlington, Iowa.

1897. *Cactocrinus limabrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 608, pl. 58, figs. 9, 10a-b.

Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus longus Meek and Worthen.

1869. *Actinocrinites longus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 157.
 Lower Burlington L. S.: Burlington, Iowa.
 1873. *Actinocrinites longus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 345, pl. 8, fig. 1.
 Lower Burlington L. S.: Burlington, Iowa.
 1897. *Cactocrinus longus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 609, pl. 57, fig. 8.
 Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus lucina Hall.

1861. *Actinocrinus lucina*. Hall, Desc. New Spec. Crin., p. 11.
 Burlington L. S.
 1891. *Actinocrinus puteatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 101, pl. 2, fig. 16.
 Lower Burlington L. S.: Louisiana, Missouri.
 1897. *Cactocrinus lucina*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 603, pl. 56, figs. 8, 9.
 Lower Burlington L. S.: Burlington, Iowa; Louisiana, Missouri.

Cactocrinus multibrachiatus Hall.

1858. *Actinocrinus multibrachiatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 580, pl. 10, fig. 10.
 Burlington L. S.: Burlington, Iowa.
 1861. *Actinocrinus multibrachiatus* var. *echinatus*. Hall, Desc. New Spec. Crin., p. 10.
 Burlington L. S.
 1897. *Cactocrinus multibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 617, pl. 56, figs. 6, 7, pl. 58, fig. 8.
 Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus nodobrachiatus Wachsmuth and Springer.

1890. *Actinocrinus nodobrachiatus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 165, pl. 15, fig. 5; pl. 16, fig. 10.
 Kinderhook Group: Legrand, Iowa.
 1897. *Cactocrinus nodobrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 622, pl. 57, figs. 1, 2.
 Kinderhook Group: Legrand, Marshall County, Iowa.

Cactocrinus obesus Keyes.

1894. *Actinocrinus obesus*. Keyes, Mo. Geol. Surv., vol. 4, p. 187, pl. 24, fig. 4.
 Burlington L. S.: Hannibal, Missouri.
 1897. *Cactocrinus obesus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 613, pl. 55, figs. 9a, b.
 Lower Burlington L. S.: Hannibal, Missouri.

Cactocrinus opusculus Hall.

1860. *Actinocrinus opusculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 6.
 1861. *Actinocrinus opusculus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 264.
 Burlington L. S.: Burlington, Iowa.
 1893. *Actinocrinus opusculus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 9, pl. 1, figs. 6, 7; p. 28, fig.
 Burlington L. S.: Burlington, Iowa.
 1897. *Cactocrinus opusculus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 607, pl. 56, figs. 5a, b.
 Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus ornatissimus Wachsmuth and Springer.

1890. *Actinocrinus ornatissimus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 163, pl. 16, fig. 9; pl. 17, fig. 3.
Kinderhook Group: Legrand, Iowa.
1897. *Cactocrinus ornatissimus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 621, pl. 57, fig. 3.
Kinderhook Group: Legrand, Marshall County, Iowa.

Cactocrinus proboscidalis Hall.

1858. *Actinocrinus proboscidalis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 584, pl. 10, fig. 13.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus quaternarius*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 21.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus proboscidalis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 2.
1861. *Actinocrinus quaternarius* var. *spiniferus*. Hall, Desc. New Spec. Crin., p. 11.
1861. *Actinocrinus themis*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1861. *Actinocrinus excerptus*. Hall, Desc. New Spec. Crin., p. 3.
Burlington L. S.
1861. *Actinocrinus excerptus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 276.
Burlington L. S.: Burlington, Iowa.
- *1861. *Actinocrinus lagena*. Hall, Desc. New Spec. Crin., p. 13.
Burlington L. S.
1881. *Actinocrinus dalyanus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 309, pl. 7, figs. 1, 1a.
Subcarboniferous: Lake Valley Mining District, New Mexico.
1893. *Actinocrinus quaternarius*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 7, pl. 1, figs. 1-3.
Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus proboscidalis*. Keyes, Mo. Geol. Surv., vol. 4, p. 185.
Lower Burlington L. S.: Sedalia, Hannibal and Louisiana, Missouri.
1897. *Cactocrinus proboscidalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 601, pl. 58, figs. 3-6, 7a d.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Cactocrinus reticulatus Hall.

1861. *Actinocrinus reticulatus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus thoas*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
- *1861. *Actinocrinus locellus*. Hall, Desc. New Spec. Crin., p. 15.
Burlington L. S.
1861. *Actinocrinus reticulatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 269.
Burlington L. S.: Burlington, Iowa.
1894. *Actinocrinus reticulatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 186.
Lower Burlington L. S.: Hannibal and Sedalia, Missouri.
1897. *Cactocrinus reticulatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 605, pl. 58, figs. 2a, b.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus reticulatus var. ovatus Hall.

1861. *Actinocrinus ovatus*. Hall, Desc. New Spec. Crin., p. 10.
Burlington L. S.

Cactocrinus reticulatus var. ovatus Hall—Continued.

1897. *Cactocrinus reticulatus* var. *ovatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 606, pl. 57, fig. 11.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus sexarmatus Hall.

1860. *Actinocrinus sexarmatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 21.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus sexarmatus* var. Hall, Photo. Plates of Crinoids, pl. 3, fig. 26.
1897. *Cactocrinus sexarmatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 615, pl. 55, figs. 10, 11.
Lower Burlington L. S.: Burlington, Iowa.

Cactocrinus thalia Hall.

- *1861. *Actinocrinus thalia*. Hall, Desc. New Spec. Crin., p. 13.
Burlington L. S.
*1861. *Actinocrinus infrequens*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.
1891. *Actinocrinus nodosus*. Miller, Bull. Mo. Geol. Surv., No. 4, p. 33, pl. 5, fig. 7.
Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus thalia*. Keyes, Mo. Geol. Surv., vol. 4, p. 187.
Lower Burlington L. S.: Sedalia, Missouri.
1897. *Cactocrinus thalia*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 604, pl. 56; figs. 2; pl. 57, figs. 12, 13.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Cactocrinus thetis Hall.

1861. *Actinocrinus thetis*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1861. *Actinocrinus securus*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.
1893. *Actinocrinus thetis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 6, pl. 1, fig. 10.
Yellow beds of Burlington L. S.: Burlington, Iowa.
1897. *Cactocrinus thetis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 614, pl. 56, figs. 3, 4.
Lower Burlington L. S.: Hannibal, Missouri.

CALCEOOCRINUS Hall, 1852.

Calceocrinus bradleyi. See *Halysiocrinus bradleyi*.

Calceocrinus lamellosus Hall.

1860. *Cheirocrinus lamellosus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 123.
Burlington L. S.

Calceocrinus nodosus. See *Halysiocrinus ventricosus*.

Calceocrinus perplexus. See *Halysiocrinus perplexus*.

Calceocrinus robustus. See *Halysiocrinus robustus*.

Calceocrinus tunicatus. See *Halysiocrinus tunicatus*.

Calceocrinus ventricosus. See *Halysiocrinus ventricosus*.

Calceocrinus wachsmuthi. See *Halysiocrinus ventricosus*.

(CALLOPORA Hall, 1852.)

Callopora missouriensis Rominger. See *Leioclema punctatum*.

Callopora punctata Hall. See *Leioclema punctatum*.

CAMAROPHORELLA Hall, 1893.**Camarophorella lenticularis** White and Whitfield.

1862. *Pentamerus lenticularis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 295.
Chemung Group: Burlington, Iowa.
1865. *Pentamerus lenticularis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Base of Burlington L. S.: Burlington, Iowa.
1894. *Camarophorella lenticularis*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 45, figs. 5, 6.
Yellow S. S.: Burlington, Iowa.
1895. *Camarophorella lenticularis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 62, figs. 46-48.
Yellow S. S. of Burlington Group: Burlington, Iowa.

CAMAROPHORIA King, 1844.**Camarophoria bisulcata** Shumard.

1858. *Camarophoria* (?) *bisulcata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 296.
Dark Permian L. S.: Guadalupe Mountains.
1859. *Camarophoria bisulcata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 394, pl. 11, fig. 2.
Dark and White Permian L. S.: Guadalupe Mountains.

Camarophoria cooperensis. See *Rhynchonella cooperensis*.

Camarophoria caputtestudinis White.

1862. *Rhynchonella caput testudinis*. White, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 23.
Lower Burlington L. S.: Burlington, Iowa.

Camarophoria explanata McChesney.

1860. *Rhynchonella explanata*. McChesney, Desc. New Pal. Foss., p. 50.
Kaskaskia-L. S.
1868. *Rhynchonella explanata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 30, pl. 6, figs. 7a-c.
Chester L. S.
1894. *Pugnax explanatus*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 44, figs. 14-16.
Kaskaskia L. S.: Illinois.
1895. *Pugnax explanatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 43-45.
Kaskaskia L. S.: Illinois.

Camarophoria giffordi. See *Enteleles hemiplicata*.

Camarophoria globulina. See *Pugnax globulina* and *Pugnax uta*.

Camarophoria occidentalis Miller.

1881. *Camarophoria occidentalis*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 313, pl. 7, figs. 7-7b.
Subcarboniferous: Lake Valley Mining District, New Mexico.

Camarophoria ringens Swallow.

1860. *Rhynchonella ringens*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 653.
Encrinital L. S.: Callaway County, Missouri.
1894. *Rhynchonella ringens*. Keyes, Mo. Geol. Surv., vol. 5, p. 102.
Burlington L. S.: Fulton and Hannibal, Missouri.
1895. *Camarophoria ringens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 84, fig. 45.
Burlington L. S.: Louisiana, Missouri.

Camarophoria schlotheimi von Buch.

1859. *Camarophoria schlotheimi* (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395.

White Permian L. S.: Guadalupe Mountains.

Camarophoria subcuneata Hall.

1856. *Rhynchonella subcuneata*. Hall, Trans. Albany Inst., vol. 4, p. 11.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1858. *Rhynchonella subcuneata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 658, pl. 23, figs. 3a-c.
Warsaw L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Rhynchonella subcuneata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 51, pl. 6, figs. 47-49.
St. Louis Group: Spergen Hill, Paynters Hill, and Bloomington, Indiana.
1883. *Rhynchonella subcuneata*. Hall, 12th Rep. Geol. Surv. Ind., p. 333, pl. 29, figs. 47-49.
St. Louis Group: Bloomington, Lanesville, and Spergen Hill, Indiana.
1888. *Rhynchonella subcuneata*? Herrick, Bull. Den. Univ., vol. 3, p. 39, pl. 7, fig. 23.
Waverly Group: Licking County, Ohio.
1894. *Camarophoria subcuneata*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 45, figs. 3, 4.
St. Louis Group: Washington County, Indiana.
1894. *Rhynchonella subcuneata*. Keyes, Mo. Geol. Surv., vol. 5, p. 102.
Keokuk L. S.: Boonville, Missouri.
1895. *Camarophoria subcuneata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 62, figs. 34-37.
St. Louis Group: Washington County, Indiana.

Camarophoria subtrigona Meek and Worthen.

1860. *Rhynchonella subtrigona*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 451.
Keokuk L. S.: Warsaw, Illinois.
1860. *Rhynchonella Parvini*. McChesney, Desc. New Spec. Pal. Foss., p. 83.
1866. *Camarophoria subtrigona*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 251, pl. 18, figs. 8a-c.
Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
1868. *Camarophoria subtrigona*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 31, pl. 6, figs. 2a, b.
Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
1894. *Camarophoria subtrigona*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 45, figs. 1, 2.
Chert of Burlington L. S.: Burlington, Iowa.
Keokuk Group: Nauvoo, Illinois.
1894. *Rhynchonella subtrigona*. Keyes, Mo. Geol. Surv., vol. 5, p. 102.
Keokuk L. S.: Wayland, Missouri.
1895. *Camarophoria subtrigona*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 62, figs. 38-43.
Chert of Burlington L. S.: Burlington, Iowa; Pike County, Missouri.
Keokuk Group: Nauvoo, Illinois.

Camarophoria swallovia. See Pugnax swallovia.**Camarophoria thera Walcott.**

1884. *Rhynchonella Thera*. Walcott, Pal. Eureka Dist., p. 223, pl. 7, figs. 6-6c.
Lower Carboniferous: Eureka District, Nevada.

Camarophoria wortheni Hall.

1856. *Rhynchonella Wortheni*. Hall, Trans. Albany Inst., vol. 4, p. 11.
St. Louis L. S.: Alton, Illinois.

Camarophoria wortheni Hall—Continued.

1882. *Camarophoria Wortheni*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 54, pl. 6, figs. 35-39.
St. Louis Group: Alton, Illinois.
1883. *Camarophoria (?) wortheni*. Hall, 12th Rep. Geol. Surv. Ind., p. 334, pl. 29, figs. 35-39.
St. Louis Group: Alton, Illinois.

CAMAROTÆCHIA Hall, 1892.**Camarotæchia contracta Hall.**

1867. *Rhynchonella (Stenocisma) contracta*. Hall, Pal. N. Y., vol. 4, p. 351, pl. 55, figs. 26-39.
Chemung Group: New York; Licking County, Ohio.
1888. *Rhynchonella contracta*. Herrick, Bull. Den. Univ., vol. 3, p. 39, pl. 10, fig. 9.
Waverly Group: Licking County, Ohio.
1888. *Rhynchonella contracta*. Herrick, Bull. Den. Univ., vol. 4, p. 23, pl. 11, fig. 21.
Waverly Group: Medina County, Ohio.

Camarotæchia endlichi Meek.

1875. *Rhynchonella Endlichi*. Meek, Bull., U. S. G. and G. Surv. Terr., vol. 1, 2d ser., No. 1, p. 46.
Carboniferous?: East of the Animas River, Colorado Territory.
1880. *Rhynchonella endlichi*. White, Cont. to Inv. Pal., No. 6, p. 133, pl. 33, figs. 4a, b, pl. 36, figs. 2a, b.
Upper Devonian or Carboniferous: East of Animas River, Colorado.

Camarotæchia marshallensis Winchell.

1862. *Rhynchonella Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 408.
Marshall Group: Marshall, Michigan.
1870. *Rhynchonella Marshallensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Granville, Ohio.
1888. *Rhynchonella marshallensis*. Herrick, Bull. Den. Univ., vol. 3, p. 40.
Waverly Group: Licking County, Ohio.
1888. *Rhynchonella marshallensis*. Herrick, Bull. Den. Univ., vol. 4, p. 23, pl. 3, fig. 18.
Waverly Group: Ashland County, and near Granville, Ohio.
1895. *Rhynchonella marshallensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 14.
Cuyahoga Shale: Ohio.

Camarotæchia sageriana Winchell.

1862. *Rhynchonella Sageriana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 407.
Marshall S. S.: Marshall, Michigan.
1865. *Rhynchonella Sageriana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 122.
Marshall Group: Weymouth, near Ashland, Drew's sawmill, Big Brook, Orange, Cuyahoga County, and 2 miles southwest of Northfield Center, Summit County, Ohio.
1869. *Rhynchonella Sageriana*. Winchell, Safford's Geol. of Tenn., p. 443.
Shale just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Rhynchonella Sageriana*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Tennessee; Vinton County, Newark, Sciotoville, and Granville, Ohio.
1888. *Rhynchonella sageriana*. Herrick, Bull. Den. Univ., vol. 3, p. 39, pl. 2, fig. 15.
Waverly Group: Licking County, Ohio.

Camarotoëchia sappho Hall.

1867. *Rhynchonella* (*Stenocisma*) *sappho*. Hall, Pal. N. Y., vol. 4, p. 340, pl. 54; figs. 33-43.

Hamilton Group: New York.

1888. *Rhynchonella sappho*. Herrick, Bull. Den. Univ., vol. 3, p. 40, pl. 5, fig. 1, pl. 7, fig. 25.

Waverly Group: Licking County, Ohio.

1895. *Rhynchonella sappho*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 1.
Kinderhook or base of Burlington: Ohio.

CAMPOPHYLLUM Edwards and Haime, 1850.**Campophyllum kansasense Miller and Gurley.**

1894. *Campophyllum kansasense*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 67, pl. 7, figs. 19-22.

Upper Coal Measures: Kansas City, Missouri.

Campophyllum ? texanum Shumard.

1859. *Campophyllum* (?) *Texanum*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.

White Permian L. S.: Guadalupe Mountains.

Campophyllum torquium Owen.

1852. *Cyathophyllum* (*vermiculare*?). Owen, Geol. Rep. Wis. Iowa and Minn., tab. 4, fig. 2.

Carboniferous L. S.: Near mouth of Keg Creek.

1852. *Cyathophyllum torquium*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 4, fig. 2.

Carboniferous L. S.: Near mouth of Keg Creek.

1852. *Cyathophyllum flexuosum* (?). Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 4, figs. 3a, b.

Carboniferous L. S.: Near mouth of Keg Creek.

1872. *Campophyllum torquium*. Meek, U. S. Geol. Surv. Nebr., p. 145, pl. 1, figs. 1a-d.

Upper Coal Measures: Rock Bluff and Cedar Bluff, Nebraska; Iowa.
Coal Measures: Illinois.

1884. *Campophyllum torquium*. White, 13th Rep. Geol. Surv. Ind., p. 119, pl. 23, figs. 10-13.

Upper Coal Measures: Iowa; Missouri; Nebraska; Illinois; Indiana.

1894. *Campophyllum torquium*. Keyes, Mo. Geol. Surv., vol. 4, p. 107, pl. 12, figs. 7a-c, pl. 13, fig. 7.

Coal Measures: Kansas City, Missouri.

Campophyllum (species undetermined).

1876. *Campophyllum* — ? —. White, Powell's Geol. Rep. Uinta Mts., p. 88.
Red Wall Group: Cataract Canyon, Utah.

1877. *Campophyllum* (undt. sp.) Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 57, pl. 5, figs. 2, 2b. (*Zaphrentis* undt. sp.) on explanation of plate.

Carboniferous: Diamond Range, near Newark.

CAMPTOCRINUS Wachsmuth and Springer, 1897.**Camptocrinus cirrifer Wachsmuth and Springer.**

1897. *Camptocrinus cirrifer*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 780, pl. 76, figs. 13a-c.

Kaskaskia Group: Near Sloan's Valley, Pulaski County, Kentucky.

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Camptocrinus myelodactylus Wachsmuth and Springer.

1897. *Camptocrinus myelodactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 779, pl. 75, figs. 1, 2a, b.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

CANDONA Baird, 1845.**Candona? elongata** Jones and Kirkby.

1884. *Candonia? elongata*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 361, pl. 12, fig. 10.

Coal Measures: Joggins, Nova Scotia.

CAPULUS Montfort, 1810.**Capulus acutirostris**. See *Orthonychia acutirostre*.**Capulus biserialis** Hall.

1860. *Platyceras biserialis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 90.
Burlington L. S.: Quincy, Illinois.
1868. *Platyceras biserialis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 509, pl. 15, figs. 3a, b.
Burlington L. S.: Quincy, Illinois.
1890. *Capulus biserialis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 167.
Burlington L. S.: Quincy, Illinois.
1890. *Capulus biserialis*. Keyes, Am. Geol., vol. 6, p. 9.
1894. *Capulus biserialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 177, pl. 53, figs. 12a, b.
Burlington L. S.: Quincy, Illinois.

Capulus capax Keyes.

1888. *Platyceras capax*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 241, pl., figs. 14, 15.
Burlington L. S.: Near Burlington, Iowa.
1890. *Platyceras capax*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 179.

Capulus chesterensis. See *Orthonychia chesterensis*.**Capulus cornuformis**. See *Orthonychia cornuforme*.**Capulus cyrtolites**. See *Orthonychia cyrtolites*.**Capulus equilateralis** Hall.

1852. *Ancella crassicolis?* Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 7.
Lower Carboniferous L. S.: Keokuk rapids of the Mississippi River.
1860. *Platyceras equilatera*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 89.
Keokuk L. S.: Keokuk, Iowa, Warsaw, Illinois.
1873. *Platyceras equilatera*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 518, pl. 17, fig. 2.
Keokuk Group: Keokuk, Iowa; Warsaw, Illinois.
1881. *Platyceras equilatera*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 514, pl. 7, fig. 5.
Keokuk Group: Crawfordsville, Indiana.
1888. *Platyceras equilaterum*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., figs. 2, 3.
1889. *Platyceras equilaterum*. Keyes, Am. Geol., vol. 3, p. 330, figs. 1, 2.
Keokuk Shale: Crawfordsville, Indiana.
1889. *Platyceras equilaterum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 288.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus equilaterus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus equilateralis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 171, pl. 2, fig. 11.

Capulus equilateralis Hall—Continued.

1890. Keokuk Group: Keokuk and Bonaparte, Iowa; Warsaw and Niota, Illinois; Crawfordsville, Indiana.

Burlington L. S.: Burlington, Iowa.

1894. *Capulus equilateralis*. Keyes, Mo. Geol. Surv., vol. 5, p. 178, pl. 52, figs. 10a, b.

Burlington L. S.: Burlington, Iowa; Springfield, Missouri.

Keokuk L. S. and Shales: Wayland, Missouri; Keokuk and Bonaparte, Iowa; Warsaw and Niota, Illinois.

Capulus fissurella. See *Igoceras fissurella*.

Capulus formosum. See *Orthonychia formosum*.

Capulus haliotoides Meek and Worthen.

1866. *Platyceras haliotoides*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 264.

Waverly S. S.: Richfield, Ohio.

1868. *Platyceras haliotoides*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 458, pl. 14, figs. 3a, b.

Waverly Group: Richfield, Ohio.

1870. *Platyceras haliotoides*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.

Waverly Group: Newark, Ohio.

1888. *Platyceras haliotoides*. Herrick, Bull. Den. Univ., vol. 3, p. 91, pl. 2, fig. 23.

Waverly Group: Licking County, Ohio.

1890. *Capulus haliotoides*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 165.

Kinderhook beds: Richfield and Newark, Ohio.

1891. *Platystoma broadheadi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 86, pl. 14, figs. 19, 20.

Chouteau L. S.: Sedalia, Missouri.

1892. *Platystoma broadheadi*. Miller, 17th Rep. Geol. Surv. Ind., p. 696, pl. 14, figs. 19, 20.

Chouteau L. S.: Sedalia, Missouri.

1892. *Capulus haliotoides*. Keyes, Am. Geol., vol. 10, p. 276.

1894. *Capulus haliotoides*. Keyes, Mo. Geol. Surv., vol. 5, p. 174, pl. 53, figs. 9a, b.

Kinderhook L. S.: Sedalia, Missouri.

Capulus herzeri Winchell.

1870. *Platyceras Herzeri*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.

Waverly Group: Newark, Ohio.

1888. *Platyceras hertzeri*. Herrick, Bull. Den. Univ., vol. 3, p. 91, pl. 2, fig. 24; pl. 5, fig. 8.

Waverly Group: Licking County, Ohio.

1890. *Platyceras hertzeri*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 180.

1895. *Platyceras hertzeri*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 8.

Kinderhook: Granville, Ohio.

Capulus infundibulum. See *Igoceras pabulocrinus*.

Capulus latus Keyes.

1888. *Platyceras latus*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., figs. 10, 11.

Burlington L. S.: Burlington, Iowa.

1889. *Platyceras latus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 290.

Burlington L. S.: Burlington, Iowa.

1890. *Capulus latus*. Keyes, Am. Geol., vol. 6, p. 9.

1890. *Capulus latus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 168.

Burlington L. S.: Burlington, Iowa.

1894. *Capulus latus*. Keyes, Mo. Geol. Surv., vol. 5, p. 176, pl. 53, figs. 13a, b.

Burlington L. S.: Burlington, Iowa; Hannibal, Missouri.

Capulus lodiensis Meek.

1871. *Platyceras (Orthonychia?) lodiensis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 170.
Waverly Group: Lodi, Ohio.
1875. *Platyceras (Orthonychia?) Lodiensis*. Meek, Pal. Ohio, vol. 2, p. 313, pl. 13,
figs. 1a, b.
Waverly Group: Lodi, Ohio.
1888. *Platyceras lodiensis*. Herrick, Bull. Den. Univ., vol. 4, p. 46, pl. 11, fig. 2;
pl. 8, figs. 1, 7.
Waverly Group: Bagdad, Ohio.
1890. *Capulus lodiensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 165.
Kinderhook beds: Lodi, Ohio.
1894. *Platyceras lodensis*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, figs. 6a, b.
1895. *Platyceras lodiensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, figs. 1, 7.
Cuyahoga Shale: Bagdad, Ohio.

Capulus nasutum Miller.

1891. *Platyceras nasutum*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 82,
pl. 14, figs. 17, 18.
Chouteau L. S.: Sedalia, Missouri.
1892. *Platyceras nasutum*. Miller, 17th Rep. Geol. Surv. Ind., p. 692, pl. 14,
figs. 17, 18.
Chouteau L. S.: Sedalia, Missouri.

Capulus obliquus Keyes.

1888. *Platyceras obliquum*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 241, pl.,
figs. 12, 13.
Upper Burlington L. S.: Burlington, Iowa.
1889. *Platyceras obliquum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 290.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus obliquus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus obliquus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 168, pl. 2, fig. 3.
Burlington L. S.: Burlington, Iowa.
1894. *Capulus obliquus*. Keyes, Mo. Geol. Surv., vol. 5, p. 177, pl. 53, figs. 14a, b.
Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.

Capulus occidentis Walcott.

1884. *Platyceras occidentis*. Walcott, Pal. Eureka Dist., p. 254, pl. 24, figs. 9, 9a.
Lower Carboniferous: Eureka District, Nevada.
1890. *Capulus occidentis*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus occidentis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 163.
Lower Carbonic: Eureka District, Nevada.
1894. *Capulus occidentis*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, figs. 8a, b.

Capulus ovalis Stevens.

1858. *Acroculia ovalis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 261.
Archimedes L. S.: Union County, Illinois.
1866. *Platyceras levigatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 263.
Chester Group: Ste. Genevieve County, Missouri; Randolph County,
Illinois.
1890. *Capulus ovalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 176.
Kaskaskia L. S.: Union and Randolph counties, Illinois; Ste. Genevieve
County, Missouri.
1892. *Capulus ovalis*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Capulus ovalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 180.
Kaskaskia L. S.: Union and Randolph counties, Illinois; Ste. Genevieve
County, Missouri.

Capulus paralius White and Whitfield.

1862. *Platyceras paralius*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 302.
Chemung Group: Burlington, Iowa.
1865. *Platyceras paralius*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Lithographie L. S.: Clarksville, Missouri.
1888. *Platyceras* sp. (cf. *P. paralius*). Herrick, Bull. Den. Univ., vol. 3, p. 92, pl. 1, fig. 23 (fig. 22?).
Waverly Group: Licking County, Ohio.
1889. *Platyceras paralius*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 294.
Kinderhook Group: Burlington, Iowa.
1890. *Capulus paralius*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus paralius*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 166, pl. 2, figs. 1a, b.
Kinderhook beds: Des Moines and Marshall counties, Iowa; Lodi, Ohio.
1894. *Capulus paralius*. Keyes, Mo. Geol. Surv., vol. 5, p. 174, pl. 53, figs. 1a-d.
Chouteau L. S.: Sedalia, Missouri.
Burlington L. S.: Louisiana, Missouri.

Capulus parvus Swallow.

1858. *Capulus parvus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 205.
Coal Measures: Valley of the Verdigris, Kansas.
1872. *Platyceras Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 227, pl. 4, figs. 15a, b.
Upper Coal Measures: Three-fourths of a mile west of Nebraska City Landing, Nebraska.
Middle Coal Measures: Illinois.
1877. *Platyceras Nebrascense*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 159, pl. 12, figs. 5a-d.
Carboniferous: Near Santa Fe, New Mexico.
1884. *Platyceras Nebrascense*. White, 13th Rep. Geol. Surv. Ind., p. 159, pl. 32, figs. 15, 16.
Coal Measures: Eugene, Edwardsport, and New Harmony, Indiana.
1890. *Capulus parvus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus parvus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 177, pl. 2, figs. 14a-c.
Upper Coal Measures: Indiana, Iowa, Nebraska, Kansas, and New Mexico.
1894. *Capulus parvus*. Keyes, Mo. Geol. Surv., vol. 5, p. 180, pl. 54, figs. 5a, b.
Upper Coal Measures: Kansas City, Missouri.

Capulus piso Walcott.

1884. *Platyceras Piso*. Walcott, Pal. Eureka Dist., p. 254, pl. 24, figs. 7-7b.
Lower Carboniferous: Eureka District, Nevada.
1890. *Capulus? piso*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 164.
Lower Carbonic: Eureka District, Nevada.
1894. *Capulus piso*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, figs. 7a-c.

Capulus quincyensis. See *Igoceras quincyense*.**Capulus spinigerum** Worthen.

1873. *Platyceras spinigerum*. Worthen, Geol. Surv. Ill., vol. 5, p. 594, pl. 28, fig. 4.
Coal Measures: Near Brighton, Illinois.
1890. *Capulus spinigerus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus spinigerus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 178.
Lower Coal Measures: Brighton, Illinois.

Capulus subplicatus. See *Igoceras subplicatum*.**Capulus sulcatus** Keyes.

1890. *Capulus sulcatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 175, pl. 2, figs. 12a, b.
Keokuk Shales: Crawfordsville, Indiana.

Capulus tribulosus White.

1880. *Platyceras tribulosum*. White, Cont. to Inv. Pal., No. 8, p. 168, pl. 41, figs. 6a, b.
 Burlington L. S.: Burlington, Iowa.
1889. *Platyceras tribulosum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 290.
 Burlington L. S.: Burlington, Iowa.
1890. *Capulus tribulosus*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus tribulosus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 170, pl. 2, figs. 4a, b.
 Burlington L. S.: Burlington, Iowa.
1894. *Capulus tribulosus*. Keyes, Mo. Geol. Surv., vol. 5, p. 175, pl. 53, figs. 11a-c.
 Burlington L. S.: Hannibal and Louisiana, Missouri.

Capulus trigonalis Stevens.

1858. *Acroculia trigonalis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
 Coal Measures: Danville, Illinois.

(Capulus triplicatus Swallow.)

1858. *Capulus triplicatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 205.
 Coal Measures: Near Bull Creek, Santa Fe Road, Kansas.
1890. *Capulus triplicatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 180. (Not a gastropod.)

Capulus vomerium Winchell.

1863. *Platyceras vomerium*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 19.
 Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.
1865. *Platyceras vomerium*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
 Marshall Group: Big Brook, Orange, Cuyahoga County, Ohio.
1888. *Platyceras vomerium?* Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 12.
 Waverly Group: Moot's Run, Licking County, Ohio.
1890. *Platyceras vomerium*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 180.
1895. *Platyceras vomerium?* Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 12.
 Cuyahoga Shale: Moot's Run, Licking County, Ohio.

Capulus (species undetermined).

1888. *Platyceras* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 1, fig. 22.
 Waverly Group: Licking County, Ohio.
1888. *Platyceras* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 3, fig. 3.
 Waverly Group: Licking County, Ohio.
1888. *Platyceras* sp.? Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 38.
 Waverly Group: Licking County, Ohio.
1888. *Platyceras* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 38.
 Waverly Group: Licking County, Ohio.
1888. *Platyceras* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 14.
 Waverly Group: Cuyahoga Falls, Ohio.

CARBONARCA Meek and Worthen, 1870.**Carbonarca gibbosa Meek and Worthen.**

1870. *Carbonarca gibbosa*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 40.
 Upper Coal Measures: Springfield, Illinois.
1875. *Carbonarca gibbosa*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 531,
 pl. 33, fig. 6.
 Upper Coal Measures: Springfield and Lasalle, Illinois.

CARBONIA Jones and Kirkby, 1879.**Carbonia? bairdioides Jones and Kirkby.**

1868. *Bairdia* sp.? Dawson, Acad. Geol., p. 206, fig. 48a.
 Coal Measures: Nova Scotia.

Carbonia ? bairdioides Jones and Kirkby—Continued.

*1879. *Cythere? (Carbonia) bairdioides*. Jones and Kirkby, Ann. Mag. Nat. Hist. (5), vol. 4, p. 38, pl. 3, figs. 24, 25.

1884. *Carbonia (?) bairdioides (?)*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 359, pl. 12, figs. 8a-d.

Coal Measures: Joggins, Nova Scotia.

Carbonia ? elongata Jones and Kirkby.

*1884. *Carbonia ? elongata*. Jones and Kirkby, Ann. Mag. Nat. Hist. (6), vol. 1, p. 361, pl. 12, fig. 10.

Carboniferous: Joggins, Nova Scotia.

Carbonia fabulina Jones and Kirkby.

1868. *Cytherella inflata*. Dawson, Acad. Geol., p. 206, fig. 48.

Coal Measures: Nova Scotia.

*1879. *Carbonia fabulina*. Jones and Kirkby, Ann. Mag. Nat. Hist. (5), vol. 4, p. 31, pl. 2, figs. 1-9.

1884. *Carbonia fabulina*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 358, pl. 12, figs. 9a-e.

Coal Measures: Joggins, Nova Scotia.

CARBONICOLA McCoy, 1856.**Carbonicola angulata Dawson.**

1868. *Naiadites angulata*. Dawson, Acad. Geol., p. 205, fig. 46.

Lower Coal Formation: Parrsborough, Nova Scotia.

1894. *Carbonicola angulata*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 442, pl. 20, fig. 14.

Carbonicola bradorica Dawson.

1868. *Anthracosia Bradorica*. Dawson, Acad. Geol., p. 314, fig. 133b.

Lower Carboniferous: Braddeck, Cape Breton.

1894. *Carbonicola Bradorica*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 18, fig.

Lower Carboniferous: Braddeck, Cape Breton.

CARDINIA Agassiz, 1838.

Cardinia æquimarginalis. See *Edmondia æquimarginalis*.

Cardinia antigonesensis Dawson.

1868. *Cardinia Antigonesensis*. Dawson, Acad. Geol., p. 304.

Carboniferous L. S.: Antigonish, Nova Scotia.

Cardinia concentrica. See *Sanguinolites concentricus*.

Cardinia cordata Swallow.

1858. *Cardinia cordata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 191.

Lower Permian: Valley of Cottonwood, Kansas.

Cardinia fragilis Cox.

1857. *Cardinia? fragilis*. Cox, Geol. Rep. Ky., vol. 3, p. 570, pl. 8, fig. 9.

Coal Measures: Airdrie, Muhlenburg County, Kentucky.

Cardinia listeri Sowerby.

1858. *Cardinia Listeri (?)*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 192.

Permian: Kansas.

Cardinia nana.

1868. *Cardinia nana*. Dawson, Acad. Geol., p. 304.

Carboniferous L. S.: Onslow, Nova Scotia.

Cardinia occidentalis Swallow.

1860. *Cardinia occidentalis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 655.
Chouteau L. S.: Cooper, Saline, and Moniteau counties, Missouri.

Cardinia occidentalis var. minor Swallow.

1860. *Cardinia occidentalis* var. *minor*. Swallow, Trans. St. Louis Acad. Sci.,
vol. 1, p. 655.
Chouteau L. S.: Cooper, Saline, and Moniteau counties, Missouri.

Cardinia subangulata Swallow.

1858. *Cardinia* (?) *subangulata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 192.
Lower Permian: Valley of Cottonwood, Kansas.

Cardinia subangulata Dawson.

1868. *Cardinia sub-angulata*. Dawson, Acad. Geol., p. 304, fig. 108.
Carboniferous L. S.: Pugwash, Nova Scotia.

CARDIOLA Broderip, 1844.**Cardiola flicostata Walcott.**

1884. *Cardiola?* *flicostata*. Walcott, Pal. Eureka Dist., p. 251, pl. 22, figs. 4, 4a.
Lower Carboniferous: Eureka District, Nevada.

CARDIOMORPHA De Koninek, 1844.**Cardiomorpha archiacana De Koninek.**

1868. *Cardiomorpha Archiacana*. Dawson, Acad. Geol., p. 304.
Carboniferous L. S.: Windsor, Nova Scotia.

Cardiomorpha capuloides Winchell.

1862. *Cardiomorpha capuloides*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 416.
Marshall Group: Pt. aux Barques, Michigan.

Cardiomorpha julia Winchell.

1862. *Cardiomorpha Julia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 416.
Marshall Group: Battle Creek, Marshall and Moscow, Michigan.
1865. *Cardiomorpha Julia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Napoleon Cut, Jackson County, Michigan.

Cardiomorpha kansasensis Swallow.

1858. *Cardiomorpha Kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 191.
Permian: Valley of Cottonwood, Kansas.

Cardiomorpha missouriensis Shumard.

1858. *Cardiomorpha Missouriensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 207.
Coal Measures: Charbonniere, St. Louis County, and Lexington, Missouri.
1860. *Nucula cylindrica*. McChesney, Desc. New Pal. Foss., p. 54.
Coal Measures: Carnahan's Coal Mine, Mercer County, Illinois.
*1865. *Nucula mercerensis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 12a-c.
1868. *Cardiomorpha missouriensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1,
p. 40, pl. 2, figs. 12a-c.
Coal Measures: Mercer County, Illinois.
1873. *Cardiomorpha Missouriensis*. Meek and Worthen, Geol. Surv., Ill., vol. 5,
p. 588, pl. 27, fig. 8.
Coal Measures: Colchester, Illinois.

Cardiomorpha missouriensis Shumard—Continued.

1877. *Cardiomorpha Missouriensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 277, pl. 6, figs. 1, 2.

Coal Measures: Near Eberhardt Mills, White Pine, Nevada.

1894. *Cardiomorpha missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 131.

Lower Coal Measures: Charboniere and Lexington, Missouri.

Cardiomorpha modiolaris Winchell.

1862. *Cardiomorpha modiolaris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 416.

Marshall Group: Columbia, Marshall, Moscow, and Battle Creek, Michigan.

Cardiomorpha ovata*. See *Dexiobia ovata*.*Cardiomorpha parvirostris White.**

1862. *Cardiomorpha* (*Cardiopsis*?) *parvirostris*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 31.

Cardiomorpha pellensis Worthen.

1884. *Cardiomorpha*? *pellaensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 16.

St. Louis L. S.: Pella, Iowa.

1890. *Cardiomorpha*? *pellensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 126, pl. 19, figs. 9-9b.

St. Louis Group: Pella, Iowa.

Cardiomorpha radiata*. See *Cardiopsis radiata*.*Cardiomorpha rhomboidea Swallow.**

1858. *Cardiomorpha*? *rhomboidea*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 191.

Lower Permian: Near Council Grove, Kansas.

Cardiomorpha rhomboidea* Hall. See *Cardiomorpha subrhomboidea*.*Cardiomorpha subglobosa Meek.**

1875. *Cardiomorpha subglobosa*. Meek, Pal. Ohio, vol. 2, p. 304, pl. 15, figs. 6a, b.

Waverly Group: Rushville, Ohio.

Cardiomorpha subrhomboidea Hall.

1858. *Cardiomorpha* (?) *rhomboidea*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 523. (Not *C. rhomboidea* Swallow, 1858.)

Chemung Group: Burlington, Iowa.

1877. *Cardiomorpha subrhomboidea*. Hall, 1st edit. Miller's Am. Pal. Foss, p. 186.

Cardiomorpha triangulata Swallow.

1860. *Cardiomorpha* (?) *triangulata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 655.

Chouteau L. S.: Cooper County, Missouri.

1894. *Cardiomorpha triangulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 131.

Chouteau L. S.: Cooper County, Missouri.

Cardiomorpha trigonalis Winchell.

1863. *Cardiomorpha trigonalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 15.

Yellow S. S.: Burlington, Iowa.

Cardiomorpha vindobonensis Hartt.

1868. *Cardiomorpha Vindobonensis*. Hartt, Dawson's Acad. Geol., p. 304, fig. 109.

Carboniferous L. S.: Nova Scotia.

Cardiomorpha (species undetermined).

1859. *Cardiomorpha* sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 398.

White Permian L. S.: Guadalupe Mountains.

CARDIOPSIS Meek and Worthen, 1861.

Cardiopsis crenistriata. See *Pterinea crenistriata*.

Cardiopsis jejuna Winchell.

1862. *Cardiopsis jejuna*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 417.

Marshall Group: 3 miles north of Napoleon, Jackson County, Michigan.

Cardiopsis megambonata Winchell.

1862. *Cardiopsis megambonata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 417.

Marshall Group: Point aux Barques, Michigan.

1863. *Cardiopsis megambonata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 17.

Yellow S. S.: Burlington, Iowa.

Cardiopsis ovata. See *Dexiobia ovata*.

Cardiopsis radiata Meek and Worthen.

1860. *Cardiomorpha radiata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil. p. 458.

Goniatite Beds: Rockford, Indiana.

1860. *Megambonia lyoni*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 110.

Goniatite L. S.: Rockford, Indiana.

1866. *Cardiopsis radiata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 157, pl. 14, figs. 6a, b.

Goniatite Bed: Rockford, Indiana.

Kinderhook Group: Grafton, Illinois.

1885. *Cardiopsis radiata*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 433, pl. 70, fig. 25.

Kinderhook Group: Rockford, Indiana.

CARDIUM Linnaeus, 1758.

Cardium lexingtonensis Swallow.

1858. *Cardium* (?) *Lexingtonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 206.

Middle Coal Measures: Lexington, Missouri.

Cardium napoleonense. See *Conocardium napoleonense*.

CATILLOCRINUS Troost, 1850.

Catillocrinus bradleyi Meek and Worthen.

1868. *Catillocrinus Bradleyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 343.

Keokuk Group: Crawfordsville, Indiana.

1873. *Catillocrinus Bradleyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 504, pl. 14, fig. 10.

Keokuk Group: Crawfordsville, Indiana.

Catillocrinus tennesseæa Shumard.

1866. *Catillocrinus Tennesseeæa*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 358.

Blue Marl (Keokuk): Button-mould Knobs, Kentucky; White's Creek Springs, Tennessee.

Catillocrinus wachsmuthi Meek and Worthen.

1866. *Synbathocypinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 251.

Upper Burlington L. S.: Burlington, Iowa.

1868. *Catillocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 465, pl. 18, fig. 5.

Burlington Group: Burlington, Iowa.

CENTRONELLA Billings, 1859.

Centronella allei Winchell.

1865. *Centronella Allei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 123.

Bed No. 6: Burlington, Iowa; also near Hamburg, Illinois, and at Talmadge, Summit County, Ohio.

Centronella anna. See *Harttina anna*.*Centronella crassiscardinalis* Whitfield.

1882. *Centronella crassiscardinalis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 55, pl. 6, figs. 50-52.

St. Louis Group: Spergen Hill, Indiana.

1883. *Centronella crassiscardinalis*. Hall, 12th Rep. Geol. Surv. Ind., pl. 29, figs. 50-52.

St. Louis Group: Spergen Hill, Indiana.

Centronella flora Winchell.

1870. *Centronella? Flora*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 254.

Waverly Group: Sciotoville, Ohio.

Centronella julia. See *Romingerina julia*.*Centronella* (species undetermined).

1888. *Centronella* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 2, figs. 4, 8.

Waverly Group: Licking County, Ohio.

CERATIOCARIS McCoy, 1849.

Ceratiocaris bradleyi Meek. See *Colpocaris bradleyi*.*Ceratiocaris elytroides* Meek. See *Colpocaris elytroides*.*Ceratiocaris? sinuata* Meek and Worthen.

1868. *Ceratiocaris? sinuatus*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 22.

Coal Measures: Near Mazon Creek, Grundy County, Illinois.

1868. *Ceratiocaris? sinuatus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 540, fig. A.

Coal Measures: Waupacan Creek, Grundy County, Illinois.

Ceratiocaris striata Meek. See *Solenocaris strigata*.

CERIOCRINUS White, 1880.

Ceriocrinus craigii Worthen.

1875. *Eupachycrinus Craigii*. Worthen, Geol. Surv. Ill., vol. 6, p. 527, pl. 32, fig. 1.

Coal Measures: Vandalia, Illinois.

Ceriocrinus fayettensis Worthen.

1873. *Eupachycrinus Fayetteensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 565, pl. 24, fig. 10.

Upper Coal Measures: Hickory Creek, Fayette County, Illinois.

Ceriocrinus hemisphericus Shumard.

1858. *Poteriocrinus hemisphericus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 221.

Coal Measures: Hinkston Creek, Boone County, and near Lexington, Missouri; headwaters of Verdigris River, and 9 miles southwest of Council Grove, Kansas.

1872. *Scaphiocrinus? hemisphericus*. Meek, U. S. Geol. Surv. Nebr., p. 147, pl. 5, figs. 1a, b; pl. 7, figs. 1a-c.

Upper Coal Measures: Nebraska City, Bennett's Mill, and Omaha, Nebraska.
Coal Measures: Iowa; Kansas; Illinois.

Ceriocrinus hemisphericus Shumard—Continued.

1873. *Scaphiocrinus? hemisphericus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 561, pl. 24, fig. 5.
Upper Coal Measures: Springfield and Lasalle, Illinois.
1890. *Delocrinus hemisphericus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 12, pl. 2, figs. 8-10.
Upper Coal Measures: Kansas City, Missouri.
1890. *Delocrinus hemisphericus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 335, pl. 2, figs. 8-10; p. 370, pl. 10, fig. 5.
Upper Coal Measures: Kansas City, Missouri.
1894. *Ceriocrinus hemisphericus*. Keyes, Mo. Geol. Surv., vol. 4, p. 220, pl. 28, figs. 2, 5.
Upper Coal Measures; Lexington, Columbia, and Kansas City, Missouri.

Ceriocrinus inflexus Geinitz.

1866. *Cyathocrinus inflexus*. Geinitz, Carb. und Dyas in Nebr., p. 62, tab. 4, figs. 20-22.
Nebraska City, Nebraska.
1876. *Scaphiocrinus carbonarius*... White, Powell's Rep. Geol. Uinta Mts., p. 89. (Not *S. carbonarius*, M. & W., 1861.)
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1880. *Erisocrinus (Ceriocrinus) inflexus*. White, Cont. to Inv. Pal., No. 6, p. 128, pl. 34, figs. 9a, b.
Middle Carboniferous: Confluence of Grand and Green rivers, Utah.
1897. *Erisocrinus (Ceriocrinus) inflexus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 26.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Ceriocrinus missouriensis Miller and Gurley.

1890. *Delocrinus missouriensis*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 14, pl. 2, figs. 11-13.
Upper Coal Measures: Kansas City, Missouri.
1890. *Delocrinus missouriensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 336, pl. 2, figs. 11-13.
Upper Coal Measures: Kansas City, Missouri.

Ceriocrinus planus White.

1880. *Erisocrinus planus*. White, Proc. U. S. Nat. Mus., vol. 2, p. 257, pl. 1, figs. 6, 7.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1880. *Erisocrinus (Ceriocrinus) planus*. White, Cont. to Inv. Pal., No. 6, p. 127, pl. 35, figs. 5a, b.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.

CHÆNOCARDIA Meek and Worthen, 1869.**Chænocardia ovata Meek and Worthen.**

1869. *Chænocardia ovata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 170.
Lower Coal Measures: West Pecan Creek, Grundy County, Illinois.
1873. *Chænocardia ovata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 586, pl. 27, fig. 5.
Coal Measures: Waupecan Creek, Grundy County, Illinois.

CHÆNOMYA Meek, 1864.**Chænomya cooperi Meek and Hayden.**

1858. *Panopea Cooperi*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 83.
Permian: Helena, Kansas.

Chænomya cooperi Meek and Hayden—Continued.

1858. *Allorisma? Cooperi*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 264.
Upper Coal Measures: Near Helena, Kansas.
1864. *Chænomya Cooperi*. Meek and Hayden, Pal. Upper Mo., p. 44, pl. 2,
figs. 2a, b.
Coal Measures: Helena, Kansas.

Chænomya hybrida. See *Allorisma hybridum*.

Chænomya leavenworthensis Meek and Hayden.

1858. *Allorisma? Leavenworthensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil.,
p. 263.
Coal Measures: Leavenworth, Kansas.
1864. *Chænomya leavenworthensis*. Meek and Hayden, Pal. Upper Mo., p. 43, pl. 2,
figs. 1a-c.
Coal Measures: Leavenworth City, Kansas.
1872. *Chænomya Leavenworthensis*. Meek, U. S. Geol. Surv. Nebr., p. 216, pl. 2, fig. 9.
Upper Coal Measures: Rock Bluff, Nebraska; Leavenworth, Kansas.
Coal Measures: Iowa, Missouri, Illinois.
1894. *Chænomya leavenworthensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 131.
Upper Coal Measures: Kansas City, Missouri.

Chænomya longa Miller and Gurley.

1896. *Chænomya longa*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist.,
p. 8, pl. 1, figs. 12, 13.
Chouteau L. S.: Near Sedalia, Missouri.

Chænomya maria Worthen.

1882. *Chænomya maria*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 39.
Upper Coal Measures: Shawnee County, Kansas.
1883. *Chænomya maria*. Worthen, Geol. Surv. Ill., vol. 7, p. 319, figs. 1a, b.
Upper Coal Measures: Shawnee County, Kansas.

Chænomya minnehaha Swallow.

1858. *Allorisma (?) Minnehaha*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 194.
Middle Coal Measures: Near Lexington, Missouri.
Permian: Valley of Cottonwood, Kansas.
1864. *Chænomya Minnehaha*. Meek and Hayden, Pal. Upper Mo., p. 43.
1872. *Chænomya Minnehaha*. Meek, U. S. Geol. Surv. Nebr., p. 217, pl. 2, figs. 13a, b.
Upper Coal Measures: Plattsmouth, Nebraska.
Middle Coal Measures: Lexington, Missouri.
1873. *Chænomya Minnehaha*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 588,
pl. 27, fig. 3.
Upper Coal Measures: Clinton County, Illinois.
1894. *Chænomya minnehaha*. Keyes, Mo. Geol. Surv., vol. 5, p. 130.
Upper Coal Measures: Kansas City, Missouri.

Chænomya rhomboidea Meek and Worthen.

1865. *Chænomya? rhomboidea*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 250.
St. Louis L. S.: Alton, Illinois.
1873. *Chænomya? rhomboidea*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 540,
pl. 22, fig. 4.
St. Louis L. S.: Near Alton, Illinois.

CHÆTETES Fischer, 1837.

Chatetes carbonaria Worthen. See *Stenopora carbonaria*.

Chatetes decipiens Rominger.

1866. *Chatetes decipiens*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 116.
Keokuk Group: Lagrange, Missouri.

Chaetetes mackrothii Geinitz.

1859. *Chaetetes Mackrothii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 387.
Dark Permian L. S.: Guadalupe Mountains.

Chaetetes milleporaceus Milne-Edwards and Haime.

1851. *Chaetetes milleporaceus*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 272.
Carboniferous: Cumberland Mountains, Tennessee; Newberg, near Evansville on the Ohio.
1860. *Chaetetes milleporaceus*. Milne-Edwards, Hist. Nat. des Corr., vol. 3, p. 271.
Carboniferous: United States.
1876. *Chaetetes milleporaceus*. White, Powell's Geol. Rep. Uinta Mts., p. 88.
Red Wall Group: Gypsum Canyon, Colorado River, Utah.
Lower Aubrey Group: Split Mountain Canyon, Green River, Utah.
1877. *Chaetetes milleporaceus*. White, U. S. Geol. Surv., W. 100 Merid., vol. 4, p. 98, pl. 6, fig. 2a.
Carboniferous: Virgin Range, southwest of St. George, Utah.
1894. *Chaetetes milleporaceus*. Keyes, Mo. Geol. Surv., vol. 4, p. 123, pl. 14, figs. 12a, b.
Upper Coal Measures: Glasgow, Missouri.

Chaetetes tumidus Phillips.

1836. *Calamopora tumida*. Phillips, Geol. Yorkshire, vol. 2, p. 200, pl. 1, figs. 49-57.
Carboniferous: England.
1868. *Chaetetes tumidus*. Dawson, Acad. Geol., p. 288, fig. 85b.
Carboniferous L. S.: Stewiacke, Windsor, and Cape Breton.

Chaetetes (species undetermined).

1859. *Chaetetes* sp. (?). Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
White Permian L. S.: Guadalupe Mountains.
1877. *Chaetetes* (?) species. Whiteaves, Geol. Surv. Canada, Rep. of Prog., 1875-76, p. 97.
Carboniferous or Permian: Rear of Fort St. James, Stewart's Lake, British Columbia.
1877. *Chaetetes* (?) species. Whiteaves, Geol. Surv. Canada, Rep. of Prog., 1875-76, p. 99.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1878. *Chaetetes* sp. allied to *C. tumidus* (Phill.). Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 610.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

CHAINODICTYON Foerste, 1887.**Chainodictyon laxum Foerste.**

1887. *Chainodictyon laxum*. Foerste, Bull. Den. Univ., vol. 2, pp. 81 and 87, pl. 7, figs. 8a-c.
Coal Measures: Flint Ridge, Ohio; Seville, Illinois.
1888. *Chainodictyon laxum*. Foerste, Bull. Den. Univ., vol. 3, p. 135.

Chainodictyon laxum, var. minor Ulrich.

1890. *Chainodictyon laxum*, var. *minor*. Ulrich, Geol. Surv. Ill., vol. 8, p. 640, pl. 62, figs. 3, 3a.
Lower Coal Measures: Seville, Illinois.

CHEILOTRYPA Ulrich, 1884.**Cheilotrypa hispida Ulrich.**

1884. *Cheilotrypa hispida*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 50, pl. 3, figs. 6-6d.
Kaskaskia Group: Tateville, Kentucky.

(CHEIROCRINUS Hall, 1860.)

- Cheirocrinus dactylus*. See *Halysiocrinus ventricosus*.
Cheirocrinus lamellosus. See *Calceocrinus lamellosus*.
Cheirocrinus nodosus. See *Halysiocrinus ventricosus*.
Cheirocrinus perplexus. See *Halysiocrinus perplexus*.
Cheirocrinus ventricosus. See *Halysiocrinus ventricosus*.

CHELIPHLEBIA Scudder, 1885.

Cheliphlebia carbonaria Scudder.

1885. *Cheliphlebia carbonaria*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 328, pl. 30, fig. 8.

Carboniferous: Mazon Creek, Illinois.

1890. *Cheliphlebia carbonaria*. Scudder, Foss. Insc. N. A., vol. 1, p. 292, pl. 16, fig. 8.

Carboniferous: Mazon Creek, Illinois.

Cheliphlebia elongata Scudder.

1885. *Cheliphlebia elongata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 328, pl. 29, fig. 7.

Carboniferous: Mazon Creek, Illinois.

1890. *Cheliphlebia elongata*. Scudder, Foss. Insc. N. A., vol. 1, p. 292, pl. 15, fig. 7.

Carboniferous: Mazon Creek, Illinois.

(CHEMNITZIA D'Orbigny, 1837.)

- Chemnitzia attenuata* Stevens. See *Loxonema attenuata*.
Chemnitzia parva Cox. See *Loxonema parva*.
Chemnitzia swallowiana Shumard. See *Loxonema swallowiana*.
Chemnitzia tenuilineata Shumard. See *Loxonema tenuilineata*.

CHITON Linnaeus, 1758.

Chiton carbonarius Stevens.

1858. *Chiton carbonarius*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 264.

Coal Measures: Danville, Illinois.

1873. *Chiton carbonarius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 608, pl. 29, fig. 15.

Coal Measures: Danville, Illinois.

Chiton parvus Stevens.

1858. *Chiton parvus*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 264.

Archimedes L. S.: Bergen Hill, Indiana.

CHOLASTER Worthen and Miller, 1883.

Cholaster peculiaris Worthen and Miller.

1883. *Cholaster peculiaris*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 329, pl. 31, figs. 4a, b.

Chester L. S.: Okaw Bluffs, between Chester and Kaskaskia, Randolph County, Illinois.

CHONETES Fischer, 1837.

Chonetes fischeri. See *Chonopectus fischeri*.

Chonetes flemingi. See *Chonetes variolatus*.

Chonetes geinitzanus. See *Chonetes glaber*.

Chonetes geniculatus White.

1862. *Chonetes geniculata*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 29.
Chemung Group: Burlington, Iowa (?); Hamburg, Illinois; Clarksville, Missouri.
1865. *Chonetes geniculata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 116.
Marshall Group: Rockford, Indiana.
1870. *Chonetes geniculata?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Rockville, Ohio.
1894. *Chonetes geniculatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 53, pl. 38, fig. 3.
Louisiana L. S.: Louisiana and Clarksville, Missouri.

Chonetes glaber Geinitz.

1866. *Chonetes glabra*. Geinitz, Carb. und Dyas in Nebr., p. 60, tab. 4, figs. 15-18.
(Not *C. glaber* Hall, 1857.)
Dyas: Nebraska City, Nebraska.
1872. *Chonetes glabra*. Meek, U. S. Geol. Surv. Nebr., p. 171, pl. 4, fig. 10; pl. 8, figs. 8a, b.
Upper Coal Measures: Nebraska City, Nebraska; Atchison, Kansas.
1874. *Chonetes glabra*. Derby, Bull. Cornell Univ. (Science), vol. 1, No. 2, p. 43, pl. 8, figs. 11, 14, 15, 19.
Coal Measures: Bomjardim and Itaituba, Brazil, and Cochabamba, Bolivia.
1888. *Chonetes laevis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 229, pl. 12, figs. 3a, b.
Lower Coal Measures: Des Moines, Iowa.
1889. *Chonetes geinitzanus*. Miller, N. A. Geol. and Pal., p. 339.
1891. *Chonetes laevis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 246.
Lower Coal Measures: Des Moines, Iowa.
1892. *Chonetes laevis*. Keyes, Proc. Iowa Acad. Sci., vol. 1, pt. 2, p. 22.
Lower Coal Measures: Near Des Moines, Iowa.
1894. *Chonetes laevis*. Keyes, Mo. Geol. Surv., vol. 5, p. 55, pl. 37, figs. 5a, b.
Upper Coal Measures: Kansas City, Mo.

Chonetes granulifer Owen.

1852. *Chonetes granulifera*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. 583, tab. 5, fig. 12.
Carboniferous L. S.: Near mouth of Keg Creek.
1855. *Chonetes Smithii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 24, pl. 2, figs. 2a-c.
Coal Measures: Belleville, Illinois.
1855. *Chonetes granulifera*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 24.
Coal Measures: Belleville, Illinois; Keg Creek, Missouri.
1858. *Chonetes mucronata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 262.
(Not *C. mucronatus* Hall, 1843.)
Upper Coal Measures: Near Fort Riley, Kansas.
1859. *Chonetes mucronata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Fort Riley and Cottonwood Creek, Kansas.
1864. *Chonetes mucronata*. Meek and Hayden, Pal. Up. Mo., p. 22, pl. 1, fig. 5a-e.
Coal Measures: Near Fort Riley, Kansas.
1866. *Chonetes mucronata*. Geinitz, Carb. und Dyas in Nebr., p. 58, tab. 4, figs. 12-14.
Bennett's Mill and Nebraska City, Nebraska.

Chonetes granulifer Owen—Continued.

1872. *Chonetes granulifera*. Meek, U. S. Geol. Surv. Nebr., p. 170, pl. 4, fig. 9, pl. 6, fig. 10; pl. 8, fig. 7.
Upper Coal Measures: Nebraska City, Wyoming, Bennett's Mill, Platts-mouth, Bellevue, and Omaha, Nebraska; Kansas; Missouri; Iowa.
Coal Measures: Illinois.
1873. *Chonetes Smithii*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 570, pl. 25, fig. 11.
Coal Measures: St. Clair County, Illinois.
1876. *Chonetes granulifera*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Chonetes granulifera*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, pt. 1, p. 122, pl. 9, figs. 8a-c.
Carboniferous (Upper Aubrey L. S.): Kanab Canyon, Arizona.
1892. *Chonetes Smithi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, fig. 12.
Coal Measures: Illinois.
1894. *Chonetes granulifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 56.
Upper Coal Measures: Kansas City, Missouri.

Chonetes illinoisensis Worthen.

1858. *Chonetes logani*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 598, pl. 12, figs. 1a-c, 2.
(Not *C. logani* N. & P., 1855.)
Burlington L. S.: Burlington, Iowa; Quincy, Illinois.
1860. *Chonetes Illinoiensis*. Worthen, Trans. St. Louis Acad., vol. 1, p. 571.
Crinoidal Mountain L. S.: Quincy, Illinois.
1863. *Chonetes Illinoiensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 5.
Yellow S. S. and Burlington L. S.: Burlington, Iowa.
1865. *Chonetes Illinoiensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 116.
Marshall Group: Rockford, Indiana; Licking County, Ohio.
Burlington L. S.: Burlington, Iowa.
1868. *Chonetes Illinoiensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 505, pl. 15, figs. 8a, b.
Burlington L. S.: Jersey County, Illinois; Burlington, Iowa.
Kinderhook Group: Wassonville, Iowa.
1870. *Chonetes Illinoiensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Rockville, Ohio.
1888. *Chonetes illinoisensis*. Herrick, Bull. Den. Univ., vol. 3, p. 35, pl. 3, fig. 21.
Waverly Group: Licking County, Ohio.
1890. *Chonetes illinoiensis*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 48, pl. 1, fig. 16.
Keokuk: Scioto County, Ohio.
1894. *Chonetes illinoisensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 53.
Lower Burlington L. S.: Louisiana and Ash Grove, Missouri.

Chonetes laevis. See *Chonetes glaber*.

Chonetes loganensis Hall and Whitfield.

1877. *Chonetes Loganensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 253, pl. 4, fig. 9.
Waverly Group: Logan Canyon, Wahsatch Range, Utah.

Chonetes logani Norwood and Pratten.

1855. *Chonetes Logani*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 30, pl. 2, figs. 12a-c.
Middle portion of Mountain L. S.: Burlington, Iowa.
1865. *Chonetes Logani*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 116.
Base of Burlington L. S.: Burlington, Iowa.

Chonetes logani Norwood and Pratten.

1883. *Chonetes Logani*. Hall, Rept. N. Y. State Geol. for 1882, pl. (16) 47, fig. 25.
 1888. *Chonetes logani*. Herrick, Bull. Den. Univ., vol. 3, p. 35, pl. 7, fig. 22; pl. 3, fig. 12.
 Waverly Group: Licking County, Ohio.
 1892. *Chonetes Logani*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 16, fig. 25.
 Waverly Group: Wayne County, Ohio.
 1894. *Chonetes logani*. Keyes, Mo. Geol. Surv., vol. 5, p. 53.
 Burlington L. S.: Hannibal and Louisiana, Missouri.

Also see *Chonetes illinoisensis*.

Chonetes mesolobus Norwood and Pratten.

1855. *Chonetes mesoloba*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 27, pl. 2, figs. 7a-c.
 Coal Measures: Belleville, Illinois; Charboniere, Missouri.
 1877. *Chonetes mesoloba*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, pt. 1, p. 123, pl. 9, fig. 7a.
 Carboniferous: Confluence of White Mountain and Black rivers, Arizona.
 1883. *Chonetes mesoloba*. Hall, Rep. N. Y. State Geol. for 1882, pl. (16) 47, fig. 22.
 1887. *Chonetes mesoloba*. Herrick, Bull. Den. Univ., vol. 2, p. 49.
 Coal Measures: Flint Ridge, Ohio.
 1888. *Chonetes mesoloba*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 228.
 Lower Coal Measures: Des Moines, Iowa.
 1892. *Chonetes mesoloba*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 20, fig. 7.
 Coal Measures: Illinois.
 1892. *Chonetes mesoloba*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 16, fig. 22.
 Coal Measures: Illinois.
 1894. *Chonetes mesoloba*. Keyes, Mo. Geol. Surv., vol. 5, p. 53.
 Upper Coal Measures: Kansas City, Missouri.

Chonetes michiganensis Stevens.

1858. *Chonetes Michigayensis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 263.
 Carboniferous: Battle Creek, Michigan.

Chonetes millepunctatus. See *Aulacorhynchus millepunctatus*.

Chonetes mucronatus. See *Chonetes granuliferus*.

Chonetes multicosta Winchell.

1863. *Chonetes multicosta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 5.
 Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.
 1869. *Chonetes multicosta*. Winchell, Safford's Geol. of Tenn., p. 443.
 Shales just above Black Shale: Hickman and Maury counties, Tennessee.
 1870. *Chonetes multicosta*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
 Waverly Group: Hickman and Maury counties, Tennessee.

Chonetes ornatus Shumard.

1855. *Chonetes ornata*. Shumard, Geol. Rep. Mo., p. 202, pl. C, figs. 1a-c.
 Chemung Group: Vandever's Falls, Cooper County, Louisiana, Hannibal, and Moniteau County, Missouri.
 1894. *Chonetes ornata*. Keyes, Mo. Geol. Surv., vol. 5, p. 53, pl. 38, fig. 2.
 Kinderhook Group: Hannibal, Louisiana, and Vandever's Falls, Missouri.

Chonetes parvus Shumard.

1855. *Chonetes parva*. Shumard, Geol. Rep. Mo., p. 201.
 Coal Measures: Boone County, Missouri.

Chonetes permianus Shumard.

1859. *Chonetes Permiana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390.
 Permian Conglomerate: Mouth of Delaware Creek, Texas.

Chonetes planumbonus Meek and Worthen.

1890. *Chonetes planumbona*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 450.
Keokuk L. S.: Monroe County, Illinois.
1866. *Chonetes planumbona*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 253,
pl. 18, figs. 1a-d.
Keokuk L. S.: Monroe County, Illinois.

Chonetes platynotus White.

1874. *Chonetes platynota*. White, Prelim. Rep. Inv. Foss., p. 19.
Carboniferous (Coal Measures): Near Santa Fe and near Salt Lake, New Mexico.
1876. *Chonetes platynota*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Near Echo Park, Utah.
1877. *Chonetes platynota*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 121,
pl. 9, figs. 6a-e.
Carboniferous: Near Santa Fe and near Salt Lake, New Mexico.

Chonetes pulchellus Winchell.

1862. *Chonetes pulchella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 410.
Marshall S. S.: Moscow, Jefferson, and Allen, Hillsdale County, Michigan.
1865. *Chonetes pulchella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 115.
Marshall Group: Hillsdale, Michigan; Howland and Warren, Trumbull
County, and Tallmadge, Summit County, Ohio.
1869. *Chonetes pulchella*? Winchell, Safford's Geol. of Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Chonetes pulchella*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Tennessee; Newark, Ohio; near Shafer's, Pennsylvania.
1888. *Chonetes pulchella*. Herrick, Bull. Den. Univ., vol. 3, p. 37, pl. 3, fig. 14.
Waverly Group: Licking County, Ohio.

Chonetes scitulus Hall.

1867. *Chonetes scitula*. Hall, Pal. N. Y., vol. 4, p. 130, pl. 21, figs. 4a, b.
Hamilton Group: New York.
1888. *Chonetes scitula*. Herrick, Bull. Den. Univ., vol. 3, p. 36, pl. 1, fig. 4.
Waverly Group: Licking County, Ohio.

Chonetes setigerus Hall.

1867. *Chonetes setigera*. Hall, Pal. N. Y., vol. 4, p. 129, pl. 21, figs. 2a, b.
Hamilton Group: New York.
1883. *Chonetes setigerus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (16) 47, fig. 2.
Waverly S. S.: Ohio.
1892. *Chonetes setigera*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 16, figs. 2, 5, 19.
Waverly Group: Penfield, Ohio.
Marcellus Shale: New Caledonia, Missouri.

Chonetes shumardanus De Koninck.

1847. *Chonetes shumardiana*. De Koninck, Monog. du Gen. Prod. et Chon., p. 192,
pl. 20, figs. 1a-d.
Carboniferous: Knobs of Jefferson County, Kentucky.
1855. *Chonetes Shumardiana*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil.
(2), vol. 3, p. 24.
Mountain L. S.: Button-mould Knobs, Jefferson County, Kentucky.

Chonetes smithi. See *Chonetes granulifer*.**Chonetes tumidus** Herrick.

1888. *Chonetes tumidus*. Herrick, Bull. Den. Univ., vol. 3, p. 36, pl. 2, fig. 21.
Waverly Group: Licking County, Ohio.

Chonetes variolata D'Orbigny.

1847. *Chonetes variolata*. De Koninck, Monog. du Gen. Prod. et Chon., p. 206, pl. 19, fig. 5; pl. 20, figs. 2a-l.
Carboniferous: Guernsey, Ohio; Bolivia, South America.
1852. *Chonetes variolata*. Hall, Stansb. Exped. Gt. Salt Lake, p. 410, pl. 3, figs. 1a, b.
Carboniferous: Near Weston on the Missouri River.
1855. *Chonetes variolata*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 28.
Coal Measures: Guernsey, Ohio.
1855. *Chonetes Flemingii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 26, pl. 2, figs. 5a-e.
Ten miles northwest of Richmond, Missouri.
1859. *Chonetes Flemingi* (?). Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390.
White Permian L. S.: Guadalupe Mountains.
1891. *Chonetes flemingi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 247.
Lower Coal Measures: Des Moines, Iowa.
1892. *Chonetes Flemingi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, fig. 11.
Coal Measures: Illinois.
1894. *Chonetes flemingi*. Keyes, Mo. Geol. Surv., vol. 5, p. 54, pl. ³⁷~~38~~, figs. 6a, b.
Upper Coal Measures: Kansas City, Missouri.

Chonetes verneuili Norwood and Pratten.

1855. *Chonetes Verneuili*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 26, pl. 2, figs. 6a-c.
Coal Measures: Charboniere, Missouri.
1859. *Chonetes Verneuili*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Manhattan, Kansas.
1861. *Chonetes verneuili*. Newberry, Ives' Colo. Expl. Exped., p. 128.
Upper Carboniferous: Cherty L. S. on banks of the Colorado River, 100 miles northwest of San Francisco Mountain.
1872. *Chonetes Verneuili*. Meek, U. S. Geol. Surv. Nebr., p. 170, pl. 1, figs. 10a, b.
Upper Coal Measures: Plattsmouth, Nebr.; Kansas; Iowa; Missouri; Illinois.
1883. *Chonetes Verneuili*. Hall, Rep. N. Y. State Geol. for 1882, pl. (16) 47, figs. 20-21.
Coal Measures: Western States.
1884. *Chonetes Verneuili*. White, 13th Rep. Geol. Surv. Ind., p. 128, pl. 25 figs. 7, 8.
Coal Measures: Every county in the Coal Measures of Indiana.
1892. *Chonetes Verneuili*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 20, figs. 5, 6: ²²~~23~~, 21.
Coal Measures: Illinois.
1892. *Chonetes Verneuili*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6, figs. 20, 21.
Coal Measures: Illinois.

Chonetes verneuili var. utahensis Meek.

1876. *Chonetes verneuili* var. *utahensis*. Meek, Simp. Expl. Gt. Basin Utah, p. 348, pl. 2, figs. 2a-c.
Humboldt Mountains.

Chonetes (species undetermined).

1888. *Chonetes* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 3, fig. 13; pl. 7, fig. 15; pl. 8, figs. 19, 23.
Waverly Group: Licking County, Ohio.

Chonetes (species undetermined).

1888. *Chonetes* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 26, 40.
Waverly Group: Cuyahoga Falls, Ohio.

CHONOPECTUS Hall, 1892.**Chonopectus fischeri Norwood and Pratten.**

1855. *Chonetes Fischeri*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 25, pl. 2, fig. 3.
Base of Mountain L. S.: Burlington, Iowa.
1858. *Chonetes fischeri*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 517, pl. 7, figs. 1a-c.
Chemung Group: ? Burlington, Iowa.
1869. *Chonetes Fischeri*. Winchell, Safford's Geol. of Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Chonetes Fischeri*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Tennessee.
1883. *Chonetes Fischeri*. Hall, Rep. N. Y. State Geol. for 1882, pl. (16) 47, figs. 17, 31.
Waverly Group: Burlington, Iowa.
1892. *Chonopectus Fischeri*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 20, figs. 24-27.
Yellow S. S.: Burlington, Iowa.
Waverly Group: Warren, Pennsylvania.
1892. *Chonopectus Fischeri*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, figs. 20-23; pl. 16, figs. 17, 31.
Yellow S. S.: Burlington, Iowa.

CHONOPHYLLUM Edwards and Haime, 1850.**Chonophyllum sedaliense White.**

1880. *Chonophyllum sedaliense*. White, Cont. to Pal. No. 8, p. 157, pl. 39, fig. 1a.
Top of Chouteau L. S.: Sedalia, Missouri.
1894. *Chonophyllum sedaliense*. Keyes, Mo. Geol. Surv., vol. 4, p. 116, pl. 14, fig. 9.
Chouteau L. S.: Sedalia, Missouri.

CHRESTOTES Scudder, 1868.**Chrestotes lapidea Scudder.**

1868. *Chrestotes lapidea*. Scudder, Geol. Surv. Ill., vol. 3, p. 567, fig. 2.
Carboniferous: Mazon Creek, Grundy County, Illinois.
1885. *Chrestotes lapidea*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 341, pl. 31, fig. 2.
Carboniferous: Mazon Creek, Illinois.
1890. *Chrestotes lapidea*. Scudder, Foss. Insc. N. A., vol. 1, p. 305, pl. 17, fig. 2.
Carboniferous: Mazon Creek, Illinois.

CIDAROSPONGIA Gurley, 1884.**Cidarospongia ella Gurley.**

1884. *Cidarospongia Ella*. Gurley, New Carb. Foss., Bull. No. 2, p. 4.
Coal Measures: Near Springfield, Illinois.

(CLEISTOPORA.)

Cleistopora placenta Keyes. See *Leptopora* type.

Cleistopora type Keyes. See *Leptopora* type.

CLEODICTYA Hall, 1884.

Cleodictya gloriosa Hall.

1884. *Cleodictya gloriosa*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 479.
Keokuk Group: Crawfordsville, Indiana.

Cleodictya ? mohri Hall.

1884. *Cleodictya ? Mohri*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 479.
Keokuk Group: Crawfordsville, Indiana.

(CLIDOPHORUS Hall, 1847.)

Clidophorus occidentalis. See *Modiola subelliptica*.

Clidophorus pallasi. See *Pleurophorus occidentalis*.

Clidophorus solenoides. See *Solenopsis solenoides*.

CLINOPISTHA Meek and Worthen, 1870.

Clinopistha radiata Hall.

1858. *Edmondia ? radiata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 716, pl. 29, fig. 3.
Coal Measures.
1884. *Clinopistha radiata*. White, 13th Rep. Geol. Surv. Ind., p. 147, pl. 31,
figs. 6, 7.
Upper Coal Measures: Indiana.
1887. *Clinopistha radiata*. Herrick, Bull. Den. Univ., vol. 2, p. 34, pl. 3, fig. 11.
Coal Measures: Flint Ridge, Ohio.
1888. *Clinopistha radiata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
1890. *Clinopistha radiata*. Worthen, Geol. Surv. Ill., vol. 8, p. 122, pl. 19, fig. 3;
pl. 21, fig. 2.
Coal Measures: Mercer County, Illinois.
1894. *Clinopistha radiata*. Keyes, Mo. Geol. Surv., vol. 5, p. 124, pl. 46, figs. 11a, b.
Lower Coal Measures: Clinton, Missouri.

Clinopistha radiata var. *lævis* Meek and Worthen.

1870. *Clinopistha radiata* var. *lævis*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 44.
Lower Coal Measures: Seaville County, Illinois.
1873. *Clinopistha radiata* var. *lævis*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 584, pl. 27, fig. 7.
Coal Measures: Fulton County and Springfield, Illinois.

CLEIOTHYRIS King, 1850.

Cleiothyris clintonensis Swallow.

1863. *Spirigera Clintonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 89.
Second Archimedes L. S.: Chester, Illinois; Ste. Genevieve and Cooper
counties, Missouri.

Cleiothyris crassicardinalis White.

- *1860. *Athyris crassicardinalis*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 229.
Kinderhook: Burlington, Iowa.

Cleiothyris hirsuta Hall.

1856. *Spirigera hirsuta*. Hall, Trans. Albany Inst., vol. 4, p. 8.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1882. *Athyris hirsuta*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 49, pl. 6,
figs. 18-21.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana;
Alton, Illinois.

Cleiothyris hirsuta Hall—Continued.

1883. *Athyris hirsuta*. Hall, 12th Rep. Geol. Surv. Ind., p. 328, pl. 29, figs. 18-21.
St. Louis Group: Alton, Illinois; Spergen Hill, Lanesville, and Bloomington, Indiana.
1884. *Athyris hirsuta*. Walcott, Pal. Eureka Dist., p. 222, pl. 18, fig. 5.
Lower Carboniferous: Eureka District, and at Coal Hill, Pancake Range, Nevada.
1895. *Cleiothyris hirsuta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, figs. 25-28.
St. Louis L. S.: Bloomington, Indiana.

Cleiothyris missouriensis Swallow.

1860. *Spirigera Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 650.
Coal Measures: Montgomery and Chariton counties, Missouri.

Cleiothyris obmaxima McChesney.

1861. *Athyris obmaxima*. McChesney, Desc. New Spec. Foss., p. 80.
Keokuk Limestone: Nauvoo and Warsaw, Illinois; Keokuk, Iowa.
1874. *Spirigera obmaxima*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada, and below Ophir City, Nevada.
1877. *Spirigera obmaxima*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 92, pl. 5, fig. 12.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

Cleiothyris obvia McChesney.

1861. *Athyris obvia*. McChesney, Desc. New Spec. Foss., p. 81.
Kaskaskia Limestone: Kaskaskia, Illinois.

Cleiothyris orbicularis McChesney.

1860. *Athyris orbicularis*. McChesney, Desc. New Pal. Foss., p. 47.
Coal measures: Western States.

Cleiothyris reflexa Swallow.

1863. *Spirigera reflexa*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 88.
Warsaw L. S.: Barrett's Station, St. Louis County, Missouri.

Cleiothyris roissyi L'Eveille.

1858. *Terebratula roysii*. Marcou, Geol. N. A., p. 51, pl. 6, figs. 10, 10b.
Mountain L. S.: Salt Lake City, Utah; El Paso, Chihuahua; headwaters of Rio Colorado Chiquito.
1858. *Athyris sublamellosa*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 702, pl. 27, figs. 1a-c.
Kaskaskia L. S.: Chester, Illinois; Crittenden County, Kentucky.
1858. *Terebratula plano-sulcata*. Marcou, Geol. N. A., p. 52, pl. 6, figs. 8, 8b.
Mountain L. S.: Tigras, New Mexico; Ohio; Indiana; Illinois; Kentucky; Arkansas.
1860. *Athyris parvirostra*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 451.
Keokuk L. S.: Near Warsaw, Illinois.
1863. *Spirigera pectiniifera*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 88.
Geode Beds: Keokuk, Iowa.
1863. *Spirigera Americana*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 89.
Second Archimedes L. S.: Chester, Illinois; St. Mary's, Missouri.
1866. *Athyris planosulcata*?. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 254, pl. 18, figs. 8a-d.
Keokuk Group: Near Warsaw, Illinois.
1874. *Athyris sublamellosa*. Derby, Bull. Cornell Univ. (Science), vol. 1, No. 2, p. 10, pl. 2, figs. 9-12; pl. 3, figs. 15, 21, 29; pl. 6, fig. 16; pl. 9, figs. 5, 6.
Coal Measures: Bomjardim and Itaituba, Brazil.

Cleiothyris roissyi L'Eveille—Continued.

1877. *Spirigera planosulcata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 143, pl. 10, figs. 5a-d.
Carboniferous: Santa Fe, New Mexico; Rush Creek, Lake County, Colorado.
1877. *Athyris planosulcata*. ? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 257, pl. 18, figs. 8a-d.
Lower Carboniferous L. S. (Waverly?): Cottonwood Divide, 800 feet east of Reed & Benson's Mine, Wahsatch Range, Utah.
1877. *Athyris Roissyi*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 82, pl. 9, figs. 3-3b.
Carboniferous, L. S.: Ruby Group; Wachoe Mountains; Mahogany Peak; Egan Range, Nevada.
1894. *Athyris sublamellosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 92.
Kaskaskia L. S.: Ste. Mary, Missouri.
1894. *Cleiothyris Roysii*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 35, figs. 9, 10.
Keokuk Group: Keokuk, Iowa.
Chester L. S.: Jackson County, Kentucky.
1895. *Cleiothyris Roysii*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, figs. 23, 24.
Keokuk Group: Keokuk, Iowa.
Chester L. S.: Jackson County, Kentucky.

Cleiothyris squamosa Worthen.

1884. *Athyris squamosa*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 24.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Athyris squamosa*. Worthen, Geol. Surv. Ill., vol. 8, p. 103, pl. 11, fig. 2.
St. Louis Oolitic L. S.: Monroe County, Illinois.

CLISIOPHYLLUM Dana, 1848.**Clisiophyllum gabbi Meek.**

1864. *Clisiophyllum Gabbi*. Meek, Pal. Cal., vol. 1, p. 8, pl. 1, figs. 1-1b.
Carboniferous: Bass's Ranch, Shasta County, California.

Clisiophyllum tumulus Salter.

1855. *Clisiophyllum Tumulus*. Salter, Belcher's "Last of the Arctic Voyagers," p. 383, pl. 36, fig. 6.
Carboniferous: Depot Point.

CODASTER McCoy, 1849.**Codaster blairi Miller and Gurley.**

1895. *Codaster blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 86, pl. 5, figs. 20-22.
Chouteau L. S.: Near Sedalia, Missouri.

Codaster gracillimus Rowley and Hare.

1891. *Codaster gracillimus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 99, pl. 2, figs. 6, 7.
Lower Burlington L. S.: Louisiana, Missouri.

Codaster grandis Rowley and Hare.

1891. *Codaster grandis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 99, pl. 2, fig. 8.
Upper Burlington Chert: Louisiana, Missouri.

Codaster graciosus Miller.

1880. *Codaster graciosus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 257, pl. 15, figs. 5, 5a.
Keokuk Group: New Bloomfield, Missouri.

Codaster jessiae Miller and Gurley.

1896. *Codaster jessiae*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 89, pl. 5, figs. 20-22.
Chouteau L. S.: Sedalia, Missouri.

Codaster whitei. See *Orophocrinus whitei*.

(CODONITES Meek and Worthen, 1869.)

Codonites campanulatus. See *Orophocrinus campanulatus*.

Codonites gracilis. See *Orophocrinus gracilis*.

Codonites inopinatus. See *Orophocrinus inopinatus*.

Codonites stelliformis. See *Orophocrinus stelliformis*.

CELIOCRINUS White, 1893.

Cœliocrinus cariniferus Worthen.

1873. *Zeacrinus cariniferus*. Worthen, Geol. Surv. Ill., vol. 5, p. 535, pl. 20, fig. 4.
St. Louis L. S.: Near Huntsville, Alabama.

Cœliocrinus dilatatus Hall.

1861. *Poteriocrinus dilatatus*. Hall, Desc. New Spec. Crin., p. 6.
Burlington, L. S.
1861. *Poteriocrinus dilatatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 300.
Burlington L. S.: Burlington, Iowa.
1893. *Cœliocrinus dilatatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 33,
pl. 3, fig. 18.
Burlington L. S.: Burlington, Iowa.

Cœliocrinus lyra Meek and Worthen.

1869. *Zeacrinus lyra*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 152.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Zeacrinus lyra*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 432, pl. 1,
fig. 11.
Burlington L. S.: Burlington, Iowa.

Cœliocrinus subspinosus White.

1862. *Cœliocrinus subspinosus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 501.
Burlington L. S.: Burlington, Iowa.

Cœliocrinus ventricosus Hall.

1861. *Poteriocrinus ventricosus*. Hall, Desc. New Crin., p. 6.
Burlington L. S.
1861. *Poteriocrinus ventricosus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 301.
Burlington, L. S.: Burlington, Iowa.

CELOCONUS Ulrich, 1890.

Cœloconus granosus Ulrich.

1890. *Cœloconus granosus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 665, pl. 72, figs. 3-3b.
Chester Group: Near Anna, Illinois.

Cœloconus rhombicus Ulrich.

1890. *Cœloconus rhombicus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 664, pl. 72, figs. 4-4c.
St. Louis Group: Fountain Creek, Monroe County, Illinois.

(CÆLOCRINUS Meek and Worthen, 1865.)

Cœlocrinus concavus. See *Aorocrinus concavus*.

COLEOLUS Hall, 1879.

Coleolus herzeri Hall.

1888. *Coleolus Herzeri*. Hall, Pal. N. Y., vol. 5, pt. 2, Supp. p. 7, pl. 114, fig. 29.
Waverly Group: Medina County, Ohio.

COLOCERAS Hyatt, 1893.

Coloceras globatus Meek and Worthen.

1866. *Nautilus globatus?* Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 305, pl. 24, figs. 5a, b.

Chester Group: Chester, Illinois.

1893. *Nautilus globatus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 453.

Coloceras globulare Hyatt.

1893. *Coloceras globulare*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 452, figs. 25-27.

Carboniferous: Military Crossing, Baylor County, Texas.

COLPOCARIS Meek, 1872.

Colpocaris bradleyi Meek.

1872. *Ceratiocaris (Colpocaris) bradleyi*. Meek, Proc. Acad. Nat. Sci. Phil. (for 1871), p. 332.

Base of Waverly Group: Danville, Kentucky.

1875. *Ceratiocaris (Colpocaris) Bradleyi*. Meek, Pal. Ohio, vol. 2, p. 318, pl. 18, figs. 6a-e.

Waverly Group: Danville, Kentucky.

Colpocaris chesterensis Worthen.

1884. *Colpocaris chesterensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 3. Lower Chester L. S.: Chester, Illinois.

1890. *Colpocaris chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 153, pl. 28, fig. 2. Chester L. S.: Chester, Illinois.

1894. *Colpocaris chesterensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 239. Kaskaskia L. S.: Chester, Illinois.

Colpocaris elytroides Meek.

1872. *Ceratiocaris (Colpocaris) elytroides*. Meek, Proc. Acad. Nat. Sci. Phil. (for 1871), p. 334.

Base of Waverly Group: Danville, Kentucky.

1875. *Ceratiocaris (Colpocaris) elytroides*. Meek, Pal. Ohio, vol. 2, p. 319, pl. 18, figs. 5a-c.

Waverly Group: Danville, Kentucky.

COMPSASTER Worthen and Miller, 1883.

Compsaster formosus Worthen and Miller.

1883. *Compsaster formosus*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 327, pl. 31, figs. 2a, b.

Chester L. S.: Okaw bluffs, between Chester and Kaskaskia, Randolph County, Illinois.

CONCHIDIUM Linné, 1753.

Conchidium salinensis Swallow.

1860. *Pentamerus Salinensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 652.

Base of Chemung: Moniteau County, Missouri.

CONOCARDIUM Bronn, 1835.

Conocardium acadianum Dawson.

1868. *Conocardium Acadianum*. Dawson, Acad. Geol., p. 304, fig. 110.
Carboniferous L. S.: Windsor, Nova Scotia.

Conocardium aliforme Sowerby.

1829. *Cardium aliforme*. Sowerby, Min. Couch., vol. 6, p. 100, tab. 552, fig. 2.
1897. *Conocardium aliforme*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 37, pl. 22,
figs. 1, 2.
Lower Coal Measures: Conway County, Arkansas.

Conocardium alternistriatum Herrick.

1888. *Conocardium alternistriatum*. Herrick, Bull. Den. Univ., vol. 4, p. 42, pl. 11,
fig. 24; pl. 5, fig. 7 ?
Waverly Group: Bagdad and Burbank, Ohio.
1889. *Conocardium* (cf. *alternistriatum*). Herrick, Am. Geol., vol. 3, pl. 3, fig. 7.
Waverly Group: Moot's Run, Ohio.
1891. *Conocardium alternistriatum*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 45,
pl. 1, figs. 1-4.
Waverly Group (Cuyahoga Division): Wooster, Ohio.

Conocardium? bovipedale Winchell.

1862. *Conocardium? bovipedale*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 420.
Marshall Group: Marshall, Michigan.

Conocardium carinatum Hall.

1856. *Conocardium carinatum*. Hall, Trans. Alb. Inst., vol. 4, p. 14.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Conocardium carinatum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 59,
pl. 7, figs. 18, 19.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Conocardium carinatum*. Hall, 12th Rep. Geol. Surv. Ind., p. 345, pl. 30,
figs. 18, 19.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Conocardium catastomum Hall.

1856. *Conocardium catastomum*. Hall, Trans. Albany Inst., vol. 4, p. 13.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Conocardium catastomum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 58,
pl. 7, figs. 15-17a.
St. Louis Group: Spergen Hill, Indiana.
1883. *Conocardium catastomum*. Hall, 12th Rep. Geol. Surv. Ind., p. 344, pl. 30,
figs. 15-17.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Conocardium cuneatum Hall.

1856. *Conocardium cuneatum*. Hall, Trans. Albany Inst., vol. 4, p. 14.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Conocardium cuneatum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 60,
pl. 7, figs. 24-26.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Conocardium cuneatum*. Hall, 12th Rep. Geol. Surv. Ind., p. 345, pl. 30,
figs. 24-26.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Conocardium equilaterale Hall.

1856. *Conocardium equilaterale*. Hall, Trans. Albany Inst., vol. 4, p. 16.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Conocardium equilaterale*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 62.
St. Louis Group.

Conocardium equilaterale Hall—Continued.

1883. *Conocardium equilaterale*. Hall, 12th Rep. Geol. Surv. Ind., p. 348.
St. Louis Group: Spergen Hill, Indiana.

Conocardium indianense Miller.

1891. *Conocardium indianense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 94, pl. 20, fig. 10.
Keokuk Group: Crawfordsville, Indiana.
1892. *Conocardium indianense*. Miller, 17th Rep. Geol. Surv. Ind., p. 704, pl. 20, fig. 10.
Keokuk Group: Crawfordsville, Indiana.

Conocardium meekanum Hall.

1856. *Conocardium Meekanum*. Hall, Trans. Albany Inst., vol. 4, p. 15:
St. Louis L. S.: Alton, Illinois.
1882. *Conocardium Meekanum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 61, pl. 7, figs. 21-23.
St. Louis Group: Alton, Illinois.
1883. *Conocardium meekanum*. Hall, 12th Rep. Geol. Surv. Ind., p. 347, pl. 30, figs. 21-23.
St. Louis Group: Alton, Illinois.

Conocardium napoleonense Winchell.

1862. *Cardium Napoleonense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 419.
Marshal Group: Marshall, Battle Creek, and near Napoleon, Michigan.

Conocardium obliquum Meek and Worthen.

1865. *Conocardium obliquum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 249.
Coal Measures: Wabash Cut-off, Posey County, Indiana.
1875. *Conocardium obliquum*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 529, pl. 33, fig. 4.
Coal Measures: Wabash cut-off, Posey County, Indiana.

Conocardium parrishi Worthen.

1890. *Conocardium parrishi*. Worthen, Geol. Surv. Ill., vol. 8, p. 112, pl. 20, fig. 7.
Upper Coal Measures (oolite): Near Kansas City, Missouri.
1894. *Conocardium parrishi*. Keyes, Mo. Geol. Surv., vol. 5, p. 124, pl. 46, figs. 6a, b.
Upper Coal Measures: Kansas City, Missouri.

Conocardium prattenanum Hall.

1856. *Conocardium Prattenanum*. Hall, Trans. Albany Inst., vol. 4, p. 15.
St. Louis L. S.: Alton, Illinois.
1882. *Conocardium Prattenanum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 61, pl. 7, fig. 20.
St. Louis Group: Alton, Illinois.
1883. *Conocardium prattenanum*. Hall, 12th Rep. Geol. Surv. Ind., p. 346, pl. 30, fig. 20.
St. Louis Group: Alton, Illinois.

Conocardium pulchellum White and Whitfield.

1862. *Conocardium pulchellum*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 299.
Chemung Group: Burlington, Iowa.
1870. *Conocardium pulchellum*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.
Waverly Group: Newark, Ohio.
1888. *Conocardium pulchellum*. Herrick, Bull. Den. Univ., vol. 3, p. 97, pl. 1, fig. 12; pl. 7, figs. 39, 40?
Waverly Group: Licking County, Ohio.

Conocardium (species undetermined).

1868. *Conocardium*. Dawson, Acad. Geol., p. 305.
Carboniferous L. S.: Stewiacke, Nova Scotia.
1877. *Conocardium* — (?). White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 94.
Subcarboniferous: Below Ophir City, Utah.
1888. *Conocardium* sp. ? Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 41.
Waverly Group: Licking County, Ohio.
1888. *Conocardium* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 44.
Waverly Group: Rushville, Ohio.
1894. *Chonocardium* sp. Keyes, Mo. Geol. Surv., vol. 5, p. 124.
Base of Burlington L. S.: Louisiana, Missouri.

CONOPTERIUM Winchell, 1865.**Conopterium effusum Winchell.**

1865. *Conopterium effusum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 111.
Lithographic L. S.: Clarksville, Missouri.
1894. *Conopterium effusum*. Keyes, Mo. Geol. Surv., vol. 4, p. 118, pl. 14, fig. 10.
Kinderhook L. S.: Clarksville and Louisiana, Missouri.

CONULARIA Miller, 1821.**Conularia blairi Miller and Gurley.**

1894. *Conularia blairi*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist.,
p. 73, pl. 7, figs. 14, 15.
Chouteau L. S.: Sedalia, Missouri.

Conularia byblis White.

1862. *Conularia byblis*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 22.
Chemung Group: Burlington, Iowa.
1869. *Conularia byblis*. Winchell, Safford's Geol. of Tenn., p. 444.
Shales just above black shales: Hickman and Maury counties, Tennessee.
1870. *Conularia byblis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.
Waverly Group: Hickman County, Tennessee.
1888. *Conularia byblis*. Herrick, Bull. Den. Univ., vol. 3, p. 95.
Waverly Group: Licking County, Ohio.

Conularia chesterensis Worthen.

1883. *Conularia Chesterensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 325.
Chester, L. S.: Chester, Illinois.
1890. *Conularia chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 134, pl. 11,
figs. 9, 9a.
Chester, L. S.: Chester, Illinois.

Conularia crawfordsvillensis Owen.

1862. *Conularia Crawfordsvillensis*. Owen, Geol. Recon. Ind., p. 364, fig. 9.
Carboniferous: Crawfordsville, Indiana.

Conularia crustula White.

1880. *Conularia crustula*. White, Cont. to Pal., No. 8, p. 170, pl. 42, fig. 4a.
Coal Measures: Kansas City, Missouri; near Taos, New Mexico.
1881. *Conularia crustula*. White, U. S. Geog. Surv. W. 100th Merid., vol. 3, Supp.,
Appendix, p. xxviii, pl. 3, figs. 4a, b.
Carboniferous: Near Taos, New Mexico.
1894. *Conularia crustula*. Keyes, Mo. Geol. Surv., vol. 5, p. 219, pl. 35, fig. 2.
Upper Coal Measures: Kansas City, Missouri.
1897. *Conularia conf. crustula*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
Coal Measures: Scott County, Arkansas.

Conularia gracilis. Name preoccupied. See *Conularia* (species undetermined).

***Conularia gratiosa* Miller and Gurley.**

1894. *Conularia gratiosa*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 74, pl. 8, fig. 1.

St. Louis Group: Spargen Hill, Indiana.

***Conularia greenei* Miller and Gurley.**

1896. *Conularia greenei*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 27, pl. 3, fig. 3.

Keokuk Group: Edwardsville, Indiana.

***Conularia intertexta* Miller.**

1892. *Conularia intertexta*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 63, pl. 10, fig. 4.

Keokuk Group: West Point, Indiana.

1894. *Conularia intertexta*. Miller, 18th Rep. Geol. Surv. Ind., p. 317, pl. 10, fig. 4.

Keokuk Group: West Point, Indiana.

***Conularia marionensis* Swallow.**

1860. *Conularia Marionensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 656. Upper Hamilton Shales: Marion County and Hannibal, Missouri.

1894. *Conularia marionensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 217.

Hannibal Shales: Hannibal, Missouri.

***Conularia micronema* Meek.**

1871. *Conularia micronema*. Meek, Proc. Acad. Nat. Sci. Phil., p. 84.

Waverly Group: Sciotoville, Ohio.

1875. *Conularia micronema*. Meek, Pal. Ohio, vol. 2, p. 316, pl. 18, figs. 1a-d.

Waverly Group: Sciotoville, Ohio.

1888. *Conularia micronema*. Herrick, Bull. Den. Univ., vol. 3, p. 94, pl. 2, fig. 19.

Waverly Group: Licking County, Ohio.

1888. *Conularia micronema*. Herrick, Bull. Den. Univ., vol. 4, p. 49, pl. 8, fig. 4.

Waverly Group: Ohio.

1895. *Conularia micronema*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 4.

Kinderhook, Ohio.

***Conularia missouriensis* Swallow.**

1860. *Conularia Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 657. Carboniferous L. S.: Cooper County, Missouri.

1873. *Conularia Missouriensis?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 541, pl. 22, fig. 5.

Warsaw beds: Warsaw, Illinois.

1881. *Conularia missouriensis?* White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 513, pl. 6, fig. 4.

St. Louis Group: Ellettsville, Indiana.

1884. *Conularia Missouriensis?* Walcott, Pal. Eureka Dist., p. 264, pl. 23, fig. 4. Lower Carboniferous: White Pine Mining District, Nevada.

1890. *Conularia missouriensis*. Calvin, Am. Geol., vol. 5, p. 207.

St. Louis L. S.: Brown County, Illinois.

1894. *Conularia missouriensis?* Keyes, Mo. Geol. Surv., vol. 5, p. 218, pl. 35, figs. 1a, b.

Keokuk L. S.: Warsaw, Illinois.

St. Louis L. S.: St. Louis, Missouri.

***Conularia multicostata* Meek and Worthen.**

1865. *Conularia multicostata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 252.

Waverly S. S.: Richfield, Summit County, Ohio.

Conularia newberryi Winchell.

1865. *Conularia Newberryi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 130.
Marshall Group: Cuyahoga Falls, Ohio.
1870. *Conularia Newberryi*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Sciotoville, Ohio.
1875. *Conularia Newberryi*. Meek, Pal. Ohio, vol. 2, p. 316, pl. 18, figs. 2a, b.
Waverly Group: Loudonville, Ohio.
1887. *Conularia newberryi* (?) Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14,
fig. 14.
Coal Measures: Flint Ridge, Ohio.
1888. *Conularia newberryi*. Herrick, Bull. Den. Univ., vol. 3, p. 93, pl. 6, fig. 13;
pl. 8, fig. 9; pl. 2, fig. 18 ?
Waverly Group: Licking County, Ohio.
1888. *Conularia newberryi*. Herrick, Bull. Den. Univ., vol. 4, pl. 8, fig. 5; pl. 10,
fig. 27.
Waverly Group: Cuyahoga Falls, Ohio.
1895. *Conularia newberryi*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 5.
Kinderhook Group: Ohio.

Conularia osagensis Swallow.

1863. *Conularia Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 98.
Achimedes L. S.: Near Boonville, Missouri.
1894. *Conularia osagensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 218.
Keokuk L. S.: Boonville, Missouri.

Conularia planocostata Dawson.

1868. *Conularia planicostata*. Dawson, Acad. Geol., p. 307, fig. 117.
Carboniferous L. S.: Irish Cove, Cape Breton, Windsor, and Shubenacadie,
Nova Scotia.

Conularia roeperi Miller and Gurley.

1896. *Conularia roeperi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist.,
p. 26, pl. 3, figs. 1, 2.
Coal Measures: Luzerne County, Pennsylvania.

Conularia sampsoni Miller.

1891. *Conularia sampsoni*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 80,
pl. 14, figs. 11, 12.
Chouteau L. S.: Sedalia, Missouri.
1892. *Conularia sampsoni*. Miller, 17th Rep. Geol. Surv. Ind., p. 690, pl. 14,
figs. 11, 12.
Chouteau L. S.: Sedalia, Missouri.

Conularia sedaliensis Miller and Gurley.

1896. *Conularia sedaliensis*. Miller and Gurley, Bull. No. 11, Ill., State Mus.
Nat. Hist., p. 28, pl. 3, figs. 4, 5.
Burlington Group: Sedalia, Missouri.

Conularia spergenensis Miller and Gurley.

1894. *Conularia spergenensis*. Miller and Gurley, Bull. No. 2, Ill. State Mus. Nat.
Hist., p. 74, pl. 8, fig. 2.
St. Louis Group: Spergen Hill, Indiana.

Conularia subcarbonaria Meek and Worthen.

1865. *Conularia subcarbonaria*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 253.
Keokuk Group: Warsaw, Illinois.
1873. *Conularia subcarbonaria*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 520,
pl. 19, fig. 4.
Keokuk Group: Hamilton, Illinois.

Conularia subcarbonaria Meek and Worthen—Continued.

1894. *Conularia subcarbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 218
Keokuk L. S.: Wayland, Missouri.

Conularia subulata Hall.

1856. *Conularia subulata*. Hall, Trans. Albany Inst., vol. 4, p. 32.
St. Louis L. S.: Alton, Illinois.
1882. *Conularia subulata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 91, pl. 8,
fig. 3.
St. Louis Group: Alton, Illinois.
1883. *Conularia subulata*. Hall, 12th Rep. Geol. Surv. Ind., p. 372, pl. 31, fig. 3.
St. Louis Group: Alton, Illinois.
1894. *Conularia subulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 218.
St. Louis L. S.: St. Louis, Missouri.

Conularia triplicata Swallow.

1860. *Conularia triplicata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 657.
Upper Hamilton Shales: Marion County, Missouri.
1894. *Conularia triplicata*. Keyes, Mo. Geol. Surv., vol. 5, p. 217.
Hannibal Shales: Marion County, Missouri.

Conularia verneuilana Emmons.

- *1846. *Conularia verneuilana*. Emmons, Am. Quart. Jour. Agr. and Sci., vol. 4,
p. 330.
Subcarboniferous.

Conularia victa White.

1862. *Conularia victa*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 22.
Upper Burlington L. S.: Burlington, Iowa.
1888. *Conularia victa*? Herrick, Bull. Den. Univ., vol. 4, p. 47, pl. 8, fig. 3.
Waverly Group: Newark, Rushville, and near Loudonville, Ohio.
1895. *Conularia victa*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 3.
Burlington Group: Newark, Ohio.

Conularia whitii Meek and Worthen.

1865. *Conularia Whitei*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 253.
Waverly S. S.: Richfield, Ohio.

Conularia (species undetermined).

1888. *Conularia newberryi*? Herrick, Bull. Den. Univ., vol. 3, p. 106, pl. 6, figs. 13,
13a, 17.
Waverly Group: Licking County, Ohio.
1888. *Conularia gracilis*. Herrick, Bull. Den. Univ., vol. 4, p. 48, pl. 8, fig. 2. (Not
C. gracilis Hall, 1847.)
Waverly Group: Moot's Run, Alexandria, and near Loudonville, Ohio.
1895. *Conularia gracilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 2.
Cuyahoga Shale: Licking County, Ohio.

CORNULITES Schlotheim, 1820.**Cornulites carbonarius Gurley.**

1883. *Cornulites carbonarius*. Gurley, New Carb. Foss., Bull. No. 1, p. 8.
Kinderhook Group: Pike County, Missouri.

COSCINIUM Keyserling, 1846.**Coscinium asteria Prout.**

1860. *Coscineum asteria*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 574.
Keokuk L. S.: Warsaw, Illinois.
1866. *Coscinium asteria*. Prout, Geol. Surv. Ill., vol. 2, p. 416, pl. 22, figs. 7, 7a.
Keokuk Group: Warsaw, Illinois.

Coscinium elegans. See *Glyptopora elegans*.

***Coscinium escharense* Prout.**

1860. *Coscinium escharense*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 574.
Keokuk L. S.: Warsaw, Illinois.

1866. *Coscinium escharense*. Prout, Geol. Surv. Ill., vol. 2, p. 416, pl. 22, figs. 8, 8a.
Keokuk Group: Warsaw, Illinois.

Coscinium keyserlingi. See *Glyptopora keyserlingi*.

***Coscinium latum* Ulrich.**

1890. *Coscinium latum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 497, pl. 76, figs. 7-7b.
Burlington, L. S.: Calhoun County, Illinois; Quincy, Illinois; Burlington, Iowa.

1894. *Coscinium ? latum*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.
Burlington L. S.: (?) Hannibal, Missouri; Burlington, Iowa; Quincy, Illinois.

Coscinium michelini. See *Glyptopora michelinia*.

Coscinium plumosum. See *Glyptopora plumosa*.

Coscinium sagenella. See *Glyptopora sagenella*.

***Coscinium tuberculatum* Prout.**

1860. *Coscinium tuberculatum*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 573.
Keokuk L. S.: Warsaw, Illinois.

1866. *Coscinium tuberculatum*. Prout, Geol. Surv. Ill., vol. 2, p. 415, pl. 22, fig. 6.
Keokuk Group: Warsaw, Illinois.

Coscinium wortheni. See *Glyptopora keyserlingi*.

(COTYLEDONOCRINUS Lyon and Casseday, 1860.)

Cotyledonocrinus pentalobus. See *Dichocrinus pentalobus*.

CRANIA Retzius, 1781.

Crania blairi. See *Crania rowleyi*.

Crania carbonaria. See *Crania modesta*.

***Crania chesterensis* Miller and Gurley.**

1897. *Crania chesterensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 47, pl. 3, figs. 24-26.
Kaskaskia Group: Chester, Illinois.

Crania hamiltonia. See *Craniella hamiltonia*.

***Crania laevis* Keyes.**

1894. *Crania laevis*. Keyes, Mo. Geol. Surv., vol. 5, p. 40.
Chouteau L. S.: Louisiana, Missouri.
Burlington L. S.: Louisiana, Missouri.

***Crania modesta* White and St. John.**

1868. *Crania modesta*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 118.
Upper Coal Measures: Fremont County, Iowa.

1882. *Crania carbonaria*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 229.
Coal Measures: Carbon Hill, Hocking County, Ohio.

1884. *Crania modesta*. White, 13th Rep. Geol. Surv. Ind., p. 121, pl. 35, fig. 9;
pl. 36, fig. 5.

Coal Measures: Eugene and Newport, Vermilion County, and Merom,
Sullivan County, Indiana.

***Crania modesta* White and St. John—Continued.**

1891. *Crania carbonaria*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 599, pl. 15, figs. 11, 12.

Coal Measures: Carbon Hill, Hocking County, Ohio.

1895. *Crania carbonaria*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 484, pl. 11, figs. 11, 12.

Coal Measures: Carbon Hill, Hocking County, Ohio.

***Crania permiana* Shumard.**

1859. *Crania Permiana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395.

White Permian L. S.: Guadalupe Mountains.

***Crania reposita* White.**

1862. *Crania reposita*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 30.

Burlington L. S.

***Crania rowleyi* Gurley.**

1883. *Crania Rowleyi*. Gurley, New Carb. Foss., Bull. No. 1, p. 3.

Kinderhook Group: Pike County, Missouri.

1892. *Crania Rowleyi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4H, fig. 13.

Chouteau L. S.: Pike County, Missouri.

1892. *Crania blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 56, pl. 9, figs. 5, 6.

Chouteau L. S.: Sedalia, Missouri.

1894. *Crania blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 310, pl. 9, figs. 5, 6.

Chouteau L. S.: Sedalia, Missouri.

***Crania* (species undetermined).**

1868. *Crania*. Dawson, Acad. Geol., p. 301.

Carboniferous L. S.: Windsor, Nova Scotia.

CRANIELLA Ehlert, 1888.***Craniella hamiltoniae* Hall.**

1888. *Crania hamiltonia*. Herrick, Bull. Den. Univ., vol. 3, p. 31, pl. 12, fig. 10.

Waverly Group: Licking County, Ohio.

CRENIPECTEN Hall, 1883.***Crenipecten cancellatus* Herrick.**

1888. *Aviculopecten (Lyriopecten?) cancellatus*. Herrick, Bull. Den. Univ., vol. 3, p. 54, pl. 12, fig. 7.

Waverly Group: Licking County, Ohio.

1888. *Crenipecten cancellatus*. Herrick, Bull. Den. Univ., vol. 4, p. 34, pl. 5, fig. 3; pl. 11, fig. 25.

Waverly Group: Moot's Run, Licking County, Ohio.

1889. *Crenipecten cancellatus*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 3.

1895. *Crenipecten cancellatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 14.

Cuyahoga Shale: Moot's Run and northern Ohio.

Crenipecten caroli. See *Aviculopecten caroli*.

Crenipecten cooperi. See *Aviculopecten cooperi*.

Crenipecten crenistriatus. See *Aviculopecten crenistriatus*.

***Crenipecten foerstii* Herrick.**

1887. *Crenipecten Foerstii*. Herrick, Bull. Den. Univ., vol. 2, p. 28, pl. 3, figs. 9, 9a.

Coal Measures: Flint Ridge, Ohio.

1888. *Crenipecten (foerstii?)*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 19.

Waverly Group: Licking County, Ohio.

Crenipecten granvillensis. See *Aviculopecten granvillensis*.

Crenipecten hallanus Walcott.

1884. *Crenipecten Hallanus*. Walcott, Pal. Eureka Dist., p. 231, pl. 8, figs. 7-7c.
Lower Carboniferous: Eureka District, Nevada.

Crenipecten senilis Herrick.

1888. *Crenipecten senilis*. Herrick, Bull. Den. Univ., vol. 3, p. 54, pl. 3, fig. 1.
Waverly Group: Licking County, Ohio.

Crenipecten subcardiformis Herrick.

1888. *Crenipecten sub-cardiformis*. Herrick, Bull. Den. Univ., vol. 3, p. 53, pl. 7, figs. 4, 5.
Waverly Group: Licking County, Ohio.

Crenipecten winchelli Meek.

1875. *Aviculopecten Winchelli*. Meek, Pal. Ohio, vol. 2, p. 296, pl. 15, figs. 5a, b.
Waverly Group: Newark, Ohio.
1884. *Crenipecten Winchelli*. Hall, Rep. N. Y. State Geol. for 1881, pl. 1, figs. 4-5.
Waverly Group: Newark Ohio.
1884. *Crenipecten Winchelli*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 89, pl. 9, figs. 1, 2, 4, 25-30.
Waverly S. S.: Newark, Ohio.
1886. *Aviculopecten Winchelli*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 453, fig. 6b; p. 442, fig. 6; p. 444, fig. 6a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Aviculopecten Winchelli*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 269, fig. 6a; p. 270, fig. 6.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Aviculopecten winchelli*. Herrick, Bull. Den. Univ., vol. 3, pl. 1, fig. 18; pl. 6, fig. 12; pl. 10, fig. 7.
Waverly Group: Licking County, Ohio.

Crenipecten (species undetermined).

1888. *Crenipecten* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 13.
Waverly Group: Licking County, Ohio.
1888. *Crenipecten*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 21.
Waverly Group: Licking County, Ohio.
1888. *Crenipecten* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, figs. 8, 9.
Waverly Group: Cuyahoga Falls, Ohio.

CROMYOCRINUS Trautschold, 1867.

Cromyocrinus buttsi. See *Ulocrinus buttsi*.

Cromyocrinus globosus Worthen.

1873. *Agassizocrinus globosus*. Worthen, Geol. Surv. Ill., vol. 5, p. 557, pl. 21, fig. 12.
Chester Group: Chester, Illinois.
1894. *Cromyocrinus globosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 216.
Kaskaskia L. S.: Chester, Illinois.

Cromyocrinus gracilis. See *Eupachycrinus gracilis*.

Cromyocrinus hemisphericus Worthen.

1882. *Agassizocrinus hemisphericus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 37.
Chester L. S.: Randolph County, Illinois.
1883. *Agassizocrinus hemisphericus*. Worthen, Geol. Surv. Ill., vol. 7, p. 316, pl. 29, fig. 7.
Chester L. S.: Randolph County, Illinois.

Cromyocrinus kansasensis. See *Ulocrinus kansasensis*.

***Cromyocrinus papillatus* Worthen.**

1882. *Agassizocrinus papillatus*. Worthen, Bull. No. 1, Ill. State Mus Nat. Hist., p. 36.

Chester L. S.: Monroe County, Illinois.

1883. *Agassizocrinus papillatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 315, pl. 29, fig. 17.

Chester L. S.: Monroe County, Illinois.

***Cromyocrinus sangamonensis* Meek and Worthen.**

1860. *Cyathocrinus ? Sangamonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 393.

Upper Coal Measures: Sugar Creek, Sangamon County, Illinois.

1866. *Cyathocrinus ? sangamonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 310, pl. 26, figs. 1a, b.

Coal Measures: Sugar Creek, Sangamon County, Illinois.

CRYPTACANTHIA White and St. John, 1867.

***Cryptacanthia compacta* White and St. John.**

1868. *Waldheimia? compacta*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 119, figs. 3a-c.

Upper Coal Measures: Madison County, Iowa.

1894. *Cryptacanthia compacta*. Hall and Clarke, Int. to Study of Brach., pt. 2, p. 867 (119), fig. 508.

1894. *Waldheimia? (Cryptacanthia) compacta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 301, fig. 225.

CRYPTOBLASTUS Etheridge and Carpenter, 1886.

***Cryptoblastus kirkwoodensis* Shumard.**

1863. *Elvacrinus Kirkwoodensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 113.

St. Louis L. S.: Near Kirkwood, Missouri.

1886. *Cryptoblastus? Kirkwoodensis*. Etheridge and Carpenter, Cat. Blast., p. 144.

1894. *Cryptoblastus kirkwoodensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 139, pl. 17, figs. 8a, b.

St. Louis L. S.: Kirkwood, Missouri.

***Cryptoblastus melo* Owen and Shumard.**

1850. *Pentremites melo*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 65, pl. 7, figs. 14a-c.

Subcarboniferous L. S.: Burlington, Iowa.

1852. *Pentremites melo*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 592, tab. 5A, figs. 14a-c.

Subcarboniferous L. S.: Burlington, Iowa.

1886. *Cryptoblastus melo*. Etheridge and Carpenter, Cat. Blast., p. 232, pl. 7, figs. 14, 15.

Lower Burlington L. S.: Burlington, Iowa; Hannibal, and St. Louis County, Missouri; near Monmouth, Illinois.

1894. *Cryptoblastus melo*. Keyes, Mo. Geol. Surv., vol. 4, p. 139, pl. 18, figs. 7a, b.

Lower Burlington L. S.: Sedalia, Louisiana, and Hannibal, Missouri.

***Cryptoblastus pisum* Meek and Worthen.**

1869. *Granatocrinus pisum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 89.

Upper Burlington L. S.: Burlington, Iowa.

Cryptoblastus pisum Meek and Worthen—Continued.

1873. *Granatocrinus pisum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 470, pl. 9, fig. 4.

Burlington L. S.: Burlington, Iowa.

1886. *Cryptoblastus pisum*. Etheridge and Carpenter, Cat. Blast., p. 142.

Cryptoblastus projectus Meek and Worthen.

1861. *Pentremites melo* var. *projectus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 142.

Burlington L. S.: Burlington, Iowa.

1868. *Granatocrinus projectus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 496, pl. 18, fig. 7.

Burlington Group: Burlington, Iowa.

CRYPTONELLA Hall, 1861.**Cryptonella eudora** Hall.

1888. *Cryptonella eudora*. Herrick, Bull. Den. Univ., vol. 3, p. 48, pl. 5, fig. 10. Waverly Group: Licking County, Ohio.

1895. *Cryptonella eudora*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 10. Kinderhook: Granville, Ohio.

Cryptonella (?) inconstans Herrick.

1888. *Terebratula (?) inconstans*. Herrick, Bull. Den. Univ., vol. 4, p. 24, pl. 3, figs. 8, 9; pl. 11, fig. 18.

Waverly Group: Moot's Run, Licking County, and Lodi, Medina County, Ohio.

1895. *Terebratula inconstans*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 17. Cuyahoga Shale: Richland County, Lodi, Moot's Run, etc., Ohio.

1895. *Cryptonella (?) inconstans*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 79, figs. 31, 32.

Waverly Group: Medina County, Ohio.

Cryptonella subelliptica Hall and Clarke.

1895. *Cryptonella subelliptica*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 41-43.

Waverly Group: Sciotovalle, Ohio.

1897. *Cryptonella subelliptica*. Hall, 14th Rep. N. Y. State Geol., p. 371, pl. 14, figs. 4-6.

Waverly Group: Sciotovalle, Ohio.

CRYPTOZOE Packard, 1886.**Cryptozoe problematicus** Packard.

1886. *Cryptozoe problematicus*. Packard, Proc. Am. Phil. Soc., vol. 23, p. 381, figs. 1-3.

Carboniferous: Mazon Creek, Illinois.

(CTENODONTA Salter, 1851.)

Ctenodonta houghtoni. See *Nucula houghtoni*.

Ctenodonta hubbardi. See *Palaeoneilo sulcatina*.

Ctenodonta iowensis. See *Nucula houghtoni*.

Ctenodonta stella. See *Nucula stella*.

CUCUMULITES Gurley, 1884.

Cucumulites tricarinatus Gurley.

1884. *Cucumulites tricarinatus*. Gurley, New Carb. Foss., Bull. No. 2, p. 3.
Warsaw beds: Ellettsville, Indiana.

Cucumulites tuberculatus Gurley.

1884. *Cucumulites tuberculatus*. Gurley, New Carb. Foss., Bull. No. 2, p. 3.
Warsaw beds: Ellettsville, Indiana.

CYATHAXONIA Michelin, 1846.

Cyathaxonia cynodon Rafinesque and Clifford.

- *1820. *Turbinolia cynodon*. Rafinesque and Clifford, Ann. génér. de Phys. de Bruxelles, tome 5, p. 234.
1851. *Cyathaxonia cynodon*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 321, pl. 1, figs. 4, 4a.
Carboniferous: Hills south of Louisville; Jefferson County; Pittsburg, Pennsylvania.
1860. *Cyathaxonia cynodon*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 330.
Carboniferous: North America at Pittsburg, and near Louisville.

Cyathaxonia distorta Worthen.

1875. *Cyathaxonia distorta*. Worthen, Geol. Surv. Ill., vol. 6, p. 526, pl. 32, fig. 4.
Coal Measures: Cumberland County, Illinois.

Cyathaxonia profunda Milne-Edwards and Haime. See *Lophophyllum profundum*.*Cyathaxonia prolifera* McChesney. See *Lophophyllum profundum*.

CYATHOCRINUS Miller, 1821.

Cyathocrinus andersoni Miller and Gurley.

1894. *Cyathocrinus andersoni*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 30, pl. 3, figs. 2, 3.
Keokuk Group: Keokuk, Iowa.

Cyathocrinus angulatus. See *Barycrinus angulatus*.*Cyathocrinus arboreus* Meek and Worthen.

1865. *Cyathocrinus arboreus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 160.
Keokuk Group: Crawfordsville, Indiana.
1868. *Cyathocrinus arboreus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 520.
Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus barrisi Hall.

1861. *Poteriocrinus barrisi*. Hall, Desc. New Spec. Crin., p. 6.
Burlington L. S.
1861. *Poteriocrinus Barrisi*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 303.
Burlington L. S.: Burlington, Iowa.

Cyathocrinus barydactylus Wachsmuth and Springer.

1878. *Cyathocrinus barydactylus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 257.
Upper Burlington L. S.: Near Burlington, Iowa.

Cyathocrinus blairi Miller and Gurley.

1895. *Cyathocrinus blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 67, pl. 4, figs. 11-15.
Chouteau L. S.: Sedalia, Missouri.

Cyathocrinus blairi Miller and Gurley—Continued.

1896. *Cyathocrinus blairi*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 50, pl. 3, figs. 21, 22.
Chouteau L. S.: Sedalia, Missouri.
1896. *Cyathocrinus blairi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 39.

Cyathocrinus boonvillensis Miller.

1891. *Cyathocrinus Boonvillensis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 29, pl. 4, figs. 3, 4.
Keokuk Group: Boonville, Missouri.
1894. *Cyathocrinus boonvillensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 208.
Keokuk L. S.: Boonville, Missouri.

Cyathocrinus brittsi Miller and Gurley.

1895. *Cyathocrinus brittsi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 70, pl. 4, figs. 35, 36.
Burlington Group: Sedalia, Missouri.

Cyathocrinus bullatus. See *Barycrinus bullatus*.**Cyathocrinus chouteauensis** Miller and Gurley.

1895. *Cyathocrinus chouteauensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 68, pl. 4, fig. 16.
Chouteau L. S.: Sedalia, Missouri.
1896. *Cyathocrinus chouteauensis*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 38, pl. 2, fig. 24.
Chouteau L. S.: Sedalia, Missouri.

Cyathocrinus cornutus. See *Barycrinus cornutus*.**Cyathocrinus crassibrachiatus**. See *Barycrinus crassibrachiatus*.**Cyathocrinus crassus**. See *Eupachycrinus crassus*.**Cyathocrinus crawfordsvillensis** Miller.

1882. *Cyathocrinus crawfordsvillensis*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 79, pl. 3, fig. 1.
Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus dekadactylus. See *Scytalocrinus grandis*.**Cyathocrinus divaricatus**. See *Cyathocrinus iowensis*.**Cyathocrinus enormis** Meek and Worthen.

1861. *Poteriocrinus? enormis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 137.
Burlington L. S.: Burlington, Iowa.
1865. *Cyathocrinus enormis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 152.
1868. *Cyathocrinus enormis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 481, pl. 16, figs 3a, b.
Burlington Group: Burlington, Iowa.
1894. *Cyathocrinus enormis*. Keyes, Mo. Geol. Surv., vol. 4, p. 208, pl. 25, fig. 12.
Lower Burlington, L. S.: Hannibal, Missouri.

Cyathocrinus faberi Miller and Gurley.

1896. *Cyathocrinus faberi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 85, pl. 5, figs. 12-15.
Burlington Group: Burlington, Iowa.

Cyathocrinus farleyi Meek and Worthen.

1866. *Cyathocrinus Farleyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 252.
Keokuk Group: Warsaw, Illinois.
1868. *Cyathocrinus Farleyi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 517, pl. 20, figs. 1a-c.
Keokuk Group: Warsaw, Illinois.

Cyathocrinus florealis. See *Zeacrinus florealis*.

***Cyathocrinus fragilis* Meek and Worthen.**

1868. *Cyathocrinites fragilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 237.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Cyathocrinites fragilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 401, pl. 2, fig. 14.

Burlington, L. S.: Burlington, Iowa.

***Cyathocrinus gilesii* Wachsmuth and Springer.**

1878. *Cyathocrinus Gilesii*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 259.

Upper Burlington, L. S.: Near Burlington, Iowa.

***Cyathocrinus gorbyi* Miller.**

1892. *Cyathocrinus gorbyi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 44, pl. 5, figs. 6-8.

Keokuk Group: Gosport, Indiana.

1894. *Cyathocrinus gorbyi*. Miller, 18th Rep. Geol. Surv. Ind., p. 298, pl. 5, figs. 6-8. Keokuk Group: Gosport, Indiana.

***Cyathocrinus granuliferus* Shumard.**

1854. *Cyathocrinus granuliferus*. Shumard, Marcy's Expl. Red River of Louis., p. 173.

Carboniferous: Washington County, Arkansas.

***Cyathocrinus gurléyi* Miller.**

1891. *Cyathocrinus gurléyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 47, pl. 9, fig. 4.

Keokuk Group: Washington County, Indiana.

1892. *Cyathocrinus gurléyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 657, pl. 9, fig. 4.

Keokuk Group: Washington County, Indiana.

Cyathocrinus hamiltonensis. See *Cyathocrinus parvibrachiatus*.

***Cyathocrinus harrisi* Miller.**

1880. *Cyathocrinus harrisi*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 255, pl. 15, fig. 2.

Keokuk Group: Crawfordsville, Indiana.

***Cyathocrinus harrodi* Wachsmuth and Springer.**

1879. *Cyathocrinus Harrodi*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 310 (Rev. Palæocr., I, p. 87.)

Keokuk L. S.: Canton, Indiana.

Cyathocrinus hexadactylus. See *Vasocrinus hexadactylus*.

Cyathocrinus hoveyi. See *Barycrinus hoveyi*.

***Cyathocrinus incipiens* Hall.**

1861. *Cyathocrinus incipiens*. Hall, Desc. New Spec. Crin., p. 5.

Burlington L. S.

1861. *Cyathocrinus incipiens*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 296.

Burlington L. S.: Burlington, Iowa.

Cyathocrinus inequidactylus. See *Cyathocrinus maxvillensis*.

Cyathocrinus inflexus. See *Ceriacrinus inflexus*.

***Cyathocrinus insperatus* Lyon.**

1869. *Cyathocrinus insperatus*. Lyon, Trans. Am. Phil. Soc., vol. 8, p. 457, pl. 27, fig. K.

Subcarboniferous siliceous sandstone: Crawfordsville, Montgomery County, Indiana.

Cyathocrinus intermedius. See *Parisocrinus intermedius*.

***Cyathocrinus iowensis* Owen and Shumard.**

1850. *Cyathocrinus Iowensis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 63, pl. 7, fig. 11.
Carboniferous L. S.: Burlington, Iowa.
1852. *Cyathocrinus iowensis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 591, tab. 5A, figs. 11a-c.
Carboniferous L. S.: Burlington, Iowa.
1858. *Cyathocrinus malvaceus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 554, pl. 9, figs. 4a, b.
Burlington L. S.: Burlington, Iowa.
1858. *Cyathocrinus divaricatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 554, pl. 9, fig. 5.
Burlington L. S.: Burlington, Iowa.
1861. *Cyathocrinus viminalis*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Cyathocrinus viminalis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 299.
Burlington L. S.: Burlington, Iowa.
1893. *Cyathocrinus viminalis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 28, pl. 3, fig. 7.
Burlington L. S.: Burlington, Iowa.
1894. *Cyathocrinus iowensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 207, pl. 25, fig. 11.
Burlington L. S.: Louisiana and Sedalia, Missouri.

Cyathocrinus kelloggi. See *Barycrinus kelloggi*.

***Cyathocrinus labyrinthicus* Miller.**

1891. *Cyathocrinus labyrinthicus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 49, pl. 12, figs. 11-14.
Keokuk Group: Boonville, Missouri.
1891. *Cyathocrinus labyrinthicus*. Miller, 17th Rep. Geol. Surv. Ind., p. 659, pl. 12, figs. 11-14.
Keokuk Group: Boonville, Missouri.

Cyathocrinus læviculus. See *Poteriocrinus læviculus*.

***Cyathocrinus lamellosus* White.**

1862. *Cyathocrinus lamellosus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 504.
Burlington L. S.: Burlington, Iowa.

Cyathocrinus latus. See *Barycrinus sculptilis*.

Cyathocrinus lyoni. See *Vasocrinus hexadactylus*.

***Cyathocrinus macadamsi* Miller and Gurley.**

1895. *Cyathocrinus macadamsi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 69, pl. 4, figs. 31, 32.
St. Louis Group: Alton, Illinois.

Cyathocrinus macropleurus. See *Vasocrinus macropleurus*.

Cyathocrinus magister. See *Barycrinus magister*.

Cyathocrinus magnoliæformis. See *Zeacrinus magnoliæformis*.

Cyathocrinus malvaceus. See *Cyathocrinus iowensis*.

Cyathocrinus manifoldis. See *Eupachycrinus manifoldis*.

***Cyathocrinus marshallensis* Worthen.**

1882. *Cyathocrinus? marshallensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 33.
Kinderhook Group: Marshalltown, Iowa.
1883. *Cyathocrinus Marshallensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 310, pl. 30, fig. 4.
Kinderhook Group: Marshalltown, Iowa.

Cyathocrinus maxvillensis Whitfield.

1882. *Cyathocrinus inequidactylus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 219.
(Not. *C. inequidactylus* McCoy, 1844.)
Maxville L. S.: Newtonville, Ohio.
1891. *Cyathocrinus Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 577,
pl. 13, figs. 5-8.
Maxville L. S.: Newtonville, Ohio.
1895. *Cyathocrinus Maxvillensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 465, pl. 9,
figs. 5-8.
Maxville L. S.: Newtonville, Ohio.

Cyathocrinus meekianus. See *Barycrinus meekianus*.

Cyathocrinus multibrachiatus Lyon and Casseday.

1859. *Cyathocrinus multibrachiatus*. Lyon and Casseday, Am. Jour. Sci. (2),
vol. 28, p. 245.
Subcarboniferous: Montgomery County, Indiana.
1872. *Cyathocrinus multibrachiatus*. Hall, Photo. Plates of Crin., pl. 5, figs. 3-6.
1882. *Cyathocrinus multibrachiatus*. White, 11th Rep. Geol. Surv. Ind., p. 367, pl.
39, fig. 1.
Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus opimus Miller and Gurley.

1890. *Cyathocrinus opimus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 348,
pl. 5, fig. 5.
Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus parvibrachiatus Hall.

1861. *Cyathocrinus parvibrachiatus*. Hall, Desc. New. Spec. Crin., p. 6.
Keokuk L. S.
1861. *Cyathocrinus parvibrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 294.
Keokuk L. S.: Keokuk, Iowa.
1872. *Cyathocrinus parvibrachiatus*. Hall, Photo. Plates of Crin., pl. 5, figs. 1, 2.
1882. *Cyathocrinus hamiltonensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist.,
p. 32.
Upper Keokuk L. S.: Hamilton, Illinois.
1883. *Cyathocrinus parvibrachiatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 309, pl. 28,
fig. 5.
Keokuk L. S.: Hamilton, Illinois.

Cyathocrinus pentalobus. See *Eupachycrinus quatuor-decembrachialis*.

Cyathocrinus poterium Meek and Worthen.

1870. *Cyathocrinites? poterium*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 24.
Keokuk Group: Crawfordsville, Indiana.
1873. *Cyathocrinites poterium*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 489,
pl. 12, fig. 4.
Keokuk Group: Crawfordsville, Indiana.

Cyathocrinus protuberans. See *Barycrinus bullatus*.

Cyathocrinus quinquelobus. See *Barycrinus stellatus*.

Cyathocrinus rigidus White.

1862. *Cyathocrinus rigidus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 8.
Lower Burlington L. S.: Burlington, Iowa.

Cyathocrinus rotundatus Hall.

1858. *Cyathocrinus rotundatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 555, pl. 9, figs. 7a, b.
Burlington L. S.: Quincy, Illinois.
1860. *Cyathocrinus rotundus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 8.

Cyathocrinus saffordi Meek and Worthen.

1860. *Cyathocrinus Saffordi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 391.
Keokuk L. S.: White's Creek, Tennessee.
1866. *Cyathocrinus saffordi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 236,
pl. 17, figs. 5a, b.
Keokuk L. S.: White's Creek Springs, Tennessee.

Cyathocrinus sampsoni Miller.

1891. *Cyathocrinus Sampsoni*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 30, pl. 4,
figs. 9, 10.
Burlington Group: Sedalia, Missouri.

Cyathocrinus sangamonensis. See *Cromyocrinus sangamonensis*.

Cyathocrinus scitulus. See *Barycrinus sculptilis*.

Cyathocrinus sculptilis. See *Barycrinus sculptilis*.

Cyathocrinus signatus Miller and Gurley.

1894. *Cyathocrinus signatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 32, pl. 6, fig. 10.
Keokuk Group: Washington County, Indiana.

Cyathocrinus solidus. See *Barycrinus solidus*.

Cyathocrinus somersi Whitfield.

1882. *Cyathocrinus Somersi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 226.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1891. *Cyathocrinus Somersi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 596, pl. 15,
figs. 4, 5.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1895. *Cyathocrinus Somersi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 482, pl. 11,
figs. 4, 5.
Coal Measures: Carbon Hill, Hocking County, Ohio.

Cyathocrinus spurius. See *Barycrinus spurius*.

Cyathocrinus stellatus. See *Barycrinus stellatus*.

Cyathocrinus stillativus White.

1880. *Cyathocrinus stillativus*. White, Proc. U. S. Nat. Mus., vol. 2, p. 258, pl. 1,
figs. 9, 10.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1880. *Cyathocrinus stillativus*. White, Cont. to Inv. Pal., No. 6, p. 125, pl. 35,
figs. 3a, b.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1894. *Phialocrinus stillativus*. Keyes, Mo. Geol. Surv., vol. 4, p. 219, pl. 28,
figs. 6a, b.
Upper Coal Measures: Kansas City, Missouri.

Cyathocrinus subtumidus Meek and Worthen.

1865. *Cyathocrinus subtumidus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 151.
Keokuk L. S.: Near White Hall, Green County, Illinois.
1873. *Barycrinus subtumidus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 487,
pl. 13, fig. 3.
Keokuk L. S.: Near Whitehall, Green County, Illinois.

Cyathocrinus tenuidactylus Meek and Worthen.

1868. *Cyathocrinites tenuidactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 237.
Lower Burlington Group: Burlington, Iowa.

Cyathocrinus tenuidactylus Meek and Worthen—Continued.

1873. *Cyathocrinites tenuidactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 403, pl. 2, fig. 15.

Burlington L. S.: Burlington, Iowa.

Cyathocrinus thomæ. See *Barycrinus thomæ*.

Cyathocrinus tumidulus Miller and Gurley.

1894. *Cyathocrinus tumidulus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 31, pl. 3, fig. 7.

Keokuk Group: Indian Creek, near Crawfordsville, Indiana.

Cyathocrinus tumidus. See *Barycrinus tumidus*.

Cyathocrinus viminalis. See *Cyathocrinus iowensis*.

Cyathocrinus wachsmuthi. See *Barycrinus wachsmuthi*.

Cyathocrinus (species undetermined).

1859. *Cyathocrinus* — ? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
Upper Coal Measures: Cottonwood Creek, Kansas.

CYATHOPHYLLUM Goldfuss, 1826.**Cyathophyllum billingsi** Dawson.

1868. *Cyathophyllum Billingsi*. Dawson, Acad. Geol., p. 287, fig. 84b.

Carboniferous L. S.: Stewiacke, Nova Scotia.

Cyathophyllum flexuosum. See *Campophyllum torquium*.

Cyathophyllum fungites. See *Zaphrentis dalei*.

Cyathophyllum glabrum Keyes.

1894. *Cyathophyllum glabrum*. Keyes, Mo. Geol. Surv., vol. 4, p. 105, pl. 12, figs. 6a, b.

Chouteau L. S.: Curryville, Missouri.

Cyathophyllum nevadense Meek.

1877. *Cyathophyllum* (*Campophyllum* ?) *Nevadense*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 60, pl. 5, figs. 3-3b.

Carboniferous: Boxelder Peak, Wasatch Range, Utah.

Cyathophyllum subcæspitosum Meek.

1877. *Cyathophyllum subcæspitosum*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 60, pl. 5, figs. 4-4b.

Carboniferous: Near Swansea, White Pine District, Nevada.

1873. *Cyathophyllum subcæspitosum*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 470.

Carboniferous: Divide between Ross Fork and Lincoln Valley, Montana.

Cyathophyllum torquium. See *Campophyllum torquium*.

Cyathophyllum vermiculare. See *Campophyllum torquium*.

CYCLONEMA Hall, 1852.**Cyclonema levenworthanum** Hall.

1856. *Pleurotomaria Levenworthana*. Hall, Trans. Albany Inst., vol. 4, p. 24.

St. Louis, L. S.: Spërger Hill and Bloomington, Indiana; Alton, Illinois.

1882. *Cyclonema Levenworthana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 75, pl. 8, figs. 29-31.

St. Louis Group: Spërger Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Cyclonema Levenworthana*. Hall, 12th Rep. Geol. Surv. Ind., p. 363, pl. 31, figs. 29-31.

St. Louis Group: Alton, Illinois; Spërger Hill, Lanesville, and Bloomington, Indiana.

Cyclonema levenworthanum Hall—Continued.

1888. *Cyclonema levenworthana*? Herriek, Bull. Den. Univ., vol. 3, p. 86, pl. 1, fig. 20.

Waverly Group: Licking County, Ohio.

Cyclonema pulchellum Miller and Gurley.

1896. *Cyclonema pulchellum*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 19, pl. 3, fig. 6.

Knobstone Group: Near New Albany, Indiana.

Cyclonema strigillata. See *Pleurotomaria strigillata*.

Cyclonema subangulatum Hall.

1856. *Pleurotomaria subangulata*. Hall, Trans. Albany Inst., vol. 4, p. 25.
St. Louis L. S.: Spergen Hill, Indiana.

1882. *Cyclonema subangulatum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 76, pl. 8, fig. 32.

St. Louis Group: Spergen Hill, Indiana.

1883. *Cyclonema subangulatum*. Hall, 12th Rep. Geol. Surv. Ind., p. 364, pl. 31, fig. 32.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Cyclonema (species undetermined).

1888. *Cyclonema*? Herriek, Bull. Den. Univ., vol. 3, pl. 8, fig. 17.

Waverly Group: Licking County, Ohio.

CYCLOPORA Prout, 1860.

Cyclopora discoidea. See *Proutella discoidea*.

Cyclopora expatiata Ulrich.

1890. *Cyclopora expatiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 673, pl. 68, figs. 4-4d.

Keokuk Group: Warsaw and Nauvoo, Illinois.

1894. *Cyclopora expatiata*. Keyes, Mo. Geol. Surv., vol. 5, p. 37.

Keokuk Group: Warsaw, Illinois.

Cyclopora fungia Prout.

1860. *Cyclopora fungia*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 577.

Keokuk L. S.: St. Francisville, Missouri.

1866. *Cyclopora fungia*. Prout, Geol. Surv. Ill., vol. 2, p. 419, pl. 22, figs. 9-9b.

Keokuk Group: St. Francisville, Missouri.

1890. *Cyclopora fungia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 671, pl. 68, figs. 3-3g.

Keokuk and Warsaw beds: Illinois and Iowa.

1894. *Cyclopora fungia*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.

Keokuk L. S.: St. Francisville, Missouri.

Cyclopora polymorpha. See *Stenopora tuberculata*.

CYCLOPORELLA Ulrich, 1890.**Cycloporella ? perversa Ulrich.**

1890. *Cycloporella ? perversa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 676, pl. 69, figs. 3-3b.

Keokuk Group: Warsaw, Illinois; Green County, Illinois; Bentonsport, Iowa.

1894. *Cycloporella perversa*. Keyes, Mo. Geol. Surv., vol. 5, p. 37.

Keokuk L. S.: Bentonsport, Iowa.

Cycloporella spinifera Ulrich.

1890. *Cycloporella spinifera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 675, pl. 69, figs. 1-1c.

Keokuk Group: Warsaw, Illinois.

1894. *Cycloporella spinifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 37.

Keokuk L. S.: Warsaw, Illinois.

CYCLUS De Koninck, 1841.

Cyclus americanus Packard.

1885. *Cyclus americanus*. Packard, Am. Nat., vol. 19, p. 292.

Carboniferous: Mazon Creek, Illinois.

1886. *Cyclus americana*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 143, pl. 5, figs. 1, 1a; pl. 6, figs. 4, 4a.

Carboniferous: Mazon Creek, Illinois.

(CYPRICARDELLA Hall, 1858.)

Cypricardella eximia. See *Microdon?* *eximia*.

Cypricardella gorbui. See *Microdon?* *gorbui*.

Cypricardella nucleata. See *Microdon nucleata*.

Cypricardella oblonga. See *Microdon oblonga*.

Cypricardella plicata. See *Goniophora plicata*.

Cypricardella quadrata. See *Microdon quadrata*.

Cypricardella subelliptica. See *Microdon subelliptica*.

CYPRICARDIA Lamark, 1801.

Cypricardia chouteauensis Swallow.

1863. *Cypricardia* (?) *Chouteauensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 96.

Chouteau L. S.: Cooper County, Missouri.

Cypricardia indianensis. See *Cypricardinia indianensis*.

Cypricardia insecta Dawson.

1868. *Cypricardia insecta*. Dawson, Acad. Geol., p. 303, fig. 106.

Carboniferous L. S.: Windsor, Nova Scotia.

Cypricardia occidentalis Hall.

1852. *Cypricardia occidentalis*. Hall, Stansb. Exped. Gt. Salt Lake, p. 412, pl. 2, fig. 2.

Carboniferous: Big Blue River.

Cypricardia occidentalis Swallow. See *Cypricardia swallowana*.

Cypricardia pikensis Swallow.

1863. *Cypricardia* (?) *Pikensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 95.

Coal Measures: Pike County, Missouri.

Cypricardia plicatula Swallow.

1858. *Cypricardia plicatula*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 205.

Lower Coal Measures: Howard County, Missouri.

Middle Coal Measures: Platte County, Missouri.

Coal Measures: Kansas.

Cypricardia randolphensis. See *Sanguinolites randolphensis*.

Cypricardia rigida. See *Sphenotus rigidus*.

Cypricardia shumardana Swallow.

1863. *Cypricardia* (?) *Shumardiana*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 95.

Ste. Genevieve L. S.: Back of Prairie du Rocher, Illinois.

Cypricardia subplana. See *Edmondia subplana*.

Cypricardia swallovana Miller.

1863. *Cypricardia* (?) *occidentalis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 96. (Not *C. occidentalis* Hall, 1852.)

Harrison County, Missouri.

1883. *Cypricardia swallovana*. Miller, Am. Pal. Foss., 2d ed., p. 310.

Cypricardia undulata Gurley.

1883. *Cypricardia undulata*. Gurley, New Pal. Foss., Bull. No. 1, p. 3.

Lower Coal Measures: Newport, Vermilion County, Indiana.

Cypricardia ventricosa Hall.

1860. *Cypricardia ventricosa*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 110.

Goniatite L. S.: Rockford, Indiana.

Cypricardia wheeleri. See *Schizodus wheeleri*.**CYPRICARDINIA** Hall, 1859.**Cypricardina carbonaria** Meek.

1871. *Cypricardina*? *carbonaria*. Meek, Proc. Acad. Nat. Sci. Phil., p. 163.

Lower Coal Measures: Newark, Ohio.

1875. *Cypricardina*? *carbonaria*. Meek, Pal. Ohio, vol. 2, p. 342, pl. 19, figs. 8a, b.

Lower Coal Measures: Newark, Ohio.

1887. *Cypricardina* (?) *carbonaria*. Herrick, Bull. Den. Univ., vol. 2, p. 35, pl. 4, figs. 17, 18.

Coal Measures: Flint Ridge, Ohio.

Cypricardina consimilis Hall.

1885. *Cypricardina consimilis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 486, pl. 79, figs. 18-21; pl. 96, fig. 3.

Waverly S. S.: Licking and Medina counties, Ohio; Warren, Pennsylvania.

Cypricardina indianensis Hall.

1856. *Cypricardina Indianensis*. Hall, Trans. Albany Inst., vol. 4, p. 18.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Cypricardina* (?) *Indianensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 58, pl. 7, figs. 10-14.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Cypricardina Indianensis*. Hall, 12th Rep. Geol. Surv. Ind., p. 342, pl. 30, figs. 10-14.

St. Louis Group: Alton, Illinois; Spergen Hill, Bloomington, and Lanesville, Indiana.

Cypricardina scitula Herrick.

1888. *Cypricardina* (*Microdon*?) *scitula*. Herrick, Bull. Den. Univ., vol. 4, p. 38, pl. 6, fig. 8.

Waverly Group: Moot's Run, Licking County, Ohio.

1891. *Cypricardina* (cf. *scitula*). Herrick, Bull. Geol. Soc. Am., vol. 2, p. 46, pl. 1, fig. 15.

Upper Waverly Group: Scioto County, Ohio.

1895. *Cypricardina scitula*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 8.

Cuyahoga Shale: Moot's Run, Licking County, Ohio.

Cypricardina sulcifera Winchell.

1863. *Sanguinolites sulciferus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 14.

Yellow S. S.: Burlington, Iowa.

1885. *Cypricardina sulciferus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 487, pl. 79, fig. 22.

Yellow S. S.: Burlington, Iowa.

Cypricardina (species undetermined).

1888. *Cypricardina*? sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 43.

Waverly Group: Rushville, Ohio.

(CYPRICARDITES Conrad, 1841.)

Cypricardites (species undetermined).

1895. *Cypricardites* sp.? Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 7.
Highest horizon of Waverly Group: Rushville, Ohio.

CYPRIDINA Milne-Edwards, 1838.

Cypridina herzeri Ulrich.

1891. *Cypridina herzeri*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 209, pl. 14, figs. 9a-c.
Near top of Waverly Group: Richfield, Ohio.

(CYRTIA Dalman, 1827.)

Cyrtia acutirostris. See *Cyrtina acutirostris*.*Cyrtia gigas*. See *Syringothyris gigas*.

CYRTINA Davidson, 1858.

Cyrtina acutirostris Shumard.

1855. *Cyrtia acutirostris*. Shumard, Geol. Rep. Mo., p. 204, pl. C, figs. 3a-c.
Lithographic L. S.: Hannibal and Louisiana, Missouri.
1888. *Cyrtina acutirostris*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 20.
Waverly Group: Lodi, Ohio.
1894. *Cyrtina acutirostris*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 29, fig. 18.
Chouteau L. S.: Pike County, Missouri.
1894. *Cyrtina acutirostris*. Keyes, Mo. Geol. Surv., vol. 5, p. 89, pl. 89, figs. 10a, b.
Louisiana L. S.: Louisiana and Hannibal, Missouri.
1895. *Cyrtina acutirostris*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 28, figs. 38-42, 44, 54.
Chouteau L. S.: Pike County, Missouri.

Cyrtina burlingtonensis Rowley.

1893. *Cyrtina burlingtonensis*. Rowley, Am. Geol., vol. 12, p. 308, pl. 14, figs. 15-17.
Lower Burlington L. S.: Louisiana, Missouri.

Cyrtina lachrymosa Hall.

1894. *Cyrtina lachrymosa*. Hall, 13th Ann. Rep. N. Y. State Geol., p. 650.
Waverly Group: Richfield, Ohio.
1894. *Cyrtina lachrymosa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 29, fig. 21.
Waverly Group: Richfield, Ohio.
1895. *Cyrtina lachrymosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 362, pl. 28, figs. 36, 37, 47.
Waverly Group: Richfield, Ohio.
1897. *Cyrtina lachrymosa*. Hall, 14th Rep. N. Y. State Geol., p. 358, pl. 8, figs. 1-3.
Waverly Group: Richfield, Ohio.

Cyrtina neogenes Hall and Clarke.

1895. *Cyrtina* sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 39, figs. 25-28.
Burlington L. S. (chert beds): Burlington, Iowa.
1895. *Cyrtina neogenes*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 84, fig. 41.
Chert of Burlington, L. S.: Burlington, Iowa.
1897. *Cyrtina neogenes*. Hall, 14th Rep. N. Y. State Geol., p. 372, pl. 8, figs. 4-8.
Chert of Burlington L. S.: Burlington, Iowa.

Cyrtina (species undetermined).

1888. *Cyrtina* sp. Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 8, fig. 18.
Waverly Group: Licking County, Ohio.

CYRTOCERAS Goldfuss, 1832.**Cyrtoceras ashmanni Miller.**

1889. *Cyrtoceras ashmanni*. Miller, N. A. Geol. and Pal., p. 433, fig. 728.
Warsaw Group: Spergen Hill, Indiana.

Cyrtoceras cessator Hall and Whitfield.

1877. *Cyrtoceras cessator*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4,
p. 278, pl. 6, fig. 15.
Coal Measures: Near Eberhardt Mill, White Pine, Nevada.

Cyrtoceras curtum Meek and Worthen.

1860. *Cyrtoceras curtum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 468.
Coal Measures: Grayville, Illinois.
1861. *Cyrtoceras (Aploceras) curtum*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 148.
1866. *Cyrtoceras (Aploceras) curtum*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 388, pl. 30, figs. 1a-c.
Upper Coal Measures; Grayville, Illinois.

Cyrtoceras dilatatum Meek and Worthen.

1860. *Cyrtoceras? dilatatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 468.
Upper Coal Measures: Near Springfield, Illinois.
1866. *Cyrtoceras? dilatatum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 389,
pl. 29, fig. 2.
Upper Coal Measures: Springfield, Illinois.

Cyrtoceras dorsatum Swallow.

1858. *Cyrtoceras dorsatum*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 197.
Permian: Near Smoky Hill Fork, Kansas.

Cyrtoceras kansasense Miller and Gurley.

1895. *Cyrtoceras kansasense*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat.
Hist., p. 88, pl. 5, figs. 5-7.
Upper Coal Measures: Kansas City, Missouri.

Cyrtoceras rockfordense Winchell.

1865. *Cyrtoceras Rockfordense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.
Marshall Group: Rockford, Indiana.

Cyrtoceras tessellatum Winchell.

1862. *Cyrtoceras tessellatum?* Winchell, Am. Jour. Sci. (2), vol. 33, p. 362. (Not
C. tessellatum De Koninck, 1844.)
Marshall S. S.

Cyrtoceras unicorne Winchell.

1863. *Cyrtoceras unicorne*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 23.
Yellow S. S.: Burlington, Iowa.

CYRTOLITES Conrad, 1838.**Cyrtolites gillanus White and St. John.**

1868. *Cyrtolites? Gillianus*. White and St. John, Trans. Chicago Acad. Sci., vol.
1, p. 123, fig. 8.
Upper Coal Measures: Madison County, Iowa.

CYSTELASMA Miller, 1891.

Cystelasma lanesvillense Miller.

1891. *Cystelasma lanesvillense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 13, pl. 1, figs. 15, 16.
Warsaw Group: Lanesville, Indiana.
1892. *Cystelasma lanesvillense*. Miller, 17th Rep. Geol. Surv. Ind., p. 623, pl. 1, figs. 15, 16.
Warsaw Group: Lanesville, Indiana.

CYSTODICTYA Ulrich, 1882.

Cystodictya americana Ulrich.

1890. *Cystodictya americana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 494, pl. 76, figs. 5, 5a.
Keokuk Group: King's Mountain Tunnel, Kentucky; Bentonsport, Iowa.
1894. *Cystodictya americana*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Keokuk L. S.: Bentonsport, Iowa.

Cystodictya angusta Ulrich.

1888. *Cystodictya angusta*. Ulrich, Bull. Den. Univ., vol. 4, p. 82, pl. 14, fig. 20.
Waverly Group: Moot's Run, Licking County, Ohio.

Cystodictya carbonaria Meek.

1871. *Ptilodictya (Stictopora) carbonaria*. Meek, Proc. Acad. Nat. Sci. Phil., p. 160.
Lower Coal Measures: Newark, Ohio.
1875. *Ptilodictya (Stictopora) carbonaria*. Meek, Pal. Ohio, vol. 2, p. 328, pl. 20, figs. 3a, b.
Coal Measures: Newark, Ohio.
1887. *Cystodictya carbonaria*. Foerste, Bull. Den. Univ., vol. 2, p. 74, pl. 7, figs. 2a-c.
Coal Measures: Bald Hill, Ohio.

Cystodictya lineata Ulrich.

1884. *Cystodictya lineata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 37, pl. 2, figs. 4-4c.
Keokuk Group: King's Mountain tunnel, Kentucky.

Cystodictya lineata, var. *major* Ulrich.

1890. *Cystodictya lineata*, var. *major*. Ulrich, Geol. Surv. Ill., vol. 8, p. 495, pl. 76, fig. 3.
? St. Louis L. S.: ? Alton, Illinois.

Cystodictya nitida Ulrich.

1890. *Cystodictya nitida*. Ulrich, Geol. Surv. Ill., vol. 8, p. 493, pl. 76, figs. 4-4c.
Keokuk Group: Bentonsport, Iowa.
1894. *Cystodictya nitida*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Keokuk L. S.: ? St. Francisville, Missouri; Bentonsport, Iowa.

Cystodictya ocellata Ulrich.

1882. *Cystodictya ocellata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 170, pl. 8, figs. 3, 3a.
? Keokuk Group: Near Somerset, Kentucky.
1884. *Cystodictya ocellata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, pl. 2, figs. 3, 3a.

Cystodictya pustulosa Ulrich.

1890. *Cystodictya pustulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 495, pl. 76, figs. 2, 2a.
Keokuk Group: King's Mt. Tunnel, Kentucky; Keokuk, Iowa; Nauvoo, Illinois.
1894. *Cystodictya pustulosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Keokuk L. S.: Keokuk, Iowa.

Cystodictya simulans Ulrich.

1888. *Cystodictya simulans*. Ulrich, Bull. Den. Univ., vol. 4, p. 81, pl. 13, fig. 10.
 Waverly Group: Moot's Run, Licking County, Ohio.
 Keokuk Group: Warsaw, Illinois; Keokuk, Iowa.

Cystodictya zigzag Ulrich.

1888. *Cystodictya zigzag*. Ulrich, Bull. Den. Univ., vol. 4, p. 81, pl. 13, figs. 11, 11a.
 Cuyahoga Shale: Richfield, Ohio.
 Keokuk Group: Keokuk, Iowa.

Cystodictya (species undetermined).

1888. *Cystodictya*, sp. undet. Ulrich, Bull. Den. Univ., vol. 4, p. 83.
 Waverly Group: Moot's Run, Licking County, Ohio.

CYTHERE Müller, 1785.**Cythere americana Shumard.**

1858. *Cythere (Beyrichia) Americana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 227.
 Upper Coal Measures: Valley of Verdigris River, Kansas.

Cythere carbonaria. See Leperditia carbonaria.**Cythere crassimarginata Winchell.**

1862. *Cythere crassimarginata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 429.
 Marshall S. S.: Battle Creek, Liberty, Moscow, Pointe aux Barques, and near Napoleon, Michigan.
 1865. *Cythere crassimarginata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.
 Marshall Group: Hillsdale, Michigan.
 1870. *Cythere crassimarginata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
 Waverly Group: Rockville, Ohio.

Cythere cyclas. See Cythere nebrascensis.**Cythere nebrascensis Geinitz.**

1866. *Cythere Nebrascensis*. Geinitz, Carb. und Dyas in Nebr., p. 2, tab. 1, fig. 2.
 Nebraska City, Nebraska.
 1866. *Cythere Cyclas?* var. Geinitz, Carb. und Dyas in Nebr., p. 2, tab. 1, figs. 3, 4. (Not *C. cyclas* of v. Keyserling.)
 Nebraska City, Nebraska.
 1872. *Cythere Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 237, pl. 11, figs. 2, ? 3a, b.
 Upper Coal Measures: Nebraska City, Nebraska.
 1888. *Cythere nebrascensis?* Keyes, Proc. Acad. Nat. Sci. Phil., p. 243.
 Lower Coal Measures: Des Moines, Iowa.
 1891. *Cythere nebrascensis*. White, Bull. U. S. Geol. Surv., No. 77, p. 30, pl. 4, fig. 20.
 Permian: Military Crossing, Baylor County, Texas.

Cythere ohioensis Herrick.

1888. Ostracode crustacean. Herrick, Bull. Den. Univ., vol. 3, pl. 3, fig. 19.
 Waverly Group: Licking County, Ohio.
 1888. *Cythere ohioensis*. Herrick, Bull. Den. Univ., vol. 4, p. 60, pl. 8, fig. 8.
 Waverly Group: Ashland County, Newark and Rushville, Ohio.
 1895. *Cythere ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 8.
 Keokuk Group: Rushville, Ohio.

Cythere simplex White and St. John.

- *1867. *Cythere simplex*. White and St. John, Prelim. Not. New Gen. and Spec. Foss.
 St. Louis L. S.: Hamilton County, Iowa.

Cythere simplex White and St. John—Continued.

1868. *Cythere simplex*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 127.

St. Louis L. S.: Sternberg's Mill, on Boone River, 6 miles southwest from Webster City, Hamilton County, Iowa.

Cythere (species undetermined).

1872. *Cythere* sp. Meek, U. S. Geol. Surv. Nebr., p. 237, pl. 11, figs. 1a-d.
Upper Coal Measures: Nebraska City, Nebraska; Union County, Iowa.
1884. *Cythere?* spp. indett. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 261, pl. 12, figs. 11a-c.
Lower Coal Measures: Horton, Nova Scotia.

CYTHERELLA Jones and Bosquet, 1848.

Cytherella inflata. See *Carbonia fabulina*.

Cytherella ovatiformis Ulrich.

1891. *Cytherella ovatiformis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 209, pl. 17, figs. 3, 4a-c.
Chester Group: Caldwell County, Kentucky.

Cytherella unioniformis Herrick.

1891. *Cytherella unioniformis*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 44, pl. 1, figs. 8-10.
Upper Waverly Group: Scioto County, Ohio.

CYTHERELLINA Jones and Holl, 1869.**Cytherellina glandella** Whitfield.

1882. *Cytherellina glandella*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 94, pl. 9, figs. 28, 29.
St. Louis Group: Spargen Hill, Indiana.
1883. *Cytherellina glandella*. Hall, 12th Rep. Geol. Surv. Ind., pl. 32, figs. 28, 29.

(CYTHERODON Hall and Whitfield, 1873.)

Cytherodon cuneus. See *Schizodus cuneus*.

DALMANITES Barrande, 1852.**Dalmanites ? cuyahogæ** Claypole.

1884. *Dalmanites ? Cuyahogæ*. Claypole, Geol. Mag. (3), vol. 1, p. 306, fig. A, p. 505.
Cuyahoga Shale: Akron, Ohio.
1884. *Dalmanites ? Cuyahogæ*. Woodward, Monog. Brit. Carb. Tril., p. 79, fig. 6.
Cuyahoga Shale: Akron, Ohio.
1887. *Dalmanites ? cuyahogæ*. Herrick, Bull. Den. Univ., vol. 2, p. 55, pl. 2, fig. 33.

DAWSONELLA Bradley, 1874.**Dawsonella meeki** Bradley.

1872. *Anomphalus Meeki*. Bradley, Am. Jour. Sci. (3), vol. 4, p. 88, fig. 2.
Coal Measures: Petty's Ford of the Little Vermilion River, below Georgetown, Vermilion County, Illinois.
1874. *Dawsonella Meeki*. Bradley, Am. Jour. Sci. (3), vol. 7, p. 151.
1880. *Dawsonella Meeki*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 413, figs. 12, 13.
Coal Measures: Pelly's Fort, Vermilion River, Illinois.
1881. *Dawsonella Meeki*. Whitfield, Am. Jour. Sci. (3), vol. 21, p. 127, figs. 5, 6.
1883. *Dawsonella meeki*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 453, pl. 2, figs. 3, 4.

DECADOCRINUS Wachsmuth and Springer, 1879.

Decadocrinus ægina Hall.

1864. *Scaphiocrinus (Poteriocrinus) ægina*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 57.

Waverly Group: Richfield, Ohio.

1875. *Scaphiocrinus (Poteriocrinus) ægina*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 174, pl. 12, figs. 11, 12.

Waverly Group: Richfield, Ohio.

Decadocrinus bayensis Meek and Worthen.

1865. *Poteriocrinus (Scaphiocrinus) Bayensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 157.

Chester Group: Bay City, Pope County, Illinois.

1873. *Scaphiocrinus Bayensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 550, pl. 20, fig. 2.

Chester Group: Bay City, Pope County, Illinois.

Decadocrinus columbiensis Worthen.

1882. *Poteriocrinus columbiensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 22.

Chester L. S.: Near Columbia, Monroe County, Illinois.

1883. *Poteriocrinus Columbiensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 293, pl. 29, fig. 6.

Chester L. S.: Near Columbia, Monroe County, Illinois.

Decadocrinus depressus Meek and Worthen.

1870. *Scaphiocrinus depressus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 27.

Keokuk Group: Crawfordsville, Indiana.

1873. *Scaphiocrinus depressus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 492, pl. 14, fig. 8.

Keokuk Group: Crawfordsville, Indiana.

Decadocrinus fiscellus Meek and Worthen.

1869. *Scaphiocrinus fiscellus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 146.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Scaphiocrinus fiscellus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 424, pl. 1, fig. 3.

Burlington L. S.: Burlington, Iowa.

Decadocrinus fountainensis Worthen.

1882. *Poteriocrinus fountainensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17.

St. Louis L. S.: Fountain Creek, Monroe County, Illinois.

1883. *Poteriocrinus Fountainensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 286, pl. 30, fig. 11.

St. Louis L. S.: Fountain Creek, Monroe County, Illinois.

Decadocrinus halli Hall.

1861. *Scaphiocrinus halli*. Hall, Desc. New Spec. Crin., p. 7.

Burlington, L. S.

1861. *Scaphiocrinus Halli*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 308.

Burlington L. S.: Burlington, Iowa.

Decadocrinus juvenis Meek and Worthen.

1869. *Scaphiocrinus juvenis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 146.

Lower Burlington L. S.: Burlington, Iowa.

Decadocrinus juvenis Meek and Worthen—Continued.

1873. *Scaphiocrinus juvenis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 417, pl. 2, fig. 8.

Burlington L. S.: Burlington, Iowa.

Decadocrinus lyrioep Hall.

1864. *Scaphiocrinus (Poteriocrinus) lyrioep*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 58.

Waverly Group: Richfield, Ohio.

1875. *Scaphiocrinus (Poteriocrinus) lyrioep*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 175, pl. 12, fig. 10.

Waverly Group: Richfield, Ohio.

Decadocrinus milleri Wetherby.

1881. *Poteriocrinus milleri*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 330, pl. 9, figs. 12, 13.

Kaskaskia Group: Pulaski County, Kentucky.

Decadocrinus pencilliformis Worthen.

1882. *Poteriocrinus pencilliformis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 9.

Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus pencilliformis*. Worthen, Geol. Surv. Ill., vol. 7, p. 276, pl. 28, fig. 9.

Keokuk L. S.: Hamilton, Illinois.

Decadocrinus pleias Hall.

1864. *Poteriocrinus pleias*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 57.

Waverly Group: Richfield, Ohio.

1875. *Poteriocrinus pleias*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 173, pl. 12, fig. 8.

Waverly Group: Richfield, Ohio.

Decadocrinus scalaris Meek and Worthen.

1869. *Scaphiocrinus scalaris*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 145.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Scaphiocrinus scalaris*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 421, pl. 2, fig. 10.

Burlington L. S.: Burlington, Iowa.

Decadocrinus stimpsoni Lyon.

1869. *Zeacrinus Stimpsoni*. Lyon, Trans. Am. Phil. Soc., vol. 8, p. 465, pl. 27, figs. m, ml.

Subcarboniferous: Kentucky.

Decadocrinus subtortuosus Hall.

1864. *Scaphiocrinus subtortuosus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 59.

Waverly Group: Richfield, Ohio.

1875. *Scaphiocrinus subtortuosus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 177, pl. 12, figs. 15, 16.

Waverly Group: Richfield, Ohio.

(DELOCRINUS Miller and Gurley, 1890.)

Delocrinus hemisphericus. See *Ceriocrinus hemisphericus*.

Delocrinus missouriensis. See *Ceriocrinus missouriensis*.

(DENTALINA D'Orbigny, 1826.)

Dentalina priscilla. See *Nodosinella priscilla*.

DENTALIUM Linnæus, 1740.

Dentalium acutisulcatum Gurley.

1883. *Dentalium acutisulcatum*. Gurley, New Carb. Foss., Bull. No. 1, p. 7.
Lower Coal Measures: Newport, Vermilion County, Illinois.

Dentalium annulostriatum Meek and Worthen.

1870. *Dentalium annulostriatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 45.
Coal Measures: Danville, Illinois.
1873. *Dentalium? annulostriatum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 29, fig. 7.
Coal Measures: Danville, Illinois.
1888. *Dentalium annulostriatum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 234.
Lower Coal Measures: Des Moines, Iowa.
1891. *Dentalium annulostriatum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 251.
Lower Coal Measures: Des Moines, Iowa.

Dentalium? barquense Winchell.

1862. *Dentalium? Barquense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 425.
Marshall Group: Pointe aux Barques, Michigan.
1865. *Dentalium? Barquense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Marshall Group: Pointe aux Barques, Michigan.

Dentalium canna White.

1874. *Dentalium canna*. White, Prelim. Rep. Inv. Foss., p. 23.
Carboniferous (Coal Measures): Near Salt Lake, New Mexico, and near Relief Spring, Arizona.
1877. *Dentalium canna*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 156, pl. 12, figs. 6a, b.
Carboniferous: Near Salt Lake, New Mexico, and near Relief Spring, Arizona.

Dentalium grandævum Winchell.

1863. *Dentalium grandævum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
Yellow Sandstone: Burlington, Iowa.

Dentalium granvillense Herrick.

1888. *Dentalium granvillensis*. Herrick, Bull. Den. Univ., vol. 3, p. 92.
Waverly Group: Licking County, Ohio.

Dentalium illinoiense Worthen.

1883. *Dentalium Illinoiensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 325.
Chester L. S.: Chester, Illinois.
1890. *Dentalium illinoiense*. Worthen, Geol. Surv. Ill., vol. 8, p. 145, pl. 23, fig. 1.

Dentalium meekianum Geinitz.

1866. *Dentalium Meekianum*. Geinitz, Carb. und Dyas in Nebr., p. 13, tab. 1, fig. 20.
Nebraska City, Nebraska.
1872. *Dentalium Meekianum*. Meek, U. S. Geol. Surv. Nebr., p. 224, pl. 11, figs. 16a, b.
Upper Coal Measures: Nebraska City, Nebraska.
1873. *Dentalium meekianum?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 590, pl. 29, fig. 8.
Coal Measures: Danville, Illinois.
1888. *Dentalium meekianum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 234.
Lower Coal Measures: Des Moines, Iowa.
1891. *Dentalium meekianum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 251.
Lower Coal Measures: Des Moines, Iowa.

Dentalium meekianum Geinitz—Continued.

1894. *Dentalium meekianum*. Keyes, Mo. Geol. Surv., vol. 5, p. 133.
Upper Coal Measures: Kansas City, Missouri.
1897. *Dentalium conf. meekianum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 38.
Upper Coal Measures: Crawford County, Arkansas.

Dentalium missouriense Swallow.

1863. *Dentalium Missouriense*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 99.
Archimedes L. S.: Chester, Illinois; and St. Marys, Missouri.
1894. *Dentalium missouriense*. Keyes, Mo. Geol. Surv., vol. 5, p. 133.
Kaskaskia L. S.: Ste. Mary, Missouri.

Dentalium obsoletum. See Dentalium sublæve.**Dentalium primarium Hall.**

1858. *Dentalium primarium*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 666, pl. 23, fig. 16.
Warsaw L. S.: Hancock County, Illinois.
1894. *Dentalium primarium*. Keyes, Mo. Geol. Surv., vol. 5, p. 133.
Keokuk L. S.: Warsaw, Illinois.

Dentalium sublæve Hall.

1858. *Dentalium obsoletum*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 724, pl. 29, figs. 16, 17, 17a.
Coal Measures.
1877. *Dentalium sublæve*. Hall, Miller's Am. Pal. Foss., p. 244.
1891. *Dentalium sublæve*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 252.
Lower Coal Measures: Des Moines, Iowa.

Dentalium venustum Meek and Worthen.

1861. *Dentalium venustum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 145.
St. Louis L. S.: Waterloo, Monroe County, Illinois.
1866. *Dentalium venustum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 284, pl. 19, fig. 8.
St. Louis Group: Waterloo, Monroe County, Illinois.

Dentalium (species undetermined.)

1868. *Dentalium* (2 species). Dawson, Acad. Geol., p. 309.
Carboniferous L. S.: Economy and Pugwash, Nova Scotia.
1887. *Dentalium* sp.? Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, fig. 12.
Coal Measures: Flint Ridge, Ohio.

DERBYA Waagen, 1884.**Derbya affinis Hall and Clarke.**

1892. *Derbya affinis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 349, pl. 11 B, figs. 45. (Included with *D. cymbula* in explanation of pl. 11 B.)
Upper Coal Measures: Near Kansas City, Missouri.
1897. *Derbya affinis*. Hall, 14th Rep. N. Y. State Geol., p. 349, pl. 5, figs. 10, 11.
Upper Coal Measures: Near Kansas City, Missouri.

Derbya bennetti Hall and Clarke.

1892. *Derbya Bennetti*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 348, pl. 11A, figs. 34-39.
Upper Coal Measures: Near Kansas City, Missouri.
1892. *Derbya Bennetti*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 17, figs. 5-8.
Upper Coal Measures: Kansas City, Missouri.
1897. *Derbya Bennetti*. Hall, 14th Rep. N. Y. State Geol., p. 347, pl. 5, figs. 3-8.
Upper Coal Measures: Near Kansas City, Missouri.

Derbya biloba Hall.

1883. *Streptorhynchus biloba*. Hall, Rep. N. Y. State Geol. for 1882, pl. (11) 41, figs. 4, 5.
Coal Measures: Winterset, Iowa.
1892. *Derbya* (?) *biloba*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 350, pl. 11, figs. 4, 5.
Coal Measures: Winterset, Iowa.
1897. *Derbya* (?) *biloba*. Hall, 14th Rep. N. Y. State Geol., p. 350, pl. 5, figs. 17, 18.
Upper Coal Measures: Winterset, Iowa.

Derbya broadheadi Hall and Clarke.

1892. *Derbya Broadheadi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 347, pl. 11A, figs. 23, 24.
Upper Coal Measures: Kansas City, Missouri.
1897. *Derbya Broadheadi*. Hall, 14th Rep. N. Y. State Geol., p. 346, pl. 5, figs. 15, 16.
Upper Coal Measures: Near Kansas City, Missouri.

Derbya costatula Hall and Clarke.

1892. *Derbya* (?) *costatula*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 346, pl. 11B, figs. 16, 17.
Chester L. S.: Crittenden County, Kentucky.
1897. *Derbya* ? *costatula*. Hall, 14th Rep. N. Y. State Geol., p. 346, pl. 5, fig. 9.
Chester L. S.: Crittenden County, Kentucky.

Derbya crassa Meek and Hayden.

1852. *Orthis umbraculum*? Hall, Stansb. Exped. Gt. Salt Lake, p. 412, pl. 3, fig. 6.
Carboniferous: Missouri River, above Fort Leavenworth.
1852. *Orthis umbraculum*? Owen, Geol. Rep. Wis., Iowa, and Minn., pl. 5, fig. 11.
Carboniferous: Missouri River, near mouth of Keg Creek, and at Council Bluffs.
1852. *Orthis arachnoidea*. Roemer, Kreid. von Texas, p. 89, taf. 1, figs. 9a, b.
Carboniferous: San Saba Valley, Texas.
1858. *Orthisina crassa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 261.
Coal Measures: Leavenworth, Kansas.
1858. *Orthis crenistria*. Marcou, Geol. N. A., p. 49.
Mountain L. S.: Pecos Village, New Mexico.
1859. *Orthisina crassa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Coal Measures: Leavenworth, Kansas.
1859. *Orthisina umbraculum*? Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Fort Riley and Cottonwood Creek, Kansas.
1860. *Orthis lasallensis*. McChesney, Desc. New Pal. Foss., p. 32.
Upper Coal Measures: Lasalle, Illinois.
1860. *Orthis richmonda*. McChesney, Desc. New Pal. Foss., p. 32.
Coal Measures: 12 miles northwest of Richmond, Missouri.
1860. *Orthis pratteni*. McChesney, Desc. New Pal. Foss., p. 32.
Coal Measures: Charbonier, Missouri.
1861. *Streptorhynchus umbraculum*. Newberry, Ivès' Colo. Expl. Exped., p. 125.
Upper Carboniferous (Cherty L. S.): Canyon of Cascade River near the junction of the Colorado Chiquito with the Colorado; at Agua Azul; east of Fort Defiance; at Santa Fe; at Ojo Vernal; and on Cottonwood Creek, Kansas.
1864. *Hemipronites crassus*. Meek and Hayden, Pal. Upper Mo., p. 26, pl. 1, figs. 7a-d.
Coal Measures: Leavenworth City, Kansas.
1865. *Orthis richmondi*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 5a-c.
1865. *Orthis lasallensis*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 6a, b.

Derbya crassa Meek and Hayden—Continued.

1868. *Hemipronites crassus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 28, pl. 1, figs. 5a-c.
Coal Measures: 12 miles northeast of Richmond, Missouri.
1868. *Hemipronites lasallensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 28, pl. 1, figs. 6a, b.
Upper Coal Measures: Lasalle, Illinois.
1872. *Hemipronites crassus*. Meek, U. S. Geol. Surv. Nebr., p. 174, pl. 5, figs. 10a-c; pl. 8, fig. 1.
Upper Coal Measures: Nebraska City, Bennett's Mill, Wyoming, Cedar Bluff, Rock Bluff, Plattsmouth, Bellevue, Omaha, Peru, Rulo, and Brownsville, Nebraska.
Coal Measures: Kansas; Iowa; Missouri; Illinois.
Chester L. S.: West Virginia.
1873. *Hemipronites crassus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 570, pl. 25, fig. 12.
Upper Coal Measures: Lasalle, Illinois.
1876. *Hemipronites crenistria*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Near Echo Park, and at confluence of Grand and Green rivers, Utah.
Upper Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.
1877. *Hemipronites crenistria*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 124, pl. 10, fig. 9a.
Carboniferous: Meadow Creek, south of Fillmore; Star District, Picacho range; North Fork of Lewiston Canyon, Oquirrh range; below Ophir City; Kanab Canyon, Wasatch range; pass between Rush and Cedar Valleys; and east side of Mount Nebo, Utah; top of Grass Mountain, Ely range; Fossil Hill; Camp Apache; Old Potosi Mine; Tenney's Ranch; Kaibab Plateau; and at confluence of White Mountain and Black rivers, Nevada.
1883. *Streptorhynchus Richmondi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (10) 40, figs. 10, 11.
Coal Measures: Iowa.
1884. *Hemipronites crassus*. White, 13th Rep. Geol. Surv. Ind., p. 129, pl. 26, figs. 4-11.
Coal Measures: Lodi, Eugene, Perrysville, Merom, Big Creek, and New Harmony, Indiana.
1887. *Hemipronites crassus*. Herrick, Bull. Den. Univ., vol. 2, p. 50, pl. 2, fig. 19.
Coal Measures: Flint Ridge, Ohio.
1888. *Streptorhynchus crenistria*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 229.
Lower Coal Measures: Des Moines, Iowa.
1891. *Streptorhynchus crassum*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 580, pl. 13, figs. 11, 12.
Maxville L. S.: Ohio.
1892. *Derbya crassa*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 17, figs. 1-4, 9.
Upper Coal Measures: Kansas City, Missouri; Winterset, Iowa.
1892. *Derbya crassa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 10, figs. 10, 11; pl. 11A, figs. 28-33; pl. 11B, figs. 23, 24; pl. 20, figs. 12, 13.
Upper Coal Measures: Near Kansas City, Missouri, and Winterset, Iowa.
1894. *Streptorhynchus crenistria*. Keyes, Mo. Geol. Surv., vol. 5, p. 67, pl. 38, figs. 8a-h.
Coal Measures: Kansas City, Clinton, and Lexington, Missouri.
1895. *Streptorhynchus crassum*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 468, pl. 9, figs. 11, 12.
Maxville L. S.: Ohio.

Derbya crassa Meek and Hayden—Continued.

1897. *Derbya crassa*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 28.
 Upper Coal Measures: Poteau Mountain, Indian Territory.
 Lower Coal Measures: Conway County, Arkansas.

Derbya cymbula Hall and Clarke.

1892. *Derbya cymbula*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 348, pl. 11B, figs. 2, 3.
 Upper Coal Measures: Near Kansas City, Missouri.
 1897. *Derbya cymbula* Hall, 14th Rep., N. Y. State Geol., p. 348, pl. 6, figs. 1, 2.
 Upper Coal Measures: Near Kansas City, Missouri.

Derbya kaskaskiensis McChesney.

1860. *Orthis kaskaskiensis*. McChesney, Desc. New Pal. Foss., p. 31.
 Kaskaskia L. S.: Kaskaskia and Chester, Illinois.
 1892. *Derbya kaskaskiensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11B, fig. 6.
 Chester L. S.: Crittenden County, Kentucky.

Derbya keokuk Hall.

1858. *Orthis keokuk*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 640, pl. 19, figs. 5a, b.
 Keokuk L. S.: Keokuk, Iowa; Warsaw and Nauvoo, Illinois.
 1883. *Streptorhynchus keokuk*. Hall, Rep. N. Y. State Geol. for 1882, pl. (11) 41, figs. 1-3.
 Keokuk Group: New Providence, Indiana; Keokuk, Iowa.
 1890. *Orthis keokuk*. Gordon, Am. Geol., vol. 5, p. 261, pl. fig. 7.
 Keokuk Group.
 1892. *Derbya Keokuk*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11, figs. 1-3.
 Keokuk beds: Keokuk, Iowa; New Providence, Indiana.
 1894. *Orthis keokuk*. Keyes, Mo. Geol. Surv., vol. 5, p. 63.
 Keokuk L. S.: Wayland, Missouri.

Derbya robusta Hall.

1858. *Orthis robusta*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 713, pl. 28, figs. 5a-d.
 Lower Coal Measures: St. Clair County, Illinois.
 1883. *Streptorhynchus robustus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (10) 40, figs. 12-16.
 Coal Measures: Illinois.
 1892. *Derbya robusta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 10, figs. 12-17.
 Coal Measures: St. Clair County, Illinois.
 1892. *Derbya robusta* (?) Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11B, figs. 7, 8.
 Upper Coal Measures: Winterset, Iowa; near Kansas City, Missouri.

Derbya ruginosa Hall and Clarke.

1892. *Derbya ruginosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 346, pl. 11A, figs. 25-27.
 Keokuk L. S.: New Providence, Indiana.
 1897. *Derbya ruginosa*. Hall, 14th Rep. N. Y. State Geol., p. 345, pl. 5, figs. 12-14.
 Keokuk L. S.: New Providence, Indiana.

Derbya (species undetermined).

1892. *Derbya* sp. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11B, fig. 1.
 Upper Coal Measures: Kansas City, Missouri.

DEXIOBIA Winchell, 1863.**Dexiobia halli** Winchell.

1863. *Dexiobia Halli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 11.
 Yellow S. S.: Burlington, Iowa.

Dexiobia ovata Hall.

1858. *Cardiomorpha ovata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 522, pl. 7, figs. 10a-c. Chemung Group: Burlington, Iowa.
1888. *Cardiopsis (Dexiobia?) ovata*. Herrick, Bull. Den. Univ., vol. 4, p. 38, pl. 4, figs. 5-7.
Waverly Group: Ohio.
1889. *Dexiobia ovata*. Herrick, Am. Geol., vol. 3, pl. 2, figs. 5-7.
1895. *Dexiobia ovata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 5-7.
Kinderhook: Gann and Newark, Ohio.

Dexiobia whitei Winchell.

1863. *Dexiobia Whitei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 11.
Yellow S. S.: Burlington, Iowa.

DICHOOCRINUS Münster, 1839.**Dichocrinus angustus White.**

1862. *Dichocrinus angustus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 19.
Upper Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus angustus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 768, pl. 76, fig. 11.
Upper Burlington L. S.: Near Burlington, Iowa.

Dichocrinus blairi Miller.

1891. *Dichocrinus blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 36, pl. 8, fig. 12.
Keokuk Group: Boonville, Missouri.
1892. *Dichocrinus blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 646, pl. 8, fig. 12.
Keokuk Group: Boonville, Missouri.
1894. *Dichocrinus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 205, pl. 25, fig. 7.
Keokuk L. S.: Boonville, Missouri.
1897. *Dichocrinus Blairi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 778, pl. 75, fig. 3.
Warsaw L. S.: Boonville, Missouri.

Dichocrinus bozemanensis Miller and Gurley.

1897. *Dichocrinus bozemanensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 44, pl. 3, fig. 4.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Dichocrinus chesterensis. See Pterotocrinus chesterensis.**Dichocrinus cinctus Miller and Gurley.**

1890. *Dichocrinus cinctus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 21, pl. 4, figs. 10-12.
Kinderhook Group: Legrand, Iowa.
1890. *Dichocrinus cinctus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 342, pl. 4, figs. 10-12.
Kinderhook Group: Legrand, Iowa.
1897. *Dichocrinus cinctus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 764, pl. 75, fig. 5, pl. 77, figs. 4a-c,
Kinderhook Group: Legrand, Marshall County, Iowa.

Dichocrinus constrictus Meek and Worthen.

1860. *Dichocrinus constrictus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 381.
Warsaw L. S.: Bloomington, Indiana.
1866. *Dichocrinus constrictus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 263, pl. 19, figs. 2a-c.
St. Louis Group: Bloomington, Indiana.

Dichocrinus conus Meek and Worthen.

1860. *Dichocrinus conus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 381.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1866. *Dichocrinus conus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 169, pl. 16,
figs. 5a, b.
Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus conus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 770, pl.
75, fig. 6.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus cornigerus*. See Talarocrinus cornigerus.*Dichocrinus coxanus Worthen.**

1882. *Dichocrinus coxanus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 35.
Upper Keokuk L. S.: Hamilton, Illinois.
1883. *Dichocrinus Coxanus*. Worthen, Geol. Surv. Ill., vol. 7, p. 313, pl. 27, fig. 7.
Keokuk L. S.: Hamilton, Illinois.
1897. *Dichocrinus coxanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 763,
pl. 76, fig. 9.
Keokuk L. S.: Hamilton, Illinois.

Dichocrinus crassitestus White.

1862. *Dichocrinus crassitestus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 19.
Upper Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus crassitestus*. Wachsmuth and Springer, N. Am. Crin. Cam., p.
769, pl. 76, figs. 6a-c.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus crassus*. See Pterotocrinus crassus.*Dichocrinus delicatus Wachsmuth and Springer.**

1897. *Dichocrinus delicatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 766,
pl. 77, fig. 13.
Kinderhook Group: Marshall County, Iowa.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus dichotomus Hall.

1860. *Dichocrinus dichotomus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 85, pl. 1,
fig. 5.
Warsaw L. S.: Warsaw, Illinois.
1897. *Dichocrinus dichotomus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 777.
Warsaw L. S.: Warsaw, Illinois.

Dichocrinus elegans*. See Talarocrinus symmetricus.**Dichocrinus expansus*. See Dichocrinus polydactylus.****Dichocrinus ficus Lyon and Casseday.**

1862. *Dichocrinus ficus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost.,
vol. 5, p. 24.
Subcarboniferous L. S.: Clear Creek, Hardin County, Kentucky; Montgomery
County, Indiana.
1873. *Dichocrinus ficus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 502, pl. 14,
fig. 5.
Keokuk Group: Crawfordsville, Indiana.
1875. *Dichocrinus ficus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 515, pl. 29,
fig. 7.
Keokuk Group: Crawfordsville, Indiana.
1894. *Dichocrinus ficus*. Keyes, Mo. Geol. Surv., vol. 4, p. 204.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.
1897. *Dichocrinus ficus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 774, pl.
78, figs. 16a, b.
Keokuk L. S.: Crawfordsville, Indiana; Hardin County, Kentucky.

Dichocrinus hamiltonensis Worthen.

1882. *Dichocrinus hamiltonensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 35.

Upper Keokuk Group: Hamilton, Illinois.

1883. *Dichocrinus Hamiltonensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 313, pl. 27, fig. 10.

Keokuk L. S.: Hamilton, Illinois.

1897. *Dichocrinus Hamiltonensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 772, pl. 76, fig. 10.

Keokuk Group: Hamilton, Illinois.

Dichocrinus humbergi Miller.

1891. *Dichocrinus Humberti*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 26, pl. 3, figs. 9, 10.

Keokuk Group: Boonville, Missouri.

1891. *Dichocrinus humbergi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 36, pl. 6, fig. 38.

Keokuk Group: Boonville, Missouri.

1892. *Dichocrinus humbergi*. Miller, 17th Rep. Geol. Surv. Ind., p. 646, pl. 6, fig. 38.

Keokuk Group: Boonville, Missouri.

1897. *Dichocrinus Humburgti*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 777.

Warsaw L. S.: Boonville, Missouri.

Dichocrinus huntsvillæ Wachsmuth and Springer.

1897. *Dichocrinus Huntsvillæ*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 773, pl. 75, fig. 4.

St. Louis Group: Huntsville and Whitesburg, Alabama.

Dichocrinus inornatus Wachsmuth and Springer.

1890. *Dichocrinus inornatus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 190, pl. 16, figs. 1, 2.

Kinderhook Group: LeGrand, Iowa.

1897. *Dichocrinus inornatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 770, pl. 77, figs. 12a, b.

Kinderhook Group: LeGrand, Marshall County, Iowa.

Dichocrinus lachrymosus Hall.

1860. *Dichocrinus lachrymosus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 84.

Burlington L. S.: Burlington, Iowa.

1872. *Dichocrinus lachrymosa*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 11

1897. *Dichocrinus lachrymosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 754, pl. 77, figs. 2a-c.

Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus lævis Hall.

1860. *Dichocrinus lævis*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 83.

Burlington L. S.: Burlington, Iowa.

1897. *Dichocrinus lævis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 765, pl. 77, figs. 7a-c.

Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus lineatus Meek and Worthen.

1869. *Dichocrinus lineatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 69.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Dichocrinus lineatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 440, pl. 3, fig. 1.

Burlington L. S.: Burlington, Iowa.

1894. *Dichocrinus lineatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 203.

Lower Burlington L. S.: Hannibal and Louisiana, Missouri.

Dichocrinus lineatus Meek and Worthen—Continued.

1897. *Dichocrinus lineatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 761, pl. 76, figs. 4a-c.

Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus liratus Hall.

1861. *Dichocrinus liratus*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Dichocrinus liratus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 290.
Burlington L. S.: Burlington, Iowa.
1872. *Dichocrinus liratus*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 7, 8.
1894. *Dichocrinus liratus*. Keyes, Mo. Geol. Surv., vol. 4, p. 203.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Dichocrinus liratus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 759, pl. 76, fig. 8; pl. 77, figs. 3a, b.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus oblongus Wachsmuth and Springer.

1897. *Dichocrinus oblongus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 759, pl. 77, fig. 9.

Warsaw L. S.: Near Bloomington, Indiana.

Dichocrinus ornatus Wachsmuth and Springer.

1862. *Dichocrinus sculptus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 25 (not *D. sculptus* DeK. and LeH., 1853).
Carboniferous: Hardin County, Kentucky.
1881. *Dichocrinus ornatus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 258 (Rev. Palæocr. II, p. 84).
1897. *Dichocrinus ornatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 762, pl. 77, fig. 6.
St. Louis Group: Hardin County, Kentucky; Mount Pleasant, Iowa.

Dichocrinus ovatus Owen and Shumard.

1850. *Dichocrinus ovatus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 61, pl. 7, fig. 9.
Carboniferous L. S.: Burlington, Iowa.
1852. *Dichocrinus ovatus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 590, tab. 5A, figs. 9a, b.
Carboniferous L. S.: Burlington, Iowa.
1897. *Dichocrinus ovatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 760, pl. 76, fig. 7, pl. 77, figs. 8a, b.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus parvulus Miller.

1891. *Dichocrinus parvulus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 27, pl. 4, figs. 7, 8.
Keokuk Group: Boonville, Missouri.
1897. *Dichocrinus parvulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 778.
Warsaw L. S.: Boonville, Missouri.

Dichocrinus pendens Wachsmuth and Springer.

1897. *Dichocrinus pendens*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 774, pl. 78, fig. 15.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus pentalobus Lyon and Casseday.

1862. *Cotyledonocrinus pentalobus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 26.
Carboniferous: Grayson Springs, Grayson County, Kentucky.
1897. *Dichocrinus pentalobus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 775, pl. 78, figs. 11a-c.
Kaskaskia Group: Grayson Springs and Sloan's Valley, Kentucky.

Dichocrinus pisum Meek and Worthen.

1869. *Dichocrinus pisum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 69.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Dichocrinus pisum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 441, pl. 3, fig. 2.
Burlington L. S.: Burlington, Iowa.
1897. *Dichocrinus pisum*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 763,
pl. 76, fig. 5, pl. 77, fig. 10.
Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus plicatus Hall.

1861. *Dichocrinus plicatus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Dichocrinus plicatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 288.
Burlington L. S.: Burlington, Iowa.
1872. *Dichocrinus plicatus*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 9, 10.
1897. *Dichocrinus plicatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 758,
pl. 77, figs. 5a, b.
Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus pocillum. See *Dichocrinus scitulus*.

Dichocrinus polydactylus Lyon and Casseday.

1862. *Dichocrinus polydactylus*. Lyon and Casseday, Proc. Am. Acad. Arts and
Sci. Bost., vol. 5, p. 18.
Keokuk Group: Hardin County, Kentucky; Montgomery County, Indiana.
1868. *Dichocrinus expansus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 343.
Keokuk Group: Crawfordsville, Indiana.
1873. *Dichocrinus expansus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 500,
pl. 14, fig. 1.
Keokuk Group: Crawfordsville, Indiana.
1897. *Dichocrinus polydactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p.
756, pl. 77, figs. 1a, b.
Keokuk L. S.: Crawfordsville, Indiana.

Dichocrinus protuberans. See *Pterotocrinus protuberans*.

Dichocrinus scitulus Hall.

1861. *Dichocrinus scitulus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Dichocrinus pocillum*. Hall, Desc. New Spec. Crin., p. 5.
Burlington L. S.
1861. *Dichocrinus scitulus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 289.
Burlington L. S.: Burlington, Iowa.
1861. *Dichocrinus pocillum*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 291.
Burlington L. S.: Burlington, Iowa.
1872. *Dichocrinus pocillum*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 14, 16, 17.
1872. *Dichocrinus scitulus*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 12, 13.
1897. *Dichocrinus scitulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 767,
pl. 78, figs. 13a, b, 14.
Upper and Lower Burlington L. S.: Burlington, Iowa.

Dichocrinus sculptus. See *Dichocrinus ornatus*.

Dichocrinus sexlobatus. See *Talarocrinus sexlobatus*.

Dichocrinus simplex. See *Talarocrinus simplex*.

Dichocrinus striatus Owen and Shumard.

1850. *Dichocrinus striatus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 62, pl. 7, fig. 10.

Carboniferous L. S.: Burlington, Iowa.

1852. *Dichocrinus striatus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 590, tab. 5A, figs. 10a, b.

Carboniferous L. S.: Burlington, Iowa.

1894. *Dichocrinus striatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 203, pl. 25, fig. 8. Upper Burlington L. S.: Ash Grove, Missouri.

1897. *Dichocrinus striatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 577, pl. 77, figs. 11a, b.

Upper Burlington L. S.: Burlington, Iowa.

Dichocrinus superstes Wachsmuth and Springer.

1897. *Dichocrinus superstes*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 766, pl. 76, fig. 12.

Kaskaskia Group: Pulaski County, Kentucky; Huntsville, Alabama.

Dichocrinus symmetricus. See *Talarocrinus symmetricus*.**Dichocrinus ulrichi** Miller and Gurley.

1890. *Dichocrinus ulrichi*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 365, pl. 8, figs. 12, 13.

Keokuk Group: Bono, Indiana.

1897. *Dichocrinus Ulrichi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 772. Keokuk Group: Bono, Lawrence County, Indiana.

DICHOTRYPA Ulrich, 1890.**Dichotrypa elegans** Ulrich.

1890. *Dichotrypa elegans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 500, pl. 76, figs. 8-8d.

St. Louis Group: Elizabethtown, Kentucky; Jersey and Monroe counties, Illinois.

Dichotrypa expatiata Ulrich.

1890. *Dichotrypa expatiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 501.

St. Louis Group: Alton, Illinois.

Dichotrypa flabellum Rominger.

1866. *Fistulipora flabellum*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 122.

Warsaw L. S.: Spergen Hill, Indiana.

1890. *Dichotrypa flabellum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 501, pl. 77, figs. 1, 1b.

St. Louis Group: Spergen Hill, Indiana.

Dichotrypa intermedia Ulrich.

1890. *Dichotrypa intermedia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 500, pl. 76, figs. 9-9c.

St. Louis Group: Alton, Illinois; St. Louis, Missouri.

1894. *Dichotrypa intermedia*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.

St. Louis Group: St. Louis, Missouri.

Dichotrypa lyroides Ulrich.

1890. *Dichotrypa lyroides*. Ulrich, Geol. Surv. Ill., vol. 8, p. 502, pl. 77, figs. 2-2b.

St. Louis Group: Southern Kentucky.

DICTYONEMA Hall, 1852.**Dictyonema blairi** Gurley.

1896. *Dictyonema blairi*. Gurley, Jour. Geol., vol. 4, p. 82.

Chouteau L. S.: Sedalia, Missouri.

DICTYOPHYTON Hall, 1863.

Dictyophyton (Clathrospongia) abacus Hall.

1884. *Dictyophyton (Clathrospongia) abacus*. Hall, 35th Ann. Rep. N. Y. State Mus. Nat. Hist., p. 474, pl. 19, figs. 2-4.

Waverly Group: Warren, Pennsylvania.

Dictyophyton cattiliforme. See *Phragmodictya catilliformis*.

Dictyophyton cylindricum Whitfield.

1881. *Dictyophyton cylindricum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 19, pl. 4, fig. 3.

Keokuk Group: Crawfordsville, Indiana.

1884. *Dictyophyton cylindricum*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 475.

Keokuk Group: Crawfordsville, Indiana.

Dictyophyton newberryi. See *Thamnodictya newberryi*.

Dictyophyton randalli Hall.

1890. *Dictyophyton Randallii*. Hall, 9th Ann. Rep. N. Y. State Geol., p. 57.

Waverly Group: Warren, Pennsylvania.

Dictyophyton (?) redfieldi Hall.

1863. *Dictyophyton redfieldi*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 88.

Waverly Group: Harrisville and Richfield, Ohio.

1884. *Dictyophyton (?) Redfieldi*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 474, pl. 18, fig. 9.

Waverly S. S.: Harrisville and Akron, Ohio.

Dictyophyton sacculus Hall.

1863. *Dictyophyton richfieldi?* Hall, 16th Rep. N. Y. State Cab. Nat. Hist., pl. 4, fig. 6.

1884. *Dictyophyton sacculum*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 473.

Waverly S. S.: Richfield, Ohio.

Dictyophyton tenue Hall.

1884. *Dictyophyton tenue*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 474, pl. 19, fig. 5.

Waverly Group: Warren, Pennsylvania.

DIDYMOPHLEPS Scudder, 1878.

Didymophleps contusa Scudder.

1878. *Termes contusus*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 19, p. 300.

Coal Measures: Vermilion County, Illinois.

1885. *Didymophleps contusa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 330, pl. 29, fig. 6.

Carboniferous: Vermilion County, Illinois.

1890. *Didymophleps contusa*. Scudder, Foss. Insc. N. A., vol. 1, p. 294, pl. 15, fig. 6.

Carboniferous: Vermilion County, Illinois.

DIECONEURA Scudder, 1884.

Dieconeura arcuata Scudder.

1885. *Dieconeura arcuata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 336, pl. 30, fig. 4.

Carboniferous: Mazon Creek, Illinois.

1890. *Dieconeura arcuata*. Scudder, Foss. Insc. N. A., vol. 1, p. 300, pl. 16, fig. 4.

Carboniferous: Mazon Creek, Illinois.

***Dieconeura rigida* Scudder.**

1885. *Dieconeura rigida*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 336, pl. 29, fig. 10.
Carboniferous: Pittston, Pennsylvania.
1890. *Dieconeura rigida*. Scudder, Foss. Insc. N. A., vol. 1, p. 300, pl. 15, fig. 10.
Carboniferous: Pittston, Pennsylvania.

DIELASMA King, 1850.***Dielasma bovidens* Morton.**

1836. *Terebratula bovidens*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 2, fig. 4.
Coal Measures: Ohio Valley.
1856. *Terebratula millepunctata*. Hall, Pac. R. R. Rep., vol. 3, p. 101, pl. 2, figs. 1, 2.
Carboniferous: Pecos Village, New Mexico.
1856. *Terebratula millepunctata*. Hall, Trans. Albany Inst., vol. 4, p. 35.
Upper Carboniferous: Topeka, Kansas.
1859. *Terebratula millepunctata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Leavenworth, and near Indianola, Kansas.
1859. *Terebratula elongata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 392.
Permian: Guadalupe Mountains.
- *1861. *Terebratula geniculosa*. McChesney, Desc. New Pal. Foss., p. 82.
1869. *Terebratula bovidens*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 37, pl. 1, figs. 2a-c.
Coal Measures: Lasalle, Illinois.
1872. *Terebratula bovidens*. Meek, U. S. Geol. Surv. Nebr., p. 187, pl. 1, figs. 7a-d, pl. 2, fig. 4.
Upper Coal Measures: Plattsmouth, Nebraska; Indian Creek, Kansas; Lasalle, Illinois; New Mexico.
Coal Measures: Ohio, Iowa, Missouri, Kansas, Illinois.
1873. *Terebratula bovidens*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 572, pl. 25, fig. 15.
Upper and Lower Coal Measures: Illinois.
1874. *Dielasma? bovidens*. White, Prelim. Rep. Inv. Foss., p. 21.
Carboniferous (Coal Measures): (Far West).
1877. *Terebratula (Dielasma) bovidens*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 144, pl. 11, figs. 10a-c.
Carboniferous: Near Santa Fe, New Mexico; a few miles south of St. George, Utah; top of Grass Mountain, Ely Range, 30 miles north of Pioche, Nevada.
1884. *Terebratula hastata*. Walcott, Pal. Eureka Dist., p. 224, pl. 7, figs. 7, 7b.
Lower Carboniferous: Eureka District, Nevada.
1884. *Terebratula bovidens*. White, 13th Rep. Geol. Surv. Ind., p. 137, pl. 32, figs. 17-19.
Coal Measures: Perrysville, Eugene, Newport, Lodi, and Terre Haute (west of), Indiana; Posey, Warrick, Perry, and Crawford counties, Indiana.
1894. *Dielasma bovidens*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53, figs. 21-25.
Carboniferous L. S.: Harrison County, Missouri.
1894. *Terebratula bovidens*. Keyes, Mo. Geol. Surv., vol. 5, p. 105.
Upper Coal Measures: Kansas City, Missouri.
1895. *Dielasma bovidens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 29-35.
Upper Carboniferous L. S.: Kansas City, Missouri; southern Indiana; Harrison County, Missouri.

Dielasma bovidens Morton—Continued.

1897. *Terebratula hastata*. Smith, Proc. Am. Phil. Sec., vol. 35, p. 30.
Lower Coal Measures: Conway County, Arkansas.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Dielasma burlingtonensis White.

- *1860. *Terebratula burlingtonensis*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 228.
Burlington L. S.: Burlington, Iowa.
1874. *Terebratula Burlingtonensis*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Terebratula (Dielasma) Burlingtonensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 93.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1895. *Dielasma Burlingtonensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 9-11.
Chert of Burlington L. S.: Louisiana, Missouri.

Dielasma formosa Hall.

1856. *Terebratula formosa*. Hall, Trans. Albany Inst., vol. 4, p. 6.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Terebratula formosa*. White, 11th Rep. Geol. Surv. Ind., p. 361, pl. 39, figs. 6-8.
St. Louis Group: Spergen Hill, Indiana.
1882. *Terebratula formosa*. Whitfield, Bull. Am. Mus. Nat. Hist., p. 55, pl. 6, figs. 59-64.
St. Louis Group: Spergen Hill, Paynter's Hill, Bloomington, and Ellettsville, Indiana; Alton and Warsaw, Illinois.
1883. *Terebratula formosa*. Hall, 12th Rep. Geol. Surv. Ind., p. 337, pl. 29, figs. 59-64.
St. Louis Group: Alton, Illinois; Bloomington, Lanesville, and Spergen Hill, Indiana.
1894. *Dielasma formosa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53, figs. 15-19.
St. Louis Group: Washington County, Indiana.
1895. *Dielasma formosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 12-26.
St. Louis Group: Cherokee, Missouri; Spergen Hill, Indiana.

Dielasma gorbyi Miller.

1891. *Terebratula gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 77, pl. 13, figs. 3, 4.
Keokuk Group: Edwardsville, Indiana.
1892. *Terebratula gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 687, pl. 13, figs. 3, 4.
Keokuk Group: Edwardsville, Indiana.

Dielasma obovata Hall and Clarke.

1895. *Dielasma obovata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 38-40.
Coal Measures: Kentucky.
1897. *Dielasma obovatum*. Hall, 14th Rep. N. Y. State Geol., p. 372, pl. 14, figs. 12-14.
Coal Measures: Kentucky.

Dielasma occidentalis Miller.

1892. *Terebratula occidentalis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 59, pl. 9, figs. 10-13.
Chouteau L. S.: Sedalia, Missouri.
1894. *Terebratula occidentalis*. Miller, 18th Rep. Geol. Surv. Ind., p. 313, pl. 9, figs. 10-13.
Chouteau L. S.: Sedalia, Missouri.

Dielasma rowleyi Worthen.

1884. *Terebratula rowleyi*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 23.
Base of Burlington L. S.: Pike County, Missouri.
1890. *Terebratula rowleyi*. Worthen, Geol. Surv. Ill., vol. 8, p. 102, pl. 11, figs. 6-6b.
Burlington L. S.: Pike County, Missouri.
1894. *Dielasma rowleyi*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53,
fig. 20.
Chouteau L. S.: Graydon Springs, Missouri.
1894. *Terebratula rowleyi*. Keyes, Mo. Geol. Surv., vol. 5, p. 105, pl. 41, fig. 23.
Burlington L. S.: Louisiana, Missouri.
1895. *Dielasma Rowleyi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 27, 28.
Chouteau L. S.: Graydon Springs, Missouri.

Dielasma sacculus Martin.

1863. *Terebratula sacculus*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19,
p. 169, pl. 9, figs. 1-3.
Lower Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, Gay's
River, Debert River, Middle River, Cape Breton, Pugwash, East River
of Pictou, Lennox Passage, etc., Nova Scotia.
1868. *Terebratula sacculus*. Dawson, Acad. Geol., p. 289, fig. 87.
Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, Gay's River,
Debert River, Middle River, Cape Breton, Pugwash, East River of
Pictou, Lennox Passage, etc., Nova Scotia.

Dielasma shumardianum Miller.

1863. *Terebratula arcuata*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 83.
(Not *T. arcuata*. Roemer, 1840.)
Kaskaskia L. S.: Ste. Genevieve County, Missouri; Chester, Illinois.
1883. *Terebratula shumardana*. Miller, Am. Pal. Foss., 2d ed., p. 299.

Dielasma turgida Hall.

1856. *Terebratula turgida*. Hall, Trans. Albany Inst., vol. 4, p. 6.
St. Louis L. S.: Alton, Illinois; Bloomington and Spergen Hill, Indiana.
1882. *Terebratula turgida*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 54,
pl. 6, figs. 53-58.
St. Louis Group: Spergen Hill, Bloomington, Paynter's Hill, and Elletts-
ville, Ind.; Pella, Iowa; Warsaw and Alton, Illinois; near Boonville,
Missouri.
1883. *Terebratula turgida*. Hall, 12th Rep. Geol. Surv. Ind., p. 336, pl. 29,
figs. 53-58.
St. Louis Group: Alton, Illinois; Bloomington, Lanesville, and Spergen
Hill, Indiana.
1891. *Terebratula turgida*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 586, pl. 13,
figs. 21, 22.
Maxville L. S.: Maxville and Newtonville, Ohio.
1894. *Dielasma turgida*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53,
figs. 10-12.
Chester L. S.: Spencer County, Indiana.
St. Louis Group: Washington County, Indiana.
1895. *Dielasma turgida*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 1-8.
St. Louis Group: Washington County, Indiana.
Chester Group: Spencer County, Indiana.
1895. *Terebratula turgida*. Whitfield, Geol. Surv., Ohio, vol. 7, p. 473, pl. 9,
figs. 21, 22.
Maxville L. S.: Maxville and Newtonville, Ohio.

***Dielasma turgida* var. *elongata* Weller.**

1897. *Dielasma turgida* var. *elongata*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 260, pl. 18, fig. 6.

Batesville S. S.: Batesville, Arkansas.

***Dielasma* (species undetermined).**

1894. *Dielasma* sp.? Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 53, figs. 13, 14.

Chester L. S.: Caldwell County, Kentucky.

1895. *Dielasma* sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 81, figs. 36, 37.

Chester Group: Caldwell County, Kentucky.

DIPELTIS Packard, 1885.***Dipeltis diplodiscus* Packard.**

1885. *Dipeltis diplodiscus*. Packard, Am. Nat., vol. 19, p. 293.

Carboniferous: Mazon Creek, Illinois.

1886. *Dipeltis diplodiscus*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 145, pl. 5, figs. 2, 2a.

Carboniferous: Mazon Creek, Illinois.

DIPHYPHYLLUM Lonsdale, 1845.***Diphyphyllum* (species undetermined).**

1877. *Diphyphyllum* — (?). Whiteaves, Geol. Surv. Canada, Rept. of Prog., 1875-76, p. 102.

Devonian or Carboniferous: Peace River, Canada.

DIPLOPORA Young and Young, 1875.***Diplopora bifurcata* Ulrich.**

1890. *Diplopora bifurcata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 637, pl. 62, figs. 12, 12a.

Chester Group: Chester, Illinois.

1894. *Diplopora bifurcata*. Keyes, Mo. Geol. Surv., vol. 5, p. 33.

Kaskaskia L. S.: Chester, Illinois.

***Diplopora biserialis* Ulrich.**

1890. *Diplopora biserialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 637, pl. 62, figs. 11-11c.

Lower Coal Measures: Seville, Illinois.

DIPLOSTYLUS Salter, 1863.***Diplostylus dawsoni* Salter.**

1863. *Diplostylus dawsoni*. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 77, fig. 6.

Coal Measures: Joggins, Nova Scotia.

(DISCINA Lamark, 1819.)

Discina capax. See *Orbiculoidea capax*.

Discina capuliformis. See *Orbiculoidea capuliformis*.

Discina connata. See *Lingulodiscus connata*.

Discina convexa. See *Orbiculoidea convexa*.

Discina gallaheri. See *Orbiculoidea gallaheri*.

Discina illinoisensis. See *Orbiculoidea illinoisensis*.

Discina keokuk. See *Orbiculoidea keokuk*.

Discina magnifica. See *Orbiculoidea magnifica*.

Discina manhattanensis. See *Orbiculoidea manhattanensis*.

Discina meekana. See *Orbiculoidea missouriensis*.

Discina missouriensis. See *Orbiculoidea missouriensis*.

Discina munda. See *Orbiculoidea munda*.

Discina newberryi. See *Lingulodiscus newberryi*.

Discina nitida. See *Orbiculoidea nitida*.

Discina patellaris. See *Orbiculoidea patellaris*.

Discina pleurites. See *Lingulodiscus pleurites*.

Discina saffordi. See *Orbiculoidea saffordi*.

Discina sampsoni. See *Orbiculoidea sampsoni*.

Discina subtrigonalis. See *Orbiculoidea subtrigonalis*.

Discina tenuilineata. See *Orbiculoidea tenuilineata*.

Discina trigonalis. See *Orbiculoidea subtrigonalis*.

Discina varsoviensis. See *Orbiculoidea varsoviensis*.

DISCITES De Haan, 1825.

Discites hartti. See *Stroboceras hartti*.

Discites toddanus Gurley.

1883. *Discites Toddanus*. Gurley, New Carb. Foss. Bull. No. 1, p. 7.

Upper Coal Measures: Kansas City, Missouri.

1890. *Discites Toddanus*. Anon., The Naturalist (Kansas City), vol. 4, No. 10, fig.

Coal Measures: Brush Creek, Kansas City, Missouri.

Discites tuberculatus. See *Nautilus tuberculatus*.

DITHYROCARIS Scouler, 1844.

Dithyrocaris carbonaria Meek and Worthen.

1870. *Dithyrocaris carbonarius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 55.

Coal Measures: Danville, Illinois.

1873. *Dithyrocaris carbonarius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 618, pl. 32, fig. 1.

Coal Measures: Danville, Illinois.

1884. *Dithyrocaris carbonarius*. White, 13th Rep. Geol. Surv. Ind., p. 178, pl. 39, fig. 3.

Coal Measures: Danville, Illinois.

DIZYGOCRINUS Wachsmuth and Springer, 1897.

Dizygocrinus andrewsianus McChesney.

1860. *Actinocrinus andrewsianus*. McChesney, Desc. New Pal. Foss., p. 27.
Burlington L. S.: Burlington, Iowa.

1865. *Actinocrinus andrewsianus*. McChesney, Ill. New Spec. Foss., pl. 5, figs. 5a-b, pl. 10, fig. 2.

1868. *Actinocrinus Andrewsianus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 20, pl. 5, figs. 5a, b.
Burlington L. S.: Burlington, Iowa.

1897. *Dizygocrinus andrewsianus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 433, pl. 29, figs. 2a-d.

Upper Burlington L. S.: Burlington, Iowa.

Dizygocrinus biturbinatus Hall.

1858. *Actinocrinus biturbinatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 616, pl. 16, figs. 5, 6a-c.
 Keokuk L. S.: Nauvoo, Illinois.
1894. *Batocrinus lyonanus*. Miller and Gurléy, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 18, pl. 3, figs. 4, 5.
 St. Louis Group: Hardin County, Kentucky.
1894. *Batocrinus biturbinatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 184.
 Keokuk L. S.: Boonville, Missouri.
1897. *Dizygocrinus biturbinatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 427, pl. 33, fig. 9.
 Keokuk Group: Keokuk, Iowa.

Dizygocrinus cantonensis Wachsmuth and Springer.

1897. *Dizygocrinus cantonensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 423, pl. 33, figs. 8a, b.
 Keokuk Group: Canton and Edwardsville, Indiana.

Dizygocrinus crawfordsvillensis Miller.

1891. *Batocrinus crawfordsvillensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 64, pl. 10, figs. 11, 12.
 Keokuk Group: Crawfordsville, Indiana.
1892. *Batocrinus crawfordsvillensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 674, pl. 10, figs. 11, 12.
 Keokuk Group: Crawfordsville, Indiana.
1897. *Dizygocrinus crawfordsvillensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 417.
 Keokuk L. S.: Near Crawfordsville, Indiana.

Dizygocrinus dodecadactylus Meek and Worthen.

1861. *Actinocrinus dodecadactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 131.
 Burlington L. S.: Burlington, Iowa.
1866. *Actinocrinus dodecadactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 205, pl. 15, figs. 3a-c.
 Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus dodecadactylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 183.
 Upper Burlington L. S.: White Ledge, Marion County, Missouri.
1897. *Dizygocrinus dodecadactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 432, pl. 29, figs. 1a-c.
 Upper Burlington L. S.: Burlington, Iowa.

Dizygocrinus euconus Meek and Worthen.

1865. *Batocrinus (Alloprosalloocrinus) euconus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 164.
 St. Louis Group: Six miles south of Anna, Illinois.
1884. *Batocrinus subconicus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 26.
 Keokuk L. S.: Montgomery County, Indiana.
1890. *Batocrinus subconicus*. Worthen, Geol. Surv. Ill., vol. 8, p. 84, pl. 13, figs. 4, 4a.
 Keokuk L. S.: Montgomery County, Indiana.
1894. *Batocrinus euconus*. Keyes, Mo. Geol. Surv., vol. 4, p. 184.
 Keokuk L. S.: Boonville, Missouri.
1897. *Dizygocrinus euconus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 430, pl. 35, figs. 7a, b.
 Warsaw L. S.: Spergen Hill, Indiana; Union County, Illinois; Taylor County, Kentucky.

Dizygocrinus euconus var. abscissus Rowley and Hare.

1891. *Batocrinus abscissus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 115, pl. 3, fig. 6.
Keokuk L. S.: Indian Creek, 6 miles southwest of Curryville, Missouri.
1891. *Batocrinus venustus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 67, pl. 11, figs. 11, 12.
Keokuk Group: Boonville, Missouri.
1892. *Batocrinus venustus*. Miller, 17th Rep. Geol. Surv. Ind., p. 677, pl. 11, figs. 11, 12.
Keokuk Group: Boonville, Missouri.
1897. *Dizygocrinus euconus* var. *abscissus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 431, pl. 46, fig. 9.
Keokuk Group and Warsaw L. S.: Taylor County, Kentucky; Boonville and Curryville, Missouri.

Dizygocrinus facetus Miller and Gurley.

1890. *Batocrinus facetus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 353, pl. 6, fig. 8.
Keokuk Group: Near Canton, Indiana.
1897. *Dizygocrinus facetus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 418, pl. 33, fig. 12.
Keokuk Group: Canton, Indiana.

Dizygocrinus gorbyi Miller.

1891. *Batocrinus gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 63, pl. 10, fig. 10.
Keokuk Group: Boonville, Missouri.
1892. *Batocrinus gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 673, pl. 10, fig. 10.
Keokuk Group: Boonville, Missouri.
- 1897.(?) *Dizygocrinus Gorbyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 426.
Warsaw L. S.: Boonville, Missouri.

Dizygocrinus gurleyi Miller.

1891. *Batocrinus gurleyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 66, pl. 11, figs. 9, 10.
Keokuk Group: Boonville, Missouri.
1892. *Batocrinus gurleyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 676, pl. 11, figs. 9, 10.
Keokuk Group: Boonville, Missouri.
1897. *Dizygocrinus Gurleyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 422, pl. 34, fig. 19.
Warsaw L. S.: Boonville, Missouri.

Dizygocrinus indianensis Lyon and Casseday.

1860. *Actinoocrinus Indianaensis*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 75.
Subcarboniferous: Montgomery County, Indiana.
1897. *Dizygocrinus indianensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 415, pl. 33, figs. 6a, b; pl. 35, fig. 5.
Keokuk Group: Crawfordsville, Indiana.

Dizygocrinus indianensis var. simplex Wachsmuth and Springer.

1897. *Dizygocrinus indianensis* var. *simplex*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 416, pl. 33, fig. 7.
Keokuk Group: Crawfordsville, Indiana.

Dizygocrinus montgomeryensis Worthen.

1884. *Batocrinus montgomeryensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 25.
Keokuk L. S.: Montgomery County, Indiana.

Dizygocrinus montgomeryensis Worthen—Continued.

1890. *Batocrinus montgomeryensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 83, pl. 12, figs. 2, 2a.
Keokuk L. S.: Montgomery County, Indiana.
1891. *Batocrinus gurleyi*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 115, pl. 3, fig. 7.
Keokuk L. S.: Indian Creek, Pike County, Missouri.
1891. *Batocrinus sweeti*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 116, pl. 3, fig. 8.
Keokuk L. S.: Indian Creek, 6 miles southwest of Curryville, Missouri.
1897. *Dizygocrinus montgomeryensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 428, pl. 33, figs. 3, 4; pl. 46, fig. 10.
Keokuk Group: Crawfordsville, Indiana; Keokuk, Iowa.; Pike County, Missouri.

Dizygocrinus montgomeryensis var. *unibrachiatus* Wachsmuth and Springer.

1897. *Dizygocrinus montgomeryensis* var. *unibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 429, pl. 33, figs. 5a-c.
Keokuk L. S.: Keokuk, Iowa.

Dizygocrinus mutabilis Wachsmuth and Springer.

1897. *Dizygocrinus mutabilis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 429, pl. 35, figs. 8-11.
Keokuk Group: Indian Creek, Montgomery County, Indiana.

Dizygocrinus originarius Wachsmuth and Springer.

1881. *Eretmocrinus originarius*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 348. (Rev. Palæocr. II, p. 174.)
Keokuk L. S.: Near Bono, Lawrence County, Indiana.
1882. *Eretmocrinus varsouviensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 30.
Warsaw Beds: Warsaw, Illinois.
1883. *Eretmocrinus Varsoviensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 306, pl. 28, fig. 14.
Warsaw Beds: Warsaw, Illinois.
1894. *Eretmocrinus originarius*. Keyes, Mo. Geol. Surv., vol. 4, p. 178.
Keokuk L. S.: Boonville, Missouri.
1897. *Dizygocrinus originarius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 421, pl. 33, figs. 1a, b.
Keokuk Group: Bono and Canton, Indiana.
Warsaw L. S.: Boonville, Missouri.

Dizygocrinus originarius var. *adultus* Wachsmuth and Springer.

1881. *Eretmocrinus adultus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 349. (Rev. Palæocr. II, p. 175.)
Keokuk L. S.: Canton and Edwardsville, Indiana.
1891. *Batocrinus mediocris*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 62, pl. 10, fig. 9.
Keokuk Group: Boonville, Missouri.
1891. *Batocrinus boonvillensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 65, pl. 10, fig. 13.
Keokuk Group: Boonville, Missouri.
1892. *Batocrinus mediocris*. Miller, 17th Rep. Geol. Surv. Ind., p. 672, pl. 10, fig. 9.
Keokuk Group: Boonville, Missouri.
1892. *Batocrinus boonvillensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 675, pl. 10, fig. 13.
Keokuk Group: Boonville, Missouri.

Dizygocrinus originarius var. adultus Wachsmuth and Springer—Cont'd.

1897. *Dizygocrinus originarius var. adultus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 422, pl. 35, figs. 14, 15.
Keokuk Group: Bono, Lawrence County, Indiana.
Warsaw L. S.: Boonville, Missouri.

Dizygocrinus rotundus Shumard.

1848. *Actinocrinites*. Christy, Letters on Geol., pl. 1, figs. 3, 4.
Carboniferous Limestone: Oquawka, Illinois.
1855. *Actinocrinus rotundus*. Shumard, Geol. Rep. Mo., p. 191, pl. A. figs. 2a, b.
Encrinital L. S.: Rocheport, Boone County; near Palmyra, Marion County, Missouri.
1860. *Actinocrinus obblatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 38.
Burlington L. S.: Burlington, Iowa; Rocheford, Missouri.
1860. *Actinocrinus rotundus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 1.
1893. *Batocrinus obblatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 12, pl. 1, figs. 21, 22.
Burlington L. S.: Rocheford, Missouri.
1894. *Batocrinus rotundus*. Keyes, Mo. Geol. Surv., vol. 4, p. 182, pl. 23, figs. 6a, b.
Upper Burlington L. S.: Ash Grove, Sedalia, Rocheport, Hannibal, Palmyra, and Lagrange, Missouri; Quincy, Illinois; Bonaparte and Burlington, Iowa.
1897. *Dizygocrinus rotundus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 431, pl. 29, figs. 3a-g, 4.
Upper Burlington L. S.: Burlington, Iowa; Henderson County, Illinois; Palmyra, Missouri.

Dizygocrinus unionensis Worthen.

1890. *Batocrinus unionensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 84, pl. 12, figs. 5, 5a; pl. 13, fig. 3.
St. Louis Group: Union County, Illinois.
1891. *Batocrinus davisii*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 116, pl. 3, fig. 9.
Kaskaskia Group: Near Flag Pond, Virginia.
1891. *Batocrinus pulchellus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 68, pl. 11, figs. 13, 14.
Keokuk Group: Boonville, Missouri.
1892. *Batocrinus pulchellus*. Miller, 17th Rep. Geol. Surv. Ind., p. 678, pl. 11, figs. 13, 14.
Keokuk Group: Boonville, Missouri.
1894. *Batocrinus pulchellus*. Keyes, Mo. Geol. Surv., vol. 4, p. 184.
Keokuk L. S.: Boonville, Missouri.
1897. *Dizygocrinus unionensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 424, pl. 35, figs. 16-20.
Warsaw L. S.: Near Huntsville, Alabama; Tateville, Pulaski County, Kentucky; Boonville, Missouri; Lee County, Virginia.

Dizygocrinus unionensis var. divalis Miller.

1892. *Batocrinus divalis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 22, pl. 3, figs. 6, 7.
Keokuk Group: Boonville, Missouri.
1894. *Batocrinus divalis*. Miller, 18th Rep. Geol. Surv. Ind., p. 276, pl. 3, figs. 6, 7.
Keokuk Group: Boonville, Missouri.
1897. *Dizygocrinus unionensis var. divalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 425, pl. 35, figs. 21-24.
Warsaw L. S.: Boonville, Missouri; Huntsville, Alabama.

Dizygocrinus whitei Wachsmuth and Springer.

1881. *Batocrinus Whitei*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 343. (Rev. Palæogr. II, p. 169.)

Keokuk Group: Bono, Canton, and Edwardsville, Indiana.

1897. *Dizygocrinus Whitei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 419, pl. 33, figs. 10a, b, 11.

Keokuk Group: Bono, Indiana; Keokuk, Iowa.

Warsaw L. S.: Spergen Hill, Indiana; Glasgow, Barren County, Kentucky; Boonville, Missouri.

Dizygocrinus whitei var. didactylus Wachsmuth and Springer.

1897. *Dizygocrinus Whitei* var. *didactylus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 420, pl. 35, figs. 12, 13.

Keokuk Group: Hamilton, Illinois.

(DOLABRA McCoy, 1844.)

Dolabra alpina. See *Schizodus alpina*.

(DOLICHOPTERUS Hall, 1859.)

Dolichopterus mansfieldi Hall. See *Eurypterus mansfieldi*.

DOMATOCERAS Hyatt, 1891.

Domatoceras highlandensis Worthen.

1875. *Nautilus (Discites) Highlandensis*. Worthen, Geol. Surv. Ill., vol. 6, p. 531, pl. 33, fig. 2.

Coal Measures: Lasalle, Illinois; near Highland, Madison County, Illinois.

1893. *Domatoceras? highlandense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 440.

Domatoceras lasallensis Meek and Worthen.

1865. *Nautilus Lasallensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 261.

Upper Coal Measures: Lasalle, Illinois.

1873. *Nautilus Lasallensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 610, pl. 31, fig. 1.

Upper Coal Measures: LaSalle, Illinois.

1888. *Nautilus lasallensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.

Lower Coal Measures: Des Moines, Iowa.

1893. *Domatoceras (Nautilus) lasallensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 441.

Domatoceras militarium Hyatt.

1893. *Domatoceras militarium*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 445, figs. 22-24.

Carboniferous: Military Crossing, Baylor County, Texas.

Domatoceras simplex Hyatt.

1893. *Domatoceras simplex*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 441, figs. 16-21.

Carboniferous: Ballinger and Military Crossing, Texas.

Domatoceras umbilicatum Hyatt.

1891. *Domatoceras umbilicatum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 343, figs. 45-47.

Lower Coal Measures: Oswego, Kansas.

1893. *Domatoceras umbilicatum*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 42, fig. 12.

Lower Coal Measures: Oswego, Kansas.

(DONAX Linneus, 1758.)

(Donax rusticus Morton.)

1836. *Donax rusticus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 151, pl. 3, fig. 15.
Coal Measures: Ohio Valley.

DORYCRINUS Roemer, 1854.

Dorycrinus alabamensis Miller and Gurley.

1896. *Dorycrinus alabamensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 15, pl. 3, figs. 15-17.
Keokuk Group?: Chert Hill, Alabama.

Dorycrinus amœnus. See *Aorocrinus parvus*.

Dorycrinus canaliculatus. See *Aorocrinus canaliculatus*.

Dorycrinus chouteauensis. See *Actinocrinus chouteauensis*.

Dorycrinus confragosus. See *Eretmocrinus leucosia*.

Dorycrinus cornigerus Hall.

1858. *Actinocrinus cornigerus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 576, pl. 9, figs. 12a-c.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus cornigerus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 4.
1860. *Actinocrinus divaricatus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 11.
Burlington, L. S.: Burlington, Iowa.
1860. *Actinocrinus decorus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 13.
Burlington L. S.: Burlington, Iowa.
1894. *Dorycrinus cornigerus*. Keyes, Mo. Geol. Surv., vol. 4, p. 172.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Dorycrinus cornigerus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 458,
pl. 42, figs. 5, 6; pl. 43, fig. 5; pl. 44, figs. 6, 7.
Burlington L. S.: Burlington, Iowa.

Dorycrinus elegans. See *Aorocrinus elegans*.

Dorycrinus faberi Miller and Gurley.

1896. *Dorycrinus faberi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist.,
p. 19, pl. 1, figs. 8-10.
Burlington Group: Burlington, Iowa.

Dorycrinus gouldi Hall.

1858. *Actinocrinus gouldi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 613, pl. 15, figs. 6a, b.
Keokuk L. S.: Near Warsaw, Illinois.
1894. *Dorycrinus gouldi*. Keyes, Mo. Geol. Surv., vol. 4, p. 173, pl. 23, fig. 1.
Keokuk L. S.: Curryville, Kahoka, Boonville, and Lagrange, Missouri;
Keokuk, Iowa.
1897. *Dorycrinus Gouldi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 456,
pl. 43, figs. 2, 3; pl. 44, figs. 4, 5.
Keokuk Group: Keokuk, Iowa; Barren County, Kentucky; Indian Creek,
Montgomery County, Indiana.

Dorycrinus greenei Miller and Gurley.

1894. *Dorycrinus greenei*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 48, pl. 5, figs. 1-3.
Knobstone Group: Button Mould Knobs, Bullitt County, Kentucky.

Dorycrinus immaturus. See *Aorocrinus immaturus*.

Dorycrinus inflatus. See *Dorycrinus unipicornis*.

***Dorycrinus intermedius* Meek and Worthen.**

1868. *Dorycrinus quinquelobus* var. *intermedius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 346.
Upper Burlington Group: Burlington, Iowa.
1873. *Dorycrinus quinquelobus* var. *intermedius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 385, pl. 10, fig. 4.
Burlington L. S.: Burlington, Iowa.
1894. *Dorycrinus intermedius*. Keyes, Mo. Geol. Surv., vol. 4, p. 173.
Upper Burlington L. S.: Quincy, Illinois; near Burlington, Iowa.
1897. *Dorycrinus intermedius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 461, pl. 44, fig. 1.
Burlington and Keokuk transition bed.

Dorycrinus kelloggi. See *Aorocrinus spinosulus*.

Dorycrinus lineatus: See *Dorycrinus unicornis*.

***Dorycrinus mississippiensis* Roemer.**

1859. *Dorycrinus mississippiensis*. Roemer, Archiv. für Naturgeschichte, Jahrg. 19, Bd. 1, pp. 207-220, pl. 10.
Kohlenkalk: Warsaw, Illinois.
1860. *Actinocrinus (Dorycrinus) mississippiensis* var. *spiniger*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 53.
Keokuk L. S.: Warsaw, Illinois.
1890. *Dorycrinus mississippiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 100, pl. 12, fig. 4.
Keokuk L. S.: Hamilton, Illinois.
1894. *Dorycrinus mississippiensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 174.
Keokuk L. S.: Kahoka, Missouri; Keokuk, Iowa; Warsaw, Illinois.
1897. *Dorycrinus mississippiensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 455, pl. 43, fig. 1; pl. 44, figs. 2, 3.
Keokuk Group: Keokuk, Iowa; Warsaw, Hamilton, and Nauvoo, Illinois; White's Creek, Tennessee; Indiana and Kentucky.

***Dorycrinus missouriensis* Shumard.**

1855. *Actinocrinus Missouriensis*. Geol. Rep. Mo., p. 190, pl. A, figs. 4a-c.
Encrinital L. S.: North River, near Palmyra, Marion County, Missouri.
1861. *Actinocrinus desideratus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus desideratus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 373.
Burlington L. S.: Burlington, Iowa.
1894. *Dorycrinus missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 171.
Upper Burlington L. S.: Ash Grove, Palmyra, Sedalia, Hannibal, and Louisiana, Missouri.
1897. *Dorycrinus missouriensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 463, pl. 43, fig. 6; pl. 45, figs. 13a-c, 14.
Upper Burlington L. S.: Palmyra, Missouri; Burlington, Iowa.

Dorycrinus parvibasis. See *Aorocrinus parvibasis*.

Dorycrinus parvus. See *Aorocrinus parvus*.

Dorycrinus pendens. See *Dorycrinus unicornis*.

***Dorycrinus quinquelobus* Hall.**

1860. *Actinocrinus quinquelobus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 15.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus quinquelobus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 18-20.
1897. *Dorycrinus quinquelobus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 460, pl. 42, figs. 7-9.
Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Dorycrinus quinquelobus var. *intermedius*. See *Dorycrinus intermedius*.

Dorycrinus radiatus. See *Aorocrinus radiatus*.

***Dorycrinus roëmeri* Meek and Worthen.**

1868. *Dorycrinus Roëmeri*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 346.
Upper Burlington Group: Burlington, Iowa.

1873. *Dorycrinus Roëmeri*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 383, pl. 10,
fig. 3.

Burlington L. S.: Burlington, Iowa.

1897. *Dorycrinus Roëmeri*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 464,
pl. 45, figs. 15a, b.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

***Dorycrinus sampsoni* Miller and Gurley.**

1896. *Dorycrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.
Hist., p. 17, pl. 3, figs. 20-22.

Burlington Group: Sedalia, Missouri.

Dorycrinus subaculeatus. See *Aorocrinus subaculeatus*.

***Dorycrinus suboviformis* Miller and Gurley.**

1897. *Dorycrinus suboviformis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat.
Hist., p. 30, pl. 2, figs. 7-9.

Burlington Group: Near Sharon, Missouri.

***Dorycrinus subturbinatus* Meek and Worthen.**

1860. *Actinocrinus (Amphorocrinus) subturbinatus*. Meek and Worthen, Proc.
Acad. Nat. Sci. Phil., p. 388.

Burlington L. S.: Burlington, Iowa.

1866. *Amphorocrinus subturbinatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 212, pl. 15, figs. 4a, b.

Burlington L. S.: Burlington, Iowa.

1897. *Dorycrinus subturbinatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 466, pl. 42, figs. 10a, b.

Upper Burlington L. S.: Burlington, Iowa.

Dorycrinus tricornis. See *Dorycrinus unicornis*.

***Dorycrinus unicornis* Owen and Shumard.**

1850. *Actinocrinus unicornis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil.,
(2), vol. 2, p. 67, pl. 7, fig. 12.

Subcarboniferous L. S.: Burlington and Augusta Iowa.

1852. *Actinocrinus unicornis*. Owen and Shumard, Geol. Rep. Wis., Ia., and Minn.,
p. 593, tab. 5A, figs. 12a, b.

Subcarboniferous L. S.: Burlington and Augusta, Iowa.

1858. *Actinocrinus unicornis*. Hall, Geol. Ia., vol. 1, pt. 2, p. 568, pl. 10, figs. 5a-c.
Burlington L. S.: Burlington, Iowa.

1858. *Actinocrinus tricornis*. Hall, Geol. Ia., vol. 1, pt. 2, p. 569.

Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus pendens*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 31.

Burlington L. S.: Burlington, Iowa.

1860. *Actinocrinus tricornis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 2, fig. 7.

1873. *Dorycrinus unicornis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 383,
pl. 6, fig. 2.

Burlington L. S.: Burlington, Iowa.

1881. *Dorycrinus lineatus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 310, pl. 7,
figs. 3, 3a.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Dorycrinus unicornis Owen and Shumard—Continued.

1893. *Dorycrinus pendens*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 18, pl. 2, fig. 9.
Burlington L. S.: Burlington, Iowa.
1893. *Dorycrinus tricornis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 19, pl. 2, fig. 6-8.
Burlington L. S.: Burlington, Iowa.
1891. *Dorycrinus inflatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 114, pl. 3, fig. 4.
Lower Burlington L. S.: Louisiana, Missouri.
1894. *Dorycrinus unicornis*. Keyes, Mo. Geol. Surv., vol. 4, p. 169, pl. 23, fig. 2.
Lower Burlington L. S.: Sedalia and Hannibal, Missouri.
1897. *Dorycrinus unicornis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 468, pl. 45, figs. 8a-e, 9, 10.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Dorycrinus unispinus Hall.

1861. *Actinocrinus unispinus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus unispina*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 270.
Burlington L. S.: Burlington, Iowa.
1858. *Actinocrinus trinodus*. Hall, Geol. Ia., vol. 1, pt. 2, p. 575. (An abnormal specimen.)
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus trinodus*. Hall, Photo. Plates of Crinoids, pl. 3, fig. 7.
1897. *Dorycrinus unispinus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 467, pl. 45, fig. 12.
Lower Burlington L. S.: Burlington, Iowa.

ECHINODISCUS Worthen and Miller, 1883.**Echinodiscus kaskaskiensis** Hall.

1858. *Agelacrinus kaskaskiensis*. Hall, Geol. Ia., vol. 1, pt. 2, p. 696, pl. 25, fig. 18.
Kaskaskia L. S.: Kaskaskia, Illinois.
1894. *Echinodiscus kaskaskiensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 133, pl. 18, fig. 3.
Kaskaskia L. S.: Ste. Mary's, Missouri; Kaskaskia, Illinois.

Echinodiscus optatus Worthen and Miller.

1883. *Echinodiscus optatus*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 336, pl. 31, fig. 9.
Chester L. S.: Monroe and Pope counties, Illinois.

Echinodiscus sampsoni Miller.

1891. *Echinodiscus sampsoni*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 76, pl. 12, fig. 16.
Keokuk Group: Boonville, Missouri.
1892. *Echinodiscus sampsoni*. Miller, 17th Rep. Geol. Surv. Ind., p. 686, pl. 12, fig. 16.
Keokuk Group: Boonville, Missouri.
1894. *Echinodiscus sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 133.
Keokuk L. S.: Boonville, Missouri.

ECTENODICTYA Hall, 1884.**Ectenodictya burlingtonensis** Hall.

1884. *Ectenodictya burlingtonensis*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 476.
Kinderhook Group (Yellow S. S.): Burlington, Iowa.

Ectenodictya excentrica Hall.

1884. *Ectenodictya eccentrica*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 476, pl. 20, fig. 1.

Keokuk Group: Crawfordsville, Indiana.

Ectenodictya expansa Hall.

1884. *Ectenodictya expansa*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 475, pl. 20, fig. 10.

Waverly S. S.: Warren, Pennsylvania.

Ectenodictya implexa Hall.

1884. *Ectenodictya implexa*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 475, pl. 19, fig. 1.

Waverly Group: Warren and Oil City, Pennsylvania.

EDAPHOCERAS Hyatt, 1883.**Edaphoceras notensis Meek and Worthen.**

1865. *Nautilus (Temnocheilus) Niotensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 260.

Keokuk Group: Niota and Warsaw, Illinois.

1873. *Nautilus (Temnocheilus) Niotensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 523, pl. 19, fig. 3.

Keokuk Group: Niota and Warsaw, Illinois.

1883. *Edaphoceras notensis*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 288.

EDMONDIA De Koninck, 1844.**Edmondia æquimarginalis Winchell.**

1862. *Cardinia æquimarginalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 413.

Marshall Group: Marshall, Michigan.

1863. *Edmondia æquimarginalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.

Yellow S. S.: Burlington, Iowa.

1865. *Edmondia æquimarginalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.

Chemung Group: New York.

Edmondia albersi Miller and Gurley.

1896. *Edmondia albersi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 9-11.

Chouteau L. S.: Sedalia, Missouri.

Edmondia anomala Dawson.

1868. *Edmondia anomala*. Dawson, Acad. Geol., p. 303, fig. 105.

Carboniferous L. S.: Windsor, Nova Scotia.

Edmondia aspinwallensis Meek.

1871. *Edmondia aspinwallensis*. Meek, Prelim. Rep. U. S. Geol. Surv. Wyo., p. 299.

Upper Coal Measures: Aspinwall, Nebraska.

1872. *Edmondia Aspinwallensis*. Meek, U. S. Geol. Surv. Nebr., p. 216, pl. 4, figs. 2a-c.

Upper Coal Measures: Aspinwall, Nebraska.

Lower Coal Measures: West Virginia.

Coal Measures: Illinois.

1876. *Edmondia Aspinwallensis*. White, Powell's Rep. Geol. Uinta Mts., p. 91.

Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

1884. *Edmondia Aspinwallensis*. White, 13th Rep. Geol. Surv. Ind., p. 148, pl. 31, figs. 4, 5.

Coal Measures: Indiana (?).

Edmondia aspinwallensis Meek—Continued.

1887. *Edmondia* (cf. *aspinwallensis*). Herrick, Bull. Den. Univ., vol. 2, p. 38, pl. 3, fig. 17; pl. 4, fig. 4.

Coal Measures: Flint Ridge, Ohio.

1894. *Edmondia aspinwallensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 126, pl. 47, figs. 1a, b.

Upper Coal Measures: Kansas City, Missouri.

Edmondia bicarinata Winchell.

1863. *Edmondia* (?) *bicarinata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.

Yellow S. S.: Burlington, Iowa.

1865. *Edmondia*? *bicarinata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.

Edmondia binumbonata Winchell.

1862. *Edmondia binumbonata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 414.

Marshall Group: Marshall, Michigan.

Edmondia burlingtonensis White and Whitfield.

1862. *Edmondia Burlingtonensis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 301.

Chemung Group: Burlington, Iowa.

1865. *Edmondia Burlingtonensis*? Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.

Marshall Group: One mile east of Orange Center, Cuyahoga County, Ohio.

1885. *Edmondia Burlingtonensis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 390, pl. 64, fig. 22; pl. 95, figs. 13, 14.

Yellow S. S.: Burlington, Iowa.

1888. *Edmondia burlingtonensis*. Herrick, Bull. Den. Univ., vol. 3, p. 77, pl. 4, fig. 18; pl. 9, figs. 17, 27.

Waverly Group: Licking County, Ohio.

1894. *Edmondia burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 126, pl. 47, fig. 3.

Lower Burlington, L. S.: Louisiana, Missouri.

Edmondia calhouni*. See *Pleurophorus calhouni*.*Edmondia circularis Walcott.**

1884. *Edmondia* ? *circularis*. Walcott, Pal. Eureka Dist., p. 246, pl. 22, fig. 9.

Lower Carboniferous: Eureka District, Nevada.

Edmondia concentrica*. See *Astartella concentrica*.*Edmondia depressa Hall.**

*1870. *Edmondia depressa*. Hall, Prelim. Not. Lamell. 2, p. 91.

Waverly S. S.: Licking County, Ohio.

1885. *Edmondia depressa*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 391, pl. 64, fig. 32.

Waverly S. S.: Licking County, Ohio.

1888. *Edmondia depressa*. Herrick, Bull. Den. Univ., vol. 3, p. 76, pl. 8, fig. 5.

Waverly Group: Licking County, Ohio.

Edmondia ellipsis Hall.

1885. *Edmondia ellipsis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 392, pl. 64, fig. 25.

Burlington S. S.: Burlington, Iowa.

Edmondia elliptica Winchell.

1863. *Edmondia* (?) *elliptica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.

Yellow S. S.: Burlington, Iowa.

Edmondia gibbosa Swallow.

1858. *Edmondia gibbosa*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.

Lower Permian: Valley of Cottonwood, Kansas.

Edmondia glabra Meek.

1872. *Edmondia* ? *glabra*. Meek, U. S. Geol. Surv. Nebr., p. 214, pl. 10, figs. 7a, b.

Upper Coal Measures: Nebraska City, Nebraska.

Edmondia glabra Meek—Continued.

1894. *Edmondia glabra*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.
Upper Coal Measures: Kansas City, Missouri.

Edmondia hartti Dawson.

1868. *Edmondia Harttii*. Dawson, Acad. Geol., p. 303, fig. 104.
Carboniferous L. S.: Windsor, Nova Scotia.

Edmondia hawni Swallow.

1858. *Edmondia Hawni*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 209.
Coal Measures: Near the Sac and Fox Agency, Kansas.

Edmondia illinoisensis Worthen.

1884. *Edmondia illinoisensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 18.
Upper Keokuk L. S.: Warsaw, Illinois.
1890. *Edmondia illinoisensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 122, pl. 18, figs. 7, 7a.
Keokuk L. S.: Warsaw, Illinois.

Edmondia marionensis Swallow.

1860. *Edmondia Marionensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 654.
Chouteau L. S.: Cooper County, Missouri.

Edmondia medon Walcott.

1884. *Edmondia Medon*. Walcott, Pal. Eureka Dist., p. 245, pl. 23, fig. 6.
Lower Carboniferous: Eureka District, Nevada.

Edmondia mortonensis Geinitz.

1866. *Astarte Mortonensis*. Geinitz, Carb. und Dyas in Nebr., p. 17, tab. 1, fig. 26.
Nebraska City, Nebraska.

Edmondia nebrascensis Geinitz.

1866. *Astarte Nebrascensis*. Geinitz, Carb. und Dyas in Nebr., p. 16, tab. 1, fig. 25.
Nebraska City, Nebraska.
1872. *Edmondia ? Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 214, pl. 10, figs. 8a, b.
Upper Coal Measures: Nebraska City, Nebraska.
1897. *Edmondia nebrascensis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 38.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Edmondia nitida Winchell.

1863. *Edmondia nitida*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 12.
Yellow S. S.: Burlington, Iowa.

Edmondia nuptialis Winchell.

1863. *Edmondia nuptialis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 12.
Yellow S. S.: Burlington, Iowa.
1894. *Edmondia nuptialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 126, pl. 47, fig. 2.
Lower Burlington L. S.: Louisiana, Missouri.

Edmondia otoensis Swallow.

1858. *Edmondia Otoensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 189.
Lower Permian: Valley of Cottonwood, Kansas.

Edmondia ovata Meek and Worthen.

1873. *Edmondia ovata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 26, fig. 13.
Coal Measures.
1874. *Edmondia ovata*. Meek, Am. Jour. Sci. (3), vol. 7, p. 580.

Edmondia peroblonga Meek and Worthen.

1865. *Edmondia ? peroblonga*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 249.
Upper Coal Measures: Lasalle, Illinois.

Edmondia peroblonga Meek and Worthen—Continued.

1873. *Edmondia? peroblonga*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 583, pl. 27, fig. 4.

Coal Measures: Lasalle, Illinois.

Edmondia radiata. See Clinopistha radiata.**Edmondia reflexa Meek.**

1872. *Edmondia reflexa*. Meek, U. S. Geol. Surv. Nebr., p. 213, pl. 10, figs. 6a, b; pl. 4, fig. 7.

Upper Coal Measures: Nebraska City, Nebraska.

1887. *Edmondia (?) reflexa*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14, fig. 21.

Coal Measures: Flint Ridge, Ohio.

Edmondia semiorbiculata Swallow.

1858. *Edmondia semiorbiculata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.

Lower Permian: Near Council Grove, Kansas.

Edmondia strigillata Winchell.

1863. *Edmondia strigillata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 12.

Yellow S. S.: Burlington, Iowa.

Edmondia suborbiculata Shumard.

1859. *Edmondia suborbiculata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 398.

White Permian L. S.: Guadalupe Mountains.

Edmondia subplana Hall.

1856. *Cypricardia subplana*. Hall, Trans. Albany Inst., vol. 4, p. 19.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Edmondia subplana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 66, pl. 7, fig. 38.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Edmondia (?) subplana*. Hall, 12th Rep. Geol. Surv. Ind., p. 342, pl. 30, fig. 38.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Edmondia subtruncata Meek.

1872. *Edmondia subtruncata*. Meek, U. S. Geol. Surv. Nebr., p. 215, pl. 2, fig. 7.

Upper Coal Measures: Rock Bluff, Nebraska; Atchison, Kansas.

Lower Coal Measures: Illinois.

1894. *Edmondia subtruncata*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.

Upper Coal Measures: Kansas City, Missouri.

Edmondia sulcifera Herrick.

1888. *Edmondia sulcifera*. Herrick, Bull. Den. Univ., vol. 4, p. 30, pl. 5, figs. 1, 2.

Waverly Group: Moot's Run, Licking County, Ohio.

1889. *Edmondia sulcifera*. Herrick, Am. Geol., vol. 3, pl. 3, figs. 1, 2.

1895. *Edmondia sulcifera*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 18, 20, 24.

Cuyahoga Shale: Cuyahoga and Licking counties, Ohio.

Edmondia tapesiformis Meek.

1875. *Edmondia? tapesiformis*. Meek, Pal. Ohio, vol. 2, p. 304, pl. 13, fig. 6.

Waverly Group: Richfield, Ohio.

Edmondia unioniformis Phillips.

1836. *Isocardia unioniformis*. Phillips, Geol. Yorkshire, vol. 2, p. 209, pl. 5, fig. 18.

1866. *Edmondia unioniformis?* Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 346, pl. 27, figs. 6, 6b.

Upper Coal Measures: North branch of Saline Creek, Gallatin County, Illinois.

1897. *Edmondia unioniformis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 38.

Lower Coal Measures: Conway County, Arkansas.

Edmondia varsoviensis Worthen.

1884. *Edmondia varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 18.
Upper Keokuk L. S.: Warsaw, Illinois.
1890. *Edmondia varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 121, pl. 20,
figs. 11, 11a.
Keokuk L. S.: Warsaw, Illinois.

Edmondia (species undetermined).

1876. *Edmondia* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 92.
Upper Aubrey Group: Confluence of Grand and Green rivers, Utah.
1888. *Edmondia* ? Herrick, Bull. Den. Univ., vol. 3, pl. 4, fig. 5.
Waverly Group: Licking County, Ohio.
1888. *Edmondia* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 3.
Waverly Group: Cuyahoga Falls, Ohio.

EILETICUS Scudder, 1882.**Eileticus æqualis Scudder.**

1890. *Eileticus æqualis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 421, pl. 38,
figs. 6-9.
Carboniferous: Mazon Creek, Illinois.
1890. *Eileticus æqualis*. Scudder, Foss. Insc. N. A., vol. 1, p. 397, pl. 30, figs. 6-9.
Carboniferous: Mazon Creek, Illinois.

Eileticus anthracinus Scudder.

1882. *Eileticus anthracinus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 179,
pl. 13, figs. 5, 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Eileticus anthracinus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 420,
pl. 38, fig. 5.
Carboniferous: Mazon Creek, Illinois.
1890. *Eileticus anthracinus*. Scudder, Foss. Insc. N. A., vol. I, pp. 231, 396, pl. 10,
figs. 5, 6; pl. 30, fig. 5.
Carboniferous: Mazon Creek, Illinois.

(ELÆACRINUS Roemer, 1852.)

Elæacrinus kirkwoodensis. See *Cryptoblastus kirkwoodensis*.

ELYMELLA Hall, 1885.**Elymella missouriensis Miller and Gurley.**

1896. *Elymella missouriensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus.
Nat. Hist., p. 15, pl. 2, figs. 11, 12.
Chouteau L. S.: Near Sedalia, Missouri.

Elymella patula Hall.

1885. *Elymella patula*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 505, pl. 40, fig. 11.
Waverly Group: Medina, Ohio.

ENDOLOBUS Meek and Worthen, 1865.**Endolobus avonensis Dawson.**

1868. *Nautilus Avonensis*. Dawson, Acad. Geol., p. 311, figs. 124a, b.
Carboniferous L. S.: Windsor and Minudie, Nova Scotia.
1895. *Endolobus avonensis*. Hyatt, Proc. Am. Phil. Soc., vol. 32, p. 536, pl. 8,
figs. 36-39.
Joggins, Nova Scotia.

Endolobus gibbosus Hyatt. See *Stearoceras gibbosum*.

Endolobus missouriensis Swallow.

1858. *Nautilus Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 198.
Near Base of Coal Measures: Boone County, Missouri.
1884. *Nautilus Missouriensis*. White, 13th Rep. Geol. Surv. Ind., p. 166, pl. 35,
figs. 1, 2.
Coal Measures: Silverwood, Fountain County, Indiana.
1893. *Nautilus missouriensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 453.
1894. *Nautilus missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 224, pl. 56, fig. 3.
Lower Coal Measures: Boone County, Missouri.
1897. *Endolobus (Nautilus) missouriensis*. Smith, Proc. Am. Phil. Soc., vol. 35,
p. 42, pl. 21, figs. 1-3.
Lower Coal Measures: Conway County, Arkansas.

Endolobus spectabilis Meek and Worthen.

1860. *Nautilus spectabilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469.
Chester L. S.: Gravel Creek, Randolph County, Illinois.
1865. *Nautilus (Endolobus) peramplus*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 259.
Chester Group: Randolph County, Illinois.
1866. *Nautilus (Endolobus) spectabilis*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 308, pl. 25, figs. 1a, b.
Chester Group: Randolph County, Illinois.
1891. *Nautilus (Temnocheilus) spectabilis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5,
p. 594, pl. 14, fig. 22.
Maxville L. S.: Near Rushville, Ohio.
1894. *Nautilus spectabilis*. Keyes, Mo. Geol. Surv., vol. 5, p. 222.
Kaskaskia L. S.: St. Louis County, Missouri.
1895. *Nautilus (Temnocheilus) spectabilis*. Whitfield, Geol. Surv. Ohio, vol. 7,
p. 480, pl. 10, fig. 22.
Maxville L. S.: Near Rushville, Ohio.

ENDOTHYRA Phillips, 1845.

Endothyra baileyi Hall.

1856. *Rotalia Baileyi*. Hall, Trans. Albany Inst., vol. 4, p. 34.
St. Louis L. S.
1876. *Endothyra Bowmani*. Brady, Monog. Carb. and Perm. Form., p. 92, pl. 5,
figs. 1-4.
Subcarboniferous: Indiana.
1882. *Endothyra Baleyi*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 42, pl. 9,
figs. 34-36.
St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1883. *Endothyra baleyi*. Hall, 12th Rep. Geol. Surv. Ind., p. 321, pl. 32, figs. 34-36.
St. Louis Group: Alton, Illinois; Spergen Hill, Bloomington, and Lanesville, Indiana.

Endothyra ornata Brady.

1876. *Endothyra ornata*. Brady, Monog. Carb. and Perm. Form., p. 99, pl. 6,
figs. 1-4.
Lower and Upper Carboniferous: England, Scotland, and Ireland.
1880. *Endothyra ornata*. White, Proc. U. S. Nat. Mus., vol. 2, p. 291.
Carboniferous: Teton Mountains, south of Yellowstone National Park.

ENTELETES Fischer, 1830.

Enteleles hemiplicata Hall.

1852. *Spirifer hemiplicata*. Hall, Stansb. Exped. to Gt. Salt Lake, p. 409, pl. 4, figs. 3a, b.
Carboniferous: Missouri River, near Weston.
1859. *Spirifer hemiplicata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Near Leavenworth, Kansas.
1866. *Rhynchonella angulata*. Geinitz, Carb. und Dyas. in Nebr., p. 37, tab. 3, figs. 1-4.
Bennett's Mill and Nebraska City, Nebraska.
1866. *Syntrelasma hemiplicata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, pp. 323, 324, fig. 37.
Upper Coal Measures: 12 miles north of Vandalia, Illinois; Eastern Kansas, Northern Missouri, Western Iowa.
1872. *Syntrelasma hemiplicata*. Meek, U. S. Geol. Surv. Nebr., p. 177, pl. 6, figs. 1a, b; pl. 8, figs. 12a, b.
Upper Coal Measures: Nebraska City, Wyoming, and Bennett's Mill, Nebraska.
Coal Measures: Illinois, Iowa, Missouri, Kansas.
1873. *Syntrelasma hemiplicata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 571, pl. 26, fig. 20.
Upper Coal Measures: 12 miles north of Vandalia, Illinois.
1882. *Camerophoria giffordi*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 39.
Middle Coal Measures: Near Alta, Peoria County, Illinois.
1883. *Camerophoria Giffordi*. Worthen, Geol. Surv. Ill., vol. 7, p. 318, figs. a-c.
Middle Coal Measures: Near Alta, Peoria County, Illinois.
1884. *Syntrelasma hemiplicata*. White, 13th Rep. Geol. Surv. Ind., p. 131, pl. 26, figs. 15-18.
Coal Measures: Indiana.
1892. *Enteleles hemiplicata*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 12, figs. 18-21.
Coal Measures: Winterset, Iowa; Kansas City, Missouri.
1892. *Enteleles hemiplicata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 7A, figs. 44-52.
Upper Coal Measures: Kansas City, Missouri; Winterset, Iowa.
1894. *Syntrelasma hemiplicata*. Keyes, Mo. Geol. Surv., vol. 5, p. 76, pl. 39, figs. 8a-d.
Upper Coal Measures: Kansas City, Missouri.

(ENTOLIUM Meek, 1865.)

Entolium attenuatum. See *Pernopecten attenuatus*.

Entolium aviculatum. See *Pernopecten aviculatus*.

Entolium circulus. See *Pernopecten circulus*.

Entolium cooperensis. See *Pernopecten cooperensis*.

Entolium shumardianum. See *Pernopecten shumardianus*.

EOCIDARIS Desor, 1858.

Eocidaris blairi Miller.

1891. *Eocidaris blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 73, pl. 12, figs. 1, 2.
Keokuk Group: Boonville, Missouri.
1892. *Eocidaris blairi*: Miller, 17th Rep. Geol. Surv. Ind., p. 683, pl. 12, figs. 1, 2.
Keokuk Group: Boonville, Missouri.

Eocidaris hallianus Geinitz.

1866. *Eocidaris Hallianus*. Geinitz, Carb. und Dyas in Nebr., p. 61, tab. 5, figs. 1a, b, 2a, b.
Nebraska City, Nebraska.
1872. *Eocidaris Hallianus*. Meek, U. S. Geol. Surv. Nebr., p. 152, pl. 7, figs. 9a-d.
Upper Coal Measures: Nebraska City, Nebraska.
1894. *Archæocidaris hallianus*. Keyes, Mo. Geol. Surv., vol. 4, p. 129.
Upper Coal Measures: Kansas City, Missouri.
1895. *Archæocidaris hallianus*. Keyes, Proc. Ia. Acad. Sci., vol. 2, p. 190.
Upper Coal Measures: Kansas City, Missouri; Nebraska City, Nebraska.

Eocidaris squamosus. See *Lepidocidaris squamosus*.

EOSCORPIUS Meek and Worthen, 1868.**Eoscorpius carbonarius Meek and Worthen.**

1868. *Scorpio carbonarius*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 24.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1868. *Eoscorpius carbonarius*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 560, fig.
Coal Measures: Mazon Creek, Grundy County, Illinois.

EOTROCHUS Whitfield, 1882.**Eotrochus concavus Hall.**

1856. *Pleurotomaria concava*. Hall, Trans. Albany Inst., vol. 4, p. 24.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Eotrochus concavus*. Whitfield, Bull. Am. Mus. Nat. Hist., p. 78, pl. 9, figs. 21-23.
St. Louis Group: Spergen Hill, Indiana; Alton, Illinois.
1883. *Eotrochus concavus*. Hall, 12th Rep. Geol. Surv. Ind., p. 365, pl. 32, figs. 21-23.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

EPHIPPIOCERAS Hyatt, 1883.**Ephippioceras divisus White and St. John.**

1868. *Nautilus divisus*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 124, fig. 9.
Upper Coal Measures: Fremont County, Iowa.
1891. *Ephippioceras divisum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 350, figs. 52-54.
Lower Coal Measures: Near Oswego, Kansas; Kansas City, Missouri; Texas.

Ephippioceras ferratus Cox.

1857. *Nautilus ferratus*. Cox, Geol. Rep. Ky., vol. 3, p. 574, pl. 10, figs. 2, 2a.
Coal Measures: Nolin Iron Works, Edmonson County, Kentucky.
1895. *Ephippioceras ferratum*. Hyatt, Phyl. Acq. Char., p. 539, pl. 10, figs. 23-26.
1897. *Ephippioceras ferratum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 43.
Lower Coal Measures: Conway County, Arkansas.

ERETMOCRINUS Lyon and Casseday, 1859.

Eretmocrinus adultus. See *Dizygocrinus originarius* var. *adultus*.

Eretmocrinus attenuatus Hall.

- *1861. *Actinocrinocrinus matula* var. *attenuata*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.
1893. *Eretmocrinus attenuatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 18, pl. 1, figs. 23, 24.
Burlington L. S.: Burlington, Iowa.

Eretmocrinus calyculoides Hall.

1860. *Actinocrinus calyculoides*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 17.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus calyculoides*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 2-5.
1894. *Eretmocrinus calyculoides*. Keyes, Mo. Geol. Surv., vol. 4, p. 177, pl. 23,
fig. 13.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Eretmocrinus calyculoides*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 395, pl. 34, figs. 1a, b, 2-4.
Upper Burlington L. S.: Burlington, Iowa; Henderson County, Illinois;
Sedalia, Missouri.

Eretmocrinus calyculoides var. nodosus Wachsmuth and Springer.

1897. *Eretmocrinus calyculoides* var. *nodosus*. Wachsmuth and Springer, N. Am.
Crin. Cam., p. 396, pl. 34, figs. 6-8.
Upper Burlington L. S.: Pleasant Grove, Iowa.

Eretmocrinus carica. See Macrocrinus carica.**Eretmocrinus casedayanus. See Eretmocrinus remibrachiatus var. expansus.****Eretmocrinus clio Hall.**

1861. *Actinocrinus clio*. Hall, Desc. New Spec. Crin., p. 1.
Burlington L. S.
1861. *Actinocrinus clio*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 262.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus (Eretmocrinus) Clio*. Hall, Photo. Plates of Crinoids, pl. 4,
fig. 7.
1897. *Eretmocrinus clio*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 393,
pl. 36, figs. 2a, b, pl. 37, figs. 9a, b.
Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus clælia Hall.

1861. *Actinocrinus clælia*. Hall, Desc. New Spec. Crin., p. 1.
Burlington L. S.
1861. *Actinocrinus clælia*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 266.
Burlington L. S.: Burlington, Iowa.
1897. *Eretmocrinus clælia*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 398,
pl. 36, figs. 4a, b.
Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus commendabilis Miller and Gurley.

1895. *Eretmocrinus commendabilis*. Miller and Gurley, Bull. No. 6, Ill. State
Mus. Nat. Hist., p. 25, pl. 2, fig. 15.
Keokuk Group: Crawfordsville, Indiana.

Eretmocrinus corbulis Hall.

1861. *Actinocrinus corbulis*. Hall, Desc. New Spec. Crin., p. 1.
Burlington L. S.
1861. *Actinocrinus corbulis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 265.
Burlington L. S.: Burlington, Iowa.
1894. *Eretmocrinus corbulis*. Keyes, Mo. Geol. Surv., vol. 4, p. 175, pl. 23, fig. 10.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Eretmocrinus corbulis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 399,
pl. 36, figs. 5a-c, 6.
Lower Burlington L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Eretmocrinus coronatus Hall.

1860. *Actinocrinus coronatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 28.
Burlington L. S.: Burlington, Iowa.

Eretmocrinus coronatus Hall—Continued.

1872. *Actinocrinus coronatus*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 1, 2.
 1873. *Eretmocrinus coronatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 10, figs. 8-8b.
 Burlington Group.
 1894. *Eretmocrinus coronatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 176.
 Lower Burlington L. S.: Louisiana, Missouri.
 1897. *Eretmocrinus coronatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 403, pl. 37, figs. 7a-c.
 Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus depressus Keyes.

1894. *Eretmocrinus depressus*. Keyes, Mo. Geol. Surv., vol. 4, p. 176, pl. 23, fig. 11.
 Lower Burlington L. S.: Hannibal, Missouri.
 1897. *Eretmocrinus depressus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 392, pl. 36, figs. 11a, b.
 Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus expansus Keyes.

1894. *Eretmocrinus expansus*. Keyes, Mo. Geol. Surv., vol. 4, p. 175, pl. 23, fig. 12.
 Lower Burlington L. S.: Kinderhook, Illinois.

Eretmocrinus granuliferus Wachsmuth and Springer.

1897. *Eretmocrinus granuliferus*. Wachsmuth and Springer, N. Am. Crin. Cam. p. 390, pl. 34, figs. 5a-c.
 Keokuk Group: Indian Creek, Montgomery County, Indiana; Canton, Indiana.

Eretmocrinus intermedius Wachsmuth and Springer.

1881. *Eretmocrinus intermedius*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 348. (Rev. Palæoc. II, p. 174.)
 Keokuk L. S.: Near Bono, Lawrence County, Indiana.
 1897. *Eretmocrinus intermedius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 404, pl. 33, figs. 2a-c.
 Keokuk Group: Bono, Lawrence County, Indiana.

Eretmocrinus konincki*. See *Macrocrinus koniucki*.*Eretmocrinus leucosia Hall.**

1861. *Actinocrinus leucosia*. Hall, Desc. New Spec. Crin., p. 1.
 Burlington L. S.
 1861. *Actinocrinus leucosia*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 261.
 Burlington L. S.: Burlington, Iowa.
 1891. *Dorycrinus confragosus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 34, pl. 5, figs. 12, 13.
 Burlington Group: Sedalia, Missouri.
 1892. *Batocrinus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 39, pl. 6, figs. 7-10.
 Burlington Group: Sedalia, Missouri.
 1894. *Batocrinus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 293, pl. 6, figs. 7-10.
 Burlington Group: Sedalia, Missouri.
 1894. *Eretmocrinus leucosia*. Keyes, Mo. Geol. Surv., vol. 4, p. 176.
 Burlington L. S.: Sedalia, Missouri.
 1894. *Batocrinus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 180.
 Lower Burlington L. S.: Sedalia, Missouri.
 1897. *Eretmocrinus leucosia*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 401, pl. 36, figs. 7a-c.
 Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Eretmocrinus lyonanus. See *Eretmocrinus magnificus* and *Eretmocrinus remibrachiatus* var. *expansus*.

***Eretmocrinus magnificus* Lyon and Casseday.**

1859. *Eretmocrinus magnificus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28, p. 241.

Subcarboniferous (Knobstone): Quarries near Louisville and Nashville Railroad; Clear Creek, Hardin County, Kentucky; Indiana.

1891. *Eretmocrinus lyonanus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 59, pl. 10, fig. 3.

Keokuk Group: Little Beaver River, Kentucky.

1892. *Eretmocrinus lyonanus*. Miller, 17th Rep. Geol. Surv. Ind., p. 669, pl. 10, fig. 3.

Keokuk Group: Little Beaver River, Kentucky.

1897. *Eretmocrinus magnificus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 386, pl. 37, fig. 3.

Keokuk Group: Clear Creek, Hardin County, Kentucky; New Ross, Montgomery County, Indiana; Pilot Knob, near Louisville, Kentucky; White's Creek Springs, near Nashville, Tennessee.

***Eretmocrinus matutus* Hall.**

*1861. *Actinocrinus matuta*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.

1897. *Eretmocrinus matuta*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 396, pl. 37, figs. 6a-c.

Upper Burlington L. S.: Burlington, Iowa.

***Eretmocrinus minor* Wachsmuth and Springer.**

1897. *Eretmocrinus minor*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 391, pl. 36, figs. 10a, b.

Upper Burlington L. S.: Burlington, Iowa.

***Eretmocrinus neglectus* Meek and Worthen.**

1868. *Batocrinus (Eretmocrinus?) neglectus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 355.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Batocrinus (Eretmocrinus?) neglectus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 377, pl. 5, fig. 3.

Burlington L. S.: Burlington, Iowa.

1897. *Eretmocrinus neglectus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 394, pl. 36, fig. 3.

Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus originarius. See *Dizygocrinus originarius*.

***Eretmocrinus prægravis* Miller.**

1892. *Eretmocrinus prægravis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 37, pl. 6, figs. 5, 6:

Keokuk Group: Washington County, Indiana.

1894. *Eretmocrinus prægravis*. Miller, 18th Rep. Geol. Surv. Ind., p. 291, pl. 6, figs. 5, 6.

Keokuk Group: Washington County, Indiana.

1897. *Eretmocrinus prægravis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 405, pl. 34, figs. 9, 10.

Keokuk Group: White's Creek Springs, near Nashville, Tennessee; Pilot Knob, near Louisville, Kentucky; Barren County, Kentucky; New Ross, Montgomery County, Indiana.

***Eretmocrinus ramulosus* Hall.**

1858. *Actinocrinus ramulosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 615, pl. 15, fig. 7.

Keokuk L. S.: Nauvoo, Illinois.

Eretmocrinus ramulosus Hall—Continued.

1897. *Eretmocrinus ramulosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 387, pl. 37, figs. 4a, b, 5a-d.
Keokuk Group: Keokuk and Augusta, Iowa; Nauvoo, Illinois; White's Creek Springs, Tennessee.

Eretmocrinus remibrachiatus Hall.

1861. *Actinocrinus remibrachiatus*. Hall, Desc. New Spec. Crin., p. 11.
Burlington L. S.
1872. *Actinocrinus (Eretmocrinus) remibrachiatus*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 8, 9.
1873. *Batocrinus (Eretmocrinus) remibrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 370, pl. 10, fig. 5.
Burlington L. S.: Burlington, Iowa.
1894. *Eretmocrinus remibrachiatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 178.
Upper Burlington L. S.: Ash Grove, Missouri.
1897. *Eretmocrinus remibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 388, pl. 37, figs. 2a, b.
Upper Burlington L. S.: Burlington, Iowa.

Eretmocrinus remibrachiatus var. expansus Wachsmuth and Springer.

1894. *Eretmocrinus lyonanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 17, pl. 3, fig. 1. (Not *E. lyonanus* Miller, 1891.)
Upper Burlington Group: Near Burlington, Iowa.
1894. *Eretmocrinus casedayanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist. (Corrigenda.)
1897. *Eretmocrinus remibrachiatus var. expansus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 390, pl. 36, fig. 1; pl. 37, figs. 1a, b; pl. 44, fig. 9.
Burlington and Keokuk Transition Bed: Near Burlington, Iowa; Henderson County, Illinois.

Eretmocrinus rugosus Wachsmuth and Springer.

1897. *Eretmocrinus rugosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 402, pl. 36, figs. 9a-c.
Lower Burlington L. S.: Burlington, Iowa.

Eretmocrinus varsoviensis. See *Dizygocrinus originarius*.

Eretmocrinus verneuillianus. See *Macrocrinus verneuillianus*.

ERIDOPORA Ulrich, 1882.**Eridopora macrostoma Ulrich.**

1882. *Eridopora macrostoma*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 137, pl. 6, figs. 2, 2a.
Kaskaskia Group: Point Burnside, Kentucky.

Eridopora punctifera Ulrich.

1882. *Eridopora punctifera*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 138, pl. 6, fig. 3.
Kaskaskia Group: Point Burnside, Kentucky.

ERISOCRINUS Meek and Worthen, 1865.**Erisocrinus antiquus Meek and Worthen.**

1869. *Erisocrinus antiquus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 71.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Erisocrinus antiquus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 447, pl. 2, fig. 3.
Burlington L. S.: Burlington, Iowa.

Erisocrinus conideus Meek and Worthen.

1865. *Erisocrinus conideus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 150.
Coal Measures: Springfield, Illinois.

1866. *Erisocrinus conideus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 318,
fig. 35.

Coal Measures: Springfield, Illinois.

Erisocrinus inflexus. See *Ceriocrinus inflexus*.

Erisocrinus nebrascensis. See *Erisocrinus typus*.

Erisocrinus planus. See *Ceriocrinus planus*.

Erisocrinus tuberculatus. See *Eupachyrinus tuberculatus*.

Erisocrinus typus Meek and Worthen.

1865. *Erisocrinus typus*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39, p. 174.
Coal Measures: Near Springfield, Illinois.

1865. *Erisocrinus Nebrascensis*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39,
p. 174.

Coal Measures: Bellevue, Nebraska.

1865. *Philocrinus pelvis*. Meek and Worthen, Am. Jour. Sci. (2), vol. 39, p. 350.

1866. *Erisocrinus typus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 317, fgs.
33, 34.

Coal Measures: Near Springfield, Illinois.

1872. *Erisocrinus typus*. Meek, U. S. Geol. Surv. Nebr., p. 146, pl. 1, fgs. 3a, b.
Upper Coal Measures: Bellevue, Nebraska; Springfield, Illinois.

1873. *Erisocrinus typus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 561, pl. 24,
fig. 6.

Coal Measures: Springfield, Illinois.

1876. *Erisocrinus typus*. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Confluence of Grand and Green rivers.

1880. *Erisocrinus typus*. White, Cont. to Inv. Pal., No. 6, p. 126, pl. 33, fig. 5a.
Upper Coal Measures: Bellevue, Nebraska.

Erisocrinus whitei Meek and Worthen.

1869. *Erisocrinus Whitei*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 72.
Upper Burlington L. S.: Burlington, Iowa.

1873. *Erisocrinus Whitei*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 448,
pl. 2, fig. 2.

Burlington L. S.: Burlington, Iowa.

ESCHARA Lamark, 1801.**Eschara concentrica Prout.**

1858. *Eschara (?) concentrica*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 234.
Carboniferous L. S.: Organ Mountains, New Mexico.

Eschara tuberculata Prout.

1858. *Eschara (?) tuberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 234.
Carboniferous L. S.: Organ Mountains, New Mexico.

ESTHERIA Ruppell, 1837.**Estheria dawsoni Jones.**

1868. *Estheria*. Dawson, Acad. Geol., p. 256, fig. 78d.
Carboniferous: Horton Bluff, Nova Scotia.

1870. *Estheria Dawsoni*. Jones, Geol. Mag. (1), vol. 7, p. 220, pl. 9, fig. 15.
Lower Carboniferous: Horton, Nova Scotia.

1878. *Estheria Dawsoni*. Jones, Geol. Mag. (2), vol. 5, p. 101, pl. 3, fig. 2.
Lower Carboniferous: Scotland.

Estheria dawsoni Jones—Continued.

1884. *Estheria Dawsoni*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 361, pl. 12, fig. 12.

Lower Carboniferous: Horton, Nova Scotia.

ETOBLATTINA Scudder, 1882.**Etoblattina accubita Scudder.**

1895. *Etoblattina accubita*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 88, pl. 7, fig. 2.

Lower Permian: Cassville, West Virginia.

Etoblattina angusta Scudder.

1895. *Etoblattina angustata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 100, pl. 8, fig. 8.

Lower Permian: Cassville, West Virginia.

Etoblattina aperta Scudder.

1895. *Etoblattina aperta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 80, pl. 5, fig. 9.

Lower Permian: Cassville, West Virginia.

Etoblattina arcta Scudder.

1895. *Etoblattina arcta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 97, pl. 8, fig. 5.

Lower Permian: Cassville, West Virginia.

Etoblattina balteata Scudder.

1879. *Gerablattina balteata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 110, pl. 6, figs. 9, 10.

Permo-Carboniferous: Cassville, Monongalia County, West Virginia; Bellaire, Ohio.

1880. *Gerablattina balteata*. Fontaine and White, 2d Geol. Surv. Penn., Rept. PP, p. 144, pl. 38, fig. 5.

Roof Shales of Waynesburg Coal: Cassville, West Virginia.

1890. *Gerablattina balteata*. Scudder, Foss. Insc. N. A., vol. 1, p. 130, pl. 6, figs. 9, 10.

Permo-Carboniferous: Cassville, West Virginia; and Bellaire, Ohio.

1895. *Etoblattina balteata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 73.

Lower Permian: Cassville, West Virginia.

Coal Measures: Bellaire, Ohio.

Etoblattina benedicta Scudder.

1895. *Etoblattina benedicta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 84, pl. 5, figs. 14, 15.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

Etoblattina clarkii Scudder.

1893. *Etoblattina clarkii*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 14, pl. 2, fig. j.

Carboniferous: Pawtucket, Rhode Island.

1895. *Etoblattina clarkii*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 72, pl. 5, fig. 10.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

Etoblattina clintoniana Scudder.

1895. *Etoblattina clintoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 66, pl. 4, fig. 1.

Lower Coal Measures: Gilkerston Ford, near Clinton, Missouri.

Etoblattina communis Scudder.

1895. *Etoblattina communis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 93, pl. 7, figs. 10-17.

Lower Permian: Cassville, West Virginia.

***Etoblattina debilis* Scudder.**

1895. *Etoblattina debilis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 71, pl. 4, fig. 8.
Lower Permian: Cassville, West Virginia.

***Etoblattina defossa* Scudder.**

1895. *Etoblattina defossa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 108, pl. 9, fig. 12.
Lower Permian: Cassville, West Virginia.

***Etoblattina detecta* Scudder.**

1895. *Etoblattina detecta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 75, pl. 4, figs. 12, 13.
Lower Permian: Cassville, West Virginia.

***Etoblattina eakiniana* Scudder.**

1895. *Etoblattina eakiniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 88, pl. 7, fig. 1.
Lower Permian: Cassville, West Virginia.

***Etoblattina exigua* Scudder.**

1895. *Etoblattina exigua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 76, pl. 5, fig. 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina exilis* Scudder.**

1893. *Etoblattina exilis*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 17, pl. 2, fig. e.
Carboniferous: Rhode Island.
1895. *Etoblattina exilis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 101, pl. 9, fig. 1.
Lower (?) Coal Measures: East Providence, Rhode Island.

***Etoblattina expugnata* Scudder.**

1895. *Etoblattina expugnata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 102, pl. 9, fig. 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina expulsata* Scudder.**

1895. *Etoblattina expulsata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 89, pl. 7, figs. 3, 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina expuncta* Scudder.**

1895. *Etoblattina expuncta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 79, pl. 5, fig. 6.
Lower Permian: Cassville, West Virginia.

***Etoblattina exsecuta* Scudder.**

1895. *Etoblattina exsecuta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 96, pl. 8, fig. 4.
Lower Permian: Cassville, West Virginia.

***Etoblattina exsensa* Scudder.**

1895. *Etoblattina exsensa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 86, pl. 6, figs. 7, 8.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina fasciata* Scudder.**

1888. *Etoblattina fasciata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 47.
Barren Coal Measures: Richmond, Ohio; and Cassville, West Virginia.
1895. *Etoblattina fasciata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 81, pl. 5, fig. 11.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina fossa* Scudder.**

1895. *Etoblattina fossa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 70, pl. 4, fig. 5.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina funeraria* Scudder.**

1895. *Etblattina funeraria*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 78, pl. 5, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etblattina funesta* Scudder.**

1895. *Etblattina funesta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 85, pl. 6, fig. 4.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina gorhami* Scudder.**

1893. *Etblattina gorhami*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 16, pl. 2, fig. a.

Carboniferous: Pawtucket, Rhode Island.

1895. *Etblattina gorhami*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 80, pl. 5, fig. 8.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

***Etblattina gracilentia* Scudder.**

1895. *Etblattina gracilentia*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 95, pl. 8, figs. 6, 7.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina gratiosa* Scudder.**

1895. *Etblattina gratiosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 90, pl. 7, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etblattina hastata* Scudder.**

1895. *Etblattina hastata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 94, pl. 8, fig. 1.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina hilliana* Scudder.**

1895. *Etblattina hilliana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 99, pl. 8, fig. 11.

Lower Coal Measures: Mazon Creek, Morris, Grundy County, Illinois.

***Etblattina hustoni* Scudder.**

1888. *Etblattina hustoni*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 53.

Barren Coal Measures: Wills Creek, Richmond, Ohio.

1895. *Etblattina hustoni*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 87, pl. 6, fig. 9.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etblattina illustris* Scudder.**

1893. *Etblattina illustris*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 12, pl. 2, fig. i.

Carboniferous: Rhode Island.

1895. *Etblattina illustris*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 70, pl. 4, fig. 11.

Lower (?) Coal Measures: Pawtucket (?), Rhode Island.

***Etblattina immolata* Scudder.**

1895. *Etblattina immolata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 92, pl. 7, figs. 7, 8.

Lower Permian: Cassville, West Virginia.

***Etblattina imperfecta* Scudder.**

1895. *Etblattina imperfecta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 104, pl. 9, fig. 8.

Lower Permian: Cassville, West Virginia.

***Etoblattina invisa* Scudder.**

1895. *Etoblattina invisa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 106, pl. 9, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina jeffersoniana* Scudder.**

1895. *Etoblattina jeffersoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 71, pl. 5, fig. 7.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina lata* Scudder.**

1895. *Etoblattina lata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 67, pl. 4, fig. 2.

Lower Permian: Cassville, West Virginia.

***Etoblattina latebricola* Scudder.**

1895. *Etoblattina latebricola*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 108, pl. 9, fig. 11.

Lower (?) Coal Measures: East Providence, Rhode Island.

***Etoblattina lesquereuxii* Scudder.**

1879. *Etoblattina Lesquereuxii*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 67, pl. 6, figs. 3, 4.

Middle Carboniferous: Pittston, Pennsylvania.

1890. *Etoblattina Lesquereuxii*. Scudder, Foss. Insc. N. Am., vol. 1, p. 87, pl. 6, figs. 3, 4.

Middle Carboniferous: Pittston, Pennsylvania.

1895. *Etoblattina lesquereuxii*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 83.

Coal Measures: Yatesville, near Pittston, Pennsylvania.

***Etoblattina macerata* Scudder.**

1895. *Etoblattina macerata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 91, pl. 7, fig. 6.

Lower Permian: Cassville, West Virginia.

***Etoblattina macilentata* Scudder.**

1895. *Etoblattina macilentata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 101, pl. 8, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina mactata* Scudder.**

1895. *Etoblattina mactata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 92, pl. 7, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina maledicta* Scudder.**

1895. *Etoblattina maledicta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 83, pl. 6, figs. 1-3.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina marginata* Scudder.**

1888. *Etoblattina marginata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 48.

Barren Coal Measures: Richmond, Ohio.

1895. *Etoblattina marginata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 95, pl. 8, fig. 2.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina mazona* Scudder.**

1882. *Etoblattina mazona*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 21, p. 391.

Coal Measures: Mazon Creek, Illinois.

1882. *Etoblattina mazona*: Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 181, pl. 10.

Carboniferous: Mazon Creek, Illinois.

***Etoblattina mazona* Scudder—Continued.**

1890. *Etoblattina mazona*. Scudder, Foss. Insc. N. A., vol. 1, p. 233, pl. 7a.
Carboniferous: Mazon Creek, Illinois.

1895. *Etoblattina mazona*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 89, pl. 6, fig. 5.
Lower Coal Measures: Mazon Creek, Illinois.

***Etoblattina mediana* Scudder.**

1895. *Etoblattina mediana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 69, pl. 4,
fig. 4.

Lower Permian: Cassville, West Virginia.

***Etoblattina macronata* Scudder.**

1895. *Etoblattina macronata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 74, pl. 5,
fig. 3.

Lower Permian: Cassville, West Virginia.

***Etoblattina obatra* Scudder.**

1895. *Etoblattina obatra*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 103, pl. 9, fig. 5.

Lower Permian: Cassville, West Virginia.

***Etoblattina occidentalis* Scudder.**

1890. *Etoblattina occidentalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 410,
pl. 32, fig. 4.

Carboniferous: Lawrence, Kansas.

1890. *Etoblattina occidentalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 386, pl. 24, fig. 4.
Carboniferous: Lawrence, Kansas.

1895. *Etoblattina occidentalis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 76.

Upper Coal Measures: Lawrence, Kansas.

***Etoblattina occulta* Scudder.**

1895. *Etoblattina occulta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 107, pl. 9,
fig. 13.

Lower Permian: Cassville, West Virginia.

***Etoblattina ovata* Scudder.**

1895. *Etoblattina ovata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 70, pl. 4, fig. 6.

Lower Permian: Cassville, West Virginia.

***Etoblattina patiens* Scudder.**

1895. *Etoblattina patiens*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 73, pl. 4, fig. 9.

Lower Permian: Cassville, West Virginia.

***Etoblattina prædulcis* Scudder.**

1895. *Etoblattina prædulcis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 98, pl. 8,
fig. 12.

Lower Permian: Cassville, West Virginia.

***Etoblattina ramosa* Scudder.**

1895. *Etoblattina ramosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 81, pl. 5,
fig. 12.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina recidiva* Scudder.**

1895. *Etoblattina recidiva*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 109, pl. 9,
fig. 14.

Lower Permian: Cassville, West Virginia.

***Etoblattina reliqua* Scudder.**

1893. *Etoblattina reliqua*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 18, pl. 2, fig. 9.
Carboniferous: Pawtucket, Rhode Island.

1895. *Etoblattina reliqua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 106, pl. 9,
fig. 10.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

***Etoblattina residua* Scudder**

1895. *Etoblattina residua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 78, pl. 5, fig. 1.
Lower Permian: Cassville, West Virginia.

***Etoblattina rogi* Scudder.**

1895. *Etoblattina rogi*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 102, pl. 9, figs. 2, 3.

Lower Permian: Cassville, West Virginia.

***Etoblattina sagittaria* Scudder.**

1895. *Etoblattina sagittaria*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 68, pl. 4, fig. 3.

Lower Permian: Cassville, West Virginia.

***Etoblattina scholfieldi* Scudder.**

1893. *Etoblattina scholfieldi*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 15, pl. 2, fig. b.

Carboniferous: East Providence, Rhode Island.

1895. *Etoblattina scholfieldi*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 71, pl. 4, fig. 7.

Lower (?) Coal Measures: East Providence, Rhode Island.

***Etoblattina secreta* Scudder.**

1895. *Etoblattina secreta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 105, pl. 9, figs. 6, 7.

Lower Permian: Cassville, West Virginia.

***Etoblattina stipata* Scudder.**

1888. *Etoblattina stipata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 50.
Barren Coal Measures: Wills Creek, Richmond, Ohio.

1895. *Etoblattina stipata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 98, pl. 8, fig. 3.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina strigosa* Scudder.**

1888. *Etoblattina strigosa*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 52.
Barren Coal Measures: Wills Creek, Richmond, Ohio.

1895. *Etoblattina strigosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 72, pl. 4, fig. 10.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina tenuis* Scudder.**

1888. *Etoblattina tenuis*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 46.
Barren Coal Measures: Richmond, Ohio.

1895. *Etoblattina tenuis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 87, pl. 6, fig. 6.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina variegata* Scudder.**

1888. *Etoblattina variegata*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 51.
Barren Coal Measures: Wills Creek, Richmond, Ohio.

1895. *Etoblattina variegata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 99, pl. 8, fig. 10.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina venusta* Lesquereux.**

1860. *Blattina venusta*. Lesquereux, 2d Rept. Geol. Surv. Ark., p. 314, pl. 5, fig. 11.
Carboniferous: Frog Bayou, Arkansas.

1879. *Etoblattina venusta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 70, pl. 6, fig. 12.

Carboniferous: Frog Bayou, Arkansas.

***Etoblattina venusta* Lesquereux—Continued.**

1890. *Etoblattina venusta*. Scudder, Foss. Insc. N. A., vol. 1, p. 90, pl. 6, fig. 12.
Carboniferous: Frog Bayou, Arkansas.
1895. *Etoblattina venusta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 73.
Millstone Grit: Frog Bayou, Arkansas.

***Etoblattina willsiana* Scudder.**

1895. *Etoblattina willsiana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 82, pl. 5, fig. 13.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

***Etoblattina* (species undetermined).**

1893. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 13, pl. 2, fig. c.
Carboniferous: Silver Spring, East Providence, Rhode Island.
1893. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 16, pl. 2, fig. k.
Carboniferous: Fenner's Ledge, in Cranston, Rhode Island.
1893. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 18, pl. 2, fig. h.
Carboniferous: Pawtucket, Rhode Island.
1895. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 110, pl. 12, fig. 2.
Lower (?) Coal Measures: East Providence, Rhode Island.
1895. *Etoblattina* (?) sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 111, pl. 12, fig. 4.
Lower (?) Coal Measures: Cranston, Rhode Island.
1895. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 77, pl. 5, fig. 2.
Lower (?) Coal Measures: Pawtucket, Rhode Island.
1895. *Etoblattina* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 110, pl. 10, figs. 14, 15.
Lower Permian: Cassville, West Virginia.

EUCÆNUS* Scudder, 1884.**Eucænus ovalis* Scudder.**

1885. *Eucænus ovalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 325, pl. 29, fig. 4.
Carboniferous: Mazon Creek, Illinois.
1890. *Eucænus ovalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 289, pl. 15, fig. 4.
Carboniferous: Mazon Creek, Illinois.

EUCHONDRIA* Meek, 1874.**Euchondria neglecta* Geinitz.**

1866. *Pecten neglectus*. Geinitz, Carb. und Dyas in Nebr., p. 33, tab. 2, fig. 17.
Nebraska City, Nebraska.
1872. *Aviculopecten neglectus*. Meek, U. S. Geol. Surv. Nebr., p. 193, pl. 9, figs. 1a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Illinois.
1873. *Aviculopecten neglectus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 26, fig. 7.
Upper and Lower Coal Measures: Illinois.
1874. *Euchondria neglectus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 445.
1874. *Euchondria neglecta*. Meek, Am. Jour. Sci. (3), vol. 7, pp. 488, 489.
1884. *Euchondria neglectus*. Hall, Rep. N. Y. State Geol. for 1881, pl. 1, figs. 10, 11.
Coal Measures: Illinois.
1888. *Aviculopecten neglectus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 232.
Lower Coal Measures: Des Moines, Iowa.
1894. *Euchondria neglecta*. Keyes, Mo. Geol. Surv., vol. 5, p. 115.
Upper Coal Measures: Kansas City, Missouri.

EUCLADOCRINUS Meek, 1871.

Eucladocrinus millebrachiatus Wachsmuth and Springer.

1878. *Eucladocrinus millebrachiatus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 245.

Burlington and Keokuk transition bed: Near Burlington, Iowa.

1897. *Eucladocrinus millebrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 720, pl. 73, fig. 1; pl. 74, figs. 2-9.

Burlington and Keokuk transition bed: Near Burlington, Iowa; Pleasant Grove, Iowa.

Keokuk Group: Niota and Nauvoo, Illinois.

Eucladocrinus millebrachiatus var. immaturus Wachsmuth and Springer.

1897. *Eucladocrinus millebrachiatus var. immaturus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 722, pl. 73, figs. 2, 3.

Burlington and Keokuk transition bed: Near Burlington, Iowa.

Eucladocrinus montanensis Meek.

1872. *Platycrinites (Eucladocrinus) Montanaensis*. Meek, U. S. Geol. Surv. Mont. and Adj. Terr. Rept. for 1871, p. 373.

Carboniferous: Utah or Wyoming.

1897. *Eucladocrinus montanensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 723, pl. 72, fig. 5.

Subcarboniferous: Montana.

Eucladocrinus pleurovimenus White.

1858. *Platycrinus discoidens*. Hall, Geol. Ia., vol. 1, pt. 2, p. 535, pl. 8, figs. 8a, b. (Not *P. discoidens* O. & S., 1850.)

Burlington L. S.: Burlington, Iowa.

1862. *Platycrinus pleurovimenus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 17. Upper Burlington L. S.: Burlington, Iowa.

1894. *Eucladocrinus pleurovimenus*. Keyes, Mo. Geol. Surv., vol. 4, p. 202.

Upper Burlington L. S.: Ash Grove, Sedalia, and Hannibal, Missouri.

1897. *Eucladocrinus pleurovimenus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 724, pl. 73, fig. 4; pl. 74, fig. 1.

Upper Burlington L. S.: Burlington and Augusta, Iowa.

Eucladocrinus prænuntius Wachsmuth and Springer.

1878. *Platycrinus prænuntius*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 249.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Platycrinus prænuntius*. Keyes, Mo. Geol. Surv., vol. 4, p. 198.

Burlington L. S.: Sedalia, Missouri.

1897. *Eucladocrinus prænuntius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 726, pl. 73, fig. 5.

Upper Burlington L. S.: Burlington, Iowa; Missouri.

Eucladocrinus tuberosus Hall.

1858. *Platycrinus tuberosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 534, pl. 8, figs. 7a, b. Burlington L. S.: Burlington, Iowa.

1891. *Platycrinus occidentalis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 10, pl. 1, figs. 5, 6.

Burlington Group: Near Sedalia, Missouri.

1897. *Eucladocrinus tuberosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 728, pl. 72, figs. 3, 4a-c.

Upper Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

(EULIMA Risso, 1826.)

Eulima peracuta Meek and Worthen. See *Bulimorpha peracuta*.

EUMETRIA Hall, 1864.

Eumetria altirostris White.

1862. *Retzia* (*Acambona*?) *altirostris*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 28.

Chemung S. S.: Burlington, Iowa.

Eumetria marcyi Shumard.

1852. *Terebratula serpentaria*? Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 3A, fig. 13. (Not De Koninck.)
Carboniferous: Skunk River, Iowa.
1854. *Terebratula marcyi*. Shumard, Marcy's Exp. Red River of Louis., p. 177, pl. 1, figs. 4a, b.
Carboniferous: Washington and Crawford counties, Arkansas.
1856. *Retzia Verneuiliana*. Hall, Trans. Albany Inst., vol. 4, p. 9.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1858. *Retzia verneuiliana*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 657, pl. 23, figs. 1a-d.
Warsaw L. S.: Spergen Hill and Bloomington, Indiana.
1858. *Retzia vera*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 704, pl. 27, fig. 3a.
Kaskaskia L. S.: Chester, Illinois.
1858. *Retzia vera* var. *costata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 704, pl. 27, figs. 3a, b.
Kaskaskia L. S.: Chester, Illinois.
1882. *Eumetria Verneuilana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 50, pl. 6, figs. 28-30.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana;
Alton, Illinois.
1883. *Eumetria verneuiliana*. Hall, 12th Rep. Geol. Surv. Ind., p. 335, p. 29, figs. 28-30.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1884. *Retzia Verneuiliana*. Walcott, Pal. Eureka Dist., p. 220, pl. 7, figs. 5, 5a.
Lower Carboniferous: Little Belt Mountains, near Clendenin, Montana.
1894. *Eumetria Verneuiliana*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37, figs. 1-4, 6, 10.
St. Louis Group: Spergen Hill, Indiana.
1894. *Retzia verneuiliana*. Keyes, Mo. Geol. Surv., vol. 5, p. 95.
St. Louis L. S.: St. Louis, Missouri.
1894. *Eumetria vera* var. *costata*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37, figs. 5, 11.
Chester L. S.: Chester, Illinois; Crittenden County, Kentucky.
1894. *Eumetria vera*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37, figs. 8, 12.
Chester L. S.: Crittenden County, Kentucky.
1894. *Retzia vera*. Keyes, Mo. Geol. Surv., vol. 5, p. 95.
Kaskaskia L. S.: Ste. Mary, Missouri.
1895. *Eumetria vera* var. *costata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 27-33.
Chester L. S.: Crittenden County, Kentucky; Chester, Illinois.
1895. *Eumetria vera*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 36, 37.
Chester Group: Crittenden County, Kentucky.
1895. *Eumetria Verneuiliana*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 13-26, 34, 35; pl. 83, figs. 26, 27.
St. Louis Group: Spergen Hill, Indiana; Greene County, Missouri.
1897. *Eumetria verneuilana*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 259.
Batesville S. S.: Batesville, Arkansas.

Eumetria osagensis. See *Acambona osagensis*.

Eumetria punctulifera. See *Hustedia mormoni*.

Eumetria vera. See *Eumetria marcyi*.

Eumetria vera var. *costatu*. See *Eumetria marcyi*.

Eumetria verneuilana. See *Eumetria marcyi*.

Eumetria woosteri White.

1879. *Retzia woosteri*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 215.

Carboniferous: 18 miles north of Greeley, Colorado.

1880. *Retzia woosteri*. White, Cont. to Inv. Pal. No. 6, p. 134, pl. 34, figs. 8a, b.

Coal Measures: 32 miles west and 18 miles north of Greeley, Colorado.

(EUMICROTIS Meek, 1864.)

Eumicrotis hawni. See *Pseudomonotis hawni*.

Eumicrotis hawni var. *ovata*. See *Pseudomonotis hawni* var. *ovata*.

Eumicrotis hawni var. *sinuata*. See *Pseudomonotis hawni* var. *sinuata*.

(EUNEMA Salter, 1859.)

Eunema salteri. Meek and Worthen. See *Orthonema salteri*.

(EUOMPHALUS Sowerby, 1812.)

Euomphalus ammon. See *Straparollus ammon*.

Euomphalus boonensis. See *Straparollus boonensis*.

Euomphalus exortivus. See *Straparollus exortivus*.

Euomphalus gyroceras. See *Phanerotinus gyroceras*.

Euomphalus latus. See *Straparollus latus*.

Euomphalus laxus. See *Straparollus luxus*.

Euomphalus lens. See *Straparollus lens*.

Euomphalus luxus. See *Straparollus luxus*.

Euomphalus obtusus. See *Straparollus obtusus*.

Euomphalus ophirensis. See *Straparollus ophirensis*.

Euomphalus pernodosus. See *Straparollus pernodosus*.

Euomphalus perspectivus. See *Straparollus planidorsatus*.

Euomphalus planidorsatus. See *Straparollus planidorsatus*.

Euomphalus planispira. See *Straparollus planispira*.

Euomphalus quadrivolvus. See *Straparollus quadrivolvus*.

Euomphalus roberti. See *Straparollus roberti*.

Euomphalus rugosus. See *Straparollus catilloides*.

Euomphalus spergenensis. See *Straparollus spergenensis*.

Euomphalus spergenensis var. *planorbiformis*. See *Straparollus spergenensis* var. *planorbiformis*.

Euomphalus spirorbis. See *Straparollus spirorbis*.

Euomphalus springvalensis. See *Omphalotrochus springvalensis*.

Euomphalus subplanus. See *Phanerotinus subplanus*.

Euomphalus subquadratus. See *Straparollus subquadratus*.

Euomphalus subrugosus. See *Straparollus catilloides*.

Euomphalus umbilicatus. See *Straparollus umbilicatus*.

Euomphalus utahensis. See *Straparollus utahensis*.

Euomphalus whitneyi. See *Omphalotrochus whitneyi*.

EUPACHYCRINUS Meek and Worthen, 1865.

Eupachycrinus asperatus Worthen.

1882. *Eupachycrinus asperatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 34.

Chester L. S.: Monroe County, Illinois.

1883. *Eupachycrinus asperatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 311, pl. 29, fig. 4.

Chester L. S.: Monroe County, Illinois.

Eupachycrinus bassetti Worthen.

1875. *Eupachycrinus Bassetti*. Worthen, Geol. Surv. Ill., vol. 6, p. 528, pl. 32, fig. 2.
Coal Measures: Vandalia, Illinois.

Eupachycrinus boydii Meek and Worthen.

1870. *Eupachycrinus Boydii*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 30.
Chester Group: Chester, Illinois.

1873. *Eupachycrinus Boydii*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 554, pl. 21, fig. 6.

Chester Group: Chester, Illinois.

Eupachycrinus craigii. See *Ceriocrinus craigii*.

Eupachycrinus crassus Meek and Worthen.

1860. *Cyathocrinus?* *crassus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 392.

Lower Coal Measures: Avon, Fulton County, Illinois.

1866. *Zeacrinus?* *crassus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 314, pl. 26, figs. 2a, b.

Coal Measures: Avon, Fulton County, Illinois.

Eupachycrinus fayettensis. See *Ceriocrinus fayettensis*.

Eupachycrinus formosus Worthen.

1873. *Zeacrinus formosus*. Worthen, Geol. Surv. Ill., vol. 5, p. 549, pl. 21, fig. 2.
Chester Group: Chester, Illinois.

Eupachycrinus germanus. See *Eupachycrinus spartarius*.

Eupachycrinus gracilis Wetherby.

1880. *Cromyocrinus gracilis*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 248, pl. 16, figs. 2-2e.

Kaskaskia Group: Pulaski County, Kentucky.

Eupachycrinus harii Miller.

1891. *Eupachycrinus harii*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 71, pl. 11, fig. 8.

Coal Measures: Kansas City, Missouri.

1892. *Eupachycrinus harii*. Miller, 17th Rep. Geol. Surv. Ind., p. 681, pl. 11, fig. 8.
Coal Measures: Kansas City, Missouri.

1894. *Eupachycrinus harii*. Keyes, Mo. Geol. Surv., vol. 4, p. 218, pl. 28, fig. 3.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcinus magister Miller and Gurley.

1890. *Eupachyrcinus magister*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 4, pl. 1, figs. 1, 2.
Upper Coal Measures; Kansas City, Missouri.
1890. *Eupachyrcinus magister*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 328, pl. 1, figs. 1, 2; also p. 371, pl. 10, figs. 6-8.
Upper Coal Measures: Kansas City, Missouri.
1894. *Eupachyrcinus magister*. Keyes, Mo. Geol. Surv., vol. 4, p. 218, pl. 27, figs. 1a, b, 3.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcinus maniformis Yandell and Shumard.

1847. *Cyathocrinus maniformis*. Yandell and Shumard, Cont. to Geol. of Ky., p. 25, pl., fig. 2.
Grayson, Kentucky.
1858. *Scrinus maniformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 682, pl. 25, fig. 8.
Kaskaskia L. S.: Chester, Illinois.
1894. *Eupachyrcinus maniformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 217.
Kaskaskia L. S.: Chester, Illinois.

Eupachyrcinus monroensis Worthen.

1882. *Eupachyrcinus monroensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 34.
Chester L. S.: Monroe County, Illinois.
1883. *Eupachyrcinus Monroensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 312, pl. 29, fig. 16.
Chester L. S.: Monroe County, Illinois.

Eupachyrcinus mooresi Whitfield.

1882. *Zeacrinus Mooresi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 227.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1891. *Zeacrinus Mooresi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 597, pl. 15, figs. 6-10.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1895. *Zeacrinus Mooresi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 483, pl. 11, figs. 6-10.
Coal Measures: Carbon Hill, Hocking County, Ohio.

Eupachyrcinus orbicularis Hall.

1861. *Scaphiocrinus orbicularis*. Hall, Desc. New Spec. Crin., p. 7.
Keokuk L. S.
1861. *Scaphiocrinus orbicularis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 311.
Keokuk L. S.: Keokuk, Iowa.
1872. *Scaphiocrinus orbicularis*. Hall, Photo. Plates of Crin., pl. 5, figs. 7-9.
1890. *Eupachyrcinus orbicularis*. Worthen, Geol. Surv. Ill., vol. 8, p. 97, pl. 14, figs. 2, 2a.
Keokuk L. S.: Keokuk, Iowa.
1893. *Eupachyrcinus orbicularis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 30, pl. 3, figs. 8, 9.
Keokuk L. S.: Keokuk, Iowa.
1894. *Eupachyrcinus orbicularis*. Keyes, Mo. Geol. Surv., vol. 4, p. 217.
Keokuk L. S.: Keokuk, Iowa; Hamilton, Illinois.

Eupachyrcinus parvus Miller and Gurley.

1894. *Eupachyrcinus parvus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 60, pl. 6, figs. 22, 23.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcrinus platybasis White.

1876. *Eupachyrcrinus platybasis*. White, Powell's Rep. Geol. Uinta Mts., p. 108.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1880. *Eupachyrcrinus platybasis*. White, Cont. to Inv. Pal., No. 6, p. 124, pl. 33, fig. 8a.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

Eupachyrcrinus quatuor-decem-brachialis Lyon.

1857. *Graphiocrinus 14 brachialis*. Lyon, Geol. Rep. Ky., vol. 3, p. 477, pl. 1, figs. 2-2b.
Lower calcareous beds of Millstone Grit: Crittenden County, Kentucky.
1858. *Cyathocrinus* (?) *pentalobus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 687, pl. 25, figs. 5a, b.
Kaskaskia L. S.: Pope County, Illinois.

Eupachyrcrinus sancti-ludovici. See *Hydreionocrinus sancti-ludovici*.**Eupachyrcrinus spartarius** Miller.

1879. *Eupachyrcrinus spartarius*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 38, pl. 8, fig. 2.
Kaskaskia Group: Pulaski County, Kentucky.
1879. *Eupachyrcrinus germanus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 40, pl. 8, fig. 3.
Kaskaskia Group: Pulaski County, Kentucky.

Eupachyrcrinus sphæralis Miller and Gurley.

1890. *Eupachyrcrinus sphæralis*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 5, pl. 1, figs. 3, 4.
Upper Coal Measures: Kansas City, Missouri.
1890. *Eupachyrcrinus sphæralis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 329, pl. 1, figs. 3, 4.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcrinus subtumidus Worthen.

1873. *Zeacrinus subtumidus*. Worthen, Geol. Surv. Ill., vol. 5, p. 548, pl. 21, fig. 1.
Chester Group: Bay City, Pope County, Illinois.

Eupachyrcrinus tuberculatus Meek and Worthen.

1865. *Erisocrinus tuberculatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 150.
Upper Coal Measures: Sugar Creek, Sangamon County, Illinois, and near Brighton, Jersey County, Illinois.
1866. *Erisocrinus tuberculatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 319.
Coal Measures: Sugar Creek, Sangamon County, Illinois, and near Brighton, Jersey County, Illinois.
1873. *Eupachyrcrinus tuberculatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 566, p. 24, fig. 9.
Coal Measures: Near Brighton, Jersey County, Illinois; Parke County, Illinois.

Eupachyrcrinus tumulosus Miller.

1891. *Eupachyrcrinus tumulosus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 70, pl. 9, figs. 9, 10.
Kaskaskia Group: Breckinridge County, Kentucky.
1892. *Eupachyrcrinus tumulosus*. Miller, 17th Rep. Geol. Surv. Ind., p. 680, pl. 9, figs. 9, 10.
Kaskaskia Group: Breckinridge County, Kentucky.

Eupachyrcrinus verrucosus White and St. John.

1868. *Hydreionocrinus*? *verrucosus*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 117, fig. 1.
Upper Coal Measures: Western Iowa.

Eupachyrcinus verrucosus White and St. John—Continued.

1872. *Eupachyrcinus verrucosus*. Meek, U. S. Geol. Surv. Nebr., p. 150, figs. 3, 4.
Upper Coal Measures: Plattsmouth, Nebraska.

1894. *Eupachyrcinus verrucosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 217, pl. 27, fig. 2.
Upper Coal Measures: Kansas City, Missouri.

Eupachyrcinus (species undetermined).

1888. *Eupachyrcinus* (sp. ?). Keyes, Proc. Acad. Nat. Sci. Phil., p. 225.
Lower Coal Measures: Des Moines, Iowa.

EUPHOBERIA Meek and Worthen, 1868.**Euphoberia anguilla** Scudder.

1882. *Euphoberia anguilla*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 177,
pl. 12, fig. 20.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia anguilla*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 436,
pl. 36, fig. 3.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia anguilla*. Scudder, Foss. Insc. N. A., vol. 1, pp. 229, 411, pl. 9,
fig. 20; pl. 28, fig. 3.

Carboniferous: Mazon Creek, Illinois.

Euphoberia armigera Meek and Worthen.

1868. *Euphoberia armigera*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 26.
Coal Measures: Mazon Creek, Grundy County, Illinois.

1868. *Euphoberia armigera*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 556,
figs. A-D.

Coal Measures: Mazon Creek, Grundy County, Illinois.

1882. *Euphoberia armigera*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 160,
pl. 12, figs. 1-3, 5, 6, 13; pl. 13, figs. 7, 8, 10.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia armigera*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 427,
pl. 34, figs. 2, 4, 8; pl. 35, fig. 3.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia armigera*. Scudder, Foss. Insc. N. A., vol. 1, pp. 212, 403, pl. 9,
figs. 1-3, 5, 6, 13; pl. 10, figs. 7, 8, 10; pl. 26, figs. 2, 4, 8; pl. 27, fig. 3.

Carboniferous: Mazon Creek, Illinois.

Euphoberia carri Scudder.

1882. *Euphoberia carri*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 171, pl. 12,
figs. 4, 9-12, 14-19; pl. 13, figs. 16-18.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia carri*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 429.
Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia carri*. Scudder, Foss. Insc. N. A., vol. 1, pp. 223, 405, pl. 9,
figs. 4, 9-12, 14-19; pl. 10, figs. 10, 18.

Carboniferous: Mazon Creek, Illinois.

Euphoberia cuspidata Scudder.

1890. *Euphoberia cuspidata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 429,
pl. 34, figs. 3, 7.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia cuspidata*. Scudder, Foss. Insc. N. A., vol. 1, pp. 405, pl. 26,
figs. 3, 7.

Carboniferous: Mazon Creek, Illinois.

Euphoberia flabellata Scudder.

1882. *Euphoberia flabellata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 174, pl. 13, fig. 15.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia flabellata*. Scudder, Foss. Insc. N. A., vol. 1, pp. 226, pl. 10, fig. 15.

Carboniferous: Mazon Creek, Illinois.

Euphoberia granosa Scudder.

1882. *Euphoberia granosa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 168, pl. 12, figs. 22, 24-26, pl. 13, fig. 13.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia granosa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 427, pl. 34, figs. 5, 6; pl. 36, fig. 2.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia granosa*. Scudder, Foss. Insc. N. A., vol. 1, pp. 220, 403, pl. 9, figs. 22, 24-26; pl. 10, fig. 13; pl. 26, figs. 5, 6; pl. 28, fig. 2.

Carboniferous: Mazon Creek, Illinois.

Euphoberia horrida Scudder.

1882. *Euphoberia horrida*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 158, pl. 13, figs. 11, 12, 14.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia horrida*. Scudder, Foss. Insc. N. A., vol. 1, pp. 210, pl. 10, figs. 11, 12, 14.

Carboniferous: Mazon Creek, Illinois.

Euphoberia hystriosa Scudder.

1890. *Euphoberia hystriosa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 426, pl. 33, figs. 1-3.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia hystriosa*. Scudder, Foss. Insc. N. A., vol. 1, p. 402, pl. 25, figs. 1, 3.

Carboniferous: Mazon Creek, Illinois.

Euphoberia major Meek and Worthen. See *Acantherpestes major*.**Euphoberia simplex** Scudder.

1890. *Euphoberia simplex*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 432, pl. 35, figs. 2, 6, 7.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia simplex*. Scudder, Foss. Insc. N. A., vol. 1, pp. 408, pl. 27, figs. 2, 6, 7.

Carboniferous: Mazon Creek, Illinois.

Euphoberia spinulosa Scudder.

1890. *Euphoberia spinulosa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 430, pl. 34, fig. 1; pl. 35, figs. 1, 4, 5; pl. 36, figs. 7, 8.

Carboniferous: Mazon Creek and Braidwood, Illinois.

1890. *Euphoberia spinulosa*. Scudder, Foss. Insc. N. A., vol. 1, pp. 406, pl. 26, fig. 1; pl. 27, figs. 1, 4, 5; pl. 28, figs. 7, 8.

Carboniferous: Mazon Creek and Braidwood, Illinois.

Euphoberia tracta Scudder.

1890. *Euphoberia tracta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, pp. 433, pl. 36, figs. 1, 4-6.

Carboniferous: Mazon Creek, Illinois.

1890. *Euphoberia tracta*. Scudder, Foss. Insc. N. A., vol. 1, pp. 409, pl. 28, figs. 1, 4-6.

Carboniferous: Mazon Creek, Illinois.

Euphoberia (species undetermined).

1890. *Euphoberia* sp. Scudder, Mem. Bost. Soc. Nat. Hist., p. 435.
Carboniferous: Mazon Creek, Illinois.
1890. *Euphoberia* sp. Scudder, Foss. Insc. N. A., vol. 1, p. 411.
Carboniferous: Mazon Creek, Illinois.

(EUPROOPS Meek, 1867.)

Euproops colletti White. See *Prestwichia colletti*.

Euproops danæ Meek and Worthen. See *Prestwichia danæ*.

Euproops longispina Packard. See *Prestwichia longispina*.

EURYPTERUS De Kay, 1825.**Eurypterus mansfieldi Hall.**

1877. *Dolichopterus Mansfieldi*. Hall, Proc. Am. Phil. Soc., vol. 16, p. 621.
Carboniferous; Near Cannelton, Beaver County, Pennsylvania.
1888. *Eurypterus Mansfieldi*. Hall, 2d Geol. Surv. Penn., Rep. PPP, p. 32, pl. 4, figs. 1-8; pl. 5, figs. 1-11; pl. 6, fig. 1; pl. 7, fig. 1; pl. 8, figs. 1-3.
Carboniferous: Near Cannelton, Beaver County, Pennsylvania.

Eurypterus mazonensis Meek and Worthen.

1868. *Eurypterus (Anthraconectes) Mazonensis*. Meek and Worthen, Am. Jour. Sci. (2), vol. 46, p. 21.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1868. *Eurypterus (Anthraconectes) Mazonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 544, fig.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1884. *Eurypterus (Anthraconectes) Mazonensis*. White, 13th Rep. Geol. Surv. Ind., p. 168, pl. 37, figs. 1-3.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1884. *Eurypterus (Anthraconectes) Mazonensis*. Hall, 2d Geol. Surv. Penn., Rep. PPP, pp. 25-27, figs. 2, 3.
Coal Measures: Mazon Creek, Grundy County, Illinois.

Eurypterus pennsylvanicus Hall.

1877. *Eurypterus Pennsylvanicus*. Hall, Proc. Am. Phil. Soc., vol. 16, p. 621.
Carboniferous: Rooker Farm, Venango County, Pennsylvania.
1884. *Eurypterus Pennsylvanicus*. Hall, 2d Geol. Surv. Penn., Rep. PPP, p. 31, pl. 5, fig. 18.
Carboniferous: Rooker Farm, Pithole City, Venango County, Pennsylvania.

Eurypterus potens Hall.

1884. *Eurypterus potens*. Hall, 2d Geol. Surv. Penn., Rep. PPP, pl. 4, figs. 9, 10.
Carboniferous: Pennsylvania.

Eurypterus stylus Hall.

1884. *Eurypterus stylus*. Hall, 2d Geol. Surv. Penn., Rep. PPP, p. 34, pl. 5, figs. 12-15.
Carboniferous: Near Cannelton, Beaver County, Pennsylvania.

Eurypterus (species undetermined).

1863. *Eurypterus* (?) tail of. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 78, fig. 4, p. 79.
Coal Measures: Joggins, Nova Scotia.
1863. *Eurypterus*; a large species allied to *E. Scoeleri*, Hibbert. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 78, fig. 5, p. 79.
Coal Measures: Port Hood, Cape Breton.

EUTROCHOCRINUS Wachsmuth and Springer, 1897.

Eutrochocrinus christyi Shumard.

1848. *Actinocrinites*. Christy, Letters on Geol., pl. 1, figs. 1-2.
Carboniferous Limestone: Oquawka, Illinois.
1855. *Actinocrinus Christyi*. Shumard, Geol. Rept. Mo., p. 191, pl. A, fig. 3.
Encrinital L. S.: Rocheport, Boone County, and near Palmyra, Marion County, Missouri.
1873. *Batocrinus christyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 379, pl. 5, fig. 4.
1893. *Batocrinus bisbrachiatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 13, pl. 2, figs. 4, 5.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus altiusculus*. Miller and Gurley, Bull. No. 3, Ill., State Mus. Nat. Hist., p. 20, pl. 5, figs. 1-3.
Upper Burlington Group: Near Blackwater Station, west of Boonville, Missouri.
1894. *Batocrinus christyi*. Keyes, Mo. Geol. Surv., vol. 4, p. 181.
Upper Burlington L. S.: Ash Grove, Rocheport, Louisiana, and Palmyra, Missouri.
1897. *Eutocrinus christyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 409, pl. 29, fig. 6, pl. 32, figs. 1a-c.
Upper Burlington L. S.: Burlington, Iowa; Illinois; Missouri.

Eutrochocrinus christyi var. trochiscus Meek and Worthen.

1868. *Batocrinus trochiscus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 354.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Batocrinus trochiscus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 372, pl. 5, fig. 6.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus trochiscus*. Keyes, Mo. Geol. Surv., vol. 4, p. 181, pl. 23, fig. 5.
Burlington L. S.: Sedalia, Missouri.
1897. *Eutrochocrinus Christyi* var. *trochiscus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 410, pl. 32, fig. 3.
Burlington and Keokuk transition bed: Des Moines County, Iowa; Nauvoo, Illin

Eutrochocrinus lovei Wachsmuth and Springer.

1881. *Batocrinus Lovei*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 342. (Rev. Palæocr. II. p. 168.)
Upper Burlington L. S.: Burlington, Iowa.
1897. *Eutrochocrinus Lovei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 412, pl. 29, fig. 7, pl. 32, figs. 2a, b.
Upper Burlington L. S.: Burlington, Iowa.

Eutrochocrinus planodiscus Hall.

1860. *Actinocrinus planodiscus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 45.
Keokuk L. S.: Nauvoo, Illinois.
1894. *Batocrinus planodiscus*. Keyes, Mo. Geol. Surv., vol. 4, p. 184.
Keokuk L. S.: Keokuk and Bonaparte, Iowa.
1897. *Eutrochocrinus planodiscus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 411, pl. 32, figs. 4a, b.
Keokuk Group: Keokuk, Iowa; Nauvoo, Illinois.

EVACTINOPORA Meek and Worthen, 1865.

Evactinopora grandis Meek and Worthen.

1868. *Evactinopora grandis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 503, pl. 15, figs. 2a-d.
Burlington Group: Burlington, Iowa.

Evactinopora grandis Meek and Worthen—Continued.

1890. *Evactinopora grandis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 511, pl. 73, fig. 4.
Burlington L. S.: Burlington, Iowa.
1894. *Evactinopora grandis*. Keyes, Mo. Geol. Surv., vol. 5, p. 19.
Burlington L. S.: Louisiana and Hannibal, Missouri.

Evactinopora quinqueradiata Ulrich.

1890. *Evactinopora quinqueradiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 510, pl. 73, fig. 1.
Burlington L. S.: Burlington, Iowa; Montezuma, Illinois.

Evactinopora radiata Meek and Worthen.

1865. *Evactinopora radiata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 165.
Subcarboniferous: Missouri.
1868. *Evactinopora radiata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 502,
pl. 17, figs. 2a, b.
Lower Carboniferous L. S.: Missouri.
1884. *Evactinopora radiata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 42, pl. 2,
figs. 1-1c.
1890. *Evactinopora radiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 509, pl. 73, figs. 3, 3a.
Keokuk Group: Kings Mountain, Kentucky; Missouri.
1894. *Evactinopora radiata*. Keyes, Mo. Geol. Surv., vol. 5, p. 19.
Keokuk L. S.: Missouri.

Evactinopora sexradiata Meek and Worthen.

1868. *Evactinopora sexradiata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 502,
pl. 17, fig. 3.
Lower Carboniferous L. S.: Missouri.
1890. *Evactinopora sexradiata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 510, pl. 73, figs.
2-2b.
Burlington Group: Burlington, Iowa.
1894. *Evactinopora sexradiata*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.
Burlington L. S.: Louisiana, Missouri; Burlington, Iowa.

(FAPHRENTIS Hall, 1852.)

Faphrentis multilamella Hall. See *Zaphrentis multilamella*.*Faphrentis stansburii* Hall. See *Zaphrentis stansburyi*.

FAVIPHYLLUM Hall, 1852.

Faviphyllum rugosum Hall.

1852. *Faviphyllum? rugosum*. Hall, Stansb. Exped. Gt. Salt Lake, p. 407, pl. 1, figs.
1a, b.
Carboniferous: Region of Salt Lake, Utah.

FAVOSITES Lamark, 1812.

Favosites divergens White.

1862. *Favosites*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 306.
Chemung Group: Burlington, Iowa.
1874. *Favosites whitfieldi*. White, Prelim. Rep. Inv. Foss., p. 15.
Subcarboniferous: Ewell's Spring, Arizona.
1877. *Favosites divergens*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 79, pl. 5,
fig. 4.
Subcarboniferous: Ewell's Spring, Arizona.

Favosites mancus Winchell.

1865. *Favosites? mancus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Geniatite L. S.: Rockford, Indiana.

Favosites whitfieldi. See *Favosites divergens*.

Favosites (species undetermined).

1877. *Favosites* — (?). Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 98.

Devonian or Carboniferous: Fossil Point, Peace River, Canada.

FENESTELLA Lonsdale, 1839.

***Fenestella albida* Hall.**

1887. *Fenestella albida*. Hall, 6th Ann. Rep. N. Y. State Geol., p. 48, pl. 7, figs. 1-7.
Waverly Group: Richfield, Summit County, Ohio

1888. *Fenestella albida*. Ulrich, Bull. Den. Univ., vol. 4, p. 65.
Waverly Group: Richfield, Ohio.

***Fenestella albida* var. *richfieldensis* Ulrich.**

1888. *Fenestella albida*, var. *richfieldensis*. Ulrich, Bull. Den. Univ., vol. 4, p. 66,
pl. 13, figs. 3-3c.
Waverly Group: Richfield, Ohio.

***Fenestella albida* var. *Herrick*.**

1888. *Fenestella albida* var. ? *Herrick*, Bull. Den. Univ., vol. 4, pl. 10, fig. 36.
Waverly Group: Ohio.

***Fenestella aperta* Hall.**

1887. *Fenestella aperta*. Hall, 6th Ann. Rep. N. Y. State Geol., p. 58, pl. 4, figs. 1-5.
Waverly Group: Richfield, Summit County, Ohio.

1888. *Fenestella aperta*. Ulrich, Bull. Den. Univ., vol. 4, p. 66.
Cuyahoga Shale: Richfield, Ohio.

***Fenestella arctica* Salter.**

1855. *Fenestella arctica*. Salter, Belcher's "Last of the Arctic Voyages," p. 385,
pl. 36, fig. 8.

Carboniferous: Depot Point.

1878. *Fenestella?* *arctica*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 618.
Carboniferous L. S.: Depot Point, Albert Land, and Feilden Isthmus, latitude 82° 43'.

***Fenestella banyana* Prout.**

1859. *Fenestella banyana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 450, pl. 18,
figs. 4-4b.

Second Archimedes L. S.: Barrett's Station, St. Louis County, Missouri

1894. *Fenestella banyana*. Keyes, Mo. Geol. Surv., vol. 5, p. 23
St. Louis L. S.: Barrett Station, Missouri.

***Fenestella burlingtonensis* Ulrich.**

1888. *Fenestella burlingtonensis*. Ulrich, Bull. Den. Univ., vol. 4, p. 71.
Waverly Group: Lodi, Ohio.

1890. *Fenestella burlingtonensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 536, pl. 49, figs.
1, 1a.
Burlington L. S.: Burlington, Iowa.

***Fenestella cavernosa* Ulrich.**

1888. *Fenestella cavernosa*. Ulrich, Bull. Den. Univ., vol. 4, p. 69, pl. 13, figs. 7-7b.
Waverly Group: Sciotoville, Ohio.

***Fenestella cestriensis* Ulrich.**

1890. *Fenestella cestriensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 547, pl. 51, figs. 5-5b.
Chester Group: Chester, Kaskaskia and near Anna, Illinois; Sloan's Valley and Litchfield, Kentucky.

1894. *Fenestella cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 24.
Kaskaskia L. S.: Chester, Illinois.

Fenestella cingulata Ulrich.

1890. *Fenestella cingulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 543, pl. 52, figs. 1-1d.
Keokuk Group: Nauvoo, Illinois; Keokuk, Iowa.
1894. *Fenestella cingulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella compressa Ulrich.

1890. *Fenestella compressa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 539, pl. 50, fig. 2a.
Keokuk Group: King's Mountain Tunnel, Kentucky.
Chester Group: Sloan's Valley, Kentucky.

Fenestella compressa var. *nododorsalis* Ulrich.

1890. *Fenestella compressa* var. *nododorsalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 540, pl. 50, fig. 2.
Keokuk Group: King's Mountain Tunnel, Kentucky.

Fenestella conradi Ulrich.

1890. *Fenestella conradi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 553, pl. 52, figs. 8, 8a.
Upper Coal Measures: 7 miles north of Red Oak, Iowa.

Fenestella corticata Prout.

1858. *Fenestella corticata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 230.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella delicata Meek.

1871. *Fenestella delicata*. Meek, Proc. Acad. Nat. Sci. Phil., p. 159.
Waverly Group: Lodi, Ohio.
1875. *Fenestella delicata*. Meek, Pal. Ohio, vol. 2, p. 273, pl. 10, figs. 2a-d.
Waverly Group: Lodi, Ohio.

Fenestella delicatula Ulrich.

1890. *Fenestella delicatula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 549, pl. 52, fig. 2.
Base of Coal Measures: Seville, Illinois.

Fenestella elevatipora Ulrich.

1890. *Fenestella elevatipora*. Ulrich, Geol. Surv. Ill., vol. 8, p. 549, pl. 51, figs. 3, 3a.
Chester Group: Crittenden County, Kentucky; Chester, Illinois.
1894. *Fenestella elevatipora*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
Kaskaskia L. S.: Chester, Illinois.

Fenestella exigua Ulrich.

1890. *Fenestella exigua*. Ulrich, Geol. Surv. Ill., vol. 8, p. 545, pl. 51, figs. 1, 1a.
Warsaw beds: Monroe County, Illinois.

Fenestella filistriata Ulrich.

1890. *Fenestella filistriata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 535, pl. 49, figs. 2, 2a.
Burlington L. S.: Burlington, Iowa; Montezuma, Illinois.
1894. *Fenestella filistriata*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Burlington L. S.: Montezuma, Illinois.

Fenestella flexuosa Ulrich.

1890. *Fenestella flexuosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 548, pl. 51, figs. 4-4c.
Chester Group: Sloan's Valley, Kentucky; Chester, Illinois.
1894. *Fenestella flexuosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 24.
Kaskaskia L. S.: Chester, Illinois.

Fenestella foliata Ulrich.

1888. *Fenestella foliata*. Ulrich, Bull. Den. Univ., vol. 4, p. 67, pl. 13, figs. 4-4c.
Waverly Group: Cuyahoga Valley below second falls.

Fenestella funicula Ulrich.

1890. *Fenestella funicula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 542, pl. 51, fig. 6.
Keokuk Group; Keokuk, Iowa.

Fenestella funicula Ulrich—Continued.

1894. *Fenestella funicula*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella hemitrypa. See *Hemitrypa hemitrypa*.

Fenestella herrickana Ulrich.

1888. *Fenestella herrickana*. Ulrich, Bull. Den. Univ., vol. 4, p. 63, pl. 13, figs. 2-2d.
Waverly Group: Moot's Ruin, Licking County, and Richfield, Ohio.

Fenestella inæqualis Ulrich.

1890. *Fenestella inæqualis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 554, pl. 52, figs. 9, 9a.
Upper Coal Measures: Ball's Mill, Sangamon County, Illinois.

Fenestella intermedia Prout.

1858. *Fenestella intermedia*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 231.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella laxa. See *Archimedes laxa*.

Fenestella limbata Foerste.

1887. *Fenestella limbatus*. Foerste, Bull. Den. Univ., vol. 2, pp. 83, 87, pl. 7,
figs. 10a-d.
Coal Measures: Flint Ridge and Bald Hill, Ohio.

Fenestella limbata var. *remota* Foerste. See *Fenestella remota*.

Fenestella limitaris Ulrich.

1890. *Fenestella limitaris*. Ulrich, Geol. Surv. Ill., vol. 8, p. 538, pl. 49, figs. 4, 4a.
Keokuk Group: Bentonsport and Keokuk, Iowa.
1894. *Fenestella limitaris*. Keys, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella lyelli Dawson.

1868. *Fenestella Lyelli*. Dawson, Acad. Geol., p. 288, figs. 86a-c.
Carboniferous L. S.: Stewiacke, Nova Scotia.

Fenestella lyri. See *Lyropora lyri*.

Fenestella meekana. See *Archimedes meekana*.

Fenestella meekana Ulrich.

1888. *Fenestella meekana*. Ulrich, Bull. Den. Univ., vol. 4, p. 64, pl. 13, figs. 1-1b.
Waverly Group: Richfield, Ohio; ? Lodi, Ohio.

Fenestella mimica Ulrich.

1890. *Fenestella mimica*. Ulrich, Geol. Surv. Ill., vol. 8, p. 552, pl. 52, figs. 7, 7a.
Coal Measures: Seville, Illinois.

Fenestella modesta Ulrich.

1890. *Fenestella modesta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 550, pl. 52, figs. 3-3b.
Coal Measures: Knox County and Seville, Illinois.

Fenestella multiporata var. *lodiensis* Meek.

1875. *Fenestella multiporata*? var. *Lodiensis*. Meek, Pal. Ohio, vol. 2, p. 274, pl. 10,
figs. 1a-c.
Waverly Group: Lodi, Ohio.

Fenestella multispinosa Ulrich.

1890. *Fenestella multispinosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 540, pl. 50, figs.
3-3c.
Keokuk Group: Bentonsport and Keokuk, Iowa; King's Mountain,
Kentucky.
1894. *Fenestella multispinosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella norwoodana Prout.

1858. *Fenestella Norwoodiana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 233.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella owenana. See *Archimedes owenana*.**Fenestella perminuta** Ulrich.

1890. *Fenestella perminuta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 551, pl. 52, figs. 4-4b.
Coal Measures: Seville, Illinois.

Fenestella plumosa. See *Hemitrypa plumosa*.**Fenestella popeana** Prout.

1858. *Fenestella Popeana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 229.
White Permian L. S.: Guadalupe Mountains, New Mexico.
1859. *Fenestella Popeana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
White and Dark Permian L. S.: Guadalupe Mountains.

Fenestella quincuncialis. See *Lyropora quincuncialis*.**Fenestella regalis** Ulrich.

1888. *Fenestella regalis*. Ulrich, Bull. Den. Univ., vol. 4, p. 70, pl. 13, figs. 5, 5a.
Cuyahoga Shale: Richland and Lodi, Ohio.
Keokuk Group: King's Mountain, Kentucky.
1890. *Fenestella regalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 538, pl. 50, figs. 1, 1a;
pl. 54, fig. 5.
Keokuk Group: King's Mountain Tunnel, Kentucky, Cincinnati Southern
Railroad.

Fenestella remota Foerste.

1887. *Fenestella limbatus* var. *remotus*. Foerste, Bull. Den. Univ., vol. 2, p. 84.
Coal Measures: Flint Ridge and Bald Hill, Ohio.
1887. *Fenestella remota*. Foerste, Bull. Den. Univ., vol. 2, p. 87, pl. 7, fig. 5.

Fenestella retrorsa. See *Lyropora retrorsa*.**Fenestella rudis** Ulrich.

1890. *Fenestella rudis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 537, pl. 49, figs. 3-3d.
Keokuk L. S.: Keokuk and Bentonsport, Iowa; Warsaw and Nauvoo,
Illinois.
Warsaw beds: Warsaw, Illinois.
1894. *Fenestella rudis*. Keyes, Mo. Geol. Surv., vol. 5, p. 23, pl. 34, fig. 5.
Keokuk L. S.: St. Francisville, Missouri.

Fenestella serratula Ulrich.

1890. *Fenestella serratula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 544, pl. 50, figs. 5-5c.
Keokuk Group: Nauvoo, Illinois.
Warsaw beds: Monroe County and Warsaw, Illinois.
St. Louis L. S.: Caldwell, Lyon, and Crittenden counties, Kentucky.
Chester Group: Sloan's Valley, Kentucky.
1894. *Fenestella serratula*. Keyes, Mo. Geol. Surv., vol. 5, p. 23.
Keokuk L. S.: Keokuk, Iowa.

Fenestella sevilensis Ulrich.

1890. *Fenestella sevilensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 552, pl. 52, figs. 6, 6a.
Base of Coal Measures: Seville, Illinois.

Fenestella shumardi Prout.

1858. *Fenestella Shumardi*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 232.
Carboniferous L. S.: Organ Mountains, New Mexico.
1872. *Fenestella Shumardi*? Meek, U. S. Geol. Surv. Nebr., p. 153, pl. 7, figs. 3a-c.
Upper Coal Measures: Nebraska City, Nebraska.
Lower Coal Measures: Ohio.

Fenestella shumardi Prout—Continued,

1894. *Fenestella shumardi*. Keyes, Mo. Geol. Surv., vol. 5, p. 24, pl. 34, figs. 2a, b.
Upper Coal Measures: Kansas City, Missouri.
1897. *Fenestella shumardi*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 27.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Fenestella subflexuosa Ulrich.

1888. *Fenestella subflexuosa*. Ulrich, Bull. Den. Univ., vol. 4, p. 68, pl. 13, fig. 6.
Cuyahoga Shale: Cuyahoga Falls, Ohio.

Fenestella subquadrans. See *Lyropora subquadrans*.*Fenestella swallovana*. See *Archimedes swallovana*.**Fenestella subretiformis** Prout.

1858. *Fenestella subretiformis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 233.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella tenax Ulrich.

1888. *Fenestella tenax*. Ulrich, Bull. Den. Univ., vol. 4, p. 71.
Waverly Group: Cuyahoga County, Ohio.
1890. *Fenestella tenax*. Ulrich, Geol. Surv. Ill., vol. 8, p. 546, pl. 51, figs. 2-2e.
Warsaw beds: Monroe County and Warsaw, Illinois.
Chester Group: Chester and Kaskaskia, Ill.; Sloan's Valley, Kentucky.
1894. *Fenestella tenax*. Keyes, Mo. Geol. Surv., vol. 5, p. 24.
Kaskaskia L. S.: Chester, Illinois.

Fenestella triserialis Ulrich.

1890. *Fenestella triserialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 541, pl. 50, figs. 4, 4a.
Keokuk Group: King's Mountain, Kentucky.

Fenestella trituberculata Prout.

1858. *Fenestella trituberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 228.
Carboniferous L. S.: Organ Mountains, New Mexico.

Fenestella variabilis Prout.

1858. *Fenestella variabilis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 231.
? Carboniferous: Texas or New Mexico.

Fenestella wortheni. See *Archimedes wortheni*.**Fenestella wortheni** Ulrich.

1890. *Fenestella wortheni*. Ulrich, Geol. Surv. Ill., vol. 8, p. 551, pl. 52, figs. 5, 5a.
Base of Coal Measures: Seville, Illinois.

Fenestella (species undetermined).

1858. *Fenestella*. Schiel, Pac. R. R. Rept., vol. 2, p. 108, pl. I, fig. 1.
Carboniferous L. S.: Willow Creek.
1868. *Fenestella*. Dawson, Acad. Geol., p. 289.
Carboniferous L. S.: West River, Pictou, Nova Scotia.
1868. *Fenestella*. Dawson, Acad. Geol., p. 289.
Carboniferous L. S.: Stewiacke, Nova Scotia.
1872. *Fenestella* sp. Meek, U. S. Geol. Surv. Nebr., p. 152, pl. 1, figs. 4a, b.
Upper Coal Measures: Bellevue and Plattsmouth, Nebraska.
1876. *Fenestella* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, Utah.
1878. *Fenestella* sp. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, pp. 619, 620.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

FENESTRALIA Prout, 1858.**Fenestralia sancti-ludovici** Prout.

1858. *Fenestralia St. Ludovici*. Prout, Trans. St. Louis Acad. Sci., vol. 1 p. 235.
Upper St. Louis L. S.: St. Louis, Missouri.

Fenestralia sancti-ludovici Prout—Continued.

1859. *Fenestralia St. Ludovici*. Prout, Trans. St. Louis Acad. Sci., vol. 1, pl. 15, figs. 1, 1a.

1890. *Fenestralia sancti-ludovici*. Ulrich, Geol. Surv. Ill., vol. 8, p. 604, pl. 55, fig. 5.

St. Louis Group and Warsaw beds: St. Louis and Barrett's Station, Missouri; Monroe County, Alton, Columbia, and Warsaw, Illinois.

1894. *Fenestralia? sancti-ludovici*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.

St. Louis L. S.: St. Louis, Missouri.

Fenestralia sancti-ludovici var. *compacta* Ulrich.

1890. *Fenestralia sancti-ludovici* var. *compacta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 605, pl. 59, fig. 1.

St. Louis Group: Elizabethtown, Kentucky.

FILICITES Schlotheim, 1820.**Filicites gracilis** Shumard.

1855. *Filicites gracilis*. Shumard, Geol. Rep. Mo., p. 208, pl. A, fig. 11.

Lithographic L. S.: Louisiana and Elk Spring, Pike County; on North River, Marion County, Missouri.

FISTULIPORA McCoy, 1849.**Fistulipora carbonaria** Ulrich.

1884. *Fistulipora carbonaria*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 45, pl. 3, figs. 1, 1a.

Upper Coal Measures: Kansas City, Missouri.

1894. *Fistulipora carbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.

Upper Coal Measures: Kansas City, Missouri.

Fistulipora clausa. See *Meekopora clausa*.**Fistulipora compressa** Rominger.

1866. *Fistulipora compressa*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 123.

Keokuk L. S.: Lagrange, Missouri.

1894. *Fistulipora compressa*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.

Keokuk L. S.: Lagrange and Wayland, Missouri.

Fistulipora excelens Ulrich.

1884. *Fistulipora excelens*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 46, pl. 3, figs. 3-3b.

Kaskaskia Group: Tateville and Litchfield, Kentucky.

Fistulipora flabellum. See *Dichotrypa flabellum*.**Fistulipora nodulifera** Meek.

1866. *Stenopora columnaris* (pars). Geintz, Carb. und Dyas in Nebr., p. 66. (Not Schloth., 1813.)

Carboniferous: Bellevue, Nebraska.

1872. *Fistulipora nodulifera*. Meek, U. S. Geol. Surv. Nebr., p. 143, pl. 5, figs. 5a-d.

Upper Coal Measures: Nebraska City, Bennett's Mill, and Wyoming, Nebraska.

Coal Measures: Iowa and Illinois.

1894. *Fistulipora nodulifera*. Keyes, Mo. Geol. Surv., vol. 5, pl. 34, fig. 3.

Upper Coal Measures.

1897. *Fistulipora nodulifera*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 25.

Upper Coal Measures: Poteau Mountain, Indian Territory.

***Fistulipora prolifica* Ulrich.**

1884. *Fistulipora prolifica*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 45, pl. 3, figs. 2, 2a.

St. Louis Group: Colesburg, Kentucky.

Fistulipora peculiaris*. See *Actinotrypa peculiaris*.**Fistulipora spergenensis* Rominger.**

1866. *Fistulipora Spergenensis*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 12 2.
Warsaw L. S.: Spergen Hill, Indiana.

Fistulipora trifolia*. See *Prismopora trifolia*.**Fistulipora* (species undetermined.)**

1876. *Fistulipora* —? —. White, Powell's Geol. Rep. Uinta Mts., p. 88.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1888. *Fistulipora* (3) sp. undet. Ulrich, Bull. Den. Univ., vol. 4, p. 92.
Waverly Group: Sciotoville and Richfield, Ohio.

(FLEMINGIA De Koninck, 1881.)

***Flemingia stultus*. See *Pleurotomaria stulta*.**

(FLUSTRA Linnæus, 1745.)

Flustra spatulata* Prout. See *Worthenopora spatulata*.**Flustra tuberculata* Prout. See *Stenopora tuberculata*.**

FORBESIOCRINUS De Koninck and Lehon, 1854.

***Forbesiocrinus agassizi* Hall.**

1858. *Forbesiocrinus agassizi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 631, fig. 103.
1860. *Forbesiocrinus agassizi*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 65.
Burlington L. S.: Burlington, Iowa.
1861. *Forbesiocrinus Agassizi* var. *giganteus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 131.
Burlington L. S.: Burlington, Iowa.
1868. *Forbesiocrinus Agassizi* var. *giganteus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 495, pl. 18, fig. 3.
Burlington Group: Burlington, Iowa.
1872. *Forbesiocrinus Agassizi*. Hall, Photo. Plates of Crinoids, pl. 7, figs. 1, 2.
1894. *Forbesiocrinus agassizi*. Keyes, Mo. Geol. Surv., vol. 4, p. 224, pl. 30, fig. 3.

Forbesiocrinus agassizi* var. *giganteus*. See *Forbesiocrinus agassizi*.**Forbesiocrinus asteriæformis*. See *Onychocrinus asteriæformis*.*****Forbesiocrinus cestriensis* Hall.**

1860. *Forbesiocrinus cestriensis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 68.
Kaskaskia L. S.: Pope County, Illinois.

Forbesiocrinus communis*. See *Taxocrinus communis*.**Forbesiocrinus elegantulus* Miller.**

1891. *Forbesocrinus elegantulus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 40, pl. 5, figs. 14, 15.
Keokuk Group: Boonville, Missouri.

Forbesiocrinus giddingei*. See *Taxocrinus giddingei*.**Forbesiocrinus greeni* Miller and Gurley.**

1896. *Forbesocrinus greeni*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 57, pl. 4, figs. 1, 2.
Keokuk Group: Edwardsville, Indiana.

Forbesiocrinus jerseyensis Miller and Gurley.1896. *Forbesiocrinus jerseyensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus.

Nat. Hist., p. 58, pl. 4, figs. 2, 3.

Warsaw Group: Jersey County, Illinois.

Forbesiocrinus juvenis. See *Taxocrinus juvenis*.*Forbesiocrinus kelloggi*. See *Taxocrinus kelloggi*.*Forbesiocrinus lobatus* var. *tardus*. See *Taxocrinus tardus*.**Forbesiocrinus macadamsi** Miller and Gurley.1896. *Forbesiocrinus macadamsi*. Miller and Gurley, Bull. No. 9, Ill. State Mus.

Nat. Hist., p. 58, pl. 5, figs. 1, 2.

Keokuk Group: Jersey County, Illinois.

Forbesiocrinus meeki. See *Taxocrinus meeki*.*Forbesiocrinus monroensis*. See *Onychocrinus monroensis*.*Forbesiocrinus multibrachiatus*. See *Taxocrinus multibrachiatus*.*Forbesiocrinus norwoodi*. See *Onychocrinus exculptus*.**Forbesiocrinus parvus** Wetherby.1879. *Forbesiocrinus parvus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 138,

pl. 11, figs. 4a, b.

Kaskaskia Group: Pulaski County, Kentucky.

Forbesiocrinus pratteni. See *Melocrinus pratteni*.**Forbesiocrinus pyriformis** Miller and Gurley.1894. *Forbesiocrinus pyriformis*. Miller and Gurley, Bull. No. 3, Ill. State Mus.

Nat. Hist., p. 47, pl. 4, fig. 1.

Keokuk Group: Muldrough's Hill, Hardin County, Kentucky.

Forbesiocrinus ramulosus. See *Onychocrinus ramulosus* and *Taxocrinus ramulosus*.**Forbesiocrinus saffordi** Hall.1860. *Forbesiocrinus saffordi*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 87.

Keokuk L. S.: White Creek Springs, Tennessee.

Forbesiocrinus semiovatus. See *Taxocrinus semiovatus*.*Forbesiocrinus shumardianus*. See *Taxocrinus shumardianus*.**Forbesiocrinus speciosus** Miller and Gurley.1890. *Forbesiocrinus speciosus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind.,

p. 347, pl. 5, figs. 8, 9.

Keokuk Group: Washington County, Indiana.

Forbesiocrinus spinifer. See *Taxocrinus thiemei*.*Forbesiocrinus spiniger*. See *Taxocrinus thiemei*.*Forbesiocrinus tardus*. See *Taxocrinus tardus*.*Forbesiocrinus thiemei*. See *Taxocrinus thiemei*.**Forbesiocrinus washingtonensis** Miller and Gurley.1896. *Forbesiocrinus washingtonensis*. Miller and Gurley, Bull. No. 8, Ill. State

Mus. Nat. Hist., p. 54, pl. 3, figs. 32, 33.

Keokuk Group: Washington County, Indiana.

Forbesiocrinus whitfieldi. See *Taxocrinus whitfieldi*.**Forbesiocrinus wortheni** Hall.1858. *Forbesiocrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 632, pl. 17, fig. b.

Keokuk L. S.: Keokuk, Iowa.

Forbesiocrinus wortheni Hall—Continued.

1860. *Forbesiocrinus wortheni*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 7.
 1873. *Forbesiocrinus Wortheni*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 496, pl. 14, fig. 2; pl. 15, fig. 7.
 Keokuk Group: Keokuk, Iowa; Hamilton, Illinois; Crawfordsville, Indiana.
 1894. *Forbesiocrinus wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 224.
 Keokuk L. S.: Keokuk and Bonaparte, Iowa.

FUSULINA Fischer, 1837.***Fusulina cylindrica* Fischer.**

- *1837. *Fusulina cylindrica*. Fischer, Oryct. du Gouv. Moscou, p. 126, pl. 18, figs. 1-5.
 1858. *Fusulina cylindrica*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 260.
 Carboniferous: Valley of the Kansas River, Kansas.
 1859. *Fusulina cylindrica*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
 Coal Measures: Kansas.
 1861. *Fusulina cylindrica*. Newberry, Ives' Colo. Expl. Exped., p. 129.
 Coal Measures: Kansas.
 1864. *Fusulina cylindrica*. Meek and Hayden, Pal. Upper Mo., p. 14, pl. 1, figs. 6a-i.
 Coal Measures: Ohio to Kansas and Southwestern Nebraska, and south to Texas.
 1864. *Fusulina cylindrica?* Meek, Pal. Cal., vol. 1, p. 4, pl. 2, figs. 2, 2a.
 Carboniferous: Bass's Ranch, Shasta County, California.
 1866. *Fusulina cylindrica*. Geinitz, Carb. und Dyas in Nebr., p. 71, tab. 5, fig. 5.
 Plattsmouth, Nebraska.
 1872. *Fusulina cylindrica*. Meek, U. S. Geol. Surv. Nebr., p. 140, pl. 1, fig. 2; pl. 2, fig. 1; pl. 5, figs. 3a, b; pl. 7, figs. 8a, b.
 Upper Coal Measures: 2½ miles west and 1 mile southeast of Nebraska City; Bennett's Mill, Wyoming; Rock Bluff, Plattsmouth, Bellevue, and Omaha City, Nebraska.
 1877. *Fusulina cylindrica*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 96, pl. 6, figs. 6a, b.
 Carboniferous: Wasatch Range, south of Spanish Fork; U-i-ya-bi Pass, Gosute Range; near Beckwith Spring, Cedar Range; near the mouth of Spanish Fork Canyon; southeast of Mount Nebo, all in Utah.
 1877. *Fusulina Cylindrica*. Whiteaves, Geol. Surv. Canada, Rept. of Prog. 1875-76, p. 97.
 Carboniferous or Permian: Rear of Fort St. James, Stewart's Lake, British Columbia.
 1884. *Fusulina cylindrica*. White, 13th Rep. Geol. Surv. Ind., p. 116, pl. 23, figs. 1-3.
 Coal Measures: Ohio to California; Limestone roof of coal K, Lodi, Fountain County, Indiana.
 1887. *Fusulina cylindrica*. Herrick, Bull. Den. Univ., vol. 2, p. 50, pl. 3, fig. 20.
 Coal Measures: Flint Ridge, Ohio.
 1891. *Fusulina cylindrica*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 245.
 Lower Coal Measures: Des Moines, Iowa.
 1894. *Fusulina cylindrica*. Keyes, Mo. Geol. Surv., vol. 4, p. 102, pl. 12, figs. 1a-c.
 Coal Measures: Kansas City and Lexington, Missouri.

***Fusulina cylindrica* var. *gracilis* Meek.**

1864. *Fusulina gracilis*. Meek, Pal. Cal., vol. 1, p. 4, pl. 2, figs. 1-1c.
 Carboniferous: Bass's Ranch, Shasta County, California.
 1873. *Fusulina gracilis?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 560, pl. 24, fig. 7.
 Coal Measures: Springfield, Illinois.
 1874. *Fusulina gracilis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 484.

Fusulina cylindrica var. robusta Meek.

1864. *Fusulina robusta*. Meek, Pal. Cal., vol. 1, p. 3, pl. 2, figs. 3-3c.
Carboniferous: Bass's Ranch, Shasta County, California.

Fusulina cylindrica var. ventricosa Meek and Hayden.

1858. *Fusulina cylindrica var. ventricosa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 261.
Carboniferous: Juniata and Manhattan, Kansas.
1859. *Fusulina cylindrica var. ventricosa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
Coal Measures: Manhattan and Juniata, Kansas.
1873. *Fusulina ventricosa*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 560, pl. 24, fig. 8.
Coal Measures: Fulton and Peoria counties, Illinois.
1874. *Fusulina ventricosa*. Meek, Am. Jour. Sic. (3), vol. 7, p. 484.

Fusulina elongata Shumard.

1858. *Fusulina elongata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 297.
Dark and White Permian L. S. and S. S.: Guadalupe Mountains, New Mexico and Texas.
1859. *Fusulina elongata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388.
White Permian L. S. and underlying S. S.: Guadalupe Mountains, Texas and New Mexico.

Fusulina hyperborea Salter.

1855. *Fusulina Hyperborea*. Salter, Belcher's "Last of the Arctic Voyages," p. 380, pl. 36, figs. 1-3.
Carboniferous: Depot Point, Albert Land.

(FUSUS Bruguiere, 1789.)

Fusus inhabilis. See Sphærodoma primogenia.

GASTRIOCERAS Hyatt, 1883.**Gastrioceras branneri Smith.**

1897. *Gastrioceras branneri*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 47, pl. 23, figs. 1-6.
Lower Coal Measures: Pilot Mountain, Carroll County, Arkansas.

Gastrioceras compressum Hyatt.

1891. *Gastrioceras compressum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 355, figs. 57-59.
Carboniferous: Colorado River, San Saba County, and near Bend, Texas.

Gastrioceras entogonum Gabb.

1861. *Goniatites entogonus*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 372.
Carboniferous L. S.: Lampasas County, Texas.
1893. *Gastrioceras entogonum?* Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 472, pl. 47, figs. 49-51.
Carboniferous: Five miles west of Lampasas, Texas.

Gastrioceras excelsum Meek.

1876. *Goniatites globulosus var. excelsum*. Meek, Bull. U. S. G. and G. Surv. Terr., vol. 1, 2d Ser., p. 445.
Coal Measures: Osage, Kansas.
1897. *Gastrioceras excelsum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 50, pl. 17, fig. 1.
Lower Coal Measures: Pope County, Arkansas.

Gastrioceras globulosus Meek and Worthen.

1860. *Goniatites globulosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 471.
Upper Coal Measures: Springfield, Illinois.
1866. *Goniatites globulosus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 390,
pl. 30, figs. 2a-c.
Upper Coal Measures: Springfield, Illinois; eastern Kansas.
1883. *Gastrioceras globulosus*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 327.
1897. *Gastrioceras globulosum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 48, pl. 18,
figs. 1-6.
Upper Carboniferous: Scott County, Arkansas.

Gastrioceras kingii Hall and Whitfield.

1877. *Goniatites Kingii*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 279,
pl. 6, figs. 9-14.
Coal Measures: Near Eberhardt Mill, White Pine, Nevada.
1883. *Gastrioceras Kingii*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 327.

Gastrioceras marianum de Verneuil.

1845. *Goniatites marianus*. Verneuil, Geol. Russia and the Ural Mts., vol. 2, p. 369,
pl. 27, figs. 2a-c.
Mountain Limestone.
1897. *Gastrioceras marianum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 50, pl. 16,
figs. 1-5.
Upper Coal Measures: Scott County, Arkansas.

Gastrioceras (species undetermined).

1897. *Gastrioceras* sp. indet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 52, pl. 20, fig. 1.
Upper Coal Measures: Scott County, Arkansas.

GENENTOMUM Scudder, 1885.**Genentomum validum** Scudder.

1885. *Genentomum validum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 329,
pl. 30, figs. 2, 3.
Carboniferous: Mazon Creek, Illinois.
1890. *Genentomum validum*. Scudder, Foss. Insc. N. A., vol. 1, p. 293, figs. 2, 3.
Carboniferous: Mazon Creek, Illinois.

GENOPTERYX Scudder, 1884.**Genopteryx constricta** Scudder.

1885. *Genopteryx constricta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 327,
pl. 29, fig. 11.
Carboniferous: Mazon Creek, Illinois.
1890. *Genopteryx constricta*. Scudder, Foss. Insc. N. A., vol. 1, p. 291, pl. 15, fig. 11.
Carboniferous: Mazon Creek, Illinois.

GERABLATTINA Scudder, 1879.**Gerablattina abdicata** Scudder.

1895. *Gerablattina abdicata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 118, pl. 10,
fig. 6.
Lower Permian: Cassville, West Virginia.

Gerablattina apicalis Scudder.

1895. *Gerablattina apicalis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 114, pl. 9,
fig. 18.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

Gerablattina balteata Scudder. See *Etoblattina balteata*.

Gerablattina cassvici Scudder.

1895. *Gerablattina cassvici*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 117, pl. 10, figs. 2, 3.

Lower Permian: Cassville, West Virginia.

Gerablattina concinna Scudder.

1895. *Gerablattina concinna*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 119, pl. 10, figs. 4, 5.

Lower Permian: Cassville, West Virginia.

Gerablattina deducta Scudder.

1895. *Gerablattina deducta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 123, pl. 10, fig. 15.

Lower Permian: Cassville, West Virginia.

Gerablattina diversinervis Scudder.

1895. *Gerablattina diversinervis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 115, pl. 9, fig. 15.

Lower Permian: Cassville, West Virginia.

Gerablattina eversa Scudder.

1895. *Gerablattina eversa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 122, pl. 10, fig. 14.

Lower Permian: Cassville, West Virginia.

Gerablattina fascigera Scudder.

1878. *Blattina fascigera*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 15, p. 239.

Carboniferous: Pittston, Pennsylvania.

1879. *Gerablattina fascigera*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 113, pl. 6, figs. 1, 2.

Lower Carboniferous: Pittston, Pennsylvania.

1890. *Gerablattina fascigera*. Scudder, Foss. Insc. N. A., vol. 1, p. 133, pl. 6, figs. 1, 2.

Lower Carboniferous: Pittston, Pennsylvania.

1895. *Gerablattina fascigera*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 128.

Millstone Grit: Campbell's Ledge, near Pittston, Pennsylvania.

Gerablattina fraterna Scudder.

1893. *Gerablattina fraterna*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 19, pl. 2, figs. d, e.

Carboniferous: Silver Spring, East Providence, Rhode Island.

1895. *Gerablattina fraterna*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 124, pl. 10, fig. 16.

Lower (?) Coal Measures: Silver Spring, East Providence, Rhode Island.

Gerablattina inculta Scudder.

1895. *Gerablattina inculta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 113, pl. 9, fig. 16.

Lower Permian: Cassville, West Virginia.

Gerablattina lata Scudder.

1895. *Gerablattina lata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 125, pl. 11, fig. 2.

Lower Permian: Cassville, West Virginia.

Gerablattina minima Scudder.

1895. *Gerablattina minima*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 127, pl. 11, fig. 5.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

Gerablattina ovata Scudder.

1895. *Gerablattina ovata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 126, pl. 11, fig. 4.

Lower Permian: Cassville, West Virginia.

Gerablattina perita Scudder.

1895. *Gerablattina perita*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 114, pl. 9, fig. 17.

Lower Permian: Cassville, West Virginia.

Gerablattina permacra Scudder.

1895. *Gerablattina permacra*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 121, pl. 10, fig. 13.

Lower Permian: Cassville, West Virginia.

Gerablattina permanenta Scudder.

1895. *Gerablattina permanenta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 121, pl. 10, fig. 12.

Lower Permian: Cassville, West Virginia.

Gerablattina radiata Scudder.

1895. *Gerablattina radiata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 124, pl. 11, fig. 1.

Lower Permian: Cassville, West Virginia.

Gerablattina richmondiana Scudder.

1895. *Gerablattina richmondiana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 116, pl. 10, fig. 1.

Lower Coal Measures: Wills Creek, Richmond, Ohio.

Gerablattina rotundata Scudder.

1895. *Gerablattina rotundata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 126, pl. 11, fig. 3.

Lower Permian: Cassville, West Virginia.

Gerablattina scapularis Scudder.

1893. *Gerablattina scapularis*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 19, pl. 2, fig. 1.

Carboniferous: Pawtucket, Rhode Island.

1895. *Gerablattina scapularis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 124, pl. 10, fig. 7.

Lower (?) Coal Measures: Pawtucket, Rhode Island.

Gerablattina uniformis Scudder.

1895. *Gerablattina uniformis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 120, pl. 10, figs. 8-11.

Lower Permian: Cassville, West Virginia.

GERALINURA Scudder, 1884.**Geralinura carbonaria** Scudder.

1884. *Geralinura carbonaria*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 19. Carboniferous: Mazon Creek, Illinois.

1890. *Geralinura carbonaria*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 455, pl. 39, figs. 1, 3, 4.

Carboniferous: Mazon Creek, Illinois.

1890. *Geralinura carbonaria*. Scudder, Foss. Insc. N. A., vol. 1, p. 431, pl. 31, figs. 1, 3, 4.

Carboniferous: Mazon Creek, Illinois.

GERAPHRYNUS Scudder, 1884.**Geraphrynus carbonarius** Scudder.

1884. *Geraphrynus carbonarius*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 16.

Carboniferous: Mazon Creek, Illinois.

Geraphrynus carbonarius Scudder—Continued.

1890. *Geraphrynus carbonarius*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 446, pl. 40, figs. 1, 9, 10, 12.

Carboniferous: Mazon Creek, Illinois.

1890. *Geraphrynus carbonarius*. Scudder, Foss. Insc. N. A., vol. 1, p. 422, pl. 32, figs. 1, 9, 10, 12.

Carboniferous: Mazon Creek, Illinois.

GERAPOMPUS Scudder, 1885.**Gerapompus blattinoides** Scudder.

1885. *Gerapompus blattinoides*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 326, pl. 29, fig. 1.

Carboniferous: Mazon Creek, Illinois.

1890. *Gerapompus blattinoides*. Scudder, Foss. Insc. N. A., vol. 1, p. 290, pl. 15, fig. 1.

Carboniferous: Mazon Creek, Illinois.

Gerapompus extensus Scudder.

1885. *Gerapompus extensus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 326, pl. 29, figs. 5-8.

Carboniferous: Mazon Creek, Illinois.

1890. *Gerapompus extensus*. Scudder, Foss. Insc. N. A., vol. 1, p. 290, pl. 15, figs. 5, 8.

Carboniferous: Mazon Creek, Illinois.

GERARUS Scudder, 1868.**Gerarus danae** Scudder.

1868. *Miamia Danae*. Scudder, Geol. Surv. Ill., vol. 3, p. 566, fig. 1.

Carboniferous: Mazon Creek, Grundy County, Illinois.

1885. *Gerarus Danae*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 345, pl. 31, fig. 5.

Carboniferous: Mazon Creek, Illinois.

1890. *Gerarus Danae*. Scudder, Foss. Insc. N. A., vol. 1, p. 309, pl. 17, fig. 5.

Carboniferous: Mazon Creek, Illinois.

Gerarus mazonus Scudder.

1885. *Gerarus mazonus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 344, pl. 32, fig. 7.

Carboniferous: Mazon Creek, Illinois.

1890. *Gerarus mazonus*. Scudder, Foss. Insc. N. A., vol. 1, p. 308, pl. 18, fig. 7.

Carboniferous: Mazon Creek, Illinois.

Gerarus vetus Scudder.

1885. *Gerarus vetus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 344, pl. 31, fig. 6.

Carboniferous: Mazon Creek, Illinois.

1890. *Gerarus vetus*. Scudder, Foss. Insc. N. A., vol. 1, p. 308, pl. 17, fig. 6.

Carboniferous: Mazon Creek, Illinois.

GERATARBUS Scudder, 1890.**Geratarbus lacoiei** Scudder.

1890. *Geratarbus lacoiei*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 448, pl. 39, fig. 5.

Carboniferous: Mazon Creek, Illinois.

1890. *Geratarbus lacoiei*. Scudder, Foss. Insc. N. A., vol. 1, p. 424, pl. 32, fig. 11.

Carboniferous: Mazon Creek, Illinois.

Geratarbus scabrum Scudder.

1890. *Geratarbus scabrum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 448,
pl. 39, fig. 5.

Carboniferous: Mazon Creek, Illinois.

1890. *Geratarbus scabrum*. Scudder, Foss. Insc. N. A., vol. 1, p. 424, pl. 31, fig. 5.
Carboniferous: Mazon Creek, Illinois.

(GERVILLIA De France, 1820.)

Gervillia auricula. See *Monopteria longispina*.

Gervillia longa. See *Avicula longa*.

Gervillia longispina. See *Monopteria longispina*.

Gervillia ohioense. See *Avicula ohioense*.

Gervillia strigosa. See *Pterinea strigosa*.

Gervillia sulcata. See *Avicula sulcata*.

GILBERTSOCRINUS Phillips, 1836.

Gilbertsocrinus dispansus. See *Gilbertsocrinus lyonanus*.

Gilbertsocrinus faberi Miller and Gurley.

1896. *Goniasteroidocrinus faberi*. Miller and Gurley, Bull. No. 10, Ill. State Mus.
Nat. Hist., p. 84, pl. 5, figs. 2, 3.

Keokuk Group: Joplin, Missouri.

Gilbertsocrinus fiscellus Meek and Worthen.

1860. *Trematocrinus fiscellus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 383.

Burlington L. S.: Burlington, Iowa.

1866. *Gilbertsocrinus fiscellus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 222,
pl. 15, fig. 5.

Burlington L. S.

1897. *Gilbertsocrinus fiscellus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 245, pl. 17, figs. 2a-d.

Lower Burlington L. S.: Burlington, Iowa.

Gilbertsocrinus lyonanus Miller and Gurley.

1894. *Goniasteroidocrinus lyonanus*. Miller and Gurley, Bull. No. 3, Ill. State Mus.
Nat. Hist., p. 55, pl. 4, fig. 4.

Keokuk Group: Indian Creek, near Crawfordsville, Indiana.

1897. *Gilbertsocrinus dispansus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 240, pl. 15, figs. 2a-d.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

Gilbertsocrinus obovatus Meek and Worthen.

1869. *Goniasteroidocrinus obvatus*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 76.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Goniasteroidocrinus obovatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 391, pl. 4, fig. 6.

Burlington L. S.: Burlington, Iowa.

1897. *Gilbertsocrinus obovatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 241, pl. 17, figs. 4a, b.

Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

Gilbertsocrinus reticulatus Hall.

1861. *Trematocrinus reticulatus*. Hall, Desc. New Spec. Crin., p. 9.
Burlington L. S.
1861. *Trematocrinus reticulatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 325.
Burlington L. S.: Burlington, Iowa.
1872. *Gilbertsocrinus (Trematocrinus) reticulatus*. Hall, Photo. Plates of Crinoids,
pl. 6, fig. 12.
1897. *Gilbertsocrinus reticulatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 244, pl. 17, figs. 1a, b.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Gilbertsocrinus robustus Hall. See *Gilbertsocrinus tuberosus*.

Gilbertsocrinus tenuiradiatus Meek and Worthen.

1869. *Goniasteroidocrinus tenuiradiatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 75.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Goniasteroidocrinus tenuiradiatus*. Meek and Worthen, Geol. Surv. Ill.,
vol. 5, p. 389, pl. 11, fig. 1.
Burlington L. S.: Burlington, Iowa.
1897. *Gilbertsocrinus tenuiradiatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 246, pl. 17, fig. 3.
Lower Burlington L. S.: Burlington, Iowa.

Gilbertsocrinus tuberosus Hall.

1860. *Trematocrinus tuberosus*. Hall Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 75.
Burlington L. S.: Burlington, Iowa.
1860. *Trematocrinus papillatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 76.
Burlington L. S.: Burlington, Iowa.
1878. *Ollacrinus tuberosus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 263.
1893. *Ollacrinus papillatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 36,
pl. 3, fig. 23.
Burlington L. S.: Burlington, Iowa.
1897. *Gilbertsocrinus tuberosus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 243, pl. 17, figs. 5a-c.
Upper Burlington L. S.: Burlington, Iowa.

Gilbertsocrinus tuberosus Lyon and Casseday.

1859. *Goniasteroidocrinus tuberosus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28, p. 233.
Subcarboniferous Group (Knobstone): Clear Creek, Hardin County, Kentucky; Washington and Montgomery counties, Indiana.
1860. *Trematocrinus robustus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 77.
Keokuk L. S.: Keokuk, Iowa.
1872. *Gilbertsocrinus (Trematocrinus) robustus*. Hall, Photo. Plates of Crinoids,
pl. 6, fig. 14.
1891. *Goniasteroidocrinus tuberosus*. Miller, Adv. Sheets, 17th Rep. Geol. Ind.,
p. 51, pl. 9, fig. 11.
1892. *Goniasteroidocrinus tuberosus*. Miller, 17th Rep. Geol. Surv. Ind., p. 661,
pl. 9, fig. 11.
1897. *Gilbertsocrinus tuberosus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 239, pl. 15, figs. 1a, b; pl. 16, figs. 1-6; pl. 17, fig. 6.
Keokuk Group: Crawfordsville, Indiana; Hardin County, Kentucky; Keokuk, Iowa.

Gilbertsocrinus typus Hall.

1860. *Trematocrinus typus*. Hall, Supp. vol. 1, p. 2, Geol. Rep. Ia., p. 73.
Burlington L. S.: Burlington, Iowa.

Gilbertocrinus typus Hall—Continued.

1872. *Gilbertocrinus* (*Trematocrinus*) *typus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 13.
 1878. *Ollacrinus typus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 262.
 1894. *Gilbertocrinus typus*. Keyes, Mo. Geol. Surv., vol. 4, p. 164.
 Upper Burlington L. S.: Marion County, Missouri; Burlington, Iowa.
 1897. *Gilbertocrinus typus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 242, pl. 14, figs. 1-3; pl. 17, figs. 7a, b.
 Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa.

(GLAUCONOME Goldfuss, 1826.)

Glauconome nereidis White. See *Pinnatopora nereidis*.

Glauconome trilineata Meek. See *Pinnatopora trilineata*.

Glauconome whitii Foerste. See *Pinnatopora whitii*.

GLOSSINA Phillips, 1848.**Glossina flabellula Hall and Clarke.**

1892. *Lingula* (*Glossina*) *flabellula*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 172, pl. 1, figs. 33, 34.
 Waverly Group: Sciotoville, Ohio.
 Berea Grit: Berea, Ohio.
 1897. *Lingula* (*Glossina*) *flabellula*. Hall, 14th Ann. Rep. N. Y. State Geol., p. 326, pl. 1, figs. 5, 6.
 Waverly Group: Sciotoville and Berea, Ohio:

Glossina nebraskensis Meek.

1872. *Lingula Scotica* var. *Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 158, pl. 8, figs. 3a, b.
 Upper Coal Measures: Nebraska City, Nebraska.

Glossina sedaliensis Miller.

1892. *Lingula sedaliensis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 54, pl. 9, fig. 2.
 Chouteau L. S.: Sedalia, Missouri.
 1894. *Lingula sedaliensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 308, pl. 9, fig. 2.
 Chouteau L. S.: Sedalia, Missouri.

Glossina waverlyensis Herrick.

1875. *Lingula Scotica*? Meek, Pal. Ohio, vol. 2, p. 276, pl. 14, fig. 9. (Not *L. scotica* Davidson.)
 Berea Grit: Berea, Ohio.
 1887. *Lingula scotica* (var.?) Herrick, Bull. Den. Univ., vol. 2, p. 144, pl. 14, fig. 15.
 Coal Measures: Flint Ridge, Ohio.
 1888. *Lingula waverlyensis*. Herrick, Bull. Den. Univ., vol. 4, p. 18, pl. 3, fig. 1.
 Waverly Group: Newark, Ohio.
 1892. *Lingula Waverlyensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4K, fig. 7.
 Waverly S. S.: Oil City, Pennsylvania.
 1895. *Lingula* (*scotica* var.) *waverlyensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 1.
 (Waverly) Shale above Conglomerate II: Newark, Ohio.

GLOSSITES Hall, 1885.

Glossites amygdalinus Winchell.

1863. *Sanguinolites amygdalinus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.
Yellow S. S.: Burlington, Iowa.
1885. *Glossites amygdalinus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 501, pl. 40,
figs. 13, 14.
Yellow S. S.: Burlington, Iowa.
1888. *Sanguinolites (Glossites) amygdalinus?* Herrick, Bull. Den. Univ., vol. 3,
p. 69.
Waverly Group: Licking County, Ohio.

GLYPHIOCERAS Hyatt, 1883.

Glyphioceras cumminsi Hyatt.

1893. *Glyphioceras cumminsi*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 467,
pl. 47, figs. 33-43.
Carboniferous: 5 miles west of Lampasas, Texas.

Glyphioceras incisum Hyatt.

1893. *Glyphioceras incisum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 471, pl. 47,
figs. 44-48.
Carboniferous: Near Richland Springs, San Saba County, Texas.

Glyphioceras kentuckiense Miller.

1889. *Goniatites kentuckiensis*. Miller, N. A. Geol. and Pal., p. 439, fig. 740.
St. Louis Group: Crab Orchard, Kentucky.
1893. *Glyphioceras Kentuckiense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 470.
1896. *Goniatites kentuckiensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat.
Hist., p. 40, pl. 5, fig. 1.
St. Louis Group: Crab Orchard, Kentucky.

Glyphioceras sphæricus Martin.

1897. *Glyphioceras sphericus*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 271, pl. 20,
figs. 1, 2.
Batesville S. S.: Batesville, Arkansas.

GLYPTOPORA Ulrich, 1888.

Glyptopora elegans Prout.

1860. *Coscinium elegans*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 572.
Warsaw L. S.: Warsaw, Illinois.
1866. *Coscinium elegans*. Prout, Geol. Surv. Ill., vol. 2, p. 413, pl. 22, fig. 2.
St. Louis Group: Warsaw, Illinois.
1890. *Glyptopora elegans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 518, pl. 78, figs. 10-10e.
Warsaw beds: Warsaw, Illinois.
1894. *Glyptopora elegans*. Keyes, Mo. Geol. Surv., vol. 5, p. 21.
Keokuk L. S.: Warsaw, Illinois.

Glyptopora keyserlingi Prout.

1858. *Coscinium Keyserlingi*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 269.
Archimedes L. S.: Warsaw, Illinois.
1859. *Coscinium Keyserlingi*. Prout, Trans. St. Louis Acad. Sci., vol. 1, pl. 15, figs.
4, 4a.
1860. *Coscinium Wortheni*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 571.
Keokuk L. S.: Warsaw, Illinois.
1866. *Coscinium Wortheni*. Prout, Geol. Surv. Ill., vol. 2, p. 412, pl. 22, fig. 1.
Keokuk Group: Near Warsaw, Illinois.

Glyptopora keyserlingi Prout—Continued.

1890. *Glyptopora keyserlingi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 517, pl. 78, figs. 4-4b.
Keokuk Group: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Glyptopora keyserlingi*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Keokuk L. S.: Keokuk, Iowa.

Glyptopora megastoma Ulrich.

1888. *Glyptopora megastoma*. Ulrich, Bull. Den. Univ., vol. 4, p. 83.
Waverly Group: Sciotoville, Ohio.
Keokuk Group: Illinois and Iowa.
1890. *Glyptopora megastoma*. Ulrich, Geol. Surv. Ill., vol. 8, p. 518, pl. 78, figs. 5, 5a.
Keokuk Group: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Glyptopora megastoma*. Keyes, Mo. Geol. Surv., vol. 5, p. 21.
Keokuk L. S.: Keokuk and Bentonsport, Iowa.

Glyptopora michelinia Prout.

1860. *Coscinium Michelinia*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 573.
Warsaw L. S.: Warsaw, Illinois.
1866. *Coscinium Michelinia*. Prout, Geol. Surv. Ill., vol. 2, p. 414, pl. 22, fig. 4.
St. Louis Group: Warsaw, Illinois.
1890. *Glyptopora michelinia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 515, pl. 78, figs. 8-8b.
Warsaw beds: Warsaw, Illinois; Barrett's Station, Missouri.
1894. *Glyptopora michelinia*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
St. Louis L. S.: Barrett's Station, Missouri.

Glyptopora pinnata Ulrich.

1890. *Glyptopora pinnata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 516, pl. 78, fig. 2.
Burlington L. S.: Sagetown, Henderson County, Illinois.

Glyptopora plumosa Prout.

1860. *Coscinium plumosum*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 572.
Warsaw L. S.: Warsaw, Illinois, and Barrett's Station, St. Louis County, Missouri.
1866. *Coscinium plumosum*. Prout, Geol. Surv. Ill., vol. 2, p. 414, pl. 22, figs. 3, 3a.
St. Louis Group: Warsaw, Ill.; Barrett's Station, Missouri.
1890. *Glyptopora plumosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 512, pl. 78, fig. 3-3c.
Warsaw beds: Warsaw, Illinois; Barrett's Station, Missouri.
1894. *Glyptopora plumosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 20, pl. 33, fig. 5.
St. Louis L. S.: Barrett Station, Missouri.

Glyptopora punctipora Ulrich.

1890. *Glyptopora punctipora*. Ulrich, Geol. Surv. Ill., vol. 8, p. 519, pl. 78, figs. 9, 9a.
Chester Group: Monroe County, Illinois.

Glyptopora sagenella Prout.

1860. *Coscinium sagenella*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 573.
Warsaw L. S.: Warsaw, Illinois.
1866. *Coscinium sagenella*. Prout, Geol. Surv. Ill., vol. 2, p. 415, pl. 22, fig. 5.
St. Louis Group: Warsaw, Illinois.
1890. *Glyptopora sagenella*. Ulrich, Geol. Surv. Ill., vol. 8, p. 513, pl. 78, figs. 6, 6a.
Keokuk Group: Bentonsport, Iowa.
Warsaw beds: Warsaw, Illinois.
1894. *Glyptopora sagenella*. Keyes, Mo. Geol. Surv., vol. 5, p. 21.
Keokuk L. S.: Bentonsport, Iowa; Warsaw Illinois.

Glyptopora sagenella var. *caliculosa* Ulrich.

1890. *Glyptopora sagenella* var. *caliculosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 514.
Warsaw beds: Warsaw, Illinois.

Glyptopora sagenella var. lata Ulrich.

1890. *Glyptopora sagenella* var. *lata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 515, pl. 78, fig. 4.

Warsaw beds: Warsaw, Illinois.

GOMPHOCERAS Sowerby, 1839.**Gomphoceras clarki** Miller.

1891. *Gomphoceras clarki*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 88, pl. 19, fig. 1.

St. Louis Group: Corydon, Indiana.

1892. *Gomphoceras clarki*. Miller, 17th Rep. Geol. Surv. Ind., p. 698, pl. 19, fig. 1.

St. Louis Group: Corydon, Indiana.

Gomphoceras potens Hall.

1879. *Gomphoceras potens*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 351.

Waverly Group: Medina, Ohio.

1886. *Gomphoceras potens*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (122) 7, fig. 8.

Waverly Group: Medina, Medina County, Ohio.

1888. *Gomphoceras potens*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp. pl. 122, fig. 8.

Waverly Group: Medina, Medina County, Ohio.

(GONIASTEROIDOCRINUS Lyon and Casseday, 1859.)

Goniasteroidocrinus faberi. See *Gilbertsocrinus faberi*.

Goniasteroidocrinus lyonanus. See *Gilbertsocrinus lyonanus*.

Goniasteroidocrinus obovatus. See *Gilbertsocrinus obovatus*.

Goniasteroidocrinus tenuiradiatus. See *Gilbertsocrinus tenuiradiatus*.

Goniasteroidocrinus tuberosus. See *Gilbertsocrinus tuberosus*.

GONIATITES De Haan, 1825.**Goniatites allei** Winchell.

1862. *Goniatites Allei*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 363.

Marshall S. S.: Marshall and Jonesville, Michigan.

1865. *Goniatites Allei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.

Marshall Group: Hillsdale, Michigan.

Goniatites andrewsi Winchell.

1870. *Goniatites Andrewsii*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.

Waverly Group: Newark, Ohio.

Goniatites baylorensis White.

1891. *Goniatites baylorensis*. White, Bull. U. S. Geol. Surv., No. 77, p. 19, pl. 2, figs. 1-3.

Permian: Military Crossing of the Big Wichita, Baylor County, Texas.

Goniatites bellicosus Morton.

1836. *Ammonites bellicosus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 3, fig. 8.

Coal Measures: Ohio Valley.

Goniatites blairi Miller and Gurley.

1896. *Goniatites blairi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 35, pl. 4, figs. 4, 5.

Chouteau L. S: Six miles from Sedalia, Missouri.

Goniatites brownensis Miller.

1891. *Goniatites brownensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 18, figs. 3, 4.
Waverly or Knobstone Group: Brown County, Indiana.
1892. *Goniatites brownensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 18, figs. 3, 4.
Waverly or Knobstone Group: Brown County, Indiana.

Goniatites choctawensis Shumard.

1863. *Goniatites Choctawensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 109.
Coal Measures: Choctaw Nation.

Goniatites colubrellus Morton.

1836. *Ammonites colubrellus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 154, pl. 28, figs. 49, 51.
Coal Measures: Ohio Valley.

Goniatites compactus Meek and Worthen.

1865. *Goniatites compactus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 154.
Coal Measures: Macoupin County, Illinois.
1873. *Goniatites compactus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 611, pl. 31, fig. 2.
Coal Measures: Menard County, Illinois.

Goniatites elkhornensis Miller and Gurley.

1896. *Goniatites elkhornensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 37, pl. 4, figs. 9-11.
Coal Measures: Elkhorn Creek, Kentucky.

Goniatites entogonus. See *Gastrioceras entogonus*.**Goniatites fultonensis** Miller and Gurley.

1896. *Goniatites fultonensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 39, pl. 4, figs. 15-17.
Coal Measures: Fulton County, Illinois.

Goniatites globulosus. See *Gastrioceras globulosum*.*Goniatites globulosus* var. *excelsus*. See *Gastrioceras excelsum*.**Goniatites goniolobus** Meek.

1877. *Goniatites goniolobus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 98, pl. 9, figs. 5-5b.
Carboniferous: New Mexico.

Goniatites gorbyi Miller.

1891. *Goniatites gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 15, fig. 1.
Chouteau L. S.: Pin Hook Bridge, Pettis County, Missouri.
1892. *Goniatites gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 15, fig. 1.
Chouteau L. S.: Pin Hook Bridge, Pettis County, Missouri.
1894. *Goniatites gorbyi*. Keyes, Mo. Geol. Surv., vol. 5, p. 220.
Chouteau L. S.: Sedalia, Missouri.

Goniatites greencastlensis Miller and Gurley.

1896. *Goniatites greencastlensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 44, pl. 5, figs. 12-14.
St. Louis Group: Greencastle, Indiana.

Goniatites greenii Miller.

1892. *Goniatites greenii*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 76, pl. 10, figs. 5, 6.
Knobstone Group: Near New Albany, Indiana.
1894. *Goniatites greenii*. Miller, 18th Rep. Geol. Surv. Ind., p. 330, pl. 10, figs. 5, 6.
Knobstone Group: Near New Albany, Indiana.

Goniatites hathawayanus McChesney.

1860. *Goniatites hathawayana*. McChesney, Desc. New Pal. Foss., p. 66.

Coal Measures: Lasalle, Illinois.

1865. *Goniatites hathawayana*. McChesney, Ill. New Spec. Foss., pl. 3, fig. 3.

1868. *Goniatites Hathawayanus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 53, pl. 3, fig. 3.

Coal Measures: Lasalle, Illinois.

Goniatites hildrethi Morton.

1836. *Ammonites Hildrethi*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 24; pl. 28, figs. 48, 50, 53.

Goniatites holmesii Swallow.

1860. *Goniatites (?) Holmesii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.

Chemung: Cooper County, Missouri.

Goniatites houghtoni Winchell.

1862. *Goniatites Houghtoni*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 363.

Marshall S. S.: Marshall, Michigan.

Goniatites hyas. See *Goniatites lyoni*.**Goniatites illinoisensis** Miller and Gurley.

1896. *Goniatites illinoisensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 42, pl. 5, figs. 6-8.

Coal Measures: Montgomery County, Illinois.

Goniatites indianensis Miller.

1891. *Goniatites indianensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 90, pl. 19, figs. 2, 3.

Knobstone or Waverly Group: Clark County, Ind.

1892. *Goniatites indianensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 700, pl. 19, figs. 2, 3.

Knobstone or Waverly Group: Clark County, Indiana.

Goniatites iowensis. See *Paralegoceras iowensis*.**Goniatites ixion**. See *Brancoceras ixion*.**Goniatites jessiae** Miller and Gurley.

1896. *Goniatites jessiae*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 46, pl. 5, figs. 18-20.

Chouteau L. S.: Near Sedalia, Missouri.

Goniatites kansasensis Miller and Gurley.

1896. *Goniatites kansasensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 43, pl. 5, figs. 9-11.

Upper Coal Measures: Kansas City, Missouri.

Goniatites kentuckiensis. See *Glyphioceras kentuckiensis*.**Goniatites kingii**. See *Gastrioceras kingii*.**Goniatites leviculus** Miller and Faber.

1892. *Goniatites leviculus*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 167, pl. 6, figs. 10, 11.

St. Louis Group: Crab Orchard, Kentucky.

Goniatites limatus Miller and Faber.

1892. *Goniatites limatus*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 166, pl. 6, figs. 8, 9.

St. Louis Group: Crab Orchard, Kentucky.

Goniatites louisianensis Rowley.

1895. *Goniatites louisianensis*. Rowley, Am. Geol., vol. 16, p. 221, figs. 15-18.

Louisiana L. S.: Louisiana, Missouri.

Goniatites lunatus Miller and Gurley.

1896. *Goniatites lunatus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 41, pl. 5, figs. 2-5.

Coal Measures: Elkhorn Creek, Kentucky.

Goniatites lyoni Meek and Worthen.

1860. *Goniatites Lyoni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 471.

Goniatite bed: Rockford, Indiana.

1860. *Goniatites hyas*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 102, figs. 17, 18.

Goniatite L. S.: Rockford, Indiana.

1866. *Goniatites Lyoni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 165, pl. 14, figs. 11a-c.

Goniatite bed: Rockford, Indiana.

1879. *Goniatites Lyoni*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 476, pl. 72, fig. 12; pl. 73, figs. 9-11; pl. 74, fig. 7.

Goniatite L. S.: Rockford, Indiana.

1888. *Goniatites lyoni*. Herrick, Bull. Den. Univ., vol. 3, p. 92.

Waverly Group: Licking County, Ohio.

1888. *Goniatites lyoni*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 2.

Waverly Group: Ohio.

1895. *Goniatites lyoni*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 2.

Kinderhook Freestone: Granville, Ohio.

Goniatites marshallensis Winchell.

1862. *Goniatites Marshallensis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 362.

Marshall S. S.: Marshall, Moscow, and Hardwood Point, Michigan.

1865. *Goniatites Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.

Marshall Group: Napoleon Cut, Jackson County, Michigan; Weymouth, Medina County, Ohio.

1870. *Goniatites Marshallensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.

Waverly Group: Newark, Ohio.

Goniatites minimus Shumard.

1858. *Goniatites minimus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 200.

Middle Coal Measures: Above Dover Landing, Missouri.

1894. *Goniatites minimus*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.

Upper Coal Measures: Dover Landing and Kansas City, Missouri.

Goniatites missouriensis Miller and Faber.

1892. *Goniatites missouriensis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 164, pl. 6, fig. 1.

Upper Coal Measures: Near Kansas City, Missouri.

Goniatites monroensis Worthen.

1890. *Goniatites monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 150, pl. 26, fig. 5.

St. Louis L. S.: Waterloo, Monroe County, Illinois.

Goniatites montgomeryensis Miller and Gurley.

1896. *Goniatites montgomeryensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 38, pl. 4, figs. 12-14.

Coal Measures: Montgomery County, Illinois.

Goniatites morganensis Swallow.

1860. *Goniatites Morganensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.

Chouteau L. S.: Missouri.

Goniatites noliensis Cox.

1857. *Goniatites noliensis*. Cox, Geol. Surv. Ky., vol. 3, p. 574, pl. 10, figs. 1-1b.

Coal Measures: Nolin Iron Works, Edmonson County, Kentucky.

1891. *Goniatites nolenensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 264.

Lower Coal Measures: Des Moines, Iowa.

Goniatites occidentalis Miller and Faber.

1892. *Goniatites occidentalis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 166, pl. 6, figs. 6, 7.
Coal Measures: Elkhorn Creek, Kentucky.

Goniatites ohioensis Winchell.

1870. *Goniatites Ohioensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
Waverly Group: Newark, Ohio.

Goniatites opimus White and Whitfield.

1862. *Goniatites opimus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 305.
Chemung Group: Burlington, Iowa.

Goniatites osagensis Swallow.

1860. *Goniatites Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 659.
Chemung Group: Cooper and Moniteau counties, Missouri.
1894. *Goniatites osagensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
Chouteau L. S.: Cooper County, Missouri.
Burlington L. S.: Louisiana, Missouri.

Goniatites oweni. See *Munsteroceras oweni*.**Goniatites oweni** var. *parallela*. See *Munsteroceras parallelum*.**Goniatites parrishi** Miller and Gurley.

1896. *Goniatites parrishi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 36, pl. 4, figs. 6-8.
Upper Coal Measures: Kansas City, Missouri.

Goniatites parvus Shumard.

1858. *Goniatites parvus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 199.
Upper Coal Measures: Willow Spring, on Santa Fe Road, Kansas.

Goniatites planorbiformis Shumard.

1855. *Goniatites planorbiformis*. Shumard, Geol. Surv. Mo., p. 208, pl. C, figs. 11a, b.
Coal Measures: Missouri River, above Dover Landing.
1894. *Goniatites planorbiformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
Upper Coal Measures: Kansas City, Missouri.

Goniatites politus Shumard.

1858. *Goniatites politus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 199.
Middle Coal Measures: Lexington, Missouri.
1894. *Goniatites politus*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
Upper Coal Measures: Lexington, Mo.

Goniatites propinquus Winchell.

1862. *Goniatites propinquus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 365.
Marshall S. S.: Pointe Aux Barques, Michigan.

Goniatites pygmaeus Winchell.

1862. *Goniatites pygmaeus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 366.
Marshall S. S.: ? Battle Creek, Michigan.

Goniatites romingeri Winchell.

1862. *Goniatites Romingeri*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 427.
Marshall Group: Marshall, Michigan.

Goniatites rotatorius. See *Brancoceras ixion*.**Goniatites sciotoensis** Miller and Faber.

1892. *Goniatites sciotoensis*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 165, pl. 6, figs. 2, 3.
Upper Waverly Group: Sciotoville, Ohio.

Goniatites shumardianus Winchell.

1862. *Goniatites Shumardianus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 364.
Marshall S. S.: Pointe Aux Barques, Michigan.
1870. *Goniatites Shumardianus*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Newark, Ohio.

Goniatites subcavus Miller and Gurley.

1896. *Goniatites subcavus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 45, pl. 5, figs. 15-17.
Coal Measures: Montgomery County, Illinois.

Goniatites subcircularis Miller.

1889. *Goniatites subcircularis*. Miller, N. A. Geol. and Pal., p. 440, fig. 741.
St. Louis Group: Crab Orchard, Kentucky.

Goniatites texanus Shumard.

1863. *Goniatites Texanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 109.
Coal Measure? L. S.: Bluffs of Wallace Creek, San Saba County, Texas.

Goniatites (species undetermined).

1873. *Goniatites* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 30, figs. 1a, b.
Coal Measures.
1888. *Goniatites* sp. ? Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 27.
Waverly Group: Licking County, Ohio.
1888. *Goniatites* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 5.
Bedford Shale: Central College, Ohio.
1889. *Goniatites* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 5.
Bedford Shale, Ohio.
1895. *Goniatites* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 5.
Bedford Shale: Central College, Ohio.

GONIOCRINUS Miller and Gurley, 1890.**Goniocrinus sculptilis** Miller and Gurley.

1890. *Goniocrinus sculptilis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 352, pl. 6, figs. 2-5.
Kinderhook Group: Legrand, Iowa.

GONIODON Herrick, 1888.**Goniodon ohioensis** Herrick, 1888.

1888. *Goniodon ohioensis*. Herrick, Bull. Den. Univ., vol. 3, p. 84, pl. 12, figs. 23-25.
Waverly Group, Licking County, Ohio.
1895. *Goniodon (Palaeoneilo?) ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 21; pl. 24, fig. 23.
Cuyahoga Shale: Moot's Run, Ohio.

GONIOPHORA Phillips, 1848.**Goniophora plicata** Hall.

1856. *Cypricardella plicata*. Hall, Trans. Alb. Inst., vol. 4, p. 18.
St. Louis L. S.: Bloomington, Indiana.
1882. *Goniophora plicata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 66, pl. 7, fig. 39.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Sanguinolites? (Goniophora?) plicata*. Hall, 12th Rep. Geol. Surv. Ind., p. 341, pl. 30, fig. 39.
St. Louis Group: Spergen Hill, Bloomington, and Lanesville, Indiana.

GRAEOPHONUS Scudder, 1890.

Graeophonus carbonarius Scudder.

1876. *Libellula carbonaria*. Scudder, Proc. Am. Ass. Adv. Sci., vol. 24, p. 111, fig. 1.
Carboniferous: Near Sydney, Cape Breton.
1876. *Libellula carbonaria*. Scudder, Can. Nat. (2), vol. 8, p. 88, fig. 1.
Carboniferous: Cape Breton, Nova Scotia.
1878. *Libellula Carbonaria*. Dawson, Supp. to 2d ed. Acad. Geol., p. 53, fig. 8.
Carboniferous: Nova Scotia.
1885. *Libellula carbonaria*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 350.
Carboniferous: Nova Scotia.
1890. *Graeophonus carbonarius*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4,
p. 454, pl. 40, figs. 2, 3, 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Graeophonus carbonarius*. Scudder, Foss. Insc. N. A., vol. 1, p. 430, pl. 32,
figs. 2, 3, 6.
Carboniferous: Mazon Creek, Illinois, and Cape Breton.

GRAMMYSIA De Verneuil, 1847.

Grammysia arcuata Conrad.

1884. *Grammysia arcuata*. Walcott, Pal. Eureka Dist., p. 245, pl. 20, fig. 5.
Lower Carboniferous: Eureka District, Nevada.

Grammysia blairi Miller.

1891. *Grammysia blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 93,
pl. 20, fig. 4.
Chouteau, L. S.: Sedalia, Missouri.
1892. *Grammysia blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 703, pl. 20, fig. 4.
Chouteau L. S.: Sedalia, Missouri.

Grammysia famelica Herrick.

1888. *Grammysia famelica*. Herrick, Bull. Den. Univ., vol. 4, p. 35, pl. 6, fig. 5.
Waverly Group: Granville, Ohio.
1895. *Grammysia famelica*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 5.
Upper Cuyahoga Shale: Licking County, Ohio.●

Grammysia hannibalensis Shumard.

1855. *Allorisma Hannibalensis*. Shumard, Geol. Rep. Mo., p. 206, pl. C, fig. 19.
Lithographic L. S.: Hannibal, Missouri.
1865. *Sanguinolites Hannibalensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Hillsdale, Mich.
1870. *Allorisma (Sedgwickia) Hannibalensis*. Winchell, Proc. Am. Phil. Soc., vol.
11, p. 256.
Waverly Group: Newark, Ohio.
1875. *Grammysia ? Hannibalensis*. Meek, Pal. Ohio, vol. 2, p. 300, pl. 16, figs. 5a-c.
Waverly Group: Medina and Cuyahoga Falls, Ohio; Burlington, Iowa;
Hannibal, Missouri.
1884. *Grammysia Hannibalensis*. Walcott, Pal. Eureka Dist., p. 244, pl. 20, fig. 4.
Lower Carboniferous: Eureka District, Nevada.
1885. *Grammysia Hannibalensis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 381, pl. 61,
figs. 29, 30, 33.
Waverly S. S.: Summit and Cuyahoga Falls, Ohio.
Lithographic L. S.: Hannibal, Missouri.
1886. *Grammysia hannibalensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, p. 248.
Lower Coal Measures: Wilkesbarre, Pennsylvania.

Grammysia hannibalensis Shumard—Continued.

1888. *Grammysia hannibalensis*. Herrick, Bull. Den. Univ., vol. 3, p. 75, pl. 4, fig. 13.
Waverly Group: Licking County, Ohio.
1888. *Grammysia* (?) *hannibalensis*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 11.
Waverly Group: Ohio.
1894. *Allorisma hannibalensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 127.
Louisiana L. S.: Hannibal, Missouri.
1895. *Grammysia* ? *hannibalensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 11.
Kinderhook: Granville, Ohio.

Grammysia herricki Miller.

1888. *Grammysia ovata*. Herrick, Bull. Den. Univ., vol. 4, p. 35, pl. 3, fig. 12.
(Not *G. ovata* Hall, 1885.)
Waverly Group: Newark, Ohio.
1892. *Grammysia herricki*. Miller, First Appendix to N. A. Geol. and Pal., p. 700.
1895. *Grammysia ovata* Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 7.
Burlington Group: Newark, Ohio.

Grammysia ovata Herrick. See *Grammysia herricki*.

Grammysia plena Hall.

1885. *Grammysia plena*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 382, pl. 61, figs. 31, 32.
Yellow S. S.: Burlington, Iowa.

Grammysia rhomboides Meek.

1871. *Grammysia* ? *rhomboides*. Meek, Proc. Acad. Nat. Sci. Phil., p. 72.
Waverly Group: Rushville, Ohio.
1875. *Grammysia* ? *rhomboides*. Meek, Pal. Ohio, vol. 2, p. 302, pl. 16, figs. 7a, b.
Waverly Group: Medina, Ohio.
1888. *Grammysia rhomboides*. Herrick, Bull. Den. Univ., vol. 3, p. 75, pl. 8, fig. 12.
Waverly Group: Licking County, Ohio.

Grammysia ventricosa Meek.

1871. *Grammysia ventricosa*. Proc. Acad. Nat. Sci. Phil., p. 73.
Waverly Group: Rushville, Ohio.
1875. *Grammysia ventricosa*. Meek, Pal. Ohio, vol. 2, p. 303, pl. 13, figs. 5a, b,
pl. 16, figs. 6a, b.
Waverly Group: Medina, Ohio.
1888. *Grammysia ventricosa*. Herrick, Bul. Den. Univ., vol. 3, p. 76.
Waverly Group: Licking County, Ohio.

Grammysia (species undetermined).

1886. *Grammysia* (sp. ?). Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 442,
fig. 8.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Grammysia* (sp. ?) Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc.,
vol. 2, pt. 2, p. 270, fig. 8.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Grammysia* sp. Herrick, Bull. Den. Univ., vol. 3, p. 76, pl. 12, fig. 3.
Waverly Group: Licking County, Ohio.
1888. *Grammysia*, imperfect cast. Herrick, Bull. Den. Univ., vol. 3, pl. 4, fig. 8.
Waverly Group: Licking County, Ohio.

GRANATOCRINUS Troost, 1850.**Granatocrinus aplatus** Rowley and Hare.

1891. *Granatocrinus aplatus*. Rowley and Hare, The Kansas City Scientist, vol.
5, p. 117, pl. 3, figs. 11, 12.
Upper Burlington L. S.: Louisiana and Spencer Creek north of Curryville,
Missouri.

Granatocrinus concinnulus Rowley and Hare.

1891. *Granatocrinus concinnulus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 117, pl. 3, figs. 13, 14.

Lower Burlington L. S.: Louisiana, Missouri.

Granatocrinus cornutus. See *Heteroblastus cornutus*.

Granatocrinus curtus Shumard.

1855. *Pentremites curtus*. Shumard, Geol. Rep. Mo., p. 187, pl. B, figs. 3a, b.

Archimedes L. S.: Fenton, St. Louis County, Missouri.

1894. *Granatocrinus curtus*. Keyes, Mo. Geol. Surv., vol. 4, p. 140.

St. Louis L. S.: Fenton, Missouri.

Granatocrinus excavatus Rowley and Hare.

1891. *Granatocrinus excavatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 99, pl. 2, figs. 9, 10.

Burlington L. S.: Louisiana, Missouri.

Granatocrinus exiguus Rowley and Hare.

1891. *Granatocrinus exiguus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 100, pl. 2, figs. 13, 14; p. 118, pl. 3, fig. 18.

Lower Burlington L. S.: Louisiana, Missouri.

Granatocrinus granulatus Roemer.

- *1852. *Pentremites granulatus*. Roemer, Monog. Blast., p. 43.

Warsaw Group.

Granatocrinus granulosus. See *Schizoblastus granulosus*.

Granatocrinus lotoblastus. See *Schizoblastus lotoblastus*.

Granatocrinus magnibasis Rowley.

1895. *Granatocrinus* (*Schizoblastus*?) *magnibasis*. Rowley, Am. Geol., vol. 16, p. 220, figs. 11-14.

Upper Burlington L. S.: Louisiana, Missouri.

Granatocrinus melonoides. See *Schizoblastus melonoides*.

Granatocrinus mutabilis Rowley.

1893. *Granatocrinus mutabilis*. Rowley, Am. Geol., vol. 12, p. 306, pl. 14, figs. 4-9.

Chouteau L. S.: 3 miles east of Curryville, Missouri.

Granatocrinus neglectus Meek and Worthen.

1869. *Granatocrinus neglectus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 90.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Granatocrinus neglectus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 471, pl. 9, fig. 3.

Burlington L. S.: Burlington, Iowa.

1894. *Granatocrinus neglectus*. Keyes, Mo. Geol. Surv., vol. 4, p. 139.

Lower Burlington L. S.: Hannibal and Louisiana, Missouri.

Granatocrinus norwoodi Owen and Shumard.

1850. *Pentremites norwoodi*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 64, pl. 7, figs. 13a-c.

Subcarboniferous L. S.: Burlington and Augusta, Iowa; Oquawka, Illinois.

1852. *Pentremites norwoodii*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 591, tab. 5A, figs. 13a-c.

Subcarboniferous L. S.: Burlington and Augusta, Iowa; Oquawka, Illinois.

1866. *Granatocrinus Norwoodi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 258.

Upper Burlington Group: Burlington, Iowa.

Granatocrinus norwoodi Owen and Shumard—Continued.

1868. *Granatocrinus Norwoodi*? Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 496, pl. 18, fig. 8.
Burlington Group: Burlington, Iowa.
1873. *Granatocrinus Norwoodi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 473, pl. 9, fig. 2.
1886. *Granatocrinus norwoodi*. Etheridge and Carpenter, Cat. Blast., p. 245, pl. 2, figs. 34–36; pl. 3, fig. 16; pl. 6, figs. 19, 20; pl. 7, figs. 1–13; pl. 10, fig. 11; pl. 11, fig. 14; pl. 17, fig. 8.
Upper Burlington L. S.: Burlington, Iowa; Pleasant Grove, Iowa; near Monmouth, Illinois.
1894. *Granatocrinus norwoodi*. Keyes, Mo. Geol. Surv., vol. 4, p. 140, pl. 18, fig. 10.
Upper Burlington L. S.: Ash Grove, Palmyra and Hannibal, Missouri.

Granatocrinus pisum. See *Cryptoblastus pisum*.

Granatocrinus projectus. See *Cryptoblastus projectus*.

Granatocrinus pyriformis Rowley and Hare.

1891. *Granatocrinus pyriformis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 118, pl. 3, figs. 15, 16.
Upper Burlington L. S.: Bear Creek Station, Marion County, Missouri.

Granatocrinus shumardi Meek and Worthen.

1866. *Granatocrinus Shumardi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 257.
Lower Burlington Group: Burlington, Iowa.
1868. *Granatocrinus Shumardi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 498, pl. 18, figs. 6a, b.
Burlington Group: Burlington, Iowa.

Granatocrinus sphaeroidalis Miller and Gurley.

1894. *Granatocrinus sphaeroidalis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 65, pl. 6, figs. 31–33.
Kaskaskia Group: Meade County, Kentucky.

Granatocrinus winslowi Miller and Gurley.

1884. *Granatocrinus winslowi*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 66, pl. 6, figs. 34, 35.
? Burlington Group: Drift at Danville, Illinois.

GRAPHIOCRINUS De Koninck and Lehon, 1853.**Graphiocrinus carbonarius** Meek and Worthen.

1861. *Poteriocrinus (Scaphiocrinus?) carbonarius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 140.
Coal Measures: Near Springfield, Illinois.
1865. *Poteriocrinus (Zeacrinus) carbonarius*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 152.
1873. *Scaphiocrinus carbonarius*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 562, pl. 24, fig. 2.
Upper Coal Measures: Springfield, Illinois.
1894. *Phialocrinus carbonarius*. Keyes, Mo. Geol. Surv., vol. 4, p. 219.
Upper Coal Measures: Kansas City, Missouri.

Graphiocrinus dactylus. See *Scytalocrinus dactylus*.

Graphiocrinus longicirriifer Wachsmuth and Springer.

1890. *Graphiocrinus longicirriifer*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 193, pl. 15, fig. 12; pl. 17, fig. 14.
Kinderhook Group: Legrand, Iowa.

Graphiocrinus macadamsi Worthen.

1873. *Scaphiocrinus McAdamsi*. Worthen, Geol. Surv. Ill., vol. 5, p. 495, pl. 15, fig. 2.
Keokuk L. S.: Otter Creek, Jersey County, Illinois.

Graphiocrinus 14 brachialis. See *Eupachycrinus quatuor-decem-brachialis*.**Graphiocrinus rudis** Meek and Worthen.

1869. *Scaphiocrinus rudis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 139.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus rudis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 412,
pl. 1, fig. 1.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus simplex Hall.

1858. *Scaphiocrinus simplex*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 551, pl. 9, fig. 10.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus spinobrachiatus Hall.

1861. *Scaphiocrinus spinobrachiatus*. Hall, Desc. New Spec. Crin., p. 8.
Burlington L. S.
1861. *Scaphiocrinus spinobrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7,
p. 306.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus striatus Meek and Worthen.

1869. *Scaphiocrinus striatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 142.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus striatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 418,
pl. 2, fig. 11.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus tortuosus Hall.

1861. *Scaphiocrinus tortuosus*. Hall, Desc. New Spec. Crin., p. 7.
Burlington L. S.
1861. *Scaphiocrinus tortuosus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 309.
Burlington L. S.: Burlington, Iowa.
1893. *Graphiocrinus tortuosus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1,
p. 32, pl. 3, figs. 15-17.
Burlington L. S.: Burlington, Iowa.

Graphiocrinus wachsmuthi Meek and Worthen.

1861. *Poteriocrinus (Scaphiocrinus) Wachsmuthi*. Meek and Worthen, Proc. Acad.
Nat. Sci. Phil., p. 141.
Burlington L. S.: Burlington, Iowa.
1868. *Scaphiocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3,
p. 488, pl. 16, figs. 7a, b.
Burlington Group: Burlington, Iowa.

GRIFFITHIDES Portlock, 1843.**Griffithides bufo** Meek and Worthen.

1870. *Phillipsia (Griffithides) bufo*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 52.
Keokuk Group: Crawfordsville, Indiana.
1873. *Phillipsia (Griffithides) bufo*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 528, pl. 15, fig. 10.
Keokuk Group: Crawfordsville, Indiana.

Griffithides bufo Meek and Worthen—Continued.

1881. *Phillipsia bufo*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 515, pl. 6, fig. 5.
Keokuk Group: Crawfordsville, Indiana.
1887. *Griffithides bufo*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 95, pl. 3, figs. 4, 5, 10.
Keokuk Group: Crawfordsville, Indiana.

Griffithides granulatus Wetherby.

1881. *Proetus granulatus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 81, pl. 2, figs. 8, 8a, 9, 9a.
Kaskaskia Group: Pulaski County, Kentucky.
1887. *Griffithides granulatus*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 101.
Chester Series: Pulaski County, Kentucky.

Griffithides ornatus Vogdes.

- *1897. *Griffithides ornatus*. Vogdes, Proc. Cal. Acad. Sci., ser. 2, vol. 4, p. 589.
Lower Coal Measures: Conway County, Arkansas.
1897. *Phillipsia (Griffithides) ornata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 61, pl. 22, fig. 6.
Lower Coal Measures: Conway County, Arkansas.

Griffithides portlocki Meek and Worthen.

1865. *Phillipsia (Griffithides) Portlocki*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 268.
Keokuk L. S.: Warsaw, Illinois.
1873. *Phillipsia (Griffithides) Portlocki*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 525, pl. 19, fig. 6.
Keokuk L. S.: Warsaw, Illinois.
1884. *Griffithides Portlocki*. Walcott, Pal. Eureka Dist., p. 266, pl. 24, figs. 4-4b.
Lower Carboniferous: Eureka District, Nevada.
1887. *Griffithides portlockii*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 93, pl. 3, fig. 9.
Keokuk L. S.: Warsaw, Illinois.
1894. *Phillipsia portlocki*. Keyes, Mo. Geol. Surv., vol. 4, p. 236, pl. 32, fig. 7.
Keokuk L. S.: St. Francisville, Missouri; Keokuk, Iowa.

Griffithides sangamonensis Meek and Worthen.

1865. *Phillipsia (Griffithides?) Sangamonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 271.
Upper Coal Measures: Springfield, Illinois.
1873. *Phillipsia (Griffithides?) Sangamonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 615, pl. 32, fig. 4.
Upper Coal Measures: Springfield, Illinois.
1884. *Phillipsia (Griffithides?) Sangamonensis*. White, 13th Rep. Geol. Surv. Ind., p. 174, pl. 39, figs. 4, 5.
Coal Measures: Indiana.
1886. *Phillipsia Sangamonensis*. Heilprin, 2d Geol. Surv. Penn. Ann. Rep. 1885, p. 458, fig. 14a; p. 446, fig. 14.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Phillipsia Sangamonensis*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 274, fig. 14, p. 277, fig. 14a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Phillipsia sangamonensis*. Herrick, Bull. Den. Univ., vol. 2, p. 61, pl. 5, fig. 13.
1887. *Griffithides sangamonensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 99, pl. 3, figs. 7, 8.
Upper Coal Measures: Springfield, Illinois.

Griffithides scitula Meek and Worthen.

1865. *Phillipsia* (*Griffithides*) *scitula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 270.
Upper Coal Measures: Springfield, Illinois.
1872. *Phillipsia scitula*. Meek, U. S. Geol. Surv. Nebr., p. 238, pl. 6, fig. 9.
Upper Coal Measures: Nebraska City, Nebraska; Springfield, Illinois.
Lower Coal Measures: Illinois.
1873. *Phillipsia* (*Griffithides*) *scitula*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 612, pl. 32, fig. 3.
Upper Coal Measures: Springfield, Illinois.
1884. *Phillipsia* (*Griffithides*?) *scitula*. White, 13th Rep. Geol. Surv. Ind., p. 173, pl. 39, figs. 6-9.
Coal Measures: Perrysville, Eugene, Lodi, Silverwood, and Newport, Indiana.
1887. *Phillipsia scitula*. Herrick, Bull. Den. Univ., vol. 2, p. 62.
1887. *Griffithides scitula*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 97, pl. 3, figs. 11-13.
Upper Coal Measures: Springfield, Illinois; Plattsmouth, Nebraska.
Lower Coal Measures: Illinois.
1897. *Phillipsia* (*Griffithides*) *scitula*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 61.
Lower Coal Measures, White County, Arkansas.

Griffithides? sedaliensis Vogdes.

1888. *Griffithides* (?) *sedaliensis*. Vogdes, Trans. N. Y. Acad. Sci., vol. 7, p. 249.
Waverly Group: Sedalia, Missouri.
1894. *Phillipsia sedaliensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 235.
Chouteau L. S.: Sedalia, Missouri.

GYROCERAS De Koninck, 1844.

Gyroceras burlingtonensis Owen. See *Nautilus burlingtonensis*.

Gyroceras gracile Hall.

1860. *Gyroceras gracile*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 105, figs. 1, 2.
Goniatite L. S.: Rockford, Indiana.

Gyroceras Hartti Dawson. See *Stroboceras hartti*.

Gyroceras rockfordensis Meek and Worthen. See *Solenocheilus rockfordensis*.

Gyroceras stebos Hall.

1886. *Gyroceras Stebos*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (126) 11, fig. 7.
Waverly Group: Warren, Pennsylvania.
1888. *Gyroceras?* *Stebos*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 36, pl. 126, fig. 7.
Waverly Group: Warren County, Pennsylvania.

Gyroceras (species undetermined).

1888. *Gyroceras* sp. Herrick, Bull. Den. Univ., vol. 4, p. 47.
Waverly Group: Ohio.

HADROPHYLLUM Milne-Edwards and Haime, 1850.**Hadrophyllum aplatum** Cummins.

1891. *Hadrophyllum aplatum*. Cummins, 2d Ann. Rep. Geol. Surv. Tex., p. 552, figs. 60-60b, 61-61b.
Bend Division of the Carboniferous: Texas.

Hadrophyllum glans White.

1862. *Zaphrentis glans*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 32.
Upper Burlington L. S.: Burlington, Iowa.
1880. *Hadrophyllum glans*. White, Cont. to Inv. Pal., No. 8, p. 156, pl. 39, figs. 5a, b.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Hadrophyllum glans*. Keyes, Mo. Geol. Surv., vol. 4, p. 116, pl. 13, figs. 11a, b.
Burlington L. S.: Louisiana and Sedalia, Missouri.

Hadrophyllum tennesseense Miller and Gurley.

1895. *Hadrophyllum tennesseense*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 87, pl. 5, figs. 16-19.
Silicified Subcarboniferous beds of the age of the Keokuk Group: Lincoln County, Tenn.

HALYSIOCRINUS Ulrich, 1886.**Halysiocrinus bradleyi** Meek and Worthen.

1869. *Calceocrinus?* *Bradleyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 73.
Keokuk Group: Crawfordsville, Indiana.
1873. *Calceocrinus?* *Bradleyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 502, pl. 14, fig. 9.
Keokuk Group: Crawfordsville, Indiana.

Halysiocrinus perplexus Shumard.

1866. *Cheirocrinus* (*Calceocrinus?*) *perplexus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 358.
Blue calcareous shale (Keokuk): Button-mould Knob, Kentucky.

Halysiocrinus robustus Worthen.

1890. *Calceocrinus robustus*. Worthen, Geol. Surv. Ill., vol. 8, p. 92, pl. 12, fig. 7.
Keokuk L. S.: Keokuk, Iowa.

Halysiocrinus tunicatus Hall.

1860. *Cheirocrinus tunicatus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 124.
Keokuk L. S.
1890. *Calceocrinus tunicatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 93, pl. 12, fig. 6.
Keokuk L. S.: Keokuk, Iowa.
1894. *Calceocrinus tunicatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 222, pl. 30, fig. 4.
Keokuk L. S.: Keokuk, Iowa.

Halysiocrinus ventricosus Hall.

1860. *Cheirocrinus ventricosus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 123.
Burlington L. S.
1860. *Cheirocrinus dactylus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 123, figs. 1, 2.
Burlington L. S.
1860. *Cheirocrinus nodosus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 124.
Keokuk L. S.
1869. *Calceocrinus?* *Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 74.
Upper Burlington L. S.: Burlington, Iowa.
1872. *Calceocrinus nodosus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 15.
1873. *Calceocrinus* (?) *Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 444, pl. 2, fig. 1.
Burlington L. S.: Burlington, Iowa.

Halysiocrinus ventricosus Hall—Continued.

1893. *Halysiocrinus ventricosus*. Bather, The Crinoidea of Gotland, pt. 1, p. 65, pl. 4, figs. 141, 142.
 Burlington L. S.: Burlington, Iowa.
1894. *Calceocrinus ventricosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 222.
 Lower Burlington L. S.: Louisiana, Missouri.

HAPLOPHLEBIUM Scudder, 1867.**Haplophlebiium barnesii Scudder.**

1867. *Haplophlebiium Barnesii*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 11, p. 151.
 Carboniferous: Cape Breton.
1867. *Haplophlebiium Barnesii*. Dawson, Geol. Mag. (1), vol. 4, p. 386, pl. 17, fig. 1.
 Carboniferous: Little Glace Bay, Cape Breton.
1868. *Haplophlebiium Barnesii*. Dawson, Acad. Geol., p. 386, fig. 152.
 Coal Measures: Little Glace Bay, Cape Breton.
- *1868. *Haplophlebiium barnesii*. Scudder, Can. Nat. (2), vol. 3, p. 202.
 Carboniferous: Cape Breton.
1868. *Haplophlebiium Barnesii*. Scudder, Am. Nat., vol. 1, p. 631, pl. 16, fig. 8.
 Coal Measures: Cape Breton.
1884. *Haplophlebiium Barnesii*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 172.
 Carboniferous: Cape Breton.

Haplophlebiium longipennis Scudder.

1885. *Haplophlebiium longipennis*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 172.
 Carboniferous: Pittston, Pennsylvania.

HARTTINA Hall, 1893.**Harttina anna Hartt.**

1868. *Centronella Anna*. Hartt, Dawson's Acad. Geol., p. 300, figs. 99a, b.
 Carboniferous L. S.: Windsor, Nova Scotia.
1894. *Harttina Anna*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 52, figs. 29-31.
 Carboniferous L. S.: Windsor, Nova Scotia.
1895. *Harttina Anna*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 79, figs. 37-39.
 Carboniferous L. S.: Windsor, Nova Scotia.

(HELICOPORA Claypole 1883.)

Helicopora archimedes Claypole. See *Archimedes latus* Hall.

HELIOTRYPA Ulrich 1883.**Heliotrypa bifolia Ulrich.**

1883. *Heliotrypa bifolia*. Ulrich, Jour. Crinn. Soc. Nat. Hist., vol. 6, p. 278, pl. 13, figs. 6-6c.
 Kaskaskia Group: Tateville, Kentucky.

HEMERISTIA Dana, 1864.**Hemeristia occidentalis Dana.**

1864. *Hemeristia occidentalis*. Dana, Am. Jour. Sci. (2), vol. 37, p. 35, fig. 2.
 Coal Measures: Morris, Illinois.

Hemeristia occidentalis Dana—Continued.

1866. *Hemeristia occidentalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 1, p. 191, pl. 6, figs. 1-3.
Carboniferous: Morris, Illinois.
1885. *Hemeristia occidentalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 342.
Carboniferous: Morris, Illinois.
1890. *Hemeristia occidentalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 19, 306, pl. 1, figs. 1, 3.
Carboniferous: Morris, Illinois.

(HEMIPRONITES Pander, 1830.)

Hemipronites crassus. See *Derbya crassa*.

Hemipronites crenistria. See *Orthothetes crenistria* and *Derbya crassa*.

Hemipronites inequalis. See *Orthothetes inaequalis*.

Hemipronites lasallensis. See *Derbya crassa*.

Hemipronites umbraculum. See *Orthothetes crenistria*.

HEMITRYPA Phillips, 1841.**Hemitrypa aspera Ulrich.**

1890. *Hemitrypa aspera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 563, pl. 57, figs. 3a, 4-4f.
Keokuk Group: Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Hemitrypa aspera*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
Keokuk L. S.: Keokuk, Iowa.

Hemitrypa hemitrypa Prout.

1859. *Fenestella hemitrypa*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 444, pl. 17, figs. 4, 4a.
Second Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.
1890. *Hemitrypa proutana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 560, pl. 57, figs. 1-1c.
Keokuk Group: Warsaw, Illinois; Keokuk, Iowa.
Warsaw Beds: Monroe County, and Warsaw, Illinois; Barrett's Station, Missouri.
1894. *Hemitrypa hemitrypa*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
St. Louis L. S.: Barrett Station, Missouri.

Hemitrypa hemitrypa var. nodulosa Ulrich.

1890. *Hemitrypa proutana* var. *nodulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 562, pl. 57, figs. 2-2c.
Keokuk L. S.: Keokuk and Bentonsport, Iowa; Nauvoo, Illinois.

Hemitrypa hemitrypa var. vermifera Ulrich.

1890. *Hemitrypa proutana* var. *vermifera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 561, pl. 57, figs. 5, 5a.
Warsaw Beds: Warsaw, Illinois.

Hemitrypa nodosa Ulrich.

1890. *Hemitrypa nodosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 562, pl. 57, fig. 3.
Keokuk Group: Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Hemitrypa nodosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
Keokuk L. S.: Bentonsport, Iowa.

Hemitrypa pateriformis Ulrich.

1890. *Hemitrypa pateriformis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 564, pl. 57, figs. 7-7c.
Keokuk Group: Keokuk, Iowa.
1894. *Hemitrypa pateriformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 26.
Keokuk L. S.: Keokuk, Iowa.

Hemitrypa perstriata Ulrich.

1890. *Hemitrypa perstriata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 564, pl. 57, figs. 6, 6a.
Keokuk Group: Bentonsport and Keokuk, Iowa.
1894. *Hemitrypa perstriata*. Keyes, Mo. Geol. Surv., vol. 5, p. 25.
Keokuk L. S.: Keokuk, Iowa.

Hemitrypa plumosa Prout.

1858. *Fenestella plumosa*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 236.
Warsaw, Illinois.
1859. *Fenestella plumosa*. Prout, Trans. St. Louis Acad. Sci., vol. 1, pl. 15, figs. 2, 2a.

Hemitrypa proutana Ulrich. See *Hemitrypa hemitrypa*.**Hemitrypa proutana** var. *nodulosa* Ulrich. See *Hemitrypa hemitrypa* var. *nodulosa*.**Hemitrypa proutana** var. *vermifera* Ulrich. See *Hemitrypa hemitrypa* var. *vermifera*.**HETEROBLASTUS** Etheridge and Carpenter, 1886.**Heteroblastus cornutus** Meek and Worthen.

1861. *Pentremites cornutus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 141.
St. Louis L. S.: Dry Fork, Brown County, Illinois.
1866. *Granatocrinus cornutus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 276,
pl. 20, fig. 1.
St. Louis Group: Near Mount Sterling, Brown County, Illinois.

HETERODICTYA Nicholson, 1875.**Heterodictya gigantea** Nicholson.

1875. *Heterodictya gigantea*. Nicholson, Geol. Mag., dec. 2, vol. 2, p. 34, pl. 2,
figs. 1a-e.
Carboniferous L. S.: Jarvis, Township of Walpole, Ontario.

HOLOPEA Hall, 1847.**Holopea conica** Winchell.

1863. *Holopea conica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 21.
Yellow S. S.: Burlington, Iowa.

Holopea grandis Miller and Gurley.

1896. *Holopea grandis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist.,
p. 19, pl. 2, figs. 33, 34.
Knobstone Group: Near New Albany, Indiana.

Holopea newtonesis Whitfield.

1882. *Holopea Newtonensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 224.
Maxville L. S.: Newtonville, Ohio.
1891. *Holopea Newtonensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 591, pl. 14,
fig. 12.
Maxville L. S.: Newtonville, Ohio.
1895. *Holopea Newtonensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 477, pl. 10,
fig. 12.
Maxville L. S.: Newtonville, Ohio.

Holopea proutana Hall.

1856. *Holopea Proutana*. Hall, Trans. Albany Inst., vol. 4, p. 36.
St. Louis L. S.: Alton, Illinois; Spergen Hill, Indiana.
1882. *Holopea (Callonema?) Proutana*. Whitfield, Bull. Am. Mus. Nat. Hist.,
vol. 1, p. 72, pl. 8, figs. 33, 34.
St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

Holopea proutana Hall—Continued.

1883. *Holopea proutana*. Hall, 12th Rep. Geol. Surv. Ind., p. 368, pl. 31, figs. 33, 34.

St. Louis Group: Alton, Illinois; Spergen Hill, Lanesville, and Bloomington, Indiana.

Holopea subconica Winchell.

1863. *Holopea subconica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 21. (Name preoccupied by Hall, 1859.)

Yellow S. S.: Burlington, Iowa.

HOLOPELLA McCoy, 1855.**Holopella mira** Winchell.

1863. *Holopella mira*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 22.

Yellow S. S.: Burlington, Iowa.

HUSTEDIA Hall, 1893.**Hustedia meekana** Shumard.

1858. *Retzia* (?) *Meekana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 295.

White and Dark Permian L. S.: Guadalupe Mountains.

1859. *Retzia Meekiana*. Meek and Hayden, Trans. St. Louis Acad. Sci., vol. 1, p. 395, pl. 11, fig. 7.

White and Dark Permian L. S.: Guadalupe Mountains.

Hustedia mormoni Marcou.

1858. *Terebratulula mormoni*. Marcou, Geol. N. A., p. 51, pl. 6, figs. 11-11c.

Mountain L. S.: Salt Lake City, Utah.

1858. *Retzia punctulifera*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 220.

Upper Coal Measures: Audrain and Howard counties, Missouri; below mouth of Platt River, Nebraska; near Manhattan, at Willow Springs, on Santa Fé Road, and headwaters of Verdigris River, Kansas.

1859. *Retzia mormoni*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.

Upper Coal Measures: Manhattan and Leavenworth, Kansas.

1860. *Retzia subglobosa*. McChesney, Desc. New. Pal. Foss., p. 45.

Upper Coal Measures: Menard, Mason, Fulton, Peoria, Tazewell, Knox, and Marshall counties, Illinois.

1864. *Retzia compressa*. Meek, Pal. Cal., vol. 1, p. 14, pl. 2, figs. 7-7c.

Carboniferous: Bass's Ranch, Shasta County, California.

1866. *Retzia mormoni*. Geinitz, Carb. und Dyas in Nebr., p. 39, tab. 3, fig. 6.

Plattsmouth, Nebraska.

1868. *Retzia punctulifera*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 32, pl. 1, figs. 1a-c.

Upper Coal Measure L. S.: Menard, Mason, Fulton, Peoria, Tazewell, Knox, and Marshall counties, Illinois.

1872. *Retzia punctulifera*. Meek, U. S. Geol. Surv. Nebr., p. 181, pl. 1, fig. 13, pl. 5, fig. 7.

Upper Coal Measures: Rock Bluff, Plattsmouth and Nebraska City, Nebraska.

Coal Measures: Nebraska; Kansas; Illinois.

1874. *Eumetria punctulifera*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 4, pl. 8, figs. 4, 5, 7, 8, 10; pl. 9, fig. 3.

Coal Measures: Bomjardim and Itaitúba, Brazil, and Pichis River, Peru.

1877. *Retzia Mormonii*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 141, pl. 10, figs. 7a-c.

Carboniferous: Near Santa Fé, New Mexico; top of Grass Mountain, Ely Range, 30 miles north of Pioche, Nevada.

Hustedia mormoni Marcon—Continued.

1884. *Retzia radialis*. Walcott, Pal. Eureka Dist., p. 220, pl. 7, figs. 5c-h.
Lower and Upper Carboniferous: Eureka District, Nevada.
1884. *Retzia Mormonii*. White, 13th Rep. Geol. Surv. Ind., p. 136, pl. 35,
figs. 10-12.
Coal Measures: Indiana.
1888. *Retzia mormoni*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231.
Lower Coal Measures: Des Moines, Iowa.
1894. *Hustedia Mormoni*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 37,
figs. 13-20.
Coal Measures: Near Kansas City, Missouri.
1894. *Retzia mormoni*. Keyes, Mo. Geol. Surv., vol. 5, p. 95, pl. 41, figs. 2a-c.
Upper Coal Measures: Kansas City and Lexington, Missouri.
1895. *Hustedia Mormoni*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 51, figs. 1-9.
Coal Measures: Near Kansas City, Missouri.
1897. *Retzia radialis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 31.
Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain,
Indian Territory.

Hustedia papillata Shumard.

1858. *Retzia papillata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 294.
White and Dark Permian L. S.: Guadalupe Mountains.
1859. *Retzia papillata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395, pl. 11,
fig. 9.
Dark Permian L. S.: Guadalupe Mountains.

Hustedia triangularis Miller.

1892. *Retzia triangularis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 61,
pl. 9, figs. 25, 26.
Chouteau L. S.: Sedalia, Missouri.
1894. *Retzia triangularis*. Miller, 18th Rep. Geol. Surv. Ind., p. 315, pl. 9, figs.
25, 26.
Chouteau L. S.: Sedalia, Missouri.

HYBOCHINUS Worthen and Miller, 1883.**Hybochinus spectabilis** Worthen and Miller.

1883. *Hybochinus spectabilis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 332,
pl. 31, figs. 5a-d, 6, 7.
Chester L. S.: Prairie du Long Creek, Monroe County, Illinois; Pope
County, Illinois.
1895. *Lepidesthes spectabilis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 184.
Kaskaskia L. S.: Prairie du Long Creek, Monroe County, Illinois.

HYDREIONOCRINUS De Koninck, 1858.**Hydreionocrinus acanthophorus** Meek and Worthen.

1870. *Zeacrinus (Hydreionocrinus) acanthophorus*. Meek and Worthen, Proc. Acad.
Nat. Sci. Phil., p. 28.
Lower Coal Measures: Fulton County, Illinois.
1873. *Zeacrinus (Hydreionocrinus) acanthophorus*. Meek and Worthen, Geol. Surv.
Ill., vol. 5, p. 563, pl. 24, fig. 11.
Coal Measures: Seaville, Fulton County, Illinois.
1874. *Zeacrinus (Hydreionocrinus?) acanthophorus*. Meek, Am. Jour. Sci. (3),
vol. 7, p. 485.
1894. *Hydreionocrinus acanthophorus*. Keyes, Mo. Geol. Surv., vol. 4, p. 215.
Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus armiger Meek and Worthen.

1870. *Zeacrinus? armiger*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 27.

Chester Group: Pope County, Illinois.

1873. *Zeacrinus? armiger*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 547, pl. 21, fig. 3.

Chester Group: Pope County, Illinois.

See also *Hydreionocrinus wetherbyi*.

Hydreionocrinus crassidiscus Miller and Gurley.

1894. *Hydreionocrinus crassidiscus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 43, pl. 6, figs. 18, 19.

Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus depressus Hall.

1858. *Zeacrinus depressus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 546, fig. 67.

1881. *Hydreionocrinus depressus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 325, pl. 9, figs. 1-4, 6.

Kaskaskia Group: Pulaski County, Kentucky.

Hydreionocrinus discus Meek and Worthen.

1860. *Zeacrinus discus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 390.

Upper Coal Measures: Sangamon County, Illinois.

1866. *Zeacrinus discus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 312, pl. 26, figs. 3a, b.

Coal Measures: Sugar Creek, Sangamon County, Illinois.

Hydreionocrinus granuliferus Miller and Gurley.

1894. *Hydreionocrinus granuliferus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 44, pl. 6, figs. 20, 21.

Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus mucrospinus McChesney.

1860. *Zeacrinus mucrospinus*. McChesney, Desc. New Pal. Foss., p. 10.

Coal Measures: Carlinville, Macoupin County, Illinois; Sangamon County, Illinois; Mouth of Rush Creek, Indiana.

1866. *Actinocrinus* sp. Geinitz, Carb. und Dyas in Nebr., p. 64, Taf. 4, figs. 29a, b. Plattsmouth and Bennett's Mill, Nebraska.

1868. *Zeacrinus mucrospinus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 7, pl. 4, figs. 7a, b.

Coal Measures: Carlinville, Illinois; Sangamon County, Illinois; Rush Creek, Indiana.

1872. *Zeacrinus? mucrospinus*. Meek, U. S. Geol. Surv. Nebr., p. 149, pl. 5, figs. 2a-c.

Upper Coal Measures: Bennett's Mill, Nebraska City, Plattsmouth, Cedar Bluff, and Omaha, Nebraska.

Coal Measures: Kansas, Iowa, Illinois, Missouri, Arkansas.

1873. *Zeacrinus? mucrospinus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 563, pl. 24, fig. 12.

Upper Coal Measures: Springfield, Illinois.

1894. *Hydreionocrinus mucrospinus*. Keyes, Mo. Geol. Surv., vol. 4, p. 216.

Upper Coal Measures: Kansas City, Missouri.

1897. *Hydreionocrinus mucrospinus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 26.

Upper Coal Measures: Poteau Mountain, Indian Territory.

Hydreionocrinus noduliferus Miller and Gurley.

1894. *Hydreionocrinus noduliferus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 41, pl. 6, figs. 15-17.

Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus pentagonus Miller and Gurley.

1890. *Hydreionocrinus pentagonus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 17, pl. 2, figs. 6, 7.

Upper Coal Measures: Kansas City, Missouri.

1890. *Hydreionocrinus pentagonus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 339, pl. 2, figs. 6, 7.

Upper Coal Measures: Kansas City, Missouri.

1894. *Hydreionocrinus pentagonus*. Keyes, Mo. Geol. Surv., vol. 4, p. 215.

Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus sancti-ludovici Worthen.

1890. *Eupachyrcinus?* *sancti-ludovici*. Worthen, Geol. Surv. Ill., vol. 8, p. 98.

St. Louis L. S.: St. Louis, Missouri.

1894. *Hydreionocrinus sanctiludovici*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 40, pl. 6, fig. 2.

St. Louis Group: St. Louis, Missouri.

Hydreionocrinus subsinuatus Miller and Gurley.

1894. *Hydreionocrinus subsinuatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 40, pl. 6, figs. 11-14.

Upper Coal Measures: Kansas City, Missouri.

Hydreionocrinus verrucosus. See *Eupachyrcinus verrucosus*.**Hydreionocrinus wetherbyi** Wachsmuth and Springer.

1881. *Hydreionocrinus armiger*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 328, pl. 9, figs. 7-11. Not *H. armiger* M & W. 1870.

Kaskaskia Group: Pulaski County, Kentucky.

1886. *Hydreionocrinus Wetherbyi*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 169. (Rev. Palæoc. III, p. 245.)

HYOLITHES Eichwald, 1840.**Hyolithes aculeatus** Hall.

1860. *Puginuculus?* (*Theca*) *aculeatus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 107.

Goniatite L. S.: Rockford, Indiana.

1862. *Puginuculus* (?) *aculeatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 423.

Marshall Group: Adams, Hillsdale County, Michigan.

1865. *Puginuculus?* *aculeatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.

Marshall Group: Hillsdale, Michigan.

Hyolithes carbonaria Walcott.

1884. *Hyolithes carbonaria*. Walcott, Pal. Eureka Dist., p. 264, pl. 23, fig. 3.

Lower Carboniferous: Eureka District, Nevada.

Hyolithes lanceolatus Miller.

1892. *Hyolithes lanceolatus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 63, pl. 9; figs. 35, 36.

Chouteau L. S.: Sedalia, Missouri.

1894. *Hyolithes lanceolatus*. Miller, 18th Rep. Geol. Surv. Ind., p. 317, pl. 9, figs. 35, 36.

Chouteau L. S.: Sedalia, Missouri.

HYSTRIOSPONGIA Ulrich, 1890.**Hystriospongia carbonaria** Ulrich.

1890. *Hystriospongia carbonaria*. Ulrich, Geol. Surv. Ill., vol. 8, p. 245, pl. 6, fig. 3.

Base of Coal Measures: Seville, Illinois.

ICHTHYOCRINUS Conrad, 1842.

Ichthyocrinus burlingtonensis Hall.

1858. *Ichthyocrinus burlingtonensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 557.
Burlington L. S.: Burlington, Iowa.
1893. *Ichthyocrinus burlingtonensis*. Whitfield, Mem. Am. Mus. Nat. His., vol. 1,
p. 35, pl. 3, fig. 24.
Burlington L. S.: Burlington, Iowa.
1894. *Ichthyocrinus burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 223.
Burlington L. S.: Louisiana, Missouri.

Ichthyocrinus clarkensis Miller and Gurley.

1894. *Ichthyocrinus clarkensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus.
Nat. Hist., p. 43, pl. 4, fig. 5.
Keokuk or Warsaw Group: Clark County, Indiana.

Ichthyocrinus greenii Miller.

1892. *Ichthyocrinus greenii*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 52,
pl. 8, fig. 3.
Keokuk Group: Muldrough Hill, Kentucky.
1894. *Ichthyocrinus greenii*. Miller, 18th Rep. Geol. Surv. Ind., p. 306, pl. 8, fig. 3.
Keokuk Group: Muldrough Hill, Kentucky.

Ichthyocrinus nobilis Wachsmuth and Springer.

1878. *Ichthyocrinus nobilis*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil.,
p. 254.
Upper Burlington L. S.: Near Burlington, Iowa.

Ichthyocrinus spinosulus Miller and Gurley.

1894. *Ichthyocrinus spinosulus*. Miller and Gurley, Bull. No. 5, Ill. State Mus.
Nat. Hist., p. 44, pl. 5, fig. 4.
Knobstone Group: Clark County, Indiana.

Ichthyocrinus tiaræformis Hall.

1858. *Ichthyocrinus tiaræformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 558, fig. 74.
Carboniferous: White Creek Springs, Davidson County, Tennessee.

IGOCERAS Hall, 1859.

Igoceras capulus Hall.

1860. *Platyceras ? capulus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 91.
Burlington L. S.: Quincy, Illinois; Burlington, Iowa.
1866. *Metoptoma (Platyceras ?) umbella*. Meek and Worthen, Proc. Acad. Nat.
Sci. Phil., p. 267.
Burlington L. S.: Quincy, Illinois, and Honey Creek, Henderson County,
Illinois.
1868. *Metoptoma ? umbella*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 506,
pl. 15, figs. 6a-c, 7.
Burlington L. S.: Quincy, Illinois; Honey Creek, Henderson County,
Illinois.
1889. *Metoptoma ? umbella*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 292.
Burlington L. S.: Burlington, Iowa.
1890. *Platyceras capulus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 179.
1892. *Igoceras capulus*. Keyes, Am. Jour. Sci., vol. 10, p. 276.
1894. *Igoceras capulus*. Keyes, Mo. Geol. Surv., vol. 5, p. 183, pl. 52, figs. 1a, b.
Burlington L. S.: Hannibal and Ritter's Station, Missouri.

Igoceras fissurella Hall.

1860. *Platyceras fissurella*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 90.
Keokuk L. S.: Nauvoo, Illinois.

Igoceras fissurella Hall—Continued.

1873. *Platyceras fissurella*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 519, pl. 17, fig. 4.
Keokuk Group: Warsaw and Nauvoo, Illinois.
1889. *Platyceras fissurella*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 289.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus fissurella*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus fissurella*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 173.
Keokuk L. S.: Warsaw and Nauvoo, Illinois.
Burlington L. S.: Burlington, Iowa.
1892. *Igoceras fissurellum*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Igoceras fissurella*. Keyes, Mo. Geol. Surv., vol. 5, p. 186, pl. 52, fig. 2.
Burlington L. S.: Burlington, Iowa.
Keokuk L. S.: Warsaw and Nauvoo, Illinois.

Igoceras pabulocrinus Owen.

1860. *Platyceras subrectum*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 89. (Not *P. subrectum* Hall, 1859.)
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1862. *Pileopsis pabulocrinus*. Owen, Geol. Recon. Ind., p. 364, fig. 8.
Carboniferous: Crawfordsville, Indiana.
1866. *Platyceras (Orthonychia) infundibulum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 266.
Keokuk Group: Warsaw, Illinois.
1866. *Platyceras (Orthonychia) extensor*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 266.
Keokuk Group: Warsaw, Illinois.
1873. *Platyceras infundibulum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 517, pl. 17, fig. 3.
Keokuk Group: Warsaw, Illinois.
1888. *Platyceras infundibulum*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., fig. 1.
1889. *Platyceras infundibulum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 289.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus infundibulum*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus infundibulum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 174, pl. 2, fig. 10.
Keokuk Group: Keokuk, Iowa; Warsaw, Illinois; Crawfordsville, Indiana.
Burlington L. S.: Burlington, Iowa.
1892. *Igoceras pabulocrinus*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Igoceras pabulocrinus*. Keyes, Mo. Geol. Surv., vol. 5, p. 184, pl. 52, figs. 3a, b; pl. 54, figs. 3a, b.
Burlington L. S.: Burlington, Iowa; Springfield, Missouri.
Keokuk L. S. and Shales: Keokuk, Iowa; Warsaw, Illinois; Crawfordsville, Indiana.

Igoceras quincyense McChesney.

1861. *Platyceras Quincyensis*. McChesney, Desc. New. Spec. Pal. Foss., p. 90.
Subcarboniferous L. S.: Near Quincy, Illinois.
1865. *Platyceras Quincyensis*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 6a, b.
1868. *Platyceras quincyense*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 49, pl. 6, figs. 6a, b.
Subcarboniferous: Quincy, Illinois.
1868. *Platyceras (Orthonychia) Quincyense*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 510, pl. 15, figs. 5a, b.
Burlington L. S.: Quincy, Illinois.
1868. *Platyceras (Orthonychia) Quincyense*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 290.
Burlington L. S.: Burlington, Iowa.

Igoceras quincyense McChesney—Continued.

1889. *Platyceras quincyense*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 290.
Burlington L. S.: Burlington, Iowa.
1890. *Capulus quincyensis*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus quincyensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 168, pl. 2, fig.*9.
Burlington L. S.: Burlington, Iowa.
1891. *Platyceras pettitsense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 81,
pl. 14, fig. 1.
Burlington Group: Sedalia, Missouri.
1891. *Platyceras missouriense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind.,
p. 82, pl. 14, fig. 2.
Burlington Group: Sedalia, Missouri.
1892. *Platyceras pettitsense*. Miller, 17th Rep. Geol. Surv. Ind., p. 691, pl. 14, fig. 1.
Burlington Group: Sedalia, Missouri.
1892. *Platyceras missouriense*. Miller, 17th Rep. Geol. Surv. Ind., p. 692, pl. 14,
fig. 2.
Burlington Group: Sedalia, Missouri.
1892. *Igoceras quincyense*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Igoceras quincyense*. Keyes, Mo. Geol. Surv., vol. 5, p. 182, pl. 53, figs. 10a, b,
Burlington L. S.: Quincy, Illinois; Sedalia, Missouri.

Igoceras subplicatum Meek and Worthen.

1866. *Platyceras (Orthonychia) subplicatum*. Meek and Worthen, Proc. Acad. Nat.
Sci. Phil., p. 265.
Chester Group: Pope County and Chester, Illinois.
1868. *Platyceras (Orthonychia) subplicatum*. Meek and Worthen, Geol. Surv. Ill.,
vol. 3, p. 457, pl. 14, figs. 4a-c.
Waverly Group: Richfield, Ohio.
1890. *Capulus subplicatum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 166.
Kinderhook beds: Richfield, Ohio.
1892. *Igoceras subplicatum*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Igoceras subplicatum*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, fig. 5.

ILYODES Scudder 1890.**Ilyodes divisa** Scudder.

1890. *Ilyodes divisa*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 422, pl. 38, fig. 1.
Carboniferous: Mazon Creek, Illinois.
1890. *Ilyodes divisa*. Scudder, Foss. Insc. N. A., vol. 1, p. 398, pl. 30, fig. 1.
Carboniferous: Mazon Creek, Illinois.

Ilyodes elongata Scudder.

1890. *Ilyodes elongata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 423, pl. 38,
fig. 2.
Carboniferous: Mazon Creek, Illinois.
1890. *Ilyodes elongata*. Scudder, Foss. Insc. N. A., vol. 1, p. 399, pl. 30, fig. 2.
Carboniferous: Mazon Creek, Illinois.

ISOCARDIA Klein, 1753.**Isocardia curta** Shumard.

1858. *Isocardia (?) curta*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 206.
Coal Measures: Charbonniere, St. Louis County, Missouri.

Isocardia jennæ Winchell.

1863. *Isocardia ? jennæ*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 17.
Yellow S. S.: Burlington, Iowa.

Isocardia (species undetermined).

1868. *Isocardia* (like *I. transversa*). Dawson, Acad. Geol., p. 304.
Carboniferous L. S.: East River, Pictou.

KIRKBYA Jones, 1869.**Kirkbya costata** Ulrich.

1891. *Kirkbya* (? *Barychilina*) *costata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 208, pl. 18, figs. 2a, b.
St. Louis Group: Columbia, Illinois.

Kirkbya lindahli Ulrich.

1891. *Kirkbya lindahli*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 207, pl. 18, figs. 6a-c.
St. Louis Group: Columbia, Illinois.

Kirkbya oblonga var. Ulrich.

1891. *Kirkbya oblonga* J. & K. var. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 206, pl. 18, figs. 4a, b, 5a, b.
Chester Group: Chester, Illinois; near Grayson Springs, Kentucky.

Kirkbya tricollina Ulrich.

1891. *Kirkbya tricollina*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 207, pl. 18, figs. 8a, b.
Chester Group: Near Grayson Springs and Litchfield, Kentucky.

Kirkbya venosa Ulrich.

1891. *Kirkbya venosa*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 208, pl. 18, figs. 3a, b.
Chester Group: Near Grayson Springs, Kentucky.

(KONINCKIA Suess, 1853.)

Koninckia americana. See *Productus swallovi*.

KONINCKIOCERAS Hyatt, 1883.**Koninckioceras scottense** Worthen.

1890. *Temnocheilus scottense*. Worthen, Geol. Surv. Ill., vol. 8, p. 151, pl. 27, figs. 3, 3a.
Warsaw L. S.: Near Winchester, Scott County, Illinois.
1893. *Koninckioceras* (*Temnocheilus*) *scottense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 440.

KUSTARACHNE Scudder, 1890.**Kustarachne tenuipes** Scudder.

1890. *Kustarachne tenuipes*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 450, pl. 40, fig. 7.
Carboniferous: Mazon Creek, Illinois.
1890. *Kustarachne tenuipes*. Scudder, Foss. Insc. N. A., vol. 1, p. 426, pl. 32, fig. 7.
Carboniferous: Mazon Creek, Illinois.

LASIOCLADIA Hinde, 1884.**Lasiocladia hindei** Ulrich.

1890. *Lasiocladia hindei*. Ulrich, Geol. Surv. Ill., vol. 8, p. 219.
Keokuk Group: Nauvoo, Illinois; Keokuk, Iowa; King's Mountain tunnel, Cincinnati Southern Railroad, Lincoln County, Kentucky.

LATZELIA Scudder, 1890.

Latzelia primordialis Scudder.

1890. *Latzelia primordialis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 419, pl. 38, fig. 3.
Carboniferous: Mazon Creek, Illinois.
1890. *Latzelia primordialis*. Scudder, Foss. Insc. N. A., vol. 1, p. 395, pl. 30, fig. 3.
Carboniferous: Mazon Creek, Illinois.

LEAIA Jones, 1862.

Leaia leidy Lea.

1855. *Cypriocardia Leidy*. Lea, Proc. Acad. Nat. Soc. Phil., p. 341, pl. 4, figs. 1, 2.
Red Sandstone: Tumbling River Dam, near Pottsville, Pennsylvania.
1862. *Leaia Leidy*. Jones, Monog. Foss. Estheriæ (Pal. Soc., vol. 14), p. 116, pl. 5, figs. 11, 12.
Carboniferous: Near Pottsville, Pennsylvania.
1883. *Leaia Leidy*. Packard, 12th Ann. Rep. U. S. G. and G. Surv. Terr., p. 358, fig. 24.
Red Sandstone: Near Pottsville, Pennsylvania.

Leaia leidy var. *salteriana* Jones.

1862. *Leaia Leidy* var. *Salteriana*. Jones, Monog. Foss. Estheriæ (Pal. Soc., vol. 14), p. 119, pl. 1, fig. 21.
1868. *Leaia Leidy*. Dawson, Acad. Geol., p. 256, fig. 78e.
Carboniferous: Horton Bluff, Nova Scotia.
1884. *Leaia Leidy* var. *Salteriana*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 362, pl. 12, fig. 13.
Lower Carboniferous: Horton, Nova Scotia.

Leaia tricarinata Meek and Worthen.

1868. *Leaia tricarinata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 541, figs. B1-3, C.
Coal Measures: Lasalle, St. Clair, and Vermilion counties, Illinois.
1884. *Leaia tricarinata*. White, 13th Rep. Geol. Surv. Ind., p. 167, pl. 39, figs. 10-13.
Coal Measures: Patty's Ford of Little Vermilion River, west of Eugene, Brouillet's Creek, Vermilion County, Indiana.

LECYTHIOCRINUS White, 1880.

Lecythiocrinus adamsi Worthen.

1882. *Lecythiocrinus adamsi*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 37.
Lower Coal Measures: Peoria County, Illinois.
1883. *Lecythiocrinus Adamsi*. Worthen, Geol. Surv. Ill., vol. 7, p. 317, pl. 31, fig. 8.
Lower Coal Measures: Peoria County, Illinois.

Lecythiocrinus olliculæformis White.

1880. *Lecythiocrinus olliculæformis*. White, Proc. U. S. Nat. Mus., vol. 2, p. 257, pl. 1, figs. 4, 5.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1880. *Lecythiocrinus olliculæformis*. White, Cont. to Pal., No. 6, p. 124, pl. 35, figs. 2a, b.
Upper Coal Measures: 30 miles west of Humboldt, Kansas.
1894. *Lecythiocrinus olliculæformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 208, pl. 25, fig. 13.
Upper Coal Measures: Kansas City, Missouri.

(LEDA Schumacher, 1817.)

- Leda barrisi*. See *Palaeoneilo sulcatina*.
Leda bellistriata. See *Nuculana bellistriata*.
Leda curta. See *Nuculana curta*.
Leda dens-mamillata. See *Nuculana dens-mamillata*.
Leda diversa. See *Nuculana diversa*.
Leda gibbosa. See *Yoldia rushensis*.
Leda knoxensis. See *Yoldia knoxensis*.
Leda levistriata. See *Yoldia levistriata*.
Leda nasuta. See *Nuculana nasuta*.
Leda nuculaeformis. See *Palaeoneilo sulcatina*.
Leda ohioensis. See *Nuculana pandoriformis*.
Leda oweni. See *Yoldia oweni*.
Leda pandoriformis. See *Nuculana pandoriformis*.
Leda polita. See *Yoldia knoxensis*.
Leda rushensis. See *Yoldia rushensis*.
Leda saccata. See *Nuculana saccata*.
Leda subscitula. See *Yoldia subscitula*.

LEIOCLEMA Ulrich, 1882.

Leioclema araneum Ulrich.

1890. *Leioclema ? araneum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 431, pl. 75, figs. 9-9c.
 Chester Group: Monroe County, and Chester, Illinois; Pulaski and Jackson counties, Kentucky.
 1894. *Leioclema araneum*. Keyes, Mo. Geol. Surv., vol. 5, p. 14.
 Chester Shales: Ste. Genevieve, Missouri; Chester, Illinois.

Leioclema foliatum Ulrich.

1890. *Leioclema foliatum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 431, fig. 1, p. 301.
 Warsaw Beds: Warsaw, Illinois.
 1894. *Leioclema foliatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 14.
 Keokuk Group: Warsaw, Illinois.

Leioclema gracillimum Ulrich.

1888. *Leioclema gracillimum*. Ulrich, Bull. Den. Univ., vol. 4, p. 92.
 Waverly Group: Lodi, Ohio.
 1890. *Leioclema gracillimum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 429, pl. 75, figs. 6-6b.
 Kinderhook Group: Marshalltown, Iowa.
 Burlington Group: Burlington, Iowa.
 Keokuk Group: At most localities.
 Warsaw Beds: Warsaw, Illinois.
 1894. *Leioclema gracillimum*. Keyes, Mo. Geol. Surv., vol. 5, p. 13.
 Burlington L. S.: Hannibal, Missouri.
 Keokuk L. S.; Clark County, Missouri; Keokuk, Iowa; Warsaw, Illinois.

Leioclema punctatum Hall.

1858. *Callopora punctata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 653.
 Warsaw L. S.: Keokuk, Iowa; Warsaw, Illinois.
 1866. *Callopora missouriensis*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 117.

Leioclema punctatum Hall—Continued.

1882. *Leioclema punctata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 5, p. 141, pl. 6, figs. 1, 1a.
 1888. *Leioclema punctatum*. Ulrich, Bull. Den. Univ., vol. 4, p. 91.
 Waverly Group: Cuyahoga Valley, Ohio.
 1890. *Leioclema punctatum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 430.
 Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois; Lagrange, Missouri;
 King's Mountain, Kentucky.
 1894. *Leioclema punctatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 13.
 Keokuk L. S.: Lagrange and Wayland, Missouri; Illinois and Iowa.

Leioclema subglobosum Ulrich.

1890. *Leioclema subglobosum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 428, pl. 75, figs. 8-8b.
 Kinderhook Group: Marshalltown, Iowa.

Leioclema wachsmuthi Ulrich.

1890. *Leioclema wachsmuthi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 428, pl. 75, figs. 7-7b.
 Kinderhook Group: Marshalltown, Iowa.

LEIOPTERIA Hall, 1883.**Leiopteria cuyahoga Herrick.**

1891. *Leiopteria cuyahoga*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 44, pl. 1, fig. 7.
 Waverly Group: Cuyahoga Falls, Ohio.

Leiopteria halli Herrick.

1888. *Leiopteria halli*. Herrick, Bull. Den. Univ., vol. 3, p. 61, pl. 7, figs. 31, 32.
 Waverly Group: Licking County, Ohio.
 1895. *Leiopteria halli*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 8.
 Kinderhook Group: Granville, Ohio.

Leiopteria nasutus. See *Leioptodesina nasutus*.

Leiopteria newberryi Herrick.

1888. *Leiopteria* ?? *newberryi*. Herrick, Bull. Den. Univ., vol. 4, p. 114, pl. 11, fig. 31.
 Waverly Group: Ohio.

Leiopteria ortonii Herrick.

1888. *Leiopteria ortonii*. Herrick, Bull. Den. Univ., vol. 3, p. 60, pl. 7, fig. 1.
 Waverly Group: Licking County, Ohio.
 1888. *Leiopteria (Leptodesma) ortonii*. Herrick, Bull. Den. Univ., vol. 4, pl. 5, fig. 4.
 Waverly Group: Ohio.
 1889. *Leiopteria (Leptodesma) ortonii*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 4.
 1895. *Leiopteria (Leptodesma) ortonii*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 1.
 Upper Cuyahoga Shale: Licking County, Ohio.
 1895. *Leiopteria* (variety of) *ortonii*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 10.
 Kinderhook Group: Ohio.
 1895. *Leiopteria ortonii*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 12.
 Cuyahoga Shale: Ohio.

Leiopteria speciosa Miller and Gurley.

1896. *Leiopteria speciosa*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 13, pl. 2, fig. 10.
 Chouteau L. S.: Near Sedalia, Missouri.

Leiopteria subovata Miller and Gurley.

1896. *Leiopteria subovata*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 13, pl. 2, figs. 7-9.
 Chouteau L. S.: Near Sedalia, Missouri.

Leiopteria (species undetermined).

1888. *Leiopteria* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 5, figs. 5, 8.
Waverly Group: Ohio.
1889. *Leiopteria* sp. Herrick, Am. Geol., vol. 3, pl. 3, figs. 3, 8.
1895. *Leiopteria* sp?. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 9.
Kinderhook Group: Granville, Ohio.

LEIORHYNCHUS Hall, 1860.**Leiorhynchus ? boonensis Shumard.**

1855. *Rhynchonella Boonensis*. Shumard, Geol. Rep. Mo., p. 205, pl. C, figs. 6a, b.
Encrinital L. S.: Near Columbia, Boone County, Missouri.
1894. *Rhynchonella boonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 101.
Burlington L. S.: Columbia, Missouri.
1895. *Leiorhynchus* (?) *Boonensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60,
fig. 35.
Chouteau L. S.: Cooper County, Missouri.

Leiorhynchus quadricostatus Vanuxem.

1842. *Orthis quadricostata*. Vanuxem, Geol. of N. Y., Rep. on 3d Dist., p. 168,
fig. 2.
Genesee Slate.
1867. *Leiorhynchus quadricostata*. Hall, Pal. N. Y., vol. 4, p. 357, pl. 56, figs. 44-49.
Genesee Slate: Seneca and Cayuga Lakes, New York.
1877. *Leiorhynchus quadricostatus*? Meek, U. S. Geol. Expl. 40th Par., vol. 4, p. 79,
pl. 3, figs. 9-9b.
Carboniferous: White Pine Mountains, Nevada.
1895. *Liorhynchus quadricostatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 59,
figs. 21, 22.

LEPERDITIA Ronault, 1851.**Leperditia carbonaria Hall.**

1856. *Cythere carbonaria*. Hall, Trans. Albany Inst., vol. 4, p. 33.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Leperditia carbonaria*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 94,
pl. 9, figs. 24-27.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Leperditia carbonaria*. Hall, 12th Rep. Geol. Surv. Ind., p. 375, pl. 32,
figs. 24-27.
St. Louis Group: Spergen Hill, Bloomington, and Lanesville, Indiana.

Leperditia nicklesi Ulrich.

1891. *Leperditia nicklesi*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 200, pl. 18,
figs. 1a-e.
St. Louis Group: Columbia, Monroe County, Illinois.

Leperditia okeni Münster.

- *1865. *Leperditia Okeni*. Jones and Kirkby, Ann. Mag. Nat. Hist. (3), vol. 15, p. 406,
pl. 20, figs. 1-3.
1884. *Leperditia Okeni*. Jones and Kirkby, Geol. Mag. (3), vol. 1, p. 356, pl. 12,
fig. 3.
Lower Coal Measures: Horton, Nova Scotia.

Leperditia okeni var. acuta Jones and Kirkby.

- *1865. *Leperditia Okeni* var. *acuta*. Jones and Kirkby, Ann. Mag. Nat. Hist. (3),
vol. 15, p. 406.
1868. *Cyphere*. Dawson, Acad. Geol., p. 206, fig. 48c.
Carboniferous: Nova Scotia.

***Leperditia okeni* var. *acuta* Jones and Kirkby—Continued.**

1884. *Leperditia Okeni* var. *acuta*. Jones and Kirkby, Geol. Mag., (3), vol. 1, p. 357, pl. 12, figs. 4a, b.
Coal Measures: Joggins, Nova Scotia.

***Leperditia okeni* var. *scotoburdigalensis* Hibbert.**

1868. *Leperditia Okeni*. Dawson, Acad. Geol., p. 256, fig. 78b.
Carboniferous: Horton, Nova Scotia.
- *1884. *Leperditia Scotoburdigalensis*. Hibbert, Proc. Berwicksh. Nat. Club, vol. 4, p. 321.
1884. *Leperditia Okeni* var. *Scotoburdigalensis*. Jones and Kirkby, Geol. Mag., (3), vol. 1, p. 357, pl. 12, figs. 1, 2.
Lower Coal Measures: Horton, Nova Scotia.

LEPETOPSIS Whitfield, 1882.***Lepetopsis chesterensis* Worthen.**

1884. *Lepetopsis chesterensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 25.
Lower Chester L. S.: Chester, Illinois.
1890. *Lepetopsis chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 140, pl. 25, figs. 1, 1a.
Chester L. S.: Chester, Illinois.

***Lepetopsis levettei* White.**

1882. *Patella levettei*. White, 11th Rep. Geol. Surv. Ind., p. 359, pl. 39, figs. 4, 5.
St. Louis Group: Spergen Hill, Indiana.
1882. *Lepetopsis Levettei*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 68, pl. 8, figs. 9-12.
St. Louis Group: Spergen Hill, Indiana.

***Lepetopsis parrishi* Gurley.**

1884. *Lepetopsis Parrishi*. Gurley, New Carb. Foss. Bull. No. 2, p. 7.
Upper Coal Measures: Kansas City, Missouri.

***Lepetopsis* (species undetermined).**

1891. *Patella* ?——? White, Bull. U. S. Geol. Surv., No. 77, p. 25, pl. 3, fig. 14.
Permian: Goodwin Creek, Baylor County, Texas.

LEPIDECHINUS Hall, 1861.***Lepidechinus imbricatus* Hall.**

- *1861. *Lepidechinus imbricatus*. Hall, Desc. New Spec. Crin., p. 18.
Burlington L. S.
1895. *Lepidechinus imbricatus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 192.
Burlington L. S.: Burlington, Iowa.

***Lepidechinus rarispinus* Hall.**

1867. *Lepidechinus rarispinus*. Hall, 20th Rep. N. Y. State Cab. Nat. Hist., p. 295, pl. 9, fig. 10.
Chemung S. S.: Meadville, Pennsylvania.
Ferruginous S. S.: Licking County, Ohio.
1870. *Lepidechinus rarispinus*. Hall, 20th Rep. N. Y. State Cab. Nat. Hist., (rev. ed.), p. 340, pl. 9, fig. 10.
Chemung S. S.: Meadville, Pennsylvania.
Waverly S. S.: Licking County, Ohio.
1895. *Lepidechinus rarispinus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 192.
Chemung S. S.: Meadville, Pennsylvania.
Waverly S. S.: Licking County, Ohio.

Lepidechinus rarispinus Hall—Continued.

1896. *Lepidechinus rarispinus*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 226, pl. 7, fig. 42.

Waverly S. S.: Warren, Pennsylvania.

Lepidechinus squamosus Keyes. See *Lepidocidaris squamosus*.

LEPIDESTHES Meek and Worthen, 1868.**Lepidesthes colletti** White.

1878. *Lepidesthes Colletti*. White, Proc. Acad. Nat. Sci. Phil., p. 33.

Keokuk Group: Salem, Washington County, Indiana.

1880. *Lepidesthes colletti*. White, Cont. to Inv. Pal., No. 8, p. 163, pl. 40, figs. 2a, b.

Keokuk Group: Salem, Washington County, Indiana.

1882. *Lepidesthes colletti*. White, 11th Rep. Geol. Surv. Ind., p. 362, pl. 41, figs. 2, 3.

Keokuk Group: Salem, Washington County, Indiana.

1895. *Lepidesthes colletti*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 184.

Keokuk Shales: Salem, Washington County, Indiana.

1896. *Lepidesthes colletti*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 210.

Lepidesthes coreyi Meek and Worthen.

1868. *Lepidesthes Coreyi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 525, fig. A.

Keokuk Group: Crawfordsville, Indiana.

1873. *Lepidesthes Coreyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 16, figs. 2a, b.

1895. *Lepidesthes coreyi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 184.

Keokuk Shales: Crawfordsville, Indiana.

1896. *Lepidesthes coreyi*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 209.

Lepidesthes formosus Miller.

1879. *Lepidesthes formosus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 41, pl. 8, fig. 4.

Kaskaskia Group: Pulaski County, Kentucky.

1895. *Lepidesthes formosus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 184.

Keokuk Shales: Crawfordsville, Indiana.

1896. *Lepidesthes formosus*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 210.

Lepidesthes spectabilis Keyes. See *Hybochinus spectabilis*.

Lepidesthes wortheni Jackson.

1896. *Lepidesthes wortheni*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 207, pl. 9, fig. 53.

Keokuk Group: Crawfordsville, Indiana. (?)

LEPIDOCIDARIS Meek and Worthen, 1873.**Lepidocidaris squamosus** Meek and Worthen.

1869. *Eocidaris ? squamosa*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 79.

Lower Burlington L. S.: Burlington, Iowa.

1873. *Eocidaris ? squamosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 478, pl. 9, fig. 15.

Burlington L. S.: Burlington, Iowa.

1895. *Lepidechinus squamosus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 193.

Burlington, L. S.: Burlington, Iowa.

1896. *Lepidocidaris squamosus*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 220, pl. 7, fig. 41.

Lower Burlington L. S.: Burlington, Iowa.

(LEPIDOCENTRUS Müller, 1856.)

Lepidocentrus irregularis Meek and Worthen. See *Pholidocidaris irregularis*.

LEPTÆNA Dalman, 1827.

Leptaena analoga Phillips.

1863. *Strophomena analoga*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 173, pl. 9, fig. 18.

Lower Carboniferous L. S.: Nova Scotia.

1868. *Strophomena analoga*. Dawson, Acad. Geol., p. 295, fig. 95.

Carboniferous L. S.: Nova Scotia.

Leptaena rhomboidalis Wilkins.

1874. *Strophomena rhomboidalis*. White, Prelim. Rep. Inv. Foss., p. 17.

Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

1877. *Strophomena rhomboidalis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 85, pl. 5, fig. 5.

Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

1877. *Strophomena rhomboidalis*. Hall and Whitfield, U. S. Geol. Expl., 40 Par., vol. 4, p. 253, pl. 4, fig. 4.

Waverly Group: Dry Canyon, Oquirrh Mountains, Utah.

1888. *Strophomena rhomboidalis*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 6.

Shales above Berea Grit: Central College, Ohio.

1889. *Strophomena rhomboidalis*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 6.

1892. *Leptaena rhomboidalis*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 13, fig. 9.

Waverly Group: Mallet's Creek, Ohio.

1892. *Leptaena rhomboidalis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 8, figs. 30-31, pl. 20, fig. 24.

Waverly Group: Mallet's Creek, Ohio, and Medina County, Ohio.

1894. *Plectambonites rhomboidalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 70, pl. 39, fig. 6.

Chouteau L. S.: Curryville, Missouri.

Burlington L. S.: Louisiana, Missouri.

1895. *Strophomena rhomboidalis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 6.

Bedford Shales: Central College, Ohio.

LEPTODESMA Hall, 1883.

Leptodesma nasutus Herrick.

1888. *Leiopteria nasutus*. Herrick, Bull. Den. Univ., vol. 4, p. 29, pl. 11, fig. 30.

Waverly Group: Bagdad, Medina County, Ohio.

1891. *Leptodesma nasutus*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 44, pl. 1, fig. 6.

Waverly Group: Burbank, Ohio.

Leptodesma scutella Herrick.

1888. *Leptodesma* (?) *scutella*. Herrick, Bull. Den. Univ., vol. 3, p. 59, pl. 4, fig. 16.

Waverly Group: Licking County, Ohio.

1888. *Avicula* (*Leptodesma*) *scutella*. Herrick, Bull. Den. Univ., vol. 4, p. 30, pl. 5, fig. 6.

Middle Waverly Group: Ohio.

1889. *Leptodesma scutella*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 6.

1895. *Leptodesma scutella*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 11.

Kinderhook Group: Ohio.

Leptodesma (species undetermined.)

1884. *Leptodesma*, sp.? Walcott, Pal. Eureka Dist., p. 234.

Lower Carboniferous: Eureka District, Nevada.

(LEPTODOMUS McCoy, 1844.)

Leptodomus granosus. See *Allorisina granosum*.

Leptodomus magnus. See *Schizodus magnus*.

Leptodomus topekaensis. See *Sedgwickia topekensis*.

LEPTOPORA Winchell, 1863.

Leptopora expansa. See *Leptopora typa*.

Leptopora gorbyi. See *Leptopora typa*.

Leptopora typa Winchell.

1863. *Leptopora typa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 3.
Yellow S. S.: Burlington, Iowa.

1880. *Leptopora typa*. White, Cont. to Inv. Pal., No. 6, p. 122, pl. 34, figs. 12a, b.
Subcarboniferous: Burlington, Iowa.

1880. *Michilinia?* *placenta*. White, Cont. to Inv. Pal., No. 8, p. 157, pl. 39,
figs. 1a-d.

Top of Chouteau L. S.: Sedalia, Missouri.

1880. *Michilinia expansa*. White, Cont. to Inv. Pal., No. 8, p. 158, pl. 39, figs. 2a, b.
Top of Chouteau L. S.: Sedalia, Missouri.

1891. *Leptopora gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 6,
pl. 1, figs. 1-4.

Chouteau L. S.: Near Sedalia, Missouri.

1892. *Leptopora gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 616, pl. 1, figs. 1-4.
Chouteau L. S.: Near Sedalia, Missouri.

1894. *Cleistopora placenta*. Keyes, Mo. Geol. Surv., vol. 4, p. 119, pl. 14, fig. 11.
Chouteau L. S.: Sedalia and Curryville, Missouri.

1894. *Cleistopora typa*. Keyes, Mo. Geol. Surv., vol. 4, p. 119.
Kinderhook: Sedalia, Missouri.

Leptopora winchelli White.

1879. *Leptopora winchelli*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5,
p. 211.

Carboniferous: Near the forks of Logan River, in Bear River Range, north-
ern Utah.

1880. *Leptopora winchelli*. White, Cont. to Inv. Pal., No. 6, p. 121, pl. 34, fig. 11a.
Carboniferous: Near the Forks of Logan River, in Bear River Range, north-
ern Utah.

LEUROCERAS Hyatt.

Leuroceras chesterensis Meek and Worthen.

1860. *Nautilus Chesterensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469.
Chester L. S.: Chester, Illinois.

1866. *Nautilus chesterensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 306,
pl. 24, figs. 4a, b.

Chester Group: Chester, Illinois.

1893. *Nautilus chesterensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 438.

(LIBELLULA Linneus.)

Libellula carbonaria Scudder. See *Graeophonus carbonarius*.

LIMA Brugueire, 1791.

Lima chesterensis Worthen.

1890. *Lima chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 120, pl. 22, fig. 7.
Chester Shale: Chester, Illinois.

Lima menardi. See *Aviculopecten menardi*.

***Lima retifera* Shumard.**

- 1858. *Lima retifera*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 214.
Coal Measures: Valley of Verdigris, Kansas.
- 1866. *Lima retifera*? Geinitz, Carb. und Dyas in Nebr., p. 36, tab. 2, figs. 20, 21.
Nebraska City, Nebraska.
- 1872. *Lima retifera*. Meek, U. S. Geol. Surv. Nebr., p. 188, pl. 9, fig. 5.
Upper Coal Measures: Nebraska City, Nebraska; Verdigris River, Kansas.
Coal Measures: Illinois.
- 1873. *Lima retifera*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 588, pl. 26, fig. 2.
Coal Measures: Springfield, Illinois.
- 1884. *Lima retifera*. White, 13th Rep. Geol. Surv. Ind., p. 138, pl. 28, fig. 4.
Coal Measures: Knox, Gibson, and Posey counties, Indiana.
- 1887. *Lima retifera*. Herrick, Bull. Den. Univ., vol. 2, p. 29, pl. 4, fig. 25; pl. 5,
fig. 3.
Coal Measures: Flint Ridge, Ohio.
- 1891. *Lima retifera*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 248.
Lower Coal Measures: Des Moines, Iowa.
- 1894. *Lima retifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 103, pl. 42, fig. 1.
Coal Measures: Clinton and Kansas City, Missouri.
- 1897. *Lima retifera*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Upper Coal Measures: Poteau Mountain, Indian Territory.

LIMATULINA de Koninck, 1885.

***Limatulina ohioensis* Herrick.**

- 1888. *Limatulina* (?) *ohioensis*. Herrick, Bull. Den. Univ., vol. 3, p. 55, pl. 2,
fig. 29; pl. 3, fig. 10.
Waverly Group: Licking County, Ohio.
- 1895. *Limatulina* ? *ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 19.
Burlington Group: Licking County, Ohio.

LINGULA Bruguiere, 1792.

***Lingula atra* Herrick.**

- 1888. *Lingula atra*. Herrick, Bull. Den. Univ., vol. 4, p. 16, pl. 10, fig. 30.
Waverly Group: Above junction of Cuyahoga and Little Cuyahoga
rivers, Ohio.
- 1895. *Lingula atra*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 5, 6.
Cuyahoga or Berea Shales: Cuyahoga River, Ohio.

***Lingula carbonaria* Shumard.**

- 1858. *Lingula carbonaria*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 215.
Coal Measures: Clark County, Missouri.

***Lingula crawfordsvillensis* Gurley.**

- 1883. *Lingula Crawfordsvillensis*. Gurley, New Carb. Foss., Bull. No. 1, p. 2.
Keokuk Group: Crawfordsville, Indiana.

***Lingula cuyahoga* Hall.**

- 1863. *Lingula cuyahoga*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 24.
Waverly S. S.: Cuyahoga Falls and Akron, Ohio.
- 1865. *Lingula Cuyahoga*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Marshall Group: Hillsdale, Michigan; Wethersfield, Trumbull County,
Ohio.
- 1867. *Lingula cuyahoga*. Hall, Pal. N. Y., vol. 4, p. 15, pl. 1, fig. 5.
Waverly S. S.: Cuyahoga Falls and Akron, Ohio.

Lingula cuyahoga Hall—Continued.

1888. *Lingula cuyahoga*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 29.
Waverly Group: Cuyahoga Valley, Ohio.
1895. *Lingula Cuyahoga*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 9.
Cuyahoga or Berea Shale: Cuyahoga River, Ohio.

Lingula flabellula. See *Glossina flabellula*.

Lingula gannensis Herrick.

1885. *Lingula gannensis*. Herrick, Bull. Den. Univ., vol. 4, p. 17, pl. 3, figs. 2, 3.
Middle Waverly; Gann, Knox County, Ohio.
1895. *Lingula gannensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 2, 3.
Middle Waverly Group: Knox County, Ohio.

Lingula gorbyi Miller.

1892. *Lingula gorbyi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 55,
pl. 9, figs. 3, 4.
Chouteau L. S.: Sedalia, Missouri.
1894. *Lingula gorbyi*. Miller, 18th Rep. Geol. Surv. Ind., p. 309, pl. 9, figs. 3, 4.
Chouteau L. S.: Sedalia, Missouri.

Lingula halli White.

1862. *Lingula Halli*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 30.
L. Burlington L. S.: Burlington, Iowa.

Lingula indianensis Miller and Gurley.

1894. *Lingula indianensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 69, pl. 7, fig. 1.
Keokuk Group: Crawfordsville, Indiana.

Lingula meeki Herrick.

1888. *Lingula meeki*. Herrick, Bull. Den. Univ., vol. 4, p. 18, pl. 10, fig. 31.
Waverly Group: Cuyahoga Valley, Ohio.
1895. *Lingula meeki*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 7, 8.
Cuyahoga or Berea Shale: Cuyahoga River, Ohio.

Lingula melie Hall.

1863. *Lingula melie*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 24.
Chemung Group: Chagrin Falls, Ohio.
1867. *Lingula melie*. Hall, Pal. N. Y., vol. 4, p. 14, pl. 1, figs. 3, 4.
Chemung Group: Chagrin Falls, Ohio.
1875. *Lingula melie*? Meek, Pal. Ohio, vol. 2, p. 276, pl. 14, fig. 3.
Cuyahoga Shale: Johnson, Trumbull County, Ohio.
1888. *Lingula melie*? Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 32.
Waverly Group: Cuyahoga Valley, Ohio.
1888. *Lingula melie*. Herrick, Bull. Den. Univ., vol. 4, pl. 19, fig. 1.
Bedford Shale: Central College, Ohio.
1889. *Lingula melie*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 1.
Bedford Shale: Ohio.
1892. *Lingula Melie*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 1, fig. 32.
Waverly Group: Berea, Ohio.
1895. *Lingula melie*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 1; pl. 22, fig. 10.
Bedford Shale: Central College, Ohio.
Cuyahoga or Berea Shale: Cuyahoga River, Ohio.

Lingula membranacea Winchell.

1863. *Lingula membranacea*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 3.
Yellow S. S.: Burlington, Iowa.
1870. *Lingula membranacea*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 248.
Waverly Group: Near Shafers, Pennsylvania.

Lingula membranacea Winchell—Continued.

1875. *Lingula* (*Linguella*?) *membranacea*. Meek, Pal. Ohio, vol. 2, p. 275, pl. 14, fig. 14.
Waverly Group: Harts Grove, Ashtabula County, Ohio.
1888. *Lingula membranacea*. Herrick, Bull. Den. Univ., vol. 4, p. 17, pl. 3, fig. 4.
Waverly Group: 4 miles southwest of Loudonville, Ohio.
1895. *Lingula membranacea*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 4.
Sixty feet above Conglomerate II (Waverly Group): Loudonville, Ohio.

Lingula mytiloides. See *Lingula umbonata*.

Lingula paracletus Hall and Clarke.

1892. *Lingula paracletus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 172; p. 12, fig. 8.
Cuyahoga Shale: Chardon, Ohio.
1897. *Lingula paracletus*. Hall, 14th Rep. N. Y. State Geol., p. 326, fig. 1.
Cuyahoga Shale: Chardon, Ohio.

Lingula parrishi Miller.

1892. *Lingula parrishi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 53, pl. 8, fig. 2; pl. 9, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1894. *Lingula parrishi*. Miller, 18th Rep. Geol. Surv. Ind., p. 307, pl. 8, fig. 2; pl. 9, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Lingula scotica. See *Glossina waverlyensis*.

Lingula scotica var. *nebraskensis*. See *Glossina nebraskensis*.

Lingula sedaliensis. See *Glossina sedaliensis*.

Lingula subspatulata. See *Barroisella subspatulata*.

Lingula tighti Herrick.

1887. *Lingula tighti*. Herrick, Bull. Den. Univ., vol. 2, p. 43, pl. 4, fig. 5.
Coal Measures: Flint Ridge, Ohio.

Lingula umbonata Cox.

1857. *Lingula umbonata*. Cox, Geol. Surv. Ky., vol. 3, p. 576, pl. 10, figs. 4, 4a.
Coal Measures: Crittenden, Union and Hancock counties, Kentucky.
1873. *Lingula mytiloides*? Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 572, pl. 25, fig. 2.
Coal Measures: Illinois.
1884. *Lingula umbonata*. White, 13th Rep. Geol. Surv. Ind., p. 120, pl. 25, fig. 14.
Coal Measures: Vermilion County, Indiana.
1887. *Lingula umbonata*? Herrick, Bull. Den. Univ., vol. 2, p. 144, pl. 14, fig. 2.
Coal Measures: Flint Ridge, Ohio.
1888. *Lingula umbonata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 226.
Lower Coal Measures: Des Moines, Iowa.
1894. *Lingula umbonata*. Keyes, Mo. Geol. Surv., vol. 5, p. 38, pl. 35, fig. 4.
Coal Measures: Clinton and Kansas City, Missouri.

Lingula varsoviensis Worthen.

1884. *Lingula varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 24.
Warsaw Beds: Warsaw and near Hamilton, Illinois.
1890. *Lingula varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 104, pl. 11, fig. 8.
Warsaw L. S.: Warsaw and near Hamilton, Illinois.

Lingula waverlyensis. See *Glossina waverlyensis*.

Lingula (species undetermined).

1868. *Lingula*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 693.

LINGULODISCINA Whitfield, 1890.

Lingulodiscina connata Walcott.

1884. *Discina connata*. Walcott, Pal. Eureka Dist., p. 214, pl. 7, figs. 3, 3a.
Lower Carboniferous L. S.: Eureka District, Nevada.

Lingulodiscina newberryi Hall.

1863. *Discina newberryi*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 30.
Waverly Group: Cuyahoga Falls and Akron, Ohio.
1867. *Discina newberryi*. Hall, Pal. N. Y., vol. 4, p. 23, pl. 1, figs. 10a, b, 11a-c.
Waverly Group: 110 feet below Conglomerate at Cuyahoga Falls and Akron, Ohio.
1875. *Discina (Orbiculoidea) Newberryi*. Meek, Pal. Ohio, vol. 2, p. 277, pl. 14, figs. 1a-d.
Cuyahoga Shale: Farmington, Ohio.
1884. *Discina Newberryi*. Walcott, Pal. Eureka Dist., p. 213, pl. 18, figs. 3 (2, 2a?).
Lower Carboniferous L. S.: Eureka District, Nevada.
1888. *Orbiculoidea newberryi*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 33.
Waverly Group: Cuyahoga Valley, Ohio.
1889. *Orbiculoidea newberryi?* Herrick, Am. Geol., vol. 3, pl. 4, fig. 2.
Bedford Shale: Ohio.
1892. *Orbiculoidea Newberryi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4F, fig. 18.
Waverly Group: Cuyahoga Falls, Ohio.
1894. *Discina newberryi*. Keyes, Mo. Geol. Surv., vol. 5, p. 40.
Kinderhook Group: Sedalia, Springfield, and Louisiana, Missouri.
1895. *Orbiculoidea newberryi*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 11-13.
Cuyahoga or Berea Shale: Cuyahoga River, Ohio.

Lingulodiscina pleurites Meek.

1875. *Discina (Orbiculoidea?) pleurites*. Meek, Pal. Ohio, vol. 2, p. 278, pl. 14, figs. 2a, b.
Waverly Group: Newark, Ohio.
1888. *Orbiculoidea* sp. ? Herrick, Bull. Den. Univ., vol. 3, p. 30, pl. 8, fig. 14.
Waverly Group: Licking County, Ohio.
1888. *Orbiculoides pleurites*. Herrick, Bull. Den. Univ., vol. 4, p. 19, pl. 3, fig. 5; pl. 10, fig. 42.
Waverly Group: Newark and near Gann, Ohio; Cuyahoga Falls, Ohio.
1892. *Ehlertella pleurites*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 5, figs. 5-8.
Waverly Group: Newark, Ohio.
1892. *Ehlertella pleurites*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4E, figs. 21-24; pl. 4F, figs. 19, 20.
Waverly Group: Newark, Ohio.
1895. *Orbiculoidea pleurites*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 12.
Shale above Conglomerate II (Waverly Group): Newark, Gann, and Loudonville, Ohio.

LITHOMYLACRIS Scudder, 1879.

Lithomyiacris angusta Scudder.

1879. *Lithomyiacris angustum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 48, pl. 5, figs. 2, 3.
Upper Coal Measures: Pittston, Pennsylvania.
1890. *Lithomyiacris angusta*. Scudder, Foss. Insc. N. A., vol. 1, p. 68, pl. 5, figs. 2, 3.
Upper Carboniferous: Pittston, Pennsylvania.
1895. *Lithomyiacris angusta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 50.
Coal Measures: Near Pittston, Pennsylvania.

Lithomylacris pauperata Scudder.

1890. *Lithomylacris pauperata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 409, pl. 24, fig. 5.
Carboniferous: Port Griffith, Pennsylvania.
1890. *Lithomylacris pauperata*. Scudder, Foss. Insc. N. A., vol. 1, p. 385, pl. 32, fig. 5.
Carboniferous: Port Griffith, Pennsylvania.
1895. *Lithomylacris pauperata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 51.
Coal Measures: Near Pittston, Pennsylvania.

Lithomylacris pittstoniana Scudder.

1879. *Lithomylacris pittstonianum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 50, pl. 5, figs. 4, 10.
Upper Coal Measures: Pittston, Pennsylvania.
1890. *Lithomylacris pittstonianum*. Scudder, Foss. Insc. N. A., vol. 1, p. 70, pl. 5, figs. 4, 10.
Upper Carboniferous: Pittston, Pennsylvania.
1895. *Lithomylacris pittstoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 50.
Coal Measures: Near Pittston, Pennsylvania.

Lithomylacris simplex Scudder.

1879. *Lithomylacris simplex*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 51, pl. 5, fig. 5.
Lower Coal Measures: Danville, Illinois.
1890. *Lithomylacris simplex*. Scudder, Foss. Insc. N. A., vol. 1, p. 71, pl. 5, fig. 5.
Lower Coal Measures: Danville, Illinois.
1895. *Lithomylacris simplex*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 51.
Lower Coal Measures: Danville, Illinois.

LITHOPHAGA Lamark, 1812.**Lithophaga batesvillensis** Weller.

1897. *Lithophaga ? batesvillensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 263, pl. 19, figs. 14, 15.
Batesville S. S.: Batesville, Arkansas.

Lithophaga illinoisensis Worthen.

1865. *Lithophaga ? lingualis* (?). Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 245.
Keokuk Group: Warsaw, Illinois.
1868. *Lithophaga lingualis* ? Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 536, pl. 19, figs. 1, 2.
Keokuk Group: Warsaw, Illinois; Crawfordsville, Indiana.
1882. *Lithophaga Illinoiensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 39.

Lithophaga lingualis. See *Lithophaga illinoisensis*.

Lithophaga pertenuis Meek and Worthen.

1865. *Lithophaga ? pertenuis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 245.
Warsaw, L. S.: Warsaw, Illinois.
1873. *Lithophaga ? pertenuis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 539, pl. 22, fig. 1.
Warsaw Beds: Warsaw, Illinois.
1894. *Lithophaga pertenuis*. Keyes, Mo. Geol. Surv., vol. 5, p. 117.
St. Louis L. S.: St. Louis, Missouri.

Lithophaga (species undetermined).

1894. *Lithophaga* sp. ? Keyes, Mo. Geol. Surv., vol. 5, p. 116, pl. 43, figs. 8a, b.
Burlington L. S.: Louisiana, Missouri.

LITHOSTROTION Lhwyd, 1869.

Lithostrotion basaltiforme Owen. See *Lithostrotion canadense*.

Lithostrotion californiense Meek.

1864. *Lithostrotion? Californiense*. Meek, Pal. Cal., vol. 1, p. 6, pl. 1, figs. 2-2c.
Carboniferous: Bass's Ranch, Shasta County, California.

Lithostrotion canadense Castelnau.

- *1843. *Axinura Canadensis*. Castelnau, Terr. Sil. de l'Amer. du Nord., pl. 24, fig. 4.
- *1843. *Astrea mamillaris*. Castelnau, Terr. Sil. de l'Amer. du Nord., pl. 24, fig. 5.
1851. *Lithostrotion mamillare*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 433, pl. 13, figs 1-1b.
Carboniferous: Mount Fletcher, Alabama; Eddyville, Kentucky; Cumberland Mountains, Tennessee; Charlotte, Tennessee; Harding County, Indiana; Washington County and Cumberland River, Tennessee; Cabell Cey, Virginia; Warsaw, Illinois.
- 1852: *Lithostrotion basaltiforme*. Owen, Geol. Surv. Wis., Iowa, and Minn., tab. 4, figs. 5, 5a, 6.
Upper Series of Carboniferous L. S.: Sweet Home, on the Des Moines River.
1858. *Lithostrotion mamillare*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 667, pl. 24, figs. 5a, b.
St. Louis L. S.: Mount Pleasant, Iowa; St. Francisville, Missouri; Warsaw, Johnson's Landing, Milan, Alton, and Prairie du Rocher, Illinois; Elliottsville, Indiana; Kentucky, Tennessee, and Alabama.
1858. *Lithostrotion proliferum*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 668, pl. 24, figs. 6a-c.
St. Louis L. S.: Johnson's Landing, and Milan, Illinois.
1860. *Lithostrotion mamillare*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 423.
Carboniferous: North America.
1862. *Lithostrotion Canadense*. Owen, Geol. Recon. Ind., p. 364, fig. 6.
Carboniferous: Lost River, Orange County, Indiana.
1864. *Lithostrotion mamillare* (?) Meek, Pal. Cal., vol. 1, p. 5, pl. 1, figs. 4-4b.
Carboniferous: Bass's Ranch, Shasta County, California.
1876. *Lithostrotion mamillare*. Rominger, Geol. Surv. Mich., vol. 3, pt. 2, p. 111, pl. 55, 2 figs.
Carboniferous L. S.: Wildfowl Bay, Bellevue, and Grand Rapids, Mich.
1880. *Lithostrotion mamillare*. White, Cont. to Inv. Pal., No. 8, p. 159, pl. 40, figs. 6a, b.
St. Louis Group: Monroe County, Indiana.
1881. *Lithostrotion mamillare*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 506, pl. 6, figs. 1, 2.
Subcarboniferous: Monroe County, Indiana.
1882. *Lithostrotion mamillare*. White, 11th Rep. Geol. Surv. Ind., p. 401, pl. 52, fig. 3.
St. Louis Group: Indiana.
1894. *Lithostrotion mamillare*. Keyes, Mo. Geol. Surv., vol. 4, p. 106, pl. 12, fig. 8.
St. Louis L. S.: St. Francisville, Ste. Genevieve, and St. Louis, Missouri.

Lithostrotion harmodites Milne-Edwards and Haime.

1851. *Lithostrotion harmodites*. Milne-Edwards and Haime, Monog. des polyp., Foss., p. 440, pl. 15, figs. 1, 1a.
Carboniferous: North America.

Lithostrotion junceum Fleming.

1828. *Caryophyllea juncea*. Fleming, Brit. Anim., p. 509.

1878. *Lithostrotion junceum*. Ethridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 610.

Carboniferous: Feilden Isthmus, Latitude 82° 43'.

Lithostrotion mamillare Castelnau. See Lithostrotion canadense.**Lithostrotion microstylum White.**

1880. *Lithostrotion microstylum*. White, Cont. to Inv. Pal., No. 8, p. 159, pl. 40, fig. 7a.

Top of Chouteau L. S.: Sedalia, Missouri.

1894. *Lithostrotion microstylum*. Keyes, Mo. Geol. Surv., vol. 4, p. 124.

Chouteau L. S.: Sedalia, Missouri.

Lithostrotion pictoense Billings.

1868. *Lithostrotion Pictoense*. Billings, Dawson's Acad. Geol., p. 285, fig. 83.

Carboniferous L. S.: East River, Pictou.

Lithostrotion proliferum Hall. See Lithostrotion canadense.**Lithostrotion stokesi Milne-Edwards and Haime.**

1851. *Lithostrotion stokesi*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 440, pl. 20, fig. 2.

Carboniferous: Lake Winnipeg, North America.

1860. *Lithostrotion Stokesi*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 429.

Carboniferous: Lake Winnipeg, North America.

Lithostrotion whitneyi Meek.

1877. *Lithostrotion Whitneyi*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 58, pl. 6, figs. 1, 1c.

Carboniferous L. S.: Boxelder Peak, Wasatch Range, Utah.

1877. *Lithostrotion Whitneyi*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 103, pl. 6, figs. 1a-c.

Carboniferous: Fossil Hill and Ice Creek, Steptoe Valley, White Pine County, Nevada.

Lithostrotion (species undetermined).

1852. *Lithostrotion* — (sp. undet). Hall, Stansb. Exped. Gt. Salt Lake, p. 408, pl. 1, figs. 4a, b.

Carboniferous: Top of Stansbury's Island, Great Salt Lake, Utah.

1864. *Lithostrotion* —? Meek, Pal. Cal., vol. 1, p. 7, pl. 1, figs. 3, 3a.

Carboniferous: Bass's Ranch, Shasta County, California.

1876. *Lithostrotion* —? White, Powell's Geol. Rep. Uinta Mts., p. 88.

Lower Aubrey Group: York, Utah; west base of Wasatch Range.

(LITTORINA Ferussac, 1821.)

Littorina wheeleri. See Trachydomia wheeleri.

LOBOCRINUS Wachsmuth and Springer, 1897.

Lobocrinus æquibrachiatus McChesney.

1860. *Actinocrinus æquibrachiatus*. McChesney, Desc. New. Pal. Foss., p. 25.

Burlington L. S.: Monmouth, Illinois.

1865. *Actinocrinus æquibrachiatus*. McChesney, Ill. New Spec. Foss., pl. 4, figs. 2a-b, 5a-b, pl. 10, fig. 1.

1868. *Actinocrinus æquibrachiatus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 18, pl. 4, figs. 2, 5.

Burlington L. S.: Monmouth, Illinois.

Lobocrinus æquibrachiatus McChesney—Continued.

1897. *Lobocrinus æquibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 440, pl. 29, figs. 8a, b; pl. 46, figs. 6a, b.
Upper Burlington L. S.: Burlington, Iowa.

Lobocrinus æquibrachiatus var. asteriscus Meek and Worthen.

1860. *Actinocrinus asteriscus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 385.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1861. *Actinocrinus æquibrachiatus* var. *alatus*. Hall, Desc. New Spec. Crin., p. 1.
Burlington L. S.
1861. *Actinocrinus æquibrachiatus* var. *alatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 263.
Burlington L. S.: Burlington, Iowa.
1866. *Actinocrinus asteriscus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 207, pl. 15, figs. 8a-c.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus æquibrachiatus* var. *alatus*. Hall, Photo. Plates of Crinoids, pl. 3, figs. 21-23.
1893. *Batocrinus æquibrachiatus* var. *alatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 11, pl. 1, fig. 14.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus æquibrachiatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 181.
Burlington L. S.: White Ledge, Marion County, Missouri.
1897. *Lobocrinus æquibrachiatus* var. *asteriscus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 441, pl. 29, figs. 9a, b.
Upper Burlington L. S.: Burlington, Iowa.

Lobocrinus hageri McChesney.

1860. *Actinocrinus hageri*. McChesney, Desc. New Pal. Foss., p. 28.
Burlington L. S.: Burlington, Iowa.
1865. *Actinocrinus Hageri*. McChesney, Ill. New Spec. Foss., pl. 4, fig. 1, pl. 10, fig. 3.
- 1868. *Actinocrinus Hageri*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 21, pl. 4, fig. 1.
Burlington L. S.: Burlington, Iowa.
1897. (?) *Lobocrinus Hageri*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 445, pl. 30, figs. 9, 10.
Upper Burlington L. S.: Burlington, Iowa. •

Lobocrinus inflatus Rowley and Hare.

1891. *Batocrinus inflatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 102, pl. 2, fig. 19.
Lower Burlington L. S.: Louisiana, Missouri.
1891. *Batocrinus bulbosus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 114, pl. 3, fig. 5.
Lower Burlington L. S.: Louisiana, Missouri.
1897. *Lobocrinus inflatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 444, pl. 34, figs. 18a, b.
Lower Burlington L. S.: Louisiana, Missouri.

Lobocrinus longirostris Hall.

1858. *Actinocrinus longirostris*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 589, pl. 11, figs. 2 4c, d.
Burlington L. S.: Burlington, Iowa.
1868. *Batocrinus Cassedayanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 353.
Lower Burlington L. S.: Burlington, Iowa.

Lobocrinus longirostris Hall—Continued.

1873. *Batocrinus Cassedayanus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 370, pl. 5, fig. 1.
Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus longirostris*. Keyes, Mo. Geol. Surv., vol. 4, p. 180, pl. 24, fig. 5.
Lower Burlington L. S.: Sedalia, Hannibal, and Louisiana, Missouri.
1897. *Lobocrinus longirostris*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 442, pl. 28, figs. 1a-e.
Lower Burlington L. S.: Burlington, Iowa; Missouri.

Lobocrinus nashvillæ Hall.

1858. *Actinocrinus nashvillæ*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 609, pl. 15, fig. 4, pl. 16, figs. 4a, b.
Keokuk L. S.: Warsaw, Illinois; White Creek Springs, Tennessee.
1890. *Batocrinus nashvillæ*. Worthen, Geol. Surv. Ill., vol. 8, p. 85, pl. 13, fig. 5.
Keokuk L. S.: Keokuk, Iowa.
1894. *Batocrinus nashvillæ*. Keyes, Mo. Geol. Surv., vol. 4, p. 183.
Keokuk L. S.: St. Francisville and Palmyra, Missouri; Keokuk, Iowa.
1897. *Lobocrinus Nashville*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 435, pl. 31, fig. 1.
Keokuk L. S.: White's Creek Springs, near Nashville, Tennessee; Button-mould Knob, Kentucky; Keokuk, Iowa; Warsaw and Nauvoo, Illinois.

Lobocrinus nashvillæ var. subtractus White.

1862. *Actinocrinus Nashville* var. *subtractus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 16.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Batocrinus subtractus*. Keyes, Mo. Geol. Surv., vol. 4, p. 183.
Burlington L. S.: Hannibal, Missouri.
1897. *Lobocrinus Nashville* var. *subtractus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 436, pl. 31, figs. 2a, b.
Burlington L. S. and Burlington-Keokuk transition bed: Des Moines County, Iowa; Henderson County and Nauvoo, Illinois.

Lobocrinus pyriformis Shumard.

1855. *Actinocrinus pyriformis*. Shumard, Geol. Rep. Mo., p. 192, pl. A, figs. 6a, b.
Enerinital L. S.: Near Palmyra, Marion County, Missouri.
1860. *Actinocrinus pyriformis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 8.
1861. *Actinocrinus pyriformis* var. *rudis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 131.
Chouteau L. S.: Salt Lick Point, Monroe County, Illinois.
1865. *Actinocrinus pistilliformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 153.
1866. *Actinocrinus pistilliformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 151, pl. 14, fig. 8.
Kinderhook Group: Salt Lick Point, Marion County, Illinois.
1873. *Batocrinus pyriformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 375, pl. 5, fig. 5.
Burlington L. S.: Burlington, Iowa; Marion County, Missouri; Illinois.
1874. *Batocrinus pyriformis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 192.
1889. *Batocrinus pistilliformis*. Rowley, Am. Geol., vol. 3, p. 276.
Upper Burlington L. S.: Louisiana and Curryville, Missouri.
1894. *Batocrinus pyriformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 182, pl. 23, fig. 7.
Upper Burlington L. S.: Helton, Hannibal, Louisiana, Palmyra, and Ash Grove, Missouri.
1897. *Lobocrinus pyriformis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 437, pl. 31, figs. 3a-e.
Upper Burlington L. S.: Iowa, Illinois, Missouri.

Lobocrinus robustus Wachsmuth and Springer.

1897. *Lobocrinus robustus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 436, pl. 30, figs. 8a, b.

Keokuk Group: White's Creek Springs, Tennessee.

Lobocrinus spiniferus Wachsmuth and Springer.

1897. *Lobocrinus spiniferus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 439, pl. 30, figs. 11, 12.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

Lobocrinus yandelli Shumard.

- *1857. *Actinocrinus Yandelli*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 76, pl. 1, figs. 4a, b.

1897. *Lobocrinus Yandelli*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 441, pl. 30, figs. 7a, b.

Keokuk Group: Button-mould Knob, Kentucky.

LOFTUSIA Carpenter and Brady, 1869.**Loftusia columbiana** Dawson.

1879. *Loftusia columbiana*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 35, p. 74, pl. 6, figs. 1-7.

Carboniferous L. S.: Marble Canyon, British Columbia.

LOPHOPHYLLUM Milne-Edwards and Haime.*Lophophyllum calceola* White and Whitfield. See *Zaphrentis calceola*.**Lophophyllum expansum** White.

1876. *Lophophyllum expansum*. White, Proc. Acad. Nat. Sci. Phil., p. 27.

Keokuk L. S.: Henry County, Iowa.

1880. *Lophophyllum expansum*. White, Cont. to Inv. Pal., No. 8, p. 157, pl. 39, figs. 4a, b.

Keokuk L. S.: Henry County, Iowa.

Lophophyllum profundum Milne-Edwards and Haime.

1851. *Cyathaxonia profunda*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 323.

Carboniferous: Flint Ridge, Ohio.

1860. *Cyathaxonia profunda*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 331.

Carboniferous: Ohio.

1860. *Cyathaxonia prolifera*. McChesney, Desc. New Pal. Foss., p. 75.

Coal Measures: Widely distributed in the Western States.

1865. *Cyathaxonia prolifera*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 1-3.

1866. *Cyathaxonia* (?) sp. Geinitz, Carb. und Dyas in Nebr., p. 65, 66, tab. 5, figs. 3, 4.

Plattsmouth, Nebraska.

1868. *Cyathaxonia prolifera*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 1, pl. 2, figs. 1-3.

Coal Measures: Springfield, Illinois.

1872. *Lophophyllum proliferum*. Meek, U. S. Geol. Surv. Nebr., p. 149, pl. 5, figs. 4a, b.

Upper Coal Measures: Nebraska City and Rock Bluff, Nebraska; Springfield and Lasalle, Illinois; Texas.

1873. *Lophophyllum proliferum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 560, pl. 24, fig. 1.

Upper Coal Measures: Springfield, Illinois.

1876. *Lophophyllum proliferum*. White, Powell's Geol. Rep. Uinta Mts., p. 88.

Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

Lophophyllum profundum Milne-Edwards and Haime—Continued.

1884. *Lophophyllum proliferum*. White, 13th Rep. Geol. Surv. Ind., p. 118, pl. 23, figs. 6, 7.
Coal Measures: Indiana; Illinois; Iowa.
1887. *Cyathaxonia prolifera*. Foerste, Bull. Den. Univ., vol. 2, p. 86, pl. 7, figs. 15a-c.
Coal Measures: Flint Ridge and Bald Hill, Ohio.
1888. *Lophophyllum profunda*. Foerste, Bull. Den. Univ., vol. 3, p. 136.
Coal Measures: Flint Ridge, Ohio.
1888. *Lophophyllum proliferum*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 225.
Lower Coal Measures: Des Moines, Iowa.
1890. *Lophophyllum profundum*. Worthen, Geol. Surv. Ill., vol. 8, p. 79, pl. 10, figs. 14, 14a.
Coal Measures: Lasalle, Illinois.
1894. *Lophophyllum proliferum*. Keyes, Mo., Geol. Surv., vol. 4, p. 115, pl. 13, figs. 8a, b.
Upper Coal Measures: Kansas City, Missouri.
1897. *Lophophyllum proliferum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 25.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Lophophyllum profundum var. sauridens White.

1877. *Lophophyllum proliferum* var. *sauridens*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 101, pl. 6, figs. 4a, d.
Carboniferous: Near Santa Fé, New Mexico; Rock Creek, Lake County, Colorado.

Lophophyllum proliferum McChesney. See *Lophophyllum profundum*.

Lophophyllum proliferum var. *sauridens* White. See *Lophophyllum profundum* var. *sauridens*.

Lophophyllum (species undetermined).

1888. *Lophophyllum* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 17.
Chester Group: Ohio.

LOXONEMA Phillips, 1841.**Loxonema acutulum** Dawson.

1868. *Loxonema acutula*. Dawson, Acad. Geol., p. 309.
Carboniferous L. S.: Windsor, Nova Scotia.

Loxonema attenuatum Stevens.

1858. *Chemnitzia attenuata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.

Loxonema attenuatum var. *semicostatum* Meek. See *Loxonema semicostatum*.

Loxonema bellum Walcott.

1884. *Loxonema bella*. Walcott, Bal. Eureka Dist., p. 258, pl. 24, figs. 1a, b.
Lower Carboniferous: Eureka District, Nevada.

Loxonema cara Dawson.

1883. *Loxonema cara*. Dawson, Rep. Peter Redpath, Mus., No. 2, p. 11.
Lower Carboniferous L. S.: Windsor, Nova Scotia.

Loxonema carinatum. See *Soleniscus carinatus*.

Loxonema cerithiforme Meek and Worthen.

1860. *Loxonema cerithiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 465.
Upper Coal Measures: Springfield, Ill.

Loxonema cerithiforme Meek and Worthen—Continued.

1866. *Loxonema cerithiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 379, pl. 31, figs. 13a-c.
Upper Coal Measures: Springfield, Illinois.

Loxonema danvillensis Stevens.

1858. *Loxonema Danvillensis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.

Loxonema delphicola Hall.

1879. *Loxonema delphicola*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 47, pl. 13, figs. 19-25; pl. 14, figs. 1, 2.
Hamilton Group: New York.
1888. *Loxonema delphicola*? Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 15.
Bedford Shale: Central College, Ohio.
1889. *Loxonema* (cf. *delphicola*). Herrick, Am. Geol., vol. 3, pl. 4, fig. 15.
Bedford Shale: Ohio.
1895. *Loxonema delphicola*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 15.
Shale above Berea Grit: Ohio.

Loxonema fasciatum King.

1850. *Loxonema fasciata*. King, Perm. Foss. Eng., p. 209, pl. 16, fig. 30.
1858. *Loxonema fasciata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196.
Lower Permian: Kansas.

Loxonema hallii Norwood and Pratten.

1855. *Loxonema Hallii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 77, pl. 9, figs. 11a, b.
Coal Measures: Galatia, Illinois; and on Wabash River, 5 miles below New Harmony, Indiana.

Loxonema inornata. See *Bulimorpha inornata*.

Loxonema minutum. See *Bulimorpha minuta*.

Loxonema multicostatum Meek and Worthen.

1861. *Loxonema multicostata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 146.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1866. *Loxonema multicosta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 378, pl. 31, figs. 12a-c.
Coal Measures: Macoupin County, Illinois.
1891. *Loxonema multicosta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 260.
Lower Coal Measures: Des Moines, Iowa.
1894. *Loxonema multicosta*. Keyes, Mo. Geol. Surv., vol. 5, p. 206.
Upper Coal Measures: Kansas City, Missouri.

Loxonema newberryi. See *Soleniscus newberryi*.

Loxonema nitidula. See *Bulimorpha nitidula*.

Loxonema nodosum Stevens.

1858. *Loxonema nodosa*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
Coal Measures: Summit, Ohio.

Loxonema oligospira Winchell.

1863. *Loxonema oligospira*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 22.
Yellow S. S.: Burlington, Iowa.

Loxonema parvum Cox.

1857. *Chimnitzia parva*. Cox, Geol. Surv. Ky., vol. 3, p. 567, pl. 8, figs. 3, 3a.
Coal Measures: Daviess County, Kentucky.

Loxonema peoriense Worthen.

1884. *Loxonema peoriense*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 7.
Coal Measures: Peoria County, Illinois.
1890. *Loxonema peoriense*. Worthen, Geol. Surv., Ill., vol. 8, p. 139, pl. 23,
figs. 10, 10b.
Coal Measures: Peoria County, Illinois.

Loxonema plebium Herrick.

1887. *Loxonema* sp. Herrick, Bull. Den. Univ., vol. 2, p. 147, pl. 14, fig. 8. (*L. plebium* (n. sp.) in explanation of plate.)
Coal Measures: Flint Ridge, Ohio.

Loxonema plicatum Whitfield.

1882. *Loxonema plicatum*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 231.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1891. *Loxonema plicatum*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 601, pl. 15,
figs. 14, 15.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1895. *Loxonema plicatum*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 486, pl. 11,
figs. 14, 15.
Coal Measures: Hocking County, Ohio.

Loxonema politum Stevens.

1858. *Loxonema polita*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
Coal Measures: Danville, Illinois.

Loxonema quadricarinatum. See *Murchisonia quadricarinata*.

Loxonema regularis. See *Soleniscus regularis*.

Loxonema rugosum Meek and Worthen.

1860. *Loxonema rugosa*. Meek and Worthen, Proc. Acad. Nat. Sci., Phil., p. 465.
Upper Coal Measures: Springfield, Illinois.
1866. *Loxonema rugosa*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 378, pl. 31,
figs. 11a-c.
Upper Coal Measures: Springfield, Illinois.
1881. *Loxonema rugosa*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp.,
Appendix, p. xxxv, pl. 3, fig. 7a.
Carboniferous: Near Taos, and Coyote Creek, New Mexico.

Loxonema scitulum Meek and Worthen.

1860. *Loxonema scitula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 464.
Upper Coal Measures: Springfield, Illinois.
1866. *Loxonema scitula*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 377, pl. 31,
figs. 10a-c.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1891. *Loxonema scitula*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 259.
Lower Coal Measures: Des Moines, Iowa.
1894. *Loxonema scitulum*. Keyes, Mo. Geol. Surv., vol. 5, p. 206.
Upper Coal Measures: Kansas City, Missouri.

Loxonema semicostata Meek.

1871. *Loxonema attenuata* var. *semicostatus*. Meek, Proc. Acad. Nat. Sci. Phil.,
p. 174.
Coal Measures: Danville, Illinois.
1873. *Loxonema semicostata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 596,
pl. 29, fig. 2.
Coal Measures: Danville, Illinois.

Loxonema swallovanum Shumard.

- 1850. *Chemnitzia Swallovia*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 399.
White Permian L. S.: Guadalupe Mountains.

Loxonema tenuicarinatum Stevens.

1858. *Loxonema tenui-carinata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 260.
Coal Measures: Summit, Ohio.

Loxonema tenuilineatum Shumard.

1855. *Chemnitzia tenuilineata*. Shumard, Geol. Rep. Mo., p. 207, pl. C, fig. 12.
Chouteau L. S.: Cooper County, Missouri.
1894. *Loxonema tenuilineatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 206.
Chouteau L. S.: Chouteau Springs, Missouri.

Loxonema turritiforme Hall.

1860. *Loxonema turritiformis*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 109.
Goniatite L. S.: Rockford, Indiana.

Loxonema vineta. See *Murchisonia vineta*.

Loxonema yandellianum Hall.

1856. *Loxonema Yandellana*. Hall, Trans. Albany Inst., vol. 4, p. 28.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Loxonema Yandellana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 77,
pl. 8, figs. 35, 36.
St. Louis Group: Spergen Hill, Indiana.
1883. *Loxonema yandellana*. Hall, 12th Rep. Geol. Surv. Ind., p. 365, pl. 31,
figs. 35, 36.
St. Louis Group: Spergen Hill, Indiana.
1888. *Loxonema yandellana?* Herrick, Bull. Den. Univ., vol. 3, p. 86, pl. 8, fig. 23.
Waverly Group: Licking County, Ohio.

Loxonema (species undetermined).

1873. *Loxonema* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 29,
figs. 3a, b.
Coal Measures.
1873. *Loxonema (Michelia?)* (sp. undet.). Meek and Worthen, Geol. Surv. Ill.,
vol. 5, pl. 29, figs. 4a, b.
Coal Measures.
1887. *Loxonema* sp. Herrick, Bull. Den. Univ., vol. 2, p. 22, pl. 3, fig. 2.
Coal Measures: Flint Ridge, Ohio.
1888. *Loxonema* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 7.
Waverly Group: Newark, Ohio.
1895. *Loxonema* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 7.
Kinderhook: Granville, Ohio.

LUNULICARDIUM Munster, 1840.**Lunulicardium retrorsum** Miller and Gurley.

1896. *Lunulicardium retrorsum*. Miller and Gurley, Bull. No. 11, Ill. State Mus.
Nat. Hist., p. 6, pl. 2, figs. 26-28.
Chouteau L. S.: Near Sedalia, Missouri.

(LYONSIA Turton, 1822.)

Lyonsia concava. See *Sedgwickia concava*.

LYRIOPECTEN Hall, 1884.**Lyriopecten nodocostatus** Herrick.

1888. *Lyriopecten nodocostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 32, pl. 11, fig. 5.
Waverly Group: Licking and Richland counties, Ohio.
1895. *Lyriopecten nodocostatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 27.
Cuyahoga Shale: Licking County, Ohio.

LYRODICTYA Hall, 1884.

Lyrodictya romingeri Hall.

1884. *Lyrodictya Romingeri*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 476.
Keokuk Group: Crawfordsville, Indiana.

LYROPORA Hall, 1857.

Lyropora divergens Ulrich.

1890. *Lyropora divergens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 584, pl. 58, figs. 4-4d.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.
1894. *Lyropora divergens*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Kaskaskia L. S.: Chester, Illinois.

Lyropora lyri Hall.

1857. *Fenestella (Lyropora) Lyri*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10, p. 179.
Kaskaskia L. S.: Chester and Kaskaskia, Illinois.

Lyropora ovalis Ulrich.

1890. *Lyropora ovalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 585, pl. 58, figs. 5-5b;
pl. 55, fig. 8.
Chester Group: Grayson Springs, Kentucky.

Lyropora quincuncialis Hall.

1857. *Fenestella (Lyropora) quincuncialis*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10,
p. 180.
Kaskaskia L. S.: Chester, Illinois.
1890. *Lyropora quincuncialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 583, pl. 58, figs. 3-3d.
pl. 55, figs. 7-7c.
Chester Group: Chester, Illinois.
1894. *Lyropora quincuncialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 27.
Kaskaskia L. S.: Chester, Illinois.

Lyropora ranosculum Ulrich.

1890. *Lyropora ranosculum*. Ulrich, Geol. Surv. Ill., vol. 8, p. 581, pl. 58, figs. 1-1c.
Chester Group: Chester and Kaskaskia, Illinois; Sloan's Valley, Kentucky.

Lyropora retrorsa Meek and Worthen.

1868. *Fenestella (Lyropora) retrorsa*. Meek and Worthen, Geol. Surv. Ill., vol. 3,
p. 504, pl. 15, fig. 1.
Burlington Group: Burlington, Iowa.
1894. *Lyropora retrorsa*. Keyes, Mo. Geol. Surv., vol. 5, p. 27, pl. 34, fig. 4.
Burlington L. S.: Louisiana, Missouri.

Lyropora subquadrans Hall.

1857. *Fenestella (Lyropora) subquadrans*. Hall, Proc. Am. Ass. Adv. Sci., vol. 10,
p. 180.
Kaskaskia L. S.: Chester, Illinois.
1890. *Lyropora subquadrans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 582, pl. 58, figs. 2-2e.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.
1894. *Lyropora subquadrans*. Keyes, Mo. Geol. Surv., vol. 5, p. 27.
Kaskaskia L. S.: Chester, Illinois.

MACROCARIS Miller, 1892.

Macrocaris gorbyi Miller.

1892. *Macrocaris gorbyi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 78,
pl. 9, figs. 43-46.
Keokuk Group: West Point, Indiana.
1894. *Macrocaris gorbyi*. Miller, 18th Rep. Geol. Surv. Ind., p. 332, pl. 9,
figs. 43-46.
Keokuk Group: West Point, Indiana.

(MACROCHEILUS Phillips, 1841.)

- Macrocheilus altonensis*. See *Soleniscus altonensis*.
Macrocheilus altonensis. See *Soleniscus?* *worthenanus*.
Macrocheilus angulifera. See *Soleniscus?* *anguliferus*.
Macrocheilus cooperensis. See *Sphærodome cooperensis*.
Macrocheilus fusiformis. See *Soleniscus fusiformis*.
Macrocheilus gracilis. See *Soleniscus gracilis*.
Macrocheilus hallanum. See *Soleniscus hallanus*.
Macrocheilus hildrethi. See *Soleniscus paludinæformis*.
Macrocheilus humilis. See *Soleniscus humilis*.
Macrocheilus inhabilis. See *Sphærodome primogenia*.
Macrocheilus intercalaris. See *Sphærodome intercalaris*.
Macrocheilus intercalaris var. *pulchellus*. See *Sphærodome intercalaris*.
Macrocheilus kansasensis. See *Soleniscus kansasensis*.
Macrocheilus klippiarti. See *Soleniscus klippiarti*.
Macrocheilus littonanum. See *Sphærodome littonana*.
Macrocheilus medialis. See *Sphærodome medialis*.
Macrocheilus missouriensis. See *Soleniscus?* *missouriensis*.
Macrocheilus newberryi. See *Soleniscus newberryi*.
Macrocheilus paludinæformis. See *Soleniscus paludinæformis*.
Macrocheilus pinguis. See *Sphærodome pinguis*.
Macrocheilus ponderosum. See *Sphærodome ponderosa*.
Macrocheilus primogenius. See *Sphærodome primogenia*.
Macrocheilus pulchellus. See *Sphærodome intercalaris*.
Macrocheilus regularis. See *Soleniscus regularis*.
Macrocheilus spiratus. See *Soleniscus* (species undetermined).
Macrocheilus subcorpulentus. See *Sphærodome subcorpulenta*.
Macrocheilus terranovicus. See *Soleniscus?* *terranovicus*.
Macrocheilus texanus. See *Sphærodome texana*.
Macrocheilus ventricosa. See *Soleniscus brevis*.

(MACROCHILINA Bayle, 1880.)

- Macrochilina blairi*. See *Soleniscus?* *blairi*.

MACROCRINUS Wachsmuth and Springer, 1897.

Macrocrinus carica Hall.

1861. *Actinocrinus carica*. Hall, Desc. New Spec. Crin., p. 10.
 Burlington L. S.
 1872. *Actinocrinus carica*. Hall, Photo. Plates of Crinoids, pl. 4, fig. 12.
 1894. *Eretmocrinus carica*. Keyes, Mo. Geol. Surv., vol. 4, p. 176.
 Lower Burlington L. S.: Sedalia, Missouri.
 1897. *Macrocrinus carica*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 448,
 pl. 37, fig. 8.
 Upper Burlington L. S.: Burlington, Iowa.

Macrocrinus gemmiformis Hall.

1860. *Actinocrinus gemmiformis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 23.
Burlington L. S.: Burlington, Iowa.
1872. *Actinocrinus gemmiformis*. Hall, Photo. Plates of Crin., pl. 3, fig. 6.
1897. *Macrocrinus gemmiformis*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 449, pl. 36, fig. 8.
Lower Burlington L. S.: Burlington, Iowa.

Macrocrinus jucundus Miller and Gurley.

1890. *Batocrinus jucundus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13,
p. 20, pl. 4, figs. 5, 6.
Keokuk Group: Crawfordsville, Indiana.
1890. *Batocrinus jucundus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 341,
pl. 4, figs. 5, 6.
Keokuk Group: Crawfordsville, Indiana.
1891. *Batocrinus agnatus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 53,
pl. 8, figs. 1, 2.
Keokuk Group: Indian Creek, Montgomery County, Indiana.
1892. *Batocrinus agnatus*. Miller, 17th Rep. Geol. Surv. Ind., p. 663, pl. 8, figs. 1, 2.
Keokuk Group: Indian Creek, Montgomery County, Indiana.
1897. *Macrocrinus jucundus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 451,
pl. 30, figs. 13, 14.
Keokuk Group: Indian Creek, Montgomery County, Indiana.

Macrocrinus konincki Shumard.

1855. *Actinocrinus Konincki*. Shumard, Geol. Rep. Mo., p. 195, pl. A, figs. 8a-c.
Encrinital L. S.: Rocheport, Boone County; near Palmyra, Marion County,
Missouri.
1860. *Actinocrinus urnæformis*. McChesney, Desc. New Pal. Foss., p. 23.
Burlington L. S.: Honey Creek, Illinois.
1894. *Eretmocrinus konincki*. Keyes, Mo. Geol. Surv., vol. 4, p. 178.
Upper Burlington L. S.: Ash Grove, Rocheport, and Palmyra, Missouri.
1897. *Macrocrinus Konincki*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 447,
pl. 35, figs. 1-3.
Upper Burlington L. S.: Burlington, Iowa.

Macrocrinus lagunculus Hall.

1860. *Actinocrinus lagunculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 41.
Keokuk L. S.: Warsaw, Illinois.
1897. *Macrocrinus lagunculus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 453, pl. 35, fig. 4.
Keokuk Group: Warsaw, Illinois; Keokuk, Iowa.

Macrocrinus verneuilianus Shumard.

1855. *Actinocrinus Verneuilianus*. Shumard, Geol. Rep. Mo., p. 193, pl. A,
figs. 1a, b.
Encrinital L. S.: Rocheport and near Palmyra, Missouri.
1873. *Batocrinus verneuilianus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 379,
pl. 4, figs. 3, 4.
Burlington L. S.: Sagetown, Illinois; Burlington, Iowa.
1894. *Eretmocrinus verneuilianus*. Keyes, Mo. Geol. Surv., vol. 4, p. 177, pl. 23,
fig. 9.
Upper Burlington L. S.: Lagrange, Palmyra, Helton, Hannibal, Louisiana,
Ste. Genevieve, Rocheport, Springfield, and Ash Grove, Missouri.
1897. *Macrocrinus verneuilianus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 450, pl. 30, figs. 15-18.
Upper Burlington L. S.: Iowa, Illinois, Missouri.

MACRODON Lycett, 1845.

Macrodon blairi Miller and Gurley.

1896. *Macrodon blairi*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 11, pl. 2, figs. 19-24.
Chouteau L. S.: Near Sedalia, Missouri.

Macrodon carbonarius Cox.

1857. *Arca carbonaria*. Cox, Geol. Surv. Ky., vol. 3, p. 567, pl. 8, fig. 5.
Coal Measures: Providence, Hopkins County, Kentucky; near Hawesville, Hancock County, Kentucky.
1887. *Macrodon carbonaria*. Herrick, Bull. Den. Univ., vol. 2, p. 32, pl. 4, figs. 21, 14.
Coal Measures: Flint Ridge, Ohio.
1897. *Macrodon carbonarius*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Lower Coal Measures: Conway County, Arkansas.

Macrodon cochlearis Winchell.

1863. *Macrodon cochlearis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 16.
Yellow S. S.: Burlington, Iowa.

Macrodon curtus Hartt.

1868. *Macrodon curtus*. Hartt, Dawson's Acad. Geol., p. 302.
Carboniferous L. S.; Windsor, etc., Nova Scotia.

Macrodon delicatus Meek and Worthen.

1870. *Macrodon delicatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 40.
Upper Coal Measures: Springfield, Illinois.
1873. *Macrodon delicatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 575, pl. 26, fig. 3.
Upper Coal Measures: Springfield, Illinois.

Macrodon facetus Miller and Gurley.

1896. *Macrodon facetus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 10, pl. 1, figs. 14-16.
Chouteau L. S.: Near Sedalia, Missouri.

Macrodon hamiltonæ Hall.

1884. *Macrodon Hamiltonæ*. Walcott, Pal. Eureka Dist., p. 243, pl. 23, figs. 5-5c.
Lower Carboniferous: Eureka District, Nevada.
1888. *Macrodon hamiltonæ*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 3.
Bedford Shale: Central College, Ohio.
1889. *Macrodon hamiltonæ*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 4.
Bedford Shale: Ohio.
1895. *Macrodon hamiltonæ*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 4.
Bedford Shale: Central College, Ohio.

Macrodon hardingi Dawson.

1868. *Macrodon Hardingi*. Dawson, Acad. Geol., p. 302, figs. a-c.
Carboniferous L. S.: Windsor, Nova Scotia.

Macrodon micronema Meek and Worthen.

1866. *Macrodon micronema*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 261.
Chester Group: Ste. Genevieve County, Missouri; Randolph County, Illinois.

Macrodon newarkensis Herrick.

1888. *Macrodon newarkensis*. Herrick, Bull. Den. Univ., vol. 4, p. 36, pl. 4, fig. 19.
Waverly Group: Near Newark, Ohio.
1889. *Macrodon newarkensis*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 19.
1895. *Macrodon newarkensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 19.
Burlington and Keokuk: Newark, Ohio.

Macrodon obsoletus Meek.

- *1871. *Macrodon obsoletus*. Meek, Rep. Regents Univ. W. Va.
Lower Coal Measures: Monongahela County, West Virginia.
1875. *Macrodon obsoletus*. Meek, Pal. Ohio, vol. 2, p. 334, pl. 19, fig. 9.
Coal Measures: Newark, Ohio.
1886. *Macrodon obsoletus*. Heilprin, 2d Geol. Surv. Penn. Ann. Rep. 1885, p. 456,
fig. 19.
Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Macrodon obsoletus*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc.,
vol. 2, pt. 2, p. 275, fig. 19.
Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Macrodon obsoletus*. Herrick, Bull. Den. Univ., vol. 2, p. 31, pl. 4, fig. 19.
Coal Measures: Flint Ridge, Ohio.
1891. *Macrodon obsoletus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 249.
Lower Coal Measures: Des Moines, Iowa.
1894. *Macrodon obsoletus*. Keyes, Mo. Geol. Surv., vol. 5, p. 120, pl. 46, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1897. *Macrodon obsoletus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Upper Coal Measures: Sebastian County, Arkansas; Poteau Mountain,
Indian Territory.

Macrodon ovatus Hall.

- *1870. *Macrodon ovatus*. Hall, Prelim. Not. Lamell., 2, p. 15.
Waverly S. S.: Granville and Newark, Ohio.
1885. *Macrodon ovatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 351, pl. 51, fig. 8; pl. 93,
fig. 16.
Waverly S. S.: Granville and Newark, Ohio.

Macrodon parvus White and Whitfield.

1862. *Macrodon parvus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8,
p. 299.
Chemung Group: Burlington, Iowa.

Macrodon pettisensis Miller and Gurley.

1896. *Macrodon pettisensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat.
Hist., p. 10, pl. 2, figs. 17, 18.
Chouteau L. S.: Near Sedalia, Missouri.

Macrodon reservatus Herrick.

1888. *Macrodon reservatus*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 9.
Waverly Group: Ohio.
1895. *Macrodon reservatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 9.
Kinderhook: Granville, Ohio.

Macrodon sangamonensis Worthen.

1890. *Macrodon sangamonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 123, pl. 21,
figs. 3, 3a.
Coal Measures: Roll's Ford, Sangamon County, Illinois.
1894. *Macrodon sangamonensis?* Keyes, Mo. Geol. Surv., vol. 5, p. 121, pl. 46,
fig. 2.
Upper Coal Measures: Kansas City, Missouri.

Macrodon shubenacadiensis Hartt.

1865. *Macrodon (?) Shubenacadiensis*. Hartt, Dawson's Acad. Geol., p. 302, fig. 103.
Carboniferous L. S.: Shubenacadie, Nova Scotia.

Macrodon striatocostatus Herrick.

1888. *Macrodon striato-costatus*. Herrick, Bull. Den. Univ., vol. 4, p. 37, pl. 6, fig. 7;
pl. 11, fig. 27.
Waverly Group: Ashland County and Licking County, Ohio.

Macrodon tenuistriatus Meek and Worthen.

1866. *Arca striata*. Geinitz, Carb. und Dyas in Nebr., p. 20, tab. 1, fig. 32. (Not *Mytilites striata* Schlath. 1817.)
Nebraska City, Nebraska.
- *1866. *Macrodon tenuistriata*. Meek and Worthen, Proc. Chicago Acad. Sci., vol. 1, p. 17.
Upper Coal Measures: Springfield, Illinois.
1872. *Macrodon tenuistriata*. Meek, U. S. Geol. Surv. Nebr., p. 207, pl. 10, figs. 20a, b.
Upper Coal Measures: Nebraska City, Nebraska; Springfield, Illinois; Iowa.
Lower Coal Measures: Illinois.
1873. *Macrodon tenuistriatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 576, pl. 26, fig. 4.
Upper Coal Measures: Springfield, Illinois.
1887. *Macrodon tenuistriata*. Herrick, Bull. Den. Univ., vol. 2, p. 31.
Coal Measures: Flint Ridge, Ohio.
1888. *Macrodon* (allied to) *tenuistriata*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 15.
Waverly Group: Cuyahoga Falls, Ohio.
1894. *Macrodon tenuistriatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 120.
Upper Coal Measures: Kansas City, Missouri.
1897. *Macrodon tenuistriatus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Macrodon triangularis. See *Schizodus triangularis* Herrick.

Macrodon truncatus Walcott.

1884. *Macrodon truncatus*. Walcott, Pal. Eureka Dist., p. 243, pl. 8, fig. 2.
Lower Carboniferous: Eureka District, Nevada.

Macrodon (species undetermined).

1868. *Macrodon*. Dawson, Acad. Geol., p. 303.
Carboniferous L. S.: Nova Scotia.
1888. *Macrodon* sp. Herrick, Bull. Den. Univ., vol. 4, p. 38, pl. 11, fig. 28.
Waverly Group: Portsmouth, Ohio.
1895. *Macrodon* sp. Herrick, Geol. Surv. Ohio., vol. 7, pl. 17, fig. 7.
Cuyahoga Shale: Moot's Run, Licking County, Ohio.
1895. *Macrodon* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 26.
Cuyahoga Shale: Ohio.
1897. *Macrodon* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 34.
Upper Coal Measures: Crawford County, Arkansas.

MARTESIA Leach, 1824.**Martesia roessleri** Meek.

1871. *Martesia?* *Roessleri*. Meek, Am. Jour. Conch., vol. 7, p. 9, pl. 1, fig. 4.
Permian?: Fort Belknap, Texas.

MARTINIA McCoy, 1844.**Martinia contracta** Meek and Worthen.

1861. *Spirifera glabra* var. *contracta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 143.
Chester L. S.: Pope County and Chester, Illinois.
1866. *Spirifer glaber* var. *contractus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 298, pl. 23, figs. 5a, b.
Chester Group: Chester, Illinois; Pope County, Illinois.

Martinia contracta Meek and Worthen—Continued.

1874. *Spirifer (Martinia) glaber* var. *contracta*. White, Prelim. Rep. Inv. Foss., p. 20.
Carboniferous (Coal Measures): Camp Cottonwood, Lincoln County, Nevada.
1877. *Spirifer (Martinia) glaber* var. *contracta*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 136, pl. 10, figs. 2a-c.
Carboniferous: Camp Cottonwood, Lincoln County, Nevada.
1888. *Spirifer glaber*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 15.
Chester L. S.: Ohio.
1891. *Spirifer (Martinia) contractus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 583, pl. 13, figs. 17-19.
Maxville L. S.: Ohio.
1894. *Spirifera contracta*. Keyes, Mo. Geol. Surv., vol. 5, p. 83.
Kaskaskia L. S.: Chester, Illinois.
1895. *Spirifera (Martinia) contracta*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 471, pl. 9, figs. 17-19.
Maxville L. S.: Ohio.

Martinia glabra Martin.

1863. *Spirifera glabra*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 170, pl. 9, figs. 9, 10.
Lower Carboniferous L. S.: East River of Pictou, Mabon, Cape Breton, Windsor, Merigomish, etc., Nova Scotia.
1868. *Spirifera glabra*. Dawson, Acad. Geol., p. 291, fig. 89.
Carboniferous L. S.: East River of Pictou, Mabon, Cape Breton, Windsor, Brookfield, Merigomish, etc., Nova Scotia.

Martinia planoconvexa. See *Ambocœlia planoconvexa*.

Martinia umbonata. See *Ambocœlia umbonata*.

MAZONIA Meek and Worthen, 1868.**Mazonia woodiana** Meek and Worthen.

1868. *Mazonia Woodiana*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 563, figs. a-d.
Coal Measures: Mazon Creek, Grundy County, Illinois.

MEDLICOTTIA Waagen, 1880.**Medlicottia copei** White.

1889. *Medlicottia copei*. White, Am. Nat., vol. 23, p. 117, pl. 1, figs. 1, 3.
Permian: Baylor County, Texas.
1891. *Medlicottia copei*. White, Bull. U. S. Geol. Surv., No. 77, p. 21, pl. 1, figs. 1, 3.
Permian: Military Crossing of the Big Wichita, Baylor County, Texas, and San Angelo, Tom Green County, Texas.

MEEKELLA White and St. John, 1868.**Meekella occidentalis** Newberry.

1861. *Streptorhynchus occidentalis*. Newberry, Ives' Colo. Expl. Exped., p. 126, pl. 1, figs. 5, 5a.
Upper Carboniferous (Cherty L. S.): Canyon of the Cascade River.
1892. *Meekella occidentalis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11B, figs. 18, 19.
Upper Carboniferous L. S.: Canyon of Diamond River.

Meekella pyramidalis Newberry.

1861. *Streptorhynchus pyramidalis*. Newberry, Ives' Colo. Expl. Exped., p. 126, pl. 2, figs. 11-13.

Carboniferous L. S.: On high mesa west of Little Colorado River.

Meekella striatocostata Cox.

1857. ^{*occidentalis*} *Meekella striato-costata*. Cox, Geol. Surv. Ky., vol. 3, p. 568, pl. 8, fig. 7.
Coal Measures: Providence, Hopkins County, Kentucky.
1858. *Orthisina Shumardiana*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 183.
Lower Permian: Valley of Cottonwood, Kansas.
1858. *Orthisina Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 219.
Upper Coal Measures: Dallas, Missouri; Kansas.
1859. *Orthisina Shumardiana*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Fort Riley, Kansas.
1859. *Orthisina Missouriensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Leavenworth, Kansas.
1859. *Streptorhynchus (Orthisina) Shumardianus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395.
Permian S. S.: Guadalupe Mountains.
1863. *Orthisina occidentalis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 82.
Upper Coal Measures: Caldwell County, Missouri.
1866. *Orthis striato-costata*. Geinitz, Carb. und Dyas in Nebr., p. 48, tab. 3, figs. 22-24.
Crescent City, Iowa.
1868. *Meekella striato costata*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 120, figs. 4-6.
Coal Measures: Iowa.
1872. *Meekella striato-costata*. Meek, U. S. Geol. Surv. Nebr., p. 175, pl. 5, figs. 12a-c.
Upper Coal Measures: Nebraska City, Bellevue, Plattsmouth, Otoe City, and Aspinwall, Nebraska; Kentucky; Iowa; Missouri; Illinois.
1873. *Meekella striato-costata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 571, pl. 26, fig. 21.
Upper and Lower Coal Measures: Caseyville and various localities in Illinois.
1876. *Meekella striatocostata*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Meekella striatocostata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 126, pl. 9, figs. 4a-e.
Carboniferous: Camp Cottonwood, Lincoln County, Nevada; Tenney's Ranch, Kaibab Plateau, Arizona; Kanab Canyon; Meadow Creek, south of Fillmore; Le Verkin's Creek, and at a cliff east of Bellevue, Utah.
1883. *Streptorhynchus (Meekella) striatocostata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (10) 40, figs. 18-23.
1884. *Meekella striatocostata*. White, 13th Rep. Geol. Surv. Ind., p. 130, pl. 26, figs. 12-14.
Coal Measures: Western part of Vigo County, Indiana.
1892. *Meekella striatocostata*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 17, figs. 10-13.
Upper Coal Measures: Winterset, Iowa; Lawrence County, Kansas.
1892. *Meekella striatocostata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 10, figs. 18-23; pl. 11B, figs. 20-22.
Upper Coal Measures: Winterset, Iowa; Lawrence County, Kansas.
1894. *Meekella striatocostata*. Keyes, Mo. Geol. Surv., vol. 5, p. 68, pl. 39, figs. 1a-c.
Upper Coal Measures: Kansas City, Missouri.

MEEKOPORA Ulrich, 1890.**Meekopora ? aperta Ulrich.**

1890. *Meekopora ? aperta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 485, pl. 76, figs. 1, 1a.
Keokuk Group: King's Mountain, Kentucky.

Meekopora approximata Ulrich.

1890. *Meekopora approximata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 484, pl. 77, fig. 5.
Chester Group: Chester, Ill.; Sloan's Valley, Kentucky.
1894. *Meekopora approximata*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.
Kaskaskia L. S.: Chester, Illinois.

Meekopora clausa Ulrich.

1884. *Fistulipora (?) clausa*. Ulrich, Jour. Cin. Soc. Nat. Hist., vol. 7, p. 47, pl. 3, figs. 4-4b.
Kaskaskia Group: Tateville, Kentucky.
1890. *Meekopora clausa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 485, pl. 76, fig. 6; pl. 77, figs. 7-7b.
Chester Group: Grayson County and Sloan's Valley, Kentucky; Chester, Illinois.
1894. *Meekopora clausa*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Kaskaskia L. S.: Chester, Illinois.

Meekopora exima Ulrich.

1890. *Meekopora exima*. Ulrich, Geol. Surv. Ill., vol. 8, p. 483, pl. 77, figs. 6-6d.
St. Louis or Chester Group: Monroe County, Illinois.

(MEGAMBONIA Hall, 1859.)

Megambonia lyoni. See *Cardiopsis radiata*.

MEGASTROMA Dawson, 1883.**Megastroma laminosum Dawson.**

1883. *Megastroma laminosum*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 12.
Lower Carboniferous L. S.: Brookfield, Nova Scotia.

MEGATHENTOMUM Scudder, 1868.**Megathentomum pustulatum Scudder.**

1868. *Megathentomum pustulatum*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 11, p. 401.
Coal Measures: Morris, Illinois.
1868. *Megathentomum pustulatum*. Scudder, Geol. Surv. Ill., vol. 3, p. 570, fig. 7.
Carboniferous: Mazon Creek, Grundy County, Illinois.
1885. *Megathentomum pustulatum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 346, pl. 32, figs. 1, 9, 10.
Carboniferous: Morris, Illinois.
1890. *Megathentomum pustulatum*. Scudder, Foss. Insc. N. A., vol. 1, p. 310, pl. 18, figs. 1, 9, 10.
Carboniferous: Morris, Illinois.

MEGISTOCRINUS Owen and Shumard, 1852.

Megistocrinus brevicornis. See *Megistocrinus evansii*.

Megistocrinus crassus. See *Megistocrinus evensii* var. *crassus*.

Megistocrinus evansii Owen and Shumard.

1850. *Actinocrinus Evansii*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 68, pl. 7, fig. 3.
Subcarboniferous L. S. : Burlington, Iowa.
852. *Megistocrinus evansii*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 594, tab. 5A, figs. 3a, b.
Lower Carboniferous L. S. : Burlington, Iowa.
1858. *Actinocrinus brevicornis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 571, pl. 10, figs. 4a, b.
Burlington L. S. : Burlington, Iowa.
1858. *Actinocrinus superlatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 572.
Burlington L. S. : Burlington, Iowa.
1858. *Actinocrinus minor*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 573.
Burlington L. S. : Burlington, Iowa.
1862. *Megistocrinus plenus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 16.
Upper Burlington L. S. : Burlington, Iowa.
1869. *Megistocrinus parvirostris*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 165.
Upper Burlington L. S. : Burlington, Iowa.
1873. *Megistocrinus parvirostris*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 396, pl. 6, fig. 7.
Burlington L. S. : Burlington, Iowa.
1894. *Megistocrinus evansi*. Keyes, Mo. Geol. Surv., vol. 4, p. 164, pl. 22, fig. 6.
Burlington L. S. : Springfield, Missouri.
1894. *Megistocrinus brevicornis*. Keyes, Mo. Geol. Surv., vol. 4, p. 165, pl. 22, figs. 5a, b.
Lower Burlington L. S. : Louisiana, Missouri.
1897. *Megistocrinus Evansi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 533, pl. 47, figs. 1a, b, 2a, b, 3, 4a, b, 5a-c.
Upper and Lower Burlington L. S. : Burlington, Iowa; Henderson County, Illinois.

Megistocrinus evansi var. **crassus** White.

1862. *Megistocrinus crassus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 17.
Lower Burlington L. S. : Burlington, Iowa.
1897. *Megistocrinus Evansi* var. *crassus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 536.
Lower Burlington L. S. : Burlington, Iowa.

Megistocrinus nobilis Wachsmuth and Springer.

1890. *Megistocrinus nobilis*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 169, pl. 16, figs. 6, 7.
Kinderhook Group: Le Grand, Iowa.
1890. *Megistocrinus parvus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 171, pl. 15, fig. 7.
Kinderhook Group: Le Grand, Iowa.
1897. *Megistocrinus nobilis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 537, pl. 47, figs. 6, 7, 8a, b; pl. 51, fig. 8.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Megistocrinus parvirostris. See *Megistocrinus evansii*.

Megistocrinus parvus. See *Megistocrinus nobilis*.

Megistocrinus plenus. See *Megistocrinus evansii*.

Megistocrinus whitei. See *Periechocrinus whitei*.

MELOCRINUS Goldfuss, 1826.

Melocrinus pratteni McChesney.

1860. *Forbesiocrinus pratteni*. McChesney, Desc. New Pal. Foss., p. 29.
Carboniferous L. S.: Alabama.
1865. *Forbesiocrinus pratteni*. McChesney, Ill. New Spec. Foss., pl. 5, fig. 4.
1868. *Melocrinus Pratteni*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 22,
pl. 5, fig. 4.
Carboniferous L. S.: Alabama.

Melocrinus sampsoni Miller and Gurley.

1895. *Melocrinus sampsoni*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat.
Hist., p. 55, pl. 2, figs. 27-29.
Chouteau L. S.: Sedalia, Missouri.

MELONITES Owen and Norwood, 1846.

Melonites crassus Hambach.

1884. *Melonites crassus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 548, pl. C,
fig. 1.
St. Louis L. S.: St. Louis, Missouri.
1895. *Melonites crassus*. Keyes, Mo. Geol. Surv., vol. 4, p. 126.
St. Louis L. S.: St. Louis, Missouri.
1895. *Melonites crassus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 182.
St. Louis L. S.: St. Louis, Missouri.

Melonites danæ. See *Oligoporus danæ*.**Melonites giganteus** Jackson.

1896. *Melonites giganteus*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 172, pl. 4, fig. 19;
pl. 5, figs. 21-24.
Lower Subcarboniferous: Bowling Green, Kentucky.

Melonites indianensis Miller and Gurley.

1894. *Melonites indianensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 5, pl. 1, fig. 1.
St. Louis Group: Greenville, Harrison County, Indiana.

Melonites irregularis Hambach.

1884. *Melonites irregularis*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 549,
pl. C, fig. 2.
St. Louis, L. S.: St. Louis, Missouri.

Melonites multiporus Norwood and Owen.

1846. *Melonites multipora*. Norwood and Owen, Am. Jour. Sci. (2), vol. 2, p. 225,
figs. 1-3.
St. Louis L. S.: St. Louis, Missouri.
1861. *Melonites multipora*. Roemer, Archiv. für. Naturgesch. Jahrg. 21, Bd. 1,
pp. 312-330, pl. 12.
Kohlenkalk: St. Louis and Indiana.
1866. *Melonites multipora*. Meek and Worthen, Geol. Surv. Ill., vol. 2, pp. 227, 228,
figs. 21, 22.
1894. *Melonites multipora*. Keyes, Mo. Geol. Surv., vol. 4, p. 125, pl. 16, figs. 1a, b;
pl. 17, figs. 1a-c.
St. Louis L. S.: St. Louis, Missouri.
1895. *Melonites multipora*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 181, pl. 19, figs.
1a, b; pl. 20, figs. 1a-c.
St. Louis L. S.: St. Louis, Missouri; Clarkesville, and Charlotte, Tennessee.
1896. *Melonites multiporus*. Jackson and Jaggar, Bull. Geol. Soc. Am., vol. 7,
pp. 135-170, pl. 2, figs. 1-7; pl. 3, figs. 10-17; pl. 4, fig. 18; pl. 5, fig. 20.
Subcarboniferous: Missouri, etc.

Melonites septenarius Jackson.

1896. *Melonites septenarius*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 182, pl. 9, fig. 49.

Warsaw Group: Buzzard's Roost, Franklin County, Alabama.

Melonites stewarti Safford.

1869. *Melonites Stewartii*. Safford, Geol. of Tenn., p. 346, pl. 6, figs. 1a-d.
St. Louis L. S.: Middle Tennessee.

MESOBLASTUS Etheridge and Carpenter, 1886.

Mesoblastus glaber Meek and Worthen.

1869. *Granatocrinus glaber*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 91.
St. Louis L. S.: Hardin County, Illinois.
1873. *Granatocrinus glaber*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 537, pl. 20, fig. 11.
St. Louis Group: Hardin County, Illinois.

MESOTHYRA Hall, 1888.

Mesothyra gurleyi Miller.

1892. *Mesothyra gurleyi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 77, pl. 9, fig. 37.
Kinderhook Group: Legrand, Iowa.
1894. *Mesothyra gurleyi*. Miller, 18th Rep. Geol. Surv. Ind., p. 331, pl. 9, fig. 37.
Kinderhook Group: Legrand, Iowa.

MESPILOCRINUS De Koninck and Lehon, 1854.

Mespilocrinus konincki Hall.

1860. *Mespilocrinus konincki*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 69.
Burlington L. S.: Burlington, Iowa.
1872. *Mespilocrinus Konincki*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 9.

Mespilocrinus scitulus Hall.

1861. *Mespilocrinus scitulus*. Hall, Desc. New Spec. Crin., p. 9.
Burlington L. S.
1861. *Mespilocrinus scitulus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 321.
Burlington L. S.: Burlington, Iowa.
1872. *Mespilocrinus scitulus*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 7, 8.

METABLASTUS Etheridge and Carpenter, 1886.

Metablastus bipyramidalis Hall.

1858. *Pentremites bipyramidalis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 607, pl. 15, fig. 2.
Keokuk L. S.: Missouri.
1894. *Metablastus bipyramidalis*. Keyes, Mo. Geol. Surv., vol. 4, p. 137, pl. 18, fig. 13.
Keokuk L. S.: Boonville, Missouri.

Metablastus lineatus Shumard.

1858. *Pentremites lineatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 241, pl. 9, figs. 3a-d.
Encrinital L. S.: Near Monmouth, Illinois
1886. *Metablastus lineatus*. Etheridge and Carpenter, Cat. Blast., p. 199, pl. 3, figs. 14, 15; pl. 17, fig. 18.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Metablastus lineatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 136, pl. 18, fig. 11.
Upper Burlington L. S.: Hannibal, Missouri.

Metablastus nitidulus Miller and Gurley.

1890. *Troostocrinus nitidulus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 373, pl. 9, figs. 14, 15; pl. 10, fig. 14.
St. Louis Group: Lanesville, Indiana.

Metablastus varsouviensis Worthen.

1875. *Pentremites (Tricælocrinus) Varsouviensis*. Worthen, Geol. Surv. Ill., vol. 6, p. 521, pl. 21, figs. 8, 9.
Warsaw Beds: Warsaw and near Columbus, Illinois.

Metablastus wachsmuthi Gurley.

1884. *Troostocrinus Wachsmuthi*. Gurley, New Carb. Foss., Bull. No. 2, p. 1.
Warsaw division of the St. Louis Group: Ellettsville and Spergen Hill, Indiana.

Metablastus wortheni Hall.

1858. *Pentremites wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 606, pl. 15, fig. 1.
Keokuk L. S.: Keokuk, Iowa; Nauvoo, Illinois.
1873. *Pentremites Wortheni?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 506, pl. 14, fig. 11.
Keokuk Group: Crawfordsville, Indiana.
1894. *Metablastus wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 137, pl. 18, fig. 12.
Keokuk L. S.: Boonville, Missouri; Warsaw, Illinois.

METACOCERAS Hyatt, 1883.**Metacoceras cavatiformis** Hyatt.

1891. *Metacoceras cavatiformis*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 334, figs. 30-33.
Carboniferous: Near Kansas City, Missouri.
1892. *Metacoceras cavatiformis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 72, pl. 11, figs. 5, 7.
Upper Coal Measures: Kansas City, Missouri.
1893. *Metacoceras cavatiformis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 396.
Carboniferous.
1894. *Metacoceras cavatiformis*. Miller, 18th Rep. Geol. Surv. Ind., p. 326, pl. 11, figs. 5, 7.
Upper Coal Measures: Kansas City, Missouri.
1894. *Metacoceras cavatiforme*. Keyes, Mo. Geol. Surv., vol. 5, p. 224.
Upper Coal Measures: Kansas City, Missouri.

Metacoceras dubium Hyatt.

1891. *Metacoceras dubium*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 336, figs. 34, 35.
Carboniferous: Kansas.
1893. *Metacoceras dubium*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 39, figs. 6, 7.
Carboniferous: Kansas.

Metacoceras hayi Hyatt.

1891. *Metacoceras Hayi*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 339, figs. 38, 39.
Carboniferous: Kansas.
1893. *Metacoceras Hayi*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 40, figs. 8, 9.
Carboniferous: Kansas.

Metacoceras inconspicuum Hyatt.

1891. *Metacoceras inconspicuum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 340, figs. 40, 41.
Carboniferous: Kansas.
1893. *Metacoceras inconspicuum*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 41, figs. 10, 11.
Carboniferous: Kansas.

Metacoceras sangamonensis Meek and Worthen.

1860. *Nautilus (Discus) Sangamonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 470.
 Coal Measures: Sangamon County, Illinois.
1866. *Nautilus sangamonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 386, pl. 29, figs. 3-3b.
 Upper Coal Measures: Sangamon County, Illinois.
1883. *Metacoceras Sangamonense*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 269.
1894. *Metacoceras sangamonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 225.
 Upper Coal Measures: Kansas City, Missouri.

Metacoceras walcotti Hyatt.

1891. *Metacoceras Walcottii*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 337, figs. 36, 37.
 Carboniferous: San Saba County, Texas.
1893. *Metacoceras walcotti*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 394, fig. 2.
 Carboniferous: Bend, San Saba County, Texas.

METOPTOMA Phillips, 1836.

Metoptoma umbella. See *Igoceras capulus*.

Metoptoma undata Winchell.

1865. *Metoptoma undata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
 Bed No. 5: Burlington, Iowa.
1889. *Metoptoma? undata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 298.
 Kinderhook Group: Burlington, Iowa.

Metoptoma peroccidens Walcott.

1884. *Metoptoma peroccidens*. Walcott, Pal. Eureka Dist., p. 260, pl. 18, fig. 16.
 Lower Carboniferous: Eureka District, Nevada.

MIAMIA Dana, 1864.**Miamia bronsoni** Dana.

1864. *Miamia Bronsoni*. Dana, Am. Jour. Sci. (2), vol. 37, p. 34, fig. 1.
 Coal Measures: Morris, Illinois.
1866. *Miamia bronsoni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 1, p. 190, pl. 6, figs. 2, 4.
 Carboniferous: Morris, Illinois.
1868. *Miamia Bronsoni*. Scudder, Am. Nat., vol. 1, p. 630, pl. 16, fig. 1.
 Carboniferous: Morris, Illinois.
1885. *Miamia Bronsoni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 333.
 Carboniferous: Morris, Illinois.
1890. *Miamia bronsoni*. Scudder, Foss. Insc. N. A., vol. 1, pp. 18, 297, pl. [1], figs. 2, 4.
 Carboniferous: Morris, Illinois.

Miamia danæ Scudder. See *Gerarus danæ*.

MICHELINIA De Koninck, 1842.**Michelinia branneri** Miller and Gurley.

1894. *Michelinia branneri*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 68, pl. 7, figs. 12, 13.
 Coal Measures: Danville, Illinois.

Michelinia eugeneæ White.

1884. *Michelinia Eugeneæ*. White, 13th Rep. Geol. Surv. Ind., p. 119, pl. 23, figs. 14-16.

Coal Measures: Edwardsport, Knox County, and Eugene, Vermillion County, Indiana.

Michelinia expansa White. See *Leptopora typa*.

Michelinia placenta White. See *Leptopora typa*.

Michelinia (species undetermined).

1877. *Michelinia* — sp. ? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 251, pl. 4, fig. 19.

Waverly Group: Dry Canyon, Oquirrh Mountains, Utah.

MICROBLATTINA Scudder, 1895.**Microblattina perdita** Scudder.

1895. *Microblattina perdita*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 57, pl. 3, fig. 5.

Lower (?) Coal Measures: East Providence, Rhode Island.

MICROCYNCLUS Meek and Worthen, 1868.**Microcynclus blairi** Miller.

1892. *Microcynclus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 7, pl. 9, figs. 27, 28.

Chouteau L. S.: Sedalia, Missouri.

1894. *Microcynclus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 261, pl. 9, figs. 27, 28.

Chouteau L. S.: Sedalia, Missouri.

1894. *Microcynclus blairi*. Keyes, Mo. Geol. Surv., vol. 4, p. 117.

Chouteau L. S.: Sedalia, Missouri.

MICRODOMA Meek and Worthen, 1866.**Microdoma conica** Meek and Worthen.

1866. *Microdoma conica*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 269. Lower Coal Measures: Macoupin County, Illinois.

1873. *Microdoma conica*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 598, pl. 28, fig. 2.

Lower Coal Measures: Macoupin County, Illinois.

MICRODON Conrad, 1842.**Microdon bellistriatus** Conrad.

1885. *Microdon (Cypricardella) bellistriatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 308, pl. 42, figs. 17-20; pl. 73, figs. 7-22; pl. 74, figs. 5-10.

Hamilton Group: New York.

1888. *Microdon bellistriatus*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 9. Bedford Shale: Central College, Ohio.

1889. *Microdon bellistriatus*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 9. Bedford Shale: Ohio.

1895. *Microdon bellistriatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 9. Shale above Berea Grit: Ohio.

Microdon connatus Walcott.

1884. *Microdon (Cypricardella) connatus*. Walcott, Pal. Eureka Dist., p. 250, pl. 24, figs. 5, 5a.

Lower Carboniferous: Eureka District, Nevada.

Microdon ellipticus Whitfield.

1882. *Microdon (Cypricardella) ellipticus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 65, pl. 7, fig. 37.

St. Louis Group: Spergen Hill, Indiana.

Microdon ? eximia Miller and Gurley.

1896. *Cypricardella eximia*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 15, pl. 2, fig. 25.

Chouteau L. S.: Sedalia, Missouri.

Microdon ? gorbyi Miller.

1891. *Cypricardella gorbyi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 92, pl. 20, figs. 6, 7.

Keokuk Group: Boonville, Missouri.

1892. *Cypricardella gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 702, pl. 20, figs. 6, 7.

Keokuk Group: Boonville, Missouri.

Microdon nucleata Hall.

1856. *Cypricardella nucleata*. Hall, Trans. Albany Inst., vol. 4, p. 17.

St. Louis L. S.: Spergen Hill, Indiana.

1858. *Cypricardella nucleata*. Hall, Geol. Ia., vol. 1, pt. 2, p. 663, pl. 23, figs. 10a-d.

Warsaw L. S.: Spergen Hill, Indiana.

1882. *Microdon (Cypricardella) nucleata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 64, pl. 7, figs. 35, 36.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Cypricardella nucleata*. Hall, 12th Rep. Geol. Surv. Ind., p. 339, pl. 30, figs. 35, 36.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Microdon oblonga Hall.

1856. *Cypricardella oblonga*. Hall, Trans. Albany Inst., vol. 4, p. 18.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Microdon (Cypricardella) oblonga*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 65, pl. 7, figs. 30-34.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Cypricardella oblonga*. Hall, 12th Rep. Geol. Surv. Ind., p. 340, pl. 30, figs. 30-34.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Microdon quadratus White and Whitfield.

1862. *Cypricardella quadrata*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 300.

Chemung Group: Burlington, Iowa.

Microdon reservatus Hall.

- *1870. *Microdon reservatus*. Hall, Prelim. Not. Lam. Shells, 2, p. 33.

Waverly S. S.: Licking County, Ohio.

1885. *Microdon reservatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 312; pl. 74, figs. 11-13.

Waverly S. S.: Licking County, Ohio.

1888. *Microdon reservatus*. Herrick, Bull. Den. Univ., vol. 3, p. 75, pl. 4, fig. 14.

Waverly Group: Licking County, Ohio.

Microdon subellipticus Hall.

1856. *Cypricardella subelliptica*. Hall, Trans. Albany Inst., vol. 4, p. 17.

St. Louis L. S.: Spergen Hill, Indiana.

1858. *Cypricardella subelliptica*. Hall, Geol. Ia., vol. 1, pt. 2, p. 664, pl. 23, figs. 11, 12.

Warsaw L. S.: Spergen Hill, Indiana.

Microdon subellipticus Hall—Continued..

1882. *Microdon* (*Cypricardella*) *subelliptica*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 64, pl. 7, figs. 27-29.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Cypricardella subelliptica*. Hall, 12th Rep. Geol. Surv. Ind., p. 339, pl. 30, figs. 27-29.
St. Louis Group: Spergen Hill, Indiana.
1886. *Cypricardella subelliptica* (?). Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 250.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Microdon* (cf. *subelliptica*). Herrick, Bull. Den. Univ., vol. 2, p. 40, pl. 4, fig. 32.
Coal Measures: Flint Ridge, Ohio.

MILIOLITES Lamark.**Miliolites centralis** Say.

1823. *Miliolites centralis*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 152 (foot-note).
Missouri River, near the Platte.
1897. *Miliolites centralis*. Harris, Bull. Am. Pal., vol. 1, p. 385 (115).

Miliolites secalicus Say.

1823. *Miliolites secalicus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 151 (foot-note).
Missouri River, near the Platte.
1897. *Miliolites secalicus*. Harris, Bull. Am. Pal., vol. 1, p. 385 (115).

MILLEPORA Linneus, 1758.**Millepora cylindrica** Say.

1823. *Millepora cylindrica*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 47 (foot-note).
Missouri River, 5 miles below Council Bluff.
1897. *Millepora cylindrica*. Harris, Bull. Am. Pal., vol. 1, p. 381 (111).

MISSOURICRINUS Miller, 1891.**Missouricrinus admonitus** Miller.

1891. *Missouricrinus admonitus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 31, pl. 4, figs. 11, 12.
Burlington Group: Sedalia, Missouri.

MODIOLA Lamark, 1801.**Modiola avonia** Dawson.

1868. *Modiola avonia*. Dawson, Acad. Geol., p. 301.
Carboniferous L. S.: Windsor, Nova Scotia.

Modiola illinoisensis Worthen.

1884. *Modiola illinoisensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 16.
St. Louis L. S. (oolite beds): Monroe County, Illinois.
1890. *Modiola illinoisensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 125, pl. 20, figs. 2, 2a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Modiola minor Lea.

1853. *Modiola minor*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 2.
Coal Formation: Wilkesbarre, Pennsylvania.

Modiola nevadensis Walcott.

1884. *Modiola? Nevadaensis*. Walcott, Pal. Eureka Dist., p. 239, pl. 19, fig. 8.
Lower Carboniferous: Eureka District, Nevada.

Modiola pooli Dawson.

1868. *Modiol. Pooli*. Dawson, Acad. Geol., p. 301, fig. 100.
Carboniferous L.S.: Shubenacadie, Windsor, and Irish Cove, Nova Scotia.

Modiola subelliptica Meek.

1866. *Clidophorus* (an *Pleurophorus*) *occidentalis*. Geinitz, Carb. und Dyas in Nebr., p. 23, tab. 2, fig. 6. (Not *Pleurophorus occidentalis* M. and H., 1858.)
Nebraska City, Nebraska.
1872. *Modiola? subelliptica*. Meek, U. S. Geol. Surv. Nebr., p. 211, pl. 10, fig. 5.
Upper Coal Measures: Nebraska City, Nebraska; Riverside, 3 miles below Atchison, Kansas.

Modiola waverliensis Herrick.

1888. *Modiola waverliensis*. Herrick, Bull. Den. Univ., vol. 3, p. 63, pl. 1, fig. 9; pl. 4, fig. 10; pl. 7, fig. 29.
Waverly Group: Licking County, Ohio.
1895. *Modiola waverliensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 21.
Kinderhook: Ohio.

Modiola wyomingensis. See *Myalina wyomingensis*.**MODIOMORPHA** Hall, 1870.**Modiomorpha ambigua** Walcott.

1884. *Modiomorpha ambigua*. Walcott, Pal. Eureka Dist., p. 239, pl. 20, fig. 1.
Lower Carboniferous: Eureka District, Nevada.

Modiomorpha desiderata Walcott.

1884. *Modiomorpha? desiderata*. Walcott, Pal. Eureka Dist., p. 240, pl. 20, fig. 3.
Lower Carboniferous: Eureka District, Nevada.

Modiomorpha hyalea Hall.

- *1870. *Modiomorpha hyalea*. Hall, Prelim. Not. Lamell. Shells, 2, p. 79.
Waverly S.S.: Granville, Licking County, Ohio.
1885. *Modiomorpha hyalea*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 292, pl. 41, figs. 28-30.
Waverly S.S.: Granville, Licking County, Ohio.
1888. *Modiomorpha hyalea?* Herrick, Bull. Den. Univ., vol. 3, p. 76, pl. 10, fig. 4.
Waverly Group: Licking County, Ohio.

Modiomorpha parvula Clappole.

1886. *Modiomorpha (?) parvula*. Clappole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 248.
Lower Coal Measures: Wilkesbarre, Pennsylvania.

Modiomorpha pintoensis Walcott.

1884. *Modiomorpha? Pintoensis*. Walcott, Pal. Eureka Dist., p. 240, pl. 20, fig. 2.
Lower Carboniferous: Eureka District, Nevada.

MONOPTERIA Meek and Worthen, 1866.**Monopteria auricula** Stevens.

1858. *Gervilla Auricula*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 265.
Coal Measures: Danville, Illinois.

Monopteria gibbosa Meek and Worthen.

1866. *Pterinea (Monopteria) gibbosa*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 340, pl. 27, figs. 11-11b.
Coal Measures: Saline Creek, Gallatin County, Illinois.

Monopteria gibbosa Meek and Worthen—Continued.

1884. *Monopteria gibbosa*. White, 13th Rep. Geol. Surv. Ind., p. 139, pl. 30, figs. 11, 12.
Coal Measures: Vermilion, Sullivan, and Posey counties, Indiana.
1886. *Monopteria (Pterinea) gibbosa*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 455, fig. 11a; p. 444, fig. 11.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Monopteria (Pterinea) gibbosa*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 271, fig. 11a; p. 272, fig. 11.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Monopteria gibbosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 114, pl. 43, figs. 2a, b.
Upper Coal Measures: Kansas City, Missouri.

Monopteria longispina Cox.

1857. *Gervillia longispina*. Cox, Geol. Rep. Ky., vol. 3, p. 568, pl. 8, fig. 6.
Coal Measures: Providence, Hopkins County, Kentucky.
1894. *Monoptera longispina*. Keyes, Mo. Geol. Surv., vol. 5, p. 114, pl. 43, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Monopteria marian White.

1874. *Monopteria Marian*. White, Prelim. Rep. Inv. Foss., p. 22.
Carboniferous (Coal Measures): Camp Apache, Arizona.
1877. *Monopteria Marian*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 151, pl. 11, figs. 4a-c.
Carboniferous: Camp Apache, Maricopa County, Arizona.

MONOTIS Bronn, 1824.**Monotis gregaria Meek and Worthen.**

1870. *Monotis? gregaria*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 38.
Coal Measures: Jacksonville, Illinois.
1873. *Monotis? gregaria*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 573, pl. 26, fig. 5.
Coal Measures: Jacksonville, Illinois.
1894. *Monotis? gregaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 114.
Upper Coal Measures: Kansas City, Missouri.

Monotis halli Swallow.

1858. *Monotis Halli*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 185.
Permian: Valley of Cottonwood and near Council Grove, Kansas.

Monotis hawni. See Pseudomonotis hawni.**Monotis radialis. See Pseudomonotis radialis.****Monotis speluncaria Schlotheim.**

1859. *Monotis speluncaria*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 396.
Permian L. S.: Guadalupe Mountains.

Monotis speluncaria var. americana Swallow.

1858. *Monotis speluncaria var. americana*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 186.
Upper Permian: Near Smoky Hill Fork and Council Grove, Kansas.

Monotis variabilis Swallow.

1858. *Monotis variabilis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 187.
Lower Permian: Valley of Cottonwood, Kansas.

Monotis (species undetermined).

1859. *Monotis* sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 397.
White Permian L. S.: Guadalupe Mountains.

MOOREA Jones and Kirkby, 1867.

Moorea granosa Ulrich.

1891. *Moorea granosa*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 206, pl. 12, figs. 9a, b.

Chester Group: Near Grayson Springs, Kentucky.

MUNSTERO CERAS Hyatt, 1883.

Munsteroceras oweni Hall.

1860. *Goniattites oweni*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 100, figs. 11, 12.

Goniattite L. S.: Rockford, Indiana.

1862. *Goniattites Oweni*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 364.

Marshall S. S.: Pointe aux Barques, Michigan.

1879. *Goniattites Oweni*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 470, pl. 73, figs. 3-8; pl. 74, fig. 9.

Goniattite L. S.: Rockford, Indiana.

1881. *Goniattites oweni*. White, 2d. Ann. Rep. Dept. Stat. and Geol. Ind., p. 514, pl. 7, figs. 3, 4.

Kinderhook Group: Rockford, Indiana.

1886. *Goniattites Oweni*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (128) 13, figs. 4, 7.

Goniattites L. S.: Rockford, Indiana.

1888. *Goniattites Oweni*. Beecher, Pal. N. Y., vol. 5, pt. 2, Sapp. p. 40, pl. 128, figs. 4, 7.

Goniattite L. S.: Rockford, Indiana.

1897. *Glyphioceras Oweni*. Foord and Crick, Cat. Foss. Ceph., pt. 3, p. 188, fig. 89.

Goniattite Limestone, Kinderhook Group: Indiana, U. S. A.

Munsteroceras parallum Hall.

1860. *Goniattites oweni* var. *parallela*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 100, figs. 13, 14.

Goniattite L. S.: Rockford, Indiana.

1862. *Goniattites Oweni* var. *parallela*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 364.

Marshall S. S.: Pointe aux Barques, Michigan.

1879. *Goniattites Oweni* var. *parallela*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 473, pl. 73, figs. 1, 2; pl. 74, fig. 10.

Goniattite L. S.: Rockford, Indiana.

1883. *Munsteroceras parallelum*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 327.

1897. *Glyphioceras parallelum*. Foord and Crick, Cat. Foss. Ceph., pt. 3, p. 189, fig. 90.

Goniattite Limestone, Kinderhook Group: Indiana, U. S. A.

MURCHISONIA D'Archiac and De Verneuil, 1841.

Murchisonia archimedis McChesney.

1861. *Murchisonia archimedis*. McChesney, Desc. New Spec. Pal. Foss., p. 89.

Coal Measures: La Salle, Illinois.

1865. *Murchisonia archimedis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 16a-b.

1868. *Murchisonia archimedis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 48, pl. 2, figs. 16a, b.

Coal Measures; La Salle, Illinois.

Murchisonia attenuata Hall.

1856. *Murchisonia attenuata*. Hall, Trans. Albany Inst., vol. 4, p. 27.

St. Louis L. S.: Spargen Hill, Indiana.

Murchisonia attenuata Hall—Continued.

1882. *Murchisonia attenuata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 88, pl. 9, fig. 13.
St. Louis Group: Spergen Hill, Indiana.
1883. *Murchisonia attenuata*. Hall, 12th Rep. Geol. Surv. Ind., p. 360, pl. 32, fig. 13.
St. Louis Group: Spergen Hill, Indiana.

Murchisonia copii White.

1881. *Murchisonia copei*. White, U. S. Geol. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxxi, pl. 3, figs. 10a, b.
Carboniferous: Near Taos, New Mexico.

Murchisonia elegantula. See *Pleurotomaria elegantula*.

Murchisonia gypsea Dawson.

1868. *Murchisonia gypsea*. Dawson, Acad. Geol., p. 310, fig. 123.
Carboniferous L. S.: Windsor, Nova Scotia.

Murchisonia indianensis Miller and Gurley.

1896. *Murchisonia indianensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 18, pl. 2, figs. 31, 32.
Knobstone Group: New Albany, Indiana.

Murchisonia inornata Meek and Worthen.

1866. *Murchisonia inornata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 274.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Murchisonia inornata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 599, pl. 28, fig. 6.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Murchisonia insculpta Hall.

1856. *Murchisonia insculpta*. Hall, Trans. Albany Inst., vol. 4, p. 26.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Murchisonia insculpta*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 85, pl. 9, fig. 18.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Murchisonia insculpta*. Hall, 12th Rep. Geol. Surv. Ind., p. 359, pl. 32, fig. 18.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Murchisonia kansasensis Swallow.

1858. *Murchisonia* (?) *Kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 195.
Permian: Valley of Cottonwood, Kansas.

Murchisonia keokuk Worthen.

1890. *Murchisonia keokuk*. Worthen, Geol. Surv. Ill., vol. 8, p. 141, pl. 23, figs. 2, 2a.
Keokuk, L. S.: Keokuk, Iowa.

Murchisonia lasallensis Worthen.

1890. *Murchisonia lasallensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 141, pl. 25, figs. 7, 7a.
Upper Coal Measures: La Salle, Illinois.

Murchisonia limitaris Hall.

1860. *Murchisonia* (*Pleurotomaria*?) *limitaris*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 108.
Goniatite L. S.: Rockford, Indiana.

Murchisonia minima. Lee *Aclisina minuta*.

Murchisonia nebrascensis Geinitz.

1866. *Murchisonia Nebrascensis*. Geinitz, Carb. und Dyas in Nebr., p. 12, tab. 1, fig. 17.
Nebraska City, Nebraska.
1872. *Murchisonia Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 234, pl. 11, fig. 6.
Upper Coal Measures: Nebraska City, Nebraska.

Murchisonia neglecta Winchell.

1863. *Murchisonia neglecta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 20.
Yellow S. S.: Burlington, Iowa.

Murchisonia obsoleta Meek.

1871. *Murchisonia obsoleta*. Meek, Proc. Acad. Nat. Sci. Phil., p. 175.
Coal Measures: Danville, Illinois.

Murchisonia perversa Swallow.

1858. *Murchisonia (?) perversa*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 195.
Permian: Valley of Cottonwood, Kansas.

Murchisonia proluxa White and Whitfield.

1862. *Murchisonia ? proluxa*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 303.
Chemung Group: Burlington, Iowa.
1870. *Murchisonia proluxa*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.
Waverly Group: Sciotoville, Ohio.
1889. *Murchisonia proluxa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 297.
Kinderhook Group: Burlington, Iowa.

Murchisonia pygmæa Rowley.

1895. *Murchisonia (?) pygmæa*. Rowley, Am. Geol., vol. 16, p. 222, fig. 20.
Louisiana L. S.: Louisiana, Missouri.

Murchisonia quadricarinata Worthen.

1884. *Loxonema quadri-carinatus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 7.
Coal Measures: Peoria County, Illinois.
1890. *Loxonema quadri-carinatum*. Worthen, Geol. Surv. Ill., vol. 8, p. 140, pl. 23, figs. 9, 9a.
Coal Measures: Peoria County, Illinois.
1891. *Murchisonia quadricarinata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 254.
Lower Coal Measures: Des Moines, Iowa.

Murchisonia quadricincta Winchell.

1863. *Murchisonia quadricincta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 19.
Yellow S. S.: Burlington, Iowa.
1870. *Murchisonia quadricincta*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 257.
Waverly Group: Sciotoville, Ohio.
1888. *Murchisonia quadricincta?* Herrick, Bull. Den. Univ., vol. 3, p. 87, pl. 2, fig. 28.
Waverly Group: Licking County, Ohio.

Murchisonia shumardana Winchell.

1863. *Murchisonia Shumardiana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 20.
Yellow S. S.: Burlington, Iowa.

Murchisonis subtæniata. See *Orthonema subtæniata*.**Murchisonia terebra** White.

1879. *Murchisonia terebra*. White, Bull. U. S. G. and G. Surv. Terr., vol. 5, p. 219.
Carboniferous: Wild Band Pockets, Northern Arizona, 15 miles south of
Pipe Spring.

Murchisonia terebra White—Continued.

1880. *Murchisonia terebra*. White, Cont. to Inv. Pal., No. 6, p. 139, pl. 34, fig. 4a.
Upper Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of Pipe Spring.
1894. *Murchisonia terebra*. Keyes, Mo. Geol. Surv., vol. 5, p. 146, pl. 49, fig. 4.
Upper Coal Measures: Kansas City, Missouri.

Murchisonia terebriformis Hall.

1856. *Murchisonia terebriformis*. Hall, Trans. Albany Inst., vol. 4, p. 28.
St. Louis, L. S.: Bloomington, Indiana.
1882. *Murchisonia terebriformis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 86, pl. 9, figs. 15, 16.
St. Louis Group: Bloomington, Indiana.
1883. *Murchisonia terebriformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 362, pl. 32, figs. 15, 16.
St. Louis Group: Bloomington and Lanesville, Indiana.

Murchisonia texana Shumard.

1860. *Murchisonia Texana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 626.
Coal Measures: Young County, Texas, 9 miles east of Indian Reservation.

Murchisonia tricingulata Dawson.

1868. *Murchisonia tricingulata*. Dawson, Acad. Geol., p. 310.
Carboniferous L. S.: Windsor and Pugwash, Nova Scotia.

Murchisonia turritella Hall.

1856. *Murchisonia turritella*. Hall, Trans. Albany Inst., vol. 4, p. 27.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Murchisonia turritella*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 88, pl. 9, fig. 12.
St. Louis Group: Spergen Hill, Indiana.
1883. *Murchisonia turritella*. Hall, 12th Rep. Geol. Surv. Ind., p. 361, pl. 32, fig. 12.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Murchisonia vermicula Hall.

1856. *Murchisonia vermicula*. Hall, Trans. Albany Inst., vol. 4, p. 27.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Murchisonia vermicula*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 87, pl. 9, fig. 11.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Murchisonia vermicula*. Hall, 12th Rep. Geol. Surv. Ind., p. 361, pl. 32, fig. 11.
St. Louis Group: Lanesville and Bloomington, Indiana.

Murchisonia vincta Hall.

1856. *Loxonema vincta*. Hall, Trans. Albany Inst., vol. 4, p. 28.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Murchisonia vincta*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 86, pl. 9, fig. 14.
St. Louis Group: Spergen Hill, Indiana.
1883. *Murchisonia vincta*. Hall, 12th Rep. Geol. Surv. Ind., p. 363, pl. 32, fig. 14.
St. Louis Group: Spergen Hill, Indiana.

Murchisonis (species undetermined).

1858. *Murchisonia subangulata* Verneuil (?), Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196.
Upper Permian: Kansas.
1870. *Murchisonia* sp.? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 260.
Waverly Group: Near Shafer's, Pennsylvania.

Murchisonis (species undetermined)—Continued.

1888. *Murchisonia* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 6.
Waverly Group: Moot's Run, Licking County, Ohio.
1891. *Murchisonia* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 25, pl. 3,
figs. 12, 13.
Permian: Military Crossing, Baylor County, Texas.
1895. *Murchisonia* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 6.
Cuyahoga Shale: Moat's Run, Licking County, Ohio.

MYALINA De Koninck, 1844.**Myalina angulata Meek and Worthen.**

1860. *Myalina angulata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 455.
Chester L. S.: Chester, Illinois.
1866. *Myalina angulata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 300, pl. 23,
figs. 7a, b.
Chester Group: Chester, Illinois.
1894. *Myalina angulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 118.
Kaskaskia L. S.: Ste. Mary, Missouri.

Myalina apachesi Marcou.

1858. *Myalina apachesi*. Marcou, Geol. N. A., p. 44, pl. 7, figs. 6, 6a.
Mountain L. S.: Near Pecos Village, New Mexico.

Myalina arkansana Weller.

1897. *Myalina arkansana*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 262, pl. 19,
figs. 16, 17.
Batesville S. S.: Batesville, Arkansas.

Myalina aviculoides Meek and Hayden.

1860. *Myalina aviculoides*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 184.
Permian: Cottonwood Creek, Kansas.
1864. *Myalina aviculoides*. Meek and Hayden, Pal. Up. Mo., p. 51, pl. 2, figs. 8a-d.
Permian: Cottonwood Creek, Kansas.
1877. *Myalina aviculoides*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4,
p. 275, pl. 6, fig. 8.
Permian-Carboniferous L. S.: Foothills southeast of Salt Lake City, Wah-
satch Range, Utah.
1891. *Myalina aviculoides*. White, Bull. U. S. Geol. Surv. No. 77, p. 28, pl. 2, fig. 12.
Permian: Goodwin Creek, Baylor County, Texas.

Myalina aviculoides. See Myalina rara.**Myalina concava Swallow.**

1858. *Mytilus (Myalina?) concavus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 188.
Permian(?): Valley of the Kansas, Kansas.

Myalina concentrica Meek and Worthen.

1860. *Myalina concentrica*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 456,
Warsaw L. S.: Spergen Hill, Indiana.
1866. *Myalina concentrica*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 281, pl. 9,
figs. 3a-c.
St. Louis Group: Spergen Hill, Indiana.

Myalina congeneris Walcott.

1884. *Myalina congeneris*. Walcott, Pal. Eureka Dist., p. 237, pl. 19, fig. 6; pl. 22,
fig. 10.
Lower Carboniferous: Eureka District, Nevada.

***Myalina cuneiformis* Gurley.**

1883. *Myalina cuneiformis*. Gurley, New Carb. Foss., Bull. No. 1, p. 4.
Upper Carboniferous: Ouray, Colorado.

***Myalina deltoidea* Gabb.**

1859. *Myalina deltoidea*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 297.
Coal Measures: Fort Belknap, Texas.
1860. *Myalina deltoidea*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 55, pl. 1, figs. 1a-c.
Carboniferous.

***Myalina imbricaria* Winchell.**

1862. *Myalina imbricaria*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 412.
Marshall S. S.: Moscow, Michigan.

***Myalina kansasensis* Shumard.**

1858. *Myalina Kansasensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 213.
Upper Coal Measures: Santa Fé road, south of Lecompton; 9 miles southwest of Council Grove; Sac and Fox Agency; headwaters of Osage River, and valley of Verdigris River, Kansas. Missouri River bluffs, below mouth of Platt River, Nebraska.
1894. *Myalina kansasensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 117, pl. 43, fig. 5.
Upper Coal Measures: Kansas City, Missouri.

***Myalina keokuk* Worthen.**

1875. *Myalina Keokuk*. Worthen, Geol. Surv. Ill., vol. 6, p. 524, pl. 30, fig. 5.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Nauvoo, and Hamilton, Illinois.
1894. *Myalina keokuk*. Keyes, Mo. Geol. Surv., vol. 5, p. 117.
Keokuk L. S.: Bonaparte, Iowa; St. Francisville, Missouri.

***Myalina lowensis* Winchell.**

1865. *Myalina Lowensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.
Base of Burlington L. S.: Burlington, Iowa.

***Myalina meliniformis* Meek and Worthen.**

1866. *Myalina meliniformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 343, pl. 27, fig. 3.
Coal Measures: Saline Creek, Gallatin County, Illinois (?).

***Myalina michiganensis* Winchell.**

1862. *Myalina Michiganensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 411.
Marshall Group: Marshall and Moscow, Michigan.
1865. *Myalina Michiganensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.
Marshall Group: Napoleon Cut, Jackson County and German's Quarry, Hillsdale County, Michigan.
1888. *Myalina michiganensis?* Herrick, Bull. Den. Univ., vol. 3, p. 63, pl. 4, fig. 6.
Waverly Group: Licking County, Ohio.
1895. *Myalina michiganensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 22.
Kinderhook: Ohio.

***Myalina monroensis* Worthen.**

1884. *Myalina monroensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 15.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Myalina monroensis*. Worthen Geol. Surv. Ill., vol. 8, p. 127, pl. 20, figs. 10, 10a.
St. Louis L. S. (oolite): Monroe County, Illinois.

***Myalina nemesi* Walcott.**

1884. *Myalina Nemesi*. Walcott, Pal. Eureka Dist., p. 237, pl. 19, fig. 5, pl. 22, fig. 7.
Lower Carboniferous: Eureka District, Nevada.

***Myalina nessus* Walcott.**

1884. *Myalina Nessus*. Walcott, Pal. Eureka Dist., p. 238, pl. 22, fig. 8, 8a.
Lower Carboniferous: Eureka District, Nevada.

***Myalina perattenuata* Meek and Hayden.**

1858. *Myalina* (*Mytilus*) *perattenuata*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 77.

Permian: Smoky Hill Fork, Kansas and Missouri rivers.

1859. *Myalina* (*Mytilus*) *perattenuata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.

Upper Coal Measures: Smoky Hill River, Kansas.

1864. *Myalina perattenuata*. Meek and Hayden, Pal. Up. Mo., p. 32, pl. 1, figs. 12a, b.

Coal Measures: Opposite the northern boundary of Missouri on the Missouri River.

1873. *Myalina perattenuata*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 582, pl. 26, fig. 11.

Coal Measures: Springfield, Illinois.

1891. *Myalina perattenuata*. White, Bull. U. S. Geol. Surv. No. 77, p. 28, pl. 4, figs. 13-15.

Permian: Goodwin Creek and Military Crossing, Baylor County, Texas; Camp Creek, Archer County, Texas.

1894. *Myalina perattenuata*. Keyes, Mo. Geol. Surv., vol. 5, p. 118.

Upper Coal Measures: Kansas City, Missouri.

***Myalina permiana* Swallow.**

1858. *Mytilus* (*Myalina*) *Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 187.

Permian (?): Kansas.

1864. *Myalina permiana*. Meek and Hayden, Pal. Up. Mo., p. 52, pl. 2, figs. 7a-c.

Permian: Smoky Hill Fork of Kansas River, and Cottonwood Creek, Kansas.

1877. *Myalina Permiana*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 276, pl. 6, fig. 7.

Permo-Carboniferous: Foothills southeast of Salt Lake City, Wahsatch Range, Utah.

1881. *Myalina permiana*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxv, pl. 3, figs. 1a-d.

Carboniferous: Coyote Creek, New Mexico.

1891. *Myalina permiana*. White Bull. U. S. Geol. Surv. No. 77, p. 28, pl. 4, figs. 16-19.

Permian: Goodwin Creek and Military Crossing, Baylor County, Texas; Camp Creek, Archer County, Texas.

***Myalina pernaformis* Cox.**

1857. *Myalina pernaformis*. Cox, Geol. Rep. Ky., vol. 3, p. 569, pl. 8, fig. 8.

Coal Measures: Providence, Hopkins County, Kentucky.

***Myalina pterineiformis* Winchell.**

1862. *Myalina pterineiformis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 412.

Marshall Group: Point aux Barques, Michigan.

***Myalina rara* Winchell.**

1862. *Myalina aviculoides*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 412. (Not *M. aviculoides* M. & H., 1860.)

Marshall S. S.: Marshall, Michigan.

1870. *Myalina rara*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 390.

***Myalina recta* Shumard.**

1858. *Myalina recta*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 212.

Permian: Clifton Park, Kansas.

1859. *Myalina recta*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 396.

Permian: Guadalupe Mountains.

***Myalina recurvirostris* Meek and Worthen.**

1860. *Myalina recurvirostra*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 456.
Coal Measures: Near Springfield, Illinois.
1866. *Myalina recurvirostris*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 344, pl. 26, figs. 9a-c.
Upper Coal Measures: Lasalle, Illinois.
1884. *Myalina recurvirostris*. White, 13th Rep. Geol. Surv. Ind., p. 140, pl. 29, figs. 3, 4.
Upper Coal Measures: Indiana.
1894. *Myalina recurvirostris*. Keyes, Mo. Geol. Surv., vol. 5, p. 117, pl. 45, figs. 1a, b.
Upper Coal Measures: Kansas City, Missouri.

***Myalina sancti-ludovici* Worthen.**

1873. *Myalina St. Ludovici*. Worthen, Geol. Surv. Ill., vol. 5, p. 540, pl. 22, fig. 3.
St. Louis L. S.: Alton, Ill.; St. Louis, Missouri.
1894. *Myalina sancti-ludovici*. Keyes, Mo. Geol. Surv., vol. 5, p. 117.
St. Louis L. S.: St. Louis, Missouri.

***Myalina squamosa* Sowerby.**

1858. *Mytilus squamosus* (?). Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 188.
Lower Permian: Valley of Cottonwood, Kansas.
1859. *Myalina squamosa*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 396.
White Permian L. S.: Guadalupe Mountains.

***Myalina subquadrata* Shumard.**

1855. *Myalina subquadrata*. Shumard, Geol. Surv. Mo., p. 207, pl. C, fig. 17.
Upper Coal Measures: On Missouri River, 2 miles below the mouth of the Little Nemaha.
1864. *Myalina subquadrata*. Meek and Hayden, Pal. Up. Mo., p. 32, figs. A, B.
Coal Measures: Leavenworth City, Kansas.
1866. *Myalina subquadrata*. Geinitz, Carb. und Dyas in Nebr., p. 27, tab. 3, figs. 25, 26.
Nebraska City, Nebraska.
1872. *Myalina subquadrata*. Meek, U. S. Geol. Surv. Nebr., p. 202, pl. 4, fig. 12; pl. 9, fig. 6.
Upper Coal Measures: Nebraska City, Bennett's Mill and Bellevue, Nebraska.
1884. *Myalina subquadrata*. White, 13th Rep. Geol. Surv. Ind., p. 140, pl. 29, figs. 1, 2; pl. 30, figs. 1, 2.
Upper Coal Measures: Knox, Gibson, and Posey counties, Indiana.
1886. *Myalina subquadrata*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 456; p. 446, fig. 15; p. 454, fig. 15a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Myalina subquadrata*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 273, fig. 15a; p. 274, fig. 15.
Mill Creek L. S. Upper Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Myalina subquadrata*. Keyes, Mo. Geol. Surv., vol. 5, p. 118, pl. 44, figs. 1a, b, 2a, b.
Upper Coal Measures: Kansas City, Missouri.

***Myalina swallowi* McChesney.**

1860. *Myalina swallowi*. McChesney, Desc. New Pal. Foss., p. 57.
Coal Measures: Charbonier, and 12 miles northwest of Richmond, Missouri.
1865. *Myalina swallowi*. McChesney, Ill. New Spec. Foss., pl. 2, fig. 6a-b.
1866. *Aucella Hausmani*. Geinitz, Carb. und Dyas in Nebr., p. 25, tab. 2, fig. 8.
Nebraska City, Nebraska.

Myalina swallovi McChesney—Continued.

1866. *Myalina Swallovi*. Meek and Worthen, Geol. Surv., Ill., vol. 2, p. 341, pl. 27, figs. 1a-d.
Coal Measures: Saline Creek, Gallatin County, Illinois.
1868. *Myalina Swallovi*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 41, pl. 2, figs. 6a, b.
Coal Measures: Charbonier, and 12 miles northwest of Richmond, Missouri.
1872. *Myalina* (?) *swallovi*. Meek, U. S. Geol. Surv. Nebr., p. 201, pl. 9, figs. 7a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Upper and Lower Coal Measures: Illinois; Kentucky; Iowa; Nebraska; Kansas; Missouri.
1877. *Myalina* ? *Swallovi*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 152, pl. 11, fig. 8a.
Carboniferous: Camp Apache, Maricopa County, Arizona.
1884. *Myalina* (?) *Swallovi*. White, 13th Rep. Geol. Surv. Ind., p. 141, pl. 30, figs. 6-8.
Coal Measures: Park, Vermilion, and Vigo counties, Indiana.
1877. *Myalina* (?) *swallovi*. Herrick, Bull. Den. Univ., vol. 2, p. 37, pl. 4, fig. 6.
Coal Measures: Flint Ridge, Ohio.
1888. *Myalina swallovi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 232.
Lower Coal Measures: Des Moines, Iowa.
1894. *Myalina swallovi*. Keyes, Mo. Geol. Surv., vol. 5, p. 119, pl. 43, figs. 3a-c.
Lower Coal Measures: Charbonier, Missouri.
Upper Coal Measures: Richmond and Kansas City, Missouri.

Myalina wyomingensis Lea.

1853. *Modiola Wyomingensis*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 1a.
Coal Formation: Wilkesbarre, Pennsylvania.
1886. *Modiola wyomingensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 247.
Lower Coal Measures: Wilkesbarre, Pennsylvania.

Myalina (species undetermined).

1876. *Myalina* —? White, Powell's Rep. Geol. Uinta Mts., p. 91.
Upper and Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Myalina* —(?) White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 152.
Carboniferous: Camp Apache, Maricopa County, Arizona.
1877. *Myalina* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 37, pl. 4, fig. 20.
Coal Measures: Flint Ridge, Ohio.
1887. *Myalina* (cf. *recurvirostris*). Herrick, Bull. Den. Univ., vol. 2, p. 37, pl. 5, fig. 4.
Coal Measures: Flint Ridge, Ohio.
1887. *Myalina* sp. Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, figs. 1, 1a.
Coal Measures: Flint Ridge, Ohio.
1887. *Myalina* ? sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, fig. 24.
Coal Measures: Flint Ridge, Ohio.
1887. *Myalina* ? Herrick, Bull. Den. Univ., vol. 2, pl. 4, fig. 12.
Coal Measures: Flint Ridge, Ohio.

MYLACRIS Scudder, 1868.**Mylacris ampla** Scudder.

1895. *Mylacris ampla*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 45, pl. 2, fig. 1.
Lower Coal Measures: Mazon Creek, Illinois.

***Mylacris anthracophila* Scudder.**

1868. *Mylacris anthracophila*. Scudder, Geol. Surv. Ill., vol. 3, p. 568, figs. 5, 6.
Carboniferous: Mazon Creek, Grundy County, Illinois.
1879. *Mylacris anthracophilum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 45,
pl. 5, figs. 6-8.
Lower Coal Measures: Colchester, Illinois.
1884. *Mylacris anthracophilum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 307.
Lower Coal Measures: Colchester, Illinois.
1890. *Mylacris anthracophilum*. Scudder, Foss. Insc. N. A., vol. 1, pp. 65, 271, pl. 5,
figs. 6-8.
Lower Coal Measures: Colchester, Illinois.
1895. *Mylacris anthracophila*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 43, pl. 1,
figs. 1-4.
Lower Coal Measures: Colchester, Illinois.

***Mylacris antiqua* Scudder.**

1884. *Mylacris antiquum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 300.
Carboniferous: Mazon Creek, Illinois.
1890. *Mylacris antiquum*. Scudder, Foss. Insc. N. A., vol. 1, p. 264.
Carboniferous: Mazon Creek, Illinois.
1895. *Mylacris antiqua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 46, pl. 2,
figs. 5, 6.
Lower Coal Measures: Mazon Creek, Illinois.

***Mylacris bretonensis* Scudder.**

- *1874. *Blattina bretonensis*. Scudder, Can. Nat., vol. 7, p. 271, fig. 1.
Carboniferous: Sydney, Cape Breton.
1878. *Blattina Bretonensis*. Dawson, Supp. to 2d Ed. Acad. Geol., p. 53, fig. 5.
Carboniferous: Nova Scotia.
1879. *Mylacris bretonense*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 41, pl. 5,
fig. 1.
Middle Coal Measures: Sydney, Cape Breton.
1884. *Mylacris bretonense*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 300.
Carboniferous: Sydney, Cape Breton.
1890. *Mylacris bretonensis*. Scudder, Foss. Insc. N. A., vol. 1, pp. 61, 264, pl. 5, fig. 1.
Middle Coal Measures: Sydney, Cape Breton.
1895. *Mylacris bretonensis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 41.
Coal Measures: Sydney, Cape Breton.

***Mylacris carbonum* Scudder.**

1884. *Mylacris carbonum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 304, pl. 27,
figs. 6, 7, 10.
Carboniferous: Cannelton, Pennsylvania.
1890. *Mylacris carbonum*. Scudder, Foss. Insc. N. A., vol. 1, p. 268, pl. 13,
figs. 6, 7, 10.
Carboniferous: Wilkesbarre and Cannelton, Pennsylvania.
1895. *Mylacris carbonum*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Coal Measures: Cannelton and Wilkesbarre, Pennsylvania.

***Mylacris elongata* Scudder.**

1895. *Mylacris elongata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 41, pl. 1, fig. 6.
Lower Coal Measures: Mazon Creek, Illinois.

***Mylacris gurleyi* Scudder.**

1895. *Mylacris gurleyi*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 43, pl. 1, fig. 5.
Lower Coal Measures: Mazon Creek, Illinois.

***Mylacris heeri* Scudder.**

- *1874. *Blattina heeri*. Scudder, Can. Nat., vol. 7, p. 272; fig. 2, p. 271.
Carboniferous: Sydney, Cape Breton.

***Mylacris heeri* Scudder—Continued.**

1878. *Blattina Heeri*. Dawson, Supp. 2d Ed. Acad. Geol., p. 53, fig. 6.
Carboniferous: Nova Scotia.
1879. *Mylacris Heeri*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 43, pl. 5, fig. 11.
Middle Coal Measures: Sydney, Cape Breton.
1884. *Mylacris Heeri*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 300.
Carboniferous: Sidney, Cape Breton.
1890. *Mylacris Heeri*. Scudder, Foss. Insc. N. A., vol. 1, pp. 63, 264, pl. 5, fig. 11.
Middle Coal Measures: Sydney, Cape Breton.
1895. *Mylacris heeri*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 46.
Coal Measures: Sydney, Cape Breton.

***Mylacris lucifuga* Scudder.**

1884. *Mylacris lucifugum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 301, pl. 27, fig. 8.
Carboniferous: Pittston, Pennsylvania.
1890. *Mylacris lucifugum*. Scudder, Foss. Insc. N. A., vol. 1, p. 265, pl. 13, fig. 8.
Carboniferous: Pittston, Pennsylvania.
1895. *Mylacris lucifuga*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Coal Measures: Near Pittston, Pennsylvania.

***Mylacris mansfieldi* Scudder.**

1879. *Mylacris Mansfieldii*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 47, pl. 5, fig. 15.
Lower Coal Measures: Cannelton, Pennsylvania.
1884. *Mylacris Mansfieldii*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 308.
Lower Coal Measures; Cannelton, Pennsylvania.
1890. *Mylacris mansfieldi*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 377.
Coal Measures: Near Georgetown, Vermilion County, Illinois.
1890. *Mylacris mansfieldi*. Scudder, Foss. Insc. N. A., vol. 1, pp. 67, 272, 401, pl. 5, fig. 15.
Lower Coal Measures: Cannelton, Pennsylvania, and near Georgetown, Vermilion County, Illinois.
1895. *Mylacris mansfieldi*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Lower Coal Measures: Cannelton, Pennsylvania.

***Mylacris ovalis* Scudder.**

1884. *Mylacris ovale*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 308, pl. 27, fig. 5.
Carboniferous: Cannelton, Pennsylvania.
1890. *Mylacris ovalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 272, pl. 13, fig. 5.
Carboniferous: Cannelton, Pennsylvania.
1895. *Mylacris ovalis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Lower Coal Measures: Cannelton, Pennsylvania.

***Mylacris packardii* Scudder.**

1893. *Mylacris packardii*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 11, pl. 1, figs. e, g.
Carboniferous: Bristol and Pawtucket, Rhode Island.
1895. *Mylacris packardii*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 41, pl. 1, figs. 2, 3.
Lower (?) Coal Measures: Bristol, Rhode Island.

***Mylacris pennsylvanica* Scudder.**

1879. *Mylacris pennsylvanicum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 44, pl. 5, figs. 13, 14.
Lower Coal Measures: Cannelton, Pennsylvania.

***Myiacris pennsylvanica* Scudder—Continued.**

1884. *Myiacris pennsylvanicum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 302, pl. 27, fig. 11.
Carboniferous: Pittston, Pennsylvania.
1890. *Myiacris pennsylvanicum*. Scudder, Foss. Insc. N. A., vol. 1, pp. 64, 266, pl. 5, figs. 13, 14; pl. 13, fig. 11.
Carboniferous: Cannelton, Pennsylvania.
1895. *Myiacris pennsylvanica*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 47.
Lower Coal Measures: Cannelton, Pennsylvania.

***Myiacris priscovolans* Scudder.**

1884. *Myiacris priscovolans*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 307, pl. 27, fig. 9.
Carboniferous: Cannelton, Pennsylvania.
1890. *Myiacris priscovolans*. Scudder, Foss. Insc. N. A., vol. 1, p. 271, pl. 13, fig. 9.
Carboniferous: Cannelton, Pennsylvania.
1895. *Myiacris priscovolans*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 46.
Lower Coal Measures: Cannelton, Pennsylvania.

***Myiacris* (species undetermined).**

1895. *Myiacridæ* sp. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 55, pl. 2, fig. 4.
Lower Coal Measures: Mazon Creek, Illinois.

MYTILARCA Hall, 1870.***Mytilarca fibristriata* White and Whitfield.**

1862. *Mytilus fibristriatus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 296.
Chemung Group: Burlington, Iowa.
1862. *Mytilus Whitfieldianus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 413.
Marshall Group: Holland, Ottawa County, and Marshall, Michigan.
1863. *Mytilus Whitfieldianus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 11.
Yellow S. S.: Burlington, Iowa.
1884. *Mytilarca fibristriata*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 264, pl. 33, figs. 6, 7; pl. 87, fig. 6.
Yellow S. S.: Burlington, Iowa.
1888. *Mytilarca fibristriatus*. Herrick, Bull. Den. Univ., vol. 4, p. 31, pl. 4, fig. 21.
Waverly Group: Moot's Run, Licking County, Ohio.
1889. *Mytilarca fibristriata*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 21.
1895. *Mytilarca fibristriata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 21.
Cuyahoga Shale: Moot's Run, Ohio.

***Mytilarca jessieæ* Miller and Gurley.**

1896. *Mytilarca jessieæ*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 14, pl. 2, figs. 1-6.
Chouteau L. S.: Near Sedalia, Missouri.

***Mytilarca occidentalis* White and Whitfield.**

1862. *Mytilus occidentalis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 297.
Chemung Group: Burlington, Iowa.
1884. *Mytilarca occidentalis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 263, pl. 33, figs. 3-5; pl. 87, fig. 11.
Yellow S. S.: Burlington, Iowa.
1888. *Mytilarca occidentalis?* Herrick, Bull. Den. Univ., vol. 4, p. 32, pl. 11, fig. 1.
Waverly Group: Medina County, Ohio.

MYTILUS Linnaeus, 1758.

Mytilus concavus. See *Myalina concava*.

Mytilus fibristriatus. See *Mytilarca fibristriata*.

Mytilus occidentalis. See *Mytilarca occidentalis*.

Mytilus ottawensis Shumard.

1858. *Mytilus Ottawensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 211.

Upper Coal Measures: Valley of Verdigris River, Kansas.

Mytilus permianus. See *Myalina permiana*.

Mytilus squamosus. See *Myalina squamosa*.

Mytilus tenuiradiatus Shumard.

1858. *Mytilus tenuiradiatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 211.

Upper Coal Measures: Valley of Verdigris River, Kansas.

Mytilus whitfieldanus. See *Mytilarca fibristriata*.

NAIADITES Dawson, 1860.

Naiadites angulata. See *Carbonicola angulata*.

Naiadites arenacea. See *Anthracomya arenacea*.

Naiadites carbonarius Dawson.

*1860. *Naiadites carbonarius*. Dawson, Supp. Acad. Geol.

Coal Measures: Nova Scotia.

1863. *Anthracopteria carbonaria*. Salter, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 79, fig. 3.

Coal Measures: Nova Scotia.

1868. *Naiadites (Anthracopteria) carbonaria*. Dawson, Acad. Geol., p. 204, fig. 42.

Coal Measures: Nova Scotia.

1883. *Naiadites carbonaria*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 425, pl. 2, fig. 15.

1894. *Naiadites carbonarius*. Hind, Quart. Jour. Geol. Soc. Lond., vol. 50, p. 441, pl. 20, figs. 2, 3, 11c.

1894. *Naiadites carbonarius*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 6, figs. 1-3.

Coal Measures: South Joggins, Nova Scotia; Pictou and Mabou, Cape Breton.

Naiadites elongata. See *Anthracomya elongata*.

Naiadites fragilis Meek and Worthen.

*1866. *Anthracopteria ? fragilis*. Meek and Worthen, Proc. Chicago Acad. Sci., vol. 1, p. 18.

Keokuk Group: Near Warsaw, Illinois.

1868. *Anthracopteria ? fragilis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 534, pl. 19, fig. 4.

Keokuk Group: Near Warsaw, Illinois.

Naiadites lævis. See *Anthracomya lævis*

Naiadites longus Dawson.

1894. *Naiadites longus*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 8, fig. 4.

Coal Measures: South Joggins, Nova Scotia; Cape Breton.

Naiadites mytiloides Dawson.

1894. *Naiadites mytiloides*. Dawson, Rev. Biv. Moll. Coal-Form. Nova Scotia, p. 9, fig. 5.

Coal Measures: Chimney Corner, Cape Breton.

Naiadites obtusa. See *Anthracomya obtenta*.

Naiadites ovalis. See *Anthracomya ovalis*.

Naiadites polita White.

1880. *Anthraptera polita*. White, Cont. to Inv. Pal., No. 8, p. 166, pl. 42, figs. 5a, b.

Coal Measures: Major's Mill, Vermilion County, Illinois.

(NATICA Adanson, 1757.)

Natica altonensis. See *Naticopsis altonensis*.

Natica carleyana. See *Strophostylus carleyana*.

Natica chesterensis. See *Naticopsis chesterensis*.

Natica littonana. See *Sphærodoma littonana*.

Natica magister. See *Naticopsis ventricosa*.

Natica shumardi. See *Naticopsis shumardi*.

Natica ventrica. See *Naticopsis ventricosa*.

NATICOPSIS McCoy, 1844.

Naticopsis altonensis McChesney.

1865. *Natica Altonensis*. McChesney, Ill. New Spec. Foss., p. 0, pl. 2, figs. 14a, b.

Coal Measures: Alton, Illinois.

1868. *Naticopsis altonensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 50, pl. 2, figs. 14a-c.

Coal Measures: Alton, Illinois.

1873. *Naticopsis Altonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 595, pl. 28, fig. 11.

Coal Measures: Macoupin County, Illinois.

1881. *Naticopsis altonensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxxv, pl. 3, fig. 6a.

Carboniferous: Near Taos, New Mexico.

Naticopsis altonensis var. giganteus Meek and Worthen.

1873. *Naticopsis Altonensis?* var. *giganteus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 28, figs. 12a, b.

Coal Measures.

Naticopsis carleyana. See *Strophostylus carleyana*.

Naticopsis chesterensis Swallow.

1863. *Natica Chesterensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 100.

Kaskaskia L. S.: Chester, Illinois; Ste. Genevieve, Missouri.

Naticopsis depressa Winchell.

1863. *Naticopsis depressus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 22.

Yellow S. S.: Burlington, Iowa.

1889. *Naticopsis depressa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 293.

Kinderhook Group: Burlington, Iowa.

Naticopsis dispassa Dawson.

1868. *Naticopsis dispassa*. Dawson, Acad. Geol., p. 309, fig. 120.

Carboniferous L. S.: Pugwash and Windsor, Nova Scotia.

Naticopsis hollidayi. See *Trachydoma nodosa* var. *hollidayi*.

***Naticopsis howi* Hartt.**

1868. *Naticopsis Howi*. Hartt, Dawson's Acad. Geol., p. 309, fig. 119.

Carboniferous L. S.: Windsor, Gay's Head, De Bert River, etc., Nova Scotia.

Naticopsis littonana var. *genevievensis*. See *Sphaerodoma littonana* var. *genevievensis*.

Naticopsis madisonensis. See *Strophostylus madisonensis*.

Naticopsis monilifera. See *Pleurotomaria monilifera*.

Naticopsis nana. See *Strophostylus nana*.

Naticopsis nodosa. See *Trachydomia nodosum*.

Naticopsis nodosa var. *hollidayi*. See *Trachydomia nodosum* var. *hollidayi*.

***Naticopsis ortonii* Whitfield.**

1882. *Naticopsis Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 230.

Coal Measures: Falls Township, Hocking County, Ohio.

1891. *Naticopsis Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 605, pl. 16, figs. 12, 13.

Coal Measures: Hocking County, Ohio.

1895. *Naticopsis Ortoni*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 498, pl. 12, figs. 12, 13.

Coal Measures: Falls Township, Hocking County, Ohio.

***Naticopsis pricii* Shumard.**

1858. *Naticopsis (Nerita) Pricei*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 202.

Upper Coal Measures: Boone County, Missouri; Cottonwood Creek and Verdigris River, Kansas.

Naticopsis remex. See *Strophostylus remex*.

***Naticopsis shumardi* McChesney.**

1860. *Natica shumardi*. McChesney, Desc. New Pal. Foss., p. 62.

Coal Measures: La Salle, Illinois.

1865. *Natica shumardi*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 15a-b.

1868. *Naticopsis Shumardi*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 49, pl. 2, figs. 15a, b.

Coal Measures: La Salle, Illinois.

1891. *Naticopsis shumardi*. White, Bull. U. S. Geol. Surv. No. 77, p. 24, pl. 3, fig. 11.

Permian: Goodwin Creek, Baylor County, Texas.

Naticopsis subovatus. See *Strophostylus subovatus*.

***Naticopsis torta* Meek.**

1871. *Platyceras tortum*. Meek, Proc. Acad. Nat. Sci. Phil., p. 171.

Coal Measures: Greentown, Summit County, Ohio.

1875. *Platyceras tortum*. Meek, Pal. Ohio, vol. 2, p. 345, pl. 20, figs. 1a-c.

Coal Measures: Greentown, Stark County, Ohio.

1890. *Naticopsis torta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 180.

***Naticopsis ventricosa* Norwood and Pratten.**

1855. *Natica ventrica*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 76, pl. 9, figs. 10a, b.

Coal Measures: 1 mile south of New Harmony, Indiana.

1858. *Natica Magister*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 261.

Archimedes L. S.: Near Makanda, Illinois.

Naticopsis ventricosa Norwood and Pratten—Continued.

1873. *Naticopsis ventricosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 592, pl. 28, fig. 13.
 Coal Measures: 1 mile south of New Harmony, Indiana.
1889. *Naticopsis ventricosa*. Keyes, Am. Geol., vol. 4, p. 195, fig. 3.
1894. *Naticopsis ventricosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 199.
 Upper Coal Measures: Kansas City and Clinton, Missouri.

Naticopsis wheeleri. See *Trachydomia wheeleri*.

Naticopsis? ziczac Whitfield.

1882. *Naticopsis zic-zac*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 223.
 Maxville L. S.: Newtownville, Ohio.
1891. *Naticopsis ziczac*. Whitfield Ann. N. Y. Acad. Sci., vol. 5, p. 590, pl. 14, figs. 15, 16.
 Maxville L. S.: Newtonville, Ohio.
1895. *Naticopsis ziczac*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 477, pl. 10, figs. 15, 16.
 Maxville L. S.: Newtonville, Ohio.

Naticopsis (species undetermined).

1888. *Naticopsis?* sp. n. Herrick, Bull. Den. Univ., vol. 3, p. 87, pl. 12, fig. 37.
 Waverley Group: Licking County, Ohio.
1897. *Naticopsis* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
 Upper Coal Measures: Scott County, Arkansas.

NAUTILUS Breynius, 1732.

Nautilus altidorsalis. See *Trematoceras altidorsalis*.

Nautilus avonensis. See *Endolobus avonensis*.

Nautilus biserialis. See *Tainoceras occidentalis*.

Nautilus bisulcatus Herrick.

1888. *Nautilus (?) bisulcatus*. Herrick, Bull. Den. Univ., vol. 3, p. 20.
 Maxville L. S.: Fultonham, Ohio.
1888. *Nautilus bisulcatus*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 16.
 Chester L. S.: Ohio.

Nautilus blairi Miller.

1892. *Solenochilus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 75, pl. 12, fig. 2.
 Chouteau L. S.: Pin Hook Bridge, 6 miles from Sedalia, Missouri.
1894. *Solenochilus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 329, pl. 12, fig. 2.
 Chouteau L. S.: Pin Hook Bridge, 6 miles from Sedalia, Missouri.

Nautilus burlingtonensis Owen.

1852. *Gyroceras burlingtonensis*. Owen, Geol. Surv. Wis., Iowa, and Minn., p. 581, tab. 5, fig. 10.
 Lower Carboniferous (Oolite bed): Burlington, Iowa.
1894. *Nautilus ? burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 221.
 Chouteau L. S.: Sedalia, Missouri.

Nautilus canaliculatus. See *Solenoceras canaliculatum*.

Nautilus capax. See *Asymptoceras capax*.

Nautilus chesterensis. See *Leuroceras chesterensis*.

Nautilus clarkanus Hall.

1856. *Nautilus Clarkanus*. Hall, Trans. Albany Inst., vol. 4, p. 32.
 St. Louis L. S.: Spargen Hill, Indiana.

***Nautilus clarkanus* Hall—Continued.**

1882. *Nautilus Clarkanus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 92, pl. 8, fig. 1.

St. Louis Group: Spergen Hill, Indiana.

1883. *Nautilus clarkanus*. Hall, 12th Rep. Geol. Surv. Ind., p. 373, pl. 31, fig. 1.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Nautilus collectus. See *Solenocheilus collectum*.

Nautilus coxanus. See *Temnocheilus coxanum*.

***Nautilus danvillensis* White.**

1878. *Nautilus Danvillensis*. White, Proc. Acad. Nat. Sci. Phil., p. 36.

Coal Measures: Danville, Illinois.

1880. *Nautilus danvillensis*. White, Cont. to Inv. Pal., No. 8, p. 170, pl. 42, fig. 7a.

Coal Measures: Danville, Illinois.

***Nautilus decoratus* Cox.**

1857. *Nautilus decoratus*. Cox, Geol. Rep. Ky., vol. 3, p. 572, pl. 9, figs. 4-4b.

Coal Measures: Mines of Kentucky Coal Company, Union County, Kentucky.

1868. *Nautilus decoratus*. Rogers, Geol. Rep. Penn., vol. 2, p. 333, fig. 692.

Nautilus digonus. See *Triboloceras digonum*.

Nautilus disciformis. See *Aphelæceras disciformis*.

Nautilus discoidalis. See *Trematoceras discoidalis*.

Nautilus divisus. See *Ephippioceras divisus*.

***Nautilus eccentricus* Meek and Hayden.**

1858. *Nautilus eccentricus*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 83.

Permian: Smoky Hill Fork.

1864. *Nautilus eccentricus*. Meek and Hayden, Pal. Up. Mo., p. 65, pl. 2, figs. 14a, b.

Permian: Near mouth of Smoky Hill Fork of Kansas River, Kansas.

***Nautilus faberi* Miller.**

1889. *Nautilus faberi*. Miller, N. A. Geol. and Pal., p. 443, fig. 746.

Coal Measures: Elk Horn Creek, Kentucky.

Nautilus ferratus. See *Ephippioceras ferratus*.

Nautilus forbesianus. See *Temnocheilus forbesianus*.

***Nautilus gilpini* Swallow.**

1860. *Nautilus Gilpini*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 658.

Coal Measures: Wayne City, Missouri.

Nautilus globatus. See *Coloceras globatus*.

Nautilus highlandensis. See *Domatoceras highlandensis*.

***Nautilus illinoiensis* McChesney.**

1860. *Nautilus illinoiensis*. McChesney, Desc. New Pal. Foss., p. 64.

Upper Coal Measures: Lasalle, Illinois.

***Nautilus indianensis* Miller.**

1892. *Streptodiscus indianensis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 71, pl. 11, fig. 1.

Keokuk L. S.: West Point, Indiana.

1894. *Streptodiscus indianensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 325, pl. 11, fig. 1.

Keokuk L. S.: West Point, Indiana.

***Nautilus ingentior* Winchell.**

1862. *Nautilus ingentior*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 361.
Marshall S. S.: Marshall, Michigan.

Nautilus lasallensis. See *Domatoceras lasallensis*.

Nautilus latus. See *Temnocheilus latus*.

Nautilus leidyi. See *Solenoccheilus leidyi*.

Nautilus meekianus. See *Trematoceras meekianus*.

Nautilus missouriensis. See *Endolobus missouriensis*.

***Nautilus montgomeryensis* Worthen.**

1884. *Nautilus montgomeryensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 4.
Upper Coal Measures: Montgomery County, Illinois.
1890. *Nautilus montgomeryensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 148, pl. 26, fig. 2; pl. 27, fig. 1.
Upper Coal Measures: Montgomery County, Illinois.

Nautilus niotensis. See *Edaphoceras niotensis*.

Nautilus nodocarinatus. See *Tainoceras occidentalis*.

***Nautilus nodosodorsatus* Shumard.**

1858. *Nautilus nodoso-dorsatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 198.
Upper Coal Measures: Valley of Verdigris and Kansas rivers, near Pottawattamie Reservation, Kansas.

Nautilus occidentalis. See *Tainoceras occidentalis*.

***Nautilus ortonii* Whitfield.**

1882. *Nautilus Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 231.
Coal Measures: Springfield, Ohio.
1891. *Nautilus Ortoni*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 601, pl. 16, fig. 20.
Coal Measures: Springfield, Ohio.
1895. *Nautilus Ortoni*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 486, pl. 12, fig. 20.
Coal Measures: Springfield, Ohio.

***Nautilus parallelus* Beecher.**

1888. *Nautilus parallelus*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 38, pl. 126, figs. 3-5.
? Coal Measures: ? Ohio.

***Nautilus pauper* Whitfield.**

1882. *Nautilus pauper*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 226.
Maxville L. S.: Near Rushville, Ohio.
1891. *Nautilus pauper*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 595, pl. 14, fig. 23.
Maxville L. S.: Near Rushville, Ohio.
1895. *Nautilus pauper*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 481, pl. 10, fig. 23.
Maxville L. S.: Near Rushville, Ohio.

Nautilus peramplus. See *Endolobus spectabilis*.

***Nautilus permianus* Swallow.**

1858. *Nautilus Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196.
Permian: Near Smoky Hill Fork, Kansas.

Nautilus planidorsalis. See *Trematoceras planidorsalis*.

***Nautilus planorbiformis* Meek and Worthen.**

1860. *Nautilus (Discus) planorbiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469.
Coal Measures: Alpine, Iowa.

Nautilus planorbiformis Meek and Worthen—Continued.

1866. *Nautilus planorbiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 386, pl. 29, figs. 4a-c.

Coal Measures: Alpine, Iowa.

Nautilus planovolvis Shumard.

1858. *Nautilus planovolvis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 198.

Upper Coal Measures: Near Belleville, Nebraska.

1873. *Nautilus planovolvis*? Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 30, figs. 3a, b.

Coal Measures.

Nautilus ponderosus. See *Titanoceras ponderosum*.

Nautilus quadrangulus. See *Tainoceras occidentalis*.

Nautilus rockfordensis. See *Oncodoceras rockfordensis*.

Nautilus sangamonensis. See *Metacoceras sangamonensis*.

Nautilus seebachanus. See *Pteronutilus seebachanus*.

Nautilus spectabilis. See *Endolobus spectabilis*.

Nautilus springeri. See *Asymptoceras springeri*.

Nautilus striatulus. See *Trematodiscus striatulus*.

Nautilus strigatus. See *Trematoceras strigatus*.

Nautilus subglobosus Meek and Worthen.

1860. *Nautilus subglobosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 469. Chester L. S.: Chester, Illinois.

Nautilus subquadrangularis Whitfield.

1882. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 232.

Coal Measures: Canfield, Ohio.

1891. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 602, pl. 15, fig. 16.

Coal Measures: Canfield, Ohio.

1895. *Nautilus (Gyroceras?) subquadrangularis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 487, pl. 11, fig. 16.

Coal Measures: Canfield, Ohio.

Nautilus subsulcatus Winchell.

1862. *Nautilus subsulcatus* (?). Winchell, Am. Jour. Sci. (2), vol. 33, p. 361.

Marshall S. S.: Marshall, Michigan.

Nautilus sulcatus. See *Trematoceras sulcatus*.

Nautilus toddi Miller.

1892. *Nautilus toddi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 72, pl. 11, figs. 2-4.

Upper Coal Measures: Wyandotte County, Kansas.

1894. *Nautilus toddi*. Miller, 18th Rep. Geol. Surv. Ind., p. 326, pl. 11, figs. 2-4.

Upper Coal Measures: Wyandotte County, Kansas.

Nautilus trigonus. See *Stroboceras trigonus*.

Nautilus trisulcatus. See *Stroboceras trisulcatus*.

Nautilus tuberculatus Owen.

1852. *Discites tuberculatus*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. 581, tab. 5, fig. 14.

Carboniferous L. S.: Iowa Point, Missouri River.

Nautilus winslowi. See *Temnocheilus winslowi*.

***Nautilus* (undetermined species).**

1859. *Nautilus* sp. (?). Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 399.
Dark Permian L. S.: Guadalupe Mountains.
1861. *Nautilus* sp. Newberry, Ives' Colo. Expl. Exped., p. 118.
Upper Carboniferous: Agua Azul, near the base of Mount Taylor.
1868. *Nautilus* (undescribed species). McChesney, Trans. Chicago Acad. Sci.,
vol. 1, pl. 3, fig. 6.
Coal Measures: Graysville, Illinois.
1873. *Nautilus* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 19,
figs. 2a, b.
Keokuk Group.
1886. *Nautilus* sp.? Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 457.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Nautilus* sp. (?). Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2,
pt. 2, p. 277.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Nautilus* sp. Herrick, Bull. Den. Univ., vol. 2, p. 17, pl. 2, fig. 17.
Coal Measures: Flint Ridge, Ohio.
1888. *Nautilus* ? sp. Herrick, Bull. Den. Univ., vol. 3, pl. 2, fig. 26.
Waverly Group: Licking County, Ohio.
1888. *Nautilus* ? sp. Herrick, Bull. Den. Univ., vol. 3, pl. 6, fig. 14.
Waverly Group: Licking County, Ohio.
1888. *Nautilus*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 3.
Waverly Group: Moot's Run, Licking County, Ohio.
1888. *Nautilus* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 8.
Waverly Group: Newark, Ohio.
1891. *Nautilus* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 23, pl. 3, figs. 6-8.
Permian: Military Crossing of the Big Wichita, Baylor County, Texas.
1891. *Nautilus* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 24, pl. 2, figs. 4-6.
Permian: Military Crossing, Baylor County, Texas.
1891. *Nautilus* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 24, pl. 2, figs. 7-10.
Permian: Goodwin Creek, Baylor County, Texas.
1891. *Nautilus* (*Endolobus*) — ? White, Bull. U. S. Geol. Surv. No. 77, p. 24,
pl. 2, fig. 13.
Permian: Military Crossing, Baylor County, Texas.
1895. *Nautilus* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 3.
Cuyahoga Shale: Moot's Run, Licking County, Ohio.
1895. *Nautilus* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 3.
Burlington: Newark, Ohio.
1897. *Nautilus* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 43.
Upper Coal Measures: Crawford County, Arkansas.

NECYMYLACRIS Scudder, 1880.

***Necmylacriss heros* Scudder.**

1879. *Necmylacriss heros*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 54,
pl. 5, fig. 9.
Lower Coal Measures: Cannelton, Pennsylvania.
1890. *Necmylacriss heros*. Scudder, Foss. Insc. N. A., vol. 1, p. 74, pl. 5, fig. 9.
Lower Coal Measures: Cannelton, Pennsylvania.
1895. *Necmylacriss heros*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 55.
Lower Coal Measures: Boston Mine, near Pittston, Pennsylvania.

Necmylacrís lacoana Scudder.

1879. *Necmylacrís lacoanum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 53, pl. 5, fig. 12.

Lower Coal Measures: Pittston, Pennsylvania.

1890. *Necmylacrís lacoana*. Scudder, Foss. Insc. N. A., vol. 1, p. 73, pl. 5, fig. 12.

Lower Coal Measures: Pittston, Pennsylvania.

1895. *Necmylacrís lacoana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 55.

Lower Coal Measures: Boston Mine, near Pittston, Pennsylvania.

Nipterocrinus Wachsmuth, 1868.**Nipterocrinus arboreus** Worthen.

1873. *Nipterocrinus arboreus*. Worthen, Geol. Surv. Ill., vol. 5, p. 436, pl. 4, fig. 8.

Burlington L. S.: Burlington, Iowa.

Nipterocrinus wachsmuthi Meek and Worthen.

1868. *Nipterocrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 342.

Upper Burlington Group: Burlington, Iowa.

1873. *Nipterocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 435, pl. 2, fig. 4.

Burlington L. S.: Burlington, Iowa.

Nodosinella Brady, 1876.**Nodosinella priscilla** Dawson.

1868. *Dentalina priscilla*. Dawson, Acad. Geol., p. 285, fig. 82.

Carboniferous L. S.: Windsor, Nova Scotia.

1876. *Nodosinella priscilla*. Brady, Monog. Carb. and Perm. Form., p. 105, pl. 7, figs. 8, 9.

Carboniferous L. S.: Windsor, Nova Scotia.

NUCULA Lamark, 1801.**Nucula anodontoides** Meek.

- *1870. *Nucula anodontoides*. Meek, Rep. Regents Univ. W. Va.

Coal Measures: Monongahela County, West Virginia.

Nucula arata. See *Nuculana arata*.**Nucula beyrichi** von Schauroth.

1866. *Nucula Beyrichi*. Geinitz, Carb. und Dyas in Nebr., p. 21, tab. 1, figs. 36, 37.

Nebraska City, Nebraska.

1872. *Nucula Beyrichi*? Meek, U. S. Geol. Surv. Nebr., p. 203, pl. 10, fig. 18.

Upper Coal Measures: Nebraska City, Nebraska.

Coal Measures: Illinois.

1873. *Nucula Beyrichi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 26, fig. 9.

Coal Measures: Illinois.

1891. *Nucula beyrichi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 249.

Lower Coal Measures: Des Moines, Iowa.

Nucula cylindricus. See *Cardiomorpha missouriensis*.**Nucula hians** Hall.

1860. *Nucula hians*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 110.

Goniatite L. S.: Rockford, Indiana.

***Nucula houghtoni* Stevens.**

1858. *Nucula Houghtoni*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 262.
Carboniferous: Battle Creek, Michigan.
1862. *Nucula iowensis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 298.
Chemung Group: Burlington, Iowa.
1862. *Nucula Iowensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 418.
Marshall Group: Battle Creek and Wyoming, Michigan.
1884. *Nucula Iowensis*. Hall, Rep. N. Y. State Geol. for 1881, pl. 7, figs. 8, 9.
Waverly Group: Granville, Ohio.
1885. *Nucula Houghtoni*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 323, pl. 45, figs. 29-31.
Waverly S. S.: Newark and Richfield, Ohio; Battle Creek and near Hillsdale, Michigan.
1888. *Ctenodonta (Nucula) iowensis*. Herrick, Bull. Den. Univ., vol. 3, p. 78, pl. 1, figs. 14-17.
Waverly Group: Licking County, Ohio.
1888. *Ctenodonta (Nucula) houghtoni?* Herrick, Bull. Den. Univ., vol. 3, p. 78, pl. 5, fig. 17.
Waverly Group: Licking County, Ohio.
1888. *Nucula (Ctenodonta) houghtoni*. Herrick, Bull. Den. Univ., vol. 4, p. 44, pl. 4, fig. 3; pl. 10, fig. 4.
Waverly Group: Cuyahoga Falls, Ohio.
1889. *Ctenodonta houghtoni?* Herrick, Am. Geol., vol. 3, pl. 2, fig. 3.
1895. *Ctenodonta houghtoni*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 3.
Cuyahoga Shale: Ohio.
1895. *Ctenodonta houghtoni*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 17.
Kinderhook: Ohio.
1895. *Nucula houghtoni* (?). Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 6.
(Cuyahoga Shale): Cuyahoga Falls, Ohio.

Nucula hubbardi. See *Palæoneilo sulcatina*.

Nucula hubbardi var. *prolata*. See *Palæoneilo sulcatina*.

***Nucula illinoisensis* Worthen.**

1884. *Nucula illinoisensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 15.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Nucula illinoisensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 128, pl. 19, figs. 4, 4a.
St. Louis L. S. (oolite): Monroe County, Illinois.

***Nucula insularis* Walcott.**

1884. *Nucula insularis*. Walcott, Pal. Eureka Dist., p. 241, pl. 20, fig. 14.
Lower Carboniferous: Eureka District, Nevada.

Nucula iowensis. See *Nucula houghtoni*.

Nucula kazanensis. See *Nuculana bellistriata*.

***Nucula levatiformis* Walcott.**

1884. *Nucula levatiforme*. Pal. Eureka Dist., p. 241, pl. 22, figs. 1, 1a.
Lower Carboniferous: Eureka District, Nevada.

***Nucula microdonta* Winchell.**

1863. *Nucula microdonta*. Winchell, Proc. Acad. Nat. Sci., Phil., p. 16.
Yellow S. S. and base of Burlington L. S.: Burlington, Iowa.

Nucula nasuta. See *Nuculana nasuta*.

***Nucula obsoleta* McChesney.**

1861. *Nucula obsoleta*. McChesney, Desc. New Pal. Foss., p. 89.
Coal Measures: Carnahan's Mine, Mercer County, Illinois.

***Nucula parva* McChesney.**

1860. *Nucula parva*. McChesney, Desc. New Pal. Foss., p. 54.
Coal Measures: Danville, Illinois.
1865. *Nucula parva*. McChesney, Ill., New Spec. Foss., pl. 2, figs. 8a-c.
1868. *Nucula parva*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 39, pl. 2,
figs. 8a-c.
Coal Measures: Danville, Illinois.
1873. *Nucula parva*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 26, fig. 8.
Coal Measures: Danville, Illinois.
1888. *Nucula parva*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
1894. *Nucula parva*. Keyes, Mo. Geol. Surv., vol. 5, p. 121.
Upper Coal Measures: Kansas City, Missouri.
1897. *Nucula parva*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 35.
Lower Coal Measures: Conway County, Arkansas.
Upper Coal Measures: Crawford County, Arkansas.

***Nucula perumbonata* White.**

1879. *Nucula perumbonata*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5,
p. 217.
Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of
Pipe Spring.
1880. *Nucula perumbonata*. White, Cont. to Inv. Pal., No. 6, p. 136, pl. 34, figs. 7a, b.
Upper Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south
from Pipe Spring.

***Nucula rectangula* McChesney.**

1860. *Nucula rectangula*. McChesney, Desc. New Pal. Foss., p. 74.
Hamilton Group: Near Batesville, Arkansas.
1865. *Nucula rectangula*. McChesney, Ill. New Spec. Foss., pl. 7, figs. 5a-c.
1868. *Nucula* ? *rectangula*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 40,
pl. 7, figs. 5a-c.
Dark Colored Hamilton Shales: Batesville, Arkansas.

***Nucula sectoralis* Winchell.**

1862. *Nucula sectoralis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 418.
Marshall Group: Battle Creek and Pointe Aux Barques, Michigan.

***Nucula shumardana* Hall.**

1856. *Nucula Shumardana*. Hall, Trans. Albany Inst., vol. 4, p. 16.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Nucula Shumardana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 57, pl. 7,
figs. 2-6.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Nucula shumardana*. Hall, 12th Rep. Geol. Surv. Ind., p. 343, pl. 30, figs. 2-6.
St. Louis Group: Spergen Hill, Lanesville and Bloomington, Indiana.

***Nucula speciosa* Munster.**

1858. *Nucula speciosa* (?) Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.
Permian?: Kansas.

***Nucula stella* Winchell.**

1862. *Nucula Stella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 419.
Marshall Group: Michigan.
1865. *Ctenodonta stella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 129.
Marshall Group: Napoleon Cut, Jackson County, Michigan.
1888. *Ctenodonta* (*Nucula*) *stella*. Herrick, Bull. Den. Univ., vol. 3, p. 78, pl. 9,
fig. 14.
Waverly Group: Licking County, Ohio.

Nucula subscitula. See *Yoldia subscitula*.

***Nucula ventricosa* Hall.**

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1858. *Nucula ventricosa*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 716, pl. 24, figs. 4, 5a, b.
Coal Measures.
1872. *Nucula ventricosa*. Meek, U. S. Geol. Surv. Nebr., p. 204, pl. 10, figs. 17a-c.
Upper Coal Measures: Nebraska City and Rock Bluff, Nebraska.
Lower Coal Measures: West Virginia.
Coal Measures: Illinois.
1882. *Nucula ventricosa*. White, 11th Rep. Geol. Surv. Ind., p. 371, pl. 42, figs. 9, 10.
Coal Measures: Sullivan County, Indiana.
1884. *Nucula ventricosa*. White, 13th Rep. Geol. Surv. Ind., p. 146, pl. 27, figs. 9, 10.
Coal Measures: Sullivan County, Indiana.
1888. *Nucula ventricosa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
1894. *Nucula ventricosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 121, pl. 45, figs. 3a, b.
Lower Coal Measures: Clinton, Missouri.
Upper Coal Measures: Kansas City and Gentry, Missouri.
1897. *Nucula ventricosa*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 35.
Lower Coal Measures: Conway County, Arkansas.

***Nucula* (species undetermined).**

1858. *Nucula*, species not determined. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.
Upper Permian: Kansas.
1868. *Nucula*? Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 690.
1888. *Nucula* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 3, figs. 15, 16.
Waverly Group: Licking County, Ohio.
1888. *Nucula* sp? Herrick, Bull. Den. Univ., vol. 3, pl. 4, fig. 7.
Waverly Group: Licking County, Ohio.
1888. *Ctenodonta* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 8, fig. 16.
Waverly Group: Licking County, Ohio.
1888. *Nucula*? Herrick, Bull. Den. Univ., vol. 3, pl. 9, fig. 16.
Waverly Group: Licking County, Ohio.
1891. *Nucula* sp. Herrick, Bull. Geol. Soc. Am., vol. 2, pl. 1, fig. 5.
Cuyahoga Shale: Ohio.

NUCULANA Link, 1807.

***Nuculana arata* Hall.**

1852. *Nucula arata*. Hall, Stansb. Exped. Gt. Salt Lake, p. 413, pl. 2, figs. 5a, b.
Carboniferous: Missouri River, below Weston.

***Nuculana bellistriata* Stevens.**

1858. *Leda bellistriata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 261.
Coal Measures: Danville, Illinois; Summit, Ohio.
1858. *Nucula (Leda) Kazanevis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190. (Not *N. kazanevis* Verneuil, 1845.)
Upper and Lower Permian: Valley of Cottonwood and near Smoky Hill Fork, Kansas.
1858. *Leda bellistriata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 717, pl. 29, figs. 6a-d.
Lower Coal Measures: Illinois.
1862. *Leda bellistriata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 419.
Marshall Group: Moscow, Michigan.
1865. *Leda bellistriata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Hillsdale, Michigan.

Nuculana bellistriata Stevens—Continued.

1869. *Leda bellistriata*? Winchell, Safford's Geol. of Tenn., p. 444.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Leda bellistriata*? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.
Waverly Group: Tennessee.
1884. *Nuculana bellistriata*. White, 13th Rep. Geol. Surv. Ind., p. 146, pl. 31, figs. 8, 9.
Coal Measures: Vermilion, Sullivan, Vanderburg, and Warrick counties, Indiana.
1887. *Nuculana bellistriata*. Herrick, Bull. Den. Univ., vol. 2, p. 40, pl. 4, fig. 26.
Coal Measures: Flint Ridge, Ohio.
1888. *Nuculana bellistriata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 232.
Lower Coal Measures: Des Moines, Iowa.
1894. *Nuculana bellistriata*. Keyes, Mo. Geol. Surv., vol. 5, p. 122, pl. 45, figs. 4a, b.
Upper Coal Measures: Gentry and Kansas City, Missouri.
1897. *Nuculana aff. bellistriata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 35
Upper Coal Measures: Scott County, Arkansas.

Nuculana bellistriata var. attenuata Meek.

1866. *Nucula Kazanensis*. Geinitz, Carb. und Dyas in Nebr., p. 20, tab. 1, figs. 33, 34.
(Not *N. kasanensis* de Vern, 1845.)
Nebraska City, Nebraska.
1872. *Nuculana bellistriata* var. *attenuata*. Meek, U. S. Geol. Surv. Nebr., p. 206, pl. 10, figs. 11a, b.
Upper Coal Measures: Nebraska City, Nebraska; Leavenworth, Kansas; Iowa; Illinois.
Lower Coal Measures: West Virginia.

Nuculana curta Meek and Worthen.

1861. *Leda curta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 144.
St. Louis L. S.: Waterloo, Monroe County, Illinois.
1866. *Nuculana*? *curta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 283, pl. 20, figs. 6a, b.
St. Louis Group: Waterloo, Monroe County, Illinois.

Nuculana dens-mamillata Stevens.

1858. *Leda dens-mamillata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 262.
Carboniferous: Battle Creek, Michigan.

Nuculana diversa Hall.

1883. *Leda (Nuculana) diversa*. Hall, Pal. N. Y., vol. 5, pt. 1, Plates and Explanations, pl. 47, figs. 31-37.
1885. *Leda diversa*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 329, pl. 47, figs. 31-37.
Hamilton Group: Schoharie County and Onondaga County, New York.
1888. *Nuculana diversa*? Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 22.
Waverly Group: Peninsula, Ohio.
1888. *Nuculana diversa*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 13.
Bedford Shale: Central College, Ohio.
1889. *Nuculana diversa*? Herrick, Am. Geol., vol. 3, pl. 2, fig. 22.
1889. *Leda diversa* var. Herrick, Am. Geol., vol. 3, pl. 4, fig. 13.
Bedford Shale: Ohio.
1895. *Nuculana diversa*? Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 22.
Waverly Group: Peninsula, Ohio.
1895. *Nuculana diversa*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 13.
Shale above Berea Grit: Ohio.

Nuculana nasuta Hall.

1856. *Nucula nasuta*. Hall, Trans. Albany Inst., vol. 4, p. 17.
St. Louis L. S.: Spargen Hill, Indiana.

Nuculana nasuta Hall—Continued.

1882. *Nuculana nasuta*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 57, pl. 7, figs. 7-9.
St. Louis Group: Spergen Hill, Indiana.
1883. *Leda nasuta*. Hall, 12th Rep. Geol. Surv. Ind., p. 344, pl. 30, figs. 7-9.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Nuculana nuculaformis Stevens.

1858. *Leda nuculaformis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 262.
Carboniferous: Battle Creek, Michigan.
1888. *Nuculana nuculaformis*. Herrick, Bull. Den. Univ., vol. 4, p. 45, pl. 4, fig. 23.
Waverly Group: Newark, Ohio.
1889. *Nuculana nuculaformis?* Herrick, Am. Geol., vol. 3, pl. 2, fig. 23.
1895. *Nuculana nuculaformis?* Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 23.
Burlington: Newark, Ohio.

Nuculana obesa White.

1879. *Nuculana obesa*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 216.
Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of Pipe Spring.
1880. *Nuculana obesa*. White, Cont. to Inv. Pal., No. 6, p. 136, pl. 34, figs. 2a-c.
Upper Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south from Pipe Spring.

Nuculana pandoriformis Stevens.

1858. *Leda pandoriformis*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 262.
Carboniferous: Battle Creek, Michigan.
1884. *Leda Ohioensis*. Hall, Rep. N. Y. State Geol. for 1881, pl. 7, fig. 3.
Waverly S. S.: Waverly, Ohio.
1885. *Leda pandoriformis*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 332, pl. 47, figs. 49, 50.
Waverly S. S.: Newark, Ohio; Battle Creek, Michigan.

Nuculana saccata Winchell.

1863. *Leda saccata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 16.
Yellow S. S.: Burlington, Iowa.
1888. *Nuculana (Leda) saccata?* Herrick, Bull. Den. Univ., vol. 3, p. 80, pl. 9, fig. 12.
Waverly Group: Licking County, Ohio.
1888. *Nuculana saccata?* Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 16.
Waverly Group: Ohio.
1889. *Nuculana saccata?* Herrick, Am. Geol., vol. 3, pl. 2, fig. 16.
1895. *Nuculana saccata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 16.
Waverly Shale, below Conglomerate I: Ohio.

Nuculana similis Herrick.

1888. *Nuculana (Leda) similis*. Herrick, Bull. Den. Univ., vol. 3, p. 79, pl. 4, fig. 13, 15.
Waverly Group: Licking County, Ohio.
1889. *Nuculana similis*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 13.
1895. *Nuculana similis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 13.
Waverly Group, below Conglomerate I: Ohio.

Nuculana spatulata Herrick.

1888. *Nuculana (Leda) spatulata*. Herrick, Bull. Den. Univ., vol. 3, p. 79, pl. 9, fig. 11; pl. 7, fig. 35.
Waverly Group: Licking County, Ohio.

Nuculana vaseyana McChesney.

1860. *Nuculites vaseyana*. McChesney, Desc. New Pal. Foss., p. 73.
Hamilton Group: Batesville, Arkansas.

Nuculana vaseyana McChesney—Continued.

1865. *Nuculites vaseyana*. McChesney, Ill. New Spec. Foss., pl. 7, figs. 4a-d.

1868. *Nuculana Vaseyana*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 37, pl. 7, figs. 4a-d.

Hamilton Group: Batesville, Arkansas.

Nuculana (species undetermined).

1873. *Nuculana* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 26, fig. 10.

Coal Measures.

1874. *Nuculana* (sp. undet.). Meek, Am. Jour. Sci. (3), vol. 7, p. 489.

1888. *Nuculana* sp. Herrick, Bull. Den. Univ., vol. 4, p. 45, pl. 4, fig. 11.
Waverly Group: Gann, Ohio.

1888. *Nuculana* sp. Herrick, Bull. Den. Univ., vol. 4, p. 45, pl. 4, fig. 12.
Waverly Group: Granville, Ohio.

1889. *Nuculana* sp. Herrick, Am. Geol., vol. 3, pl. 2, figs. 11, 12.

1895. *Nuculana* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, figs. 11, 12.
Kinderhook: Gann and Granville, Ohio.

NUCULITES Conrad, 1841.**Nuculites concentricus** Conrad.

*1842. *Nuculites concentricus*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 248.
Coal Measures.

Nuculites mactroides Conrad.

1842. *Nuculites mactroides*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 249, pl. 15, fig. 6.

Carboniferous: Hillsdale County, Michigan.

Nuculites sulcatina. See *Palæoneilo sulcatina*.

Nuculites vaseyana. See *Nuculana vaseyana*.

NULLIPORA Lamark, 1801.**Nullipora?** *obtexta* White.

1862. *Nullipora? obtexta*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 33.
Chemung Group: Burlington, Iowa.

(EHLERTELLA Hall, 1892.)

Ehlertella pleurites. See ^{*Lingula discaria*} *Lingulodiscus pleurites*.

OLIGOPORUS Meek and Worthen, 1860.**Oligoporus bellulus** Miller and Gurley.

1894. *Oligoporus bellulus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 7, pl. 1, fig. 3.

Keokuk Group: Boonville, Missouri.

Oligoporus blairi Miller and Gurley.

1894. *Oligoporus blairi*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 6, pl. 1, figs. 2, 6; pl. 2, fig. 7.

Keokuk Group: Boonville, Missouri.

Oligoporus coreyi Meek and Worthen.

1870. *Oligoporus Coreyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 34.
Keokuk Group: Crawfordsville, Indiana.

Oligoporus coreyi Meek and Worthen—Continued.

1895. *Oligoporus coreyi*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 183.
Keokuk Shales: Crawfordsville, Indiana.
1896. *Oligoporus coreyi*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 186, pl. 6, figs. 25-29.

Subcarboniferous (Keokuk Group?): Indiana.

Oligoporus danæ Meek and Worthen.

1860. *Melonites Danæ*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 397.
Keokuk L. S.: Jersey County, near Warsaw, Illinois.
1860. *Oligoporus Danæ*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 474.
1866. *Oligoporus Danæ*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 249, pl. 17, fig. 8.
Keokuk L. S.: Jersey County, Illinois; Warsaw, Illinois; Fenton, Missouri.
1894. *Oligoporus danæ*. Keyes, Mo. Geol. Surv., vol. 4, p. 126, pl. 17, figs. 2a, b.
Keokuk L. S.: Felton and Curryville, Missouri; Keokuk, Iowa.
1895. *Oligoporus danæ*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 182, pl. 20, figs. 2a, b.
Keokuk L. S.: Felton, St. Louis County, and Curryville, Pike County, Missouri; Keokuk, Iowa; Jersey County, Illinois.
1896. *Oligoporus danæ*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 193, pl. 6, figs. 30-34.
Keokuk Group: Keokuk, Iowa; Warsaw and Alton, Illinois.

Oligoporus missouriensis Jackson.

1896. *Oligoporus missouriensis*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 184, pl. 9, figs. 50-52.

Augusta L. S. (?): Webb City, Missouri.

Oligoporus mutatus Keyes.

1894. *Oligoporus mutatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 126, pl. 15, figs. 4a, b.
Keokuk L. S.: Keokuk, Iowa.
1895. *Oligoporus mutatus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 183, pl. 18, figs. 4a, b.
Keokuk L. S.: Keokuk, Iowa.

Oligoporus nobilis Meek and Worthen.

1868. *Oligoporus nobilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 358.
Burlington L. S.: Calhoun County, Illinois.
1873. *Oligoporus nobilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 476, pl. 11, fig. 3.
Burlington L. S.: Calhoun County, Illinois.
1895. *Oligoporus nobilis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 182.
Burlington L. S.: Calhoun County, Illinois.
1896. *Oligoporus nobilis*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 198, pl. 6, fig. 35.
Keokuk Group: Keokuk, Iowa, or Warsaw, Illinois.

Oligoporus parvus Hambach.

1884. *Oligoporus parvus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 550, pl. C., fig. 3.
St. Louis L. S.: St. Louis, Missouri.
1894. *Oligoporus parvus*. Keyes, Mo. Geol. Surv., vol. 4, p. 127.
St. Louis L. S.: St. Louis, Missouri.
1895. *Oligoporus parvus*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 183.
St. Louis L. S.: St. Louis, Missouri.

Oligoporus sulcatus Miller and Gurley.

1894. *Oligoporus sulcatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 8, pl. 1, figs. 4, 5.
St. Louis Group: Hardin County, Kentucky.

(OLLACRINUS Cumberland, 1826.)

Ollacrinus papillatus. See Gilbertsocrinus tuberculosus.

Ollacrinus tuberculosus. See Gilbertsocrinus tuberculosus.

Ollacrinus typus. See Gilbertsocrinus typus.

OMPHALOTROCHUS Meek, 1864.

Omphalotrochus springvalensis White.

1876. *Euomphalus Springvalensis*. White, Proc. Acad. Nat. Sci. Phil., p. 32.
Kinderhook Group: Springdale, Humboldt County, Iowa.
1880. *Euomphalus springvalensis*. White, Cont. to Inv. Pal., No. 8, p. 167, pl. 41, figs. 1a, b.
Kinderhook Group: Springdale, Humboldt County, Iowa.
1890. *Straparollus springvalensis*. Keyes, Am. Geol., vol. 5, p. 195.
Kinderhook Group: Humboldt County, Iowa.
1894. *Omphalotrochus springvalensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 162, pl. 51, fig. 7.
Lower Burlington L. S.: Louisiana, Missouri.

Omphalotrochus whitneyi Meek.

1864. *Euomphalus Whitneyi*. Meek, Pal. Cal., vol. 1, p. 15, pl. 2, figs. 8, 8a.
(Name *Omphalotrochus* suggested.)
Carboniferous: Bass's Ranch, Shasta County, California.

ONCODOCERAS Hyatt, 1893.

Oncodoceras rockfordense Meek and Worthen.

1866. *Nautilus (Cryptoceras) rockfordensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 275.
Goniatite L. S.: Rockford, Indiana.
1868. *Gyroceras? Rockfordensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 459, pl. 14, figs. 2a, b.
Goniatite L. S.: Rockford, Indiana.
1891. *Solenochilus rockfordense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 89, pl. 16, fig. 3, pl. 17, fig. 1.
Waverly or Knobstone Group: Rockford, Indiana.
1892. *Solenochilus rockfordense*. Miller, 17th Rep. Geol. Surv. Ind., p. 699, pl. 16, fig 3; pl. 17, fig. 1.
Waverly or Knobstone Group: Rockford, Indiana.
1893. *Oncodoceras (Solenochilus) rockfordiense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 456.

ONYCHASTER Meek and Worthen, 1868.

Onychaster asper Miller.

1891. *Onychaster asper*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 74, pl. 13, figs. 3-5.
Keokuk Group: Boonville, Missouri.
1892. *Onychaster asper*. Miller, 17th Rep. Geol. Surv. Ind., p. 684, pl. 13, figs. 3-5.
Keokuk Group: Boonville, Missouri.
1894. *Onychaster asper*. Keyes, Mo. Geol. Surv., vol. 4, p. 131.
Keokuk L. S.: Boonville, Missouri.

Onychaster barrisi Hall.

- *1861. *Protaster barrisi*. Hall, Desc. New Spec. Crin., p. 18.
Burlington L. S.
1873. *Onychaster Barrisi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 476,
pl. 10, fig. 1.
Burlington L. S.: Burlington, Iowa.

Onychaster confragosus Miller.

1891. *Onychaster confragosus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind.,
p. 74, pl. 12, figs. 6, 7.
Keokuk Group: Boonville, Missouri.
1892. *Onychaster confragosus*. Miller, 17th Rep. Geol. Surv. Ind., p. 684, pl. 12,
figs. 6, 7.
Keokuk Group: Boonville, Missouri.

Onychaster demissus Miller.

1891. *Onychaster demissus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 75,
pl. 12, figs. 8-10.
Keokuk Group: Boonville, Missouri.
1892. *Onychaster demissus*. Miller, 17th Rep. Geol. Surv. Ind., p. 685, pl. 12,
figs. 8-10.
Keokuk Group: Boonville, Missouri.

Onychaster flexilis Meek and Worthen.

1868. *Onychaster flexilis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 526,
figs. A-D.
Keokuk Group: Crawfordsville, Indiana.
1869. *Onychaster flexilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 83.
1873. *Onychaster Flexilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 510, pl. 16,
fig. 3.
Keokuk Group.

ONYCHOCRINUS Lyon and Casseday, 1859.**Onychocrinus asteriæformis Hall.**

1861. *Forbesiocrinus asteriæformis*. Hall, Desc. New Spec. Crin., p. 9.
Burlington, L. S.
1861. *Forbesiocrinus asteriæformis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 320.
Burlington L. S.: Burlington, Iowa.
1872. *Forbesiocrinus asteriæformis*. Hall, Photo. Plates of Crinoids, pl. 6 figs.
10, 11.

Onychocrinus cantonensis Miller and Gurley.

1890. *Onychocrinus cantonensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind.,
p. 359, pl. 7, fig. 9.
Keokuk Group: Near Canton, Indiana.

Onychocrinus distensus Worthen.

1882. *Onychocrinus distensus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist.,
p. 31.
Chester L. S.: Monroe County, Illinois.
1883. *Onychocrinus distensus*. Worthen, Geol. Surv. Ill., vol. 7, p. 307, pl. 29, fig. 5.
Chester L. S.: Monroe County, Illinois.

Onychocrinus diversus Meek and Worthen.

1866. *Onychocrinus diversus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 256.
Upper Burlington Group: Burlington, Iowa.
1868. *Onychocrinus diversus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 492,
pl. 17, figs. 5a, b.
Burlington Group: Burlington, Iowa.

Onychocrinus exculptus Lyon and Casseday.

1860. *Onychocrinus exculptus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 78.
Subcarboniferous: Clear Creek, Hardin County, Kentucky.
Montgomery County, Indiana.
1860. *Forbesiocrinus? Norwoodi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 389.
Keokuk L. S.: Near Nauvoo, Illinois.
1866. *Onychocrinus Norwoodi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 245,
pl. 17, fig. 3.
Keokuk L. S.: River bluff, near south line of Monroe County, Illinois.
1873. *Onychocrinus exculptus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 498,
pl. 14, fig. 4.
Keokuk Group: Crawfordsville, Indiana.
1882. *Onychocrinus exculptus*. White, 11th Rep. Geol. Surv. Ind., p. 365, pl. 40,
fig. 1.
Keokuk Group: Crawfordsville, Indiana.

Onychocrinus magnus Worthen.

1875. *Onychocrinus magnus*. Worthen, Geol. Surv. Ill., vol. 6, p. 520, pl. 31, fig. 5.
St. Louis Group: Monroe County, Illinois.

Onychocrinus monroensis Meek and Worthen.

1861. *Forbesiocrinus Monroensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 130.
Keokuk L. S.: River bluff, near south line of Monroe County, Illinois.
1866. *Onychocrinus monroensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 244,
pl. 17, fig. 7.
Keokuk Group: River bluff, near south line of Monroe County, Illinois.
1894. *Onychocrinus monroensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 224, pl. 30, fig. 2.
St. Louis L. S.: St. Louis, Missouri.

Onychocrinus norwoodi. See *Onychocrinus exculptus*.**Onychocrinus parvus** Miller and Gurley.

1894. *Onychocrinus parvus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat.
Hist., p. 52, pl. 4, fig. 5.
Kaskaskia Group: Shoals, Martin County, Indiana.

Onychocrinus pulaskiensis Miller and Gurley.

1895. *Onychocrinus pulaskiensis*. Miller and Gurley, Bull. No. 6, Ill. State Mus.
Nat. Hist., p. 40, pl. 4, figs. 1, 2.
Kaskaskia Group: Pulaski County, Kentucky.

Onychocrinus ramulosus Lyon and Casseday.

1859. *Forbesiocrinus ramulosus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 28,
p. 237.
Subcarboniferous L. S.: Hardin County, Kentucky; Indiana.
1882. *Onychocrinus ramulosus*. White, 11th Rep. Geol. Surv. Ind., p. 366, pl. 39,
figs. 2, 3.
Keokuk Group: Crawfordsville, Indiana.

Onychocrinus ulrichi Miller and Gurley.

1890. *Onychocrinus ulrichi*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13,
p. 17, pl. 3, figs. 2, 3.
Keokuk Group: Crawfordsville, Ind.
1890. *Onychocrinus ulrichi*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 339,
pl. 3, figs. 2, 3.
Keokuk Group: Crawfordsville, Indiana.

Onychocrinus whitfieldi. See *Taxocrinus whitfieldi*.

ORACARDIA Herrick, 1888.

Oracardia cornuta Herrick.

1888. *Oracardia cornuta*. Herrick, Bull. Den. Univ., vol. 4, p. 42, pl. 4, fig. 6.
Waverly Group: Ohio.
1889. *Oracardia cornuta*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 6.
1895. *Oracardia cornuta*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, figs. 6, 8-10.
Cuyahoga Shale: Ohio.
Kinderhook Freestone: Granville, Ohio.

Oracardia ornata Herrick.

1888. *Oracardia ornata*. Herrick, Bull. Den. Univ., vol. 4, p. 41, pl. 4, figs. 8-10.
Waverly Group: Granville, Ohio.
1889. *Oracardiu ornata*. Herrick, Am. Geol. vol. 3, pl. 2, figs. 8-10.

ORBICULOIDEA D'Orbigny, 1847.

Orbiculoidea batesvillensis Weller.

1897. *Orbiculoidea batesvillensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 255,
pl. 18, figs. 4, 5.
Batesville S. S.: Batesville, Arkansas.

Orbiculoidea capax White.

1862. *Discina capax*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 30.
Chemung Group: Burlington, Iowa.
1865. *Discina capax*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Marshall Group: Girard, Trumbull County, Ohio.
1870. *Discina Capax?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 249.
Waverly Group: Rockville, Ohio.

Orbiculoidea capuliformis McChesney.

1860. *Discina capuliforma*. McChesney, Desc. New Pal. Foss., p. 72.
Coal Measures: Springfield, Illinois; 12 miles northwest of Richmond,
Missouri.
1868. *Discina capuliformis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 23,
pl. 2, fig. 20.
Coal Measures: Springfield, Illinois; 12 miles northwest of Richmond,
Missouri.

Orbiculoidea convexa Shumard.

1858. *Discina convexa*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 221.
Upper Coal Measures: Valley of Verdigris River, Kansas.
1884. *Discina convexa*. White, 13th Rep. Geol. Surv. Ind., p. 121, pl. 25, fig. 9.
Coal Measures: Vermilion County, Indiana.
1886. *Discina convexa*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 452,
fig. 18.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Discina convexa*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2,
pt. 2, p. 267, fig. 18.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Discina convexa*. Herrick, Bull. Den. Univ., vol. 2, p. 144, pl. 3, fig. 19.
Coal Measures: Flint Ridge, Ohio.
1894. *Discina convexa*. Keyes, Mo. Geol. Surv., vol. 5, p. 40, pl. 35, fig. 7.
Upper Coal Measures: Near Richmond, Missouri.

Orbiculoidea gallaheri Winchell.

1865. *Discina Gallaheri*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Marshall Group: Hillsdale, Michigan; Gerard and Wethersfield, Trumbull
County, Ohio.
1870. *Discina Gallaheri*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 249.
Waverly Group: Granville, Ohio; near Shafer's, Pennsylvania.

Orbiculoidea herzeri Hall and Clarke.

1892. *Orbiculoidea Herzeri*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 126 (foot-note), p. 178, pl. 4E, fig. 19; pl. 4F, figs. 9-13, 30.
Cuyahoga Shale: Berea, Ohio.
1892. *Orbiculoidea pulchra*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 5, figs. 11, 17.
Cuyahoga Shale: Berea, Ohio.
1892. *Orbiculoidea pulchra*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4E, fig. 19; pl. 4F, figs. 8-13, 30, 32.
Cuyahoga Shale: Berea, Baconberg, and Newark, Ohio.
1892. *Orbiculoidea* compare *O. pulchra*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4F, figs. 14-16.
Waverly Group: Meadville, Pennsylvania.
1897. *Orbiculoidea Herzeri*. Hall, 14th Ann. Rep. N. Y. State Geol., p. 333, pl. 2, figs. 14-20.
Cuyahoga Shale: Berea, Baconsburg, etc., Ohio.

Orbiculoidea illinoisensis Miller and Gurley.

1894. *Discina illinoisensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 70, pl. 7, figs. 2-5.
Coal Measures: Knox County and Peoria County, Illinois.

Orbiculoidea keokuk Gurley.

1884. *Discina Keokuk*. Gurley, New Carb. Foss., Bull. No. 2, p. 6.
Keokuk Group: Crawfordsville, Indiana.

Orbiculoidea magnifica Herrick.

1891. *Discina magnifica*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 46, pl. 1, fig. 17.
Waverly Group: Hemlock Falls, Ashland County, Ohio.

Orbiculoidea manhattanensis Meek and Hayden.

1859. *Discina Manhattanensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Kansas River, opposite Manhattan, Kansas.
1892. *Orbiculoidea Manhattanensis*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 5, fig. 12.
Coal Measures: Riley County, Kansas.
1892. *Orbiculoidea Manhattanensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4E, fig. 20.
Coal Measures: Riley County, Kansas.

Orbiculoidea missouriensis Shumard.

1858. *Discina Missouriensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 221.
Middle Coal Measures: Lexington and Charbonnier, Missouri.
1873. *Discina nitida?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 572, pl. 25, fig. 1.
Coal Measures: Illinois.
1882. *Discina Meekana*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 228.
Coal Measures: Carbon Hill and Flint Ridge, Ohio; Illinois; Iowa.
1884. *Discina nitida*. White, 13th Rep. Geol. Surv. Ind., p. 121, pl. 25, fig. 10.
Coal Measures: Indiana; Illinois; Iowa; Missouri; abundant at Cannelton and Horse Shoe of Little Vermilion.
1887. *Discina Meekana*. Herrick, Bull. Den. Univ., vol. 2, pl. 2, figs. 8, 9.
Coal Measures: Flint Ridge, Ohio.
1887. *Discina nitida*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 2, figs. 8, 9.
Coal Measures: Flint Ridge, Ohio.
1888. *Discina nitida*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 226.
Lower Coal Measures: Des Moines, Iowa.
1891. *Discina Meekana*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 598, pl. 15, figs. 1-3, also p. 603.
Coal Measures: Carbon Hill and Flint Ridge, Ohio.

Orbiculoidea missouriensis Shumard—Continued.

1892. *Orbiculoidea nitida*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 5, fig. 16.
Lower Coal Measures; Springfield, Illinois.
1892. *Orbiculoidea nitida*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4F, figs. 23-29.
Coal Measures: Springfield, Illinois; Grover, Missouri.
1894. *Discina nitida*. Keyes, Mo. Geol. Surv., vol. 5, p. 39, pl. 35, fig. 6.
Coal Measures: Clinton, Lexington, and Richmond, Missouri.
1895. *Discina Meekana*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 483, pl. 11, figs. 1-3, also p. 488.
Coal Measures: Carbon Hill, Hocking County, Ohio.

Orbiculoidea munda Miller and Gurley.

1894. *Discina munda*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 71, pl. 7, figs. 6, 7.
Upper Coal Measures: Kansas City, Missouri.

Orbiculoidea newberryi. See Lingulodiscina newberryi.**Orbiculoidea nitida Phillips.**

1894. *Discina nitida*. Walcott, Pal. Eureka Dist., p. 213, pl. 7, figs. 4, 4a.
Lower Carboniferous L. S.: White Pine Mining District, Nevada.

Orbiculoidea patellaris Winchell.

1863. *Discina patellaris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.
Yellow S. S.: Burlington, Iowa.

Orbiculoidea pleurites. See Lingulodiscina pleurites.**Orbiculoidea pulchra. See Orbiculoidea hertzeri.****Orbiculoidea saffordi Winchell.**

1869. *Discina Saffordi*. Winchell, Safford's Geol. of Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Discina Saffordi*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 248.
Waverly Group: Hickman County, Tennessee.

Orbiculoidea sampsoni Miller.

1891. *Discina sampsoni*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 80, pl. 13, figs. 10, 12.
Chouteau L. S.: Sedalia, Missouri.
1892. *Discina sampsoni*. Miller, 17th Rep. Geol. Surv. Ind., p. 690, pl. 13, figs. 10, 12.
Chouteau L. S.: Sedalia, Missouri.

Orbiculoides subtrigonalis McChesney.

1865. *Discina subtrigonalis*. McChesney, Ill. New Spec. Foss.
Coal Measures: La Salle, Illinois.
1865. *Discina trigonalis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 19a, b.
1868. *Discina subtrigonalis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 24, pl. 2, figs. 19a, b.
Coal Measures: La Salle, Illinois.

Orbiculoidea tenuilineata Meek and Hayden.

1859. *Discina tenuilineata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Cottonwood Creek, Kansas.

Orbiculoidea utahensis Meek.

1877. *Discina* sp. undt. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 99, pl. 10, fig. 3.
Upper Carboniferous: Weber Canyon, Wasatch Range, Utah.
1877. *Discina utahensis*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 99. (Also see footnote, p. 9.)

Orbiculoidea varsoviensis Worthen.

1884. *Discina varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 23.
Keokuk L. S.: Warsaw, Illinois.
1890. *Discina varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 102, pl. 11, fig. 7.
Keokuk L. S.: Warsaw, Illinois.

Orbiculoidea (species undetermined).

1872. *Orbiculoidea*, sp. Meek, U. S. Geol. Surv. Nebr., p. 158, pl. 4, fig. 3.
Upper Coal Measures: Three-fourths of a mile west of Nebraska City,
Nebraska.
1876. *Discina* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.
1876. *Discina* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Upper Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.
1887. *Orbiculoidea*? sp. Herrick, Bull. Den. Univ., vol. 2, pl. 2, fig. 10.
Coal Measures: Flint Ridge, Ohio.
1888. *Discina*, sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 2.
Bedford Shale: Central College, Ohio.
1892. *Orbiculoidea*, sp. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4F, fig. 31.
Coal Measures: Near Nebraska City, Nebraska.
1892. *Orbiculoidea* sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 4K, fig. 4.
St. Louis L. S.: Crittenden County, Kentucky.
1895. *Discina*, sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 2.
Bedford Shale: Central College, Ohio.

OROPHOCCRINUS von Seebach, 1864.**Orophocrinus campanulatus Hambach.**

1884. *Codonites campanulatus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 553,
pl. D, figs. 8, 9.
Lower Burlington L. S.: Sedalia, Missouri.
1886. *Orophocrinus stelliformis* var. *campanulatus*. Etheridge and Carpenter, Cat.
Blast., p. 289, pl. 16, fig. 5.
Lower Burlington L. S.: Burlington, Iowa.
1894. *Orophocrinus campanulatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 142.
Lower Burlington L. S.: Sedalia, Missouri.

Orophocrinus conicus Wachsmuth and Springer.

1890. *Orophocrinus conicus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8,
p. 201, pl. 15, figs. 1-3.
Kinderhook Group: Le Grand, Iowa.

Orophocrinus fusiformis Wachsmuth and Springer.

1890. *Orophocrinus fusiformis*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8,
p. 203, pl. 17, fig. 4.
Kinderhook Group: Le Grand, Iowa.

Orophocrinus gracilis Meek and Worthen.

1870. *Codonites gracilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 32.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Codonites gracilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 467, pl. 8,
fig. 6.
Burlington L. S.: Burlington, Iowa.

Orophocrinus inopinatus Rowley and Hare.

1891. *Codonites inopinatus*. Rowley and Hare, The Kansas City Scientist, vol. 5,
p. 100, pl. 2, figs. 11, 12; p. 118, pl. 3, fig. 17.
Lower Burlington L. S.: Louisiana, Missouri.

Orophocrinus sirius White.

1862. *Pentremites sirius*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 20, fig. 3.
Upper Burlington L. S.: Burlington, Iowa.

Orophocrinus stelliformis Owen and Shumard.

1850. *Pentremites stelliformis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 67, pl. 7, figs. 16a, b.
Subcarboniferous L. S.: Burlington, Iowa.
1852. *Pentremites stelliformis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 593, tab. 5 A, figs. 16a, b.
Subcarboniferous L. S.: Burlington, Iowa.
- *1864. *Orophocrinus stelliformis*. von Seebach, Nachr. K. Gesellsch. Wissensch. Gottingen, p. 110.
1873. *Codonites stelliformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 464, pl. 9, fig. 5.
Burlington L. S.: Burlington, Iowa.
1874. *Codonites stelliformis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 374.
1886. *Orophocrinus stelliformis*. Etheridge and Carpenter, Cat. Blast., p. 287, pl. 11, figs. 8, 9; pl. 15, figs. 11-15; pl. 16, figs. 5-7; pl. 17, fig. 12.
Lower Burlington L. S.: Burlington, Iowa.
1894. *Orophocrinus stelliformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 141, pl. 17, figs. 14a, b.
Lower Burlington L. S.: Hannibal, Louisiana, Sedalia and Springfield, Missouri.

Orophocrinus stelliformis var. *campanulatus*. See *Orophocrinus campanulatus*.

Orophocrinus whitei Hall.

1861. *Codaster whitei*. Hall, Desc. New Spec. Crin., p. 10.
Burlington L. S.
1861. *Codaster Whitei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 327.
Burlington L. S.: Burlington, Iowa.
1893. *Orophocrinus whitei*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 36, pl. 3, figs. 25-28.
Burlington L. S.: Burlington, Iowa.

ORTHIS Dalman, 1827.

Orthis arachnoidea. See *Derbya crassa*.

Orthis burlingtonensis. See *Rhipidomella burlingtonensis*.

Orthis carbonaria. See *Rhipidomella pecosi*.

Orthis clarkensis. See *Rhipidomella clarkensis*.

Orthis cooperensis. See *Rhipidomella dubia*.

Orthis crenistria. See *Derbya crassa*.

Orthis dalyana. See *Rhipidomella dalyana*.

Orthis dubia. See *Rhipidomella dubia*.

Orthis flava Winchell.

1865. *Orthis flava*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Yellow S. S.: Burlington, Iowa.

Orthis inequalis. See *Orthothetes inæqualis*.

Orthis kaskaskiensis. See *Derbya kaskaskiensis*.

Orthis keokuk. See *Derbya keokuk*.

- Orthis lasallensis*. See *Derbya crassa*.
Orthis michelini. See *Rhipidomella michelini* and *R. oweni*.
Orthis michelini var. *burlingtonensis*. See *Rhipidomella burlingtonensis*.
Orthis michelini var. *nevadensis*. See *Rhipidomella nevadensis*.
Orthis missouriensis. See *Rhipidomella missouriensis*.
Orthis occasus. See *Rhipidomella occasus*.
Orthis oweni. See *Rhipidomella oweni*.
Orthis pecosi. See *Rhipidomella pecosi*.
Orthis pratteni. See *Derbya crassa*.
Orthis resupinata. See *Schizophoria resupinata*.
Orthis resupinoides. See *Schizophoria resupinoides*.
Orthis richmonda. See *Derbya crassa*.
Orthis robusta. See *Derbya robusta*.
Orthis striato-costata. See *Meekella striatocostata*.
Orthis subelliptica. See *Rhipidomella subelliptica*.
Orthis swallowi. See *Schizophoria swallowi*.
Orthis thiemii. See *Rhipidomella thiemii*.
Orthis umbraculum. See *Derbya crassa* and *Orthothetes imbraculum*.
Orthis vanuxemi. See *Rhipidomella vanuxemi*.
Orthis vanuxemi var. *gracilis*. See *Rhipidomella vanuxemi* var. *pulchellus*.
Orthis vanuxemi var. *pulchellus*. See *Rhipidomella vanuxemi* var. *pulchellus*.

(*ORTHISINA* D'Orbigny, 1850.)

- Orthisina crassa*. See *Derbya crassa*.
Orthisina missouriensis. See *Meekella striatocostata*.
Orthisina occidentalis. See *Meekella striatocostata*.
Orthisina shumardiana. See *Meekella striatocostata*.
Orthisina umbraculum. See *Derbya crassa*.
Orthisina (species undetermined).

1859. *Orthisina*, sp.(?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 395.
 White Permian L. S.: Guadalupe Mountains.

ORTHO CERAS Breynius, 1732.

Orthoceras aculeatum Swallow.

1858. *Orthoceras aculeatum*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 200.
 Upper Coal Measures: Valley of Kansas River, Kansas.

Orthoceras annulo-costatum. See *Orthoceras randolphense*.

Orthoceras arcuatellum Winchell.

1862. *Orthoceras arcuatellum*? Winchell, Am. Jour. Sci. (2), vol. 33, p. 355.
 Marshall S. S.: Marshall, Michigan.

Orthoceras baculum Meek.

1860. *Orthoceras baculum*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.
Lower Carboniferous?: East side of Ruby Valley, latitude 40°, longitude 115° 20'.
- 1876 *Orthoceras baculum*. Meek, Simpson's Expl. Gt. Basin Utah, p. 354, pl. 1, figs. 10a, b.
Lower Carboniferous?: East side of Ruby Valley.

Orthoceras chemungense Swallow.

1860. *Orthoceras Chemungense*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 660.
Lithographic L. S.: Marion and Pike counties, Missouri.

Orthoceras chemungense* var. *chouteauense*. See *Orthoceras chouteauense*.*Orthoceras chesterense Swallow.**

1863. *Orthoceras Chesterense*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 98.
Ste. Genevieve L. S.: Chester, Illinois; St. Mary's, Missouri.
1894. *Orthoceras chesterense*. Keyes, Mo. Geol. Surv., vol. 5, p. 225.
Kaskaskia L. S.: Ste. Mary, Missouri.

Orthoceras chouteauense Swallow.

1860. *Orthoceras Chemungense*, var. *Chouteauense*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 660.
Chouteau L. S.: Cooper County, Missouri.
1894. *Orthoceras chouteauense*. Keyes, Mo. Geol. Surv., vol. 5, p. 225.
Chouteau L. S.: Cooper County and Louisiana, Missouri.

Orthoceras clinocameratum Winchell.

1862. *Orthoceras clinocameratum*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 356.
Marshall S. S.: Hardwood Pt., on shore of Saginaw Bay, Michigan.

Orthoceras colletti Miller.

1892. *Orthoceras colletti*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 67, pl. 10, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1894. *Orthoceras colletti*. Miller, 18th Rep. Geol. Surv. Ind., p. 321, pl. 10, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Orthoceras cribrosum Geinitz.

1866. *Orthoceras cribrosum*. Geinitz, Carbon. und Dyas in Nebr., p. 4, tab. 1, fig. 5.
Nebraska City, Nebraska.
1872. *Orthoceras cribrosum*. Meek, U. S. Geol. Surv. Nebr., p. 234, pl. 11, figs. 18a, b.
Upper Coal Measures: Nebraska City, Nebraska; Illinois.
Lower Coal Measures: Illinois; West Virginia.
1887. *Orthoceras cribrosum*? Herrick, Bull. Den. Univ., vol. 2, p. 17, pl. 5, fig. 2.
Coal Measures: Flint Ridge, Ohio.
1892. *Orthoceras cribrosum*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 65.
Upper Coal Measures: Turner Station, near Kansas City, Missouri.
1894. *Orthoceras cribrosum*. Miller, 18th Rep. Geol. Surv. Ind., p. 319.
Upper Coal Measures: Turner Station, near Kansas City, Missouri.
1897. *Orthoceras cribrosum*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 43.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Orthoceras daedalus* Hall. See *Orthoceras indianense*.*Orthoceras dawsonianum Miller.**

1868. *Orthoceras perstrictum*. Dawson, Acad. Geol., page 312, fig. 129. (Not *O. perstrictum* Barrande.)
Carboniferous L. S.: Windsor, Nova Scotia.
1883. *Orthoceras dawsonianum*. Miller, Am. Pal. Foss., 2d Ed., p. 307.

Orthoceras dolatum Dawson.

1868. *Orthoceras dolatum*. Dawson, Acad. Geol., p. 311, fig. 126.
Carboniferous L. S.: Windsor, Nova Scotia.

Orthoceras epigrus Hall.

1856. *Orthoceras epigrus*. Hall, Trans. Albany Inst., vol. 4, p. 33.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Orthoceras epigrus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 91, pl. 8,
fig. 2.
St. Louis Group: Spergen Hill, Indiana.
1883. *Orthoceras epigrus*. Hall, 12th Rep. Geol. Surv. Ind., p. 373, pl. 31, fig. 2.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Orthoceras eurekaense Walcott.

1884. *Orthoceras Eurekaense*. Walcott, Pal. Eureka Dist., p. 265, pl. 23, figs. 2, 2a.
Lower Carboniferous: Eureka District, Nevada.
1897. *Orthoceras eurekaense* (?) Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 270,
pl. 20, figs. 3, 3a.
Batesville S. S.: Batesville, Arkansas.

Orthoceras expansum Meek and Worthen.

1860. *Orthoceras expansum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 468.
Carboniferous: McDonough County, Illinois.
1861. *Actinoceras expansum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 148.
1866. *Orthoceras expansum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 286,
pl. 20, figs. 8a-c.
St. Louis Group?: McDonough County, Illinois.

Orthoceras fanslerensis Keyes.

1896. *Orthoceras fanslerensis*. Keyes, Proc. Iowa Acad. Sci., vol. 3, p. 77, fig. 4.
Lower Coal Measures: Fanslers, Guthrie County, Iowa.

Orthoceras harttannum Miller.

1868. *Orthoceras laqueatum*. Hartt, Dawson's Acad. Geol., p. 312, fig. 128. (Not
O. laqueatum Hall, 1847.)
Carboniferous L. S.: Windsor, Nova Scotia.
1883. *Orthoceras harttannum*. Miller, Am. Pal. Foss., 2d Ed., p. 307.

Orthoceras harii Miller.

1891. *Orthoceras harii*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 87,
pl. 16, fig. 2.
Upper Coal Measures: Near Kansas City, Missouri.
1892. *Orthoceras harii*. Miller, 17th Rep. Geol. Surv. Ind., p. 697, pl. 16, fig. 2.
Upper Coal Measures: Near Kansas City, Missouri.

Orthoceras heterocinctum Winchell.

1863. *Orthoceras heterocinctum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 23.
Yellow S. S. to base of Burlington L. S.: Burlington, Iowa.
1888. *Orthoceras heterocinctum*? Herrick, Bull. Den. Univ., vol. 4, p. 47.
Waverly Group: Lodi and Burbank, Ohio.

Orthoceras icarus Hall.

1886. *Orthoceras Icarus*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (118) 2,
figs. 11-15.
Goniatite L. S.: Rockford, Indiana.
1888. *Orthoceras Icarus*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 31, pl. 118,
figs. 11-15.
Goniatite L. S.: Rockford, Indiana.

Orthoceras illinoiense Worthen.

1883. *Orthoceras Illinoiensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 323.
Chester L. S.: Chester, Illinois.
1890. *Orthoceras illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 148, pl. 26,
figs. 1-1b.
Chester L. S.: Chester, Illinois.

Orthoceras indianense Hall.

1860. *Orthoceras indianensis*. Hall, 13th Ann. Rep. N. Y. State Cab. Nat. Hist.,
p. 107.
Goniatite L. S.: Rockford, Indiana.
1862. *Orthoceras Indianensis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 354.
Marshall S. S.: Marshall, Calhoun County; Holland, Ottawa County;
Moscow, Hillsdale County; Hardwood Point, Huron County, Michigan.
1863. *Orthoceras Indianense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 23.
Yellow S. S.: Burlington, Iowa.
1865. *Orthoceras Indianense*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.
Marshall Group: Hilladale and Napoleon Cut, Jackson County, Michigan.
1870. *Orthoceras Indianense*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258.
Waverly Group: Sciotoville, Ohio.
1886. *Orthoceras Dædalus*. Hall, 5th Ann. Rep. N. Y. State Geol., pl. (118) 2,
figs. 6-10.
Goniatite L. S.: Rockford, Indiana.
1888. *Orthoceras Indianense*. Beecher, Pal. N. Y., vol. 5, pt. 2, Supp., p. 30,
pl. 118, figs. 6-10.
Goniatite L. S.: Rockford, Indiana.
1888. *Orthoceras indianense*. Herrick, Bull. Den. Univ., vol. 3, pl. 9, figs. 33, 34.
Waverly Group: Licking County, Ohio.

Orthoceras isogramma Meek.

1871. *Orthoceras ? isogramma*. Meek, Proc. Acad. Nat. Sci. Phil., p. 172.
Lower Coal Measures: Newark, Ohio.

Orthoceras kikapoense Swallow.

1858. *Orthoceras kikapoense*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 197.
Upper Permian: Near Smoky Hill Fork, Kansas.

Orthoceras knoxense McChesley.

1860. *Orthoceras knoxensis*. McChesney, Desc. New Pal. Foss., p. 69.
Coal Measures: Danville, Springfield, Peoria, and Dr. E. Hall's mill, Knox
County, Missouri.

Orthoceras laqueatum*. See *Orthoceras harttmanum*.*Orthoceras lasallense Worthen.**

1883. *Orthoceras La Sallensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 324.
Coal Measures: Lasalle, Illinois.
1890. *Orthoceras lasallense*. Worthen, Geol. Surv. Ill., vol. 8, p. 149, pl. 26,
figs. 4, 4a.
Coal Measures: Lasalle, Illinois.

Orthoceras laterale Dawson.

1868. *Orthoceras laterale*. Dawson, Acad. Geol., p. 311.
Carboniferous L. S.: Kennetcook, Nova Scotia.

Orthoceras marshallense Winchell.

1862. *Orthoceras Marshallense*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 356.
Marshall S. S.: Marshall, Michigan.

Orthoceras michiganense Miller.

1862. *Orthoceras multieinctum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 429. (Not *O. multieinctum* Hall, 1862.)

Marshall Group: Marshall and Holland, Michigan.

1883. *Orthoceras michiganense*. Miller, Am. Pal. Foss., 2d ed., p. 308.

Orthoceras moniliforme. See *Orthoceras swallowanum*.

Orthoceras multieinctum. See *Orthoceras michiganense*.

Orthoceras munsterianum Meek and Worthen.

1873. *Orthoceras Munsterianum?* Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 23, figs. 5a-d.

St. Louis Group.

Orthoceras nobile Meek and Worthen.

1865. *Orthoceras nobile*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 256.

Chester Group: Randolph County, Illinois.

Orthoceras nova-mexicanum Marcou.

1858. *Orthoceras nova-mexicana*. Marcou, Geol. N. A., p. 44, pl. 7, fig. 1.

Mountain L. S.: Near summit of the Sierra de Sandia, behind Albuquerque. New Mexico.

Orthoceras occidentale Swallow.

1858. *Orthoceras occidentale*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 201.

Upper Coal Measures: Clifton Park, Kansas.

1894. *Orthoceras occidentale*. Keyes, Mo. Geol. Surv., vol. 5, p. 226.

Upper Coal Measures: Kansas City, Missouri.

Orthoceras occidentale. See *Orthoceras vinchellianum*.

Orthoceras okawense Worthen.

1883. *Orthoceras Okawensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 324.

Chester L. S.: Okaw bluff, near Red Bud, Randolph County, Illinois.

1890. *Orthoceras okawense*. Worthen, Geol. Surv. Ill., vol. 8, p. 149, pl. 26, fig. 3.

Chester L. S.: Near Red Bud, Randolph County, Illinois.

Orthoceras perstrictum Dawson. See *Orthoceras dawsonianum*.

Orthoceras randolphense Worthen.

1861. *Orthoceras annulo-costatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 147. (Not *O. annulo-costatum* Boll, 1857.)

Chester L. S.: Chester, Illinois.

1866. *Orthoceras annulo-costatum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 304, pl. 24, figs. 3a, b.

Chester Group: Chester, Illinois.

1882. *Orthoceras Randolphensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 38.

Chester Group.

1884. *Orthoceras Randolphensis?* Walcott, Pal. Eureka Dist., p. 265, pl. 18, fig. 17. Lower Carboniferous: Eureka District, Nevada.

Orthoceras reticulatum Winchell.

1862. *Orthoceras reticulatum?* Winchell, Am. Jour. Sci. (2), vol. 33, p. 357.

Marshall S. S.: Marshall, Michigan.

Orthoceras robustum Winchell.

1862. *Orthoceras robustum*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 355.

Marshall S. S.: Marshall, Moscow, and Hanover, Michigan.

Orthoceras rushense McChesney.

1860. *Orthoceras rushensis*. McChesney, Desc. New Pal. Foss., p. 68.
Coal Measures: Rush Creek, 5 miles below New Harmony, Indiana.
1873. *Orthoceras Rushensis?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 612,
pl. 30, fig. 4.
Upper Coal Measures: Springfield, Illinois.
1884. *Orthoceras Rushensis*. White, 13th Rep. Geol. Surv. Ind., p. 164, pl. 36, fig. 5.
Coal Measures: Eugene, Newport, Lodi, Merom, Graysville, New Harmony,
Rush Creek, and Newberg, Indiana.
1888. *Orthoceras rushensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.
Lower Coal Measures: Des Moines, Iowa.
1888. *Orthoceras rushensis?* Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 1.
Waverly Group: Ohio.
1891. *Orthoceras rushensis?* White, Bull. U. S. Geol. Surv., No. 77, p. 22, pl. 2,
figs. 14-16.
Permian: Military Crossing, Baylor County, Texas.
1894. *Orthoceras rushense*. Keyes, Mo. Geol. Surv., vol. 5, p. 226, pl. 56, fig. 6.
Upper Coal Measures: Kansas City, Missouri.
1895. *Orthoceras rushensis* (?). Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 1.
Cuyahoga Shale: Ohio.
1897. *Orthoceras conf. rushensis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 43.
Upper Coal Measures: Scott County, Arkansas.

Orthoceras swallovanum Miller.

1858. *Orthoceras moniliforme*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 200.
(Not *O. moniliforme* Hall, 1847.)
Coal Measures: Valley of Verdigris River, Kansas.
1883. *Orthoceras swallovanum*. Miller, Am. Pal. Foss., 2d ed., p. 308.

Orthoceras vinchellianum Miller.

1862. *Orthoceras occidentale*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 356. (Not
O. occidentale Swallow, 1858.)
Marshall S. S.: Marshall and Moscow, Michigan.
1883. *Orthoceras vinchellianum*. Miller, Am. Pal. Foss., 2d ed., p. 308.

Orthoceras vindobonense Dawson.

1868. *Orthoceras Vindobonense*. Dawson, Acad. Geol., p. 311, fig. 127.
Carboniferous L. S.: Windsor, Nova Scotia.

Orthoceras vittatum Winchell.

1862. *Orthoceras vittatum?* Winchell, Am. Jour. Sci. (2), vol. 33, p. 355.
Marshall S. S.: Battle Creek and Holland, Michigan.

Orthoceras whitii Winchell.

1863. *Orthoceras Whitei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 22.
Yellow S. S.: Burlington, Iowa.

Orthoceras (undetermined species).

1859. *Orthoceras* sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 400.
Dark Permian L. S.: Guadalupe Mountains.
1862. *Orthoceras* sp.? Winchell, Am. Jour. Sci. (2), vol. 33, p. 357.
Marshall S. S.: Marshall, Michigan.
1873. *Orthoceras* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 30,
fig. 5.
Coal Measures.
1884. *Orthoceras* sp.? Walcott, Pal. Eureka Dist., p. 266.
Lower Carboniferous: Eureka District, Nevada.
1886. *Orthoceras* sp.? Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 457.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Orthoceras (undetermined species)—Continued.

1886. *Orthoceras* sp.? Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 277.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Orthoceras* (sp. undt.). Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.
Lower Coal Measures: Des Moines, Iowa.
1888. *Orthoceras* sp.? Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 30.
Waverly Group: Licking County, Ohio.
1888. *Orthoceras* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 16.
Bedford Shale: Central College, Ohio.
1889. *Orthoceras* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 16.
Bedford Shale: Ohio.
1895. *Orthoceras* sp. Herrick, Geol. Surv. Ohio., vol. 7, pl. 20, fig. 16.
Shale above Berea Grit: Ohio.
1897. *Orthoceras* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 44.
Lower Coal Measures: Conway County, Arkansas.

ORTHONEMA Meek and Worthen, 1861.**Orthonema carbonarium Worthen.**

1884. *Orthonema carbonaria*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 7.
Coal Measures: Peoria County, Illinois.
1890. *Orthonema carbonarium*. Worthen, Geol. Surv. Ill., vol. 8, p. 145, pl. 24, figs. 4, 4a.
Coal Measures: Peoria County, Illinois.

Orthonema conicum Meek and Worthen.

1866. *Orthonema conica*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 270.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Orthonema conica*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 590, pl. 29, fig. 5.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1888. *Orthonema conica*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.

Orthonema salteri Meek and Worthen.

1860. *Eunema* ? *Salteri*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 464.
Upper Coal Measures: Springfield, Illinois.
1866. *Orthonema Salteri*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 381, pl. 31, figs. 14a-c.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Orthonema subtaeniatum Geinitz.

1866. *Murchisonia subtaeniata*. Geinitz, Carb. und Dyas in Nebr., p. 12, tab. 1, fig. 18.
Nebraska City, Nebraska.
1872. *Orthonema subtaeniata*. Meek, U. S. Geol. Surv. Nebr., p. 228, pl. 11, fig. 10.
Upper Coal Measures: Nebraska City, Nebraska; Western Iowa.

Orthonema (species undetermined).

1887. *Orthonema* ? sp. Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 10.
Coal Measures: Flint Ridge, Ohio.

ORTHONOTA Conrad, 1841.**Orthonota phaselia Winchell.**

1863. *Orthonota phaselia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 12.
Yellow S. S.: Burlington, Iowa.

***Orthonota rectidorsalis* Winchell.**

1862. *Orthonota rectidorsalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 414.
Marshall Group: Moscow, Michigan.
1888. *Orthonota rectidorsalis*. Herrick, Bull. Den. Univ., vol. 3, p. 65, pl. 9, fig. 6.
Waverly Group: Licking County, Ohio.

Orthonota ventricosa. See *Spathella ventricosa*.

ORTHONYCHIA Hall, 1843.***Orthonychia acutirostre* Hall.**

1856. *Capulus acutirostris*. Hall, Trans. Albany Inst., vol. 4, p. 31.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1858. *Capulus acutirostris*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 665, pl. 23, figs. 14a, b.
Warsaw L. S.: Warsaw, Illinois; Spergen Hill and Bloomington, Indiana.
1866. *Platyceras uncum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 264.
Keokuk L. S.: Nauvoo, Illinois.
1873. *Platyceras uncum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 516, pl. 17, fig. 1.
Keokuk L. S.: Nauvoo, Illinois.
1882. *Platyceras acutirostris*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 67, pl. 8, figs. 13-15.
St. Louis Group: Spergen Hill, Paynter's Hill, Ellettsville, Bloomington, and Crawfordsville, Indiana; Warsaw, Illinois; Tusculmbia, Alabama.
1883. *Platyceras acutirostris*. Hall, 12th Rep. Geol. Surv. Ind., p. 370, pl. 31, figs. 13-15.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1886. *Capulus acutirostris*. Clappole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 246.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1890. *Capulus acutirostris*. Keyes, Am. Geol., vol. 6, p. 9.
1890. *Capulus acutirostris*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 170.
Keokuk Group: Warsaw and Nauvoo, Illinois.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Tusculmbia, Alabama.
1892. *Orthonychia acutirostre*. Keyes, Am. Geol., vol. 10, p. 276.
1894. *Orthonychia acutirostre*. Keyes, Mo. Geol. Surv., vol. 5, p. 190, pl. 54, figs. 2a-c.
Keokuk L. S. and Shale: Warsaw and Nauvoo, Illinois.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Tusculmbia, Alabama.
1897. *Capulus acutirostris*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 268.
Batesville, S. S.: Batesville, Arkansas.

***Orthonychia boonvillense* Miller.**

1891. *Platyceras boonvillense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 82, pl. 14, figs. 15, 16.
Keokuk Group: Boonville, Missouri.
1892. *Platyceras boonvillense*. Miller, 17th Rep. Geol. Surv. Ind., p. 692, pl. 14, figs. 15, 16.
Keokuk Group: Boonville, Missouri.
1894. *Orthonychia boonvillense*. Keyes, Mo. Geol. Surv., vol. 5, p. 189.
Keokuk L. S.: Boonville, Missouri.

***Orthonychia chesterense* Meek and Worthen.**

1866. *Platyceras (Orthonychia) chesterense*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 265.
Chester Group: Pope County, and Chester, Illinois.

Orthonychia chesterense Meek and Worthen—Continued.

1888. *Platyceras chesterense*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., figs. 4, 5.

1890. *Capulus chesterensis*. Keyes, Am. Geol., vol. 6, p. 9.

1890. *Capulus chesterensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 176, pl. 2, figs. 13a-d.

Chester Group: Chester, Illinois; Pope County, Illinois; Pulaski County, Kentucky.

1892. *Orthonychia chesterense*. Keyes, Am. Geol., vol. 10, p. 276.

1894. *Orthonychia chesterense*. Keyes, Mo. Geol. Surv., vol. 5, p. 191, pl. 54, figs. 1a-d.

Kaskaskia L. S.: Ste. Genevieve, Missouri.

Orthonychia cornuforme Winchell.

1863. *Platyceras cornuforme*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.

Yellow S. S.: Burlington, Iowa.

1889. *Platyceras cornuforme*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 294.

Kinderhook Group: Burlington, Iowa.

1890. *Capulus cornuforme*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 164, pl. 2, fig. 5.

Kinderhook Beds: Burlington, Iowa; Lodi, Ohio.

1892. *Orthonychia cornuforme*. Keyes, Am. Geol., vol. 10, p. 276.

1894. *Orthonychia cornuforme*. Keyes, Mo. Geol. Surv., vol. 5, p. 191, pl. 54, fig. 1a-d.

Orthonychia cyrtolites McChesney.

1860. *Platyceras cyrtolites*. McChesney, Desc. New Pal. Foss., p. 71.

Burlington L. S.: Calhoun County, Illinois.

1889. *Platyceras cyrtolites*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 288.

Burlington L. S.: Burlington, Iowa.

1890. *Capulus cyrtolites*. Keyes, Am. Geol., vol. 6, p. 9.

1890. *Capulus cyrtolites*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 167, pl. 2, fig. 2.

Burlington L. S.: Burlington, Iowa; Calhoun County, Illinois.

1892. *Orthonychia cyrtolites*. Keyes, Am. Geol., vol. 10, p. 276.

1894. *Orthonychia cyrtolites*. Keyes, Mo. Geol. Surv., vol. 5, p. 188, pl. 53, fig. 15.

Burlington L. S.: Hannibal, Missouri.

Orthonychia formosum Keyes.

1888. *Platyceras formosum*. Keyes, Proc. Am. Phil. Soc., vol. 25, p. 242, pl., figs. 8, 9.

Kinderhook Group: Marshall County, Iowa.

1890. *Capulus formosus*. Keyes, Am. Geol., vol. 6, p. 9.

1890. *Capulus formosus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 164, pl. 2, fig. 8.

Kinderhook Beds: Marshall County, Iowa.

1892. *Orthonychia formosum*. Keyes, Am. Geol., vol. 10, p. 276.

1894. *Orthonychia formosum*. Keyes, Mo. Geol. Surv., vol. 5, p. 189, pl. 53, fig. 2.

Kinderhook Group: Marshall County, Iowa.

Burlington L. S.: Louisiana, Missouri.

ORTHOTHETES Fischer de Waldheim, 1830.**Orthothetes crenistria** Phillips.

1863. *Streptorhynchus crenistria*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 173, pl. 9, fig. 19.

Carboniferous: Shubenacadie, Nova Scotia.

1865. *Streptorhynchus umbraculum*? Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.

Marshall Group: Warren, Trumbull County, Ohio.

Oolitic L. S.: Burlington, Iowa.

1868. *Streptorhynchus crenistria*. Dawson, Acad. Geol., p. 296, fig. 96.

Carboniferous L. S.: East River, Pictou, Nova Scotia.

1870. *Hemipronites umbraculum*? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.

Waverly Group: Newark, Sciotoville, and Rockville, Ohio; near Shafers, Pennsylvania.

Orthothetes crenistria Phillips—Continued.

- ✓ 1875. *Hemipronites crenistria*. Meek, Pal. Ohio, vol. 2, p. 279, pl. 10, figs. 5a-d.
Waverly Group: Medina County, Ohio.
1877. *Hemipronites crenistria*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 62, pl. 7, fig. 2.
Carboniferous: Fossil Hill, White Pine District; White Pine County, 25 miles northeast of Hamilton; and Railroad Canyon, Diamond Mountains, Nevada.
1878. *Streptorhynchus crenistria*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 632.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1888. *Hemipronites crenistria*. Herrick, Bull. Den. Univ., vol. 3, p. 37; pl. 3, fig. 20; pl. 5, fig. 14; pl. 6, figs. 8, 9; pl. 9, fig. 21.
Waverly Group: Licking County, Ohio.
- ofc 1888. *Hemipronites crenistria*. Herrick, Bull. Den. Univ., vol. 4, p. 24, pl. 2, fig. 1.
Waverly Group: Moot's Run, Licking County, and Sciotoville, Ohio.
- ✓ 1892. *Orthothetes crenistria*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11A, fig. 15.
Waverly Group: Sciotoville, Ohio.
1895. *Hemipronites crenistria*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 1; pl. 21, fig. 14.
Cuyahoga Shale: Sciotoville, Ohio.
Kinderhook: Granville, Ohio.

Orthothetes desideratus Hall and Clarke.

1883. *Streptorhynchus* sp.? Hall, Rep. N. Y. State Geol. for 1882, pl. 8 (11A) 42, figs. 26, 27.
Waverly Group: Ohio.
1892. *Orthothetes desideratus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 345, pl. 9A, figs. 26, 27.
Waverly Group: Medina County, Ohio.
1897. *Orthothetes desideratus*. Hall, 14th Rep. N. Y. State Geol., p. 345, pl. 5, figs. 1, 2.
Waverly Group: Medina County, Ohio.

Orthothetes inaequalis Hall.

1858. *Orthis inaequalis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 490, pl. 2, figs. 6a-c.
Chemung Group: Burlington, Iowa.
1865. *Streptorhynchus inaequalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.
Marshall Group: Weymouth, Medina County, Ohio, 80 feet below conglomerate.
1870. *Hemipronites inaequalis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Newark and Granville, Ohio; near Shafer's, Pennsylvania.
1877. *Streptorhynchus equivalvis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., p. 252, pl. 4, figs. 1, 2.
Waverly Group: Ogden and Logan Canyons, Utah.
1883. *Streptorhynchus equivalvis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (11A) 42, figs. 20-23.
Waverly Group: Burlington, Iowa.
1892. *Orthothetes inaequalis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 9A, figs. 20-23.
Kinderhook Group: Burlington, Iowa.

Orthothetes inflatus White and Whitfield.

1862. *Streptorhynchus inflatus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 293.
Chemung Group: Burlington, Iowa.

Orthothetes inflatus White and Whitfield—Continued.

1877. *Streptorhynchus inflatus*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 252, pl. 4, fig. 3.

Waverly Group: Dry Canyon, Oquirrh Mountains, Utah.

1883. *Streptorhynchus inflatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (11A) 42, figs. 24, 25.

1892. *Orthothetes inflatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 9A, figs. 24, 25.

Kinderhook Group: Burlington, Iowa.

Orthothetes lens White.

1862. *Streptorhynchus lens*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 28.

Chemung Group: Burlington, Iowa; Clarksville, Missouri; Hamburg, Illinois.

1865. *Streptorhynchus lens*? Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.

Marshall Group: Weymouth, Medina County, Ohio, 80 feet below conglomerate.

1892. *Orthothetes lens*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 16, figs. 12-16.

Chouteau L. S.: Louisiana, Missouri.

1892. *Orthothetes lens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 11A, figs. 16-22.

Choteau L. S.: Louisiana, Missouri, and Pike County, Missouri.

1894. *Streptorhynchus lens*. Keyes, Mo. Geol. Surv., vol. 5, p. 67, pl. 39, figs. 2a, b.

Louisiana L. S.: Louisiana and Clarksville, Missouri.

Orthothetes umbraculum Schlotheim.

1856. *Orthis umbraculum*. Hall, Trans. Albany Inst., vol. 4, p. 12.

St. Louis L. S.: Spergen Hill, Indiana.

1883. *Streptorhynchus (Orthis) Umbraculum*. Hall, 12th Rep. Geol. Surv. Ind., p. 325.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Orthothetes (species undetermined).

1865. *Streptorhynchus* sp.? Winchell, Proc. Acad. Nat. Sci. Phil., p. 117.

Marshall Group: Ashland, Ashland County, Ohio.

1888. *Hemipronites* young individual. Herrick, Bull. Den. Univ., vol. 4, pl. 2, fig. 5.

Waverly Group: Moot's Run, Licking County, Ohio.

1888. *Hemipronites*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 25.

Waverly Group: Cuyahoga Falls, Ohio.

1895. *Hemipronites*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 5.

Waverly Group: Moot's Run, Licking County, Ohio.

ORYCTOBLATTINA Scudder, 1885.**Oryctoblattina laqueata** Scudder.

1895. *Oryctoblattina laqueata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 133, pl. 11, fig. 6.

Upper Coal Measures: Kansas City, Missouri.

Oryctoblattina occidua Scudder.

1885. *Oryctoblattina occidua*. Scudder, Proc. Acad. Nat. Sci. Phil., p. 37.

Carboniferous: Mazon Creek, Illinois.

1890. *Oryctoblattina occidua*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 414, pl. 32, fig. 3.

Carboniferous: Mazon Creek, Illinois.

1890. *Oryctoblattina occidua*. Scudder, Foss. Insc. N. A., vol. 1, p. 390, pl. 24, fig. 3.

Carboniferous: Mazon Creek, Illinois.

1895. *Oryctoblattina occidua*. Scudder, Bull. U. S. Geol. Surv., No. 124, p. 133.

Lower Coal measures: Mazon Creek, Illinois.

OSTREA Linnaeus, 1758.

Ostrea patercula Winchell.

1865. *Ostrea patercula*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 124.
Buff S. S. at base of Burlington L. S.: Burlington, Iowa.
1884. *Ostrea patercula*. White, 4th Ann. Rep. U. S. Geol. Surv., p. 288, pl. 34,
figs. 1, 2.
Kinderhook Group: Burlington, Iowa.

PALÆACIS Edwards and Haime, 1860.

Palæacis cavernosa Miller.

1891. *Palæacis cavernosa*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 4,
pl. 1, figs. 5, 6.
Knobstone Group: Jackson County, Indiana.
1892. *Palæacis cavernosa*. Miller, 17th Rep. Geol. Surv. Ind., p. 614, pl. 1, figs. 5, 6.
Knobstone Group: Jackson County, Indiana.

Palæacis compressus Meek and Worthen.

1860. *Sphenopoterium compressum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 448.
1866. *Sphenopoterium compressum*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 234, pl. 17, figs. 1a-c.
Keokuk L. S.: Nauvoo, Illinois.

Palæacis cuneatus. See *Palæacis cuneiformis*.**Palæacis cuneiformis** Milne-Edwards.

1860. *Palæacis cuneiformis*. Milne-Edwards, Hist. Nat. Corall., vol. 3, p. 171,
pl. E1, figs. 2a-d.
Carboniferous: Spergen Hill, Indiana.
1860. *Sphenopoterium cuneatum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 448.
Warsaw L. S.: Spergen Hill, Indiana.
1866. *Sphenopoterium cuneatum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 262,
pl. 19, figs. 1a-d.
St. Louis Group: Spurgen Hill, Indiana.
1882. *Palæacis cuneatus*. White, 11th Rep. Geol. Surv. Ind., p. 369, pl. 41, figs. 8, 9.
St. Louis Group: Spergen Hill, Indiana.

Palæacis enormis Meek and Worthen.

1860. *Sphenopoterium enorme*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 448.
Goniatite Beds: Rockford, Indiana.
1866. *Sphenopoterium enorme*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 146,
pl. 14, figs. 1a, b.
Goniatite L. S.: Rockford, Indiana.
Kinderhook Group: Clarksville, Missouri.
1894. *Palæacis enormis*. Keyes, Mo. Geol. Surv., vol. 4, p. 118.
Kinderhook Group: Clarksville and Louisiana, Missouri.

Palæacis enormis var. *depressus* Meek and Worthen.

1866. *Sphenopoterium enorme* var. *depressum*. Meek and Worthen, Geol. Surv. Ill.,
vol. 2, p. 146, pl. 14, figs. 2a, b.
Kinderhook Group: Salt Lick Point, Monroe County, Illinois.

Palæacis obtusus Meek and Worthen.

1860. *Sphenopoterium obtusum*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 448.

Palæacis obtusus Meek and Worthen—Continued.

1866. *Sphenopoterium obtusum*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 233, pl. 17, figs. 2a-e.
Keokuk L. S.: Nauvoo, Illinois.
1894. *Palæacis obtusa*. Keyes, Mo. Geol. Surv., vol. 4, p. 118, pl. 14, figs. 1a, b.
Keokuk L. S.: Clark County, Missouri.

PALÆASTER Hall, 1852.**Palæaster crawfordsvillensis** Miller.

1880. *Palæaster crawfordsvillensis*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 256, pl. 15, fig. 3.
Keokuk Group: Crawfordsville, Indiana.

(PALÆASTERINA McCoy, 1851.)

Palæasterina fimbriata. See *Schoenaster fimbriatus*.

(PALÆCHINUS McCoy, 1844.)

Palæchinus burlingtonensis. See *Rhæchinus burlingtonensis*.

Palæchinus gracilis. See *Rhæchinus gracilis*.

PALÆOCAMPA Meek and Worthen, 1865.**Palæocampa anthrax** Meek and Worthen.

1865. *Palæocampa anthrax*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 52.
Coal Measures: Morris, Illinois.
1866. *Palæocampa anthrax*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 410, pl. 32, fig. 3.
Lower Coal Measures: Morris, Grundy County, Illinois.
1868. *Palæocampa*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 565.
Carboniferous: Mazon Creek, Illinois.
1884. *Palæocampa anthrax*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 293, pl. 26.
Carboniferous: Mazon Creek, Illinois.
1890. *Palæocampa anthrax*. Scudder, Foss. Insc. N. A., vol. 1, pp. 257, pl. 12, figs. 1-9.
Carboniferous: Mazon Creek, Illinois.

PALÆOCARIS Meek and Worthen, 1865.**Palæocaris typus** Meek and Worthen.

1865. *Palæocaris typus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 49.
Coal Measures: Morris, Illinois.
1865. *Acanthotelson inæqualis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 48.
Coal Measures: Morris, Illinois.
1866. *Palæocaris typus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 405, pl. 32, figs. 5-5d.
Lower Coal Measures: Morris, Grundy County, Illinois.
1866. *Acanthotelson inæqualis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 403, pl. 32, figs. 7, 7a.
Lower Coal Measures: Morris, Grundy County, Illinois.

Palæocaris typus Meek and Worthen—Continued.

1868. *Palæocaris typus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 552, figs. A, B.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1880. *Palæocaris typus*. Brocchi, Bull. Soc. Geol. France (3), vol. 8, p. 9, pl. 1, figs. 8-10.
Calcaire carbonifère: Illinois.
1884. *Palæocaris typus*. White, 13th Rep. Geol. Surv. Ind., p. 179, pl. 38, figs. 1-3.
Coal Measures, Grundy County, Illinois.
1885. *Palæocaris typus*. Packard, Am. Nat., vol. 19, p. 790.
1886. *Palæocaris typus*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 129, pl. 3, figs. 1-4; pl. 7, figs. 1, 2.
Carboniferous: Mazon Creek, Illinois.
1889. *Palæocaris typus*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 213.
Coal Measures: Mazon Creek, Illinois.

PALÆONEILO Hall, 1870.**Palæoneilo attenuata** Hall.

- *1870. *Palæoneilo attenuata*. Hall, Prelim. Not. Lam. Shells, 2, p. 12.
Waverly S. S.: Granville and Newark, Ohio.
1884. *Palæoneilo attenuata*. Hall, Rep. N. Y. State Geol. for 1881, pl. 7, fig. 22.
Waverly Group: Ohio.
1885. *Palæoneilo attenuata*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 346, pl. 50, figs. 34-39.
Waverly S. S.: Granville and Newark, Ohio.
1888. *Palæoneilo attenuata*. Herrick, Bull. Den. Univ., vol. 3, p. 82, pl. 4, fig. 3; pl. 9, fig. 23.
Waverly Group: Licking County, Ohio.

Palæoneilo bedfordensis Meek.

1875. *Palæoneilo Bedfordensis*. Meek, Pal. Ohio, vol. 2, p. 298, pl. 15, figs. 3a-c.
Bedford Shale: Bedford, Ohio.
1886. *Palæoneilo bedfordensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, pp. 242, 248.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Palæoneilo bedfordensis*. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 8.
Bedford Shale: Central College, Ohio.
1889. *Palæoneilo bedfordensis*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 8.
Bedford Shale: Ohio.
1895. *Palæoneilo bedfordensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 8.
Shale above Berea Grit: Ohio.

Palæoneilo concentrica var. Herrick.

1888. *Palæoneilo concentrica* var. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 37.
Waverly Group: Licking County, Ohio.

Palæoneilo consimilis Herrick.

1888. *Palæoneilo consimilis*. Herrick, Bull. Den. Univ., vol. 4, p. 43, pl. 4, fig. 14.
Waverly Group: Near Harlem, Delaware County, Ohio.
1889. *Palæoneilo consimilis*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 14.
1895. *Palæoneilo consimilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 14.
Base of Cuyahoga Shale: Harlem, Delaware County, Ohio.

Palæoneilo curta Herrick.

1888. *Palæoneilo (Nucula?) curta*. Herrick, Bull. Den. Univ., vol. 4, p. 44, pl. 4, fig. 4.
Middle Waverly: Ohio.
1889. *Palæoneilo curta*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 4.
1895. *Palæoneilo curta*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 4.
Kinderhook Freestone: Granville, Ohio.

Palæoneilo elliptica Herrick.

1888. *Palæoneilo ellipticus*. Herrick, Bull. Den. Univ., vol. 3, p. 80, pl. 9, figs. 13, 15.

Waverly Group: Licking County, Ohio.

Palæoneilo elliptica var. allorismiformis Herrick.

1888. *Palæoneilo ellipticus* var. *allorismiformis*. Herrick, Bull. Den. Univ., vol. 3, p. 81, pl. 4, fig. 12, lower figure.

Waverly Group: Licking County, Ohio.

Palæoneilo elliptica var. elegantula Herrick.

1888. *Palæoneilo ellipticus* var. *elegantula*. Herrick, Bull. Den. Univ., vol. 3, p. 81.

Waverly Group: Licking County, Ohio.

Palæoneilo elliptica var. plicatella Herrick.

1888. *Palæoneilo ellipticus* var. *plicatella*. Herrick, Bull. Den. Univ., vol. 3, p. 81, pl. 4, fig. 12, upper figure.

Waverly Group: Licking County, Ohio.

Palæoneilo ignota Herrick.

1888. *Palæoneilo ignota*. Herrick, Bull. Den. Univ., vol. 4, p. 44, pl. 4, fig. 15.

Waverly Group: Moot's Run, Licking County, Ohio.

1889. *Palæoneilo ignota*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 15.

1895. *Palæoneilo ignota*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 15.

Cuyahoga Shale: Moot's Run, Ohio.

Palæoneilo marshallensis Winchell.

1862. *Sanguinolites Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 415.

Marshall Group: Marshall, Michigan.

1870. *Sanguinolites Marshallensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.

Waverly Group: Sciotoville, Ohio.

1883. *Palæoneilo truncata*. Hall, Pal. N. Y., vol. 5, pt. 1, Plates and Expl., pl. 50, figs. 40, 41.

Waverly Group: Bagdad, Ohio.

1885. *Palæoneilo truncata*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 347, pl. 50, figs. 40, 41.

Waverly S. S.: Richfield and Medina, Ohio.

1888. *Sanguinolites marshallensis*?. Herrick, Bull. Den. Univ., vol. 3, p. 67, pl. 5, fig. 11; pl. 7, fig. 10.

Waverly Group: Licking County, Ohio.

1888. *Palæoneilo* ? *marshallensis*. Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 18.

Waverly Group: Rushville, Ohio.

1889. *Palæoneilo* ? *marshallensis*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 18.

1895. *Palæoneilo* (?) *marshallensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 18; pl. 21, fig. 11.

Upper Waverly: Ohio.

Kinderhook: Granville, Ohio.

Palæoneilo parallela Hall and Whitfield.

1873. *Palæoneilo parallela*. Hall and Whitfield, 23d Rep. N. Y. State Cab. Nat. Hist., p. 241.

Waverly S. S.: Newark and Bagdad, Ohio.

Palæoneilo plicatella Herrick.

1888. *Palæoneilo plicatella*. Herrick, Bull. Den. Univ., vol. 3, pl. 4, fig. 9.

Waverly Group: Licking County, Ohio.

Palæoneilo sulcatina Conrad.

1842. *Nuculites sulcatina*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 250, pl. 15, fig. 10.

Carboniferous: Hillsdale County, Michigan.

Palæoneilo sulcatina Conrad—Continued.

1862. *Leda Barrisi*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 298.
Chemung Group: Burlington, Iowa.
1862. *Nucula Hubbardi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 417.
Marshall Group: Marshall, Battle Creek, and Moscow, Michigan.
1862. *Nucula Hubbardi* var. *prolata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 418.
Marshall Group: Moscow and Battle Creek, Michigan.
1865. *Ctenodonta Hubbardi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Napoleon Cut, Jackson County, Michigan.
1885. *Palæoneilo sulcatina*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 347, pl. 50, figs. 42-46.
Waverly S. S.: Richfield and Newark, Ohio; Battle Creek and Hillsdale, Michigan.
1888. *Palæoneilo sulcatina*. Herrick, Bull. Den. Univ., vol. 4, p. 44, pl. 4, fig. 17.
Waverly Group: Union, Licking County, Ohio.
1889. *Palæoneilo sulcatina*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 17.
1895. *Palæoneilo sulcatina*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 17.
Cuyahoga Shale: Ohio.

Palæoneilo truncata. See *Palæoneilo marshallensis*.

Palæoneilo (species undetermined).

1888. *Palæoneilo* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 8.
Waverly Group: Licking County, Ohio.
1888. *Sanguinolites*, resembling *marshallensis*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 35.
Waverly Group: Licking County, Ohio.
1888. *Palæoneilo* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 2.
Waverly Group: Cuyahoga Falls, Ohio.
1888. *Palæoneilo* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 16.
Waverly Group: Cuyahoga Falls, Ohio.

PALÆOPALÆMON Whitfield, 1880.**Palæopalæmon newberryi Whitfield.**

1880. *Palæopalæmon Newberryi*. Whitfield, Am. Jour. Sci. (3), p. 41.
Erie Shale: Le Roy, Lake County, Ohio.
1888. *Palæopalæmon Newberryi*. Hall and Clarke, Pal. N. Y., vol. 7, p. 203, pl. 30, figs. 20-23.
Erie Shales: Leroy, Lake County, Ohio.
1891. *Palæopalæmon Newberryi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 571, pl. 12, figs. 19-21.
Erie Shale: Ohio.
1892. *Palæopalæmon newberryi*. Whitfield, Am. Geol., vol. 9, p. 237.
Kinderhook Group: Kaskade, 3 miles west of Burlington, Iowa.
1895. *Palæopalæmon Newberryi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 461, pl. 8, figs. 19-21.
Erie Shale: Ohio.

PALÆOSOLEN Hall, 1885.**Palæosolen occidentalis Miller and Gurley.**

1896. *Palæosolen occidentalis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 16, pl. 2, figs. 13, 14.
Chouteau L. S.: Near Sedalia, Missouri.

PALENARTHURUS Scudder, 1890.

Palenarthrus impressus Scudder.

1890. *Palenarthrus impressus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 422, pl. 38, fig. 4.

Carboniferous: Mazon Creek, Illinois.

1890. *Palenarthrus impressus*. Scudder, Foss. Insc. N. A., vol. 1, p. 398, pl. 30, fig. 4.

Carboniferous: Mazon Creek, Illinois.

(PANOPÆA Menard, 1807.)

Panopæa cooperi. See *Chænomya cooperi*.

PAOLIA Smith, 1871.

Paolia gurleyi Scudder.

1885. *Paolia Gurleyi*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 173.

Carboniferous: Orange County, Indiana.

Paolia lacoana Scudder.

1885. *Paolia Lacoana*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 173.

Carboniferous: Pittston, Pennsylvania.

Paolia superba Scudder.

1885. *Paolia superba*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 173.

Carboniferous: Mazon Creek, Illinois.

Paolia vetusta Smith.

1871. *Paolia vetusta*. Smith, Am. Jour. Sci. (3), vol. 1, p. 44, fig.

Carboniferous: Near Paoli, Orange County, Indiana.

1885. *Paolia vetusta*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 173.

Carboniferous: Paoli, Indiana.

PARALEGOCERAS Hyatt, 1883.

Paralegoceras iowense Meek and Worthen.

1860. *Goniatites Iowensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 471
Coal Measures: Alpine, Iowa.

1866. *Goniatites iowensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 392, pl. 30,
figs. 3a-c.

Coal Measures: Alpine, Iowa.

1883. *Paralegoceras Iowense*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 327.

1887. *Goniatites?* cf. *G. iowensis*. Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14,
fig. 11.

Coal Measures: Flint Ridge, Ohio.

1893. *Paralegoceras iowense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 474.

Carboniferous: Near Bend, San Saba County, Texas.

1897. *Paralegoceras iowense*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 53, pl. 19,
figs. 1, 3.

Lower Coal Measures: Conway County, Arkansas.

PARALOGUS Scudder, 1893.

Paralogus æschnoides Scudder.

1893. *Paralogus æschnoides*. Scudder, Bull. U. S. Geol. Surv. No. 101, p. 21, pl. 1,
figs. a, b.

Carboniferous: Silver Spring, East Providence, Rhode Island.

PARARCA Hall, 1885.

Pararca erecta Hall.

1885. *Pararca erecta*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 432, pl. 70, fig. 16; pl. 94, figs. 20, 21.
Waverly S. S.: Warren and Meadville, Pennsylvania.

Pararca neglecta Hall.

1885. *Pararca neglecta*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 432, pl. 70, fig. 13.
Waverly, S. S.: Meadville, Pennsylvania.

PARISOCRINUS Wachsmuth and Springer, 1879.

Parisocrinus intermedius Hall.

1858. *Cyathocrinus intermedius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 627, pl. 18, fig. 10.
Keokuk L. S.: Warsaw, Illinois.
1894. *Parisocrinus intermedius*. Keyes, Mo. Geol. Surv., vol. 4, p. 207.
Keokuk L. S.: Warsaw, Illinois.

Parisocrinus perplexus Meek and Worthen.

1869. *Poteriocrinites ? perplexus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 138.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Poteriocrinites ? perplexus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 405, pl. 2, fig. 12.
Burlington L. S.: Burlington, Iowa.

Parisocrinus salignoides White.

1862. *Poteriocrinus salignoides*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 10.
Upper Burlington L. S.: Burlington, Iowa.

Parisocrinus tenuibrachiatus Meek and Worthen.

1861. *Poteriocrinus tenuibrachiatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 138.
Burlington L. S.: Burlington, Iowa.
1868. *Poteriocrinus tenuibrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 484, pl. 16, fig. 1.
Burlington Group: Burlington, Iowa.

PAROMYLACRIS Scudder, 1885.

Paromylacris ampla Scudder.

1890. *Paromylacris ampla*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 408, pl. 31, fig. 7.
Carboniferous: Mazon Creek, Illinois.
1890. *Paromylacris ampla*. Scudder, Foss. Insc. N. A., vol. 1, p. 384, pl. 23, fig. 7.
Carboniferous: Mazon Creek, Illinois.
1895. *Paromylacris ampla*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 51, pl. 3, fig. 4.
Lower Coal Measures: Braidwood, Illinois.

Paromylacris clintoniana Scudder.

1895. *Paromylacris clintoniana*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 53, pl. 3, fig. 6.
Lower Coal Measures: Clinton, Missouri.

Paromylacris ? pluteus Scudder.

1895. *Paromylacris ? pluteus*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 54, pl. 3, fig. 2.
Coal Measures: Butter Mine, Pittston, Pennsylvania.

Paromylacris rotunda Scudder.

1885. *Paromylacris rotundum*. Scudder, Proc. Acad. Nat. Sci. Phil., p. 25.
Carboniferous: Mazon Creek, Illinois.
1890. *Paromylacris rotunda*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 406,
pl. 32, figs. 1, 2.
Carboniferous: Mazon Creek, Illinois.
1890. *Paromylacris rotunda*. Scudder, Foss. Insc. N. A., vol. 1, p. 382, pl. 24,
figs. 1, 2.
Carboniferous: Mazon Creek, Illinois.
1895. *Paromylacris rotunda*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 51.
Lower Coal Measures: Mazon Creek, Illinois.

Paromylacris triangularis Scudder.

1895. *Paromylacris triangularis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 52,
pl. 3, fig. 3.
Lower Coal Measures: Mazon Creek, Illinois.

(PATELLA Linnaeus, 1758.)

Patella levettei. See *Lepetopsis levettei*.

(PECTEN Mueller, 1776.)

- Pecten acutialatus*. See *Aviculopecten acutialatus*.
- Pecten armigerus*. See *Aviculopecten armigerus*.
- Pecten aviculatus*. See *Pernopecten aviculatus*.
- Pecten broadheadi*. See *Aviculopecten carboniferus*.
- Pecten carboniferus*. See *Aviculopecten carboniferus*.
- Pecten cleavelandicus*. See *Aviculopecten occidentalis*.
- Pecten coloradensis*. See *Aviculopecten coloradoensis*.
- Pecten halli*. See *Aviculopecten halli*.
- Pecten hawni*. See *Aviculopecten carboniferus*.
- Pecten missouriensis* Shumard. See *Aviculopecten missouriensis*.
- Pecten missouriensis* Geinitz. See *Aviculopecten occidentalis*.
- Pecten neglectus*. See *Euchondria neglecta*.
- Pecten occidentalis*. See *Aviculopecten occidentalis*.
- Pecten providencesis*. See *Aviculopecten providencesis*.
- Pecten ringens*. See *Aviculopecten ringens*.
- Pecten tenuilineatus*. See *Streblopteria tenuilineata*.
- Pecten utahensis*. See *Aviculopecten utahensis*.

(PENTAMERUS Sowerby, 1812.)

- Pentamerus lenticularis*. See *Camarophorella lenticularis*.
- Pentamerus salinensis*. See *Conchidium salinensis*.

PENTREMITES Say, 1820.

- Pentremites abbreviatus*. See *Pentremites godoni* var. *abbreviatus*.

Pentremites angularis Lyon.

1860. *Pentremites angularis*. Lyon, Trans. St. Louis Acad. Sci., vol. 1, p. 631, pl. 20, figs. 3a-c.

Millstone Grit: Falls of Rough Creek, Breckinridge County, Kentucky.

Pentremites basilaris Hambach.

1880. *Pentremites basilaris*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 159, pl. B, fig. 9.

Kaskaskia L. S.: Evansville and Chester, Illinois.

Pentremites bipyramidalis. See *Metablastus bipyramidalis*.

Pentremites bradleyi Meek.

1873. *Pentremites Bradleyi*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 470.

Carboniferous: Divide between Ross Fork and Lincoln Valley, Montana.

Pentremites broadheadi Hambach.

1880. *Pentremites Broadheadi*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 159, pl. B, fig. 6.

Kaskaskia L. S.: Evansville, Illinois.

Pentremites burlingtonensis Meek and Worthen.

1870. *Pentremites Burlingtonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 33.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Pentremites Burlingtonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 461, pl. 8, fig. 7.

Burlington L. S.: Burlington, Iowa.

Pentremites calycinus Lyon.

1860. *Pentremites calycinus*. Lyon, Trans. St. Louis Acad. Soc., vol. 1, p. 628, pl. 20, figs. 1a-c.

Millstone Grit: Near Eskridge's Ferry, Grayson County, Kentucky.

Pentremites cervinus Hall.

1858. *Pentremites cervinus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 690, pl. 25, figs. 11a, b.

Kaskaskia L. S.: Chester, Illinois; near Huntsville, Alabama.

Pentremites cherokeeus Hall.

1858. *Pentremites cherokeeus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 691, pl. 25, figs. 12a, b.

Kaskaskia L. S.: Chester and Prairie du Long, Illinois; near Huntsville, Alabama; Cherokee County, Tennessee.

Pentremites chesterensis Hambach.

1880. *Pentremites Chesterensis*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 158, pl. B, fig. 8.

Kaskaskia L. S.: Randolph County and Chester, Illinois.

Pentremites clavatus Hambach.

1880. *Pentremites clavatus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 157, pl. B, fig. 5.

Kaskaskia L. S.: Evansville, Illinois.

Pentremites conoideus Hall.

1856. *Pentremites conoideus*. Hall, Trans. Albany Inst., vol. 4, p. 5.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1858. *Pentremites conoideus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 655, pl. 22, figs. 8-10.

Warsaw L. S.: Spergen Hill and Bloomington, Indiana.

Pentremites conoideus Hall—Continued.

1858. *Pentremites conoideus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 243. Archimedes L. S.: Spergen Hill, Indiana.
1860. *Pentremites conoideus*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., pl. 1, figs. 1a-d.
1881. *Pentremites conoideus*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 512, pl. 7, fig. 12.
Warsaw Group: Spergen Hill and Bloomington, Indiana.
1882. *Pentremites conoideus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 44, pl. 9, fig. 32.
St. Louis Group: Spergen Hill, Bloomington, Ellettsville, and Paynter's Hill, Indiana; Alton, Illinois; Boonville, Missouri.
1883. *Pentremites conoideus*. Hall, 12th Rep. Geol. Surv. Ind., p. 323, pl. 32, fig. 32.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1886. *Pentremites conoideus*. Etheridge and Carpenter, Cat. Blast., p. 161, pl. 2, figs. 16-23; pl. 3, figs. 4-12; pl. 18, figs. 6-8.
St. Louis Group: Spergen Hill, Indiana.
1894. *Pentremites conoideus*. Keyes, Mo. Geol. Surv., vol. 4, p. 134, pl. 18, fig. 5.
Keokuk L. S.: Boonville, Missouri.

Pentremites cornutus. See *Heteroblastus cornutus*.

Pentremites curtus. See *Granatocrinus curtus*.

Pentremites decussatus Shumard.

1857. *Pentremites decussatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 242, pl. 9, figs. 6a, b.
Carboniferous: Button-mould Knob, south of Louisville, Kentucky.

Pentremites elegans Lyon.

1858. *Pentremites elegans*. Lyon, Trans. St. Louis Acad. Sci., vol. 1, p. 632, pl. 20, figs. 4a-c.
Millstone Grit: Near Grayson Springs and Litchfield, Kentucky.
1891. *Pentremites elegans*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 577, pl. 13, fig. 4.
Maxville L. S.: Newtonville, Ohio.
1895. *Pentremites elegans*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 466, pl. 9, fig. 4.
Maxville L. S.: Newtonville, Ohio.

Pentremites elongatus Shumard.

1855. *Pentremites elongatus*. Shumard, Geol. Rep. Mo., p. 187, pl. B, fig. 4.
Encrinital L. S.: Clarksville and near Columbia, Missouri.
1886. *Pentremites elongatus*. Etheridge and Carpenter, Cat. Blast., p. 161, pl. 1, figs. 4, 5; pl. 2, figs. 14, 15; pl. 18, fig. 4.
Upper Burlington L. S.: Burlington, Iowa.
1894. *Pentremites elongatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 133, pl. 18, fig. 4.
Upper Burlington L. S.: Palmyra, Helton, Hannibal, Louisiana, Columbia, Rocheport, Ashgrove, and Ste. Genevieve, Missouri.

Pentremites florealis. See *Pentremites godoni*.

Pentremites gemmiformis Hambach.

1884. *Pentremites gemmiformis*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 553, pl. D, fig. 5.
Kaskaskia L. S.: Randolph County, Illinois.

Pentremites globosus Troost.

1835. *Pentremites globosa*. Troost, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 228.
Mount Sano, Alabama; Crab Orchard Mountain, Tennessee; Illinois.
1858. *Pentremites globosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 695, pl. 25, fig. 17.
Kaskaskia L. S.: Hardin County, Illinois.

Pentremites godoni DeFrance.

- *1819. *Encrina Godoni*. DeFrance, Dict. Sci. Nat., tome 14, p. 467.
- *1820. *Encrinites florealis*. Von Schlotheim, Petrefactenkunde, Bd. 2, p. 38.
- 1825. *Pentremites florealis*. Say, Jour. Acad. Nat. Sci. Phil. (1), vol. 4, p. 295.
Kentucky.
- 1835. *Pentremites florealis*. Troost, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 229.
pl. 10, fig. 3.
Jasper, Sequache Valley, between Sparta and Crab Orchard; rare in L. S.
near Nashville, Tennessee; in several places on the base of the different
spurs of the Cumberland Mountains, Kentucky, between Springfield and
Nashville.
- 1848. *Pentremites globosa*. Christy, Letters on Geol., pl. 4, figs. 7, 8.
Carboniferous L. S.: Huntsville, Alabama.
- 1854. *Pentremites florealis*. Shumard, Marcy's Expl. Red River of Louis., p. 174.
Carboniferous: Washington and Crawford counties, Arkansas.
- 1858. *Pentremites godoni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 692, pl. 25, figs. 13a, b.
Kaskaskia L. S.: Chester, Illinois; Huntsville, Alabama.
- 1881. *Pentremites godoni*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 511,
pl. 7, figs. 10, 11.
Chester Group: Dubois, Harrison, and Crawford counties, Indiana.
- 1886. *Pentremites Godoni*. Etheridge and Carpenter, Cat. Blast., p. 157, pl. 1,
fig. 11; pl. 2, figs. 1-13; pl. 12, figs. 16, 17; pl. 16, figs. 19, 22, 23.
Kaskaskia L. S.: Franklin County, Tennessee; Huntsville, Alabama; Ches-
ter, Illinois.
Subcarboniferous: Floyd County, Georgia; Leipzig, Pope County, Illinois;
Alleghany Mountains; Prairie du Long, Illinois.
- 1886. *Pentremites Godoni* var. *florealis*. Etheridge and Carpenter, Cat. Blast.,
p. 160, pl. 2, fig. 2.
Chester Group: Huntsville, Alabama.
- 1894. *Pentremites godoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 136.
Kaskaskia L. S.: Ste. Mary, Missouri.
- 1896. *Pentremites florealis*. Harris, Bull. Am. Pal., vol. 1, No. 5, p. 353 (83).
Kentucky, and Huntsville, Alabama.

Pentremites godoni var. abbreviatus Hambach.

- 1880. *Pentremites abbreviatus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 155,
pl. 3, fig. 3.
Kaskaskia L. S.: Evansville, Illinois.
- 1886. *Pentremites Godoni* var. *abbreviatus*. Etheridge and Carpenter, Cat. Blast.,
p. 160, pl. 2, fig. 4.
Chester Group: Chester, Illinois.

Pentremites godoni* var. *florealis*. See *Pentremites godoni*.**Pentremites godoni* var. *major* Etheridge and Carpenter.**

- 1886. *Pentremites Godoni* var. *major*. Etheridge and Carpenter, Cat. Blast., p. 160,
pl. 2, fig. 1.
Kaskaskia L. S.: Franklin County, Tennessee.

Pentremites granulatus*. See *Granatocrinus granulatus*.**Pentremites granulatus*. See *Schizoblastus granulatus*.*****Pentremites grosvenori*. See *Troostocrinus grosvenori*.*****Pentremites hemisphericus* Hambach.**

- 1880. *Pentremites hemisphericus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4,
p. 157, pl. B, fig. 7.
Kaskaskia L. S.: Chester and Evansville, Illinois.

Pentremites koninckanus Hall.

1856. *Pentremites koninckana*. Hall, Trans. Albany Inst., vol. 4, p. 4.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1858. *Pentremites koninckana*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 656, pl. 22,
figs. 11a-c.
Warsaw L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1860. *Pentremites koninckiana*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 1,
figs. 2a-c.
1882. *Pentremites Koninckana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 43,
pl. 9, fig. 33.
St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1883. *Pentremites koninckana*. Hall, 12th Rep. Geol. Surv. Ind., p. 322, pl. 32,
fig. 33.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1894. *Pentremites koninckanus*. Keyes, Mo. Geol. Surv., vol. 4, p. 135.
St. Louis L. S.: St. Louis, Missouri; Pella and Oskaloosa, Iowa.

Pentremites laterniformis Owen and Shumard.

1850. *Pentremites laterniformis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil.
(2), vol. 2, p. 66, pl. 7, fig. 15.
Carboniferous: Mill Creek, Randolph County, Illinois.
1852. *Pentremites laterniformis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and
Minn., p. 592, tab. 5A, fig. 15.
Carboniferous: Mill Creek, Randolph County, Illinois, about 7 miles from
Chester.

Pentremites lineatus*. See *Metablastus lineatus*.*Pentremites longicostalis Hall.**

1860. *Pentremites longicostalis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 85.
Warsaw L. S.: Warsaw, Illinois.

Pentremites melo*. See *Cryptoblastus melo*.**Pentremites melo* var. *projectus*. See *Cryptoblastus projectus*.****Pentremites missouriensis Swallow.**

1860. *Pentremites Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2,
p. 81.
Archimedes L. S.: Missouri and Illinois.

Pentremites nodosus Hambach.

1880. *Pentremites nodosus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 155,
pl. B, fig. 2.
Kaskaskia L. S.: Randolph County, Illinois.

Pentremites norwoodi*. See *Granatocrinus norwoodi*.*Pentremites obesus Lyon.**

1857. *Pentremites obesus*. Lyon, Rep. Ky. Geol. Surv., vol. 3, p. 469, pl. 2,
figs. 1-1d.
Lower calcareous beds of Millstone Grit: Crittenden County, Kentucky.
1858. *Pentremites obesus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 695, pl. 25, fig. 15.
Kaskaskia L. S.: Southern Illinois and Kentucky.
1894. *Pentremites obesus*. Keyes, Mo. Geol. Surv., vol. 4, p. 135.
Kaskaskia L. S.: Ste. Mary, Missouri.

Pentremites obliquatus*. See *Tricælocrinus obliquatus*.**Pentremites potteri*. See *Schizoblastus potteri*.**

Pentremites pyriformis Say.

1825. *Pentremite pyriformis*. Say, Jour. Acad. Nat. Sci., Phil. (1), vol. 4, p. 294. Kentucky.
1835. *Pentremites pyriformis*. Troost, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 228, pl. 10, fig. 8.
Near Sparta, Tennessee; Mount Sano, Alabama; Kentucky, between Springfield and Nashville, Tennessee.
1848. *Pentremites pyriformis*. Christy, Letters on Geol., pl. 4, fig. 6.
Carboniferous L. S.: Huntsville, Alabama.
1858. *Pentremites pyriformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 693, pl. 25, fig. 16.
Kaskaskia L. S.: Chester, Illinois; near Huntsville, Alabama.
1858. *Pentremites symmetricus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 694, pl. 25, fig. 14.
Kaskaskia L. S.: Kentucky.
1881. *Pentremites pyriformis*. White, 2d Ann. Rep. Dept. Stat. and Geol. Ind., p. 511, pl. 7, fig. 9.
Chester Group: Down Hill, Crawford County, Indiana.
1886. *Pentrimites pyriformis*. Etheridge and Carpenter, Cat. Blast., p. 167, pl. 1, figs. 6, 7; pl. 2, figs. 24-30; pl. 12, figs. 13-15; pl. 18, fig. 3.
Chester Group: Chester and Prairie du Long, Illinois; Cumberland Mountains, Tennessee; Huntsville, Alabama; Alleghany Mountains.
1894. *Pentremites pyriformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 135.
Kaskaskia L. S.: Ste. Mary, Missouri.
1896. *Pentremite pyriformis*. Harris, Bull. Am. Pal., vol. 1, No. 5, p. 352 (82).

Pentremites robustus Lyon.

1860. *Pentremites robustus*. Lyon, Trans. St. Louis Acad. Sci., vol. 1, p. 629, pl. 20, fig. 2a-c.
Millstone Grit: Grayson County, Kentucky.

Pentremites roemeri. See *Schizoblastus roemeri*.

Pentremites sampsoni. See *Schizoblastus sampsoni*.

Pentremites sayi. See *Schizoblastus sayi*.

Pentremites sirius. See *Orophocrinus sirius*.

Pentremites stelliformis. See *Orophocrinus stelliformis*.

Pentremites subconoideus Meek.

1873. *Pentremites subconoideus*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 471.
Carboniferous: Divide between Ross Fork and Lincoln Valley, Montana.

Pentremites subspinosus Hambach.

1880. *Pentremites subspinosus*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 154, pl. B, fig. 1.
Kaskaskia L. S.: Chester, Illinois.

Pentremites sulcatus Roemer.

- *1851. *Pentatremites sulcatus*. Roemer, Archiv. fur Naturgesch., Jahrg. 17, Bd. 1, p. 354, taf. 6, figs. 10a-c.
1854. *Pentremites sulcatus*. Shumard, Marcy's Expl. Red River of Louis., p. 174.
Carboniferous: Washington County, Arkansas.
1886. *Pentremites sulcatus*. Etheridge and Carpenter, Cat. Blast., p. 165, pl. 1, figs. 8-10; pl. 2, fig. 31; pl. 16, fig. 20; pl. 18, fig. 5.
Chester Group: Chester, Illinois.
1894. *Pentremites sulcatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 135, pl. 18, figs. 6a, b.
Kaskaskia L. S.: Ste. Mary, Missouri.

Pentremites symmetricus. See *Pentremites pyriformis*.

Pentremites truncatus Conrad.

1843. *Pentremites truncata*. Conrad, Proc. Acad. Nat. Sci. Phil., p. 334.
Edwardsville, Madison County, Illinois.

Pentremites varsouviensis. See *Metablastus varsouviensis*.

Pentremites woodmani. See *Tricelocrinus woodmani*.

Pentremites wortheni. See *Metablastus wortheni*.

Pentremites (species undetermined).

1868. *Pentremites*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 688.

PERIECHOCRINUS Austin, 1843.

Periechocrinus tenuidiscus Hall.

- *1861. *Actinocrinus* (?) *tenuidiscus*. Hall, Desc. New Spec. Crin., p. 14.
Burlington L. S.
1897. (?) *Periechocrinus tenuidiscus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 531, pl. 46, fig. 4; pl. 51, fig. 6.
Lower Burlington L. S.: Burlington, Iowa.

Periechocrinus whitei Hall.

1861. *Actinocrinus* (*Megistocrinus*) *olliculus*. Hall, Desc. New Spec. Crin., p. 2.
Burlington L. S.
1861. *Actinocrinus* (*Megistocrinus*) *Whitei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 271.
Burlington L. S.: Burlington, Iowa.
1861. *Actinocrinus* (*Paradocrinus*?) *amplus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 133.
Burlington L. S.: Burlington, Iowa.
1868. *Actinocrinus* (*Saccocrinus*?) *amplus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 470, pl. 16, fig. 2.
Burlington Group: Burlington, Iowa.
1872. *Actinocrinus* (*Megistocrinus*) *Whitei*. Hall, Photo. Plates of Crinoids, pl. 4, figs. 4, 5. (Not fig. 6.)
1873. *Megistocrinus* (*Saccocrinus*) *Whitei*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 397, pl. 6, fig. 1.
Burlington L. S.: Burlington, Iowa.
1893. *Periechocrinus whitei*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 27, pl. 2, fig. 29.
Burlington L. S.: Burlington, Iowa.
1894. *Periechocrinus*? *whitei*. Keyes, Mo. Geol. Surv., vol. 4, p. 164.
Lower Burlington L. S.: Hannibal, Missouri.
1897. (?) *Periechocrinus Whitei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 530, pl. 46, figs. 1-3; pl. 51, figs. 9, 10.
Kinderhook Group: Le Grand, Marshall County, Iowa.
Upper and Lower Burlington L. S.: Burlington, Iowa.

PERISCHODOMUS McCoy, 1849.

Perischodomus illinoiensis Worthen and Miller.

- Perischodomus Illinoiensis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 333, pl. 31, fig. 8.
Chester L. S.: Bay City, Pope County, Illinois.
1895. *Perischodomus* ?? *illinoiensis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 191.
Kaskaskia L. S.: Bay City, Pope County, Illinois.

PERNOPECTEN Winchell, 1865.

Pernopecten attenuatus Herrick.

1887. *Entolium attenuatum*. Herrick, Bull. Den. Univ., vol. 2, p. 24, pl. 1, fig. 11.
Coal Measures: Flint Ridge, Ohio.

Pernopecten aviculatus Swallow.

1858. *Pecten aviculatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 213.
Coal Measures: Valley of Verdigris, Kansas.
1872. *Entolium aviculatum*. Meek, U. S. Geol. Surv. Nebr., p. 189, pl. 9, figs. 11a-f.
Upper Coal Measures: Nebraska City, Bennett's Hill, Plattsmouth, and
Rock Bluff, Nebraska; Iowa; Kansas.
Coal Measures: Illinois.
1873. *Entolium aviculatum*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 588,
pl. 26, fig. 12.
1884. *Entolium aviculatum*. White, 13th Rep. Geol. Surv. Ind., p. 142, pl. 28,
figs. 7, 8.
Coal Measures: Fountain, Vermilion, Vigo, Pike, Dubois, Perry, and Spen-
cer counties, Indiana.
1887. *Entolium aviculatum*. Herrick, Bull. Den. Univ., vol. 2, p. 23, pl. 1, figs. 1, 2;
pl. 3, fig. 10.
Coal Measures: Flint Ridge, Ohio.
1888. *Entolium aviculatum*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, figs. 5-7.
Waverly Group: Cuyahoga Falls, Ohio.
1894. *Entolium aviculatum*. Keyes, Mo. Geol. Surv., vol. 5, p. 109, pl. 42, figs. 2a, b.
Upper Coal Measures: Kansas City, Missouri.
1895. *Entolium aviculatum*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, figs. 19, 21;
pl. 24, fig. 6.
Cuyahoga Shale: Moot's Run, Ohio.

Pernopecten circulus Shumard.

1850. *Avicula circulus*. Shumard, Geol. Surv. Mo., p. 206, pl. C, figs. 14a, b.
Chouteau L. S.: Vandever's Falls, Cooper County, and in Moniteau County,
Missouri.
1858. *Avicula circulus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 522, pl. 7, fig. 9.
Chemung Group: Burlington, Iowa.
1894. *Entolium circulus*. Keyes, Mo. Geol. Surv., vol. 5, p. 109.
Chouteau L. S.: Vandever Falls, Missouri.

Pernopecten cooperensis Shumard.

1855. *Avicula cooperensis*. Shumard, Geol. Rep. Mo., p. 206, pl. C, fig. 15.
Chouteau L. S.: Vandever's Falls, Cooper County, Missouri.
1870. *Pernopecten? cooperensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 254.
Waverly Group: Newark, Ohio.
1894. *Entolium cooperensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 109.
Chouteau L. S.: Vandever Falls, Missouri.

Pernopecten limaformis White and Whitfield.

1862. *Aviculo-pecten limaformis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist.,
vol. 8, p. 295.
Chemung Group: Burlington, Iowa.
1865. *Pernopecten limaformis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.
1884. *Pernopecten limaformis*. Hall, Rep. N. Y. State Geol. for 1881, pl. 1, figs. 1, 2.
Burlington S. S.: Burlington, Iowa.

Pernopecten limatus Winchell.

1865. *Pernopecten limatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.
Base of Burlington L. S.: Burlington, Iowa.
1870. *Pernopecten limatus?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.
Waverly Group: Newark and Sciotoville, Ohio.

Pernopecten shumardanus Winchell.

1865. *Pernopecten Shumardanus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.
 1868. *Pernopecten Shumardianus*? Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 453, pl. 14, figs. 6a, b.
 Kinderhook Group (oolite bed): Burlington, Iowa
 1875. *Entolium Shumardianum*? Meek, Pal. Ohio, vol. 2, p. 292, pl. 15, figs. 4a, b.
 Waverly Group: Richmond and Lodi, Ohio.
 1884. *Pernopecten Shumardanus*. Hall, Rep. N. Y. State Geol. for 1881, pl. 1, fig. 3.
 Waverly Group: Newark, Ohio.
 1888. *Pernopecten shumardanus*?? Herrick, Bull. Den. Univ., vol. 3, p. 57, pl. 12, figs. 13-15.
 Waverly Group: Licking County, Ohio.

PETRABLATTINA Scudder, 1876.**Petrablattina hastata** Scudder.

1895. *Petrablattina hastata*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 141, pl. 11, fig. 10.
 Lower Permian: Cassville, West Virginia.

Petrablattina sepulta Scudder.

1876. *Blattina sepulta*. Scudder, Proc. Am. Ass. Adv. Sci., vol. 24, p. 111, fig. 2.
 Carboniferous: Near Sydney, Cape Breton.
 *1876. *Blattina sepulta*. Scudder, Can. Nat. (N. S.), vol. 8, p. 89, fig. 2.
 Carboniferous: Cape Breton, Nova Scotia.
 1878. *Blattina Sepulta*. Dawson, Supp. to 2d ed. Acad. Geol., p. 53, fig. 7.
 Carboniferous: Nova Scotia.
 1879. *Petrablattina sepulta*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 125, pl. 6, fig. 7.
 Lower Carboniferous: Sydney, Cape Breton.
 1890. *Petrablattina sepulta*. Scudder, Foss. Insc. N. A., vol. 1, p. 145, pl. 6, fig. 7.
 Carboniferous: Sydney, Cape Breton.
 1895. *Petrablattina sepulta*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 140.
 Lower Coal Measures: Sydney, Cape Breton Island.

PHACOCERAS Hyatt, 1883.**Phacoceras dumbeli** Hyatt.

1891. *Phacoceras Dumbli*. Hyatt, 2d Ann. Rept. Geol. Surv. Tex., p. 347, figs. 50, 51.
 Carboniferous: Fort Riley, Kansas.
 1893. *Phacoceras Dumbeli*. Hay, Trans. Kans. Acad. Sci., vol. 13, p. 45.
 Permian: Fort Riley, Kansas.

PHÆNOSCHISMA Etheridge and Carpenter, 1882.**Phænoschisma kentuckyensis** Shumard.

1858. *Pentremites (Codaster?) Kentuckyensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 239, pl. 9, fig. 5.
 Base of Carboniferous: "Button-mould Knob," south of Louisville, Kentucky.

(PHÆTHONIDES Angelin, 1878.)

Phæthonides immaturus Herrick. See *Brachymetopus immaturus*.

Phæthonides lodiensis Herrick. See *Brachymetopus lodiensis*.

Phæthonides occidentalis Herrick. See *Brachymetopus occidentalis*.

Phæthonides spinosus Herrick. See *Brachymetopus spinosus*.

PHANEROTINUS Sowerby, 1844.

Phanerotinus gyroceras Roemer.

1852. *Euomphalus gyroceras*. Roemer, Kreid. von Texas, p. 91, Taf. 11, figs. 6a, b.
Carboniferous?: San Saba Valley, 20 miles below the old Spanish Forts.

Phanerotinus paradoxus Winchell.

1863. *Phanerotinus paradoxus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 21.
Yellow S. S.: Burlington, Iowa.
1879. *Phanerotinus paradoxus*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 60, pl. 16, fig. 16.
1894. *Phanerotinus paradoxus*. Keyes, Mo. Geol. Surv., vol. 5, p. 164, pl. 52, fig. 7.
Lower Burlington L. S.: Louisiana, Missouri.

Phanerotinus subplanus Hall.

1852. *Euomphalus subplanus*. Hall, Stansb. Exped. Gt. Salt Lake, p. 414, pl. 2, figs. 7a, b.
Carboniferous: Stansbury's Island, Great Salt Lake, Utah; and Big and Little Blue rivers.

PHIALOCRINUS Trautschold, 1879.

Phialocrinus angulatus Miller and Gurley.

1894. *Æsiocrinus angulatus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 59, pl. 6, fig. 9.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus barydactylus Keyes.

1894. *Phialocrinus barydactylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 220, pl. 28, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus basilicus Miller and Gurley.

1890. *Æsiocrinus basilicus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 369, pl. 9, figs. 4-6.
Upper Coal Measures: Kansas City, Missouri.
1894. *Phialocrinus basiliscus*. Keyes, Mo. Geol. Surv., vol. 4, p. 220.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus carbonarius. See *Graphiocrinus carbonarius*.

Phialocrinus harii Miller and Gurley.

1890. *Æsiocrinus harii*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 16, pl. 3, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1890. *Æsiocrinus harii*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 338, pl. 3, fig. 1.
Upper Coal Measures: Kansas City, Missouri.
1890. *Æsiocrinus Harii*. Anon, The Naturalist (Kansas City), vol. 4, No. 10, fig.
Upper Coal Measures: Kansas City, Missouri.
1894. *Phialocrinus harii*. Keyes, Mo. Geol. Surv., vol. 4, p. 219, pl. 29, fig. 1.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus lykinsi Butts.

1890. *Æsiocrinus lykinsi*. Butts, The Naturalist (Kansas City), vol. 4, No. 10, fig.
Upper Coal Measures: Kansas City, Missouri.

Phialocrinus magnificus Miller and Gurley.

1890. *Æsiocrinus magnificus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 15, pl. 2, figs. 1-5.

Upper Coal Measures: Kansas City, Missouri.

1890. *Æsiocrinus magnificus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 337, pl. 2, figs. 1-5.

Upper Coal Measures: Kansas City, Missouri.

1894. *Phialocrinus magnificus*. Keyes, Mo. Geol. Surv., vol. 4, p. 220, pl. 28, fig. 4.

Upper Coal Measures: Kansas City, Missouri.

Phialocrinus stillativus. See *Cyathocrinus stillativus*.

PHILLIPSIA Portlock, 1843.

Phillipsia auriculatus. See *Proetus missouriensis*.

Phillipsia bufo. See *Griffithides bufo*.

Phillipsia cliftonensis Shumard.

1858. *Phillipsia Cliftonensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 227.

Upper Coal Measures: Clifton Park, Kansas.

1887. *Phillipsia cliftonensis*. Herrick, Bull. Den. Univ., vol. 2, p. 61.

Upper Coal Measures: Kansas.

1887. *Phillipsia cliftonensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 84.

Upper Coal Measures: Clifton Park, Kansas.

1897. *Phillipsia cliftonensis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 60, pl. 22, figs. 5a, b.

Upper Coal Measures: Poteau Mountain, Indian Territory.

Phillipsia consors Herrick.

1888. *Phillipsia* (?) *consors*. Herrick, Bull. Den. Univ., vol. 4, p. 53, pl. 1, figs. 16a-c.

Waverly Group: Lodi, Ohio.

1889. *Phillipsia* (?) *consors*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 16.

1891. *Phillipsia* (?) *consors*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 43.

Waverly Group: Cuyahoga Falls, Ohio.

Phillipsia doris. See *Proetus doris*.

Phillipsia howi Billings.

*1863. *Phillipsia howi*. Billings, Can. Nat., vol. 8, p. 209, fig.

Carboniferous: Kennetcook, Nova Scotia.

1868. *Phillipsia Howi*. Dawson, Acad. Geol., p. 313, fig. 133.

Carboniferous L. S.: Kennetcook, Nova Scotia.

1887. *Phillipsia howi*. Herrick, Bull. Den. Univ., vol. 2, p. 63.

1887. *Phillipsia howi*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 91.

Lower Carboniferous: Kennetcook, Nova Scotia.

Phillipsia immaturus. See *Brachymetopus immaturus*.

Phillipsia insignis Winchell.

1863. *Phillipsia insignis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 24.

Base of Burlington L. S.: Burlington, Iowa.

*1863. *Phillipsia insignis*. Billings, Can. Nat., vol. 8, p. 209.

Carboniferous: Nova Scotia.

1887. *Phillipsia insignis*. Herrick, Bull. Den. Univ., vol. 2, p. 63.

1887. *Phillipsia insignis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 87.

Base of Burlington L. S.: Burlington, Iowa.

Phillipsia lodiensis. See *Brachymetopus lodiensis*.

Phillipsia major Shumard.

1823. *Trilobus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 148 (footnote).
Missouri River, 5 miles below Council Bluffs.
1858. *Phillipsia major*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 226.
Upper Coal Measures: Clinton County, Missouri; Valley of Verdigris, and
12 miles south of Lecompton on the Santa Fé road, Kansas.
1872. *Phillipsia major*. Meek, U. S. Geol. Surv. Nebr., p. 238, pl. 3, figs. 2a-c.
Upper Coal Measures: Bellevue and Plattsmouth, Nebraska; Clinton
County, Missouri; Vermilion River, 12 miles south of Lecompton, Kansas.
1887. *Phillipsia major*. Herrick, Bull. Den. Univ., vol. 2, p. 60.
Upper Coal Measures: Kansas.
1887. *Phillipsia major*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 85, pl. 3, fig. 14.
Upper Coal Measures: Clinton County, Missouri; Valley of the Verdigris
River, 12 miles south of Lecompton on the Santa Fé road, Kansas;
Kansas City, Missouri; Bellevue, Nebraska.
- *1891. *Phillipsia major*. Hare, Kansas City Scientist, vol. 8, p. 33, pl. 1, figs. 5, 8a-c.
Coal Measures: Kansas City, Missouri.
1894. *Phillipsia major*. Keyes, Mo. Geol. Surv., vol. 4, p. 238, pl. 32, figs. 8a-e.
Upper Coal Measures: Kansas City, Missouri.
1897. *Trilobus*. Harris, Bull. Am. Pal., vol. 1, p. 382 (112).

Phillipsia meramecensis Shumard.

1855. *Phillipsia Meramecensis*. Shumard, 1st and 2d Geol. Rep. Mo., p. 199, pl. B,
fig. 9.
Archimedes L. S.: Fenton, St. Louis County, Missouri.
1863. *Phillipsia Meramecensis?* Winchell, Proc. Acad. Nat. Sci. Phil., p. 24.
Yellow S. S.: Burlington, Iowa.
1887. *Phillipsia meramecensis*. Herrick, Bull. Den. Univ., vol. 2, p. 59. ✓
Archimedes L. S.: St. Louis County, Missouri.
1887. *Phillipsia meramecensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 86, pl. 3,
fig. 15.
Chester Series: Fenton, St. Louis County, Missouri.
1888. *Phillipsia meramecensis*. Herrick, Bull. Den. Univ., vol. 3, p. 28. ✓
Near top of Waverly Group: East of Rushville, Ohio.
1888. *Phillipsia meramecensis*. Herrick, Bull. Den. Univ., vol. 4, p. 54, pl. 1, fig. 6.
Waverly Group: Ohio.
1889. *Phillipsia meramecensis*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 6.
1891. *Phillipsia meramecensis*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 43, pl. 1,
fig. 14.
Upper Waverly Group: Scioto County, Ohio.
1894. *Phillipsia meramecensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 235.
Keokuk L. S.: St. Louis and Fenton, Missouri.
1895. *Phillipsia meramecensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 6.

Phillipsia missouriensis Shumard.

1858. *Phillipsia Missouriensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 225.
Middle Coal Measures: Lexington, Missouri.
1870. *Phillipsia Missouriensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
Waverly Group: Newark, Ohio.
1887. *Phillipsia missouriensis*. Herrick, Bull. Den. Univ., vol. 2, p. 59.
1887. *Phillipsia missouriensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 86, pl. 3,
figs. 1, 2.
Middle Coal Measures: Lexington, Missouri.
1894. *Phillipsia missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 235.
Coal Measures: Lexington, Missouri.

Phillipsia nodocostatus Hare.

- *1891. *Phillipsia nodocostatus*. Hare, Kansas City Scientist, vol. 8, p. 33, pl. 1, figs. 1a-e, 7.

Upper Coal Measures: Kansas City, Missouri.

Phillipsia ornatus. See Griffithides ornata.

Phillipsia portlocki. See Griffithides portlocki.

Phillipsia perannulata Shumard.

1858. *Phillipsia perannulata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 296.
White Permian L. S.: Guadalupe Mountains, New Mexico.

1859. *Phillipsia perannulata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 388,
pl. 11, fig. 10.

White Permian L. S.: Guadalupe Mountains, New Mexico.

1887. *Phillipsia perannulata*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 84.
Carboniferous: Guadalupe Mountains, New Mexico.

Phillipsia præcursor Herrick.

1888. *Phillipsia præcursor*. Herrick, Bull. Den. Univ., vol. 3, p. 29, pl. 12, fig. 1.
Waverly Group: Moot's Run, Ohio.

1888. *Phillipsia (Proetus) præcursor*. Herrick, Bull. Den. Univ., vol. 4, p. 54, pl. 1,
figs. 1-3.

Waverly Group: 4 miles west of Granville, Ohio.

1889. *Proetus (Phillipsia?) præcursor*. Herrick, Am. Geol., vol. 3, pl. 1, figs. 1-3.

1891. *Proetus præcursor*. Herrick, Bull. Geol. Soc. Am., vol. 2, pl. 1, fig. 12.

Waverly Group: Cuyahoga Falls, Ohio.

1895. *Proetus præcursor*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 1-3, 16a.
Cuyahoga Shale: Moot's Run and Lodi, Ohio.

Phillipsia rockfordensis Winchell.

1865. *Phillipsia Rockfordensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.

Marshall Group: Rockford, Indiana.

1887. *Phillipsia rockfordensis*. Herrick, Bull. Den. Univ., vol. 2, p. 62.

1887. *Phillipsia rockfordensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 91.

Goniatite L. S.: Rockford, Indiana.

Phillipsia sampsoni Vogdes.

1888. *Phillipsia sampsoni*. Vogdes, Trans. N. Y. Acad. Sci., vol. 7, p. 248, 2 figs.

Waverly Group: Sedalia, Missouri.

1894. *Phillipsia sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 235.

Chouteau L. S.: Sedalia, Missouri.

Phillipsia sangamonensis. See Griffithides sangamonensis.

Phillipsia scitula. See Griffithides scitula.

Phillipsia sedaliensis. See Griffithides sedaliensis.

Phillipsia serraticaudata Herrick.

1888. *Phillipsia serraticaudata*. Herrick, Bull. Den. Univ., vol. 4, p. 52, pl. 1,
figs. 8a-d.

Waverly Group: Richland County, Newark and Rushville, Ohio.

1889. *Phillipsia serraticaudata*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 8 (11 ? ?).

1895. *Phillipsia serraticaudata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 8a-d.

Upper Waverly Group: Newark, Ohio.

Phillipsia shumardi. See Proetus missouriensis.

Phillipsia swallowi. See Proetus swallowi.

Phillipsia tennesseensis Winchell. See Proetus tennesseensis.

Phillipsia stevensoni Meek.

- *1870. *Phillipsia Stevensoni*. Meek, 3d Ann. Rep. Board of Regents W. Va. Univ., p. 73.
Chester Series: Monongalia County, West Virginia.
1887. *Phillipsia stevensoni*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 88, pl. 3, fig. 6.
Chester Series: Monongalia County, West Virginia.

Phillipsia trinucleata Herrick.

1887. *Phillipsia trinucleata*. Herrick, Bull. Den. Univ., vol. 2, p. 64, pl. 1, fig. 23; pl. 2, fig. 32; pl. 3, fig. 21.
Coal Measures: Flint Ridge, Ohio.
1888. *Proetus trinucleatus*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 81, pl. 2, figs. 7-9.
Waverly Group: Flint Ridge, Licking County, Ohio.

Phillipsia tuberculata Meek and Worthen.

1870. *Phillipsia tuberculata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 52.
Burlington L. S.: Kinderhook, Pike County, Illinois.
1887. *Phillipsia tuberculata*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 92.
Burlington Group: Kinderhook, Pike County, Illinois.
1894. *Phillipsia tuberculata*. Keyes, Mo. Geol. Surv., vol. 4, p. 235, pl. 32, fig. 6.
Burlington L. S.: Sedalia, Missouri.

Phillipsia vindobonensis Hartt.

1868. *Phillipsia Vindobonensis*. Hartt, Dawson's Acad. Geol., p. 313.
Carboniferous L. S.: Nova Scotia.
1887. *Phillipsia vindobonensis*. Herrick, Bull. Den. Univ., vol. 2, p. 63.
1887. *Phillipsia vindobonensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 89.
Lower Carboniferous: Windsor, Nova Scotia.

Phillipsia (species undetermined).

1855. *Phillipsia*. Schiel, Pac. R. R. Rep., vol. 2, p. 109, pl. 1, figs. 11, 14.
Carboniferous L. S.: Near Westport and west of Indian Creek.
1858. *Phillipsia*. Species not determined. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 181.
Lower Permian: Kansas.
1866. *Phillipsia* sp. Geinitz, Carb. und Dyas in Nebr., p. 1, tab. 1, fig. 1.
Plattsmouth, Nebraska.
1872. *Phillipsia* sp. Meek, U. S. Geol. Surv. Nebr., p. 237, pl. 3, figs. 1a, b.
Upper Coal Measures: Plattsmouth, Nebraska.
1876. *Phillipsia* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Near Echo Park, Utah.
1888. *Phillipsia*? Herrick, Bull. Den. Univ., vol. 3, pl. 8, fig. 24.
Waverly Group: Licking County, Ohio.
1888. *Phillipsia* (sp. ?) Keyes, Proc. Acad. Nat. Sci. Phil., p. 243.
Lower Coal Measures: Des Moines, Iowa.
1897. *Phillipsia* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 61.
Lower Coal Measures: Johnson County, Arkansas.
1897. *Phillipsia* sp. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 272, pl. 20, fig. 11.
Batesville S. S.: Batesville, Arkansas.

(PHILOCRINUS DeKoninck, 1863.)

Philocrinus pelvis. See *Erisocrinus typus*.

PHOLADELLA Hall, 1870.

Pholadella cuneata. See *Promacrus cuneatus*.

Pholadella newberryi Hall.

- *1870. *Pholadella Newberryi*. Hall, Prelim. Not. Lamell., 2, p. 65.
 Waverly S. S. : Licking County, Ohio.
1884. *Pholadella Newberryi*. Hall, Rep. N. Y. State Geol. for 1881, pl. 11, fig. 22.
 Waverly S. S. : Licking County, Ohio.
1885. *Pholadella Newberryi*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 471, pl. 78, fig. 25.
 Waverly Group: Licking County, Ohio.
1888. *Pholadella newberryi*. Herrick, Bull. Den. Univ., vol. 3, p. 85, pl. 3, fig. 27;
 pl. 4, fig. 4.
 Waverly Group: Licking County, Ohio.
1891. *Pholadella Newberryi*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 609.
1895. *Pholadella Newberryi*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 494.

(PHOLADOMYA Sowerby, 1823.)

Pholadomya elongata. See *Allorisma elongatum*.

PHOLIDOCIDARIS Meek and Worthen, 1869.**Pholidocidaris irregularis Meek and Worthen.**

1869. *Lepidocentrus irregularis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
 p. 78.
 Keokuk L. S. : Hamilton and near Nauvoo, Illinois.
1873. *Pholidocidaris irregularis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 512,
 pl. 15, fig. 9.
 Keokuk Group: Hamilton and near Nauvoo, Illinois.
1874. *Pholidocidaris irregularis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 375.
1895. *Pholidocidaris irregularis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 180.
 Keokuk L. S. : Hamilton and near Nauvoo, Illinois.

Pholidocidaris meeki Jackson.

1896. *Pholidocidaris meeki*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 210, pl. 9,
 fig. 54.
 Keokuk Group: Warsaw, Illinois.

PHOLIDOPS Hall, 1859**Pholidops (species undetermined).**

1892. *Pholidops* compare *P. Hamiltonia*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1,
 pl. 4 I, fig. 37.
 Bedford Shales: Bedford, Ohio.

PHRAGMOCERAS Broderip, 1839.**Phragmoceras expansum Winchell.**

1863. *Phragmoceras expansum*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 23.
 Yellow S. S. : Burlington, Iowa.

Phragmoceras missouriense Miller.

1891. *Phragmoceras missouriense*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind.,
 p. 89, pl. 15, fig. 2.
 Chouteau L. S. : Pettis County, Missouri.
1892. *Phragmoceras missouriense*. Miller, 17th Rep. Geol. Surv. Ind., p. 699, pl. 15,
 fig. 2.
 Chouteau L. S. : Pettis County, Missouri.
1894. *Phragmoceras missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 220.
 Chouteau L. S. : Sedalia, Missouri.

PHRAGMODICTYA Hall, 1884.

Phragmodictya catilliformis Whitfield.

1881. *Dictyophyton catilliforme*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 18, pl. 3, fig. 1.

Keokuk Group: Crawfordsville, Indiana.

1884. *Phragmodictya catilliformis*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 477, pl. 18, figs. 12-14; pl. 20, figs. 2, 3; pl. 21, figs. 1-6.

Keokuk Group: Crawfordsville, Indiana.

Phragmodictya lineata Hall.

1884. *Phragmodictya lineata*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 478, pl. 21, fig. 8.

Keokuk Group: Crawfordsville, Indiana.

Phragmodictya patelliformis Hall.

1884. *Phragmodictya patelliformis*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 478.

Keokuk Group: Crawfordsville, Indiana.

PHTHANOCORIS Scudder, 1884.

Phthanocoris occidentalis Scudder.

1883. *Phthanocoris occidentalis*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 59.

Coal Measures: Kansas City, Missouri.

1885. *Phthanocoris occidentalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 348, pl. 32, fig. 4.

Coal Measures: Kansas City, Missouri.

1890. *Phthanocoris occidentalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 312, pl. 18, fig. 4.

Coal Measures: Kansas City, Missouri.

PHYSA Dapernaud, 1801.

Physa prisca Walcott.

1883. *Physa prisca*. Walcott, Science, vol. 2, p. 808, fig. 2.

Base of Carboniferous: Eureka District, Nevada.

1884. *Physa prisca*. Walcott, Pal. Eureka Dist., p. 262, fig. 6.

Lower Carboniferous: Eureka District, Nevada.

PHYSETOCRINUS Meek and Worthen, 1869.

Physetocrinus asper Meek and Worthen.

1869. *Strotocrinus (Physetocrinus?) asper*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 161.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Strotocrinus (Physetocrinus?) asper*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 351, pl. 7, fig. 1.

Burlington L. S.: Burlington, Iowa.

1897. *Physetocrinus asper*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 596, pl. 63, figs. 7a, b.

Upper Burlington L. S.: Burlington, Iowa.

Physetocrinus copei Miller.

1881. *Actinocrinus copei*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 310.

Subcarboniferous: Lake Valley Mining District, New Mexico.

1897. *Physetocrinus Copei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 598, pl. 63, fig. 5.

Lower Burlington L. S.: Lake Valley, New Mexico.

Physetocrinus dilatatus Meek and Worthen.

1869. *Strotocrinus* (*Physetocrinus*) *dilatatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 162.
 Lower Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus* (*Physetocrinus*) *dilatatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 363, pl. 10, fig. 6.
 Burlington L. S.: Burlington, Iowa.
1897. *Physetocrinus dilatatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 595, pl. 64, figs. 9, 10.
 Upper Burlington L. S.: Burlington, Iowa.

Physetocrinus lobatus Wachsmuth and Springer.

1897. *Physetocrinus lobatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 599, pl. 63, figs. 8a, b.
 Lower Burlington L. S.: Lake Valley, New Mexico.

Physetocrinus ornatus Hall.

1858. *Actinocrinus ornatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 583, pl. 10, fig. 12.
 Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus senarius*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 25.
 Burlington L. S.: Burlington, Iowa.
1892. *Actinocrinus brittsi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 36, pl. 6, figs. 1-4.
 Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus brittsi*. Miller, 18th Rep. Geol. Surv. Ind., p. 290, pl. 6, figs. 1-4.
 Burlington Group: Sedalia, Missouri.
1894. *Actinocrinus brittsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 188.
 Burlington L. S.: Sedalia, Missouri.
1894. *Physetocrinus ornatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 192, pl. 24, fig. 7.
 Lower Burlington L. S.: Hannibal, Louisiana, and Sedalia, Missouri.
1897. *Physetocrinus ornatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 597, pl. 63, figs. 1-4.
 Lower Burlington L. S.: Burlington, Iowa.

Physetocrinus sampsoni Miller and Gurley.

1896. *Physetocrinus sampsoni*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 14, pl. 1, figs. 5-7.
 Burlington Group: Sedalia, Missouri.

Physetocrinus ventricosus Hall.

1858. *Actinocrinus ventricosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 595, pl. 11, figs. 6a, b.
 Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus subventricosus*. McChesney, Desc. New Pal. Foss., p. 21.
 Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus ventricosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 5.
1861. *Actinocrinus ventricosus* var. *cancellatus*. Hall, Desc. New Spec. Crin., p. 3.
 Burlington L. S.
1861. *Actinocrinus ventricosus* var. *internodius*. Hall, Desc. New Spec. Crin., p. 3.
 Burlington L. S.
1861. *Actinocrinus ventricosus* var. *internodius*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 278.
 Burlington L. S.: Burlington, Iowa.
1861. *Actinocrinus ventricosus* var. *reticulatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 279.
1865. *Actinocrinus subventricosus*. McChesney, Ill. New Spec. Foss., pl. 4, figs. 6a-b.

Physetocrinus ventricosus Hall—Continued.

1868. *Actinocrinus subventricosus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 16, pl. 4, figs. 6a, b.
Burlington L. S.: Burlington, Iowa.
1894. *Physetocrinus ventricosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 192.
Upper Burlington L. S.: Hannibal and Sedalia, Missouri.
1897. *Physetocrinus ventricosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 593, pl. 63, fig. 6; pl. 64, figs. 1-7, 8a, b.
Upper and Lower Burlington L. S.: Burlington, Iowa; Missouri.

PHYSOSPONGIA Hall, 1884.**Physospongia alternata Hall.**

1884. *Physospongia alternata*. Hall, 35th Rep., N. Y. State Mus. Nat. Hist., p. 481, pl. 20, fig. 9.
Keokuk Group: Crawfordsville, Indiana.

Physospongia colletti Hall.

1884. *Physospongia Colletti*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 480, pl. 20, fig. 7.
Keokuk Group: Crawfordsville, Indiana.

Physospongia dawsoni Whitfield.

1881. *Uphantænia Dawsoni*. Whitfield, Am. Jour. Sci. (3), vol. 22, p. 132.
Keokuk Group: Crawfordsville, Indiana.
1881. *Uphantænia Dawsoni*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 16, pl. 4, figs. 1, 2.
Keokuk Group: Crawfordsville, Indiana.
1884. *Physospongia Dawsoni*. Hall, 35th Rep., N. Y. State Mus. Nat. Hist., p. 479, pl. 20, figs. 4-6, 8.
Keokuk Group: Crawfordsville, Indiana.

(PILEOPSIS Lamark, 1812.)

Pileopsis pabulocrinus. See *Igoceras pabulocrinus*.

PINNA Linnaeus, 1758.

Pinna adamsi. See *Pinna peracuta*.

Pinna arkansana Weller.

1897. *Pinna arkansana*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 260, pl. 19, figs. 1, 2.
Batesville S. S.: Batesville, Arkansas.

Pinna consimilis Walcott.

1884. *Pinna consimilis*. Walcott, Pal. Eureka Dist., p. 236, pl. 20, fig. 13.
Lower Carboniferous: Eureka District and White Pine District, Nevada.

Pinna hinrichsana White and St. John.

1868. *Pinna Hinrichsiana*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 122, fig. 7.
St. Louis L. S.: Near Pella, Iowa.

Pinna inexpectans Walcott.

1884. *Pinna inexpectans*. Walcott, Pal. Eureka District, p. 235, pl. 19, fig. 11.
Lower Carboniferous: Eureka District, Nevada.

Pinna ludlovi Whitfield.

1876. *Pinna Ludlovi*. Whitfield, Ludlow's Recon. Carroll, Mont., to Yell. Nat. Park, p. 143, pl. 1, figs. 6, 7.
Coal Measure L. S.: Canyon of Musselshell, Montana.

***Pinna marshallensis* Winchell.**

1865. *Pinna* ? *Marshallensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 126.
Marshall Group: Napoleon Cut, Jackson County, Michigan.

***Pinna maxvillensis* Whitfield.**

1882. *Pinna Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 221.
Maxville L. S.: Maxville, Ohio.
1891. *Pinna Maxvillensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 586, pl. 14,
fig. 5.
Maxville L. S.: Maxville, Ohio.
1895. *Pinna Maxvillensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 474, pl. 10, fig. 5.
Maxville L. S.: Maxville, Ohio.

***Pinna missouriensis* Swallow.**

1863. *Pinna Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 97.
Ste. Genevieve L. S.: Missouri and Illinois.
1894. *Pinna missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 116.
St. Louis L. S.: Ste. Genevieve, Missouri.

***Pinna peracuta* Shumard.**

1858. *Pinna peracuta*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 214.
Upper Coal Measures: Iowa Point, Nebraska; Kansas.
1860. *Pinna adamsi*. McChesney, Desc. New Pal. Foss., p. 74.
Coal Measures: Lasalle, Illinois.
1872. *Pinna peracuta*. Meek, U. S. Geol. Surv. Nebr., p. 198, pl. 6, figs. 11a, b.
Upper Coal Measures: Bennett's Mill, Wyoming; Nebraska City, Plattsmouth, Rock Bluff, and Bellevue, Nebraska.
Coal Measures: Iowa, Nebraska, Kansas, Missouri, and Illinois.
1877. *Pinna peracuta* (?) White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 151,
pl. 11, fig. 5a.
Carboniferous: Near Relief Spring, Arizona.
1884. *Pinna peracuta*. White, 13th Rep. Geol. Surv. Ind., p. 145, pl. 28, figs. 1, 2.
Upper, Middle, and Lower Coal Measures: Indiana.
1886. *Pinna peracuta*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2,
pt. 2, p. 272, fig. 12; p. 273, fig. 12a.
Mill Creek L. S. Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Pinna peracuta*. Heilprin, 2d. Geol. Surv. Penn., Ann. Rep. 1885, p. 455,
p. 444, fig. 12; p. 454, fig. 12a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1894. *Pinna peracuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 116, pl. 45, figs. 2a, b.
Upper Coal Measures: Kansas City, Missouri.

***Pinna sancti-ludovici* Worthen.**

1883. *Pinna St. Ludovici*. Worthen, Geol. Surv. Ill., vol. 7, p. 326.
St. Louis L. S.: Monroe County, Illinois.
1890. *Pinna sancti-ludovici*. Worthen, Geol. Surv. Ill., vol. 8, p. 111, pl. 19, fig. 6.
St. Louis L. S.: Monroe County, Illinois.

***Pinna subspatulata* Worthen.**

1875. *Pinna subspatulata*. Worthen, Geol. Surv. Ill., vol. 6, p. 524, pl. 30, fig. 4.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
Warsaw beds: Warsaw, Illinois.

PINNATOPORA Vine, 1883.***Pinnatopora bellula* Ulrich.**

1890. *Pinnatopora bellula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 619, pl. 66, figs. 8-8b.
Base of Coal Measures: Seville, Illinois.

***Pinnatopora conferta* Ulrich.**

1890. *Pinnatopora conferta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 618, pl. 56, fig. 5; pl. 66, fig. 6.
Keokuk Group: Keokuk, Iowa; Otter Creek, Jersey County, Illinois.
1894. *Pinnatopora conferta*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Keokuk L. S.: Keokuk, Iowa.

***Pinnatopora curvata* Ulrich.**

1888. *Pinnatopora curvata*. Ulrich, Bull. Den. Univ., vol. 4, p. 76, pl. 14, fig. 4.
Cuyahoga Shale: Richfield, Ohio.

***Pinnatopora flexuosa* Ulrich.**

1890. *Pinnatopora flexuosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 617, pl. 66, figs. 4-4c.
Keokuk Group: King's Mountain, Kentucky.

***Pinnatopora intermedia* Ulrich.**

1888. *Pinnatopora intermedia*. Ulrich, Bull. Den. Univ., vol. 4, p. 74, pl. 14, fig. 1.
Cuyahoga Shale: Richfield, Ohio.
1888. *Pinnatopora intermedia*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 37.
Waverly Group: Ohio.

***Pinnatopora minor* Ulrich.**

1888. *Pinnatopora minor*. Ulrich, Bull. Den. Univ., vol. 4, p. 77, pl. 14, figs. 7, 7a.
Cuyahoga Shale: Richfield, Ohio.

***Pinnatopora nereidis* White.**

1874. *Glaucanome nereidis*. White, Prelim. Rep. Inv. Foss., p. 18.
Carboniferous: White Mountain and Black rivers, Arizona.
1877. *Glaucanome nereidis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 105, pl. 7, figs. 5a-e.
Carboniferous: Confluence of White Mountain and Black rivers, Arizona.

***Pinnatopora simulatrix* Ulrich.**

1888. *Pinnatopora simulatrix*. Ulrich, Bull. Den. Univ., vol. 4, p. 75, pl. 14, fig. 3.
Cuyahoga Shale: Richfield, Ohio.

***Pinnatopora striata* Ulrich.**

1890. *Pinnatopora striata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 617, pl. 66, fig. 4d.
Keokuk Group: Bentonsport, Iowa.

***Pinnatopora subangulata* Ulrich.**

1888. *Pinnatopora subangulata*. Ulrich, Bull. Den. Univ., vol. 4, p. 76, pl. 14, fig. 2.
Cuyahoga Shale: Cuyahoga Falls, Ohio.

***Pinnatopora tenuiramosa* Ulrich.**

1888. *Pinnatopora tenuiramosa*. Ulrich, Bull. Den. Univ., vol. 4, p. 79.
Cuyahoga Shale: Richfield, Ohio.
1890. *Pinnatopora tenuiramosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 619, pl. 66, fig. 7.
Waverly Group: Near Richfield, Ohio.

***Pinnatopora trilineata* Meek.**

1872. *Glaucanome trilineata*. Meek, U. S. Geol. Surv. Nebr., p. 157, pl. 7, figs. 4a-d.
Upper Coal Measures: Nebraska City, Nebraska.
1890. *Pinnatopora trilineata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 620, pl. 66, fig. 6.
Upper Coal Measures: Sangamon County, Illinois.
1894. *Pinnatopora trilineata*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Upper Coal Measures: Kansas City, Missouri.

***Pinnatopora vinei* Ulrich.**

1888. *Pinnatopora vinei*. Ulrich, Bull. Den. Univ., vol. 4, p. 77, pl. 14, fig. 5.
Cuyahoga Shale: Richfield, Lodi, and Bagdad, Ohio.
Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.

Pinnatopora vinei Ulrich—Continued.

1890. *Pinnatopora vinei*. Ulrich, Geol. Surv. Ill., vol. 8, p. 616, pl. 66, figs. 5-5b.
Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.
Cuyahoga Shale: Ohio.
1894. *Pinnatopora vinei*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Keokuk L. S.: Keokuk, Iowa.

Pinnatopora whitii Foerste.

1887. *Glaucanome whitii*. Foerste, Bull. Den. Univ., vol. 2, p. 78, pl. 7, figs. 4a-c.
Coal Measures: Flint Ridge, Ohio.
1887. *Pinnatopora Whitii*. Foerste, Bull. Den. Univ., vol. 2, p. 87.

Pinnatopora youngi Ulrich.

1888. *Pinnatopora youngi*. Ulrich, Bull. Den. Univ., vol. 4, p. 78, pl. 14, figs. 6, 6a.
Cuyahoga Shale: Richfield and Lodi, Ohio.
Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.
1890. *Pinnatopora youngi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 615, pl. 66, fig. 3.
Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.
Cuyahoga Shale: Ohio.
1894. *Pinnatopora youngi*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Keokuk L. S.: Keokuk, Iowa.

PLACUNOPSIS Morris and Lycett, 1853.**Placunopsis carbonaria** Meek and Worthen.

- *1866. *Placunopsis carbonaria*. Meek and Worthen, Proc. Chicago Acad. Sci., vol. 1, p. 13.
Upper Coal Measures: Springfield, Illinois.
1873. *Placunopsis carbonaria*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 578, pl. 27, fig. 2.
Upper Coal Measures: Springfield, Illinois.
1874. *Placunopsis carbonaria*. Meek, Am. Jour. Sci. (3), vol. 7, p. 583.
1887. *Placunopsis carbonaria*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14, fig. 27.
Coal Measures: Flint Ridge, Ohio.
1894. *Placunopsis carbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 108, pl. 43, fig. 9.
Upper Coal Measures: Kansas City, Missouri.

Placunopsis recticardinalis Meek.

1875. *Placunopsis recticardinalis*. Meek, Pal. Ohio, vol. 2, p. 331, pl. 19, fig. 12.
Coal Measures: Flint Ridge and Putnam Hill, Ohio.
1887. *Placunopsis recticardinalis*. Herrick, Bull. Den. Univ., vol. 2, p. 43, pl. 4, fig. 11.
Coal Measures: Flint Ridge, Ohio.

(PLATYCERAS Conrad, 1840.)

Platyceras acutirostre. See *Orthonychia acutirostre*.

Platyceras biseriale. See *Capulus biserialis*.

Platyceras bivolve. See *Strophostylus bivolve*.

Platyceras boonvillense. See *Orthonychia boonvillensis*.

Platyceras capax. See *Capulus capax*.

Platyceras capulus. See *Igoceras capulus*.

Platyceras chesterense. See *Orthonychia chesterense*.

Platyceras cornuforme. See *Orthonychia cornuforme*.

- Platyceras cyrtolites*. See *Orthonychia cyrtolites*.
Platyceras equilatera. See *Capulus equilateralis*.
Platyceras extincor. See *Igoceras pabulocrinus*.
Platyceras fissurellum. See *Igoceras fissurella*.
Platyceras formosum. See *Orthonychia formosum*.
Platyceras haliotoides. See *Capulus haliotoides*.
Platyceras herzeri. See *Capulus herzeri*.
Platyceras infundibulum. See *Igoceras pabulocrinus*.
Platyceras laevigatum. See *Capulus ovalis*.
Platyceras latum. See *Capulus latus*.
Platyceras lodiense. See *Capulus lodiensis*.
Platyceras missouriense. See *Igoceras quincyense*.
Platyceras nasutum. See *Capulus nasutum*.
Platyceras nebrascense. See *Capulus parvus*.
Platyceras obliquum. See *Capulus obliquus*.
Platyceras occidens. See *Capulus occidens*.
Platyceras paralum. See *Capulus paralius*.
Platyceras pettisense. See *Igoceras quincyense*.
Platyceras piso. See *Capulus piso*.
Platyceras quincyense. See *Igoceras quincyense*.
Platyceras reversum. See *Strophostylus reversus*.
Platyceras spinigerum. See *Capulus spinigerum*.
Platyceras subplicatum. See *Igoceras subplicatum*.
Platyceras subrectum. See *Igoceras pabulocrinus*.
Platyceras tortum. See *Naticopsis torta*.
Platyceras tribulosum. See *Capulus tribulosus*.
Platyceras uncum. See *Orthonychia acutirostre*.
Platyceras vomerium. See *Capulus vomerium*.
Platyceras (species undetermined). See *Capulus (species undetermined)*.

PLATYCRINUS Miller, 1821.

Platycrinus absentivus Miller.

1891. *Platycrinus absentivus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 15, pl. 1, fig. 15.
 Chouteau Group: Leucke's Quarry, 6 miles southeast of Sedalia, Missouri.
 1894. *Platycrinus absentivus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
 Chouteau L. S.: Sedalia, Missouri.

Platycrinus acclivus Miller.

1891. *Platycrinus acclivus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 12, pl. 1, figs. 9, 10.
 Burlington Group: Near Sedalia, Missouri.
 1897. *Platycrinus acclivus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 663.
 Upper Burlington L. S.: Sedalia, Missouri.

Platycrinus æqualis Hall.

- *1861. *Platycrinus æqualis*. Hall, Desc. New Spec. Crin., p. 17.
Burlington L. S.
- 1873. *Platycrinites æqualis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 456,
pl. 3, fig. 8.
Burlington L. S.: Burlington, Iowa.
- 1891. *Platycrinus batiola*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 22, pl. 3, figs. 1, 2.
Burlington Group: Sedalia, Missouri.
- 1894. *Platycrinus æqualis*. Keyes, Mo. Geol. Surv., vol. 4, p. 200.
Burlington L. S.: Sedalia and Louisiana, Missouri.
- 1897. *Platycrinus æqualis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 674,
pl. 71, figs. 4a, b, 5.
Upper Burlington L. S.: Pleasant Grove and Burlington, Iowa.

Platycrinus æquitermus Miller.

- 1891. *Platycrinus æquitermus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 14, pl. 1,
fig. 13.
Chouteau L. S.: Near Sedalia, Missouri.
- 1891. *Platycrinus curryvillensis*. Rowley and Hare, The Kansas City Scientist,
vol. 5, p. 98, pl. 2, fig. 5.
Chouteau L. S.: 3 miles east of Curryville, Missouri.
- 1894. *Platycrinus æquitermus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
Chouteau L. S.: Sedalia, Missouri.
- 1897. *Platycrinus æquitermus*. Wachsmuth and Springer, N. Am. Crin. Cam.
p. 658, pl. 71, fig. 12.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus æternalis. See *Platycrinus bonoensis*.**Platycrinus agassizi Wachsmuth and Springer.**

- 1890. *Platycrinus planus*? Wachsmuth and Springer, Geol. Surv. Ill., vol. 8,
p. 188, pl. 16, fig. 8.
Kinderhook Group: Le Grand, Iowa.
- 1897. *Platycrinus Agassizi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 669,
pl. 69, fig. 4.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Platycrinus alabamensis. See *Platycrinus huntsvillæ*.**Platycrinus allophylus Miller.**

- 1891. *Platycrinus allophylus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 9, pl. 1,
figs. 3, 4.
Chouteau L. S.: Leucke's Quarry, 6 miles southeast of Sedalia, Missouri.
- 1894. *Platycrinus allophylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
Chouteau L. S.: Sedalia, Missouri.
- 1897. *Platycrinus allophylus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 685, pl. 71, fig. 17.
Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus altidorsatus Rowley and Hare.

- 1891. *Platycrinus alti-dorsatus*. Rowley and Hare, The Kansas City Scientist,
vol. 5, p. 97, pl. 2, fig. 2.
Upper Burlington Chert: Louisiana, Missouri.

Platycrinus amabilis Miller.

- 1891. *Platycrinus amabilis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 19, pl. 2,
figs. 9, 10.
? Burlington Group: Sedalia, Missouri.

Platycrinus americanus Owen and Shumard.

1852. *Platycrinus Americanus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 89, pl. 11, fig. 1.
Carboniferous L. S.: Burlington, Iowa.
1852. *Platycrinus americanus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 594, tab. 5 B, figs. 1a, b.
Carboniferous L. S.: Burlington, Iowa.
1858. *Platycrinus truncatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 537.
Burlington L. S.: Burlington, Iowa.
1891. *Platycrinus Broadheadi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 21, pl. 2, fig. 15.
Burlington Group: Sedalia, Missouri.
1894. *Platycrinus americanus*. Keyes, Mo. Geol. Surv., vol. 4, p. 199, pl. 25, figs. 2a, b.
Lower Burlington L. S.: Sedalia, Louisiana, and Hannibal, Missouri;
Kinderhook, Illinois; Burlington, Iowa.
1897. *Platycrinus americanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 686, pl. 75, figs. 10-12, 13a-c.
Lower Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Missouri.

Platycrinus annosus Miller.

1891. *Platycrinus annosus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 14, pl. 1, fig. 12.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Platycrinus annosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 196.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus asper Meek and Worthen.

1861. *Platycrinus (Pleurocrinus) asper*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 129.
Burlington L. S.: Burlington, Iowa.
1868. *Platycrinus (Pleurocrinus) asper*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 468, pl. 18, fig. 9.
Burlington Group: Burlington, Iowa.
1897. *Platycrinus asper*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 690, pl. 68, figs. 9a, b.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus batiola. See *Platycrinus æqualis*.**Platycrinus blairi** Miller.

1891. *Platycrinus Blairi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 21, pl. 2, figs. 13, 14.
Burlington Group: Sedalia, Missouri.

Platycrinus bloomfieldensis. See *Platycrinus planus*.**Platycrinus bonoensis** White.

1878. *Platycrinus Bonoensis*. White, Proc. Acad. Nat. Sci. Phil., p. 30.
Keokuk Group: Bono, Lawrence County, Indiana.
1880. *Platycrinus bonoensis*. White, Cont. to Inv. Pal., No. 8, p. 160, pl. 40, fig. 5a.
Keokuk Group: Bono, Lawrence County, Indiana.
1891. *Platycrinus æternalis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 11, pl. 1, fig. 8.
Keokuk Group: Boonville, Missouri.
1892. *Platycrinus caducus*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 13, pl. 2, fig. 13.
Keokuk Group: Boonville, Missouri.
1894. *Platycrinus caducus*. Miller, 18th Rep. Geol. Surv. Ind., p. 267, pl. 2, fig. 13.
Keokuk Group: Boonville, Missouri.
1894. *Platycrinus bonoensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 201.
Keokuk L. S.: Boonville, Missouri.

Platycrinus bonoensis White—Continued.

1897. *Platycrinus bonoensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 683, pl. 69, fig. 6.

Keokuk and Warsaw L. S.: Bono, Indiana; Boonville, Missouri.

Platycrinus boonvillensis Miller.

1891. *Platycrinus Boonvillensis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 8, pl. 1, figs. 1, 2.

Keokuk Group: Boonville, Missouri.

1894. *Platycrinus boonvillensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 202.

Keokuk L. S.: Boonville, Missouri.

1897. *Platycrinus boonvillensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 681, pl. 72, figs. 8a, b, 9.

Warsaw L. S.: Boonville, Missouri; Spergen Hill, Indiana.

Platycrinus bozemanensis Miller and Gurley.

1897. *Platycrinus bozemanensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 42, pl. 3, fig. 5.

Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Platycrinus brevinodus Hall.

1861. *Platycrinus brevinodus*. Hall, Desc. New Spec. Crin., p. 4.

Burlington L. S.

1861. *Platycrinus brevinodus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 286.

Keokuk L. S.: Keokuk, Iowa.

1872. *Platycrinus brevinodus*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 5.

1897. *Platycrinus brevinodus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 688, pl. 70, figs. 2, 5, 6a, b.

Keokuk Group: Keokuk, Iowa; Indian Creek, Indiana.

Burlington Keokuk transition bed: near Burlington, Iowa.

Platycrinus bridgerensis Miller and Gurley.

1897. *Platycrinus bridgerensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 43, pl. 3, fig. 8.

Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Platycrinus brittsi Miller.

1891. *Platycrinus Brittsi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 23, pl. 3, figs. 3, 4.

Chouteau Group: Pin Hook Bridge, Missouri.

1894. *Platycrinus brittsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 195.

Chouteau L. S.: Sedalia, Missouri.

1897. *Platycrinus Britsi*. Wachsmuth and Springer, N. Am. Crin., p. 659, pl. 71, fig. 10.

Chouteau Group: Pin Hook Bridge, Missouri.

Platycrinus broadheadi. See *Platycrinus americanus*.**Platycrinus burlingtonensis** Owen and Shumard.

1850. *Platycrinus Burlingtonensis*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 60, pl. 7, fig. 5.

Subcarboniferous L. S.: Burlington, Iowa.

1852. *Platycrinus burlingtonensis*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 589, tab. 5 A, fig. 5.

Subcarboniferous L. S.: Burlington, Iowa.

1858. *Platycrinus exertus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 539.

Burlington L. S.: Burlington, Iowa.

1858. *Platycrinus nodobrachiatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 542.

Burlington L. S.: Burlington, Iowa.

1858. *Platycrinus nucleiformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 540.

Burlington L. S.: Burlington, Iowa.

Platycrinus burlingtonensis Owen and Shumard—Continued.

1860. *Platycrinus inornatus*. McChesney, Desc. New Pal. Foss., p. 6.
Burlington L. S.: Burlington, Iowa; Monmouth, Illinois.
1865. *Platycrinus inornatus*. McChesney, Ill. New Spec. Foss., pl. 4, figs. 3a-b.
1868. *Platycrinus burlingtonensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 4, pl. 4, figs. 3a, b.
Burlington L. S.: Monmouth, Illinois.
1873. *Platycrinites Burlingtonensis*. Meek and Worthen, Geol. Surv., Ill., vol. 5, p. 452, pl. 3, fig. 6.
Burlington L. S.: Burlington, Iowa.
1891. *Platycrinus lautus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 17, pl. 2, figs. 3, 4.
Burlington Group: Sedalia, Missouri.
1894. *Platycrinus burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 200.
Lower Burlington L. S.: Sedalia and Hannibal, Missouri.
1897. *Platycrinus burlingtonensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 653, pl. 69, figs. 3a-i.
Lower Burlington L. S.: Burlington, Iowa; Missouri; New Mexico.

Platycrinus caducus. See *Platycrinus bonoensis*.

Platycrinus calyculus Hall.

- *1861. *Platycrinus calyculus*. Hall, Desc. New Spec. Crin., p. 16.
Burlington L. S.

Platycrinus canaliculatus Hall.

1858. *Platycrinus canaliculatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 539.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus canaliculatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 689, pl. 75, figs. 7a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus carchesium. See *Platycrinus pileiformis*.

Platycrinus casula Miller and Gurley.

1895. *Platycrinus casula*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 76, pl. 4, figs. 37-40.
Burlington Group: Sedalia, Missouri.

Platycrinus cavus Hall.

1858. *Platycrinus cavus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 527, pl. 8, figs. 1a, b.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus cavus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 715, pl. 67, figs. 8a, b.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus chouteauensis Miller.

1892. *Platycrinus chouteauensis*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 14, pl. 2, figs. 14, 15.
Chouteau L. S.: Sedalia, Mo.
1894. *Platycrinus chouteauensis*. Miller, 18th Rep. Geol. Surv. Ind., p. 268, pl. 2, figs. 14, 15.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus clinatus Miller and Gurley.

1895. *Platycrinus clinatus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 74, pl. 4, figs. 26-30.
Chouteau L. S.: Sedalia, Missouri.

Platycrinus clytis. See *Platycrinus scobina*.

Platycrinus colletti Miller.

1892. *Platycrinus colletti*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 14, pl. 2, figs. 16, 17.

Chouteau L. S.: Near Sedalia, Missouri.

1894. *Platycrinus colletti*. Miller, 18th Rep. Geol. Surv. Ind., p. 268, pl. 2, figs. 16, 17.

Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus concinnulus Miller and Gurley.

1896. *Platycrinus concinnulus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 63, pl. 4, figs. 16-18.

Burlington Group: Sedalia, Missouri.

Platycrinus concinnus Miller.

1891. *Platycrinus concinnus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 18, pl. 2, figs. 5, 6.

Burlington Group: Sedalia, Missouri.

Platycrinus contritus Hall.

1864. *Platycrinus contritus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 54.

Waverly Group: Richfield, Ohio.

1875. *Platycrinus contritus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 166, pl. 11, fig. 4.

Waverly Group: Richfield, Ohio.

1897. *Platycrinus contritus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 667, pl. 71, fig. 8.

Waverly Group: Richfield, Ohio.

Platycrinus corbuliformis Rowley and Hare.

1891. *Platycrinus corbuliformis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 113, pl. 3, figs. 1, 2.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Platycrinus corbuliformis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 657, pl. 71, figs. 11a, b.

Lower Burlington L. S.: Burlington, Iowa.

Platycrinus corrugatus. See *Platycrinus discoideus*.**Platycrinus cortina** Miller and Gurley.

1894. *Platycrinus cortina*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 40, pl. 3, figs. 15, 16.

Chouteau L. S.: Sedalia, Missouri.

Platycrinus curryvillensis. See *Platycrinus æquitermus*.**Platycrinus davisii** Wachsmuth and Springer.

1897. *Platycrinus Davisii*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 684, pl. 70, fig. 14.

Lower Burlington L. S.: Hannibal, Missouri.

Platycrinus discoideus Owen and Shumard.

1850. *Platycrinus discoideus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2) vol. 2, p. 58, pl. 7, fig. 1.

Subcarboniferous: Burlington and Augusta, Iowa.

1850. *Platycrinus corrugatus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 59, pl. 7, fig. 2.

Subcarboniferous: Burlington, Iowa.

1852. *Platycrinus discoideus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 588, tab. 5 A, figs. 1a, b.

Subcarboniferous L. S.: Burlington and Augusta, Iowa.

Platycrinus discoideus Owen and Shumard—Continued.

1852. *Platycrinus corrugatus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 289, tab. 5 A, figs. 2a-e.
Subcarboniferous L. S.: Burlington, Iowa.
1858. *Platycrinus shumardanus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 532, pl. 8, fig. 5.
Burlington L. S.: Burlington, Iowa.
1861. *Platycrinus striobrachiatus*. Hall, Desc. New Crin., p. 4.
Burlington L. S.
1861. *Platycrinus striobrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 287.
Burlington L. S.: Burlington, Iowa.
1861. *Platycrinus multi-brachiatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 135.
Burlington L. S.: Burlington, Iowa.
1872. *Platycrinus striobrachiatus*. Hall, Photo. Plates of Crinoids, pl. 2, figs. 2, 3.
1891. *Platycrinus pulcellus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 11, pl. 1, fig. 7.
Burlington Group: Near Sedalia, Missouri.
1893. *Platycrinus striobrachiatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 4, pl. 3, figs. 2-4.
Burlington L. S.: Burlington, Iowa.
1894. *Platycrinus discoideus*. Keyes, Mo. Geol. Surv., vol. 4, p. 197.
Lower Burlington L. S.: Hannibal, Louisiana, and Sedalia, Missouri.
1897. *Platycrinus discoideus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 713, pl. 3, fig. 17; pl. 66, figs. 10a-c.
Lower Burlington L. S.: Burlington, Iowa; Missouri; New Mexico.

Also see *Eucladocrinus pleurovimenus*.

Platycrinus douglassi Miller and Gurley.

1896. *Platycrinus douglassi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 86, pl. 5, figs. 18, 19.
Subcarboniferous: Bridger Mountains, Bozeman, Montana.

Platycrinus elegans Hall.

1861. *Platycrinus elegans*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Platycrinus elegans*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 285.
Burlington L. S.: Burlington, Iowa.
1872. *Platycrinus elegans*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 15.
1893. *Platycrinus elegans*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 3, pl. 3, fig. 1.
Burlington L. S.: Burlington, Iowa.

Platycrinus eminulus Hall.

- *1861. *Platycrinus eminulus*. Hall, Desc. New Spec. Crin., p. 17.
Burlington L. S.
1897. *Platycrinus eminulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 712, pl. 68, figs. 13a-c.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus excavatus Hall.

1861. *Platycrinus excavatus*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.
1861. *Platycrinus excavatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 286.
Burlington L. S.: Burlington, Iowa.
1872. *Platycrinus excavatus*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 1.
1891. *Platycrinus sulcatus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 16, pl. 2, fig. 2.
Burlington Group: Sedalia, Missouri.
1893. *Platycrinus excavatus*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 3, pl. 3, fig. 5.
Burlington L. S.: Burlington, Iowa.

Platycrinus excavatus Hall—Continued.

1897. *Platycrinus excavatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 718, pl. 66, fig. 4.

Lower Burlington L. S.: Burlington, Iowa.

Platycrinus exsertus*. See *Platycrinus burlingtonensis*.**Platycrinus faberi* Miller.**

1889. *Platycrinus faberi*. Miller, N. A. Geol. and Pal., p. 270, fig. 393.

St. Louis or Kaskaskia Group: Scott County, West Virginia.

***Platycrinus formosus* Miller and Gurley.**

1895. *Platycrinus formosus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 72, pl. 4, figs. 20, 21.

Burlington Group: Sedalia, Missouri.

***Platycrinus formosus* var. *approximatus* Miller and Gurley.**

1896. *Platycrinus formosus* var. *approximatus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 60, pl. 4, figs. 8-11.

Burlington Group, Sedalia, Missouri.

***Platycrinus geometricus* Wachsmuth and Springer.**

1897. *Platycrinus geometricus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 697, pl. 67, fig. 10; pl. 68, fig. 8.

Upper Burlington L. S.: Burlington, Iowa.

Platycrinus georgii*. See *Platycrinus saræ*.**Platycrinus germanus* Miller and Gurley.**

1895. *Platycrinus germanus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 78, pl. 4, figs. 46, 47.

Chouteau Group: Sedalia, Missouri.

***Platycrinus glyptus* Hall.**

- * 1861. *Platycrinus glyptus*. Hall, Desc. New Spec. Crin., p. 16.

Burlington L. S.

1897. *Platycrinus glyptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 693, pl. 67, figs. 4, 5.

Upper Burlington L. S.: Burlington, Iowa.

***Platycrinus gorbyi* Miller.**

1891. *Platycrinus Gorbyi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 15, pl. 1, fig. 14.

Burlington L. S.: Sedalia, Missouri.

1897. *Platycrinus Gorbyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 716, pl. 68, fig. 15.

Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

***Platycrinus graphicus* Hall.**

1864. *Platycrinus graphicus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 55.

Waverly Group: Richfield, Ohio.

1875. *Platycrinus graphicus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 166, pl. 11, fig. 2.

Waverly Group: Richfield, Ohio.

1875. *Platycrinus Richfieldensis*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 167, pl. 11, fig. 1.

Waverly Group: Richfield, Ohio.

1897. *Platycrinus graphicus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 672, pl. 71, fig. 7.

Waverly Group: Richfield, Ohio.

***Platycrinus halli* Shumard.**

1858. *Platycrinus planus*? Hall, Geol. Iowa, vol. 1, pt. 2, p. 533, pl. 8, figs. 6a, b.
(Not *P. planus* O. and S. 1850.)

Burlington L. S.: Burlington, Iowa.

Platycrinus halli Shumard—Continued.

- * 1861. *Platycrinus olla*. Hall, Desc. New Spec. Crin., p. 16. (Not *P. olla* De Koninck and Lehon.)
 Burlington L. S.
1866. *Platycrinus Halli*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 388.
1873. *Platycrinites Halli?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 454, pl. 3, fig. 3.
 Burlington L. S.: Burlington, Iowa.
1394. *Platycrinus halli*. Keyes, Mo. Geol. Surv., vol. 4, p. 201, pl. 25, fig. 3.
 Upper Burlington L. S.: Ash Grove, Missouri; Burlington, Iowa.
1897. *Platycrinus Halli*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 662, pl. 72, figs. 6a, b; 7a, b.
 Upper Burlington L. S.: Burlington, Iowa.

Platycrinus haydeni Meek.

1873. *Platycrinites Haydeni*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 469.
 Carboniferous: "Old Baldy," near Virginia City, Montana.
1880. *Platycrinus haydeni*. White, Cont. to Inv. Pal. No. 6, p. 122, pl. 33, fig. 7a.
 Carboniferous: "Old Baldy" Mountain, near Virginia City, Montana.

Platycrinus hemisphericus Meek and Worthen.

1865. *Platycrinus hemisphericus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 162.
 Keokuk Group: Crawfordsville, Indiana.
1868. *Platycrinus hemisphericus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 511, pl. 20, figs. 2a, b.
 Keokuk Group: Crawfordsville, Indiana.
1873. *Platycrinites hemisphericus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 506, pl. 16, figs. 6a-c.
 Keokuk Group: Crawfordsville, Indiana.
1882. *Platycrinus hemisphericus*. White, 11th Rep. Geol. Surv. Ind., p. 368, pl. 41, fig. 1.
 Keokuk Group: Crawfordsville, Indiana.
1897. *Platycrinus hemisphericus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 703, pl. 66, figs. 1a-d.
 Keokuk Group: Crawfordsville, Indiana; Keokuk, Iowa.

Platycrinus hodgsoni Miller and Gurley.

1896. *Platycrinus hodgsoni*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 63, pl. 5, figs. 8, 9.
 Burlington Group: Adams County, Illinois.

Platycrinus huntsvillæ Troost, MS.

1849. *Platycrinus Huntsvillæ*. Troost, Proc. Am. Ass. Adv. Sci., p. 61.
1860. *Platycrinus penicillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 380.
 St. Louis L. S.: Hardin County, Illinois.
1860. *Platycrinus plenus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 380.
 St. Louis L. S.: Hardin County, Illinois.
1866. *Platycrinus penicillus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 266, pl. 19, figs. 6a-c.
 St. Louis Group: Hardin County, Illinois.
1866. *Platycrinus plenus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 267, pl. 20, fig. 3.
 St. Louis Group: Hardin County, Illinois.
1891. *Platycrinus alabamensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 50, pl. 9, fig. 5.
 Subcarboniferous: Huntsville, Alabama.

Platycrinus huntsvillæ Troost, MS.—Continued.

1892. *Platycrinus alabamensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 660, pl. 9, fig. 5.

Subcarboniferous: Huntsville, Alabama.

1897. *Platycrinus Huntsvillæ*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 678, pl. 73, figs. 6, 7a, b, 8-12.

St. Louis L. S.: Huntsville, Alabama; Hardin County, Illinois.

Platycrinus illinoisensis Miller and Gurley.

1896. *Platycrinus illinoisensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 62, pl. 5, figs. 5-7.

Burlington Group: Adams County, Illinois.

Platycrinus incomptus White.

- *1860. *Platycrinus incomptus*. White, Jour. Best. Soc. Nat. Hist., vol. 7, p. 503.

Burlington L. S.: Burlington, Iowa.

1873. *Platycrinites incomptus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 459, pl. 3, fig. 7.

Burlington L. S.: Burlington, Iowa.

1897. *Platycrinus incomptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 664, pl. 71, figs. 1-3; pl. 67, fig. 6.

Upper Burlington L. S.: Burlington, Iowa.

Platycrinus inornatus. See *Platycrinus burlingtonensis*.**Platycrinus insolens** Rowley and Hare.

1891. *Platycrinus insolens*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 98, pl. 2, fig. 4.

Chouteau L. S.: 3 miles southeast of Curryville, Missouri.

1897. *Platycrinus insolens*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 659, pl. 71, fig. 15.

Chouteau L. S.: Near Curryville, Missouri.

Platycrinus laurus. See *Platycrinus burlingtonensis*.**Platycrinus lodensis** Hall and Whitfield.

1875. *Platycrinus Lodensis*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 168, pl. 11, fig. 3.

Cuyahoga Shale: Medina County, Ohio.

1897. *Platycrinus lodensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 666, pl. 71, fig. 6.

Cuyahoga Shale: Lodi and Royalton, Ohio.

Platycrinus marginatus Rowley and Hare.

1891. *Platycrinus marginatus*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 98, pl. 2, fig. 3.

Upper Burlington L. S.: Spencer Creek, 2 miles north of Curryville, Missouri.

Platycrinus missouriensis Miller and Gurley.

1895. *Platycrinus missouriensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 73, pl. 4, figs. 22, 23.

Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus modestus Miller and Gurley.

1895. *Platycrinus modestus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 77, pl. 4, figs. 43-45.

Burlington Group: Sedalia, Missouri.

Platycrinus monroensis. See *Platycrinus saræ*.**Platycrinus montanensis**. See *Eucladocrinus montanensis*.

Platycrinus multibrachiatus. See *Platycrinus discoideus*.

***Platycrinus notensis* Meek and Worthen.**

1865. *Platycrinus Niotensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 162.
Keokuk L. S.: Niota, Hancock County, Illinois.
1868. *Platycrinus Niotensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 513,
pl. 20, fig. 3.
Keokuk L. S.: Niota, Hancock County, Illinois.
1897. *Platycrinus notensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 682,
pl. 71, fig. 9.
Keokuk Group: Niota, Illinois; Indian Creek and Canton, Indiana.

Platycrinus nodobrachiatus. See *Platycrinus burlingtonensis*.

***Platycrinus nodostratus* Wachsmuth and Springer.**

1897. *Platycrinus nodo-stratus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 698, pl. 66, figs. 5a, b; pl. 70, figs. 3, 4a-c.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus nodulosus. See *Platyceras ornogranulus*.

Platycrinus nucleiformis. See *Platycrinus burlingtonensis*.

Platycrinus occidentalis. See *Eucladocrinus tuberosus*.

Platycrinus olla. See *Platycrinus halli*.

***Platycrinus ollicula* Miller.**

1891. *Platycrinus ollicula*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 19, pl. 2,
figs. 7, 8.
Chouteau Group: Pin Hook Bridge and at Leucke's Quarry, near Sedalia,
Missouri.
1894. *Platycrinus ollicula*. Keyes, Mo. Geol. Surv., vol. 4, p. 195.
Chouteau L. S.: Sedalia, Missouri.
1897. *Platycrinus ollicula*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 667.
Chouteau L. S.: Pin Hook Bridge and at Leucke's Quarry, near Sedalia,
Missouri.

***Platycrinus ornogranulus* McChesney.**

1858. *Platycrinus nodulosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 541. (Not *P. nodulosus* Goldfuss, 1833.)
Burlington L. S.: Burlington, Iowa.
1860. *Platycrinus ornogranulus*. McChesney, Desc. New Pal. Foss., p. 5.
Burlington L. S.: Burlington, Iowa.
1865. *Platycrinus ornogranulus*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 11a, b.
1868. *Platycrinus ornigranulus*. McChesney, Trans. Chicago Acad. Sci., vol. 1,
p. 3, pl. 5, fig. 8.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus ornigranulus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 701, pl. 66, fig. 8; pl. 68, figs. 10a-c, 11a, b, 12a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus oweni. See *Platycrinus regalis*.

***Platycrinus parvinodus* Hall.**

- *1861. *Platycrinus parvinodus*. Hall, Desc. New Spec. Crin., p. 17.
Burlington L. S.
1897. *Platycrinus parvinodus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 696, pl. 68, figs. 6a, b.
Lower Burlington L. S.: Burlington, Iowa.

***Platycrinus parvulus* Meek and Worthen.**

1865. *Platycrinus parvulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 163.
Chester Group: Pope County, Illinois.

Platycrinus parvulus Meek and Worthen—Continued.

1873. *Platycrinites parvulus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 555, pl. 20, fig. 7.

Chester Group: Pope County, Illinois.

Platycrinus peculiaris Wachsmuth and Springer.

1897. *Platycrinus peculiaris*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 700, pl. 68, figs. 7a, b.

Lower Burlington L. S.: Lake Valley, New Mexico.

Platycrinus penicillus. See *Platycrinus huntsvillæ*.

Platycrinus pentagonus Miller.

1891. *Platycrinus pentagonus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 16, pl. 2, fig. 1.

Keokuk Group: Boonville, Missouri.

Platycrinus perasper. See *Platycrinus yandelli* var. *perasper*.

Platycrinus pettisensis Miller and Gurley.

1895. *Platycrinus pettisensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 73, pl. 4, figs. 24, 25.

Chouteau L. S.: Near Sedalia, Missouri.

Platycrinus pileiformis Hall.

1858. *Platycrinus pileiformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 529, pl. 8, figs. 3a-c. Burlington L. S.: Burlington, Iowa.

1891. *Platycrinus carchesium*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 23, pl. 3, figs. 6, 7.

Burlington Group: Sedalia, Missouri.

1894. *Platycrinus pileiformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 198, pl. 25, fig. 5.

Lower Burlington L. S.: Sedalia and Hannibal, Missouri; Kinderhook, Illinois.

1897. *Platycrinus pileiformis*. Wachsmuth and Springer, N. Am. Crin., p. 656, pl. 69, fig. 5; pl. 70, figs. 13a, b.

Lower Burlington L. S.: Burlington, Iowa; Sedalia and Hannibal, Missouri.

Platycrinus pisum Rowley and Hare.

1891. *Platycrinus pisum*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 113, pl. 3, fig. 3.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Platycrinus pisum*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 660, pl. 71, figs. 13a, b.

Lower Burlington L. S.: Louisiana, Missouri.

Platycrinus planobasalis. See *Platycrinus quinquenodus*.

Platycrinus planus Owen and Shumard.

1850. *Platycrinus planus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 57, pl. 7, figs. 4a-c.

Subcarboniferous: Burlington, Iowa.

1852. *Platycrinus planus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 587, tab. 5A, figs. 4a-c.

Subcarboniferous L. S.: Burlington, Iowa; Button-mould Knob, Kentucky.

1873. *Platycrinites planus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 452, pl. 3, figs. 5a, c. (not b. = *P. pratteni*.)

Burlington L. S.: (Burlington, Iowa).

1880. *Platycrinus bloomfieldensis*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 257, pl. 15, fig. 4.

Keokuk Group: New Bloomfield, Missouri.

Platycrinus planus Owen and Shumard—Continued.

1897. *Platycrinus planus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 668, pl. 69, figs. 2a-d.
Lower Burlington L. S.: Burlington, Iowa; Hannibal and Sedalia, Missouri.

Also see *Platycrinus halli*, *Platycrinus pratteni*, and *Platycrinus agassizi*.

Platycrinus plenus. See *Platycrinus huntsvillæ*.

Platycrinus pleurovimenus. See *Eucladocrinus pleurovimenus*.

Platycrinus pocilliformis Hall.

1858. *Platycrinus pocilliformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 528, pl. 8, figs. 2a, b.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus pocilliformis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 706, pl. 68, figs. 2a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus poculum Miller.

1881. *Platycrinus poculum*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 311, pl. 7, fig. 4.
Subcarboniferous: Lake Valley Mining District, New Mexico.

Platycrinus prænuntius. See *Eucladocrinus prænuntius*.

Platycrinus prattenanus. See *Platycrinus saræ*.

Platycrinus pratteni Worthen.

1868. *Platycrinus planus*? Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 467, pl. 16, fig. 6.
Burlington Group: Burlington, Iowa.
1860. *Platycrinus Pratteni*. Worthen, Trans. St. Louis Acad. Sci., vol. 1, p. 569.
Brown Crinoidal L. S.: Burlington, Iowa.
1894. *Platycrinus pratteni*. Keyes, Mo. Geol. Surv., vol. 4, p. 198.
Lower Burlington L. S.: Sedalia, Missouri.
1897. *Platycrinus Pratteni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 671, pl. 70, figs. 11, 12.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus pulchellus. See *Platycrinus discoideus*.

Platycrinus pumilis Hall.

1860. *Platycrinus pumilis*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., p. 82, pl. 1, fig. 6.
Warsaw L. S.: Warsaw, Illinois.

Platycrinus quinquenodus White.

1862. *Platycrinus quinquenodus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 18.
Upper Burlington L. S.: Burlington, Iowa.
1891. *Platycrinus plano-basalis*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 97, pl. 2, fig. 1.
Upper Burlington L. S.: Spencer Creek, 2 miles north of Curryville, Missouri.
1897. *Platycrinus quinquenodus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 661, pl. 71, figs. 14a-c.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus regalis Hall.

- *1861. *Platycrinus regalis*. Hall, Desc. New Spec. Crin., p. 16.
Burlington L. S.

Platycrinus regalis Hall—Continued.

1861. *Platycrinus Oweni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 128.
Burlington L. S.: Burlington, Iowa.
1872. *Platycrinus regalis*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 6.
1897. *Platycrinus regalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 710,
pl. 72, figs. 1, 2.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus richfieldensis. See *Platycrinus graphicus*.

Platycrinus rotundus. See *Platycrinus sculptus*.

Platycrinus saffordi Hall.

1858. *Platycrinus saffordi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 634, pl. 18, figs. 5, 6.
Keokuk L. S.: Warsaw, Illinois.
1894. *Platycrinus saffordi*. Keyes, Mo. Geol. Surv., vol. 4, p. 202, pl. 25, fig. 1.
Keokuk L. S.: Wayland, Missouri; Warsaw, Illinois.
1897. *Platycrinus Saffordi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 694,
pl. 67, figs. 1-3.
Upper Burlington L. S. and Keokuk Group: Indian Creek, Montgomery
County, Indiana; Keokuk, Iowa; Kentucky; Tennessee; Illinois;
Missouri.

Platycrinus sampsoni Miller.

1891. *Platycrinus Sampsoni*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 13, pl. 1, fig. 11.
Burlington Group: Near Sedalia, Missouri.
1894. *Platycrinus sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 199.
Burlington L. S.: Ash Grove and Sedalia, Missouri; Burlington, Iowa.
1897. *Platycrinus Sampsoni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 673,
pl. 70, fig. 10.
Upper Burlington L. S.: Burlington, Iowa; Sedalia, Missouri.

Platycrinus saræ Hall.

1858. *Platycrinus saræ*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 673, pl. 17, fig. 4.
St. Louis L. S.: Near St. Louis, Missouri.
1860. *Platycrinus georgii*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 82, pl. 1,
fig. 7.
Warsaw L. S.: Warsaw, Illinois.
1860. *Platycrinus Prattenanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 379.
St. Louis L. S.: Randolph County, Illinois.
1866. *Platycrinus Prattenanus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 264,
pl. 20, fig. 2.
St. Louis Group: Randolph County, Illinois.
1882. *Platycrinus monroensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist.,
p. 30.
St. Louis L. S.: Monroe County, Illinois; Blount County, Tennessee.
1883. *Platycrinus Monroensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 306, pl. 30, fig. 9.
St. Louis L. S.: Monroe County, Illinois; Blount County, Tennessee.
1894. *Platycrinus saræ*. Keyes, Mo. Geol. Surv., vol. 4, p. 202.
St. Louis L. S.: St. Louis, Missouri.
1897. *Platycrinus Saræ*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 677,
pl. 69, fig. 7; pl. 70, fig. 1.
St. Louis Group: St. Louis, Missouri; Jersey County, Illinois.

Platycrinus scobina Meek and Worthen.

1861. *Platycrinus scobina*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 129.
Burlington L. S.: Burlington, Iowa.
1861. *Platycrinus clytis*. Hall, Desc. New Spec. Crin., p. 4.
Burlington L. S.

Platycrinus scobina Meek and Worthen—Continued.

1861. *Platycrinus clytis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 285.
Burlington L. S.: Burlington, Iowa.
1868. *Platycrinus scobina*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 466,
pl. 16, fig. 9.
Burlington Group: Burlington, Iowa.
1872. *Platycrinus clytis*. Hall, Photo. Plates of Crinoids, pl. 2, fig. 4.
1893. *Platycrinus clytis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 2, pl. 3,
fig. 6.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus scobina*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 695,
pl. 68, figs. 14a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus sculptus Hall.

1858. *Platycrinus sculptus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 536, pl. 8, fig. 11.
Burlington L. S.: Burlington, Iowa.
1891. *Platycrinus rotundus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 20, pl. 2,
figs. 11, 12.
Burlington Group: Sedalia, Missouri.
1894. *Platycrinus sculptus*. Keyes, Mo. Geol. Surv., vol. 4, p. 200.
Lower Burlington L. S.: Sedalia, Missouri.
1897. *Platycrinus sculptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 691,
pl. 68, fig. 5; pl. 75, figs. 8, 9.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus semifusus Miller and Gurley.

1895. *Platycrinus semifusus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat.
Hist., p. 77, pl. 4, figs. 41, 42.
Burlington Group: Sedalia, Missouri.

Platycrinus sharonensis Miller and Gurley.

1897. *Platycrinus sharonensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat.
Hist., p. 42, pl. 3, figs. 6, 7.
Burlington Group: Near Sharon, Missouri.

Platycrinus shumardanus. See *Platycrinus discoideus*.**Platycrinus spinifer** Wachsmuth and Springer.

1897. *Platycrinus spinifer*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 708,
pl. 66, fig. 7.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus spinifer var. *elongatus* Wachsmuth and Springer.

1897. *Platycrinus spinifer* var. *elongatus*. Wachsmuth and Springer, N. Am. Crin.
Cam., p. 709, pl. 67, fig. 7.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus striobrachiatus. See *Platycrinus corrugatus*.**Platycrinus subscitulus** Miller and Gurley.

1896. *Platycrinus subscitulus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat.
Hist., p. 62, pl. 4, figs. 12-15.
Burlington Group: Sedalia, Missouri.

Platycrinus subspinosus Hall.

1858. *Platycrinus subspinosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 536, pl. 8, figs. 9, 10.
Burlington L. S.: Burlington, Iowa.
1866. *Platycrinus subspinosus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 173,
pl. 15, fig. 6.
Burlington L. S.: Burlington, Iowa.

Platycrinus suospinosus Hall—Continued.

1873. *Platycrinites subspinosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 452, pl. 11, fig. 2.
Burlington L. S.: Burlington, Iowa.
1894. *Platycrinus subspinosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 197.
Lower Burlington L. S.: Louisiana and Sedalia, Missouri.
1897. *Platycrinus subspinosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 717, pl. 66, figs. 9a, b.
Lower Burlington, L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Platycrinus subspinulosus Hall.

1860. *Platycrinus subspinulosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 81, Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus subspinulosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 684, pl. 66, figs. 2a, b; pl. 70, fig. 9.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus sulcatus. See *Platycrinus excavatus*.**Platycrinus sulciferus Miller and Gurley.**

1895. *Platycrinus sulciferus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 75, pl. 4, figs. 33, 34.
Burlington Group: Sedalia, Missouri.

Platycrinus symmetricus Wachsmuth and Springer.

1890. *Platycrinus symmetricus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 186, pl. 15, fig. 8.
Kinderhook Group: Le Grand, Iowa.
1897. *Platycrinus symmetricus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 655, pl. 3, fig. 16; pl. 69, figs. 1a-c.
Kinderhook Group: Le Grand, Marshall County, Iowa.

Platycrinus tenuibrachiatus Meek and Worthen.

1869. *Platycrinites tenuibrachiatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 168.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Platycrinites tenuibrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 450, pl. 3, fig. 4.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus tenuibrachiatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 687, pl. 70, figs. 7, 8.
Upper Burlington L. S.: Burlington, Iowa.

Platycrinus truncatulus Hall.

1858. *Platycrinus truncatulus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 538.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus truncatulus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 675, pl. 67, figs. 11a, b; pl. 71, figs. 18a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus truncatus. See *Platycrinus americanus*.**Platycrinus tuberosus.** See *Eucladocrinus tuberosus*.**Platycrinus tugurium Miller and Gurley.**

1895. *Platycrinus tugurium*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 70, pl. 4, figs. 17-19.
Burlington L. S.: Sedalia, Missouri.

Platycrinus vascellum Miller and Gurley.

1895. *Platycrinus vascellum*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 32, pl. 2, figs. 17, 18.
Keokuk Group: Tennessee.

Platycrinus verrucosus White.

1862. *Platycrinus verrucosus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 502.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus verrucosus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 705, pl. 66, figs. 3a, b; pl. 68, figs. 1a-d.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus wortheni Hall.

1858. *Platycrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 530, pl. 8, fig. 4.
Burlington L. S.: Burlington, Iowa.
1897. *Platycrinus Wortheni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 702,
pl. 67, fig. 9.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus yandelli Owen and Shumard.

1850. *Platycrinus Yandelli*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2),
vol. 2, p. 58, pl. 7, figs. 6a, b.
Subcarboniferous: Burlington, Iowa.
1852. *Platycrinus yandelli*. Owen and Shumard, Geol. Rep. Wis., Iowa, and
Minn., p. 587, tab. 5A, figs. 6a, b.
Subcarboniferous L. S.: Burlington, Iowa; Salem, Indiana.
1897. *Platycrinus Yandelli*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 706,
pl. 66, figs. 6a-c; pl. 68, figs. 3a-c.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus yandelli var. perasper Meek and Worthen.

- *1861. *Platycrinus nodobrachiatus*. Hall, Desc. New Spec. Crin., p. 17. (Not *P.*
nodobrachiatus Hall, 1858.)
Burlington L. S.
1865. *Platycrinus perasper*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 161.
1897. *Platycrinus Yandelli*, var. *perasper*. Wachsmuth and Springer, N. Am. Crin.
Cam., p. 708, pl. 68, figs. 4a, b.
Lower Burlington L. S.: Burlington, Iowa.

Platycrinus (species undetermined).

1874. *Platycrinus* — ? — White, Prelim. Rep. Inv. Foss., p. 15.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Platycrinus* — (?) White, U. S. Geog. Surv., W. 100 Merid., vol. 4, p. 81,
pl. 5, fig. 2.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.

PLATYSCHISMA McCoy, 1844.**Platyschisma dubium Dawson.**

1868. *Platyschisma dubia*. Dawson, Acad. Geol., p. 309, fig. 121.
Carboniferous L. S.: Windsor, Nova Scotia.

Platyschisma helicoides Meek and Worthen.

1866. *Platyschisma helicoides*? Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 271.
Chester Group: Ste. Genevieve County, Missouri.

(PLATYSTOMA Conrad, 1842.)

Platystoma bivolve. See *Strophostylus bivolvis*.

Platystoma broadheadi. See *Capulus haliotoides*.

Platystoma grayvillense. See *Strophostylus grayvillensis*.

Platystoma inornatum. See *Strophostylus inornatum*.

Platystoma peoriense. See *Strophostylus peoriensis*.

Platystoma tumidum. See *Strophostylus grayvillensis*.

(PLECTAMBONITES Pander, 1830.)

Plectambonites rhomboidalis. See *Leptæna rhomboidalis*.

(PLECTOSTYLUS Conrad, 1842.)

Plectostylus hildrethi. See *Soleniscus hildrethi*.

PLEURODICTYUM Goldfuss, 1826.

Pleurodictyum problematicum Goldfuss.

*1826. *Pleurodictyum problematicum*. Goldfuss, Petref. Germ., vol. 1, p. 113.

1870. *Pleurodictyum problematicum*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 260.
Waverly Group: Newark, Ohio.

1888. *Pleurodictyum Problematicum*. Herrick, Bull. Den. Univ., vol. 3, p. 30, pl. 8,
fig. 15.

Waverly Group: Licking County, Ohio.

PLEUROPHORUS King, 1844.

Pleurophorus angulatus Meek and Worthen.

1865. *Pleurophorus? angulatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 247.

Coal Measures: Wabash Cut-off, near New Harmony, Indiana.

1875. *Pleurophorus? angulatus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 529,
pl. 33, fig. 5.

Upper Coal Measures: Wabash Cut-off, near New Harmony, Indiana.

Pleurophorus calhouni Meek and Hayden.

1858. *Edmondia? Calhouni*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 80.
Permian: Smoky Hill Fork.

1864. *Pleurophorus? Calhouni*. Meek and Hayden, Pal. Upper Mo., p. 62, pl. 2,
figs. 13a, b.

Permian: Near mouth of Smoky Hill Fork of Kansas River and at head of
Cottonwood Creek, Kansas.

Pleurophorus chesterensis Worthen.

1884. *Pleurophorus chesterensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist.,
p. 16.

Chester L. S.: Chester, Illinois.

1890. *Pleurophorus chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 123, pl. 20,
fig. 6.

Chester L. S.: Chester, Illinois.

Pleurophorus costatiformis Leek and Worthen.

1865. *Pleurophorus costatiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 247.

Keokuk Group: Warsaw, Illinois.

1868. *Pleurophorus costatiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 3,
p. 535, pl. 19, fig. 5.

Keokuk Group: Warsaw, Illinois.

Pleurophorus immaturus Herrick.

1887. *Pleurophorus immaturus*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14,
fig. 17.

Coal Measures: Flint Ridge, Ohio.

Pleurophorus meeki Walcott.

1884. *Pleurophorus Meeki*. Walcott, Pal. Eureka Dist., p. 246, pl. 8, fig. 3.
Lower Coal Measures: Eureka District, Nevada.

Pleurophorus minimus Worthen.

1884. *Pleurophorus minima*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist. p. 17.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Pleurophorus minimus*. Worthen, Geol. Surv. Ill., vol. 8, p. 124, pl. 20, figs. 4, 4a.
St. Louis L. S. (oolite): Monroe County, Illinois.

Pleurophorus monroensis Worthen.

1884. *Pleurophorus monroensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 17.
Oolitic beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Pleurophorus monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 125, pl. 18, figs. 3, 3a.
St. Louis L. S.: Monroe County, Illinois.

Pleurophorus oblongus Meek.

1866. *Clidophorus Pallasii*. Geinitz, Carb. und Dyas in Nebr., p. 23, tab. 2, fig. 4.
(Not *Modiola Pallasii* de Vern., 1845.)
Nebraska City and Wyoming, Nebraska.
1872. *Pleurophorus oblongus*. Meek, U. S. Geol. Surv. Nebr., p. 212, pl. 10, figs. 4a-c.
Upper Coal Measures: Nebraska City, Nebraska.
1873. *Pleurophorus oblongus?* Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 589, pl. 26, fig. 6.
Upper Coal Measures: Springfield, Illinois.
1894. *Pleurophorus oblongus*. Keyes, Mo. Geol. Surv., vol. 5, p. 125.
Upper Coal Measures: Kansas City, Missouri.
1897. *Pleurophorus oblongus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Lower Coal Measures: Conway County, Arkansas.

Pleurophorus occidentalis Meek and Hayden.

1858. *Pleurophorus occidentalis*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 80.
Permian: In Nebraska on Missouri, opposite north Missouri boundary.
1859. *Pleurophorus occidentalis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 396.
White Permian L. S.: Guadalupe Mountains.
1864. *Pleurophorus occidentalis*. Meek and Hayden, Pal. Up. Mo., p. 35, pl. 1, figs. 11a, b.
Coal Measures: Nebraska, nearly opposite northern boundary of Missouri.
1866. *Clidophorus Pallasii*. Geinitz, Carb. und Dyas in Nebr., p. 23, tab. 2, fig. 3.
(Not *Mytilus Pallasii*, de Vern., 1845.)
Nebraska City, Nebraska.
1872. *Pleurophorus occidentalis?* Meek, U. S. Geol. Surv. Nebr., p. 212, pl. 10, fig. 12.
Upper Coal Measures: Otoe City, Nebraska; Nebraska City, Nebraska; Grayville, Illinois.
1891. *Clidophorus occidentalis*. White, Bull. U. S. Geol. Surv. No. 77, p. 27, pl. 4, fig. 3.
Permian: Goodwin Creek, Baylor County, Texas.

Pleurophorus permianus Swallow.

1858. *Pleurophorus (?) Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 192.
Upper Permian: Near Smoky Hill Fork, Kansas.
1891. *Pleurophorus permianus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 250.
Lower Coal Measures: Des Moines, Iowa.

Pleurophorus quadricostatus Dawson.

1868. *Pleurophorus quadricostatus*. Dawson, Acad. Geol., p. 304, fig. 107.
Carboniferous L. S.: Stewiacke, Nova Scotia.

Pleurophorus subcostatus Meek and Worthen.

1865. *Pleurophorus subcostatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 246.
Upper Coal Measures: N. branch of Saline Creek, Gallatin County, Illinois.
1866. *Pleurophorus subcostatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 347, pl. 27, figs. 2, 2a.
Upper Coal Measures: North branch of Saline Creek, Gallatin County, Illinois.
1881. *Pleurophorus subcostatus*. White, U. S. Geog. Surv., W. 100 Merid., vol. 3, Supp., Appendix, p. xxvii, pl. 3, fig. 8a.
Carboniferous: Coyote Creek, New Mexico.
1887. *Pleurophorus subcostatus*? Herrick, Bull. Den. Univ., vol. 2, p. 35, pl. 4, figs. 16, 16a.
Coal Measures: Flint Ridge, Ohio.

Pleurophorus subcuneatus Meek and Hayden.

1858. *Pleurophorus (Cardinia) subcuneatus*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 81.
Permian: Smoky Hill Fork.
1859. *Pleurophorus ? subcuneata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 29.
Smoky Hill River and Cottonwood Creek, Kansas.
1864. *Pleurophorus ? subcuneatus*. Meek and Hayden, Pal. Up. Mo., p. 61, pl. 2, fig. 3.
Permian: Near mouth of Smoky Hill Fork of Kansas River and at head of Cottonwood Creek, Kansas.
1891. *Pleurophorus subcuneatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 250.
Lower Coal Measures: Des Moines, Iowa.

Pleurophorus subellipticus. See *Modiola subelliptica*.**Pleurophorus tropidophorus Meek.**

1875. *Pleurophorus tropidophorus*. Meek, Pal. Ohio, vol. 2, p. 338, pl. 19, figs. 10a, b.
Coal Measures: Newark, Ohio.
1887. *Pleurophorus tropidophorus*. Herrick, Bull. Den. Univ., vol. 2, p. 35, pl. 4, fig. 15.
Coal Measures: Flint Ridge, Ohio.

Pleurophorus (species undetermined).

1876. *Pleurophorus* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1891. *Pleurophorus* — ? White, Bull. U. S. Geol. Surv. No. 77, p. 27, pl. 4, figs. 5-10.
Permian: Goodwin Creek, Baylor County, Texas.
1897. *Pleurophorus* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Upper Carboniferous: Scott County, Arkansas.

PLEUROTOMARIA Defrance, 1824.**Pleurotomaria acadica Dawson.**

1883. *Pleurotomaria Acadica*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 11.
Lower Carboniferous L. S.: Windsor, Nova Scotia.

Pleurotomaria adamsi Worthen.

1884. *Pleurotomaria adamsi*. Worthen, Bull. No. 2. Ill. State Mus. Nat. Hist., p. 5.
Coal Measures: Peoria County, Illinois.

Pleurotomaria adamsi Worthen—Continued.

1890. *Pleurotomaria adamsi*. Worthen, Geol. Surv. Ill., vol. 8, p. 137, pl. 23, figs. 5, 5a.

Coal measures: Peoria County, Illinois.

Pleurotomaria beckwithana McChesney.

1860. *Pleurotomaria beckwithana*. McChesney, Desc. New Pal. Foss., p. 61.

Coal Measures: Danville, Illinois.

1865. *Pleurotomaria beckwithana*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 17a-b.

1868. *Pleurotomaria Beckwithana*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 47, pl. 2, figs. 17 a-c.

Coal Measures: Springfield and Danville, Illinois.

Pleurotomaria bicarinata. See *Pleurotomaria turbiniformis*.**Pleurotomaria bonharborensis** Cox.

1857. *Pleurotomaria bonharborensis*. Cox, Geol. Surv. Ky., vol. 3, p. 567, pl. 8, figs. 4, 4a.

Coal Measures: Daviess County, Kentucky.

Pleurotomaria brazoensis Shumard.

1860. *Pleurotomaria Brazoensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 624.

Coal Measures: Young County, Texas, near Indian Reservation.

1866. *Pleurotomaria brazoensis?* Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 354, pl. 28, figs. 1a-d.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1888. *Pleurotomaria brazoensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 237.

Lower Coal Measures: Des Moines, Iowa.

1894. *Pleurotomaria brazoensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 142, pl. 48, figs. 2a, b.

Lower Coal Measures: Clinton, Missouri.

Pleurotomaria broadheadi White.

1880. *Pleurotomaria broadheadi*. White, Cont. to Inv. Pal., No. 8, p. 169, pl. 42, figs. 1a, b.

Coal Measures: Kansas City, Missouri.

1894. *Pleurotomaria broadheadi*. Keyes, Mo. Geol. Surv., vol. 5, p. 144, pl. 48, figs. 1a, b.

Upper Coal Measures: Kansas City and Clinton, Missouri.

Pleurotomaria carbonaria Norwood and Pratten.

1855. *Pleurotomaria carbonaria*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 75, pl. 9, fig. 8.

Coal Measures: Rock Creek, Williamson County, Illinois.

1888. *Pleurotomaria carbonaria*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 239.

Lower Coal Measures: Des Moines, Iowa.

1891. *Pleurotomaria carbonaria*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 253.

Lower Coal Measures: Des Moines, Iowa.

1891. *Pleurotomaria harii*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 83, pl. 14, figs. 3, 4.

Upper Coal Measures: Kansas City, Missouri.

1892. *Pleurotomaria harii*. Miller, 17th Rep. Geol. Surv. Ind., p. 693, pl. 14, figs. 3, 4.

Upper Coal Measures: Kansas City, Missouri.

1894. *Pleurotomaria carbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 138

Upper Coal Measures: Kansas City, Missouri.

1897. *Pleurotomaria harii*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.

Lower Coal Measures: Conway County, Arkansas.

Pleurotomaria chesterensis Meek and Worthen.

1860. *Pleurotomaria Chesterensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 460.

Chester, L. S.: Chester, Illinois.

1866. *Pleurotomaria chesterensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 303, pl. 24, figs. 1a-c.

Chester Group: Chester, Illinois.

Pleurotomaria chesterensis Swallow. See *Pleurotomaria* (species undetermined).

Pleurotomaria concava. See *Eotrochus concavus*.

Pleurotomaria conoformis Worthen.

1866. *Pleurotomaria conoides*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 271. (Not *P. conoides*, Deshayes, 1831.)

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1873. *Pleurotomaria conoides*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 603, pl. 28, fig. 1.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1882. *Pleurotomaria conoformis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 38.

1894. *Pleurotomaria coniformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 138.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria conoides. See *Pleurotomaria conoformis*.

Pleurotomaria conulus Hall.

1856. *Pleurotomaria conula*. Hall, Trans. Albany Inst., vol. 4, p. 26.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Pleurotomaria conula*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 84, pl. 9, fig. 17.

St. Louis Group: Spergen Hill, Indiana.

1883. *Pleurotomaria conula*. Hall, 12th Rep. Geol. Surv. Ind., p. 358, pl. 32, fig. 17.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Pleurotomaria cooperensis Miller.

1863. *Pleurotomaria trochiformis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 99. (Not *P. trochiformis*, Postlock, 1843.)

Archimedes L. S.: Cooper County, Missouri.

1889. *Pleurotomaria cooperensis*. Miller, N. A. Geol. and Pal., p. 420.

Pleurotomaria coronula. See *Pleurotomaria sphærolata*.

Pleurotomaria coxana Meek and Worthen.

1866. *Pleurotomaria Coxana*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 272.

Lower Coal Measures: Nolan's Furnace, Edmonson County, Kentucky.

1873. *Pleurotomaria Coxana*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 600, pl. 28, fig. 15.

Coal Measures: Nolin's Furnace, Edmonson County, Kentucky.

1894. *Pleurotomaria coxana*. Keyes, Mo. Geol. Surv., vol. 5, p. 136.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria coxana Worthen. See *Pleurotomaria iowensis*.

Pleurotomaria depressa. See *Pleurotomaria illinoiensis*.

Pleurotomaria dispersa Dawson.

1868. *Pleurotomaria dispersa*. Dawson, Acad. Geol., p. 310.

Carboniferous: Windsor, Nova Scotia.

Pleurotomaria elegantula Hall.

1856. *Murchisonia elegantula*. Hall, Trans. Albany Inst., vol. 4, p. 27.

St. Louis L. S.: Bloomington, Indiana.

Pleurotomaria elegantula Hall—Continued.

1882. *Pleurotomaria elegantula*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 84, pl. 9, fig. 19.
St. Louis Group: Bloomington, Indiana; Warsaw, Illinois.
1883. *Pleurotomaria elegantula*. Hall, 12th Rep. Geol. Surv. Ind., p. 358, pl. 32, fig. 19.
St. Louis Group: Bloomington, Spargen Hill, and Lanesville, Indiana.

Pleurotomaria excelsa Newberry.

1876. *Pleurotomaria excelsa*. Newberry, U. S. Expl. Exp. from Santa Fé to Grand and Green rivers, p. 140, pl. 3, figs. 4, 4a.
Upper Carboniferous: Canyon of Grand River, near junction with Green River, Southern Utah.
1876. *Pleurotomaria excelsa*. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

Pleurotomaria exigua Winchell.

1862. *Pleurotomaria exigua*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 424.
Marshall Group: Jefferson, Hillsdale County, Michigan.

Pleurotomaria giffordi Worthen.

1884. *Pleurotomaria giffordi*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 5.
Coal Measures: Peoria County, Illinois.
1890. *Pleurotomaria giffordi*. Worthen, Geol. Surv. Ill., vol. 8, p. 135, pl. 23, figs. 8, 8a.
Coal Measures: Peoria County, Illinois.

Pleurotomaria glandula Shumard.

1860. *Pleurotomaria glandula*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 626.
Coal Measures: Buchanan County, Texas.

Pleurotomaria granulostriata Meek and Worthen.

1860. *Pleurotomaria granulostriata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 459.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1866. *Pleurotomaria granulostriata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 356, pl. 28, figs. 2a-d.
Lower Coal Measures: Macoupin County, Illinois.

Pleurotomaria grayvillensis Norwood and Pratten.

1855. *Pleurotomaria Grayvillensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 75, pl. 9, figs. 7a, b.
Coal Measures: Grayville, Illinois; near mouth of Rush Creek, Posey County, Indiana; Shawneetown and Galatia, Illinois.
1866. *Pleurotomaria Grayvillensis*. Geinitz, Carb. und Dyas in Nebr., p. 9, tab. 1, fig. 9.
Nebraska City, Nebraska.
1872. *Pleurotomaria Grayvillensis*. Meek, U. S. Geol. Surv. Nebr., p. 233, pl. 11, fig. 9.
Upper Coal Measures: Nebraska City, Nebraska; Illinois; Kentucky; Iowa; Missouri; Kansas.
Lower Coal Measures: Illinois and West Virginia.
1879. *Pleurotomaria grayvillensis*. White, Bull. U. S. G. and G. Surv. Terr., vol. 5, p. 219.
Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south of Pipe Spring.
1880. *Pleurotomaria grayvillensis*. White, Cont. to Inv. Pal., No. 6, p. 140, pl. 34, fig. 5a.
Upper Carboniferous: Wild Band Pockets, northern Arizona, 15 miles south from Pipe Spring.

Pleurotomaria grayvillensis Norwood and Pratten—Continued.

1888. *Pleurotomaria grayvillensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 238.
Lower Coal Measures: Des Moines, Iowa.
1894. *Pleurotomaria grayvillensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 141.
Lower Coal Measures: Kansas City and Pleasant Hill, Missouri.

Pleurotomaria gurleyi Meek.

1871. *Pleurotomaria gurleyi*. Meek, Proc. Acad. Nat. Sci. Phil., p. 117.
Coal Measures: Danville, Illinois.
1873. *Pleurotomaria Gurleyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 30,
figs. 6a, b.
Coal Measures.
1874. *Pleurotomaria Gurleyi*. Meek, Am. Jour. Sci. (3), vol. 7, p. 584.

Pleurotomaria hallana Shumard.

1859. *Pleurotomaria Halliana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 399.
White Permian L. S.: Guadalupe Mountains.

Pleurotomaria harii. See *Pleurotomaria carbonaria*.**Pleurotomaria haydenana** Geinitz.

1866. *Pleurotomaria Haydeniana*. Geinitz, Carb. und Dyas in Nebr., p. 11, tab. 1,
fig. 15.
Nebraska City, Nebraska.
1872. *Pleurotomaria Haydeniana*. Meek, U. S. Geol. Surv. Nebr., p. 231, pl. 11,
fig. 5.
Upper Coal Measures: Nebraska City, Nebraska.

Pleurotomaria hickmanensis Winchell.

1869. *Pleurotomaria Hickmanensis*. Winchell, Safford's Geol. of Tenn., p. 445.
Shales, just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Pleurotomaria Hickmanensis*. Winchell, Proc. Am. Phil. Soc., vol. 11,
p. 257.
Waverly Group: Hickman County, Tennessee.

Pleurotomaria humerosa Meek and Hayden.

1858. *Pleurotomaria humerosa*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil.,
p. 264.
Coal Measures: Grasshopper Creek, Kansas.
1864. *Pleurotomaria humerosa*. Meek and Hayden, Pal. Up. Mo., p. 46, pl. 1,
figs. 14a, b.
Coal Measures: Grasshopper Creek, Northwestern Kansas.

Pleurotomaria humilis Hall.

1856. *Pleurotomaria humilis*. Hall, Trans. Albany Inst., vol. 4, p. 21.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Pleurotomaria humilis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 82,
pl. 9, fig. 3.
St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Pleurotomaria humilis*. Hall, 12th Rep. Geol. Surv. Ind., p. 353, pl. 32, fig. 3.
St. Louis Group: Bloomington, Lanesville, and Spergen Hill, Indiana.

Pleurotomaria humilis Winchell. See *Pleurotomaria* (species undetermined).**Pleurotomaria ignobilis** Dawson.

1868. *Pleurotomaria ignobilis*. Dawson, Acad. Geol., p. 310.
Carboniferous L. S.: Windsor, Nova Scotia.

Pleurotomaria illinoisensis Worthen.

1857. *Pleurotomaria depressa*. Cox, Geol. Rep. Ky., vol. 3, p. 569, pl. 8, figs. 10, 10a.
(Not *P. depressa*, Phillips, 1836.)
Coal Measures: Bonharbour, Daviess County, and Airdrie, Muhlenberg County, Kentucky.
1884. *Pleurotomaria illinoiensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 4.
Coal Measures: Mercer County, Illinois.
1888. *Pleurotomaria modesta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 238, pl. 12, figs. 2a, b.
Lower Coal Measures: Des Moines, Iowa.
1889. *Pleurotomaria kentuckiensis*. Miller, N. A. Geol. and Pal., p. 421.
1890. *Pleurotomaria illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 135, pl. 23, figs. 6-6b.
Coal Measures: Mercer County, Illinois.
1891. *Pleurotomaria modesta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 252.
Lower Coal Measures: Des Moines, Iowa.
1892. *Pleurotomaria modesta*. Keyes, Proc. Iowa Acad. Sci., vol. 1, pt. 2, p. 22.
Lower Coal Measures: Near Des Moines, Iowa.
1894. *Pleurotomaria illinoisensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 139.
Coal Measures: Clinton, Knob Noster, and Kansas City, Missouri.
1897. *Pleurotomaria modesta*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.
Upper Coal Measures: Crawford County, Arkansas.

Pleurotomaria inornata Meek.

1872. *Pleurotomaria inornata*. Meek, U. S. Geol. Surv. Nebr., p. 232, pl. 4, fig. 14.
Upper Coal Measures: Near Nebraska City, Nebraska.

Pleurotomaria iowensis Worthen.

1884. *Pleurotomaria coxana*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 6.
(Not *P. coxana*, M. and W., 1866.)
Keokuk L. S.: Keokuk, Iowa.
1890. *Pleurotomaria iowensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 138, pl. 24, fig. 2.
Keokuk L. S.: Keokuk, Iowa.

Pleurotomaria kentuckiensis. See *Pleurotomaria illinoisensis*.

Pleurotomaria lens. See *Straparollus lens*.

Pleurotomaria levenworthana. See *Cyclonema levenworthanum*.

Pleurotomaria marcouana Geinitz.

1866. *Pleurotomaria Marcouiana*. Geinitz, Carb. und Dyas in Nebr., p. 10, tab. 1, fig. 10.
Nebraska City, Nebraska.
1872. *Pleurotomaria Marcouiana*. Meek, U. S. Geol. Surv. Nebr., p. 233, pl. 11, fig. 8.
Upper Coal Measures: Nebraska City, Nebraska.

Pleurotomaria meekana Hall.

1856. *Pleurotomaria Meekana*. Hall, Trans. Albany Inst., vol. 4, p. 22.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Pleurotomaria* (?) *Meekana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 82, pl. 9, figs. 8, 9.
St. Louis Group: Alton, Ill.
1883. *Pleurotomaria meekana*. Hall, 12th Rep. Geol. Surv. Ind., p. 353, pl. 32, figs. 8, 9.
Does not occur at Spergen Hill.

Pleurotomaria meta Meek and Worthen.

1865. *Pleurotomaria* (*Murchisonia*?) *meta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 252.

Keokuk Group: Warsaw, Illinois.

Pleurotomaria minima Rowley.

1895. *Pleurotomaria minima*. Rowley, Am. Geol., vol. 16, p. 222, fig. 19.

Louisiana L. S.: Louisiana, Missouri.

Pleurotomaria mississippiensis White and Whitfield.

1862. *Pleurotomaria mississippiensis*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 302.

Chemung Group: Burlington, Iowa.

1871. *Pleurotomaria textiliger*. Meek, Proc. Acad. Nat. Sci. Phil., p. 176.

Waverly Group: Medina, Ohio.

1875. *Pleurotomaria textiliger*. Meek, Pal. Ohio, vol. 2, p. 314, pl. 13, figs. 7a, b.

Waverly Group: Medina, Ohio.

1888. *Pleurotomaria textiliger*. Herrick, Bull. Den. Univ., vol. 4, p. 46.

Waverly Group: Bagdad and Lodi, Ohio.

1891. *Pleurotomaria Mississippensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 609.

1894. *Pleurotomaria Mississippensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 494.

Pleurotomaria missouriensis Swallow.

1860. *Trochus Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 657.

Coal Measures: Jackson County, Missouri.

1894. *Pleurotomaria missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 136, pl. 48, figs. 3a, b.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria mitigata Hall.

1860. *Pleurotomaria* ? *mitigata*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 108.

Goniatite L. S.: Rockford, Indiana.

Pleurotomaria modesta. See Pleurotomaria illinoisensis.**Pleurotomaria monilifera White.**

1880. *Naticopsis monilifera*. White, Cont. to Inv. Pal., No. 8, p. 168, pl. 42, figs. 3a-c.

Upper Coal Measures: Pleasant Hill, Cass County, Missouri.

1881. *Naticopsis monilifera*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxxiv, pl. 3, figs. 3a-d.

Carboniferous: Near Taos, New Mexico.

1894. *Pleurotomaria monilifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 144.

Upper Coal Measures: Pleasant Hill and Kansas City, Missouri.

Pleurotomaria montezuma Worthen.

1883. *Pleurotomaria Montezuma*. Worthen, Geol. Surv. Ill., vol. 7, p. 324.

Burlington L. S.: Montezuma, Pike County, Illinois.

1890. *Pleurotomaria montezuma*. Worthen, Geol. Surv. Ill., vol. 8, p. 136, pl. 24, fig. 2.

Burlington L. S.: Montezuma, Pike County, Illinois.

1894. *Pleurotomaria montezuma*. Keyes, Mo. Geol. Surv., vol. 5, p. 134.

Burlington L. S.: Hannibal, Missouri.

Pleurotomaria nauvoensis Worthen.

1884. *Pleurotomaria nauvoensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 5.

Upper Keokuk L. S.: Nauvoo, Illinois.

Pleurotomaria nauvoensis Worthen—Continued.

1890. *Pleurotomaria nauvoensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 137, pl. 25, fig. 3.

Keokuk L. S.: Nauvoo, Illinois.

Pleurotomaria nevadensis Walcott.

1884. *Pleurotomaria Nevadaensis*. Walcott, Pal. Eureka Dist., p. 259, pl. 24, figs. 2, 2a.

Lower Carboniferous: Eureka District, Nevada.

Pleurotomaria newportensis White.

1880. *Pleurotomaria newportensis*. White, Cont. to Pal., No. 8, p. 169, pl. 42, figs. 2a, b.

Coal Measures: Newport, Indiana.

1887. *Pleurotomaria newportensis?* Herrick, Bull. Den. Univ., vol. 2, p. 21, pl. 2, fig. 18.

Coal Measures: Flint Ridge, Ohio.

Pleurotomaria nodomarginata McChesney.

1860. *Pleurotomaria nodomarginata*. McChesney, Desc. New Pal. Foss., p. 70.

Hamilton Group: Near Batesville, Arkansas.

1865. *Pleurotomaria nodomarginata*. McChesney, Ills. New Spec. Foss., pl. 7, figs. 1a-c.

1868. *Pleurotomaria nodomarginata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 47, pl. 7, figs. 1a-c.

Hamilton Group: Batesville, Arkansas.

1884. *Pleurotomaria nodomarginata*. Walcott, Pal. Eureka Dist., p. 259, pl. 18, fig. 15.

Lower Carboniferous: Eureka District, Nevada.

Pleurotomaria nodulostriata Hall.

1856. *Pleurotomaria nodulostriata*. Hall, Trans. Albany Inst., vol. 4, p. 21.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Pleurotomaria nodulostriata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 80, pl. 9, fig. 5.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Pleurotomaria nodulostriata*. Hall, 12th Rep. Geol. Surv. Ind., p. 352, pl. 32, fig. 5.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana

Pleurotomaria obtusispira Shumard.

1859. *Pleurotomaria obtusispira*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 401.

Coal Measures: 4 miles west of Sierra Heuco, El Paso County, Texas.

Pleurotomaria perhumerosa Meek.

1872. *Pleurotomaria perhumerosa*. Meek, U. S. Geol. Surv. Nebr., p. 232, pl. 4, figs. 13a, b.

Upper Coal Measures: Near Nebraska City, Nebraska; Rulo, Kansas.

Coal Measures: Illinois.

1894. *Pleurotomaria perhumerosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 140, pl. 48, fig. 5.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria perizomata White.

1881. *Pleurotomaria perizomata*. White, U. S. Geol. Surv. W. 100 Merid., vol. 3, Supp. Appendix, p. xxxi, pl. 3, figs. 5a-c.

Carboniferous: Near Taos, New Mexico.

Pleurotomaria perornata Shumard.

1859. *Pleurotomaria perornata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 401.

Coal Measures: 4 miles west of Sierra Heuco, El Paso County, Texas.

Pleurotomaria piasaensis Hall.

1856. *Pleurotomaria Piasaensis*. Hall, Trans. Albany Inst., vol. 4, p. 22.
St. Louis L. S.: Pine Creek, above Alton, Illinois.
1882. *Pleurotomaria Piasaensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 83,
pl. 9, figs. 6, 7.
St. Louis Group: Piasa Creek, above Alton, Illinois.
1883. *Pleurotomaria piasaensis*. Hall, 12th Rep. Geol. Surv. Ind., p. 354, pl. 32,
figs. 6, 7.
St. Louis Group: Piasa Creek, above Alton, Illinois.

Pleurotomaria pratteni Meek and Worthen.

1860. *Pleurotomaria Pratteni*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 459.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1866. *Pleurotomaria Pratteni*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 357,
pl. 28, figs. 7a-d.
Lower Coal Measures: Macoupin County, Illinois.

Pleurotomaria proutana Shumard.

1859. *Pleurotomaria Proutiana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 401.
Coal Measures: 4 miles west of Sierra Heuco, El Paso County, Texas.

Pleurotomaria quinquesulcata Winchell.

1865. *Pleurotomaria quinquesulcata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 131.
Oolite bed No. 6: Burlington, Iowa.

Pleurotomaria riddelli Shumard.

1860. *Pleurotomaria Riddellii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1,
p. 625.
Coal Measures: Palo Pinto County, Texas.

Pleurotomaria rota Winchell.

1863. *Pleurotomaria ? rota*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 19.
Yellow S. S.: and base of Burlington L. S.: Burlington, Iowa.

Pleurotomaria rotundata. See Pleurotomaria subglobosa.**Pleurotomaria scitula Meek and Worthen.**

1860. *Pleurotomaria scitula*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 461.
Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1866. *Pleurotomaria scitula*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 353,
pl. 28, figs. 9a-d.
Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Pleurotomaria sedaliense Miller.

1891. *Pleurotomaria sedaliense*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind.,
p. 83, pl. 14, fig. 13.
Chouteau L. S.: Sedalia, Missouri.
1892. *Pleurotomaria sedaliense*. Miller, 17th Rep. Geol. Surv. Ind., p. 693, pl. 14,
fig. 13.
Chouteau L. S.: Sedalia, Missouri.
1894. *Pleurotomaria sedaliensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 134.
Kinderhook L. S.: Sedalia, Missouri.

Pleurotomaria shumardi Meek and Worthen.

1860. *Pleurotomaria Shumardi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 462.
Base of Geode bed: Warsaw and Keokuk, Illinois.
1866. *Pleurotomaria Shumardi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 260,
pl. 18, figs. 6a, b.
Keokuk Group: Warsaw, Illinois.

Pleurotomaria sinistrorsa Swallow.

1858. *Pleurotomaria sinistrorsa*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 203.

Coal Measures.

Pleurotomaria speciosa Meek and Worthen.

1860. *Pleurotomaria speciosa*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 461.

Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1866. *Pleurotomaria speciosa*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 352, pl. 28, figs. 5 a-c.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1894. *Pleurotomaria speciosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 137.

Upper Coal Measures: Kansas City, Missouri.

1897. *Pleurotomaria* conf. *speciosa*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 39.

Upper Coal Measures: Poteau Mountain, Indian Territory.

Pleurotomaria sphærolata Conrad.

1842. *Pleurotomaria sphaerulata*. Conrad, Jour. Acad. Nat. Sci. Phil., (1), vol. 8, p. 272, pl. 16, fig. 13.

Carboniferous: Inclined plane of the Alleghany Mountains.

1852. *Pleurotomaria coronula*. Hall, Stansb. Exped. Gt. Salt Lake, p. 413, pl. 2, figs. 6a-d.

Carboniferous: Missouri River, below Weston.

1858. *Pleurotomaria sphaerulata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 722, pl. 29, fig. 13.

Coal Measures: Indiana, Illinois, Iowa, Missouri, and Kansas.

1884. *Pleurotomaria sphærolata*. White, 13th Rep. Geol. Surv. Ind., p. 161, pl. 32, figs. 1-3.

Upper Coal Measures: Indiana.

1891. *Pleurotomaria sphærolata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 253.

Lower Coal Measures: Des Moines, Iowa.

1894. *Pleurotomaria sphærolata*. Keyes, Mo. Geol. Surv., vol. 5, p. 141.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria spironema Meek and Worthen.

1866. *Pleurotomaria spironema*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 272.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1873. *Pleurotomaria spironema*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 601, pl. 28, fig. 5.

Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Pleurotomaria stella Winchell.

1862. *Pleurotomaria Stella*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 424.

Marshall Group: Jefferson, Hillsdale County, Michigan.

1888. *Pleurotomaria stella*? Herrick, Bull. Den. Univ., vol. 4, p. 116, pl. 10, fig. 41.

Waverly Group: Newark, Ohio.

Pleurotomaria strigillata Herrick.

1888. *Pleurotomaria* (*Cyclonema*?) *strigillata*. Herrick, Bull. Den. Univ., vol. 3, p. 86, pl. 1, figs. 10, 15; pl. 2, fig. 25.

Waverly Group: Licking County, Ohio.

1888. *Cyclonema strigillata*. Herrick, Bull. Den. Univ., vol. 3, pl. 12, fig. 39.

Waverly Group: Licking County, Ohio.

1888. *Pleurotomaria strigillata*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 9.

Waverly Group: Ohio.

1895. *Pleurotomaria strigillata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 9.

Kinderhook: Granville, Ohio.

Pleurotomaria stulta Herrick.

1888. *Flemingia stultus*. Herrick, Bull. Den. Univ., vol. 4, p. 45, pl. 7, fig. 10.
Middle Waverly: Ohio.

1895. *Pleurotomaria (Flemingia) stulta*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 10.

Kinderhook: Granville, Ohio.

Pleurotomaria subangulata. See Cyclonema subangulatum.**Pleurotomaria subcarbonaria Keyes.**

1894. *Pleurotomaria subcarbonaria*. Keyes, Mo. Geol. Surv., vol. 5, p. 135, pl. 49, fig. 2.

Burlington L. S.: Louisiana, Missouri.

Kinderhook Group: Burlington, Iowa.

Pleurotomaria subconstricta Meek and Worthen.

1860. *Pleurotomaria subconstricta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 458.

Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1866. *Pleurotomaria subconstricta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 351, pl. 28, figs. 6a-c.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Pleurotomaria subdeccussata Geinitz.

1866. *Pleurotomaria subdeccussata*. Geinitz, Carb. und Dyas in Nebr., p. 10, tab. 1, fig. 11.

Nebraska City, Nebraska.

1872. *Pleurotomaria subdeccussata*. Meek, U. S. Geol. Surv. Nebr., p. 233, pl. 11, fig. 19.

Upper Coal Measures: Nebraska City, Nebraska.

Pleurotomaria subglobosa Hall.

1856. *Pleurotomaria rotundata*. Hall, Trans. Albany Inst., vol. 4, p. 23. (Not *P. rotundata* Hall, 1843.)

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1877. *Pleurotomaria subglobosa*. Hall, Miller's Am. Pal. Foss., p. 245.

1882. *Pleurotomaria subglobosa*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 79, pl. 9, fig. 10.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Pleurotomaria subglobosa*. Hall, 12th Rep. Geol. Surv. Ind., p. 355, pl. 32, fig. 10.

St. Louis Group: Spergen Hill, Bloomington, and Lanesville, Indiana; Alton, Illinois.

Pleurotomaria subscalaris Meek and Worthen.

1860. *Pleurotomaria subscalaris*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 460.

Lower Coal Measures: Macoupin County, Illinois.

1866. *Pleurotomaria subscalaris*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 360, pl. 28, figs. 10a, b.

Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

1894. *Pleurotomaria subscalaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 136.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria subsinuata Meek and Worthen.

1860. *Pleurotomaria subsinuata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 460.

Coal Measures: Hodges Creek, Macoupin County, Illinois.

1866. *Pleurotomaria subsinuata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 358, pl. 28, figs. 4a-d.

Lower Coal Measures: Macoupin County, Illinois.

Pleurotomaria subtrubinata Meek and Hayden.

1858. *Pleurotomaria subtrubinata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 264.

Upper Coal Measures: Near Helena, Kansas.

1864. *Pleurotomaria subtrubinata*. Meek and Hayden, Pal. Up. Mo., p. 47, pl. 1, fig. 13.

Coal Measures: Grasshopper Creek, northeastern Kansas.

Pleurotomaria sulcomarginata Conrad.

1879. *Pleurotomaria sulcomarginata*. Hall, Pal. N. Y., vol. 5, pt. 2, p. 69, pl. 19, figs. 8-17.

Hamilton Group: New York.

1888. *Pleurotomaria sulcomarginata?* Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 14. Bedford Shale: Central College, Ohio.

1889. *Pleurotomaria* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 14.

1895. *Pleurotomaria sulcomarginata*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 14. Shale above Berea Grit: Ohio.

Pleurotomaria swallovana Hall.

1856. *Pleurotomaria swallovana*. Hall, Trans. Albany Inst., vol. 4, p. 24.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana.

1882. *Pleurotomaria Swallovana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 80, pl. 9, figs. 1, 2.

St. Louis Group: Spergen Hill and Bloomington, Indiana.

1883. *Pleurotomaria Swallovana*. Hall, 12th Rep. Geol. Surv. Ind., p. 356, pl. 32, figs. 1, 2.

St. Louis Group: Spergen Hill, Lanesville and Bloomington, Indiana.

Pleurotomaria tabulata Conrad.

1835. *Turbo tabulata*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 267, pl. 12, fig. 1.

1842. *Pleurotomaria tabulata*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 272. Carboniferous: Inclined plane of the Alleghany Mountains.

1858. *Pleurotomaria tabulata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 721, pl. 29, figs. 12a, b. Coal Measures: Pennsylvania, Indiana, and Illinois.

1881. *Pleurotomaria tabulata*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 519, pl. 18, figs. 4, 5.

Coal Measures: Rush Creek, Posey County, Indiana.

1884. *Pleurotomaria tabulata*. White, 13th Rep. Geol. Surv. Ind., p. 160, pl. 32, figs. 4, 5.

Upper Coal Measures: Rush Creek, Posey County; Wagon-defeat Creek, Sullivan County, and Warrick County, Indiana.

1894. *Pleurotomaria tabulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 142.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria taggarti Meek.

1874. *Pleurotomaria Taggarti*. Meek, Ann. Rep. U. S. Geol. and Geog. Surv. Terr., p. 231.

Carboniferous: Canyon of Four-Mile Creek, Colorado.

1880. *Pleurotomaria taggerti*. White, Cont. to Inv. Pal., No. 6, p. 140, pl. 34, figs. 1a, b.

Carboniferous: Near Horseshoe Mountain, South Park, Colorado.

Pleurotomaria tectoria Winchell.

1863. *Pleurotomaria tectoria*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 19.

Yellow S. S.: Burlington, Iowa.

Pleurotomaria tenuicincta Meek and Worthen.

1860. *Pleurotomaria tenuicincta*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 459.

Upper Coal Measures: Springfield, Illinois.

Pleurotomaria tenuicincta Meek and Worthen—Continued.

1866. *Pleurotomaria tenuicincta*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 355, pl. 28, figs. 3a-d.

Upper Coal Measures: Springfield, Illinois.

1897. *Pleurotomaria tenuicincta*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.

Upper Coal Measures: Poteau Mountain, Indian Territory.

Pleurotomaria tenuistriata Shumard.

1860. *Pleurotomaria tenuistriata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 625.

Coal Measures: Young County, Texas, near the Indian Reservation.

Pleurotomaria textiligera. See *Pleurotomaria mississippiensis*.**Pleurotomaria trilineata** Hall.

1856. *Pleurotomaria trilineata*. Hall, Trans. Albany Inst., vol. 4, p. 25.

St. Louis L. S.: Spargen Hill and Bloomington, Indiana.

1882. *Pleurotomaria trilineata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 80, pl. 9, fig. 20.

St. Louis Group: Spargen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Pleurotomaria trilineata*. Hall, 12th Rep. Geol. Surv. Ind., p. 357, pl. 32, fig. 20.

St. Louis Group: Spargen Hill, Lanesville, and Bloomington, Indiana.

Pleurotomaria trochiformis. See *Pleurotomaria cooperensis*.**Pleurotomaria tumida**. See *Strophostylus grayvillensis*.**Pleurotomaria turbiniformis** Meek and Worthen.

1860. *Pleurotomaria bicarinata*. McChesney, Desc. New Spec. Pal. Foss., p. 90. (Not *P. bicarinata*, Sowerby, 1818.)

Coal Measures: Lasalle, Illinois.

1860. *Pleurotomaria turbiniformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 461.

Upper Coal Measures: Lasalle, Illinois.

1866. *Pleurotomaria turbiniformis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 359, pl. 28, figs. 8a-c.

Upper Coal Measures: Lasalle, Illinois.

1884. *Pleurotomaria turbiniformis*. White, 13th Rep. Geol. Surv. Ind., p. 160, pl. 32, figs. 7, 8.

Upper Coal Measures: Lasalle and Paris, Illinois; Vigo County, Indiana.

1894. *Pleurotomaria turbiniformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 135, pl. 48, figs. 6a, b.

Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria vadosa Hall.

1860. *Pleurotomaria vadosa*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 108. Goniatite L. S.: Rockford, Indiana.

1862. *Pleurotomaria vadosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 423. Marshall S. S. (?): Western part of Michigan.

1865. *Pleurotomaria vadosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132. Marshall Group: Rockford, Indiana.

1870. *Pleurotomaria vadosa*. Winchell, Proc. Am. Phil. Soc., vol. 1, p. 257. Waverly Group: Sciotoville and Rockville, Ohio.

1888. *Pleurotomaria vadosa?* Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 11. Waverly Group: 1 mile east of Harlan, Ohio.

1895. *Pleurotomaria vadosa?* Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 11. Near Base of Cuyahoga Shale: Near Harlem, Ohio.

Pleurotomaria valvatiformis Meek and Worthen.

1866. *Pleurotomaria valvatiformis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 273.
 Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1873. *Pleurotomaria? valvatiformis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 602, pl. 29, fig. 9.
 Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1891. *Pleurotomaria valvatiformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 254.
 Lower Coal Measures: Des Moines, Iowa.
1894. *Pleurotomaria valvatiformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 137.
 Upper Coal Measures: Kansas City, Missouri.

Pleurotomaria whitii Winchell.

1862. *Pleurotomaria Whitii*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 423.
 Marshall S. S. (?): Western Michigan.

Pleurotomaria wortheni Hall.

1856. *Pleurotomaria wortheni*. Hall, Trans. Albany Inst., vol. 4, p. 23.
 St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1858. *Pleurotomaria wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 664, pl. 23, figs. 13a-d.
 Warsaw L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Pleurotomaria Wortheni*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 81, pl. 9, fig. 4.
 St. Louis Group: Spergen Hill and Bloomington, Indiana.
1883. *Pleurotomaria Wortheni*. Hall, 12th Rep. Geol. Surv. Ind., p. 356, pl. 32, fig. 4.
 St. Louis Group: Bloomington, Spergen Hill, and Lanesville, Indiana.

Pleurotomaria (species undetermined).

1862. *Pleurotomaria humilis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 424. (Not *P. humilis* Hall, 1856.)
 Marshall S. S. (?): Western Michigan.
1863. *Pleurotomaria? Chesterensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 99. (Not *P. chesterensis* M. & W., 1860.)
 Upper Archimedes L. S.: Chester, Illinois.
1868. *Pleurotomaria*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 691.
1873. *Pleurotomaria* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 19, fig. 1.
 Keokuk Group.
1873. *Pleurotomaria?* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 26, fig. 6b.
 Coal Measures.
1887. *Pleurotomaria* sp.? Herrick, Bull. Den. Univ., vol. 2, p. 21, pl. 2, figs. 11, 13.
 Coal Measures: Flint Ridge, Ohio.
1888. *Pleurotomaria* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 38.
 Waverly Group: Ohio.
1889. *Pleurotomaria* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 14.
 Bedford Shale: Ohio.
1897. *Pleurotomaria* sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.
 Lower Coal Measures: Conway County, Franklin County, and Pope County, Arkansas.

(PLICATULA Lamark, 1809.)

Plicatula striato-costata. See *Meekella striato-costata*.

POLIOCHERA Scudder, 1884.

Poliochera punctulata Scudder.

1884. *Poliochera punctulata*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 16.
 Carboniferous: Mazon Creek, Illinois.

Poliochera punctulata Scudder—Continued.

1890. *Poliochera punctulata*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 444, pl. 39, figs. 2, 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Poliochera punctulata*. Scudder, Foss. Insc. N. A., vol. 1, p. 420, pl. 31, figs. 2, 6.
Carboniferous: Mazon Creek, Illinois.

POLYERNUS Scudder, 1885.**Polyernus complanatus** Scudder.

1885. *Polyernus complanatus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 343, pl. 32, figs. 8, 11.
Carboniferous: Mazon Creek, Illinois.
1890. *Polyernus complanatus*. Scudder, Foss. Insc. N. A., vol. 1, p. 307, pl. 18, figs. 8, 11.
Carboniferous: Mazon Creek, Illinois.

Polyernus laminarum Scudder.

1885. *Polyernus laminarum*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 343, pl. 31, fig. 1.
Carboniferous: Pittston, Pennsylvania.
1890. *Polyernus laminarum*. Scudder, Foss. Insc. N. A., vol. 1, p. 307, pl. 17, fig. 1.
Carboniferous: Pittston, Pennsylvania.

(POLYPHEMOPSIS Portlock, 1843.)

- Polyphemopsis chrysalis*. See *Bulimorpha chrysalis*.
- Polyphemopsis fusiformis*. See *Soleniscus attenuatus*.
- Polyphemopsis inornata*. See *Bulimorpha inornata*.
- Polyphemopsis keokuk*. See *Bulimorpha* ? *keokuk*.
- Polyphemopsis melanoides*. See *Bulimorpha melanoides*.
- Polyphemopsis nitidula*. See *Bulimorpha nitidula*.
- Polyphemopsis peracuta*. See *Bulimorpha* ? *peracuta*.

POLYPORA McCoy, 1845.**Polypora approximata** Ulrich.

1859. *Polypora biarmica*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 450. (Not *P. biarmica* Keyserling.)
Upper Archimedes L. S.: Chester, Illinois.
1890. *Polypora approximata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 599, pl. 61, figs. 5, 5a.
Chester Group: Chester, Illinois; Sloan's Valley and Litchfield, Kentucky.

Polypora biarmica Keyserling.

1846. *Polypora biarmica*. Keyserling, Beob. Reise Petschora Land, p. 191, Tab. 3, fig. 10.
1878. *Polypora biarmica*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 622, pl. 28, fig. 4.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
- Also see *Polypora stragala* and *Polypora approximata*.

Polypora biseriata Ulrich.

1890. *Polypora biseriata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 592, pl. 60, figs. 4-4b.
Warsaw Beds: Monroe County, Illinois; Warsaw, Illinois.
? St. Louis L. S.: ? Barrett's Station, Missouri.

Polypora biseriata Ulrich—Continued.

1894. *Polypora biseriata*? Keyes, Mo. Geol. Surv., vol. 5, p. 29.
St. Louis L. S.: Barrett Station, Missouri.

Polypora burlingtonensis Ulrich.

1890. *Polypora burlingtonensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 587, pl. 59, figs. 2, 2a.
Burlington L. S.: Burlington, Iowa; Henderson County, Illinois.

Polypora cestriensis Ulrich.

1890. *Polypora cestriensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 594, pl. 55, figs. 4-4b; pl. 60, figs. 7-7c.
Chester Group: Chester, Kaskaskia and near Anna, Illinois; Litchfield and Sloan's Valley, Kentucky.
1894. *Polypora cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 29.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Polypora complanata Ulrich.

1890. *Polypora complanata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 597, pl. 60, figs. 6-6c.
Chester Group: Chester, Illinois.

Polypora corticosa Ulrich.

1890. *Polypora corticosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 596, pl. 60, figs. 5-5c; pl. 61, fig. 1.
Chester Group: Chester, Illinois.
1894. *Polypora corticosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
Kaskaskia L. S.: Chester, Illinois.

Polypora crassa Ulrich.

1890. *Polypora crassa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 603, pl. 61, figs. 8, 8a.
Upper Coal Measures: Sugar Creek, Sangamon County, Illinois.

Polypora distincta Ulrich.

1890. *Polypora distincta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 603, pl. 61, figs. 7, 7a.
Upper Coal Measures: Springfield, Illinois.

Polypora fastuosa Foerste.

1887. *Polypora fastuosa*. Foerste, Bull. Den. Univ., vol. 2, p. 82, pl. 7, figs. 9a-d.
Coal Measures: Flint Ridge and Bald Hill, Ohio.

Polypora gracilis Prout.

1860. *Polypora gracilis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 580.
Warsaw L. S.: Warsaw, Illinois.
1866. *Polypora gracilis*. Prout, Geol. Surv. Ill., vol. 2, p. 422, pl. 21, figs. 1, 1a.
Keokuk L. S.: Warsaw, Illinois.
1888. *Polypora gracilis*. Ulrich, Bull. Den. Univ., vol. 4, p. 73.
Waverly Group: Richfield and Sciotoville, Ohio.
1890. *Polypora* (?) *gracilis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 590, pl. 61, figs. 10, 10a.
Keokuk Group: Warsaw and Nauvoo, Illinois; Keokuk, Iowa; Kings Mountain, Kentucky.
1894. *Polypora gracilis*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Keokuk L. S.: Warsaw, Illinois.

?Polypora grandis Toulou.

1875. *Polypora grandis*. Toulou, N. Jahrb. fur Min. Geol. and Pal., p. 230, taf. 9, figs. 7a, b.
Permo-Carboniferous: Spitzbergen.
1878. *Polypora grandis*? Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 621.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

Polypora hallana Prout. (Not *P. hallana* Nicholson, 1874.)

1860. *Polypora Halliana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 580.
Warsaw L. S.: Warsaw, Illinois.
1866. *Polypora Halliana*. Prout, Geol. Surv. Ill., vol. 2, p. 421, pl. 21, figs. 4-4b.
St. Louis Group: Warsaw, Illinois.
1890. *Polypora halliana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 587, pl. 59, figs. 5-5c.
Keokuk Group: Numerous localities in Iowa and Illinois.
Warsaw Beds: Warsaw, Illinois.
1894. *Polypora halliana*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Keokuk L. S.: Clark County, Missouri.

Polypora impressa Ulrich.

1888. *Polypora impressa*. Ulrich, Bull. Den. Univ., vol. 4, p. 72, pl. 13, figs. 8, 8a.
Cuyahoga Shale: Richfield, Ohio.

Polypora maccoyana Ulrich.

1890. *Polypora maccoyana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 588, pl. 59,
figs. 3-3d.
Keokuk Group: Nauvoo and near Plymouth, Illinois; Keokuk and Benton-
transport, Iowa.
1894. *Polypora maccoyana*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Keokuk L. S.: Keokuk, Iowa.

Polypora marginata Geinitz. [Not *P. marginata* McCoy, 1844.] See
Polypora submarginata.**? Polypora megastoma** De Koninck.

1862. *Polypora megastoma*. De Koninck, Quart. Jour. Geol. Soc. Lond., vol. 19,
p. 5, pl. 2, fig. 3.
Upper Carboniferous: India.
1878. *Polypora megastoma* ? Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34,
p. 621.
Carboniferous: Fielden Isthmus, latitude 82° 43'.

Polypora mexicana Prout.

1858. *Polypora Mexicana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 270.
Permian: Jornada del Muerto, New Mexico.
1859. *Polypora Mexicana*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 451, pl.
16, figs. 2-2b.

Polypora nodocarinata Ulrich.

1890. *Polypora nodocarinata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 601, pl. 61,
figs. 9, 9a.
Upper Coal Measures: Crooked Creek, near Centralia, Illinois; Macoupin
County, Illinois.

Polypora radialis Ulrich.

1888. *Polypora radialis*. Ulrich, Bull. Den. Univ., vol. 4, p. 74.
Waverly Group: Near Newark, Ohio.
1890. *Polypora radialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 591, pl. 60, figs. 1-1d.
Keokuk Group: Keokuk, Iowa.
1894. *Polypora radialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 29.
Keokuk L. S.: Keokuk, Iowa.

Polypora retrorsa Ulrich.

1890. *Polypora retrorsa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 591, pl. 59, figs. 6-6d.
Keokuk Group: Keokuk, Iowa.
1894. *Polypora retrorsa*. Keyes, Mo. Geol. Surv., vol. 5, p. 29.
Keokuk L. S.: Keokuk, Iowa.

Polypora simulatrix Ulrich.

1890. *Polypora simulatrix*. Ulrich, Geol. Surv. Ill., vol. 8, p. 589, pl. 59, figs. 4-4b.
Keokuk Group: Henderson County, Nauvoo and Warsaw, Illinois; Keokuk and Bentonsport, Iowa.
1894. *Polypora simulatrix*. Keyes, Mo. Geol. Surv., vol. 5, p. 28.
Keokuk L. S.: Keokuk, Iowa.

Polypora spininodata Ulrich.

1890. *Polypora spininodata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 594, pl. 60, fig. 3.
Warsaw Beds: Warsaw, Illinois.
1894. *Polypora spininodata*. Keyes, Mo. Geol. Surv., vol. 5, p. 29.
Keokuk L. S.: Warsaw, Illinois.

Polypora spinulifera Ulrich.

1890. *Polypora spinulifera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 598, pl. 61, figs. 2, 2a, 3, 3a, 4, 4a.
Chester Group: Monroe County and Chester, Illinois.
Coal Measures: Montgomery County, Illinois; near Red Oak, Iowa.
1894. *Polypora spinulifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
Kaskaskia L. S.: Chester, Illinois.

Polypora stragula White.

1866. *Polypora biarmica* (?) Geinitz, Carb. und Dyas in Nebr., p. 68, tab. 5, figs. 13a, b.
Nebraska City, Nebraska.
1872. *Polypora* (sp. undetermined.) Meek, U. S. Geol. Surv. Nebr., p. 155, pl. 7, fig. 6.
Upper Coal Measures: Nebraska City, Nebraska.
1874. *Polypora stragula*. White, Prelim. Rep. Inv. Foss., p. 19.
Carboniferous: Confluence of White Mountain and Black rivers, Arizona.
1877. *Polypora stragula*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 108, pl. 7, figs. 4a, b.
Carboniferous: Confluence of White Mountain and Black rivers, Arizona.

Polypora submarginata Meek.

1866. *Polypora marginata*. Geinitz, Carb. und Dyas in Nebr., p. 69, tab. 5, figs. 11a, b, 12a, b.
Plattsmouth, Nebraska.
1872. *Polypora submarginata*. Meek, U. S. Geol. Surv. Nebr., p. 154, pl. 7, figs. 7a, b.
Upper Coal Measures: Nebraska City, Nebraska.
1890. *Polypora submarginata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 602, pl. 61, figs. 6-6b.
Upper Coal Measures: Macoupin County, Illinois; Lasalle and Springfield, Illinois; near Red Oak, Iowa.
1894. *Polypora submarginata*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
Upper Coal Measures: Kansas City, Missouri, ? Red Oak, Iowa.

Polypora tuberculata Prout. (Not *P. tuberculata* Nicholson, 1874.)

1859. *Polypora tuberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 449, pl. 18, fig. 3.
Upper Archimedes L. S.: Chester, Illinois.
1890. *Polypora tuberculata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 595, pl. 60, fig. 8.
Chester Group: Chester, Illinois; Litchfield, Kentucky.
1894. *Polypora tuberculata*. Keyes, Mo. Geol. Surv., vol. 5, p. 30.
Kaskaskia L. S.: Chester, Illinois.

Polypora varsoviensis Prout.

1858. *Polypora Varsoviensis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 237.
Warsaw, Illinois.

Polypora varsoviensis Prout—Continued.

1859. *Polypora Varsouviensis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 451, pl. 15, figs. 3-3d.
 1890. *Polypora varsoviensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 593, pl. 60, figs. 2-2b. Warsaw Beds: Monroe County and Warsaw, Illinois. St. Louis L. S.: Barrett's Station, Missouri.
 1891. *Polypora Varsouviensis?* Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 578. Maxville L. S.: Newtonville, Ohio.
 1894. *Polypora varsoviensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 29. St. Louis L. S.: Barrett's Station, Missouri.
 1895. *Polypora Varsouviensis?* Whitfield, Geol. Surv. Ohio, vol. 7, p. 467. Maxville L. S.: Newtonville, Ohio.

Polypora whitei Ulrich.

1890. *Polypora whitei*. Ulrich, Geol. Surv. Ill., vol. 8, p. 600, pl. 62, fig. 2. Base of Coal Measures: Seville, Illinois.

Polypora whitei var. insculpta Ulrich.

1890. *Polypora whitei* var. *insculpta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 600, pl. 62, fig. 1. Upper Coal Measures: Springfield, Illinois.

Polypora (species undetermined).

1876. *Polypora* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 89. Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
 1878. *Polypora* sp. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 624. Carboniferous: Feilden Isthmus, latitude 82° 43'.

PONTOCYPRIS Sars.**Pontocypris? acuminata Ulrich.**

1891. *Pontocypris* (?) *acuminata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 210, pl. 17, figs. 8a-c. Lower Waverly Group: Moot's Run, near Granville, Ohio.

POPANOCERAS Hyatt, 1883.**Popanoceras parkeri Heilprin.**

1884. *Ammonites Parkeri*. Heilprin, Proc. Acad. Nat. Sci. Phil., p. 53, figs. 1, 2. Carboniferous: Wise County, Texas.

Popanoceras walcotti White.

1889. *Popanoceras walcotti*. White, Am. Nat., vol. 23, p. 117, pl. 1, figs. 9-11. Permian: Baylor County, Texas.
 1891. *Popanoceras walcotti*. White, Bull. U. S. Geol. Surv., No. 77, p. 21, pl. 1, figs. 9-11. Permian: Military Crossing of the Big Wichita, Baylor County, Texas.

PORCELLIA Leveille, 1835.**Porcellia crassinoda White and Whitfield.**

1862. *Porcellia crassinoda*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 303. Chemung Group: Burlington, Iowa.
 1889. *Porcellia crassinoda*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 298. Kinderhook Group: Burlington, Iowa.

Porcellia nodosa Hall.

1860. *Porcellia nodosa*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 92. Burlington L. S.: Illinois.

Porcellia nodosa Hall—Continued.

1868. *Porcellia nodosa*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 458, pl. 14, figs. 1a, b.
Kinderhook Group: Barry, Pike County, Illinois.
1889. *Porcellia nodosa*. Rowley, Am. Geol., vol. 3, p. 276.
Lower Burlington Chert: Louisiana, Missouri.
1894. *Porcellia nodosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 154, pl. 51, fig. 4.
Burlington L. S.: Louisiana, Missouri.

Porcellia obliquinoda White.

1862. *Porcellia obliquinoda*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 21.
Chemung S. S.: Burlington, Iowa.

Porcellia peoriensis Worthen.

1884. *Porcellia peoriensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 6.
Lower Coal Measures: Peoria County, Illinois.
1890. *Porcellia peoriensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 138, pl. 23, figs. 4a, b.
Lower Coal Measures: Peoria County, Illinois.

Porcellia rectinoda Winchell.

1863. *Porcellia rectinoda*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
Yellow S. S.: Burlington, Iowa.

POROBLATTINA Scudder, 1885.**Poroblattina complexinervis Scudder.**

1895. *Poroblattina complexinervis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 139, pl. 11, fig. 14.
Lower Permian: Cassville, West Virginia.

Poroblattina fossa Scudder.

1895. *Poroblattina fossa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 137, pl. 11, fig. 15.
Lower Permian: Cassville, West Virginia.

Poroblattina gratiosa Scudder.

1895. *Poroblattina gratiosa*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 136, pl. 11, fig. 13.
Lower Permian: Cassville, West Virginia.

Poroblattina longinqua Scudder.

1895. *Poroblattina longinqua*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 135, pl. 11, fig. 12.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

Poroblattina ohioensis Scudder.

- *1895. *Poroblattina ohioensis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 138, pl. 11, fig. 1.
Lower Coal Measures: Wills Creek, Richmond, Ohio.

POSIDONIA Bronn, 1837.**Posidonia clathrata Lea.**

1853. *Posidonia ? clathrata*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 1b.
Coal Formation: Wilkesbarre, Pennsylvania.

Posidonia distans Lea.

1853. *Posidonia ? distans*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 3b.
Coal Formation: Wilkesbarre, Pennsylvania.

Posidonia moorei Gabb.

1859. *Posidonia Moorei*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 297.

Coal Measures: Fort Belknap, Texas.

- 1860. *Posidonia Moorei*. Gabb, Proc. Acad. Nat. Sci. Phil., p. 55, pl. 1, fig. 2.

Posidonia perstriata Lea.

1853. *Posidonia ? perstriata*. Lea, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 205, pl. 20, fig. 3a.

Coal Formation: Wilkesbarre, Pennsylvania.

POSIDONOMYA Bronn, 1837.**Posidonomya ambigua** Winchell.

1863. *Posidonomya ? ambigua*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 10.

Yellow S. S.: Burlington, Iowa.

Posidonomya fracta Meek.

1875. *Posidonomya fracta*. Meek, Pal. Ohio, vol. 2, p. 333, pl. 19, figs. 7a, b.

Coal Measures: Flint Ridge, Ohio.

1887. *Posidonomya fracta*. Herrick, Bull. Den. Univ., vol. 2, p. 43.

Coal Measures: Flint Ridge, Ohio.

Posidonomya fragilis Herrick.

1888. *Posidonomya (Streblopteria) fragilis*. Herrick, Bull. Den. Univ., vol. 3, p. 59, pl. 6, fig. 1.

Waverly Group: Licking County, Ohio.

1895. *Posidonomya (Streblopteria) fragilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 18.

Cuyahoga Shale: Moot's Run, Ohio.

Posidonomya fragosa Meek.

1877. *Posidonomya ? fragosa*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 92, pl. 3, figs. 8, 8a.

Devonian or Carboniferous: White Pine Mountains, near Hamilton, Nevada.

Posidonomya lasallensis Miller and Gurley.

1896. *Posidonomya lasallensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 12, pl. 1, figs. 17, 18.

Coal Measures: Lasalle, Illinois.

Posidonomya mesambonata Winchell.

1862. *Posidonomya mesambonata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 421.

Marshall Group: Marshall and Moscow, Michigan.

Posidonomya romingeri Winchell.

1862. *Posidonomya Romingeri*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 420.

Marshall Group: Marshall, Michigan.

Posidonomya striata Stevens.

1858. *Posidonomya striata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 265.

Coal Measures: Summit, Ohio.

Posidonomya whiteana. Winchell.

1862. *Posidonomya Whiteana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 420.

Marshall Group: Marshall, Michigan.

POTERIOCERAS McCoy, 1844.**Poterioceras missouriense** Miller.

1892. *Poterioceras missouriense*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 70, pl. 11, fig. 6.

Chouteau L. S.: Near Sedalia, Missouri.

Poterioceras missouriense Miller—Continued.

1894. *Poterioceras missouriense*. Miller, 18th Rep. Geol. Surv. Ind., p. 324, pl. 11 fig. 6.

Chouteau L. S: Near Sedalia, Missouri.

Poterioceras jerseyense Miller and Gurley.

1896. *Poterioceras jerseyense*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 32, pl. 4, fig. 3.

Kinderhook Group: Jersey County, Illinois.

POTERIOCRINUS Miller, 1821.**Poteriocrinus agnatus** Miller.

1891. *Poteriocrinus agnatus*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 43, pl. 8, figs. 6, 7.

Keokuk Group: Boonville, Missouri.

1892. *Poteriocrinus agnatus*. Miller, 17th Rep. Geol. Surv. Ind., p. 653, pl. 8, figs. 6, 7.

Keokuk Group: Boonville, Missouri.

Poteriocrinus albersi Miller and Gurley.

1896. *Poteriocrinus albersi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 29, pl. 2, figs. 15-17.

Kaskaskia Group: Monroe County, Illinois.

Poteriocrinus altonensis Miller and Gurley.

1895. *Poteriocrinus altonensis*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 62, pl. 4, figs. 3, 4.

St. Louis Group: Alton, Illinois.

Poteriocrinus amænus Miller.

1891. *Poteriocrinus amænus*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 45, pl. 9, fig. 6.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

1892. *Poteriocrinus amænus*. Miller, 17th Rep. Geol. Surv. Ind., p. 653, pl. 9, fig. 6.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

Poteriocrinus anomalus Wetherby.

1880. *Poteriocrinus anomalus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 158, pl. 5, figs. 6-6b.

Kaskaskia Group: Pulaski County, Kentucky.

Poteriocrinus aqualis. See *Scaphiocrinus æqualis*.**Poteriocrinus arachnæformis** Worthen.

1882. *Poteriocrinus arachnæformis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 13.

Keokuk L. S: Warsaw, Illinois.

1883. *Poteriocrinus arachnæformis*. Worthen, Geol. Surv. Ill., vol. 7, p. 281, pl. 28, fig. 12.

Keokuk L. S: Warsaw, Illinois.

Poteriocrinus arcanus Miller and Gurley.

1890. *Poteriocrinus arcanus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 348, pl. 5, fig. 4.

Keokuk Group: Washington County, Indiana.

Poteriocrinus arrectarius Miller and Gurley.

1896. *Poteriocrinus arrectarius*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 33, pl. 4, fig. 6.

St. Louis Group: Alton, Illinois.

Poteriocrinus asper. See *Scaphiocrinus extensus*.

Poteriocrinus asperatus. See *Woodocrinus asperatus*.

Poteriocrinus barrisi. See *Cyathocrinus barrisi*.

Poteriocrinus bayensis. See *Decadocrinus bayensis*.

Poteriocrinus bisselli. See *Scytalocrinus bisselli*.

***Poteriocrinus blairi* Miller and Gurley.**

1895. *Poteriocrinus blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 61, pl. 4, figs. 1, 2.

Burlington Group: Sedalia, Missouri.

***Poteriocrinus boonvillensis* Miller.**

1891. *Poteriocrinus boonvillensis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 42, pl. 8, figs. 3, 4.

Keokuk Group: Boonville, Missouri.

1892. *Poteriocrinus boonvillensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 652, pl. 8, figs. 3, 4.

Keokuk Group: Boonville, Missouri.

***Poteriocrinus bozemanensis* Miller and Gurley.**

1896. *Poteriocrinus bozemanensis*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat. Hist., p. 82, pl. 5, figs. 10, 11.

Subcarboniferous: Bridger Mountains, near Bozeman, Montana.

Poteriocrinus briærius. See *Scaphiocrinus briærius*.

***Poteriocrinus brittsi* Miller.**

1891. *Poteriocrinus Brittsi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 30, pl. 4, figs. 5, 6.

Keokuk Group: Boonville, Missouri.

1894. *Poteriocrinus brittsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 211.

Keokuk L. S.: Boonville, Missouri.

***Poteriocrinus broadheadi* Miller and Gurley.**

1895. *Poteriocrinus broadheadi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 63, pl. 4, figs. 7, 8.

Chouteau L. S.: Near Sedalia, Missouri.

Poteriocrinus burketi. See *Scaphiocrinus burketi*.

Poteriocrinus bursæformis. See *Woodocrinus bursæformis*.

***Poteriocrinus calyculus* Hall.**

1858. *Poteriocrinus calyculus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 553, pl. 9, figs. 6a-c. Burlington L. S.: Burlington, Iowa.

1860. *Poteriocrinus calyculus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, pl. 2, fig. 11.

1872. *Scaphiocrinus calyculus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 1.

***Poteriocrinus cantonensis* Miller and Gurley.**

1890. *Poteriocrinus cantonensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 358, pl. 8, figs. 3, 4.

Keokuk Group: Near Canton, Indiana.

Poteriocrinus carbonarius. See *Graphiocrinus carbonarius*.

Poteriocrinus carinatus. See *Scaphiocrinus carinatus* and *Woodocrinus hiliiformis*.

***Poteriocrinus circumtextus* Miller and Gurley.**

1894. *Poteriocrinus circumtextus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 31, pl. 2, figs. 29, 30.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus claytonensis. See *Woodocrinus claytonensis*.

***Poteriocrinus clytis* Worthen.**

1882. *Poteriocrinus clytis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 16.
St. Louis L. S.: Monroe County, Illinois.

1883. *Poteriocrinus clytis*. Worthen, Geol. Surv. Ill., vol. 7, p. 294, pl. 30, fig. 10.
St. Louis L. S.: Monroe County, Illinois.

Also see *Scaphiocrinus venustus*.

Poteriocrinus columbiensis. See *Decadocrinus columbiensis*.

Poteriocrinus concinnus. See *Woodocrinus concinnus*.

Poteriocrinus coreyi. See *Scytalocrinus grandis*.

Poteriocrinus corycia. See *Scaphiocrinus corycia*.

***Poteriocrinus coryphæus* Miller.**

1891. *Poteriocrinus coryphæus*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind.,
p. 44, pl. 9, fig. 1.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

1892. *Poteriocrinus coryphæus*. Miller, 17th Rep. Geol. Surv. Ind., p. 654, pl. 9,
fig. 4.

Keokuk Group: Indian Creek, Montgomery County, Indiana.

Poteriocrinus coxanus. See *Scaphiocrinus coxanus*.

***Poteriocrinus crawfordsvillensis* Miller and Gurley.**

1890. *Poteriocrinus crawfordsvillensis*. Miller and Gurley, Jour. Cinn. Soc. Nat.
Hist., vol. 13, p. 23, pl. 4, fig. 8.

Keokuk Group: Crawfordsville, Indiana.

1890. *Poteriocrinus crawfordsvillensis*. Miller and Gurley, 16th Rep. Geol. Surv.
Ind., p. 344, pl. 4, fig. 8.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus crineus. See *Scaphiocrinus crineus*.

Poteriocrinus cultidactylus. See *Scaphiocrinus cultidactylus*.

Poteriocrinus decadactylus. See *Scytalocrinus decadactylus*.

Poteriocrinus dilatatus. See *Cœliocrinus dilatatus*.

***Poteriocrinus doris* Hall.**

1861. *Scaphiocrinus doris*. Hall, Desc. New Spec. Crin., p. 7.
Burlington L. S.

1861. *Scaphiocrinus doris*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 312.
Burlington L. S.: Burlington, Iowa.

***Poteriocrinus douglassi* Miller and Gurley.**

1896. *Poteriocrinus douglassi*. Miller and Gurley, Bull. No. 10, Ill. State Mus. Nat.
Hist., p. 83, pl. 5, figs. 16, 17.

Subcarboniferous: Bridger Mountains, Bozeman, Montana.

***Poteriocrinus elsahensis* Worthen.**

1890. *Poteriocrinus elsahensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 88, pl. 14, fig. 5.
Kinderhook Group: Near Elsah, Jersey County, Illinois.

Poteriocrinus enormis. See *Cyathocrinus enormis*.

Poteriocrinus fountainensis. See *Decadocrinus fountainensis*.

Poteriocrinus fusiformis. See *Scytalocrinus macrodactylus*.

***Poteriocrinus genista* Miller and Gurley.**

1890. *Poteriocrinus genista*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 357,
pl. 7, fig. 3.

Kinderhook Group: Legrand, Iowa.

Poteriocrinus granilineus Miller and Gurley.

1890. *Poteriocrinus granilineus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 22, pl. 4, fig. 7.

Keokuk Group: Crawfordsville, Indiana.

1890. *Poteriocrinus granilineus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 343, pl. 4, fig. 7.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus hamiltonensis. See *Scytalocrinus robustus*.

Poteriocrinus hammondi Miller and Gurley.

1894. *Poteriocrinus hammondi*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 35, pl. 3, figs. 7, 8.

Kinderhook Group: Legrand, Iowa.

Poteriocrinus hardinensis Worthen.

1873. *Poteriocrinites Hardinensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 533, pl. 20, fig. 10.

St. Louis L. S.: Roseclaire, Hardin County, Illinois.

Poteriocrinus hemisphericus. See *Ceriocrinus hemisphericus*.

Poteriocrinus hoveyi. See *Scytalocrinus robustus*.

Poteriocrinus illinoisensis Worthen.

1882. *Poteriocrinus illinoisensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 19.

Warsaw Beds: Warsaw, Illinois.

1883. *Poteriocrinus Illinoisensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 289, pl. 28, figs. 17.

Warsaw Beds: Warsaw, Illinois.

Poteriocrinus indianensis. See *Scytalocrinus indianensis*.

Poteriocrinus iowensis. See *Scaphiocrinus iowensis*.

Poteriocrinus jesupi. See *Scaphiocrinus swallovi*.

Poteriocrinus kaskaskiensis. See *Scaphiocrinus kaskaskiensis*.

Poteriocrinus keokuk. See *Scaphiocrinus keokuk*.

Poteriocrinus labyrinthicus Miller and Gurley.

1896. *Poteriocrinus labyrinthicus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 34, pl. 4, fig. 7.

Keokuk Group: Boonville, Missouri.

Poteriocrinus lasallensis Worthen.

1875. *Poteriocrinus La Sallensis*. Worthen, Geol. Surv. Ill., vol. 6, p. 526, pl. 32, fig. 3.

Upper Coal Measures: Lasalle, Illinois.

Poteriocrinus latidactylus. See *Scaphiocrinus latidactylus*.

Poteriocrinus lautus Miller and Gurley.

1896. *Poteriocrinus lautus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 30, pl. 2, figs. 18, 19.

Keokuk Group: Boonville, Missouri.

Poteriocrinus legrandensis Miller and Gurley.

1890. *Poteriocrinus legrandensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 357, pl. 7, figs. 4-6.

Kinderhook Group: Legrand, Iowa.

Poteriocrinus lepidus Hall.

1861. *Poteriocrinus lepidus*. Hall, Desc. New Spec. Crin., p. 6.
Burlington L. S.

Poteriocrinus lepidus Hall—Continued.

1861. *Poteriocrinus lepidus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 304.
Burlington L. S.: Burlington, Iowa.

Poteriocrinus longidactylus*. See *Scaphiocrinus missouriensis*.**Poteriocrinus maccabei* Miller and Gurley.**

1894. *Poteriocrinus maccabei*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 34, pl. 3, figs. 3-6.
Kinderhook Group: Legrand, Iowa.

***Poteriocrinus maccabei* var. *decrepitus* Miller and Gurley.**

1894. *Poteriocrinus maccabei* var. *decrepitus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 36, pl. 3, figs. 9-12.
Kinderhook Group: Le Grand, Iowa.

***Poteriocrinus macoupinensis* Worthen.**

1873. *Poteriocrinites Macoupinensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 561, pl. 24, fig. 3.
Upper Coal Measures: Macoupin County, Illinois.

***Poteriocrinus mammæformis* Worthen.**

1890. *Poteriocrinus mammæformis*. Worthen, Geol. Surv. Ill., vol. 8, p. 91.
Warsaw L. S.: Warsaw, Illinois.

Poteriocrinus meekianus*. See *Barycrinus meekianus*.**Poteriocrinus milleri*. See *Decadocrinus milleri*.*****Poteriocrinus missouriensis*. See *Scaphiocrinus missouriensis*.*****Poteriocrinus montanænsis*. See *Scaphiocrinus montanænsis*.*****Poteriocrinus nauvoensis*. See *Scaphiocrinus nauvoensis*.*****Poteriocrinus neglectus* Miller and Gurley.**

1896. *Poteriocrinus neglectus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 31, pl. 4, figs. 3-5.
Keokuk Group: Boonville, Missouri.

***Poteriocrinus nodobasalis* Worthen.**

1890. *Poteriocrinus nodobasalis*. Worthen, Geol. Surv. Ill., vol. 8, p. 89, pl. 12, figs. 3, 3a; pl. 13, fig. 6.
St. Louis L. S.: Monroe County, Illinois.

Poteriocrinus norwoodi*. See *Scaphiocrinus norwoodi*.**Poteriocrinus notabilis* Meek and Worthen.**

1869. *Scaphiocrinus notabilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 147.
Lower Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus notabilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 410, pl. 1, fig. 9.
Burlington L. S.: Burlington, Iowa.

***Poteriocrinus obuncus* White.**

1862. *Poteriocrinus ob-uncus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 9.
Lower Burlington L. S.: Burlington, Iowa.

Poteriocrinus occidentalis*. See *Agassizocrinus occidentalis* and *Scaphiocrinus occidentalis*.**Poteriocrinus okawensis*. See *Scaphiocrinus okawensis*.*****Poteriocrinus orestes*. See *Scaphiocrinus orestes*.**

Poteriocrinus otterensis Worthen.

1882. *Poteriocrinus otterensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 14.

Keokuk L. S.: Otter Creek, Jersey County, Illinois.

1883. *Poteriocrinus Otterensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 283, pl. 28, fig. 4.

Keokuk L. S.: Otter Creek, Jersey County, Illinois.

Poteriocrinus peculiaris. See *Scaphiocrinus renustus*.

Poteriocrinus pencilliformis. See *Decadocrinus pencilliformis*.

Poteriocrinus perplexus. See *Parisocrinus perplexus*.

Poteriocrinus pleias. See *Decadocrinus pleias*.

Poteriocrinus popensis. See *Scaphiocrinus popensis*.

Poteriocrinus proboscidualis. See *Scaphiocrinus proboscidualis*.

Poteriocrinus propinquus. See *Scaphiocrinus propinquus*.

Poteriocrinus pulaskiensis Miller and Gurley.

1896. *Poteriocrinus pulaskiensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 39, pl. 3, figs. 26, 27.

Kaskaskia Group: Pulaski County, Kentucky.

Poteriocrinus rhombiferus. See *Barycrinus rhombiferus*.

Poteriocrinus richfieldensis. See *Woodocrinus richfieldensis*.

Poteriocrinus rowleyi Worthen.

1890. *Poteriocrinus rowleyi*. Worthen, Geol. Surv. Ill., vol. 8, p. 90, pl. 14, fig. 9.

Chester L. S.: Monroe County, Illinois.

Poteriocrinus rugosus Shumard.

1858. *Poteriocrinus rugosus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 223.

Coal Measures: Missouri River Bluffs and Putnam County, near Blackbird Creek, Missouri.

Poteriocrinus salignoideus. See *Parisocrinus salignoideus*.

Poteriocrinus salteri. See *Scaphiocrinus salteri*.

Poteriocrinus sampsoni Miller and Gurley.

1895. *Poteriocrinus sampsoni*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 65, pl. 4, figs. 9, 10.

Chouteau, L. S.: Sedalia, Missouri.

Poteriocrinus scopæ Miller and Gurley.

1890. *Poteriocrinus scopæ*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 356, pl. 7, fig. 2.

Kinderhook Group: Legrand, Iowa.

1894. *Poteriocrinus scopæ*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 33, pl. 3, figs. 1, 2.

Kinderhook Group, Legrand, Iowa.

Poteriocrinus sculptus. See *Scaphiocrinus sculptus*.

Poteriocrinus similis Worthen.

1882. *Poteriocrinus similis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 23.

Chester L. S.: Monroe County, Illinois.

1883. *Poteriocrinus similis*. Worthen, Geol. Surv. Ill., vol. 7, p. 295, pl. 30, fig. 12.

Chester L. S.: Monroe County, Illinois.

Poteriocrinus solidus. See *Scaphiocrinus æqualis*.

Poteriocrinus spartarius Miller and Gurley.

1890. *Poteriocrinus spartarius*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 355, pl. 7, fig. 1.

Kinderhook Group: Legrand, Iowa.

Poteriocrinus spinobrachiatus. See *Scaphiocrinus spinobrachiatus*.

Poteriocrinus spinosus. See *Scaphiocrinus spinosus*.

Poteriocrinus spinuliferous Worthen.

1884. *Poteriocrinus spinuliferous*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 27.

Chester L. S.: Near Columbia, Monroe County, Illinois.

1890. *Poteriocrinus spinuliferus*. Worthen, Geol. Surv. Ill., vol. 8, p. 86, pl. 14, fig. 3.

Chester L. S.: Near Columbia, Monroe County, Illinois.

See also *Zecrinus spinuliferus*.

Poteriocrinus subimpressus. See *Scaphiocrinus subimpressus*.

Poteriocrinus subramosus Miller and Gurley.

1890. *Poteriocrinus subramosus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 365, pl. 10, fig. 1.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus subramulosus. See *Scaphiocrinus swallowi*.

Poteriocrinus subtumidus. See *Scaphiocrinus subtumidus*.

Poteriocrinus swallowi. See *Scaphiocrinus swallowi*.

Poteriocrinus talboti. See *Scytalocrinus talboti*.

Poteriocrinus tentaculatus. See *Woodocrinus tentaculatus*.

Poteriocrinus tenuibrachiatus. See *Parisocrinus tenuibrachiatus*.

Poteriocrinus tenuidactylus. See *Scaphiocrinus æqualis*, *Scaphiocrinus obscurus*, and *Woodocrinus tentaculatus*.

Poteriocrinus tumidus. See *Agassizocrinus occidentalis*.

Poteriocrinus ulrichi Worthen.

1890. *Poteriocrinus ulrichi*. Worthen, Geol. Surv. Ill., vol. 8, p. 87, pl. 17, fig. 2.

Keokuk L. S.: Keokuk, Iowa.

Poteriocrinus vagulus Miller and Gurley.

1895. *Poteriocrinus vagulus*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 46, pl. 4; figs. 10, 11.

Kaskaskia Group: Pulaski County, Kentucky.

Poteriocrinus validus Worthen.

1882. *Poteriocrinus validus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 18.
Warsaw Beds: Warsaw, Illinois.

1883. *Poteriocrinus validus*. Worthen, Geol. Surv. Ill., vol. 7, p. 287, pl. 28, fig. 16.
Warsaw Beds: Warsaw, Illinois.

Poteriocrinus vanhornei. See *Scytalocrinus vanhornei*.

Poteriocrinus varsouviensis. See *Scaphiocrinus varsouviensis*.

Poteriocrinus ventricosus. See *Coeliocrinus ventricosus*.

Poteriocrinus venustus. See *Scaphiocrinus venustus*.

Poteriocrinus verus Miller and Gurley.

1890. *Poteriocrinus verus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 24, pl. 4, fig. 9.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus verus Miller and Gurley—Continued.

1890. *Poteriocrinus verus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 344, pl. 4, fig. 9.

Keokuk Group: Crawfordsville, Indiana.

Poteriocrinus wachsmuthi. See *Graphiocrinus wachsmuthi*.**Poteriocrinus waltersi** Rowley and Hare.

1891. *Poteriocrinus waltersi*. Rowley and Hare, The Kansas City Scientist, vol. 5, p. 101, pl. 2, fig. 15.

Lower Burlington L. S.: Louisiana, Missouri

Poteriocrinus wetherbyi. See *Scytalocrinus wetherbyi*.**Poteriocrinus whitei** Hall

1861. *Scaphiocrinus whitei*. Hall, Desc. New Spec. Crin., p. 7.
Burlington L. S.

1861. *Scaphiocrinus Whitei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 306.
Burlington L. S.: Burlington, Iowa.

Poteriocrinus (species undetermined).

1897. *Poteriocrinus* sp. undet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 26.
Upper Coal Measures: Poteau Mountain, Indian Territory.

PRESTWICHIA Woodward, 1867.**Prestwichia colletti** White.

1884. *Euproops Colletti*. White, 13th Rep. Geol. Surv. Ind., p. 172, pl. 39, fig. 2.
Coal Measures: Durkee's Ferry, Vigo County, Indiana.

Prestwichia danæ Meek and Worthen.

1865. *Bellinurus Danæ*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 44.
Coal Measures: Morris, Illinois.
1866. *Bellinurus Danæ*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 395, pl. 32, figs. 2, 2a.
Lower Coal Measures: Morris, Grundy County, Illinois.
1867. *Prestwichia Danæ*. Meek, Am. Jour. Sci. (2), vol. 43, p. 257.
1867. *Euproops Danæ*. Meek, Am. Jour. Sci. (2), vol. 43, p. 394.
1868. *Euproops Danæ*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 547, fig. A.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1884. *Euproops Danæ*. White, 13th Rep. Geol. Surv. Ind., p. 170, pl. 39, fig. 1.
Coal Measures: Mazon Creek, Grundy County, Illinois.
1886. *Prestwichia danæ*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 146, pl. 5, figs. 3, 3a; pl. 6, figs. 1, 1a, 2, 2a.
Carboniferous: Mazon Creek, Illinois.

Prestwichia longispina Packard.

1885. *Euproops longispina*. Packard, Am. Nat., vol. 19, p. 292.
Carboniferous: Wilkesbarre and Pittston, Pennsylvania.
1886. *Prestwichia longispina*. Packard, Mem. Nat. Acad. Sci., vol. 3, pt. 2, p. 147, pl. 5, fig. 4; pl. 6, fig. 3.
Carboniferous: Pittston and Wilkesbarre, Pennsylvania.

Prestwichia (species undetermined).

1897. *Prestwichia*? Smith, Proc. Am. Phil. Soc., vol. 35, p. 63.
Lower Coal Measures: White County, Arkansas.

PRIMITIA Jones, 1865.**Primitia cestriensis** Ulrich.

1891. *Primitia cestriensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 201.
Chester Group: Chester, Illinois.

Primitia cestriensis var. caldwellensis Ulrich.

1891. *Primitia cestriensis* var. *caldwellensis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 202, pl. 14, figs. 7a-c.
Chester Group: Caldwell County, Kentucky.

Primitia granimarginata Ulrich.

1891. *Primitia granimarginata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 201, pl. 12, figs. 8a, b.
Chester Group: Near Grayson Springs Station, Kentucky.

Primitia simulans Ulrich.

1891. *Primitia simulans*. Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 201.
Chester Group: Chester, Illinois.

Primitia subaequata Ulrich.

1891. *Primitia subaequata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 202, pl. 14, figs. 8a-c.
Chester Group: Claxton, Caldwell County, Kentucky.

PRISMOPORA Hall, 1881.**Prismopora minima Ulrich.**

1890. *Prismopora minima*. Ulrich, Geol. Surv. Ill., vol. 8, p. 506, pl. 78, figs. 1-1c.
Lower Coal Measures: Sparta, Illinois.

Prismopora sereata Meek.

1875. *Ptilodictya (Stictopora) sereata*. Meek, Pal. Ohio, vol. 2, p. 327, pl. 20, fig. 4.
Lower Coal Measures: Flint Ridge, Ohio.
1887. *Prismopora sereata*. Foerste, Bull. Den. Univ., vol. 2, p. 75, pl. 7, figs. 6a-c.
Coal Measures: Bald Hill and Flint Ridge, Ohio.

Prismopora serrulata Ulrich.

1884. *Prismopora serrulata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 41, pl. 2, figs. 2-2f.
Kaskaskia Group: Tateville and Grayson Springs, Kentucky.

Prismopora triangulata White.

1878. *Ptilodictia triangulata*. White, Proc. Acad. Nat. Sci. Phil., p. 35.
Coal Measures: Danville, Illinois.
1879. *Ptilodictia triangulata*. White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 214.
Carboniferous: Yampa Plateau, Northwestern Colorado.
1880. *Ptilodictia triangulata*. White, Cont. to Inv. Pal., No. 6, p. 131, pl. 33, figs. 3a-e.
Coal Measures: Danville, Illinois; Yampa Plateau, Northwestern Colorado; and region southward from Yellowstone National Park.
1881. *Ptilodictia triangulata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxiv, pl. 4, figs. 2a-e.
Carboniferous: Cebolla Creek and Coyote Creek, New Mexico.

Prismopora trifolia Rominger.

1866. *Fistulipora trifolia*. Rominger, Proc. Acad. Nat. Sci. Phil., p. 122.
Keokuk L. S.: Lagrange, Missouri.
1890. *Prismopora trifolia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 505, pl. 77, figs. 4-4a.
Keokuk Group: Keokuk, Iowa; Lagrange, Missouri; Warsaw, Illinois.
1894. *Prismopora trifolia*. Keyes, Mo. Geol. Surv., vol. 5, p. 18.
Keokuk L. S.: Lagrange, Missouri; Keokuk, Iowa.

PRODUCTELLA Hall, 1867.

Productella arcuata. See *Productus arcuatus*.

Productella concentrica Hall.

1857. *Productus concentricus*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 180.
Chemung S. S.: Burlington, Iowa.
1858. *Productus concentricus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 517, pl. 7, fig. 3.
Chemung Group: Burlington, Iowa.
1862. *Producta concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 411.
Marshall Group: Pointe Aux Barques, Michigan.
1865. *Producta concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 114.
Marshall Group: Northern and Southern Michigan; Burlington, Iowa;
Rockford, Indiana.
1869. *Producta concentrica*. Winchell, Safford's Geol. Tenn., p. 443.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Producta concentrica*. Winchell, Proc. Am. Phil. Soc., vol. 1, p. 249.
Waverly Group: Tennessee; Sciotoville, Ohio.
1888. *Productus concentricus*. Herrick, Bull. Den. Univ., vol. 3, p. 33, pl. 6, fig. 16.
Waverly Group: Licking County, Ohio.

Productella newberryi. See *Productus newberryi*.

Productella pyxidata Hall.

1858. *Productus pyxidatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 498, pl. 3, figs. 8a-c.
Hamilton Group: Hamburg, Illinois; Louisiana, Missouri.
1883. *Productella pyxidata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48,
fig. 34.
Devonian: Iowa.
1892. *Productella pyxidata*. Hall and Clarke, Int. to Study of Brach., pt. 1,
pl. 21, figs. 20, 23.
Chouteau L. S.: Pike County, Missouri.
1892. *Productella pyxidata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17, fig. 34;
pl. 17A, fig. 14.
Chouteau L. S.: Pike County, Missouri.
1894. *Productella pyxidata*. Keyes, Mo. Geol. Surv., vol. 5, p. 52, pl. 38, figs. 4a-d.
Kinderhook Group: Louisiana, Hannibal, and Clarksville, Missouri.

Productella shumardiana Hall.

1858. *Productus shumardianus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 499, pl. 3, fig. 9;
pl. 7, fig. 1.
Hamilton Group: Clarksville, Missouri.
Chemung Group: Burlington, Iowa.
1867. *Productella shumardiana*. Hall, Pal. N. Y., vol. 4, p. 157, pl. 23, figs. 6-8.
Carboniferous L. S.: Williamsville, New York; Ohio; Illinois.
Hamilton Group: Lake Erie above Buffalo, Pratt's Falls, and Moscow, New
York; Hamburg, Illinois; Louisiana, Missouri; Burlington, Iowa.
1883. *Productella Shumardiana*. Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48,
fig. 7.
Sandstone: Burlington, Iowa.
1888. *Productus (Productella) shumardianus*. Herrick, Bull. Den. Univ., vol. 3,
p. 32, pl. 7, fig. 18; pl. 12, figs. 6, 43.
Waverly Group: Licking County, Ohio.
1892. *Productella Shumardiana*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17,
fig. 7.
Yellow Sandstone: Burlington, Iowa.

Productella speciosa Hall.

1857. *Productus speciosus*. Hal. 10th Rep. N. Y. State Cab. Nat. Hist., p. 176.
Chemung Group: Chautauqua County, New York.
1863. *Producta speciosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.
Yellow S. S.: Burlington, Iowa.
1867. *Productella speciosa*. Hall, Pal. N. Y., vol. 4, p. 175, pl. 25, figs. 1-11.
Chemung Group: New York.
1888. *Productus (Productella) speciosus?* Herrick, Bull. Den. Univ., vol. 3, p. 34.
Waverly Group: Licking County, Ohio.

Productella spinulicosta Hall.

1857. *Productus spinulicosta*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 173.
Hamilton Group: Cayuga Lake, New York.
1867. *Productella spinulicosta*. Hall, Pal. N. Y., vol. 4, p. 160, pl. 23, figs. 25-34.
Hamilton Group: Shores of Cayuga, Seneca, and Erie lakes, New York.
1883. *Productella spinulicosta?* Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48,
fig. 6.
Waverly Group: Burlington, Iowa.
1892. *Productella spinulicosta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17,
figs. 3-6.
Corniferous L. S.: Louisville, Kentucky.
Marcellus Shale: Western New York.
Yellow Sandstone: Burlington, Iowa.

Productella subaculeata Murchison.

1867. *Productella subaculeata*. Hall, Pal. N. Y., vol. 4, p. 154, pl. 23, figs. 4, 5.
Corniferous L. S.: Falls of the Ohio.
1884. *Productus subaculeatus*. Walcott, Pal. Eureka Dist., p. 214, pl. 7, fig. 2.
Lower Carboniferous L. S.: Eureka District, Nevada.

Productella (species undetermined).

1883. *Productella*, sp? Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, fig. 4.
Waverly S. S.: Newark, Ohio.
1888. *Productella?* Herrick, Bull. Den. Univ., vol. 3, fig. 24.
Waverly Group: Licking County, Ohio.

PRODUCTUS Sowerby, 1812.**Productus æquicostatus Shumard.**

1855. *Productus æquicostatus*. Shumard, Geol. Rep. Mo., p. 201, pl. C, fig. 10.
Upper Coal Measures: On Missouri River, at Iowa Point, Bondtown,
Dallas, mouth of Platte River, and Weston.
1855. *Productus æquicostatus*. Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 2, fig. 45.
Carboniferous L. S.: Willow Creek.
1892. *Productus æquicostatus*. Hall and Clarke, Int. to Study of Brach., pt. 1,
pl. 22, figs. 11, 12.
Coal Measures: Nebraska.
1892. *Productus æquicostatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A,
figs. 22, 23.
Coal Measures: Nebraska.

Productus alternatus Norwood and Pratten.

1855. *Productus alternatus*. Norwood and Pratten, Jour. Phil. Acad. Nat. Sci.
(2), vol. 3, p. 20, pl. 2, figs. 1a-e.
Mountain L. S.: Rocky Run, Hancock County, Illinois.
1883. *Productus alternatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, fig. 14.
Keokuk L. S.
1892. *Productus alternatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18,
fig. 14.
Keokuk Group: Illinois.

Productus altonensis Norwood and Pratten.

1855. *Productus altonensis*. Norwood and Pratten, Jour. Phil. Acad. Nat. Sci. (2), vol. 3, p. 7, pl. 1, figs. 1a-c.
Mountain L. S.: Alton, Illinois.
1894. *Productus altonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 43.
St. Louis L. S.: St. Louis, Missouri.

Productus americanus Swallow.

1863. *Productus Americanus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 91.
Upper Coal Measures: Harrison County, Missouri.
1894. *Productus americanus*. Keyes, Mo. Geol. Surv., vol. 5, p. 44.
Upper Coal Measures: Harrison County, Missouri.

Productus arcuatus Hall.

1858. *Productus arcuatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 518, pl. 7, figs. 4a, b.
Chemung Group: Burlington, Iowa.
1870. *Producta arcuata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
Waverly Group: Rockville and Granville, Ohio.
1883. *Productella arcuata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (17) 48, figs. 31, 32.
Sandstone: Burlington, Iowa.
1888. *Productus arcuatus*. Herrick, Bull. Den. Univ., vol. 3, p. 31, pl. 3, fig. 18.
Waverly Group: Licking County, Ohio.
1892. *Productella arcuata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17, figs. 31, 32.
Yellow S. S.: Burlington, Iowa.
1894. *Productus arcuatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 40.
Kinderhook Group: Hannibal, Missouri.

Productus asperus. See *Productus nebraskensis*.**Productus-auriculatus** Swallow.

1863. *Productus auriculatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 92.
1892. *Productus* (? *auriculatus*, Swallow). Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 6.
Coal Measures: Near Kansas City, Missouri.
1892. *Productus* (? *auriculatus* Swallow). Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, fig. 24.
Coal Measures: Near Kansas City, Missouri.

Productus biseriatus Hall.

1856. *Productus biseriatus*. Hall, Trans. Albany Inst., vol. 4, p. 12.
St. Louis L. S.: Alton, Illinois; Bloomington, Indiana.
1882. *Productus biseriatus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 46, pl. 6, figs. 8-12.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana; Alton, Illinois.
1883. *Productus biseriatus*. Hall, 12th Rep. Geol. Surv. Ind., p. 325, pl. 29, figs. 8-12.
St. Louis Group: Alton, Illinois; Spergen Hill, Paynter's Hill, and Bloomington, Indiana.
1894. *Productus biseriatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 43.
Keokuk L. S.: St. Francisville, Missouri; Keokuk, Iowa.

Productus blairi Miller.

1891. *Productus blairi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 79, pl. 13, figs. 16, 17.
Chouteau L. S.: Sedalia, Missouri.
1892. *Productus blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 689, pl. 13, figs. 16, 17.
Chouteau L. S.: Sedalia, Missouri.

Productus boliviensis D'Orbigny.

1847. *Productus boliviensis*. De Koninck, Monog. du Gen. Prod. et Chon., p. 77, pl. 8, figs. 2 a-c.
Carboniferous L. S.: Bolivia, South America.
1855. *Productus Boliviensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11.
Coal Measures: 12 miles northwest of Richmond, Missouri.

Productus boonensis Swallow.

1858. *Productus Boonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 217.
Coal Measures: Near mouth of Platte River, Nebraska; Kansas.

Productus boonensis var. elevata Swallow.

1858. *Productus Boonensis* var. *elevata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 217.
Coal Measures: Kansas and Nebraska.

Productus buchianus de Koninck.

1855. *Productus Buchianus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 20.
Coal Measures: Big Creek, Posey County, Indiana.

Productus burlingtonensis Hall.

1858. *Productus flemingi* var. *burlingtonensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 598, pl. 12, figs. 3 a-g.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois.
1877. *Productus Flemingi* var. *Burlingtonensis*. Hall and Whitfield, U. S. Geol. Exped., 40 Par., vol. 4, p. 285, pl. 5, figs. 9-12.
Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.
1883. *Productus Flemingi* var. *Burlingtonensis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 6-8.
Burlington L. S.: Burlington, Iowa.
1888. *Productus flemingi* var. *burlingtonensis*. Herrick, Bull. Den. Univ., vol. 3, p. 32, pl. 3, figs. 20 (22?).
Waverly Group: Licking County, Ohio.
1892. *Productus Flemingi* var. *Burlingtonensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 6-8.
Burlington L. S.: Burlington, Iowa.
1894. *Productus burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 41.
Burlington L. S.: Hannibal, Helton, Louisiana, Springfield, and Ash Grove, Missouri.
Keokuk L. S.: St. Francisville and Boonville, Missouri.

Productus calhounanus Swallow.

1858. *Productus Calhounianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 181.
Lower Permian: Kansas.
1858. *Productus Calhounianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 215.
Upper Coal Measures and Permian: Kansas.
1859. *Productus Calhounianus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.
White and Dark Permian L. S.: Guadalupe Mountains.
1859. *Productus Calhounianus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Fort Riley and Cottonwood Creek, Kansas.
1861. *Productus Calhounianus*. Newberry, Ives's Colo. Expl. Exped., p. 123.
Carboniferous: Kansas.
- Also see *Productus cora*.

Productus calhounanus var. kansasensis Swallow.

1858. *Productus Calhounianus* var. *Kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 216.

Upper Coal Measures and Permian: Kansas.

Mountain L. S. and Coal Measures: Missouri.

Productus cancrini. See *Productus pertenuis*.

Productus carbonarius De Koninck.

1855. *Productus carbonarius*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11.

Mountain L. S.: Fountain Bluff, Illinois.

Productus cestriensis Worthen.

1855. *Productus elegans*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 3, pl. 1, figs. 7a-c. (Not *P. elegans* McCoy.)

Mountain L. S.: Chester and Kaskaskia, Illinois; Missouri, near Hat Island.

1860. *Productus Cestriensis*. Worthen, Trans. St. Louis Acad. Sci., vol. 1, p. 570.

Chester L. S.: Chester, Illinois.

1877. *Productus elegans*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 268, pl. 5, figs. 3, 4.

Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon Oquirrh Mountains, Utah.

1891. *Productus elegans*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 581, pl. 13, figs. 15, 16.

Maxville L. S.: Ohio.

1894. *Productus cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 44.

Kaskaskia L. S.: Ste. Mary, Missouri.

1895. *Productus elegans*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 669, pl. 9, figs. 15, 16.

Maxville L. S.: Ohio.

1897. *Productus cestriensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 256, pl. 18, figs. 7-9.

Batesville S. S.: Batesville, Arkansas.

Productus clavus Norwood and Pratten.

1855. *Productus clavus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 10, pl. 1, figs. 4a-c.

Coal Measures: Grayeville, Illinois.

Productus compressus Say.

1823. *Productus compressus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 150 (foot note).

Missouri River, 5 miles below Council Bluffs.

1897. *Productus compressus*. Harris, Bull. Am. Pal., vol. 1, p. 384 (114).

Productus concentricus. See *Productella concentrica*.

Productus confragosus Conrad.

1835. *Productus confragosus*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 267, pl. 12, fig. 5.

Productus cooperensis Swallow.

1860. *Productus Copoerensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 649.

Chouteau L. S.: Cooper County, Missouri.

1865. *Producta Cooperensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 115.

Bed No. 1: Burlington, Iowa.

1870. *Producta Cooperensis?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 249.

Waverly Group: Sciotoville, Ohio.

Productus cora D'Orbigny.

1847. *Producta cora*. De Koninek, Monog. du Gen. Prod. et Chon., p. 50, pl. 4, figs. 4a, b; pl. 5, figs. 2a-d.
Carboniferous: Guernsey County, Flint Ridge, and Zanesville, Ohio; between New Harmony and Mount Vernon, Indiana; Leavenworth, Indiana; Windsor, Nova Scotia; Bolivia, etc., South America.
1848. *Productus Martini*. Christy, Letters on Geol., pl. 5, figs. 6, 8, 9.
Pinckneyville, Illinois.
1852. *Productus semireticulatus*. Hall, Stansb. Exped. Gt. Salt Lake, p. 411, pl. 3, figs. 3, 5a, b.
Carboniferous: Near Fort Laramie; and Flat Rock Point and other places in the neighborhood of Great Salt Lake, Utah.
1852. *Productus cora*. Owen, Geol. Rep. Wis., Iowa, and Minn., Tab. 5, fig. 1.
Carboniferous: Missouri River, below mouth of Little Platte River.
1852. *Productus cora*. Roemer, Kreid. von Texas, p. 90.
Carboniferous: San Saba Valley, Texas.
1854. *Productus cora*. Marcy's Expl. Red River of Louis., p. 176.
Carboniferous: Washington and Crawford counties, Arkansas.
1855. *Productus cora*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 6.
Mountain L. S.: Chester, Rosiclare, and Warsaw, Illinois; near Richmond, Missouri; Carrsville, Kentucky.
1855. *Productus Prattenianus*. Norwood, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 17, pl. 1, figs. 10a-d.
Coal Measures: Crossing of Big Nemahaw River, about 85 miles northwest of St. Joseph, Missouri.
1855. *Productus Cora*. Salter, Belcher's "Last of the Arctic Voyages," p. 387, pl. 36, fig. 12.
Carboniferous: Top of Exmouth Island.
1858. *Productus cora*. Marcou, Geol. N. A., p. 45, pl. 6, figs. 4, 4a.
Mountain L. S.: Tigras Canyon of San Antonio; Pecos Village; summit of Sierra de Sandia, New Mexico.
1859. *Productus Prattenianus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Coal Measures: Indian Creek and Leavenworth, Kansas.
1863. *Productus Cora*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 174, pl. 9, figs. 22, 23.
Lower Carboniferous L. S.: Windsor, Horton Bluff, Shubenacadie, Gays River, Cape Breton, Pugwash, eastward of Cumberland, Lennox Passage, M'Kenzies Mill, at eastern extremity of Wallace Harbor, etc., Nova Scotia.
1866. *Productus Flemingi*. Geinitz, Carb. und Dyas. in Nebr., p. 52, tab. 4, figs. 1-4.
Bellevue, Plattsmouth, and Nebraska City, Nebraska.
1866. *Productus Koninckianus?* Geinitz, Carb. und Dyas. in Nebr., p. 53, tab. 4, fig. 4.
Nebraska City, Nebraska.
1868. *Productus cora*. Dawson, Acad. Geol., p. 297, figs. 98 a, b.
Carboniferous L. S.: Windsor, Horton Bluff, Shubenacadie, Gays River, Minudie, Cape Breton, Pugwash, east coast of Cumberland, Lennox Passage, M'Kenzies Mill, Wallace Harbor, etc., Nova Scotia.
1872. *Productus Prattenianus*. Meek, U. S. Geol. Surv. Nebr., p. 163, pl. 2, figs. 5a-c; pl. 5, fig. 13; pl. 8, figs. 10a, b.
Upper Coal Measures: Nebraska City, Bennett's Mill, Cedar Bluff, Plattsmouth, Bellevue, and Omaha, Nebraska; Kansas; Iowa; Illinois.
Lower Coal Measures: Illinois.

Productus cora D'Orbigny—Continued.

1874. *Productus Prattenianus* (= ? *P. laevicostus*). White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Below Ophir City, Utah.
1874. *Productus Cora* (?). Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 49, pl. 2, fig. 17; pl. 6, fig. 17.
Coal Measures: Itaituba and Barreirinha, Brazil.
1876. *Productus Prattenianus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Productus Prattenianus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 72, pl. 7, fig. 7.
Carboniferous: Fossil Hill, White Pine District; Railroad Canyon, Diamond Mountains, Nevada.
1877. *Productus Prattenianus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 113, pl. 7, figs. 1a-c.
Carboniferous: Near Sante Fe and Zandia Mountains, New Mexico; Piloncillo range near Gavilan Peak, and at the confluence of White Mountain and Black rivers, Arizona; Egan range, 35 miles south of Egan Pass; Fossil Hill, White Pine County; Robert's Creek range, Lander County, and top of Grass Mountain, Ely range, 35 miles north of Pioche, Nevada; near Beckwith Spring, Cedar range; near top of Mount Nebo, and west face of Oquirrh range, Utah.
Subcarboniferous: Mountain Spring, Lincoln County, Nevada, and below Ophir City, Utah.
1884. *Productus Cora*. White, 13th Rep. Geol. Surv. Ind., p. 126, pl. 26, figs. 1-3.
Coal Measures: Fountain, Vermilion, Parke, Montgomery, Clay, Owen, Pike, Dubois, and Warrick counties, Indiana.
1886. *Productus Cora*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 452; p. 440, figs. 1, 1a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Productus Cora*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 268, figs. 1, 1a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Productus Cora*. Herrick, Bull. Den. Univ., vol. 2, p. 47, pl. 2, figs. 26.
Coal Measures: Flint Ridge, Ohio.
1888. *Productus cora*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 227.
Lower Coal Measures: Des Moines, Iowa.
1892. *Productus* sp? compare *Prattenianus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, fig. 4.
Waverly S. S.: Newark, Ohio.
1894. *Productus cora*. Keyes, Mo. Geol. Surv., vol. 5, p. 47, pl. 37, figs. 2a-c.
Coal Measures: Calhoun and Kansas City, Missouri.
1897. *Productus cora*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 28.
Upper Coal Measures: Poteau Mountains, Indian Territory.
Archimedes L. S.: Independence County, Arkansas.
Marshall Shale: Independence and Stone counties, Arkansas.
Fayetteville Shale: Independence County, Arkansas.

Productus cora var. mogoyoni Marcon.

1858. *Productus cora* var. *mogoyoni*. Marcon, Geol. N. A., p. 45, pl. 6, fig. 5.
Mountain L. S.: Near the extinct volcano of San Francisco, New Mexico.

Productus coraformis Swallow.

1863. *Productus coraformis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 94.
Archimedes L. S.: Cooper County, Missouri.

Productus costatoides Swallow.

1858. *Productus costatoides*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 217.
Upper Coal Measures: Kansas.
1861. *Productus costatoides*. Newberry, Ives's Colo. Expl. Exped., p. 123.
Upper Carboniferous (Cherty L. S.): Banks of Colorado River.

Productus costatus Sowerby.

1847. *Productus costatus*. De Koninck, Monog. du Gen. Prod. et Chon., p. 92,
pl. 8, figs. 5a-c; pl. 10, figs. 5a-g; pl. 18, figs. 3a, b.
Carboniferous L. S.: St. Louis, Missouri.
1848. *Productus*. Christy, Letters on Geol., pl. 5, fig. 7.
Coal: Eden, Illinois.
1852. *Productus costatus?* Hall, Stansb. Exped. Gt. Salt Lake, p. 411, pl. 3, fig. 2.
Carboniferous: Missouri River.
1854. *Productus costatus*. Shumard, Marcy's Expl. Red River of Louis., p. 176,
pl. 1, fig. 2.
Carboniferous: Washington County, Arkansas.
1855. *Productus costatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
vol. 3, p. 11.
Coal Measures: Caseyville and Belleville, Illinois; Charboniere, Missouri.
1855. *Productus Portlockianus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil.
(2), vol. 3, p. 15, pl. 1, figs. 9 a-c.
Coal Measures: Grayville, White County, Illinois; Charboniere, Missouri.
1858. *Productus costatus*. Marcou, Geol. N. A., p. 46, pl. 5, fig. 5.
Mountain L. S.: Cedar Creek, Sierra de Mogoyoni; Sierra of Arizona;
sources of Colorado Chiquito.
1858. *Productus costatus*, var. Hall, Geol. Iowa, vol. 1, pt. 2, p. 712, pl. 28, figs.
3a, b, 4a-c.
Coal Measures: Ohio; Illinois; Missouri; Iowa.
1861. *Productus costatus*. Newberry, Ives's Colo. Expl. Exped., p. 123.
Upper Carboniferous (Cherty L. S.): Banks of Colorado River.
Coal Measures: Nebraska.
1872. *Productus costatus??* Meek, U. S. Geol. Surv. Nebr., p. 159, pl. 6, figs. 6a, b.
Upper Coal Measures: Nebraska City, 2½ miles west of Nebraska City,
Wyoming, Bennett's Mill, Rock Bluff, Cedar Bluff, Plattsmouth, Belle-
vue, and Omaha, Nebraska.
Coal Measures: Illinois; Iowa; Missouri; Pennsylvania.
1876. *Productus costatus?* White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, Utah.
1876. *Productus costatus*, var. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, Utah.
1877. *Productus costatus??* Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 69, pl. 7,
figs. 4, 4b.
Carboniferous: Railroad Canyon, Diamond Mountains; Fossil Hill, White
Pine Mountains, and Moleen Peak, Nevada.
1877. *Productus costatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, pt. 1,
p. 109, pl. 8, figs. 2a-d.
Carboniferous: Camp Cottonwood, Old Mormon road, Lincoln County;
top of Grass Mountains, Ely range, 35 miles north of Pioche; and at
Silver Peak, Nevada; head of Partridge Creek, Yavapai County; Salt
River; and head of Big Dry Fork, Arizona; Kanab Canyon, Arizona;
Rock Canyon, Wahsatch range, near Provo; Lake range, Fairfield road,
and first camp south of Saint George, Utah; near Bear Spring; Camp
Wingate, and in the Zuni Mountains, between Camp Wingate and Nutria
Spring, New Mexico.
1878. *Productus costatus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 631.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

Productus costatus Sowerby—Continued.

1881. *Productus costatus*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 516, pl. 8, figs. 7, 8.
Coal Measures: Silver Mine; Vermilion County, Indiana.
1883. *Productus costatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 8-13.
Coal Measures: Iowa.
1884. *Productus costatus*. White, 13th Rep. Geol. Surv. Ind., p. 124, pl. 24, figs. 4-6; pl. 25, figs. 3-5.
Coal Measures: Indiana.
1892. *Productus costatus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 1.
Coal Measures: Winterset, Iowa.
1892. *Productus costatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 19, figs. 8-13.
Coal Measures: Winterset, Iowa.
1894. *Productus costatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 51, pl. 36, figs. 1a-c.
Upper Coal Measures: Kansas City, Missouri.

Productus curtirostris Winchell.

1865. *Producta curtirostra*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 114.
Yellow Sandstone: Burlington, Iowa.

Productus delawarei Marcou.

1858. *Productus delawarei*. Marcou, Geol. N. A., p. 45, pl. 5, fig. 3.
Mountain L. S.: Western foot of Delaware Mountain, Texas.

Productus depressus Swallow.

1863. *Productus depressus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 93.
Keokuk L. S.: Fenton, St. Louis County, Missouri.

Productus dolorosus Winchell.

1865. *Producta dolorosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 114.
Marshall Group: Weymouth, Medina County, Ohio, 60 feet below conglomerate.

Productus duplicostatus Winchell.

1865. *Producta duplicosta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 113.
Marshall Group: Battle Creek, Michigan; Licking County, Ohio.
1888. *Productus duplicostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 21, pl. 11, figs. 26, 29.
Waverly Group: Knox and Licking counties, Ohio.

Productus elegans. See *Productus cestriensis*.**Productus fasciculatus McChesney.**

1860. *Productus fasciculatus*. McChesney, Desc. New Pal. Foss., p. 38.
Kaskaskia L. S.: Fountain Bluff, Kaskaskia, and Chester, Illinois; Leavenworth, Indiana.

Productus fentonensis Swallow.

1863. *Productus Fentonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 93.
Fenton, St. Louis County, Missouri.

Productus fimbriatus Sowerby.

1855. *Productus fimbriatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 19.
Mountain L. S.: Near Alton, Illinois.
Coal Measures: Big Creek, Posey County, Indiana.
1878. *Productus fimbriatus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 630.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

Productus flemingi. See *Productus longispinus* and *Productus cora*.

Productus flemingi var. *burlingtonensis*. See *Productus burlingtonensis*.

Productus flexistria McCoy.

1855. *Productus flexistria*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 6.

Mountain L. S.: Chester, Kaskaskia, and Fountain Bluff, Illinois; near Stephenport, Kentucky.

Productus giganteus Martin.

1880. *Productus giganteus*. White, Cont. to Pal. No. 6, p. 132, pl. 36, figs. 1a-c. Carboniferous: Valley of the McCloud River, Shasta County, California.

1881. *Productus giganteus*. White, Proc. U. S. Nat. Mus., vol. 3, p. 46.

Carboniferous: Valley of McCloud River, Shasta County, California.

Productus gracilis Winchell.

1865. *Producta gracilis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.

Marshall Group: Valley Forge, 1½ miles below Cuyahoga Falls, Ohio.

1870. *Producta gracilis?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.

Waverly Group: Sciotoville, Ohio.

1888. *Productus gracilis*. Herrick, Bull. Den. Univ., vol. 3, p. 34, pl. 7, fig. 20.

Waverly Group: Licking County, Ohio.

Productus gradatus Swallow.

1863. *Productus gradatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 93.

Keokuk, L. S.: Keokuk, Iowa; Lewis and St. Louis counties, Missouri.

Productus granulosus Phillips.

1855. *Productus Granulosus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 21.

Mountain L. S.: Nauvoo, Illinois; Carrsville, Kentucky.

Productus hepar Morton.

1836. *Productus hepar*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 26, fig. 39.

Coal Measures: Ohio Valley.

Productus hildrethianus Norwood and Pratten.

1855. *Productus Hildrethianus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 18, pl. 1, figs. 11a-c.

Coal Measures: Charboniere, Missouri.

Productus horridus. See *Productus longispinus*.

Productus incurvus Say.

1823. *Productus incurvus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 106 (foot-note).

From Fort Osage.

1897. *Productus incurvus*. Harris, Bull. Am. Pal., vol. 1, p. 379 (109).

Productus indianensis Hall.

1856. *Productus Indianensis*. Hall, Trans. Albany Inst., vol. 4, p. 13.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Productus Indianensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 47, pl. 6, figs. 6, 7.

St. Louis Group: Spergen Hill, Indiana.

1883. *Productus Indianensis*. Hall, 12th Rep. Geol. Surv. Ind., p. 326, pl. 29, figs. 6, 7.

St. Louis Group: Spergen Hill, Indiana.

Productus inflatus McChesney.

1860. *Productus inflatus*. McChesney, Desc. New Pal. Foss., p. 40.

Carboniferous L. S.: Leavenworth, Indiana.

Productus inflatus McChesney—Continued.

1865. *Productus inflatus*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 1a-c.

1868. *Productus inflatus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 27, pl. 6, figs. 1a-c.

Carboniferous L. S.: Leavenworth, Indiana.

Productus ivesi Newberry.

1861. *Productus Ivesi*. Newberry, Ives's Colo. Expl. Exped., p. 122, pl. 2, figs. 1-8.
Middle Carboniferous L. S.: Banks of Colorado River, near mouth of Diamond River.

1877. *Productus Ivesi?* Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 67, pl. 7, figs. 6-6b.
Carboniferous: Fossil Hill, White Pine Mountains; Railroad Canyon, Diamond Mountains; west of San Francisco Mountain, etc., Nevada.

Productus koninckianus. See *Productus cora*.

Productus lachrymosus var. *stigmaria* Herrick. See *Productus rari-eostatus*.

Productus lævicostus White.

*1860. *Productus lævicostus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 230.
Burlington L. S.: Burlington, Iowa.

1877. *Productus lævicostus?* Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 266, pl. 5, figs. 7, 8.
Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.

1894. *Productus lævicostus*. Keyes, Mo. Geol. Surv., vol. 5, p. 41, pl. 38, fig. 1.
Kinderhook Group: Louisiana, Missouri.
Burlington Group: Louisiana, Missouri.

Productus lasallensis Worthen.

1873. *Productus Lasallensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 569, pl. 25, fig. 9.
Upper Coal Measures: Lasalle, Illinois.

1892. *Productus (Marginifera) Lasallensis*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 15.
Upper Carboniferous: Lasalle, Illinois.

1892. *Productus (Marginifera) Lasallensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, fig. 13.
Upper Carboniferous: Lasalle, Illinois.

Productus latissimus Sowerby.

1823. *Productus latissimus*. Sowerby, Min. Conch., vol. 4, p. 32, tab. 330.

1876. *Productus Latissimus*. Meek, Bull. U. S. G. and G. Surv. Terr., vol. 2, p. 354, pl. 1, fig. 1.
Carboniferous: Katlahwoke Creek, Rocky Mountains.

Productus leplayi de Verneuil.

1859. *Productus Leplayi* (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390.
White Permian L. S.: Guadalupe Mountains.

Productus leuchtenbergensis De Koninck.

1855. *Productus Leuchtenbergensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 19.

Mountain L. S.: Mason's Landing, Jersey County, Illinois.

Productus lineolatus Say.

1823. *Productus lineolatus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 151 (footnote).

Missouri River, 5 miles below Council Bluffs.

1897. *Productus lineolatus*. Harris, Bull. Am. Pal., vol. 1, p. 384 (114).

Productus longispinus Sowerby.

1847. *Productus flemingii*. De Koninck, Monog. du Gen. Prod. et Chon., p. 95, pl. 10, figs. 2a-l; fig. 3u. (Not *P. flemingii* Sowerby, 1812.)
Carboniferous: Louisville, Kentucky; Bagdad, Flint Ridge, Zanesville, and Guernsey, Ohio; Sparta, Illinois; Windsor, Nova Scotia; Bank of Missouri River; Bolivia, South America.
1852. *Productus Flemingii*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 2.
Carboniferous: Missouri River, near mouth of Keg Creek.
1852. *Productus flemingii*. Roemer, Kreid. von Texas, p. 89, taf. 11, figs. 8a, b.
Carboniferous: San Saba Valley, Texas.
1855. *Productus Flemingii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11.
Mountain L. S.: Hardin County, Illinois; Leavenworth, Indiana; Burlington, Iowa.
1855. *Productus splendens*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11, pl. 1, figs. 5a-d.
Coal Measures: Galatia, Illinois; 6 miles west of Richmond, Missouri; near Big Creek, Posey County, Indiana.
1855. *Productus splendens*. Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 1, fig. 3.
Carboniferous L. S.: 6 miles west of Westport.
1858. *Productus flemingii*. Marcou, Geol. N. A., p. 47, pl. 6, fig. 7.
Mountain L. S.: Tigras in the canyon of San Antonio, and near the summit of Sierra de Sandia; Pecos Village; Ohio, Indiana, and Arkansas.
1859. *Productus splendens* (?) Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Manhattan and Fort Riley, Kansas.
1861. *Productus splendens*? Newberry, Ives's Colo. Expl. Exped., p. 124.
Coal Measures L. S.: Santa Fe Road, 10 miles west of Burlingame, Kansas.
1866. *Productus horridus*. Geinitz, Carb. und Dyas in Nebr., p. 55, tab. 4, fig. 7.
(Not *P. horridus* Sowerby, 1822.)
Bennett's Mill, Nebraska City, Nebraska.
1866. *Productus Orbignyianus*. Geinitz, Carb. und Dyas in Nebr., p. 56, tab. 4, figs. 8-11.
Bellevue, Plattsmouth, and Nebraska City, Nebraska.
1877. *Productus longispinus*? Meek, U. S. Geol. Surv. Nebr., p. 161, pl. 6, fig. 7; pl. 8, figs. 6a-c.
Upper Coal Measures: Nebraska City, Wyoming; Bennett's Mill, Rock Bluff, Cedar Bluff, Plattsmouth, Bellevue, and Omaha, Nebraska.
Upper, Middle, and Lower Coal Measures: Iowa; Illinois; Kansas; Missouri.
1873. *Productus Longispinus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 569, pl. 25, fig. 10.
Upper and Lower Coal Measures: Illinois.
1876. *Productus longispinus*? White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Near Echo Park, and at confluence of Grand and Green rivers, Utah.
1877. *Productus longispinus*. Meek, U. S. Geol. Expl., 40 Par., vol. 4, p. 78, pl. 8, figs. 4, 4a.
Carboniferous L. S.: Fossil Hill, White Pine District, Nevada.
1877. *Productus longispinus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 118, pl. 8, figs. 5a-d.
Carboniferous: East of Minersville and at Meadow Creek, south of Fillmore, Utah; Camp Cottonwood, old Mormon road, Lincoln County, Nevada; near Santa Fe, New Mexico.
1883. *Productus longispinus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 1-4.
Coal Measures: Winterset, Iowa; Lasalle, Illinois.

Productus longispinus Sowerby—Continued.

1884. *Productus longispinus*. White, 13th Rep. Geol. Surv. Ind., p. 127, pl. 24, figs. 10, 11.
Coal Measures: Fountain, Parke, Vermilion, Vigo, Sullivan, Knox, Pike, Warrick, Spencer, Posey, Gibson, and Vanderburg counties, Indiana.
1887. *Productus longispinus*. Herrick, Bull. Den. Univ., vol. 2, p. 48, pl. 2, figs. 25, 27, 28.
Coal Measures: Flint Ridge, Ohio.
1892. *Productus (Marginifera) splendens*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, figs. 13, 14.
Upper Coal Measures: Winterset, Iowa.
Coal Measures: Lasalle, Illinois.
1892. *Productus (Marginifera) splendens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 19, figs. 1-4.
Upper Coal Measures: Winterset, Iowa; Lasalle, Illinois.
1894. *Productus longispinus*. Keyes, Mo. Geol. Surv., vol. 5, p. 45, pl. 37, figs. 4a, b, Upper Coal Measures: Kansas City, Missouri.
1897. *Productus splendens*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 29.
Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain, Indian Territory.

Productus magnicostatus Swallow.

1860. *Productus magnicostatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 641.
Coal Measures: Johnson County, Missouri.

Productus magnus Meek and Worthen.

1861. *Productus magnus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 142.
Keokuk L. S.: Monroe County, Illinois; Ste. Genevieve County, Missouri.
1868. *Productus magnus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 528, pl. 20, figs. 7a-c.
Keokuk Group: Monroe County, Illinois; Ste. Genevieve County, Missouri.
1892. *Productus magnus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, fig. 15.
Keokuk Group: Crawfordsville, Indiana.
1894. *Productus magnus*. Keyes, Mo. Geol. Surv., vol. 5, p. 41.
Keokuk L. S.: Ste. Genevieve and St. Francisville, Missouri.

Productus margaritaceus Phillips.

1855. *Productus margaritaceus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 6.
Twelve miles northwest of Richmond, Missouri.

Productus marginicinctus Prout.

1857. *Productus marginicinctus*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 43, pl. 2, figs. 1-16.
St. Louis L. S.: St. Louis, Missouri.
1858. *Productus marginicinctus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 674, pl. 24, figs. 3a-c.
St. Louis L. S.: St. Louis, Missouri; Milan, Illinois.
1894. *Productus marginicinctus*. Keyes, Mo. Geol. Surv., vol. 5, p. 43.
St. Louis L. S.: St. Louis, Missouri; Keokuk, Iowa.

Productus Martini Sowerby.

1863. *Producta Martini*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.
Yellow S. S. and Burlington L. S.: Burlington, Iowa.
Also see *Productus cora*.

Productus mesialis Hall.

1858. *Productus mesialis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 636, pl. 19, figs. 2a-c.
Keokuk L. S.: Nauvoo, Illinois.

Productus mesialis Hall—Continued.

1883. *Productus mesialis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 9, 10.
 Keokuk L. S.: Nauvoo, Illinois.
1892. *Productus mesialis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 9, 10.
 Keokuk Group: Nauvoo, Illinois.

Productus mesolobus Phillips.

1878. *Productus mesolobus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 630.
 Carboniferous: Feilden Isthmus, latitude 82° 43'.

Productus mexicanus Shumard.

1858. *Productus Mexicanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 291.
 White Permian L. S.: Guadalupe Mountains.
1859. *Productus Mexicanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.
 White Permian L. S.: Guadalupe Mountains.
1877. *Productus Mexicanus?* White, U. S. Geog. Surv., W. 100 Merid., vol. 4, p. 120, pl. 8, figs. 6a-c.
 Carboniferous: Camp Cottonwood, old Mormon road, Lincoln County, Nevada; near Salt Lake, New Mexico.

Productus morbillianus Winchell.

1865. *Producta morbilliana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 113.
 Base of Burlington L. S.: Burlington, Iowa.
1870. *Producta morbilliana*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 250.
 Waverly Group; Sciotoville, Ohio.

Productus multistriatus Meek.

1860. *Productus multistriatus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 309.
 Upper Carboniferous?: East side of Long Valley, latitude, 39° 57'; longitude, 115° 10'.
1876. *Productus multistriatus*. Meek, Simpson's Expl. Gt. Basin, Utah, p. 350, pl. 1, figs. 8a, b.
 Yellow L. S. (Upper Carboniferous?): Long Valley.
1876. *Productus multistriatus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
 Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Productus multistriatus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 76, pl. 8, figs. 3-3e.
 Carboniferous L. S.: Near center of the eastern margin of Nevada; Ruby Group and Mahogany Peak, Egan Range.

Productus muricatus Norwood and Pratten.

1855. *Productus muricatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 14, pl. 1, figs. 8a-e.
 Coal Measures: Fish-hook Creek, Pike County, Illinois; 6 miles northwest of Richmond, Missouri.
1857. *Productus muricatus*. Cox, Geol. Rep. Ky., vol. 3, p. 573, pl. 9, fig. 6.
 Coal Measures: Union County, Illinois; Lewisport, Hancock County, Kentucky; Gallatin County, Illinois.
1876. *Productus muricatus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
 Lower Aubrey Group: Near Echo Park, Utah.
1877. *Productus muricatus*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 120, pl. 8, figs. 4a-c.
 Carboniferous: Rock Creek, Lake County, Colorado.
1887. *Productus muricatus*. Herrick, Bull. Den. Univ., vol. 2, p. 49.
 Coal Measures: Flint Ridge, Ohio.
1888. *Productus muricatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 228.
 Lower Coal Measures: Des Moines, Iowa.

Productus nanus Meek and Worthen.

1860. *Productus nanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 450.
Lower Coal Measures: Jefferson County, Iowa.
1866. *Productus nanus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 320, pl. 26,
figs. 4a-d.
Lower Coal Measures: Jefferson County, Iowa.
1888. *Productus nanus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 227.
Lower Coal Measures: Des Moines, Iowa.

Productus nebrascensis Owen.

1852. *Productus nebrascensis*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. 594,
tab. 5, fig. 3.
Carboniferous L. S.: Bellevue, Missouri River, Nebraska.
1855. *Productus Rogersi*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
vol. 3, p. 9, pl. 1, figs. 3a-c.
Coal Measures: Near Huntsville, Missouri.
1855. *Productus Nebrascensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil.
(2), vol. 3, p. 21.
Coal Measures; Crossing of Big Nemaha, Nebraska Territory.
1856. *Productus rogersi*. Hall, Pac. R. R. Rep., vol. 3, p. 104, pl. 2, figs. 14, 15.
Carboniferous L. S.: Pecos Village, New Mexico.
1859. *Productus Rogersi*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Upper Coal Measures: Kansas River Valley, below mouth of Blue River,
Kansas.
1860. *Productus asperus*. McChesney, Desc. New Pal. Foss., p. 34.
Coal Measures: Lasalle and Springfield, Illinois.
1861. *Productus Rogersi*. Newberry, Ives's Colo. Expl. Exped., p. 121.
Coal Measures: Pecos Village and Kansas.
1865. *Productus asper*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 7a-b.
1866. *Strophalosia horrescens*. Geinitz, Carb. und Dyas in Nebr., p. 49.
Bellevue, Plattsmouth, Nebraska City, and Bennett's Mill, Nebraska.
1868. *Productus nebrascensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1,
p. 24, pl. 1, figs. 7a, b.
Coal Measures: Lasalle and Springfield, Illinois.
1872. *Productus Nebrascensis*. Meek, U. S. Geol. Surv. Nebr., p. 165, pl. 2, fig. 2;
pl. 4, fig. 6; pl. 5, figs. 11a-c.
Upper Coal Measures: Nebraska City, Wyoming, Bennett's Mill, Rock
Bluff, Plattsmouth, Bellevue, and Omaha, Nebraska.
Coal Measures: Illinois; Missouri; Iowa; Kansas; New Mexico.
1873. *Productus Nebrascensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 569,
pl. 25, fig. 8.
Coal Measures: Sangamon and Lasalle counties, Illinois.
1876. *Productus Nebrascensis*. White, Powell's Rep. Geol. Unit. Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers.
1877. *Productus Nebrascensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4,
p. 116, pl. 8, figs. 3a-d.
Carboniferous: Camp Apache and Carrizo Creek, Maricopa County, Ari-
zona; Rubyville, Schell Creek range, and top of Grass Mountain, Ely
range, Nevada; Meadow Creek, south of Fillmore, Utah.
1883. *Productus aspersus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 5-7.
Coal Measures: Lasalle, Illinois.
1884. *Productus Nebrascensis*. White, 13th Rep. Geol. Surv. Ind., p. 122, pl. 24,
figs. 7-9.
Coal Measures: Fountain, Vermilion, Parke, and Vigo counties, Indiana.
1886. *Productus Nebrascensis*? Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885,
p. 453, fig. 4c; p. 440, figs. 4-4b.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Productus nebrascensis Owen—Continued.

1886. *Productus Nebrascensis*? Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 268, figs. 4, 4b.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Productus Nebrascensis*. Herrick, Bull. Den. Univ., vol. 2, p. 49, pl. 2, fig. 30.
Coal Measures: Flint Ridge, Ohio.
1888. *Productus Nebrascensis* (?). Herrick, Bull. Den. Univ., vol. 3, p. 31, pl. 1, fig. 24; pl. 3, figs. 25 (?), 25a.
Waverly Group: Licking County, Ohio.
1892. *Productus Nebrascensis*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 7.
Coal Measures: Lasalle, Illinois.
1892. *Productus Nebrascensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 19, figs. 5-7.
Coal Measures: Lasalle, Illinois.
1894. *Productus nebrascensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 48, pl. 37, figs. 3a-c.
Upper Coal Measures: Kansas City, Missouri.

Productus nevadensis Meek.

1877. *Productus Nevadensis*. Meek, U. S. Geol. Surv. 40 Par., vol. 4, p. 64, pl. 8, figs. 2-2e.
Carboniferous: West side of Buell Valley; Summit Spring Pass; Ruby Valley; White Pine Mountains, Nevada.

Productus newberryi Hall.

1857. *Productus newberryi*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 180.
Chemung S. S.: Medina County, Ohio.
1883. *Productella Newberryi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 1-3.
Waverly Group: Medina and Newark, Ohio.
1888. *Productus newberryi*. Herrick, Bull. Den. Univ., vol. 4, p. 20, pl. 10, figs. 24, 35.
Waverly Group: Bagdad, Weymouth, Medina, Lodi, Burbank, and Cuyahoga Falls, Ohio.
1892. *Productus Newberryi*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 8.
Waverly S. S.: Medina, Ohio.
1892. *Productus Newberryi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 1-3.
Waverly S. S.: Medina and Newark, Ohio.

Productus newberryi var. annosus Herrick.

1888. *Productus (newberryi var. ?) annosus*. Herrick, Bull. Den. Univ., vol. 4, p. 20, pl. 3, fig. 17.
Waverly Group: Alexandria, Ohio.
1895. *Productus newberryi var. annosus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 13.
Cuyahoga Shale: Licking County, Ohio.

Productus nodocostatus Herrick.

1888. *Productus nodocostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 23, pl. 3, fig. 10.
Waverly Group: Rushville, Ohio.

Productus nodosus Newberry.

1861. *Productus nodosus*. Newberry, Ives's Colo. Expl. Exped., p. 124, pl. 1, figs. 7-7b.
Carboniferous L. S.: Santa Fe, New Mexico.
1876. *Productus nodosus*. Newberry, U. S. Expl. Exped. from Santa Fe to Grand and Green rivers, p. 140, pl. 3, figs. 3-3d.
Upper Coal Measures: New Mexico and Utah.

Productus norwoodii Swallow.

1858. *Productus (Strophalosia?) Norwoodii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 182.
Lower Permian: Valley of Cottonwood, Kansas.
1859. *Productus Norwoodii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.
Dark Permian L. S.: Guadalupe Mountains.
1859. *Productus Norwoodii*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 25.
Upper Coal Measures: Fort Riley and Leavenworth, Kansas.

Productus occidentalis Newberry.

1861. *Productus occidentalis*. Newberry, Ives's Colo. Expl. Exped., p. 122, pl. 2, figs. 9, 10.
Upper Carboniferous (Cherty L. S.): Banks of Cascade River, near junction of Great and Little Colorado.

Productus ovatus Hall.

1858. *Productus ovatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 674, pl. 24, fig. 1.
St. Louis L. S.: Ottumwa and Keosauqua, Iowa; St. Louis, Missouri.
1883. *Productus ovatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, fig. 19.
Keokuk L. S.: New Providence, Indiana.
1892. *Productus ovatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, fig. 19.
Keokuk L. S.: New Providence, Indiana.
1894. *Productus ovatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 44.
St. Louis L. S.: St. Louis, Missouri.

Productus parvulus Winchell.

1863. *Producta parvula*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.
Yellow S. S.: Burlington, Iowa.

Productus parvus Meek and Worthen.

1860. *Productus parvus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 450.
Chester L. S.: Chester, Illinois.
1866. *Productus parvus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 297, pl. 23, figs. 4a-c.
Chester Group: Chester, Illinois.
1874. *Productus Parvus*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Productus parvus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 83, pl. 5, figs. 6a, b.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1888. *Productus parvus*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 11.
Chester L. S.: Ohio.

Productus pectenoides Say.

1823. *Productus pectenoides*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 150.
(footnote.)
Missouri River, 5 miles below Council Bluffs.
1897. *Productus pectenoides*. Harris, Bull. Am. Pal., vol. 1, p. 384 (114).

Productus pertenuis Meek.

1866. *Productus Cancrini*. Geinitz, Carb. und Dyas in Nebr., p. 54, tab. 4, fig. 6.
(Not *P. cancrini* deKon., 1843.)
Nebraska City, Nebraska.
1872. *Productus pertenuis*. Meek, U. S. Geol. Surv. Nebr., p. 164, pl. 1, figs. 14a-c; pl. 8, figs. 9a-d.
Upper Coal Measures: Nebraska City and Brownville, Nebraska; Grasshopper Creek, 12 miles west of Leavenworth and at Atchison, Kansas.

Productus phillipsi Norwood and Pratten.

1855. *Productus Phillipsi*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 8, pl. 1, figs. 2a-c.

Mountain L. S.: "Big Canyon" of Humboldt River, Utah Territory.

Productus pileiformis McChesney.

1859. *Productus pileiformis*. McChesney, Desc. New Pal. Foss., p. 40.

Kaskaskia L. S.: Chester, Illinois.

1891. *Productus pileiformis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 582, pl. 13, figs. 13, 14.

Maxville L. S.: Ohio.

1895. *Productus pileiformis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 470, pl. 9, figs. 13, 14.

Maxville L. S.: Ohio.

Productus pileolus Shumard.

1858. *Productus pileolus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 291.

White Permian L. S.: Guadalupe Mountains.

1859. *Productus pileolus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.

White Permian L. S.: Guadalupe Mountains.

Productus pocillum Morton.

1836. *Productus pocillum*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 2, fig. 2.

Coal Measures: Ohio Valley.

Productus popei Shumard.

1858. *Productus Popei*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 290.

Permian: New Mexico and Texas.

1859. *Productus Popei*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389, pl. 11, fig. 8.

White Permian L. S.: Guadalupe Mountains.

Productus portlockianus. See *Productus costatus*.**Productus prattenianus**. See *Productus cora*.**Productus punctatus** Martin.

1836. *Productus punctatus?* Morton, Am. Jour. Sci. (1), vol. 29, p. 153, pl. 26, fig. 38.

Coal Measures: Ohio Valley.

1838. *Producta semipunctata*. Shepard, Am. Jour. Sci. (1), vol. 34, p. 153, fig. 9.

Limestone: Peru, Illinois.

1847. *Productus punctatus*. DeKoninck, Monog. du Gen. Prod. et Chon., p. 123, pl. 12, figs. 2a-k.

Carboniferous: Zanesville, Ohio; Eddyville and Louisville, Kentucky.

1854. *Productus punctatus*. Shumard, Marcy's Expl. Red River of Louis., p. 175, pl. 1, fig. 5; pl. 2, fig. 1.

Carboniferous: Washington County, Arkansas.

1855. *Productus punctatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 19.

Mountain L. S.: Warsaw, Illinois.

Coal Measures: 12 miles northwest of Richmond, Missouri; near Caseyville, Illinois.

1858. *Productus punctatus*. Marcou, Geol. N. A., p. 48, pl. 6, fig. 2.

Mountain L. S.: Tigras, Pecos Village, and in the Sierra de Mogoyon, New Mexico.

1860. *Productus tubulospinus*. McChesney, Desc. New Pal. Foss., p. 37.

Coal Measures: Western States.

1865. *Productus tubulospinus*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 10, 11.

1868. *Productus punctatus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 27, pl. 1, figs. 10, 11.

Upper and Lower Coal Measures: Throughout the Western States.

Productus punctatus Martin—Continued.

1872. *Productus punctatus*. Meek, U. S. Geol. Surv. Nebr., p. 169, pl. 2, fig. 6, pl. 4, fig. 5.
Upper Coal Measures: Nebraska City, Bennett's Mill, Wyoming, Rock Bluff, Plattsmouth and Bellevue, Nebraska; Illinois; Iowa; Missouri.
Lower Coal Measures: Missouri; Iowa; Illinois.
Lower Carboniferous: Missouri; Iowa; Illinois.
1873. *Productus Punctatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 569, pl. 25, fig. 13.
Upper and Lower Coal Measures: Illinois.
1876. *Productus punctatus*. White, Powell's Rep. Geol. Uinta Mts., p. 89.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Productus punctatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 114, pl. 7, figs. 2a-c.
Carboniferous: At and near top of Grass Mountain, Ely Range, 35 miles north of Pioche, Nevada.
1878. *Productus* sp. allied to *P. punctatus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 630.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1882. *Productus punctatus*. White, 11th Rep. Geol. Surv. Ind., p. 373, pl. 42, figs. 1-3.
Coal Measures: Newport, Indiana.
1883. *Productus punctatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 14-16.
1883. *Productus Rogersi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 17, 18.
Coal Measures.
1884. *Productus punctatus*. White, 13th Rep. Geol. Surv. Ind., p. 124, pl. 27, figs. 1-3.
Coal Measures: Vermilion, Vigo, Sullivan, Vanderberg, Dubois, Warrick, and Pike counties, Indiana.
1887. *Productus punctatus*. Herrick, Bull. Den. Univ., vol. 2, p. 48, pl. 2, fig. 29.
Coal Measures: Flint Ridge, Ohio.
1892. *Productus punctatus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, figs. 9, 10.
Coal Measures: Mississippi Valley.
1892. *Productus punctatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, fig. 21; pl. 19, figs. 14-17.
Upper Coal Measures: Near Kansas City, Missouri; Missouri.
1894. *Productus punctatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 51, pl. 37, figs. 1a-c.
Upper Coal Measures: Kansas City, Missouri.
1897. *Productus punctatus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 29, pl. 22, fig. 7.
Lower Coal Measures: Conway County, Arkansas.

Productus pustulosus Phillips.

1858. *Productus pustulosus*. Marcou, Geol. N. A., p. 48, pl. 6, fig. 1.
Mountain L. S.: Tigras, New Mexico.
1859. *Productus pustulosus* (?). Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 26.
Coal Measures: Leavenworth, Kansas.

Productus pyxidatus. See *Productella pyxidata*.

Productus pyxidiformis DeKoninck.

1858. *Productus pyxidiformis*. Marcou, Geol. N. A., p. 48, pl. 6, figs. 3, 3a.
Mountain L. S.: Tigras, New Mexico.

Productus raricostatus Herrick.

1888. *Productus (Productella) lachrymosus* var. *stigmarius*. Herrick, Bull. Den. Univ., vol. 3, p. 34, pl. 3, fig. 28. (Not. *P. lachrymosus* var. *stigmata* Hall, 1867.)

Waverly Group: Licking County, Ohio.

1888. *Productus raricostatus*. Herrick, Bull. Den. Univ., vol. 4, p. 19, pl. 3, fig. 19. Waverly Group: Moot's Run, Licking County, Ohio.

1895. *Productus raricostatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 9. Cuyahoga Shale: Moot's Run, Licking County, Ohio.

Productus rogersi. See *Productus punctatus* and *Productus nebrascensis*.

Productus rushvillensis Herrick.

1888. *Productus rushvillensis*. Herrick, Bull. Den. Univ., vol. 4, p. 22, pl. 3, fig. 15. Waverly Group: Rushville, Newark, and Loudonville, Ohio.

1895. *Productus rushvillensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 15. One hundred feet above Conglomerate II (Waverly Group): Rushville, Newark, and Loudonville, Ohio.

Productus scabriculus Martin.

1855. *Productus scabriculus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 17.

Coal Measures.

1858. *Productus scabriculus*. Marcou, Geol. N. A., p. 47, pl. 5, figs. 6, 6a.

Mountain L. S.: Pecos Village and on summit of Sierra de Sandia.

1861. *Productus scabriculus*. Newberry, Ives's Colo. Expl. Exped., p. 125. Upper Carboniferous: Near Santa Fé, New Mexico.

Productus scitulus Meek and Worthen.

1860. *Productus scitulus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 451. St. Louis L. S.: Alton, Illinois.

1866. *Productus scitulus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 280, pl. 20, figs. 5a-d.

St. Louis L. S.: Alton, Illinois.

Productus semipunctatus. See *Productus punctatus*.

Productus semireticulatus Martin.

1847. *Productus semireticulatus*. De Koninck, Monog. du Gen. Prod. et Chon., p. 83, pl. 8, figs. 1a-h; pl. 9, figs. 1a-m; pl. 10, figs. 1a-d.

Carboniferous: Harrisville, Bagdad, Cuyahoga, Zanesville, Flint Ridge, Greensburg, and Antrim, Ohio; near Louisville, Kentucky; near St. Louis and St. Charles, Missouri; Leavenworth, on the Missouri River; Long Creek, Crawfordsville, and near New Harmony, Indiana; Sparta, Illinois; Bolivia, South America.

1855. *Productus semireticulatus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 11.

Mountain L. S.: Western States.

1855. *Productus Semireticulatus* var. *Frigidus*. Salter, Belcher's "Last of the Arctic Voyages," p. 388, pl. 36, figs. 13, 14.

Carboniferous: Depot Point.

1856. *Productus semireticulatus*. Hall, Pac. R. R. Rep., vol. 3, p. 103, pl. 2, figs. 16, 17.

Carboniferous: Pecos Village, New Mexico.

1858. *Productus semi-reticulatus*. Marcou, Geol. N. A., p. 46, pl. 5, figs. 4, 4a; pl. 6, fig. 6.

Mountain L. S.: Sierra Madre, Sierra de Mogoyon, Pecos Village, Tigras in the Canyon of San Antonio, Sierra de Sandia, Great Salt Lake, sources of Rio Colorado Chiquito in the Sierra Blanca; El Paso, State of Chihuahua; junction of Rio San Pedro with Rio Gila, Arizona Territory; Vancouver Island.

Productus semireticulatus Martin—Continued.

1858. *Productus semireticulatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 292.
White Permian L. S.: Guadalupe Mountains.
1859. *Productus semireticulatus* var. *antiquatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 389.
White Permian L. S.: Guadalupe Mountains.
1861. *Productus semireticulatus*. Newberry, Ives's Colo. Expl. Exped., p. 124.
Upper Carboniferous: Cherty L. S., near junction of Great and Little Colorado rivers; Pecos Village.
1863. *Productus semireticulatus*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 174, pl. 9, figs. 20, 21.
Lower Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, East River, Debert River, Minudie, Pugwash, near Amherst, Boulardarie, Cape Breton, Horton Bluff, Grays River, etc., Nova Scotia.
1864. *Productus semireticulatus*. Meek, Pal. Cal., vol. 1, p. 11, pl. 2, figs. 4, 4a.
Carboniferous: Bass's Ranch, Shasta County, California.
1865. *Producta semireticulata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 115.
Marshall Group: Weymouth, Medina County, Ohio; Orange, Cuyahoga County, Ohio.
1868. *Productus semireticulatus*. Dawson, Acad. Geol., p. 296, pl. 97a, b.
Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, East River, Debert River, Minudie, Pugwash, near Amherst, Boulardarie, Cape Breton, Horton Bluff, Gays River, etc., Nova Scotia.
1869. *Producta semireticulata*. Winchell, Safford's Geol. of Tenn., p. 442.
Immediately above Black Shale: Manchester, Cannon County, Tennessee.
1870. *Producta semireticulata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 249.
Waverly Group: Newark, Sciotoville, Rockville, and Vinton County, Ohio; near Shafer's, Venango County, Pennsylvania.
1872. *Productus semireticulatus*. Meek, U. S. Geol. Surv. Nebr., p. 160, pl. 5, figs. 7a, b.
Upper Coal Measures: Nebraska City, 2½ miles west of Nebraska City, Bennett's Mill, Wyoming, Cedar Bluff, Rock Bluff, Bellevue, Omaha, Plattsmouth, Brownville, Peru, and Aspinwall, Nebraska.
Upper and Lower Coal Measures: Iowa; Illinois; Kansas; Missouri; New Mexico.
1874. *Productus semireticulatus*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 47, pl. 4, fig. 8; pl. 6, fig. 18; pl. 7, figs. 5-7, 15, 16.
Coal Measures: Bomjardim and Itaituba, Brazil.
1876. *Productus semireticulatus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Productus semireticulatus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 69, pl. 7, fig. 5.
Carboniferous: Railroad Canyon, Diamond Mountains; Fossil Hill, White Pine Mountains, Nevada.
1877. *Productus semireticulatus*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 267, pl. 5, figs. 5, 6.
Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.
1877. *Productus semireticulatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 111, pl. 8, figs. 1a-c.
Carboniferous: Near Bear Spring, Camp Wingate, and near Santa Fé, New Mexico; Camp Cottonwood, Old Mormon road, Lincoln County, and top of Grass Mountain, Ely range, 35 miles north of Pioche, Nevada; head of Partridge Creek; near Bill Williams's Mountain; Tenney's Ranch; Kaibab Plateau; head of Dry Fork, and Kanab Canyon (Aubrey L. S.), Arizona; crest of Hurricane Hill, near Toquerville, and Meadow Creek, south of Fillmore, Utah.

Productus semireticulatus Martin—Continued.

1878. *Productus semireticulatus*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.
Carboniferous: Feilden Isthmus, latitude $82^{\circ} 43'$.
1883. *Productus semireticulatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (19) 50, figs. 19–23.
Coal Measures: Brazil, South America.
1884. *Productus semireticulatus*. White, 13th Rep. Geol. Surv. Ind., p. 125, pl. 24, figs. 1–3.
Coal Measures: Indiana.
1888. *Productus semireticulatus*. Herrick, Bull. Den. Univ., vol. 3, p. 31, pl. 1, fig. 26; pl. 6, fig. 11; pl. 10, figs. 6, 6a.
Waverly Group: Licking County, Ohio.
1892. *Productus semireticulatus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 2.
Coal Measures: Newcastle, Ohio.
1892. *Productus semireticulatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 16–18; pl. 19, figs. 19–23.
Coal Measures: Perry County and Newcastle, Ohio; Itaituba, Brazil,
1894. *Productus semireticulatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 50, pl. 36, figs. 4a–c.
Upper Coal Measures: Creighton and Calhoun, Missouri.
1897. *Productus semireticulatus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 30.
Lower Coal Measures: White County, Arkansas.
Marshall Shale: Stone County, Arkansas.
Fayetteville Shale: Searcy County, Arkansas.
Boone Chert: Searcy County, Arkansas.

See also *Productus cora* and *Productus setigerus*.

Productus semireticulatus var. *antiquatus*. See *Productus semireticulatus*.

Productus semistriatus Meek.

1860. *Productus semistriatus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 309.
Coal measures: Timpanogos Canyon, latitude $40^{\circ} 22'$, longitude $111^{\circ} 38'$.
1876. *Productus semistriatus*. Meek, Simpson's Expl. Gt. Basin, Utah, p. 349, pl. 1, figs. 7a, b.
Coal Measures: Timpanogos Canyon.
1877. *Productus semistriatus*. Meek, U. S. Geol. Expl. 40 Par., p. 74, pl. 7, figs. 8, 8a.
Carboniferous L. S.: Southeast of Great Salt Lake, Utah.

Productus setigerus Hall.

1858. *Productus setigerus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 638, pl. 19, fig. 3.
Keokuk L. S.: Keokuk, Iowa.
1858. *Productus setigerus*? var. *keokuk*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 639, pl. 19, figs. 4b, c.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1858. *Productus semireticulatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 637, pl. 19, fig. 4a.
Keokuk L. S.: Keokuk, Iowa.
1883. *Productus semireticulatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 11–13.
Keokuk L. S.: Warsaw, Illinois.
1892. *Productus semireticulatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 11–13.
Keokuk Group: Warsaw, Illinois.

Productus shumardianus. See *Productella shumardana*.

Productus speciosus. See *Productella speciosa*.

Productus spinosus Say.

1823. *Productus spinosus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 106 (footnote).

From Fort Osage.

1897. *Productus spinosus*. Harris, Bull. Am. Pal., vol. 1, p. 379 (109).

Productus spinulicostus. See *Productella spinulicosta*.

Productus splendens. See *Productus longispinus*.

Productus subaculeatus. See *Productella subaculeata*.

Productus subhorridus Meek.

1877. *Productus subhorridus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 75, pl. 7, figs. 3-3b.

Carboniferous L. S.: Wasatch Mountains; Hamilton Butte, Ruby Group; Mahogany Peak, Egan Mountains and north slope of Moleen Peak, Elko Range, west side of Long Valley, Ruby Group.

Productus subserratus Say.

1823. *Productus subserratus*. Say, Long's Exped. to Rocky Mts., vol. 1, p. 147 (footnote).

Missouri River, 5 miles below Council Bluffs.

1897. *Productus subserratus*. Harris, Bull. Am. Pal., vol. 1, p. 381 (111).

Productus swallowi Beecher.

1863. *Koninckina Americana*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 94. (Not *Productus americanus* Swallow.)

Third Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.

1890. *Productus Swallowi*. Beecher, Am. Jour. Sci. (3), vol. 40, p. 215.

Productus symmetricus McChesney.

1860. *Productus symmetricus*. McChesney, Desc. New Pal. Foss., p. 35.

Upper Coal Measures: Lasalle and Springfield, Illinois.

1865. *Productus symmetricus*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 9a-b.

1868. *Productus symmetricus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 25, pl. 1, figs. 9a, b.

Upper Coal Measures L. S.; Lasalle and Springfield, Illinois.

1872. *Productus symmetricus*. Meek, U. S. Geol. Surv. Nebr., p. 167, pl. 5, figs. 6a, b; pl. 8, fig. 13.

Upper Coal Measures: Nebraska City, Bennett's Mill, Peru, and Bellevue, Nebraska; Kansas; Iowa; Missouri; Illinois.

Lower Coal Measures: Illinois.

1884. *Productus symmetricus*. White, 13th Rep. Geol. Surv. Ind., p. 123, pl. 25, figs. 1, 2.

Coal Measures: Vermilion, Vigo, Sullivan, Vanderburg, Dubois, Warrick, and Pike counties, Indiana.

1892. *Productus symmetricus*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 22, fig. 4.

Upper Coal Measures: Near Kansas City, Missouri.

1892. *Productus symmetricus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 19, 20.

Upper Coal Measures: Near Kansas City, Missouri.

1894. *Productus symmetricus*. Keyes, Mo. Geol. Surv., vol. 5, p. 48, pl. 36, figs. 2a, b.

Upper Coal Measures: Kansas City, Missouri.

Productus tenuicostus Hall.

1858. *Productus tenuicostus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 675, pl. 24, figs. 2a-d. St. Louis L. S.: Milan, Illinois.

Productus tenuicostus Hall—Continued.

1883. *Productus tenuicostus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, fig. 18.
 1892. *Productus tenuicostatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, fig. 18.
 St. Louis, L. S.: Milan, Illinois.
 1894. *Productus tenuicostus*. Keyes, Mo. Geol. Surv., vol. 5, p. 44.
 St. Louis L. S.: St. Louis, Missouri.

Productus tubulospinus. See Productus punctatus.**Productus undiferus De Koninck.**

1855. *Productus undiferus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 9.
 Coal Measures: Caseyville and Posey County, Indiana.

Productus villiersi D'Orbigny.

1847. *Productus villiersi*. De Koninck, Monog. du Gen. Prod. et Chon., p. 109, pl. 11, figs. 1a-c.
 Carboniferous L. S.: Bolivia, South America.
 1855. *Productus Villiersi*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 17.
 Keg Creek, Missouri.

Productus viminalis White.

1862. *Productus viminalis*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 29.
 Upper Burlington L. S.: Burlington, Iowa.

Productus vittatus Hall.

1858. *Productus vittatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 639.
 Keokuk L. S.: Keokuk, Iowa; Warsaw and Nauvoo, Illinois.
 1883. *Productus vittatus*. Hall, Rep. N. Y. State Geol. for 1882, pl. (18) 49, figs. 15-17.
 Keokuk L. S.: Near Keokuk, Iowa.
 1892. *Productus vittatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 18, figs. 15-17.
 Keokuk Group: Near Keokuk, Iowa.
 1894. *Productus vittatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 43.
 Keokuk L. S.: Trenton, Missouri; Keokuk, Iowa.

Productus wabashensis Norwood and Pratten.

1855. *Productus Wabashensis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 13, pl. 1, figs. 6a-d.
 Coal Measures: Near New Harmony, Indiana.

Productus weyprechtii Toul.

1878. *Productus Weyprechti?* Etheridge, Quart. Jour. Geol. Soc. Lond, vol. 34, p. 631.
 Carboniferous: Cape Joseph Henry, latitude 82° 50'.

Productus wilberanus McChesney.

1860. *Productus wilberanus*. McChesney, Desc. New Pal. Foss., p. 36.
 Coal Measures: Charbonier, Missouri.
 1865. *Productus wilberanus*. McChesney, Ill. New Spec. Foss., pl. 1, fig. 8.
 1868. *Productus Wilberanus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 26, pl. 1, fig. 8.
 Coal Measures: Charbonier, Missouri.

Productus wortheni Hall.

1858. *Productus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 635, pl. 19, figs. 1a-b.
 Keokuk L. S.: Nauvoo, Illinois.

Productus (species undetermined).

1852. *Productus*—(sp. indet.). Hall, Stansb. Exped. Gt. Salt Lake, p. 411, pl. 3, fig. 4.
Carboniferous: Missouri River, near Weston.
1868. *Productus*. Rogers, Geol. Rep. Penn., vol. 2, p. 833, fig. 687.
1875. *Productus* (undetermined sp.). Meek, Pal. Ohio, vol. 2, p. 282, pl. 10, figs. 4a-d.
Waverly Group: Sciotoville, Ohio.
1875. *Productus* (undetermined sp.). Meek, Pal. Ohio, vol. 2, p. 283, pl. 10, fig. 3.
Waverly Group: Sciotoville, Ohio.
1877. *Productus* — (?). Whiteaves, Geol. Surv. Canada, Rep. of Prog., 1875-76, p. 101.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1887. *Productus* sp. small individual. Herrick, Bull. Den. Univ., vol. 2, pl. 1, fig. 24.
Coal Measures: Flint Ridge, Ohio.
1887. *Productus* sp. Herrick, Bull. Den. Univ., vol. 2, pl. 2, fig. 31.
Coal Measures: Flint Ridge, Ohio.
1888. *Productus*. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 26.
Waverly Group: Licking County, Ohio.

PRÆTUS Steininger, 1830.

Prætus auriculatus Hall. See *Prætus missouriensis*.

Prætus doris Hall.

1860. *Prætus doris*. Hall, 13th Ann. Rep. N. Y. State Cab. Nat. Hist., p. 112.
Goniatite L. S.: Rockford, Indiana.
1865. *Phillipsia Doris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.
Goniatite L. S.: Rockford, Indiana.
1870. *Phillipsia Doris*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 260.
Waverly Group: Rockville, Ohio.
1887. *Phillipsia doris*. Herrick, Bull. Den. Univ., vol. 2, p. 62.
1887. *Phillipsia doris*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 90.
Goniatite L. S.: Rockford, Indiana.

Prætus ellipticus Meek and Worthen.

1865. *Prætus ellipticus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 267.
Kinderhook Group: Jersey County, Illinois.
1868. *Prætus ellipticus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 460, pl. 14, fig. 8.
Kinderhook Group: Jersey County, Illinois.
1887. *Prætus ellipticus*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 82, pl. 3, fig. 3.
Kinderhook Group: Jersey County, Illinois.

Prætus granulatus Wetherby. See *Griffithides granulatus*.

Prætus loganensis Hall and Whitfield.

1877. *Prætus Loganensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 264, pl. 4, fig. 33.
Waverly Group: Logan Canyon, Wahsatch Range, Utah.
1887. *Prætus loganensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 78.
Waverly Group: Logan Canyon, Wahsatch Range, Utah.

Prætus longicaudus Hall.

1862. *Prætus longicaudus*. Hall, 15th Rep. N. Y. State Cab. Nat. Hist., p. 108.
Hamilton? Iowa.
- *1876. *Prætus longicaudus*. Hall, Ill. Devonian Foss., pl. 20, figs. 32-34.

Proetus longicaudus Hall—Continued.

1881. *Proetus longicaudus*. Williams, Am. Jour. Sci. (3), vol. 21, p. 156.
Upper Carboniferous: Near Madison, Greenwood County, Kansas.
1888. *Proetus* (?) *longicaudus*. Hall and Clarke, Pal. N. Y., vol. 7, p. 131, pl. 20,
figs. 32-34.
? Carboniferous.

Proetus minutus Herrick.

1888. *Proetus minutus*. Herrick, Bull. Den. Univ., vol. 4, p. 56, pl. 1, figs. 7a, b.
Waverly Group: Moot's Run, Licking County, Ohio.
1889. *Proetus minutus*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 7.
1895. *Proetus minutus*. Herrick, Geol. Surv.-Ohio, vol. 7, pl. 14, fig. 7.
Waverly Group: Moot's Run, Licking County, Ohio.

Proetus missouriensis Shumard.

1855. *Proetus Missouriensis*. Shumard, 1st and 2d Geol. Rep. Mo., p. 196, pl. B,
figs. 13a, b.
Lithographic L. S.: Hannibal, Louisiana, and Chouteau Springs, Missouri.
1862. *Proetus auriculatus*. Hall, 15th Rep. N. Y. State Cab. Nat. Hist., p. 107.
Chemung S. S.: Licking County, Ohio.
1865. *Proetus Missouriensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 133.
1887. *Phillipsia shumardi*. Herrick, Bull. Den. Univ., vol. 2, pp. 58 and 69,
pl. 7, fig. 14.
Waverly Group: Granville, Ohio.
1887. *Proetus missouriensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 75, pl. 3,
fig. 1.
Lithographic L. S.: Hannibal, Louisiana, and Chouteau Springs, Missouri.
Waverly Group: Granville, Ohio.
1888. *Proetus Missouriensis*. Hall and Clarke, Pal. N. Y., vol. 7, p. 133, pl. 23,
fig. 32.
Lithographic L. S.: Missouri.
Waverly Group: Licking County, Ohio.
1888. *Phillipsia shumardi*. Herrick, Bull. Den. Univ., vol. 3, p. 29, pl. 2, fig. 22;
pl. 3, fig. 32.
Middle Waverly Freestone: Licking County, Ohio.
1888. *Phillipsia* (*Proetus*) *auriculatus*. Herrick, Bull. Den. Univ., vol. 4, p. 54,
pl. 1, fig. 14.
Waverly Group: Ohio.
1889. *Proetus* (*Phillipsia*) *auriculatus*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 14.
1894. *Proetus missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 233.
Louisiana (Lithographic) L. S.: Hannibal, Louisiana, and Chouteau
Springs, Missouri.
1895. *Proetus auriculatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, figs. 14, 15.
Waverly Group: Near Granville and Newark, Ohio.

Proetus peroccidens Hall and Whitfield.

1877. *Proetus peroccidens*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4,
p. 262, pl. 4, figs. 28-32.
Waverly Group: Ogden and Logan Canyons, Wahsatch Range, and Dry
Canyon, Oquirrh Mountains, Utah.
1887. *Proetus peroccidens*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 79.
Waverly Group: Ogden, Logan Canyon, Wahsatch Range, and Dry Can-
yon, Oquirrh Mountains, Utah.

Proetus ? placidus Vogdes.

1896. *Proetus ? placidus*. Vogdes, Cal. Acad. Sci. (2), vol. 6, p. 198, fig.
Chouteau L. S.: Sedalia and Providence, Missouri.

Proetus præcursor Herrick. See *Phillipsia præcursor*.

Proetus swallovi Shumard.

1855. *Proetus Swallovi*. Shumard, 1st and 2d Geol. Rep. Mo., p. 196, pl. B, figs. 12a, b.
Lithographic L. S.: Chouteau Springs, Cooper County, and Moniteau County, Missouri.
1887. *Phillipsia swallovi*. Herrick, Bull. Den. Univ., vol. 2, p. 58, pl. 5, fig. 11.
Chemung Group: Chouteau Springs, Cooper County, Missouri.
1894. *Proetus swallovi*. Keyes, Mo. Geol. Surv., vol. 4, p. 234.
Louisiana (Lithographic) L. S.: Chouteau Springs, Missouri.

Proetus tennesseensis Winchell.

1869. *Phillipsia Tennesseeensis*. Winchell, Safford's Geol. Tenn., p. 445.
Shales just above black shale: Hickman and Maury counties, Tennessee.
1870. *Phillipsia Tennesseeensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 259.
Waverly Group: Hickman and Maury counties, Tennessee.
1887. *Proetus tennesseensis*. Vogdes, Ann. N. Y. Acad. Sci., vol. 4, p. 80.
Waverly Series: Hickman County, Tennessee.

Proetus trinucleatus. See *Phillipsia trinucleata*.**Proetus** (species undetermined).

1888. *Proetus* (*Phillipsia*) sp. close to *P. auriculatus*. Herrick, Bull. Den. Univ., vol. 4, pl. 1, fig. 13.
Waverly Group: Ohio.
1888. *Proetus* (?) (cf. *haldemani*). Herrick, Bull. Den. Univ., vol. 4, p. 55, pl. 1, fig. 12.
Waverly Group: 1 mile east of Harlem, Licking County, Ohio.
1889. *Proetus* (*Phillipsia*) sp. close to *P. auriculatus*. Herrick, Am. Geol., vol. 3, pl. 1, fig. 13.
1889. *Proetus* (*haldemani*?) Herrick, Am. Geol., vol. 3, pl. 1, fig. 12.
1895. *Proetus* sp. ? (perhaps *haldemani*). Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 12.
Near base of Waverly Group: 1 mile east of Harlem, Licking County, Ohio.
1895. *Proetus* (?). Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 13.
Upper Waverly Group: Ohio.

PROGONOBLATTINA Scudder, 1879.**Progonoblattina columbiana** Scudder.

1895. *Progonoblattina columbiana*. Scudder, Bull. U. S. Geol. Surv., No. 124, p. 131, pl. 11, fig. 9.
Lower Coal Measures: Mazon Creek, Illinois.

PROMACRUS Meek, 1871.**Promacrus andrewsi** Meek.

1871. *Sanguinolites* (*Promacrus*) *Andrewsi*. Meek, Am. Jour. Conch., vol. 7, p. 7.
Waverly S. S.: Sciotoville, Ohio.
1875. *Promacrus Andrewsi*. Meek, Pal. Ohio, vol. 2, p. 308, pl. 17, figs. 1a, b.
Waverly Group: Sciotoville, Ohio.

Promacrus cuneatus Hall.

- * 1870. *Pholadella cuneata*. Hall, Prelim. Not. Lamell. 2, p. 66.
Yellow S. S.: Burlington, Iowa.
1885. *Promacrus cuneatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 510, pl. 78, fig. 28.
Yellow S. S.: Burlington, Iowa.

Promacrus missouriensis Swallow.

1860. *Solen* (?) *Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 655.
Pike County, Missouri.
1871. *Sanguinolites* (*Promacrus*) *Missouriensis*. Meek, Am. Jour. Conch., vol. 7,
p. 6, pl. 1, fig. 2.
Chouteau L. S.: Pike County, Missouri.

Promacrus nasutus Meek.

1871. *Sanguinolites* (*Promacrus*) *nasutus*. Meek, Am. Jour. Conch., vol. 7, p. 6,
pl. 1, fig. 1.
Chouteau L. S.: Chouteau Springs, Missouri.

Promacrus truncatus Herrick.

1888. *Promacra* (?) *truncatus*. Herrick, Bull. Den. Univ., vol. 3, p. 60, pl. 3, fig. 30.
Waverly Group: Licking County, Ohio.

PROMYLACRIS Scudder, 1885.**Promylacris harei** Scudder.

1895. *Promylacris harei*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 48, pl. 2,
fig. 3.
Upper Coal Measures: Kansas City, Missouri.

Promylacris ovalis Scudder.

1885. *Promylacris ovale*. Scudder, Proc. Acad. Nat. Sci. Phil., p. 34.
Carboniferous: Mazon Creek, Illinois.
1890. *Promylacris ovalis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 403,
pl. 31, figs. 1-4.
Carboniferous: Mazon Creek, Illinois.
1890. *Promylacris ovalis*. Scudder, Foss. Insc. N. A., vol. 1, p. 380, pl. 23, figs. 1-4.
Carboniferous: Mazon Creek, Illinois.
1895. *Promylacris ovalis*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 50.
Lower Coal Measures: Mazon Creek, Illinois.

Promylacris rigida Scudder.

1890. *Promylacris rigida*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 403,
pl. 31, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Promylacris rigida*. Scudder, Foss. Insc. N. A., vol. 1, p. 380, pl. 23, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1895. *Promylacris rigida*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 50, pl. 3,
fig. 1.
Lower Coal Measures: Braidwood, Illinois.

Promylacris testudo Scudder.

1890. *Promylacris testudo*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 403,
pl. 32, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1890. *Promylacris testudo*. Scudder, Foss. Insc. N. A., vol. 1, p. 379, pl. 24, fig. 6.
Carboniferous: Mazon Creek, Illinois.
1895. *Promylacris testudo*. Scudder, Bull. U. S. Geol. Surv. No. 124, p. 49, pl. 2,
fig. 2.
Lower Coal Measures: Mazon Creek, Illinois.

PRONORITES Mojsisovics, 1882.**Pronorites cyclolobus** var. *arkansiensis* Smith.

1897. *Pronorites cyclolobus* var. *arkansiensis*. Smith, Proc. Am. Phil. Soc., vol. 35,
p. 57, pl. 24, figs. 1-4.
Lower Coal Measures: Pilot Mountain, Carroll County, Arkansas.

Pronorites (species undetermined).

1897. *Pronorites* sp. indet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 60, pl. 20, fig. 2.

Upper Coal Measures: Scott County, Arkansas.

PROPTETICUS Scudder, 1885.**Propteticus infernus** Scudder.

1885. *Propteticus infernus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 3, p. 334, pl. 31, figs. 3, 4.

Carboniferous: Near Georgetown, Vermilion County, Illinois.

1890. *Propteticus infernus*. Scudder, Foss. Insc. N. A., vol. 1, p. 298, pl. 17, figs. 3, 4.

Carboniferous: Near Georgetown, Vermilion County, Illinois.

(PROTASTER Forbes, 1849.)

Protaster barrisi. See *Onychaster barrisi*.

Protaster gregarius. See *Aganaster gregarius*.

PROTHYRIS Meek, 1869.**Prothyris elegans** Meek.

1871. *Prothyris elegans*. Meek, Am. Jour. Conch., vol. 7, p. 8, pl. 1, fig. 3.
Coal Measures: Nebraska City, Nebraska; Ohio; Illinois; Michigan.
1872. *Prothyris elegans*. Meek, U. S. Geol. Surv. Nebr., p. 223, pl. 10, figs. 9a, b.
Upper Coal Measures: Nebraska City, Nebraska.
1887. *Prothyris* (cf. *elegans*). Herrick, Bull. Den. Univ., vol. 2, p. 32, pl. 4, fig. 3.
Coal Measures: Flint Ridge, Ohio.

Prothyris meeki Winchell, MS.

1875. *Prothyris meeki*. Winchell, Pal. Ohio, vol. 2, p. 305, pl. 15, fig. 2.
Waverly Group: Rushville, Ohio.
1888. *Prothyris meeki*. Herrick, Bull. Den. Univ., vol. 3, p. 66, pl. 8, fig. 7.
Waverly Group: Licking County, Ohio.
1888. *Prothyris meeki*. Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 2.
Waverly Group: Gann, Ohio.
1889. *Prothyris meeki*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 2.
1895. *Prothyris meeki*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 2.
Kinderhook: Ohio.

PROUTELLA Ulrich, 1890.**Proutella discoidea** Prout.

1860. *Cyclopora discoidea*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 578.
Keokuk L. S.: Warsaw, Illinois.
1866. *Cyclopora discoidea*. Prout, Geol. Surv. Ill., vol. 2, p. 420, pl. 22, fig. 10.
Keokuk Group: Warsaw, Illinois.
1890. *Proutella discoidea*. Ulrich, Geol. Surv. Ill., vol. 8, p. 674, pl. 69, figs. 4-4d.
Keokuk Group, Warsaw, Hamilton, and Nauvoo, Illinois; Keokuk, Iowa.
1894. *Proutella discoidea*. Keyes, Mo. Geol. Surv., vol. 5, p. 37.
Keokuk L. S.: Keokuk, Iowa.

PSEUDOMONOTIS Beyrich, 1862.**Pseudomonotis hawni** Meek and Hayden.

1858. *Monotis Hawni*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 76.
Permian: Near mouth of Smoky Hill Fork of Kansas River and Helena, Kansas.

Pseudomonotis hawni Meek and Hayden—Continued.

1859. *Monotis Hawni*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: South of Kansas Falls, Smoky Hill River, and Cottonwood Creek, Kansas.
1864. *Eumicrotis Hawni*. Meek and Hayden, Pal. Up. Mo., p. 54, pl. 2, figs. 5a-c.
Permian: Near mouth of Smoky Hill Fork of Kansas River, and between there and Council Grove; also on Cottonwood Creek, Kansas.
1884. *Eumicrotis Hawni*. White, 13th Rep. Geol. Surv. Ind., p. 142, pl. 30, fig. 10.
Upper Coal Measures: Indiana.
1886. *Eumicrotis Hawni*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. 1885, p. 455.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Eumicrotis Hawni*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 271.
Mill Creek, L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

Pseudomonotis hawni var. ovata Meek and Hayden.

1864. *Eumicrotis Hawni* var. *ovata*. Meek and Hayden, Pal. Up. Mo., p. 55, pl. 2, figs. 5a, b.
Permian: Near Cottonwood Creek, south of the Santa F6 Road, Kansas.

Pseudomonotis hawni var. sinuata Meek and Worthen.

1866. *Eumicrotis Hawni* var. *sinuata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 338, pl. 27, figs. 12-12b, 13, 14.
Upper Coal Measures: Bridge of north branch of Saline River, Gallatin County, Illinois.

Pseudomonotis radialis Phillips.

1858. *Monotis radialis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 187.
Upper Permian: Smoky Hill Fork, Kansas.
1866. *Avicula speluncaria*. Geinitz, Carb. und Dyas, in Nebr., p. 28, tab. 2, fig. 12.
Nebraska City, Nebraska; Council Grove, Kansas.
1872. *Pseudomonotis radialis*? Meek, U. S. Geol. Surv. Nebr., p. 201, pl. 9, fig. 3.
Upper Coal Measures: Nebraska City, Nebraska.
1887. Cf. *Pseudomonotis radialis*. Herrick, Bull. Den. Univ., vol. 2, p. 145, pl. 14, fig. 26.
Coal Measures: Flint Ridge, Ohio.

Pseudomonotis (species undetermined).

1872. *Pseudomonotis* sp. Meek, U. S. Geol. Surv. Nebr., p. 200, pl. 2, fig. 11.
Upper Coal Measures: Cedar Bluff and Rock Bluff, Nebraska.

(PTERIA Scopoli, 1777.)

Pteria morganensis. See *Avicula morganensis*.**PTERINEA Goldfuss, 1826.****Pterinea cardinata Winchell.**

1862. *Pterinea cardinata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 412.
Marshall S. S.: Pointe Aux Barques, Michigan.

Pterinea crenistriata Winchell.

1862. *Cardiopsis crenistriata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 417.
Marshall Group: Columbia, Michigan.
1865. *Pterinea crenistriata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 124.

Pterinea gibbosa. See *Monopteria gibbosa*.**Pterinea newarkensis Meek.**

1871. *Pterinea (Pteronites?) newarkensis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 162.
Waverly Group: Newark, Ohio.

***Pterinea pintoensis* Walcott.**

1884. *Pterinea Pintoensis*. Walcott, Pal. Eureka Dist., p. 234, pl. 19, fig. 10.
Lower Carboniferous: Eureka District, Nevada.

***Pterinea spinalata* Winchell.**

1863. *Avicula acanthoptera*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 8. (Not *A. acanthoptera* Hall, 1843.)
Yellow S. S.: Burlington, Iowa.
1865. *Pterinea spinulata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 124.

***Pterinea strigosa* White.**

1862. *Gervillia strigosa*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 31.
Chemung Group: Burlington, Iowa.

***Pterinea undulata* Meek and Worthen.**

1868. *Pterinea? undulata*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 456, pl. 14, fig. 5.
Kinderhook Group: Burlington, Iowa; ? Kinderhook, Illinois.

PTERINOPECTEN Hall, 1883.***Pterinopecten ashlandensis* Herrick.**

1888. *Pterinopecten* (?) *ashlandensis*. Herrick, Bull. Den. Univ., vol. 4, p. 33, pl. 11, fig. 4.
Waverly Group: Lyon Falls, Ashland County, Ohio.
1895. *Pterinopecten ashlandensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 22.
Cuyahoga Shale: Near Ashland, Ohio.

***Pterinopecten cariniferus* Herrick.**

1888. *Pterinopecten cariniferus*. Herrick, Bull. Den. Univ., vol. 3, p. 58, pl. 12, figs. 8, 9, 42.
Waverly Group: Licking County, Ohio.
1888. *Pterinopecten cariniferus*. Herrick, Bull. Den. Univ., vol. 4, p. 33, pl. 5, fig. 12.
Waverly Group: Ashland County and Lodi, Ohio.
1889. *Pterinopecten cariniferus*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 12.
1895. *Pterinopecten cariniferus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 16; pl. 24, fig. 24.
Cuyahoga Shale: Moot's Run, Ohio.

***Pterinopecten hoosacensis* Walcott.**

1884. *Pterinopecten Hoosacensis*. Walcott, Pal. Eureka Dist., p. 232, pl. 8, fig. 9.
Lower Carboniferous: Eureka District, Nevada.

***Pterinopecten lætus* Hall.**

1884. *Pterinopecten lætus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 63, pl. 1, fig. 13.
Marcellus Shale: Bloomfield, Ontario County, New York.
1888. *Pterinopecten lætus*. Herrick, Bull. Den. Univ., vol. 4, p. 114, pl. 5, fig. 13.
Waverly Group: Moot's Run, Licking County, Ohio.
1889. *Pterinopecten lætus*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 13.
1895. *Pterinopecten lætus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 15.
Cuyahoga Shale: Moot's Run, Ohio.

***Pterinopecten sedaliensis* Miller.**

1891. *Pterinopecten sedaliensis*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 93, pl. 20, figs. 8, 9.
Chouteau L. S.: Sedalia, Missouri.
1892. *Pterinopecten sedaliensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 703, pl. 20, figs. 8, 9.
Chouteau L. S.: Sedalia, Missouri.

Pterinopecten spio Walcott.

1884. *Pterinopecten Spio*. Walcott, Pal. Eureka Dist., p. 233, pl. 8, figs. 1, 1a.
Lower Carboniferous: Eureka District, Nevada.

Pterinopecten (species undetermined).

1888. *Pterinopecten* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 12.
Bedford Shale: Central College, Ohio.
1889. *Pterinopecten* sp. Herrick, Am. Geol., vol. 3, pl. 4, fig. 12.
Bedford Shale: Ohio.
1895. *Pterinopecten* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 12.
Shale above Berea Grit: Ohio.

PTERONITES McCoy, 1884.**Pteronites gayensis** Dawson.

1868. *Pteronites Gayensis*. Dawson, Acad. Geol., p. 301, fig. 101.
Carboniferous L. S.: Gay's River, Nova Scotia.

Pteronites gayensis var. *ornatus* Dawson.

1883. *Pteronites Gayensis* (var. *ornatus*). Dawson, Rep. Peter Redpath Mus., No. 2, p. 14.
Lower Carboniferous L. S.: Port-au-Port, Newfoundland.

Pteronites hopkinsi Weller.

1897. *Pteronites hopkinsi*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 261, pl. 13, fig. 10.
Batesville S. S.: Batesville, Arkansas.

Pteronites lævis Weller.

1897. *Pteronites lævis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 262, pl. 19, figs. 11, 12.
Batesville S. S.: Batesville, Arkansas.

Pteronites obliquus Herrick.

1888. *Pteronites (Leptodesma)? obliquus*. Herrick, Bull. Den. Univ., vol. 3, p. 58, pl. 4, fig. 20; pl. 7, fig. 7.
Waverly Group: Licking County, Ohio.

Pteronites spergenensis Whitfield.

1882. *Pteronites Spergenensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 56, pl. 7, fig. 1.
St. Louis Group: Spergen Hill, Indiana.
1883. *Pteronites Spergenensis*. Hall, 12th Rep. Geol. Surv. Ind., pl. 30, fig. 1.
St. Louis Group: Spergen Hill, Indiana.

PTEROTOCRINUS Lyon and Casseday, 1860.**Pterotocrinus acutus** Wetherby.

1879. *Pterotocrinus acutus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 134, pl. 11, fig. 2.
Kaskaskia Group: Pulaski County, Kentucky.
1879. *Pterotocrinus spatulatus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 137, pl. 11, fig. 3.
Kaskaskia Group: Pulaski County, Kentucky.
1897. *Pterotocrinus acutus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 799, pl. 79, figs. 3a-g.
Kaskaskia Group: Sloan's Valley, Pulaski County, Kentucky.

Pterotocrinus acutus var. bifurcatus Wetherby.

1879. *Pterotocrinus bifurcatus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 136, pl. 11, fig. 1.

Kaskaskia Group: Pulaski County, Kentucky.

1897. *Pterotocrinus acutus* var. *bifurcatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 801, pl. 79, figs. 9a, b.

Kaskaskia Group: Sloan's Valley, Pulaski County, Kentucky.

Pterotocrinus bifurcatus. See *Pterotocrinus acutus* var. *bifurcatus*.**Pterotocrinus capitalis** Lyon.

1875. *Asterocrinus capitalis*. Lyon, Geol. Rep. Ky., vol. 3, p. 472, pl. 3, figs. 1-1k. Lower calcareous beds of Millstone Grit: Crittenden County, Kentucky.

1897. *Pterotocrinus capitalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 794, pl. 79, figs. 6a, b.

Kaskaskia Group: Crittenden County, Kentucky.

Pterotocrinus chesterensis Meek and Worthen.

1860. *Dichocrinus* (*Pterotocrinus*) *Chesterensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 383.

Chester L. S.: Chester, Illinois.

1866. *Pterotocrinus chesterensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 292, pl. 23, figs. 1a-c.

Chester Group: Hardin County, Illinois.

1894. *Pterotocrinus chesterensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 206.

Kaskaskia L. S.: Chester, Illinois.

1897. *Pterotocrinus chesterensis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 802, pl. 79, figs. 5a, b.

Kaskaskia Group: Hardin County, Illinois.

Pterotocrinus coronarius Lyon.

1857. *Asterocrinus* (?) *coronarius*. Lyon, Geol. Rep. Ky., vol. 3, p. 476, pl. 1, figs. 1, 1a.

Lower calcareous beds of Millstone Grit: Crittenden County, Kentucky.

1897. *Pterotocrinus coronarius*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 795, pl. 79, figs. 7a, b.

Kaskaskia Group: Crittenden County, Kentucky.

Pterotocrinus crassus Meek and Worthen.

1860. *Dichocrinus* (*Pterotocrinus*) *crassus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 382.

Chester L. S.: Hardin County, Illinois.

1866. *Pterotocrinus crassus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 290, pl. 23, figs. 2a, b.

Chester Group: Hardin County, Illinois.

1897. *Pterotocrinus crassus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 801, pl. 79, fig. 8.

Kaskaskia Group: Hardin County, Illinois.

Pterotocrinus depressus Lyon and Caseday.

1860. *Pterotocrinus depressus*. Lyon and Caseday, Am. Jour. Sci. (2), vol. 29, p. 68.

Millstone Grit: Grayson Springs, Kentucky, and Dr. Baker's furnace, Edmonson County, Kentucky.

1873. *Pterotocrinus depressus*? Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 599, pl. 21, fig. 13.

Chester Group: Kaskaskia, Illinois.

1897. *Pterotocrinus depressus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 796, pl. 79, figs. 2a-e.

Kaskaskia Group: Grayson, Edmonson, and Pulaski counties, Kentucky.

Pterotocrinus protuberans Hall.

1858. *Dichocrinus protuberans*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 689, pl. 25, fig. 7.
Kaskaskia L. S.: Chester, Illinois.

Pterotocrinus pyramidalis Lyon and Casseday.

1860. *Pterotocrinus pyramidalis*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 69.
Third L. S. of Millstone Grit Series: Edmonson, Grayson, and Breckinridge counties, Kentucky.
1897. *Pterotocrinus pyramidalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 798, pl. 79, figs. 4a, b.
Kaskaskia Group: Edmonson, Grayson, and Breckinridge counties, Kentucky; Morton County, Indiana.

Pterotocrinus rugosus Lyon and Casseday.

1860. *Pterotocrinus rugosus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 71.
Lowest Siliceous mud bed: Falls of Rough Creek, Breckinridge County, Kentucky.

Pterotocrinus spatulatus*. See *Pterotocrinus acutus*.*Pterotocrinus wetherbyi Miller and Gurley.**

1895. *Pterotocrinus wetherbyi*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 44, pl. 4, figs. 6-9.
Kaskaskia Group: Pulaski County, Kentucky.

PTILODICTYA Lonsdale, 1839.***Ptilodictya carbonaria* Meek. See *Cystodictya carbonaria*.*****Ptilodictya dictyota* Meek.**

1873. *Ptilodictya* (*Stictopora*?) *dictyota*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 465.
Carboniferous: Outlet of Mystic Lake, Montana.

Ptilodictya sereata* Meek. See *Prismopora sereata*.**Ptilodictya triangulata*. See *Prismopora triangulata*.****PTILOPORA McCoy, 1844.*****Ptilopora acuta* Ulrich.**

1890. *Ptilopora acuta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 622, pl. 65, figs. 4, 4a.
Keokuk Group: Bentonsport and Keokuk, Iowa.
Burlington Group: Burlington, Iowa.
1894. *Ptilopora acuta*. Keyes, Mo. Geol. Surv., vol. 5, p. 31.
Keokuk L. S.: Keokuk, Iowa.

***Ptilopora cylindracea* Ulrich.**

1890. *Ptilopora cylindracea*. Ulrich, Geol. Surv. Ill., vol. 8, p. 623, pl. 66, figs. 2-2b.
Keokuk Group: King's Mountain, Kentucky; Bentonsport, Iowa.
1894. *Ptilopora cylindracea*. Keyes, Mo. Geol. Surv., vol. 5, p. 32.
Keokuk L. S.: Bentonsport, Iowa.

***Ptilopora paupera* Ulrich.**

1888. *Ptilopora paupera*. Ulrich, Bull. Den. Univ., vol. 4, p. 74.
Waverly Group: Lodi, Ohio.
1890. *Ptilopora paupera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 624, pl. 66, fig. 10.
Keokuk Group: King's Mountain, Kentucky.

Ptilopora prouti Hall.

1858. *Ptilopora prouti*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 653, pl. 22, figs. 6a-c, 7.
Warsaw L. S.: Warsaw, Illinois.
1890. *Ptilopora prouti*. Ulrich, Geol. Surv. Ill., vol. 8, p. 625, pl. 65, figs. 3-3c.
Warsaw Beds: Monroe County and Warsaw, Illinois; near New Providence, Indiana.
St. Louis Group: Barrett's Station, Missouri.
1894. *Ptilopora prouti*. Keyes, Mo. Geol. Surv., vol. 5, p. 32.
St. Louis L. S.: Barrett's Station, Missouri.

Ptilopora valida Ulrich.

1890. *Ptilopora valida*. Ulrich, Geol. Surv. Ill., vol. 8, p. 623, pl. 65, figs. 5-5c;
pl. 66, figs. 1-1b.
Keokuk Group: Bentonsport and Keokuk, Iowa; Jersey County, Illinois.
1894. *Ptilopora valida*. Keyes, Mo. Geol. Surv., vol. 5, p. 32.
Keokuk L. S.: Bentonsport, Iowa.

PTYCHOPTERIA Hall, 1884.**Ptychopteria protoforme Walcott.**

1884. *Ptychopteria protoforme*. Walcott, Pal. Eureka Dist., p. 235, pl. 8, fig. 5.
Lower Carboniferous: Eureka District, Nevada.

PTYCHOSPIRA Hall, 1893.**Ptychospira plicata Miller.**

1892. *Retzia plicata*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 62, pl. 9,
figs. 29-31.
Chouteau L. S.: Sedalia, Missouri.
1894. *Retzia plicata*. Miller, 18th Rep. Geol. Surv. Ind., p. 316, pl. 9, figs. 29-31.
Chouteau L. S.: Sedalia, Missouri.

Ptychospira sexplicata White and Whitfield.

1862. *Retzia sexplicata*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8,
p. 294.
Chemung Group: Burlington, Iowa.
1894. *Ptychospira sexplicata*. Hall and Clarke, Int. to Study of Brach., pt. 2,
pl. 36, figs. 22, 23.
Kinderhook Group: Illinois.
1895. *Ptychospira* (cf.) *sexplicata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 50,
figs. 13, 14.
Burlington L. S.: Burlington, Iowa.
1895. *Ptychospira sex-plicata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 83,
fig. 28.
Kinderhook Group: Burlington, Iowa.

PTYCHOSTYLUS Gurley, 1884.**Ptychostylus heterocostalis Gurley.**

1884. *Ptychostylus heterocostalis*. Gurley, New Carb. Foss., Bull. No. 2, p. 5.
Upper Coal Measures: Kansas City, Missouri.

Ptychostylus subtumidus Gurley.

1884. *Ptychostylus subtumidus*. Gurley, New Carb. Foss., Bull. No. 2, p. 6.
Kinderhook Shales: Pike County, Missouri.

(PUGIUNCULUS Barrande, 1847.)

Pugiunculus aculeatus Hall. See *Hyalithes aculeatus*.

PUGNAX Hall, 1893.

Pugnax dawsonianus Davidson.

1863. *Rhynchonella Dawsoniana*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 172, pl. 9, figs. 13, 14.

Lower Carboniferous L. S.: Lennox Passage, Nova Scotia.

1868. *Rhynchonella Dawsoniana*. Dawson, Acad. Geol., p. 294, figs. 93a, b.

Carboniferous L. S.: Lennox Passage, Nova Scotia.

1895. *Pugnax (?) Dawsonianus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 62, figs. 30-33.

Carboniferous L. S.: Windsor, Nova Scotia.

Pugnax eatoniaeformis. See *Pugnax rockymontana*.

Pugnax explanatus. See *Camarophoria explanata*.

Pugnax globulina Phillips.

1863. *Camarophoria? globulina?* Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 171, pl. 9, figs. 11, 12.

Lower Carboniferous L. S.: DeBert River, Nova Scotia.

1868. *Camarophoria (?) globulina (?)*. Dawson, Acad. Geol., p. 293, figs. 92a, b.

Carboniferous L. S.: DeBert River, Nova Scotia.

See also *Pugnax uta*.

Pugnax greenianus Ulrich.

1886. *Rhynchonella greeniana*. Ulrich, Cont. to Am. Pal., vol. 1, No. 1, p. 26, pl. 3, figs. 1-1d.

Knobstone Group: 3 miles west of New Albany, Indiana.

1895. *Pugnax Greenianus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 36-38.

Keokuk Group: New Albany, Indiana.

Pugnax grosvenori Hall.

1856. *Rhynchonella Grosvenori*. Hall, Trans. Albany Inst., vol. 4, p. 10.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1882. *Rhynchonella Grosvenori*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 53, pl. 6, figs. 31-34.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Rhynchonella grosvenori*. Hall, 12th Rep. Geol. Surv. Ind., p. 331, pl. 29, figs. 31-34.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1895. *Pugnax Grosvenori*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 13-17.

St. Louis Group: Spergen Hill, Indiana.

Pugnax missouriensis Shumard.

1855. *Rhynchonella Missouriensis*. Shumard, Geol. Rep. Mo., p. 204, pl. C, fig. 5a.

Chouteau L. S.: Vandever's Falls, Cooper County, and Providence, Boone County, Missouri.

1866. *Rhynchonella missouriensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 153, pl. 14, figs. 4a, b.

Goniatite Bed: Rockford, Indiana.

Kinderhook Group: Chouteau Springs, Missouri.

1894. *Rhynchonella missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 100.

Chouteau L. S.: Vandever Falls and Providence, Missouri.

1895. *Pugnax Missouriensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 33, 34; pl. 62, figs. 44, 45.

Chouteau L. S.: Pike County, Missouri.

Yellow Sandstone: Burlington, Iowa.

Pugnax mutatus Hall.

1856. *Rhynchonella mutata*. Hall, Trans. Albany Inst., vol. 4, p. 10.
St. Louis L. S.: Alton, Illinois.
1858. *Rhynchonella mutata*. Hall, Geol. Iowa., vol. 1, pt. 2, p. 658, pl. 23, figs. 2a, b.
Warsaw L. S.: Near Alton, Illinois.
1882. *Rhynchonella mutata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 52,
pl. 6, figs. 43-45.
St. Louis Group: Alton, Illinois.
Keokuk L. S.: Warsaw, Illinois.
1883. *Rhynchonella mutata*. Hall, 12th Rep. Geol. Surv. Ind., p. 332, pl. 29,
figs. 43-45.
St. Louis Group: Spergen Hill and Lanesville, Indiana.
1894. *Rhynchonella mutata*. Keyes, Mo. Geol. Surv., vol. 5, p. 103.
Keokuk L. S.: Boonville, Missouri.
1895. *Pugnax mutatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 18-22.
St. Louis Group: Spergen Hill, Indiana.
1897. *Rhynchonella mutata*? Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 257, pl. 18,
figs. 13-15.
Batesville S. S.: Batesville, Arkansas.

Pugnax ottumwa White.

1862. *Rhynchonella Ottumwa*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 23.
St. Louis L. S.: Ottumwa and near Oskaloosa, Iowa.
1880. *Rhynchonella ottumwa*. White, Cont. to Inv. Pal., No. 8, p. 165, pl. 41,
figs. 5a-c.
St. Louis Group: Ottumwa, Iowa, and various localities in Iowa, Illinois,
and Missouri.
1894. *Rhynchonella ottumwa*. Keyes, Mo. Geol. Surv., vol. 5, p. 103.
St. Louis L. S.: St. Francisville, Missouri.
1895. *Pugnax Ottumwa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 23-26.
St. Louis Group: Pella, Iowa.

Pugnax pugnus Martin.

1863. *Rhynchonella pugnus*? Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19,
p. 173.
Lower Carboniferous L. S.: Windsor and East River, Nova Scotia.
1868. *Rhynchonella pugnus* (?). Dawson Acad. Geol., p. 295.
Carboniferous L. S.: Windsor and East River, Nova Scotia.

Pugnax rockymontana Marcou.

1858. *Terebratula rocky-montana*. Marcou, Geol. N. A., p. 50, pl. 6, figs. 13-13c.
Mountain L. S.: Pecos Village, New Mexico.
1860. *Rhynchonella eatoniiformis*. McChesney, Desc. New Pal. Foss., p. 49.
Coal Measures: Graysville, Illinois; Big Creek L. S., Indiana.
1877. *Rhynchonella Rockymontana*. White, U. S. Geog. Surv. W. 100 Merid., vol.
4, p. 131, pl. 9, figs. 1a-d.
Carboniferous: Near Beckwith Spring, Cedar Range, Utah.
1895. *Pugnax eatoniiformis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60,
figs. 11, 12.
Coal Measures: Graysville, Illinois.

Pugnax striaticostata Meek and Worthen.

1855. *Rhynchonella Missouriensis*. Shumard, Geol. Rep. Mo., p. 204, pl. C, figs.
5b, c. (Not fig. 5a.)
Chouteau L. S.: Vandever's Falls, Cooper County, and Providence, Boone
County, Missouri.
1868. *Rhynchonella striatocostata*. Meek and Worthen, Geol. Surv. Ill., vol. 3,
p. 452.

Pugnax striaticostata Meek and Worthen—Continued.

1868. *Rhynchonella Missouriensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 450, pl. 14, figs. 7a-d.
Kinderhook Group: Kinderhook, Pike County, Illinois.
1870. *Rhynchonella Missouriensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 253.
Waverly Group: Sciotoville, Ohio.

Pugnax swallowiana Shumard.

1859. *Camerophoria swallowiana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 394, pl. 11, figs. 1a-e.
White Permian L. S.: Guadalupe Mountains.
1895. *Pugnax swallowiana*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 27-32.
Upper Coal Measures: Manhattan, Kansas.

Pugnax uta Marcou.

1852. *Terebratula pugnus*. Roemer, Kreid. von Texas, p. 89.
Carboniferous: San Saba Valley, Texas.
1858. *Terebratula uta*. Marcou, Geol. N. A., p. 51, pl. 6, figs. 12-12c.
Mountain L. S.: Near Salt Lake City, Utah.
1858. *Rhynchonella (Camerophoria) Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 219.
Upper Coal Measures: Missouri and Kansas.
1859. *Rhynchonella uta*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.
Upper Coal Measures: Manhattan, Kansas.
1861. *Rhynchonella uta*. Newberry, Ives's Colo. Expl. Exped., p. 128.
Upper Carboniferous: Near mouth of Little Colorado River.
1866. *Camarophoria globulina*. Geinitz, Carb. und Dyas in Nebr., p. 38, taf. 3, fig. 5.
Bennett's Mill and Nebraska City, Nebraska.
1872. *Rhynchonella Osagensis*. Meek, U. S. Geol. Surv. Nebr., p. 179, pl. 1, figs. 9a, b; pl. 6, figs. 2a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Iowa; Missouri; Kansas.
Upper, Middle, and Lower Coal Measures: Illinois.
1873. *Rhynchonella Osagensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 571, pl. 26, fig. 22.
Coal Measures: Danville, Illinois, and Fulton County, Illinois.
1877. *Rhynchonella Uta*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 128, pl. 9, figs. 2a-c.
Carboniferous: North fork of Lewiston Canyon, Oquirrh range, and at Meadow Creek, south of Fillmore, Utah.
1884. *Rhynchonella uta*. White, 13th Rep. Geol. Surv. Ind., p. 132, pl. 25, fig. 6.
Coal Measures: Indiana.
1891. *Rhynchonella uta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 247.
Lower Coal Measures: Des Moines, Iowa.
1894. *Rhynchonella uta*. Keyes, Mo. Geol. Surv., vol. 5, p. 103, pl. 41, fig. 7.
Upper Coal Measures: Kansas City and Lexington, Missouri.
1894. *Pugnax uta*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 44, figs. 17-19.
Coal Measures: Manhattan, Kansas.
1895. *Pugnax Uta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 39-42.
Coal Measures: Manhattan, Kansas.
1897. *Rhynchonella uta*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 30.
Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain, Indian Territory.

Pugnax (species undetermined).

1895. *Pugnax* sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 60, figs. 46-48.
Coal Measures: Graham County, Texas.

PUPA Humphrey, 1797.**Pupa bigsbyi Dawson.**

1880. *Pupa Bigsbyi*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 410, figs. 5, 6.
Coal Measures: South Joggins, Nova Scotia.
1883. *Pupa bigsbyi*. White, 3d Ann. Rep. U. S. Geol. Surv., p. 456, pl. 2, figs. 9, 10.

Pupa vermilionensis Bradley.

1872. *Pupa Vermilionensis*. Bradley, Am. Jour. Sci. (3), vol. 4, p. 87, fig. 1.
Coal Measures: Petty's Ford of the Little Vermilion River, below Georgetown, Vermilion County, Illinois.
1880. *Pupa Vermilionensis*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 410, figs. 8, 9, 14c.
Coal Measures: Pelly's Fort, Vermilion River, Illinois.
1883. *Pupa vermilionensis*. White, 3d Am. Rep. U. S. Geol. Surv., p. 456, pl. 2, figs. 13, 14.

Pupa vetusta Dawson.

1860. *Pupa vetusta*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 16, p. 270, figs. 1-3.
Coal Formation: South Joggins, Nova Scotia.
1868. *Pupa Vetusta*. Dawson, Acad. Geol., p. 383, figs. 149a-d.
Coal Measures: Joggins, Nova Scotia.
1880. *Pupa vetusta*. Dawson, Am. Jour. Sci. (3) vol. 20, p. 405, figs. 1-4.
Coal Measures: Joggins, Nova Scotia.
1883. *Pupa vetusta*. White, 3d Ann. Rep., U. S. Geol. Surv., p. 456, pl. 2, figs. 1, 2.

Pupa vetusta var. tenuistriata Dawson.

1880. *Pupa vetusta* var. *tenuistriata*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 406.
Coal Measures: South Joggins, Nova Scotia.

RACHURA Scudder, 1878.**Rachura venosa Scudder.**

1878. *Rachura venosa*. Scudder, Proc. Bost. Soc. Nat. Hist., vol. 19, p. 299, pl. 9, figs. 3-3a.
Coal Measures: Vermilion County, Illinois.
1889. *Rachura venosa*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 212.
Coal Measures: Danville, Illinois.

RAMIPORA Toula, 1875.**Ramipora hochstetteri Toula.**

1875. *Ramipora Hochstetteri*. Toula, Neu. Jahrb., Jahrg. 1875, p. 230, taf. 10, figs. 1a, b.
Permo Carboniferous: Spitzbergen.
1878. *Ramipora Hochstetteri*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 627.
Carboniferous: Cape Joseph Henry, latitude 82° 50'.

REMELECERAS Hyatt, 1894.**Remeleceras clarkense Miller and Gurley.**

1897. *Remeleceras clarkense*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 49, pl. 4, figs. 1-3.
Knobstone Group: Sampson Springs, Clarke County, Indiana.

(RETEPORA Lamark, 1801.)

Retepora archimedes Owen. See *Archimedes archimedes*.

RETICULARIA McCoy, 1844.

Reticularia clara Swallow.

1863. *Spirifer clarus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 86.

Archimedes L. S.: Ste. Genevieve County, Missouri.

Reticularia cooperensis Swallow.

1860. *Spirifer Cooperensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 643.

Chouteau L. S.: Cooper County, Missouri.

1860. *Spirifer semiplicata*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 111.

Goniatic L. S.: Rockford, Indiana.

1862. *Spirifer hirtus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 293.

Chemung Group: Burlington, Iowa.

1865. *Spirifera hirta*? Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.

Bed No. 6: Burlington, Iowa.

1866. *Spirifer cooperensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 155, pl. 14, figs. 5a, b.

Kinderhook Group: Chouteau Springs, Missouri.

1869. *Spirifera hirta*? Winchell, Safford's Geol. of Tenn., p. 442.

Shale, just above Black Shale: Hickman and Maury counties, Tennessee.

1870. *Spirifera hirta*? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.

Waverly Group: Tennessee.

1888. *Spirifer*? *hirtus*? Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 3, fig. 2.

Waverly Group: Licking County, Ohio.

1888. *Spirifer hirtus*. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 20.

Waverly Group: Cuyahoga Falls, Ohio.

1894. *Spirifera cooperensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 78.

Chouteau L. S.: Chouteau Springs, Missouri.

1895. *Spirifer hirtus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 38, fig. 14.

Kinderhook Group: Illinois.

1895. *Spirifer* (cf.) *hirtus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 84, figs. 36, 37.

Waverly Group: Richfield, Ohio.

Reticularia guadalupensis Shumard.

1859. *Spirifer Guadalupensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391.

White Permian L. S.: Guadalupe Mountains.

Reticularia lineatoides Swallow.

1860. *Spirifer lineatoides*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 645.

Encrinital L. S.: Missouri.

1894. *Spirifera lineatoides*. Keyes, Mo. Geol. Surv., vol. 5, p. 80, pl. 40, fig. 6.

Burlington L. S.: Hannibal, Missouri.

Reticularia perplexa McChesney.

1856. *Spirifer lineatus*. Hall, Pac. R. R. Rep., vol. 3, p. 101, pl. 2 figs. 6-8. (Not *S. lineatus* Martin, 1809.)

Carboniferous: Pecos Village, New Mexico.

1858. *Spirifer lineatus*. Marcou, Geol. N. A., p. 50, pl. 7, figs. 5-5c.

Mountain L. S.: Pecos Village and Tigras, New Mexico.

1859. *Spirifer lineatus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.

Upper Coal Measures: Leavenworth, Kansas.

1860. *Spirifer perplexa*. McChesney, Desc. New Pal. Foss., p. 43.

Upper Coal Measures: Almost every part of the country where rocks of that age occur.

Reticularia perplexa McChesney—Continued.

1861. *Spirifer lineatus*. Newberry, Ives's Colo. Expl. Exped., p. 127.
Upper Carboniferous: Cherty L. S. west of Little Colorado River; vicinity of Santa Fe, New Mexico.
1864. *Spirifer lineatus*. Meek, Pal. Cal., vol. 1, p. 13, pl. 2, figs. 6-6d.
Carboniferous: Bass's Ranch, Shasta County, California.
1866. *Spirifer lineatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 408.
Coal Measures: Mississippi Valley.
1866. *Spirifer lineatus* var. *perplexa*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 408.
Coal Measures: Mississippi Valley.
1866. *Spirifer lineatus* var. *striato-lineatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 408.
Upper and Middle Coal Measures: Missouri.
1872. *Spirifer lineatus*? Meek, U. S. Geol. Surv. Nebr., pl. 2, figs. 3a, b.
Upper Coal Measures: Platte River, Nebraska.
1874. *Spirifera (Martinia) perplexa*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 16, pl. 3, figs. 27, 39, 40, 45, 50; pl. 8, fig. 13.
Coal Measures: Bomjardium and Itaituba, Brazil, and River Pichis, Peru.
1882. *Spirifer (Martinia) lineatus*. White, 11th Rep. Geol. Surv. Ind., p. 372, pl. 42, figs. 4-6.
Coal Measures: Eugene, Indiana.
1884. *Spirifer (Martinia) lineatus*. White, 13th Rep. Geol. Surv. Ind., p. 133, pl. 27, figs. 4-6.
Coal Measures: Fountain, Park, Vermilion, Vigo, Sullivan, Gibson, Pike, Knox, Posey, Vanderburg, and Warrick counties, Indiana.
1886. *Spirifer lineatus*? Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 453.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Spirifer lineatus*? Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 269.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Spirifera (Martinia) lineata*? Herrick, Bull. Den. Univ., vol. 2, p. 46, pl. 1, figs. 13a-c.
Coal Measures: Flint Ridge, Ohio.
1888. *Spirifera lineata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 230.
Lower Coal Measures: Des Moines, Iowa.
1891. *Spirifer (Martinia) lineata*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 603, pl. 16, figs. 3-5.
Coal Measures: Hocking County, Ohio.
1894. *Spirifera perplexa*. Keyes, Mo. Geol. Surv., vol. 5, p. 84.
Upper Coal Measures: Kansas City, Missouri.
1895. *Spirifera (Martinia) lineata*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 488, pl. 12, figs. 3-5.
Coal Measures: Hocking County, Ohio.
1895. *Spirifer lineatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 38, figs. 2, 4, 7, 8.
Coal Measures: Iowa.

Reticularia pseudolineata Hall.

1858. *Spirifer pseudolineatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 645, pl. 20, fig. 4.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1883. *Spirifera pseudolineata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (36) 61, figs. 28-30.
Keokuk L. S.: Keokuk, Iowa.
1891. *Spirifer pseudolineatus*? Herrick, Bull. Geol. Soc. Am., vol. 2, p. 45, pl. 1, fig. 18.
Upper Waverly Group: Scioto County, Ohio.

Reticularia pseudolineata Hall—Continued.

1894. *Spirifer pseudolineatus*. Hall and Clarke. Int. to Study of Brach., pt. 2, pl. 25, fig. 15.
Keokuk L. S.: Keokuk, Iowa.
1894. *Spirifera pseudolineata*. Keyes, Mo. Geol. Surv., vol. 5, p. 82.
Keokuk L. S.: St. Francisville, Missouri.
1895. *Spirifer pseudolineatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 36, figs. 28-30.
Keokuk L. S.: Keokuk, Iowa.

Reticularia setigera Hall.

1858. *Spirifer setigerus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 705, pl. 27, figs. 4a, b.
Kaskaskia L. S.: Kaskaskia and Chester, Illinois.
1877. *Spirifera setigera*. Hall and Whittfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 270, pl. 5, figs. 17, 18.
Lower Carboniferous L. S.: North of Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.
1883. *Spirifera setigera*. Hall, Rep. N. Y. State Geol. for 1882; pl. (36) 61, figs. 26, 27.
Chester L. S.: Chester, Illinois.
1894. *Spirifer setigerus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 36, figs. 26, 27.
Chester L. S.: Chester, Illinois.
1894. *Spirifera setigera*. Keyes, Mo. Geol. Surv., vol. 5, p. 83.
Kaskaskia, L. S.: Ste. Mary, Missouri.

Reticularia temeraria Miller.

1881. *Spirifera temeraria*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 314; pl. 7, figs. 9-9b.
Subcarboniferous: Lake Valley mining district, New Mexico.

Reticularia tenuispinata Herrick.

1888. *Spirifer (Martinia) tenuispinatus*. Herrick, Bull. Den. Univ., vol. 4, p. 27, pl. 2, fig. 4.
Waverly Group: Ohio.
1895. *Spirifer tenuispinatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 4.
Cuyahoga Shales: Moot's Run, Licking County, Ohio.

Reticularia translata Swallow.

1863. *Spirifer translatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 85.
Archimedes L. S.: Near Chester, Illinois, and Ste. Mary's, Missouri.

RETZIA King, 1850.

Retzia altirostris. See *Eumetria altirostris*.

Retzia circularis Miller.

1892. *Retzia circularis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 62, pl. 9, figs. 32-34.
Chouteau L. S.: Sedalia, Missouri.
1894. *Retzia circularis*. Miller, 18th Rep. Geol. Surv. Ind., p. 316, pl. 9, figs. 32-34.
Chouteau L. S.: Sedalia, Missouri.

Retzia compressa. See *Hustedia mormoni*.

Retzia meekana. See *Hustedia meekana*.

Retzia mormoni. See *Hustedia mormoni*.

Retzia osagensis. See *Acambona osagensis*.

Retzia papillata. See *Hustedia papillata*.

Retzia plicata. See *Ptychospira plicata*.

Retzia popeana Swallow.

1858. *Retzia* (?) *Popeana*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 654.

Retzia punctilifera. See *Hustedia mormoni*.

Retzia radialis. See *Hustedia mormoni*.

Retzia sexplicata. See *Ptychospira sexplicata*.

Retzia triangularis. See *Hustedia triangularis*.

Retzia subglobosa. See *Hustedia mormoni*.

Retzia vera. See *Eumetria marcyi*.

Retzia vera var. *costata*. See *Eumetria marcyi*.

Retzia verneuilana. See *Eumetria marcyi*.

Retzia woosteri. See *Eumetria woosteri*.

Retzia (species undetermined).

1888. *Retzia* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 2, figs. 12, 13.

Waverly Group: Licking County, Ohio.

RHAPHIDIOPSIS Scudder, 1893.**Rhaphidiopsis diversipenna** Scudder.

1893. *Rhaphidiopsis diversipenna*. Scudder, Bull. U. S. Geol. Surv., No. 101, p. 11, pl. 1, figs. c, d.

Carboniferous: Locknosett Mine in Cranston, Rhode Island.

RHIPIDOMELLA Ehlert, 1891.**Rhipidomella burlingtonensis** Hall.

1858. *Orthis michelini* var. *burlingtonensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 596, pl. 12, figs. 4a, b.

Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Hannibal, Missouri.

1874. *Orthis Michelini* var. *Burlingtonensis*? White, Prelim. Rep. Inv. Foss., p. 17.

Subcarboniferous: Below Ophir City, Utah.

1892. *Orthis Burlingtonensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6A, fig. 13.

Burlington L. S.: Sageville, Illinois.

1892. *Orthis (Rhipidomella) Burlingtonensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 20, figs. 5, 6.

Burlington L. S. (Chert): Pike County, Missouri.

1894. *Orthis burlingtonensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 63, pl. 38, fig. 7.

Kinderhook Group: Louisiana and Hannibal, Missouri; Burlington, Iowa.

Burlington L. S.: Sedalia, Ash Grove, Springfield, Hannibal, Louisiana, and Ste. Genevieve, Missouri.

Rhipidomella clarkensis Swallow.

1863. *Orthis Clarkensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 81.

Keokuk L. S.: Iowa and Missouri.

Rhipidomella dalyana Miller.

1881. *Orthis dalyana*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 313, pl. 7, figs. 8-8b.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Rhipidomella dubia Hall.

1856. *Orthis dubia*. Hall, Trans. Albany Inst., vol. 4, p. 12.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

Rhipidomella dubia Hall—Continued.

1863. *Orthis Cooperensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 82.
Warsaw L. S.: Cooper County and Barrett's Station, St. Louis County, Missouri.
1882. *Orthis dubia*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 45, pl. 6, figs. 1-5.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana, Alton, Illinois.
Keokuk L. S.: Keokuk and Augusta, Iowa; Appanoose, Illinois; near Boonville, Missouri.
1883. *Orthis dubia*. Hall, 12th Rep. Geol. Surv. Ind., p. 324, pl. 29, figs. 1-5.
St. Louis Group: Spergen Hill, Paynter's Hill, Lanesville, and Bloomington, Indiana.
1892. *Orthis dubia*. Hall and Clarke, Int. to Study of Brach., pt. 1, pl. 12, figs. 10-13.
St. Louis Group: Lebanon and Litchfield, Kentucky; Lanesville, Indiana.
1892. *Orthis dubia*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6A, figs. 18-22.
St. Louis Group: Lebanon, Kentucky; Lanesville, Indiana.
Chester L. S.: Litchfield, Kentucky.
1894. *Orthis dubia*. Keyes, Mo. Geol. Surv., vol. 5, p. 64.
St. Louis L. S.: Barrett, St. Louis County, Missouri.

Rhipidomella michelini L'Eveille.

1865. *Orthis Michelini*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 116.
Waverly S. S.: Near Newark, Licking County, Ohio.
1869. *Orthis Michelini*. Winchell, Safford's Geol. of Tenn., p. 442.
Three feet above Black Shale: White's Creek, Davidson County, Tennessee.
1870. *Orthis Michelini?* Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Rockville and Granville, Ohio; Vinton County, Ohio; near Shafer's, Pennsylvania.

See also *Rhipidomella oweni*.

Rhipidomella nevadensis Meek.

1877. *Orthis Michelini* var. *Nevadensis*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 63, pl. 7, figs. 1-1c.
Carboniferous L. S.: White Pine County, Nevada, 25 miles northeast of Hamilton on the Egan road; Railroad Canyon, Diamond Mountains; pass between Desert and Pleasant valleys.

Rhipidomella missouriensis Swallow.

1860. *Orthis Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 639.
Chemung Rocks: Cooper and Marion counties, Missouri.
1892. *Orthis Missouriensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6A, figs. 16, 17.
Chouteau L. S.: Pike County, Missouri.

Rhipidomella occasus Hall.

1860. *Orthis occasus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 111.
Goniatite L. S.: Rockford, Indiana.

Rhipidomella oweni Hall and Clarke.

1882. *Orthis Michelini?* Hall, Rep. N. Y. State Geol. for 1882, pl. (6) 36, figs. 19-21.
Keokuk Group: Buttonmould Knobs, Kentucky.
1892. *Orthis (Rhipidomella) Oweni*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 342, pl. 6, figs. 19-21.
Keokuk Group (Knobstone formation): Buttonmould Knobs, Kentucky.
1897. *Orthis (Rhipidomella) Oweni*. Hall, 14th Rep. N. Y. State Geol., p. 341, pl. 4, figs. 24-26.
Keokuk Group: Buttonmould Knobs, Kentucky.

Rhipidomella pecosi Marcou.

1858. *Orthis pecosii*. Marcou, Geol. N. A., p. 48, pl. 6, figs. 14-14b.
Mountain L. S.: Pecos Village, New Mexico.
1858. *Orthis carbonaria*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 218.
Middle Coal Measures: Lexington, Missouri.
1864. *Orthis* (sp. undet.). Meek, Pal. Cal., vol. 1, p. 10, pl. 2, figs. 5-5c.
Carboniferous: Bass's Ranch, Shasta County, California.
1872. *Orthis carbonaria*. Meek, U. S. Geol. Surv. Nebr., p. 173, pl. 1, figs. 8a-c.
Upper Coal Measures: Rock Bluff and Nebraska City, Nebraska; Iowa;
Kansas; Illinois.
Middle Coal Measures: Lexington, Missouri.
1873. *Orthis carbonaria*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 571, pl. 25,
fig. 4.
Upper Coal Measures: Lasalle, Illinois.
1877. *Orthis Pecosii*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 125, pl. 9,
figs. 5a-e.
Carboniferous: Santa Fé, New Mexico.
1883. *Orthis carbonaria*. Hall, Rep. N. Y. State Geol. for 1882, pl. (7) 37, figs. 1-4.
Coal Measures: Springfield, Illinois.
1884. *Orthis Pecosii*. White, 13th Rep. Geol. Surv. Ind., p. 129, pl. 32, figs. 20-22.
Coal Measures: Horse Shoe of Little Vermilion and Garrett's Mill, Ver-
million County, Indiana.
1892. *Orthis Pecosii*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 7, figs. 1-4.
Coal Measures: Near Springfield, Illinois.
1894. *Orthis pecosii*. Keyes, Mo. Geol. Surv., vol. 5, p. 64.
Coal Measures: Kansas City, Missouri.
1897. *Orthis pecosii*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 27.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Rhipidomella subelliptica White and Whitfield.

1862. *Orthis subelliptica*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8,
p. 292.
Chemung Group: Burlington, Iowa.
1870. *Orthis subelliptica*? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Sciotoville, Ohio.

Rhipidomella thiemeei White.

1880. *Orthis thiemeei*. White, Cont. to Pal., No. 8, p. 164, pl. 41, figs. 4a-d.
Upper Kinderhook Group: Burlington, Iowa.
1892. *Orthis Thiemii*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6A, figs. 14, 15.
Burlington L. S.: Burlington, Iowa.

Rhipidomella vanuxemi Hall.

1888. *Orthis vanuxemi*? Herrick, Bull. Den. Univ., vol. 4, pl. 9, fig. 10.
Bedford Shale: Central College, Ohio.
1889. *Orthis vanuxemi*. Herrick, Am. Geol., vol. 3, pl. 4, fig. 10.
Bedford Shale: Ohio.
1895. *Orthis vanuxemi*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 20, fig. 10.
Shale above Berea Grit: Ohio.

Rhipidomella vanuxemi var. *pulchellus* Herrick.

1888. *Orthis Vanuxemi* var. *pulchellus*. Herrick, Bull. Den. Univ., vol. 3, p. 38,
pl. 5, fig. 9.
Waverly Group: Licking County, Ohio.
1895. *Orthis vanuxemi* var. *gracilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 9.
Kinderhook: Granville, Ohio.

Rhipidomella (species undetermined).

1888. *Orthis* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, figs. 21, 22.
Waverly Group: Cuyahoga Falls, Ohio.
1892. *Orthis* sp. ? (compare *O. Penelope*.) Hall and Clarke, Pal. N. Y., vol. 8, pt. 1
pl. 6A, fig. 11.
Waverly Group: Granville, Ohio.

RHODOCRINUS Miller, 1821.**Rhodocrinus barrisi** Hall.

1861. *Rhodocrinus barrisi*. Hall, Desc. New Spec. Crin., p. 9.
Burlington, L. S.
1861. *Rhodocrinus barrisi* var. *divergens*. Hall, Desc. New Spec. Crin., p. 9.
Burlington L. S.
1861. *Rhodocrinus Barrisi*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 322.
Burlington L. S.: Burlington, Iowa.
1861. *Rhodocrinus Barrisi* var. *divergens*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7,
p. 324.
Burlington L. S.: Burlington, Iowa.
1872. *Rhodocrinus Barrisi*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 16, 17.
1872. *Rhodocrinus Barrisi* var. *divergens*. Hall, Photo. Plates of Crinoids, pl. 6,
fig. 18.
1897. *Rhodocrinus Barrisi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 230,
pl. 12, figs. 3, 4a-d, 5a, b.
Upper Burlington L. S.: Burlington, Iowa.

Rhodocrinus barrisi var. *divergens*. See *Rhodocrinus barrisi*.**Rhodocrinus barrisi** var. *striatus* Wachsmuth and Springer.

1897. *Rhodocrinus Barrisi* var. *striatus*. Wachsmuth and Springer, N. Am. Crin.
Cam., p. 231, pl. 12, fig. 6.
Upper Burlington L. S.: Burlington, Iowa.

Rhodocrinus benedicti Miller.

1892. *Rhodocrinus benedicti*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p.
15, pl. 2, figs. 18-20.
Keokuk Group: Harrison County, Indiana.
1894. *Rhodocrinus benedicti*. Miller, 18th Rep. Geol. Surv. Ind., p. 269, pl. 2,
figs. 18-20.
Keokuk Group: Harrison County, Indiana.
1897. *Rhodocrinus Benedicti*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 224.
Keokuk Group: Harrison County, Indiana.

Rhodocrinus blairi Miller and Gurley.

1896. *Rhodocrinus blairi*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat.
Hist., p. 37, pl. 2, figs. 20-23.
Chouteau L. S.: Sedalia, Missouri.

Rhodocrinus bozemanensis Miller and Gurley.

1897. *Rhodocrinus bozemanensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus.
Nat. Hist., p. 40, pl. 3, fig. 2.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Rhodocrinus bridgerensis Miller and Gurley.

1897. *Rhodocrinus bridgerensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus.
Nat. Hist., p. 41, pl. 3, fig. 3.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Rhodocrinus capatus. See *Rhodocrinus nanus*.

Rhodocrinus coxanus Worthen.

1882. *Rhodocrinus coxanus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 29.
Upper part of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.
1883. *Rhodocrinus Coxanus*. Worthen, Geol. Surv. Ill., vol. 7, p. 305, pl. 28, fig. 7.
Keokuk Group, (upper part of geode bed): 1 mile below Keokuk, Iowa.
1883. *Rhodocrinus polydactylus*. Worthen, Geol. Surv. Ill., vol. 7, p. 305, pl. 27, fig. 5.
Keokuk Group (upper part of geode bed): 1 mile below Keokuk, Iowa.
1894. *Rhodocrinus coxanus*. Keyes, Mo. Geol. Surv., vol. 4, p. 163, pl. 22, fig. 3.
Keokuk L. S.: Boonville, Missouri; Keokuk, Iowa.
1897. *Rhodocrinus coxanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 222, pl. 13, figs. 6, 7.
Keokuk Group, (upper part of geode bed): Hamilton, Illinois.

Rhodocrinus douglassi Miller and Gurley.

1897. *Rhodocrinus douglassi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 39, pl. 3, fig. 1.
Burlington or Keokuk Group: Bridger Mountains, near Bozeman, Montana.

Rhodocrinus kirbyi Wachsmuth and Springer.

1890. *Rhodocrinus kirbyi*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 180, pl. 15, fig. 10; pl. 16, fig. 3.
Kinderhook Group: Legrand, Iowa.
1897. *Rhodocrinus Kirbyi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 226, pl. 12, figs. 1a-d.
Kinderhook: Legrand, Marshall County, Iowa.

Rhodocrinus nanus Meek and Worthen.

1866. *Rhodocrinus nanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 254.
Lower Burlington Group: Burlington, Iowa.
1868. *Rhodocrinus nanus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 476, pl. 18, figs. 2a, b.
Burlington Group: Burlington, Iowa.
1890. *Rhodocrinus nanus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 182, pl. 16, fig. 4; pl. 17, fig. 5.
Kinderhook Group: Legrand and Burlington, Iowa.
1890. *Rhodocrinus sculptus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 359, pl. 7, fig. 11.
Kinderhook Group: Legrand, Iowa.
1890. *Rhodocrinus calatus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 360, pl. 7, fig. 10.
Kinderhook Group: Legrand, Iowa.
1897. *Rhodocrinus nanus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 228, pl. 11, figs. 7a, b; pl. 12, figs. 2a, b.
Kinderhook Group: Legrand, Marshall County, Iowa.

Rhodocrinus parvus Miller.

1891. *Rhodocrinus parvus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 39, pl. 5, figs. 8, 9.
Keokuk Group: Boonville, Missouri.
1897. *Rhodocrinus parvus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 229.
Lower Warsaw L. S.: Boonville, Missouri.

Rhodocrinus polydactylus. See *Rhodocrinus coxanus*.

Rhodocrinus sculptus. See *Rhodocrinus nanus*.

Rhodocrinus truncatus Wachsmuth and Springer.

1897. *Rhodocrinus truncatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 231, pl. 13, figs. 2a-f.
Upper Burlington L. S.: Burlington, Iowa.

Rhodocrinus tuberculatus Wachsmuth and Springer.

1897. *Rhodocrinus tuberculatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 232, pl. 13, figs. 3, 4.

Lower Burlington L. S.: Lake Valley, New Mexico.

Rhodocrinus varsoviensis Hall.

1860. *Rhodocrinus varsoviensis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 80.

Warsaw L. S.: Warsaw, Illinois.

Rhodocrinus vesperalis White.

1880. *Rhodocrinus vesperalis*. White, Proc. U. S. Nat. Mus., vol. 2, p. 259, pl. 1, figs. 11, 12.

Upper Coal Measures: 30 miles west of Humboldt, Kansas.

1880. *Rhodocrinus vesperalis*. White, Cont. to Inv. Pal., No. 6, p. 129, pl. 35, figs. 4a, b.

Upper Coal Measures: 30 miles west of Humboldt, Kansas.

Rhodocrinus wachsmuthi Hall.

1861. *Rhodocrinus wachsmuthi*. Hall, Desc. New Spec. Crin., p. 18.

Burlington L. S.

1894. *Rhodocrinus wachsmuthi*. Keyes, Mo. Geol. Surv., vol. 4, p. 163.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Rhodocrinus wachsmuthi*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 222, pl. 13, figs. 5a-d; pl. 15, fig. 7.

Lower Burlington L. S.: Burlington, Iowa.

Rhodocrinus watersianus Wachsmuth and Springer.

1890. *Rhodocrinus watersianus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 184, pl. 17, fig. 16.

Kinderhook Group: Legrand, Iowa.

1897. *Rhodocrinus watersianus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 221, pl. 12, fig. 9.

Kinderhook Group: Legrand, Marshall County, Iowa.

Rhodocrinus whitei Hall.

1861. *Rhodocrinus whitei*. Hall, Desc. New Spec. Crin., p. 9.

Chemung S. S.: Burlington, Iowa.

1861. *Rhodocrinus whitei* var. *burlingtonensis*. Hall, Desc. New Spec. Crin., p. 9.

Chemung S. S.: Burlington, Iowa.

1861. *Rhodocrinus Whitei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 324.

Base of Burlington L. S.: Burlington, Iowa.

1861. *Rhodocrinus Whitei* var. *Burlingtonensis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 325.

Base of Burlington L. S.: Burlington, Iowa.

1872. *Rhodocrinus Whitei*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 19-21.

1894. *Rhodocrinus whitei*. Keyes, Mo. Geol. Surv., vol. 4, p. 163.

Lower Burlington L. S.: Springfield and Louisiana, Missouri.

1897. *Rhodocrinus Whitei*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 223, pl. 13, figs. 1a-c; pl. 15, figs. 6a, b.

Lower Burlington L. S.: Burlington, Iowa.

Rhodocrinus wortheni Hall.

1858. *Rhodocrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 556, pl. 9, figs. 8a-c.

Burlington L. S.: Burlington, Iowa.

1894. *Rhodocrinus wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 162.

Lower Burlington L. S.: Louisiana, Missouri.

1897. *Rhodocrinus Wortheni*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 220, pl. 11, fig. 6; pl. 12, figs. 7a-c.

Lower Burlington L. S.: Burlington, Iowa.

Rhodocrinus wortheni var. urceolatus Wachsmuth and Springer.

1897. *Rhodocrinus Wortheni*, var. *urceolatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 221, pl. 12, figs. 8a, b.
Lower Burlington L. S.: Lake Valley, New Mexico.

RHŒCHINUS, Keeping.**Rhœchinus burlingtonensis Meek and Worthen.**

1860. *Palæchinus Burlingtonensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 396.
Burlington L. S.: Burlington, Iowa.
1866. *Palæchinus burlingtonensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 230, pl. 16, figs. 3a-c.
Burlington L. S.: Burlington, Iowa.
1895. *Palæchinus burlingtonensis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 180.
Burlington L. S.: Burlington, Iowa.
1896. *Rhœchinus burlingtonensis*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 203.
Burlington L. S.: Burlington, Iowa.

Rhœchinus gracilis Meek and Worthen.

1869. *Palæchinus gracilis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 82.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Palæchinus gracilis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 473, pl. 10, fig. 2.
Burlington L. S.: Burlington, Iowa.
1895. *Palæchinus gracilis*. Keyes, Proc. Iowa Acad. Sci., vol. 2, p. 180.
Upper Burlington L. S.: Burlington, Iowa.
1896. *Rhœchinus gracilis*. Jackson, Bull. Geol. Soc. Am., vol. 7, p. 201, pl. 7, figs. 36, 37.
Waverly Group: Bever Creek, 1 mile above the mouth of Leatherwood Creek, Menifee County Kentucky.
Burlington Group: Burlington, Iowa.

RHOMBOPORA Meek, 1872.**Rhombopora angustata Ulrich.**

1890. *Rhombopora angustata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 652, pl. 70, figs. 6, 6a.
Keokuk Group: King's Mountain, Kentucky.

Rhombopora armata Ulrich.

1884. *Rhombopora armata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 31, pl. 1, figs. 5, 5a.
Kaskaskia Group: Tateville, Kentucky.

Rhombopora? aspurula Ulrich.

1890. *Rhombopora? aspurula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 656, pl. 70, figs. 9-9e.
Keokuk Group: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.

Rhombopora attenuata Ulrich.

1890. *Rhombopora attenuata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 655, pl. 70, fig. 7.
Keokuk Group: Warsaw, Illinois.
1894. *Rhombopora attenuata*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Keokuk L. S.: Warsaw, Illinois.

Rhombopora confluens Ulrich. See Acanthoclema confluens.**Rhombopora crassa Ulrich.**

1884. *Rhombopora crassa*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 28, pl. 1, figs. 2-2b.
Upper Coal Measures: Kansas City, Missouri.

Rhombopora crassa Ulrich—Continued.

1894. *Rhombopora crassa*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Upper Coal Measures: Kansas City, Missouri.

Rhombopora decipiens Ulrich.

1890. *Rhombopora decipiens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 657, pl. 71, figs. 3-3d.
St. Louis Group: Monroe County, Illinois.

Rhombopora dichotoma Ulrich.

1890. *Rhombopora dichotoma*. Ulrich, Geol. Surv. Ill., vol. 8, p. 650, pl. 70, figs. 13-13b.
Burlington L. S.: Burlington, Iowa.
? Keokuk L. S.: ? Warsaw, Illinois.
1894. *Rhombopora dichotoma*. Keyes, Mo. Geol. Surv., vol. 5, p. 33.
Burlington L. S.: Burlington, Iowa; ? Hannibal, Missouri.

Rhombopora elegantula Ulrich.

1884. *Rhombopora elegantula*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 33,
pl. 1, figs. 3-3b.
? Keokuk Group: King's Mountain, Kentucky.

Rhombopora exigua Ulrich.

1890. *Rhombopora exigua*. Ulrich, Geol. Surv. Ill., vol. 8, p. 651, pl. 70, figs. 10, 10a.
Burlington L. S.: Burlington, Iowa.

Rhombopora gracilis Ulrich.

1890. *Rhombopora gracilis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 651, pl. 70, figs. 11-11b.
Burlington L. S.: Burlington, Iowa.

Rhombopora incrassata Ulrich.

1888. *Rhombopora incrassata*. Ulrich, Bull. Den. Univ., vol. 4, p. 89, pl. 14, figs. 16 (16a ?).
Cuyahoga Shale: Lodi, Ohio.
Keokuk Group: King's Mountain, Kentucky.
1890. *Rhombopora incrassata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 652, pl. 70, figs. 12-12d.
Keokuk Group: King's Mountain and Buttonmould Knob, Kentucky.

Rhombopora lepidodendroidea Meek.

1866. *Stenopora columnaris* (pars). Geinitz, Carb. und Dyas in Nebr., p. 66.
(Not Schloth, 1813.)
Nebraska City, Bennett's Mill, and Wyoming, Nebraska.
1872. *Rhombopora lepidodendroides*. Meek, U. S. Geol. Surv. Nebr., p. 141, pl. 7,
figs. 2a-f.
Upper Coal Measures: Nebraska City, Bennett's Mill, Wyoming, Rock
Bluff, and Plattsmouth, Nebraska; Kansas; Iowa; Missouri; Illinois.
1877. *Rhombopora lepidodendroides*. White, U. S. Geog. Surv. W. 100 Merid., vol.
4, p. 99, pl. 6, figs. 5a-d.
Carboniferous: West face of Oquirrh range, near "E. T. City," Utah, and
at confluence of White Mountain and Black rivers, Arizona.
1884. *Rhombopora lepidodendroidea*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7,
p. 27, pl. 1, figs. 1-1b.
Upper Coal Measures: Kansas City, Missouri; Nebraska City and Wy-
oming, Nebraska.
1887. *Rhombopora lepidodendroidea*. Foerste, Bull. Den. Univ., vol. 2, p. 73, pl. 7,
figs. 3a, b.
Coal Measures: Flint Ridge and Bald Hill, Ohio.
1887. *Rhombopora* —. Foerste, Bull. Den. Univ., vol. 2, p. 74, pl. 7, figs. 5a-c.
Coal Measures: Flint Ridge, Ohio.

Rhombopora lepidodendroidea Meek—Continued.

1888. *Rhombopora lepidodendroides*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 225.
Lower Coal Measures: Des Moines, Iowa.
1894. *Rhombopora lepidodendroidea*. Keyes, Mo. Geol. Surv., vol. 5, p. 35, pl. 33,
figs. 4a, b.
Upper Coal Measures: Kansas City, Missouri.
1897. *Rhombopora lepidodendroides*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 27.
Upper Coal Measures: Poteau Mountains, Indian Territory.

Rhombopora minor Ulrich.

1890. *Rhombopora minor*. Ulrich, Geol. Surv. Ill., vol. 8, p. 659, pl. 70, figs. 4, 4a.
Chester Group: Sloan's Valley and Litchfield, Kentucky.

Rhombopora multipora Foerste.

1887. *Rhombopora multipora*. Foerste, Bull. Den. Univ., vol. 2, p. 72, pl. 7,
figs. 1a-c.
Coal Measures: Flint Ridge, Ohio.
1887. *Rhombopora multipora*. Foerste, Bull. Den. Univ., vol. 2, p. 87.
Coal Measures: Seville, Illinois.

Rhombopora nicklesi Ulrich.

1890. *Rhombopora nicklesi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 661, pl. 70, figs. 1-1c.
Lower Coal Measures: Sparta, Illinois.

Rhombopora ohioensis Ulrich.

1888. *Rhombopora ohioensis*. Ulrich, Bull. Den. Univ., vol. 4, p. 90, pl. 14, fig. 15.
Cuyahoga Shale: Richfield and Lodi, Cuyahoga County, and Moot's Run,
Licking County, Ohio.
1885. *Rhombopora ohioensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 9.
Cuyahoga Shale: Ohio.

Rhombopora persimilis Ulrich.

1884. *Rhombopora persimilis*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 30, pl. 1,
figs. 7-7d.
Kaskaskia Group: Chester, Illinois; Tateville, Kentucky.
1890. *Rhombopora persimilis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 659, pl. 70, fig. 3.
Chester Group: Chester, Illinois; Sloan's Valley (Tateville), Kentucky.

Rhombopora pulchella Ulrich.

1884. *Rhombopora pulchella*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 31,
pl. 1, figs. 6, 6a.
Kaskaskia Group: Tateville, Kentucky.

Rhombopora simulatrix Ulrich.

1890. *Rhombopora simulatrix*. Ulrich, Geol. Surv. Ill., vol. 8, p. 657, pl. 71,
figs. 2-2e.
St. Louis Group: Columbia, etc., Monroe County, Illinois.

Rhombopora ? spiralis Ulrich.

1890. *Rhombopora ? spiralis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 656, pl. 71, figs. 5-5d.
Keokuk Group: King's Mountain, Kentucky.

Rhombopora tabulata Ulrich.

1890. *Rhombopora tabulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 658, pl. 70, figs. 2-2c.
Chester Group: Kaskaskia and Chester, Illinois; Sloan's Valley, Kentucky.
1894. *Rhombopora tabulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Rhombopora tenuirama Ulrich.

1890. *Rhombopora tenuirama*. Ulrich, Geol. Surv. Ill., vol. 8, p. 660, pl. 70,
figs. 8-8b.
Chester Group: Kaskaskia, Illinois; Sloan's Valley, Kentucky.

Rhombopora tenuirama Ulrich—Continued.

1894. *Rhombopora tenuirama*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Kaskaskia L. S.: Kaskaskia, Illinois.

Rhombopora transversalis Ulrich.

1890. *Rhombopora transversalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 654, pl. 71,
figs. 4-4b.
Keokuk Group: Plymouth, Nauvoo, and Warsaw, Illinois.
1894. *Rhombopora transversalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 34.
Keokuk L. S.: Warsaw, Illinois.

Rhombopora varians Ulrich.

- 1890.. *Rhombopora varians*. Ulrich, Geol. Surv. Ill., vol. 8, p. 653, pl. 71, figs. 1-1b.
Keokuk Group: Near Plymouth, Illinois; near Whitehall, Green County,
Illinois; Warsaw and Nauvoo, Illinois.
1894. *Rhombopora varians*. Keyes, Mo. Geol. Surv., vol. 5, p. 33.
Keokuk L. S.: Warsaw, Illinois.

Rhombopora wortheni Ulrich.

1884. *Rhombopora wortheni*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 7, p. 32, pl. 1,
figs. 4-4b.
St. Louis Group: Near Somerset, Kentucky.

RHYNCHONELLA Fischer, 1809.**Rhynchonella acadiensis Davidson.**

1863. *Rhynchonella Acadiensis*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19,
p. 172, pl. 9, fig. 16.
Lower Carboniferous L. S.: Brookfield, Nova Scotia.
1868. *Rhynchonella Acadiensis*. Dawson, Acad. Geol., p. 294, fig. 94.
Carboniferous L. S.: Brookfield, Nova Scotia.

Rhynchonella algeri McChesney.

1860. *Rhynchonella algeri*. McChesney, Desc. New Pal. Foss., p. 51.
Coal Measures: Big Creek, near New Harmony, Indiana.

Rhynchonella angulata. See Enteletes hemiplicata.**Rhynchonella aretirostrata Swallow.**

1863. *Rhynchonella aretirostrata*. Swallow, Trans. St. Louis Acad. Sci., vol. 2,
p. 84.
Archimedes L. S.: Cooper County, Missouri.

Rhynchonella barquensis Winchell.

1862. *Rhynchonella barquensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 408.
Marshall Group: Pointe Aux Barques, Michigan.

Rhynchonella boonensis. See Leiorhynchus boonensis.**Rhynchonella camerifera Winchell.**

1862. *Rhynchonella camerifera*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 408.
Marshall Group: Pointe Aux Barques, Michigan.

Rhynchonella caput-testudinis. See Camarophoria caput-testudinis.**Rhynchonella carbonaria McChesney.**

1860. *Rhynchonella carbonaria*. McChesney, Desc. New Pal. Foss., p. 51.
Upper Coal Measures: Near Farmington, Illinois.

Rhynchonella contracta. See Camarotoechia contracta.**Rhynchonella cooperensis Shumard.**

1855. *Rhynchonella Cooperensis*. Shumard, Geol. Rep. Mo., p. 204, pl. C, figs. 4a-d.
Chouteau L. S.: Vandever's Falls, Cooper County, Missouri.

Rhynchonella cooperensis Shumard—Continued.

1884. *Camarophoria Cooperensis*? Walcott, Pal. Eureka Dist., p. 224, pl. 18, fig. 6.
Lower Carboniferous: Eureka District, Nevada.
1894. *Rhynchonella cooperensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 101.
Chouteau L. S.: Providence, Missouri.

Rhynchonella dawsoniana. See *Pugnax dawsonianus*.

Rhynchonella eatoniaformis. See *Pugnax rockymontana*.

Rhynchonella endlichi. See *Camarotoechia endlichi*.

Rhynchonella eurekaensis Walcott.

1884. *Rhynchonella Eurekaensis*. Walcott, Pal. Eureka Dist., p. 223, pl. 18, figs. 8-8c.
Lower Carboniferous: Eureka District, Nevada.

Rhynchonella evangelina Hartt.

1868. *Rhynchonella Evangelina*. Hartt, Dawson's Acad. Geol., p. 299.
Carboniferous L. S.: Nova Scotia.

Rhynchonella explanata. See *Camarophoria explanata*.

Rhynchonella greeniana. See *Pugnax greenianus*.

Rhynchonella grosvenori. See *Pugnax grosvenori*.

Rhynchonella guadalupæ Shumard.

1858. *Rhynchonella Guadalupe*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 295.
White Permian L. S.: Guadalupe Mountains.
1859. *Rhynchonella Guadalupe*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 392, pl. 11, figs. 6a-c.
White Permian L. S.: Guadalupe Mountains.

Rhynchonella heteropsis Winchell.

1865. *Rhynchonella heteropsis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 121.
Calcareous bed No. 4, Yellow S. S.: Burlington, Iowa; near Hamburg, Illinois; Weymouth, Ohio.

Rhynchonella hubbardi Winchell.

1862. *Rhynchonella Hubbardi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 407.
Marshall Group: Marshall and Pointe Aux Barques, Michigan.
1865. *Rhynchonella Hubbardi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 122.
Marshall Group: Pointe Aux Barques, Napoleon Cut, Jackson County, Michigan; Valley Forge, near Cuyahoga Falls, and Talmadge, Ohio.

Rhynchonella ida Hartt.

1868. *Rhynchonella Ida*. Hartt, Dawson's Acad. Geol., p. 298.
Carboniferous L. S.: Bed A, Windsor, Nova Scotia.

Rhynchonella illinoiensis Worthen.

1884. *Rhynchonella illinoiensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 24.
Coal Measures: Peoria County, Illinois.
1890. *Rhynchonella illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 104, pl. 11, figs. 3-3c.
Coal Measures: Peoria County, Illinois.

Rhynchonella indentata Shumard.

1859. *Rhynchonella indentata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 393.
White Permian L. S.: Guadalupe Mountains.

Rhynchonella macra Hall.

1856. *Rhynchonella macra*. Hall, Trans. Albany Inst., vol. 4, p. 11.
St. Louis L. S.: Alton, Illinois.

Rhynchonella macra Hall—Continued.

1882. *Rhynchonella macra*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 52, pl. 6, figs. 40-42.

St. Louis Group: Alton, Illinois.

1883. *Rhynchonella macra*. Hall, 12th Rep. Geol. Surv. Ind., p. 334, pl. 29, figs. 40-42.

St. Louis Group: Lanesville, Indiana; Alton, Illinois.

Rhynchonella marshallensis. See *Camarotoechia marshallensis*.

Rhynchonella medialis Simpson.

1889. *Rhynchonella medialis*. Simpson, Trans. Am. Phil. Soc., vol. 15, p. 444, fig. 9.

Waverly Group: Near Warren, Pennsylvania.

Rhynchonella metallica White.

1874. *Rhynchonella metallica*. White, Prelim. Rep. Inv. Foss., p. 20.

Carboniferous (Coal Measures): Old Potosi Mine, Lincoln County, Nevada.

1877. *Rhynchonella metallica*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 129, pl. 10, figs. 10a-d.

Carboniferous: Old Potosi Mine, Lincoln County, Nevada.

Rhynchonella micropleura Winchell.

1865. *Rhynchonella (Retzia?) micropleura*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 122.

Marshall Group: Battle Creek, Michigan.

Rhynchonella missouriensis. See *Pugnax missouriensis* and *Pugnax striaticostata*.

Rhynchonella mutata. See *Pugnax mutata*.

Rhynchonella obsoletus Hall.

1860. *Rhynchonella (Eatonia) obsoletus*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 111.

Goniatite L. S.: Rockford, Indiana.

Rhynchonella opposita White and Whitfield.

1862. *Rhynchonella opposita*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 294.

Chemung Group: Burlington, Iowa.

Rhynchonella osagensis. See *Pugnax uta*.

Rhynchonella ottumwa. See *Pugnax ottumwa*.

Rhynchonella parvini. See *Camarophoria subtrigona*.

Rhynchonella perrostellata Swallow.

1863. *Rhynchonella perrostellata*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 85.

Archimedes L. S.: Cooper County, Missouri.

Rhynchonella persinuata Winchell.

1865. *Rhynchonella persinuata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 121.

Yellow S. S.: Burlington, Iowa.

Rhynchonella pleurodon Phillips.

1878. *Rhynchonella pleurodon*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 632.

Carboniferous: Feilden Isthmus, latitude 82° 43'.

Rhynchonella pugnus. See *Pugnax pugnus*.

Rhynchonella pustulosa. See *Rhynchopora pustulosa*.

Rhynchonella ricinula Hall.1856. *Rhynchonella ricinula*. Hall, Trans. Albany Inst., vol. 4, p. 9.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Rhynchonella ricinula*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 53, pl. 6, fig. 46.

St. Louis Group: Spergen Hill, Indiana.

1883. *Rhynchonella ricinula*. Hall, 12th Rep. Geol. Surv. Ind., p. 330, pl. 29, fig. 46.

St. Louis Group: Spergen Hill and Lanesville, Indiana.

Rhynchonella ringens. See *Camarophoria ringens*.*Rhynchonella rockymontana*. See *Pugnax rockymontana*.*Rhynchonella sageriana*. See *Camarotoechia sagerina*.*Rhynchonella sappho*. See *Camarotoechia sappho*.**Rhynchonella striata** Simpson.1889. *Rhynchonella striata*. Simpson, Trans. Am. Phil. Soc., vol. 15, p. 444, fig. 10.

Waverly Group: four miles southeast of Warren, Pennsylvania.

Rhynchonella subcircularis Winchell.1862. *Rhynchonella subcircularis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 408.

Marshall Group: Pointe Aux Barques, Michigan.

Rhynchonella subcuneata. See *Camarophoria subcuneata*.*Rhynchonella subtrigona*. See *Camarophoria subtrigona*.**Rhynchonella tetraptix** Winchell.1865. *Rhynchonella?* *tetraptix*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 120.

Marshall Group: Rockford, Indiana.

Rhynchonella texana Shumard.1859. *Rhynchonella Texana*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 393.

Dark Permian L. S.: Guadalupe Mountains.

Rhynchonella thera. See *Camarophoria thera*.**Rhynchonella tuta** Miller.1881. *Rhynchonella tuta*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 315, pl. 7, figs. 11-11b.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Rhynchonella unica Winchell.1865. *Rhynchonella unica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 122.

Bed No. 4: Burlington, Iowa.

Rhynchonella uta. See *Pugnax uta*.*Rhynchonella wasatchensis*. See *Seminula wasatchensis*.**Rhynchonella whitei**.1862. *Rhynchonella Whitei*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 407.

Marshall Group: Marshall, Michigan.

Rhynchonella wortheni. See *Camarophoria wortheni*.**Rhynchonella** (species undetermined).1859. *Rhynchonella* sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 393.

White Permian L. S.: Guadalupe Mountains.

1863. *Rhynchonella* sp. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 173, pl. 9, fig. 17.

Lower Carboniferous L. S.: Nova Scotia.

Rhynchonella (species undetermined)—Continued.

1864. *Rhynchonella* (sp. undt.). Meek, Pal. Cal., vol. 1, p. 12.
Carboniferous: Bass's Ranch, Shasta County, California.
1868. *Rhynchonella* sp. Dawson, Acad. Geol., p. 295.
Lower Carboniferous L. S.: Nova Scotia.
1877. *Rhynchonella* (n. sp.)? Whiteaves, Geol. Surv. Canada, Rep. of Prog., 1875-76, p. 100.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1888. *Rhynchonella* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 5, fig. 18; pl. 7, fig. 9; pl. 12, fig. 12.
Waverly Group: Licking County, Ohio.
1888. *Rhynchonella* sp. Herrick, Bull. Den. Univ., vol. 4, p. 23, pl. 11, fig. 22.
(*R. marshallensis*? in Expl. of Plate.)
Waverly Group: Lodi, Ohio.
1888. *Rhynchonella* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 39.
Waverly Group: Cuyahoga Falls, Ohio.
1895. *Rhynchonella* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 18.
Waverly Group: Ohio.
1895. *Camarotoechia* sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 57, figs. 51-53.
Burlington L. S.: Burlington, Iowa.
1895. *Camarotoechia* sp. indet. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 57, fig. 54.
Waverly Group: Ohio.
1897. *Rhynchonella* sp. indet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 30.
Lower Coal Measures: White and Crawford counties, Arkansas.

RHYNCHOPORA King, 1856.**Rhynchopora pustulosa White.**

- *1860. *Rhynchonella pustulosa*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 236.
Burlington L. S.: Burlington, Iowa.
1877. *Rhynchonella pustulosa*? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 257, pl. 4, figs. 12-14.
Waverly Group: Logan Canyon, Wahsatch range, Utah.
1894. *Rhynchopora pustulosa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 44, figs. 26-29.
Burlington L. S.: Burlington, Iowa.
1895. *Rhynchopora pustulosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 58, figs. 1-4.
Burlington L. S.: Burlington, Iowa.

RHYNCHOSPIRA Hall, 1859.**Rhynchospira ashlandensis Herrick.**

1888. *Rhynchospira* (?) *ashlandensis*. Herrick, Bull. Den. Univ., vol. 4, p. 25, pl. 3, fig. 16.
Waverly Group: Lyon Falls, Ashland County, Ohio.
1895. *Rhynchospira* (?) *ashlandensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 16.
Cuyahoga Shale: Lyon Falls, Ohio.

Rhynchospira scansa Hall and Clarke.

1895. *Rhynchospira scansa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, fig. 45.
Waverly Group: McKean County, Pennsylvania.
1897. *Rhynchospira scansa*. Hall, 14th Rep. N. Y. State Geol., p. 360, pl. 9, fig. 2.
Waverly Group: McKean County, Pennsylvania.

Rhynchospira (species undetermined.)

1895. *Rhynchospira* (?) sp. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 50, fig. 44.
Waverly Group: Northwestern Pennsylvania.

ROMINGERINA Hall, 1893.**Romingerina julia Winchell.**

1862. *Centronella Julia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 405.
Marshall Group: Pointe Aux Barques, Michigan.
1865. *Centronella Julia*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 123.
Marshall Group: 1 mile west of Orange Center, Cuyahoga County, Ohio.
• 1867. *Centronella julia*. Hall, Pal. N. Y., vol. 4, p. 419, pl. 61A, figs. 41-46.
Marshall S. S.: Pointe Aux Barques, Michigan.
1888. *Centronella julia*. Herrick, Bull. Den. Univ., vol. 3, p. 49, pl. 2, fig. 5.
Waverly Group: Licking County, Ohio.
1894. *Romingerina Julia*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 52, figs. 14, 15.
Marshall Group: Pointe Aux Barques, Michigan.
1895. *Romingerina Julia*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 79, figs. 28-30.
Marshall Group: Pointe Aux Barques, Michigan.

(ROTALIA Lamark, 1804.)**Rotalia baileyi Hall. See Endothyra baileyi.****ROTELLA Lamark, 1822.****Rotella verruculifera White.**

1881. *Rotella verruculifera*. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxxii, pl. 4, figs. 7a-d.
Carboniferous: Near Taos, New Mexico.

RUSICHNITES Dawson, 1861.**Rusichnites acadicus Dawson.**

1868. *Rusichnites Acadicus*. Dawson, Acad. Geol., p. 410, fig. 157.
Coal Measures: Cape Breton.

Rusichnites carbonarius Dawson.

1868. *Rusichnites carbonarius*. Dawson, Acad. Geol., p. 257, fig. 80.
Carboniferous: Nova Scotia.

SAMPSONOCRINUS Miller and Gurley, 1895.**Sampsonocrinus hemisphericus Miller and Gurley.**

1895. *Sampsonocrinus hemisphericus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 51, pl. 3, figs. 7-10.
Chontean L. S.: Sedalia, Missouri.

SANGUINOLARIA Lamark, 1801.**Sanguinolaria leptogaster Winchell.**

1863. *Sanguinolaria ? leptogaster*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 18.
Yellow S. S.: Burlington, Iowa.

Sanguinolaria rostrata Winchell.

1865. *Sanguinolaria rostrata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 129.
Marshall Group: Battle Creek, Michigan.

Sanguinolitaria sectoralis Winchell.

1862. *Sanguinolitaria sectoralis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 422.
Marshall Group: Marshall, Michigan.

Sanguinolitaria septentrionalis Winchell.

1862. *Sanguinolitaria septentrionalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 421.
Marshall Group: Gaines, Kent County, Michigan.

Sanguinolitaria similis Winchell.

1862. *Sanguinolitaria similis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 421.
Marshall Group: Marshall, Michigan.
1865. *Sanguinolitaria similis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 130.
Marshall Group: Napoleon Cut, Jackson County, Michigan.

Sanguinolitaria (species undetermined.)

1852. *Sanguinolitaria*. Owen, Geol. Rep. Wis., Iowa, and Minn., Tab. 3A, fig. 18.
Base of Carboniferous L. S.: Burlington, Iowa.

SANGUINOLITES McCoy, 1844.

Sanguinolites æolus. See *Sphenotus æolus*.

Sanguinolites amygdalinus. See *Glossites amygdalinus*.

Sanguinolites borealis Winchell.

1862. *Sanguinolites borealis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 415.
Marshall Group: Pointe Aux Barques and Moscow, Michigan.

Sanguinolites brookfieldianus Dawson.

1883. *Sanguinolites Brookfieldianus*. Dawson, Rep. Peter Redpath Mus., No. 2,
p. 11.
Lower Carboniferous L. S.: Brookfield and Windsor, Nova Scotia.

Sanguinolites burlingtonensis Worthen.

1884. *Sanguinolites? burlingtonensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat.
Hist., p. 14.
Burlington L. S.: Calhoun County, Illinois.
1890. *Sanguinolites? burlingtonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 129,
pl. 20, figs. 8, 8a.
Burlington L. S.: Calhoun County, Illinois.

Sanguinolites concentricus Winchell.

1862. *Cardinia concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 413.
Marshall Group: Jonesville, Hillsdale County, Michigan.
1865. *Sanguinolites concentrica*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 128.
Marshall Group: Hillsdale, Michigan.

Sanguinolites contractus. See *Sphenotus contractus*.

Sanguinolites cylindricus Winchell.

1863. *Sanguinolites cylindricus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 13.
Yellow S. S.: Burlington, Iowa.

Sanguinolites flavius. See *Sphenotus flavius*.

Sanguinolites hannibalensis. See *Grammysia hannibalensis*.

Sanguinolites iowensis Winchell.

1863. *Sanguinolites Iowensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 14.
Yellow S. S.: Burlington, Iowa.

Sanguinolites jejunos Winchell.

1863. *Sanguinolites (?) jejunos*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 15.
Yellow S. S.: Burlington, Iowa.

Sanguinolites marshallensis. See *Palæoneilo marshallensis*.

***Sanguinolites michiganensis*.**

1888. *Sanguinolites michiganensis*. Herrick, Bull. Den. Univ., vol. 3, p. 70, pl. 8, fig. 10.

Waverly Group: Licking County, Ohio.

Sanguinolites missouriensis. See *Promacrus missouriensis*.

***Sanguinolites multistriatus* Worthen.**

1884. *Sanguinolites? multistriatus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 11.

Keokuk Shale: Near Crawfordsville, Indiana.

1890. *Sanguinolites? multistriatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 129, pl. 19, fig. 2.

Keokuk Shale: Near Crawfordsville, Indiana.

***Sanguinolites nænia* Walcott.**

1884. *Sanguinolites? Nænia*. Walcott, Pal. Eureka Dist., p. 249, pl. 19, fig. 9.

Lower Carboniferous: Eureka District, Nevada.

***Sanguinolites naiadiformis* Winchell.**

1870. *Sanguinolites naiadiformis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.

Marshall Group: Hillsdale, Michigan.

Waverly Group: Newark and Granville, Ohio.

1888. *Sanguinolites naiadiformis*. Herrick, Bull. Den. Univ., vol. 3, p. 71, pl. 4, fig. 2; pl. 9, fig. 3; pl. 10, fig. 2.

Waverly Group: Licking County, Ohio.

1889. *Sanguinolites naiadiformis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 18.

Middle Waverly Group: Granville, Ohio.

Sanguinolites nasutus. See *Pomacrus nasutus*.

***Sanguinolites nobilis* De Koninck.**

1885. *Sanguinolites nobilis*. De Koninck, Fauna du Calc. Carb. de la Belg., pt. 5, p. 81, pl. 16, fig. 7.

1888. *Allorisma (Sanguinolites) nobilis*. Herrick, Bull. Den. Univ., vol. 3, p. 71, pl. 10, fig. 5.

Waverly Group: Licking County, Ohio.

1888. *Allorisma nobilis*. Herrick, Bull. Den. Univ., vol. 4, p. 28.

Waverly Group: Ohio.

1895. *Allorisma nobilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 20.

Middle Waverly Group: Licking County, Ohio.

***Sanguinolites obliquus* Meek.**

1871. *Sanguinolites? obliquus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 69.

Upper Waverly Group: Rushville and Newark, Ohio.

1875. *Sanguinolites? obliquus*. Meek, Pal. Ohio, vol. 2, p. 306, pl. 16, figs. 2a, b.

Upper Waverly Group: Rushville and Newark, Ohio.

1888. *Sanguinolites obliquus*. Herrick, Bull. Den. Univ., vol. 3, p. 70.

Sanguinolites plicata. See *Goniophora plicata*.

***Sanguinolites randolphensis* Worthen.**

1883. *Cypricardia? Randolphensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 326.

Chester L. S.: Randolph County, Illinois.

1890. *Sanguinolites randolphensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 130, pl. 20, figs. 1, 1a.

Chester L. S.: Chester, Illinois.

***Sanguinolites retusus* Walcott.**

1884. *Sanguinolites retusus*. Walcott, Pal. Eureka Dist., p. 247, pl. 20, fig. 10.

Lower Carboniferous: Eureka District, Nevada.

Sanguinolites salteri Walcott.

1884. *Sanguinolites Salteri*. Walcott, Pal. Eureka Dist., p. 248, pl. 20, fig. 12.
Lower Carboniferous: Eureka District, Nevada.

Sanguinolites securis Winchell.

1870. *Sanguinolites (Cypricardia?) securis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 255.

Waverly Group: Newark, Ohio.

Sanguinolites senilis Herrick.

1888. *Sanguinolites (Goniophora) senilis*. Herrick, Bull. Den. Univ., vol. 3, p. 66, pl. 9, fig. 28.

Waverly Group: Licking County, Ohio.

Sanguinolites simplex Walcott.

1884. *Sanguinolites simplex*. Walcott, Pal. Eureka Dist., p. 248, pl. 20, fig. 11.
Lower Carboniferous: Eureka District, Nevada.

Sanguinolites striatus Walcott.

1884. *Sanguinolites striatus*. Walcott, Pal. Eureka Dist., p. 249, pl. 23, fig. 7.
Lower Carboniferous: Eureka District, Nevada.

Sanguinolites strigatus Winchell.

1865. *Sanguinolites strigatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 127.

Marshall Group: Pointe Aux Barques, Huron County, Michigan.

Sanguinolites sulciferus. See *Cypricardinia sulcifera*.**Sanguinolites transversus** De Koninck.

1888. *Sanguinolites (Sphenotus) transversus*. Herrick, Bull. Den. Univ., vol. 3, p. 68, pl. 9, fig. 22.

Waverly Group: Licking County, Ohio.

Sanguinolites unioniformis Winchell.

1862. *Sanguinolites unioniformis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 414.

Marshall Group: Moscow, Michigan.

1888. *Sanguinolites unioniformis*. Herrick, Bull. Den. Univ., vol. 3, p. 67, pl. 9, figs. 5, 7-9, 24.

Waverly Group: Licking County, Ohio.

Sanguinolites valvulus. See *Sphenotus valvulus*.**Sanguinolites** (species undetermined).

1897. *Sanguinolites?* sp.? Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 268, pl. 20, fig. 6.

Batesville S. S.: Batesville, Arkansas.

SCAPHIOCRINUS Hall, 1858.**Scaphiocrinus abnormis**. See *Scytalocrinus abnormis*.**Scaphiocrinus ægina**. See *Decadocrinus ægina*.**Scaphiocrinus æqualis** Hall.

1860. *Poteroocrinus aqualis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 63.

Burlington L. S.: Burlington, Iowa.

1861. *Poteroocrinus (Scaphiocrinus) solidus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 140.

Burlington L. S.: Burlington, Iowa.

1865. *Poteroocrinus (Scaphiocrinus) tenuidactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 156.

Burlington L. S.: Burlington, Iowa.

Scaphiocrinus æqualis Hall—Continued.

1868. *Poteriocrinus (Scaphiocrinus) tenuidactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 490, pl. 18, fig. 10.

Burlington Group: Burlington, Iowa.

See also *Woodocrinus æqualis*.

Scaphiocrinus arrosus Miller and Gurley.

1894. *Scaphiocrinus arrosus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 39, pl. 6, fig. 5.

Keokuk Group: Washington County, Indiana.

Scaphiocrinus bayensis. See *Decadocrinus bayensis*.

Scaphiocrinus bellus Miller and Gurley.

1890. *Scaphiocrinus bellus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 363, pl. 8, figs. 5-7.

Keokuk Group: Bono, Indiana.

Scaphiocrinus bonoensis Miller and Gurley.

1890. *Scaphiocrinus bonoensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 349, pl. 5, figs. 6, 7.

Keokuk Group: Bono, Indiana.

Scaphiocrinus boonvillensis Miller.

1891. *Scaphiocrinus Boonvillensis*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 37, pl. 5, figs. 1, 2.

Keokuk Group: Boonville, Missouri.

1894. *Scaphiocrinus ? boonvillensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 212.

Keokuk L. S.: Boonville, Missouri.

Scaphiocrinus briærius Worthen.

1882. *Poteriocrinus briærius*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 12.

Upper part of geodiferous shales of Keokuk Group: 1 mile below Keokuk, Iowa.

1883. *Poteriocrinus briærius*. Worthen, Geol. Surv. Ill., vol. 7, p. 279, pl. 27, fig. 4.

Keokuk Group (upper part of geode bed): 1 mile below Keokuk, Iowa.

Scaphiocrinus burketi Worthen.

1882. *Poteriocrinus burketi*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 5.

Top of Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus burketi*. Worthen, Geol. Surv. Ill., vol. 7, p. 270, pl. 28, fig. 8.

Keokuk, L. S.: Hamilton, Illinois.

Scaphiocrinus calyculus. See *Poteriocrinus calyculus*.

Scaphiocrinus carbonarius. See *Graphiocrinus carbonarius* and *Cerio-*

crinus inflexus.

Scaphiocrinus carinatus Hall.

1861. *Scaphiocrinus carinatus*. Hall, Desc. New Spec. Crin., p. 8.

Burlington L. S.

1861. *Scaphiocrinus carinatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 310.

Burlington L. S.: Burlington, Iowa.

1893. *Poteriocrinus (Scaphiocrinus) carinatus*. Whitfield, Mem. Am. Nat. Hist., vol. 1, p. 31, pl. 3, figs. 13, 14.

Burlington L. S.: Burlington, Iowa.

Scaphiocrinus clio Meek and Worthen.

1869. *Scaphiocrinus Clio*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 144.

Upper Burlington L. S.: Burlington, Iowa.

Scaphiocrinus clio Meek and Worthen—Continued.

1873. *Scaphiocrinus Clio*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 408, pl. 1, fig. 10.

Burlington L. S.: Burlington, Iowa.

Scaphiocrinus constrictus Miller.

1891. *Scaphiocrinus constrictus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 38, pl. 5, figs. 3, 4.

Keokuk Group: Boonville, Mo.

Scaphiocrinus coreyi Meek and Worthen.

1869. *Scaphiocrinus Coreyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
Keokuk Group: Crawfordsville, Indiana.

1873. *Scaphiocrinus Coreyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 494, pl. 15, fig. 1.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus corycia Hall.

1864. *Poteriocrinus corycia*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 57.
Waverly Group: Richfield, Ohio.

1875. *Poteriocrinus (Scaphiocrinus?) corycia*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 173, pl. 12, fig. 9.

Waverly Group: Richfield, Ohio.

Scaphiocrinus coxanus Worthen.

1882. *Poteriocrinus coxanus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 4.
Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus coxanus*. Worthen, Geol. Surv. Ill., vol. 7, p. 269, pl. 27, fig. 1.
Keokuk L. S.: Hamilton, Illinois.

Scaphiocrinus crineus Hall.

1864. *Poteriocrinus crineus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 56.
Waverly Group: Richfield, Ohio.

1875. *Poteriocrinus crineus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 172, pl. 12, figs. 6, 7.

Waverly Group: Richfield, Ohio.

Scaphiocrinus cultidactylus Hall.

1861. *Poteriocrinus cultidactylus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 62.

Burlington L. S.: Near Hamburg, Illinois.

1883. *Poteriocrinus cultidactylus*. Worthen, Geol. Surv. Ill., vol. 7, p. 301, pl. 30, fig. 1.

Burlington L. S.: Near Hamburg, Calhoun County, and Montezuma, Pike County, Illinois.

Scaphiocrinus dactyliformis Hall.

1858. *Scaphiocrinus dactyliformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 670, pl. 17, fig. 6.

St. Louis L. S.: St. Louis, Missouri.

1894. *Scaphiocrinus dactyliformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 211.
St. Louis L. S.: St. Louis, Missouri.

Scaphiocrinus decabrachiatus. See *Scytalocrinus decabrachiatus*.

Scaphiocrinus decadactylus. See *Scytalocrinus decadactylus*.

Scaphiocrinus delicatus Meek and Worthen.

1869. *Scaphiocrinus delicatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 144.

Upper Burlington L. S.: Burlington, Iowa.

Scaphiocrinus delicatus Meek and Worthen—Continued.

1873. *Scaphiocrinus delicatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 407, pl. 1, figs. 5a, b.

Burlington L. S.: Burlington, Iowa.

Scaphiocrinus depressus. See *Decadocrinus depressus*.**Scaphiocrinus dichotomus** Hall.

1858. *Scaphiocrinus dichotomus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 553.

Burlington L. S.: Quincy, Illinois.

Scaphiocrinus disparilis Miller and Gurley.

1890. *Scaphiocrinus disparilis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 367, pl. 9, fig. 1; pl. 10, fig. 2.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus divaricatus Hall.

1860. *Scaphiocrinus divaricatus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 65, pl. 1, fig. 10; pl. 3, fig. 6.

Warsaw L. S.: Warsaw, Illinois.

Scaphiocrinus doris. See *Poteriocrinus doris*.**Scaphiocrinus elegantulus** Wachsmuth and Springer.

1890. *Scaphiocrinus elegantulus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 195, pl. 17, fig. 13.

Kinderhook Group: Legrand, Iowa.

Scaphiocrinus extensus Wachsmuth and Springer.

1882. *Poteriocrinus asper*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 11. Upper part of geodiferous shales of Keokuk Group: 1 mile below Keokuk, Iowa.

1883. *Poteriocrinus asper*. Worthen, Geol. Surv. Ill., vol. 7, p. 278, pl. 27, fig. 8. Keokuk Group (upper part of geode bed): 1 mile below Keokuk, Iowa.

1886. *Scaphiocrinus extensus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 161. (Rev. Palaeocr. III, p. 237.)

Scaphiocrinus fiscellus. See *Decadocrinus fiscellus*.**Scaphiocrinus gibsoni** White.

1878. *Scaphiocrinus Gibsoni*. White, Proc. Acad. Nat. Sci. Phil., p. 31.

Keokuk Group: Crawfordsville, Indiana.

1880. *Scaphiocrinus gibsoni*. White, Cont. to Inv. Pal., No. 8, p. 161, pl. 40, fig. 4a.

Keokuk Group: Crawfordsville, Indiana.

1881. *Scaphiocrinus gibsoni*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 507, pl. 7, fig. 7.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus globosus Wachsmuth and Springer.

1890. *Scaphiocrinus globosus*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 196, pl. 17, fig. 8.

Kinderhook Group: Legrand, Iowa.

Scaphiocrinus gorbyi Miller.

1891. *Scaphiocrinus gorbyi*. Miller, Adv. Sheets 17th Rep. Geol. Surv. Ind., p. 46, pl. 12, fig. 15.

Keokuk Group: Boonville, Missouri.

1892. *Scaphiocrinus gorbyi*. Miller, 17th Rep. Geol. Surv. Ind., p. 656, pl. 12, fig. 15.

Keokuk Group: Boonville, Missouri.

1894. *Scaphiocrinus ? gorbyi*. Keyes, Mo. Geol. Surv., vol. 4, p. 213.

Keokuk L. S.: Boonville, Missouri.

Scaphiocrinus granuliferus Miller and Gurley.

1890. *Scaphiocrinus granuliferus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 367, pl. 10, fig. 3.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus graphicus Miller and Gurley.

1890. *Scaphiocrinus graphicus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 366, pl. 10, fig. 4.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus gurleyi White.

1878. *Scaphiocrinus Gurleyi*. White, Proc. Acad. Nat. Sci. Phil., p. 32.

Keokuk Group: Crawfordsville, Indiana.

1880. *Scaphiocrinus gurleyi*. White, Cont. to Inv. Pal., No. 8, p. 162, pl. 40, fig. 3a.

Keokuk Group: Crawfordsville, Indiana.

1881. *Scaphiocrinus gurleyi*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 509, pl. 7, fig. 8.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus halli. See *Decadocrinus halli*.

Scaphiocrinus hemisphericus. See *Ceriocrinus hemisphericus*.

Scaphiocrinus hoveyi. See *Barycrinus hoveyi*.

Scaphiocrinus huntsvillæ Worthen.

1873. *Scaphiocrinus Huntsvillæ*. Worthen, Geol. Surv. Ill., vol. 5, p. 534, pl. 20, fig. 1.

St. Louis L. S.?: Near Huntsville, Alabama.

Scaphiocrinus internodius Hall.

1858. *Scaphiocrinus internodius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 679, pl. 25, fig. 2.

Kaskaskia L. S.: Chester, Illinois.

1882. *Scaphiocrinus internodius*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17 (footnote).

St. Louis L. S. (Not Chester, as reported by Hall.)

Scaphiocrinus iowensis Worthen.

1882. *Poteriocrinus iowensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 6. Upper shales of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.

1883. *Poteriocrinus Iowensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 272.

Keokuk Group (upper shales of geode bed): 1 mile below Keokuk, Iowa.

Scaphiocrinus juvenis. See *Decadocrinus juvenis*.

Scaphiocrinus kaskaskiensis Worthen.

1882. *Poteriocrinus kaskaskiensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 27.

Chester L. S.: Bluffs of Kaskaskia River, 4 miles above Chester, Illinois.

1883. *Poteriocrinus kaskaskiensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 300, pl. 29, fig. 15.

Chester L. S.: Bluffs of Kaskaskia River, 4 miles above Chester, Illinois.

Scaphiocrinus keokuk Hall.

1860. *Poteriocrinus keokuk*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 64.

Keokuk L. S.: Keokuk, Iowa.

Scaphiocrinus lacunosus Miller and Gurley.

1890. *Scaphiocrinus lacunosus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 363, pl. 8, figs. 8-10.

Keokuk Group: Bono, Indiana.

Scaphiocrinus latidactylus Worthen.

1882. *Poteriocrinus latidactylus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 8.

Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus latidactylus*. Worthen, Geol. Surv. Ill., vol. 7, p. 275, pl. 28, fig. 6.

Keokuk L. S.: Hamilton, Illinois.

Scaphiocrinus longidactylus. See *Scytalocrinus decabrachiatus*.

Scaphiocrinus lyoni Miller.

1892. *Scaphiocrinus lyoni*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 45, pl. 5, fig. 25.

Keokuk Group: Three miles east of Crawfordsville, Indiana.

1894. *Scaphiocrinus lyoni*. Miller, 18th Rep. Geol. Surv. Ind., p. 299, pl. 5, fig. 25.

Keokuk Group: Three miles east of Crawfordsville, Indiana.

Scaphiocrinus lyrioepes. See *Decadocrinus lyrioepes*.

Scaphiocrinus macadamsi. See *Graphiocrinus macadamsi*.

Scaphiocrinus macrodactylus. See *Scytalocrinus macrodactylus*.

Scaphiocrinus maniformis Miller.

1892. *Scaphiocrinus maniformis*. Miller, Adv. Sheets 18th Rep. Geol. Surv. Ind., p. 46, pl. 5, fig. 26.

Keokuk Group: Washington County, Indiana.

1894. *Scaphiocrinus maniformis*. Miller, 18th Rep. Geol. Surv. Ind., p. 300, pl. 5, fig. 26.

Keokuk Group: Washington County, Indiana.

Scaphiocrinus manus Miller and Gurley.

1890. *Scaphiocrinus manus*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 24, pl. 4, fig. 13.

Keokuk Group: Crawfordsville, Indiana.

1890. *Scaphiocrinus manus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 345, pl. 4, fig. 13.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus martinensis Miller and Gurley.

1894. *Scaphiocrinus martinensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 38, pl. 4, fig. 9.

Kaskaskia Group: Martin County, Indiana.

Scaphiocrinus missouriensis Shumard.

1855. *Poteriocrinus longidactylus*. Shumard, Geol. Rep. Mo., p. 188, pl. B, figs. 5a-c. (Not *S. longidactylus* Austin, 1843.)

Upper St. Louis L. S.: St. Louis County, Missouri.

*1857. *Poteriocrinus missouriensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 80.

1858. *Poteriocrinus missouriensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 669, pl. 17, figs. 7a, b.

St. Louis L. S.: Near St. Louis, Missouri.

1894. *Scaphiocrinus missouriensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 211, pl. 26, fig. 2.

St. Louis L. S.: St. Louis, Missouri.

Scaphiocrinus montanænsis Meek.

1873. *Poteriocrinites Montanænsis*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 469.

Carboniferous: "Old Baldy," near Virginia City, Montana.

Scaphiocrinus montanaensis Meek—Continued.

1880. *Poteriocrinus montanaensis*. White, Cont. to Inv. Pal., No. 6, p. 128, pl. 33, fig. 6a.

Carboniferous: "Old Baldy" Mountain, near Virginia City, Montana.

Scaphiocrinus nanus Meek and Worthen.

1869. *Scaphiocrinus nanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 141. Lower Burlington L. S.: Burlington, Iowa.

1873. *Scaphiocrinus nanus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 423, pl. 1, fig. 8.

Burlington, L. S.: Burlington, Iowa.

Scaphiocrinus nauvoensis Worthen.

1882. *Poteriocrinus nauvoensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 13.

Keokuk L. S.: Nauvoo, Illinois.

1883. *Poteriocrinus Nauvoensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 282, pl. 28, fig. 10.

Keokuk L. S.: Nauvoo, Illinois.

Scaphiocrinus nodobrachiatus Hall.

1861. *Scaphiocrinus nodobrachiatus*. Hall, Desc. New Spec. Crin., p. 8

Keokuk L. S.

1861. *Scaphiocrinus nodobrachiatus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 314.

Keokuk, L. S.: Crawfordsville, Indiana.

1872. *Scaphiocrinus nodobrachiatus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 2.

Scaphiocrinus norwoodi Meek and Worthen.

1865. *Poteriocrinus* (*Scaphiocrinus*) ? *Norwoodi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 158.

St. Louis Group: Hancock County, Illinois.

Scaphiocrinus notabilis*. See *Poteriocrinus notabilis*.*Scaphiocrinus notatus Miller and Gurley.**

1896. *Scaphiocrinus notatus*. Miller and Gurley, Bull. No. 9, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 25, 26.

Kinderhook Group: Legrand, Iowa.

Scaphiocrinus obscurus Wachsmuth and Springer.

1882. *Poteriocrinus tenuidactylus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 6. (Not *S. tenuidactylus* M. & W. 1865.)

Upper part of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.

1883. *Poteriocrinus tenuidactylus*. Worthen, Geol. Surv. Ill., vol. 7, p. 271, pl. 28, fig. 13.

Keokuk Group (geode bed): 1 mile below Keokuk, Iowa.

1886. *Scaphiocrinus obscurus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 160. (Rev. Palaeocr. Ill., p. 236.)

Scaphiocrinus occidentalis Worthen.

1882. *Poteriocrinus occidentalis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 10.

Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Poteriocrinus occidentalis*. Worthen, Geol. Surv. Ill., vol. 7, p. 278, pl. 27, fig. 2.

Keokuk L. S.: Hamilton, Illinois.

Scaphiocrinus okawensis Worthen.

1882. *Poteriocrinus okawensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 24.

Chester L. S.: Bluffs of Okaw River, above Chester, Illinois.

1883. *Poteriocrinus Okawensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 296, pl. 29, fig. 2.

Chester L. S.: Bluffs of Okaw River, above Chester, Illinois.

Scaphiocrinus orbicularis. See *Eupachycrinus orbicularis*.

Scaphiocrinus orestes Worthen.

1882. *Poteriocrinus orestes*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 7.
Top of geodiferous shales of Keokuk Group: 1 mile below Keokuk, Iowa.
1883. *Poteriocrinus Orestes*. Worthen, Geol. Surv. Ill., vol. 7, p. 273, pl. 27, fig. 3.
Keokuk Group (top of geode bed): 1 mile below Keokuk, Iowa.

Scaphiocrinus penicillus Meek and Worthen.

1869. *Scaphiocrinus penicillus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 142.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus penicillus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 414, pl. 2, fig. 7.
Burlington L. S.: Burlington, Iowa.

Scaphiocrinus pikensis Worthen.

1882. *Zeacrinus pikensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 29.
Lower Burlington L. S.: Montezuma, Pike County, Illinois.
1883. *Zeacrinus Pikensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 304, pl. 30, fig. 3.
Burlington L. S.: Montezuma, Pike County, Illinois.

Scaphiocrinus popensis Worthen.

1882. *Poteriocrinus popensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 23.
Chester L. S.: Pope County, Illinois.
1883. *Poteriocrinus Popensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 296, pl. 29, fig. 12.
Chester L. S.: Pope County, Illinois.

Scaphiocrinus porrectus Miller.

1891. *Scaphiocrinus porrectus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 42, pl. 7, fig. 2.
Keokuk Group: Crawfordsville, Indiana.
1892. *Scaphiocrinus porrectus*. Miller, 17th Rep. Geol. Surv. Ind., p. 652, pl. 7, fig. 2.
Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus præmorsus Miller and Gurley.

1890. *Scaphiocrinus præmorsus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 364, pl. 8, fig. 11.
Keokuk Group: Washington County, Indiana.

Scaphiocrinus proboscidiælis Worthen.

1875. *Poteriocrinus proboscidiælis*. Worthen, Geol. Surv. Ill., vol. 6, p. 518, pl. 31, fig. 1.
St. Louis L. S.: Carondelet, Missouri.
1894. *Scaphiocrinus proboscidiælis*. Keyes, Mo. Geol. Surv., vol. 4, p. 212.
St. Louis L. S.: Carondelet, Missouri.

Scaphiocrinus propinquus Worthen.

1882. *Poteriocrinus propinquus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 26.
Chester L. S.: Monroe County, Illinois.
1883. *Poteriocrinus propinquus*. Worthen, Geol. Surv. Ill., vol. 7, p. 299, pl. 29, fig. 9.
Chester L. S.: Monroe County, Illinois.

Scaphiocrinus ramulosus Hall.

1861. *Scaphiocrinus ramulosus*. Hall, Desc. New Spec. Crin., p. 7.
Burlington L. S.
1861. *Scaphiocrinus ramulosus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 307.
Burlington L. S.: Burlington, Iowa.

Scaphiocrinus randolphensis Worthen.

1873. *Scaphiocrinus Randolphensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 551, pl. 21, fig. 14.

Chester Group: Chester, Illinois.

Scaphiocrinus repertus Miller and Gurley.

1890. *Scaphiocrinus repertus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 362, pl. 8, figs. 1, 2.

Keokuk Group: Bono, Indiana.

Scaphiocrinus robustus. See *Scytalocrinus robustus*.

Scaphiocrinus rudis. See *Graphiocrinus rudis*.

Scaphiocrinus rusticellus White.

1862. *Scaphiocrinus rusticellus*. White, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 505. Burlington L. S.: Burlington, Iowa.

1894. *Scaphiocrinus rusticellus*. Keyes, Mo. Geol. Surv., vol. 4, p. 212, pl. 26, fig. 1. Lower Burlington L. S.: Hannibal, Missouri; Burlington, Iowa.

Scaphiocrinus salteri Worthen.

1882. *Poteroocrinus salteri*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 21. Chester L. S.: Chester, Illinois.

1883. *Poteroocrinus Salteri*. Worthen, Geol. Surv. Ill., vol. 7, p. 291, pl. 29, fig. 18. Chester L. S.: Chester, Illinois.

Scaphiocrinus sampsoni Miller.

1891. *Scaphiocrinus sampsoni*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 46, pl. 9, fig. 12.

Chouteau L. S.: Pettis County, Missouri.

1892. *Scaphiocrinus sampsoni*. Miller, 17th Rep. Geol. Surv. Ind., p. 656, pl. 9, fig. 12.

Chouteau L. S.: Pettis County, Missouri.

1894. *Scaphiocrinus? sampsoni*. Keyes, Mo. Geol. Surv., vol. 4, p. 213.

Chouteau L. S.: Sedalia, Missouri.

Scaphiocrinus scalaris. See *Decadocrinus scalaris*.

Scaphiocrinus scoparius Hall.

1858. *Scaphiocrinus scoparius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 680, pl. 25, figs. 3a, b.

Kaskaskia L. S.: Chester, Illinois.

1882. *Scaphiocrinus scoparius*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17 (footnote).

St. Louis L. S. (not Chester as reported by Hall).

1894. *Scaphiocrinus scoparius*. Keyes, Mo. Geol. Surv., vol. 4, p. 212.

Kaskaskia L. S.: Chester, Illinois.

Scaphiocrinus sculptus Worthen.

1882. *Poteroocrinus sculptus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 21. Chester L. S.: Monroe County, Illinois.

1883. *Poteroocrinus sculptus*. Worthen, Geol. Surv. Ill., vol. 7, p. 292, pl. 29, fig. 8. Chester L. S.: Monroe County, Illinois.

Scaphiocrinus simplex. See *Graphiocrinus simplex*.

Scaphiocrinus spinifer Wetherby.

1880. *Scaphiocrinus spinifer*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 157, pl. 5, fig. 3.

Kaskaskia Group: Pulaski County, Kentucky.

Scaphiocrinus spinobrachiatus Hall. See *Graphiocrinus spinobrachiatus*.

Scaphiocrinus spinobrachiatus Worthen.

1882. *Poteriocrinus spinobrachiatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 20.

Chester L. S.: Monroe County, Illinois.

1883. *Poteriocrinus spinobrachiatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 290, pl. 29, fig. 1.

Chester L. S.: Monroe County, Illinois.

Scaphiocrinus spinosus Owen and Shumard.

1852. *Poteriocrinus spinosus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 91, pl. 11, fig. 4.

Carboniferous L. S.: Kaskaskia, Illinois; Grayson County, Kentucky.

1852. *Poteriocrinus spinosus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 596, tab. 5B, fig. 4.

Carboniferous L. S.: Kaskaskia, Illinois.

Scaphiocrinus striatus. See *Graphiocrinus striatus*.**Scaphiocrinus subcarinatus** Hall.

1864. *Scaphiocrinus subcarinatus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 58. Waverly Group: Richfield, Ohio.

1875. *Scaphiocrinus subcarinatus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 176, pl. 12, figs. 13, 14.

Waverly Group: Richfield, Ohio.

Scaphiocrinus subimpressus Meek and Worthen.

1861. *Scaphiocrinus sub-impressus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 138.

Burlington L. S.: Burlington, Iowa.

1868. *Poteriocrinus subimpressus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 485, pl. 18, figs. 1a, b.

Burlington Group: Burlington, Iowa.

Scaphiocrinus subtortuosus. See *Decadocrinus subtortuosus*.**Scaphiocrinus subtumidus** Meek and Worthen.

1865. *Poteriocrinus (Scaphiocrinus) subtumidus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 159.

Chester Group: Bay City, Pope County, Illinois.

Scaphiocrinus swallowi Meek and Worthen.

1860. *Poteriocrinus Swallowi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 394.

Burlington L. S.: Burlington, Iowa.

1866. *Poteriocrinus Swallowi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 183, pl. 16, figs. 4a, b.

Burlington L. S.: Burlington, Iowa.

1881. *Poteriocrinus Jesupi*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 7, pls. 1, 2.

Burlington L. S.: Burlington, Iowa.

1882. *Poteriocrinus subramulosus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 14.

Keokuk L. S.: Keokuk, Iowa.

1883. *Poteriocrinus subramulosus*. Worthen, Geol. Surv. Ill., vol. 7, p. 284, pl. 27, fig. 6.

Keokuk L. S.: Keokuk, Iowa.

Scaphiocrinus tethys Meek and Worthen.

1869. *Scaphiocrinus Tethys*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 143.

Upper Burlington L. S.: Burlington, Iowa.

Scaphiocrinus tethys Meek and Worthen—Continued.

1873. *Scaphiocrinus Tethys*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 419, pl. 2, fig. 13.

Burlington L. S.: Burlington, Iowa.

Scaphiocrinus tortuosus. See *Graphiocrinus tortuosus*.**Scaphiocrinus unicus** Hall.

1861. *Scaphiocrinus unicus*. Hall, Desc. New Spec. Crin., p. 8.

Keokuk L. S.

1861. *Scaphiocrinus unicus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 313.

Keokuk L. S.: Crawfordsville, Indiana.

1872. *Scaphiocrinus unicus*. Hall, Photo. Plates of Crinoids, pl. 6, fig. 6.

1873. *Scaphiocrinus unicus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 493, pl. 15, fig. 5.

Keokuk Group: Crawfordsville, Indiana.

1875. *Scaphiocrinus unicus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 519, pl. 29, fig. 1.

Keokuk Group: Crawfordsville, Indiana.

Scaphiocrinus varsoviensis Worthen.

1882. *Poteriocrinus varsoviensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 19.

Warsaw beds: Warsaw, Illinois.

1883. *Poteriocrinus Varsoviensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 290, pl. 28, fig. 15.

Warsaw beds: Warsaw, Illinois.

Scaphiocrinus venustus Worthen.

1882. *Poteriocrinus venustus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 24.

Chester L. S.: Monroe County, Illinois.

1882. *Poteriocrinus clytis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 25.

Chester L. S.: Monroe County, Illinois.

1883. *Poteriocrinus venustus*. Worthen, Geol. Surv. Ill., vol. 7, p. 297, pl. 29, fig. 13.

Chester L. S.: Monroe County, Illinois.

1883. *Poteriocrinus peculiaris*. Worthen, Geol. Surv. Ill., vol. 7, p. 298, pl. 29, fig. 10.

Chester L. S.: Monroe County, Illinois.

Scaphiocrinus wachsmuthi. See *Graphiocrinus wachsmuthi*.**Scaphiocrinus whitei**. See *Poteriocrinus whitei*.**SCHIZOBLASTUS** Etheridge and Carpenter, 1882.**Schizoblastus granulosus** Meek and Worthen.

1865. *Pentremites (Granatocrinus?) granulosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 165.

Keokuk Group: Warsaw, Illinois.

1873. *Granatocrinus granulosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 508, pl. 15, fig. 10.

Keokuk Group: Near Warsaw, Illinois.

Schizoblastus lotoblastus White.

1874. *Granatocrinus lotoblastus*. White, Prelim. Rep. Inv. Foss., p. 15.

Subcarboniferous: Ewell's Spring, Arizona.

1879. *Granatocrinus lotoblastus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 80, pl. 5, figs. 3a, b.

Subcarboniferous: Ewell's Spring, Arizona.

Schizoblastus lotoblastus White—Continued.

1879. *Granatocrinus lotoblastus?* White, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 5, p. 212.

Carboniferous: Teton range, near the headwaters of Teton River, just west of the common boundary of Idaho and Wyoming.

Schizoblastus melonoides Meek and Worthen.

1869. *Granatocrinus melonoides*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 88.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Granatocrinus melonoides*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 468, pl. 9, fig. 1.

Burlington L. S.: Burlington, Iowa.

1886. *Schizoblastus melonoides*. Etheridge and Carpenter, Cat. Blast., p. 226, pl. 6, figs. 15, 16.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Schizoblastus melonoides*. Keyes, Mo. Geol. Surv., vol. 4, p. 138.

Upper Burlington L. S.: Louisiana and Hannibal, Missouri.

Schizoblastus potteri Hambach.

1880. *Pentremites Potteri*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 156, pl. B, fig. 4.

Burlington L. S.: Burlington, Iowa.

Schizoblastus roemeri Shumard.

1855. *Pentremites Roemeri*. Shumard, Geol. Rep. Mo., p. 186, pl. B, figs. 2a-d. Chemung Group: Providence, Boone County, Missouri.

1894. *Schizoblastus? roemeri*. Keyes, Mo. Geol. Surv., vol. 4, p. 137.

Chouteau L. S.: Sedalia and Providence, Missouri.

Schizoblastus sampsoni Hambach.

1884. *Pentremites Sampsoni*. Hambach, Trans. St. Louis Acad. Sci., vol. 4, p. 551, pl. D, figs. 2, 2a.

Chouteau L. S.: Pettis County, Missouri.

Schizoblastus sayi Shumard.

1855. *Pentremites Sayi*. Shumard, Geol. Surv. Mo., p. 185, pl. B, figs. 1a-d.

Base of Enderinital L. S.: Boone, Marion, Jefferson, St. Louis, and Ste. Genevieve counties, Missouri.

1886. *Schizoblastus Sayi*. Etheridge and Carpenter, Cat. Blast., p. 224, pl. 3, figs. 1-3; pl. 6, fig. 18; pl. 10, fig. 17; pl. 17, fig. 1.

Upper Burlington L. S.: Burlington, Iowa.

1894. *Schizoblastus sayi*. Keyes, Mo. Geol. Surv., vol. 4, p. 138, pl. 18, figs. 9a, b. Burlington L. S.: Ash Grove, Louisiana, Hannibal, Helton, Palmyra, and Ste. Genevieve, Missouri.

SCHIZODUS King, 1844.**Schizodus æqualis** Hall.

1825. *Schizodus æqualis*. Hall, Pal. N. Y., vol. 1, pt. 1, p. 459, pl. 75, fig. 35; pl. 95, fig. 29.

Waverly S. S.: Granville, Licking County, Ohio.

1888. *Schizodus chemungensis* var. ? *æqualis*. Herrick, Bull. Den. Univ., vol. 3, p. 64, pl. 1, fig. 25.

Waverly Group: Licking County, Ohio.

Schizodus affinis Herrick.

1887. *Schizodus affinis*. Herrick, Bull. Den. Univ., vol. 2, p. 41, pl. 4, figs. 22, 22a. Coal Measures: Flint Ridge, Ohio.

Schizodus alpina Hall.

1858. *Dolabra? alpina*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 716, pl. 29, fig. 2.
Lower Coal Measures: Alpine Dam, Iowa.
1891. *Schizodus alpina*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 249.
Lower Coal Measures: Des Moines, Iowa.

Schizodus amplus Meek and Worthen.

1870. *Schizodus amplus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 41.
Coal Measures: Seaville, Fulton County, Illinois.
1873. *Schizodus amplus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 579, pl. 27, fig. 6.
Coal Measures: Seaville, Fulton County, Illinois.
1897. *Schizodus conf. amplus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36.
Lower Coal Measures: White County, Arkansas.

Schizodus batesvillensis Weller.

1897. *Schizodus batesvillensis*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 266, pl. 19, figs. 8, 9.
Batesville S. S.: Batesville, Arkansas.

Schizodus chemungensis. See *Schizodus prolongatus*.

Schizodus chemungensis var. *æqualis*. See *Schizodus æqualis*.

Schizodus chesterensis Meek and Worthen.

1860. *Schizodus Chesterensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 457.
Upper Chester L. S.: Chester, Illinois.
1866. *Schizodus chesterensis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 301, pl. 23, figs. 6a, b.
Chester Group: Chester, Illinois.
1891. *Schizodus Chesterensis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 587, pl. 14, fig. 4.
Maxville L. S.: Maxville, Ohio.
1895. *Schizodus Chesterensis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 474, pl. 10, fig. 4.
Maxville L. S.: Maxville, Ohio.

Schizodus circulus Worthen.

1884. *Schizodus? circulus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 11.
Oolite beds of St. Louis L. S.: Monroe County, Illinois.
1890. *Schizodus? circulus*. Worthen, Geol. Surv. Ill., vol. 8, p. 109, pl. 19, fig. 1.
St. Louis L. S. (oolite): Monroe County, Illinois.

Schizodus cuneatus Meek.

1875. *Schizodus cuneatus*. Meek, Pal. Ohio, vol. 2, p. 336, pl. 20, fig. 7.
Lower Coal Measures: Putnam Hill and Flint Ridge, Ohio.
1884. *Schizodus cuneatus*. Walcott, Pal. Eureka Dist., p. 252, pl. 20, fig. 8.
Lower Carboniferous: Eureka District, Nevada.
1886. *Schizodus cuneatus?* Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for 1885, p. 456, fig. 9a; p. 442, fig. 9.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Schizodus cuneatus?* Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 275, fig. 9.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1887. *Schizodus cuneatus?* Herrick, Bull. Den. Univ., vol. 2, p. 42, pl. 4, fig. 23.
Coal Measures: Flint Ridge, Ohio.
1897. *Schizodus cuneatus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 35.
Upper Coal Measures: Crawford County, Arkansas.
Lower Coal Measures: Conway County, Arkansas.

Schizodus cuneus Hall.

- * 1883. *Cytherodon (Schizodus) cuneus*. Hall, Pal. N. Y., vol. 5, pt. 1. Plates and Explanations, pl. 75, figs. 29, 30.
Waverly S. S.: Granville, Licking County, Ohio.
1885. *Schizodus cuneus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 458, pl. 75, figs. 29, 30.
Waverly S. S.: Granville, Licking County, Ohio.
1888. *Schizodus cuneus*. Herrick, Bull. Den. Univ., vol. 3, p. 65, pl. 5, fig. 15.
Waverly Group: Licking County, Ohio.
1895. *Schizodus cuneus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 15.
Kinderhook: Ohio.

Schizodus curtiformis Walcott.

1884. *Schizodus curtiforme*. Walcott, Pal. Eureka Dist., p. 253, pl. 22, figs. 3-3a.
Lower Carboniferous: Eureka District, Nevada.

Schizodus curtus Meek and Worthen.

- * 1866. *Schizodus curtus*. Meek and Worthen, Proc. Chicago Acad. Sci., vol. 1, p. 18.
1872. *Schizodus curtus*? Meek, U. S. Geol. Surv. Nebr., p. 208, pl. 10, figs. 13a-c.
Upper Coal Measures: Nebraska City, Nebraska; Wabash Cut-off, Illinois; Atchison, Kansas.
Lower Coal Measures: Illinois.
1873. *Schizodus curtus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 582, pl. 26, fig. 16.
Coal Measures: Wabash Cut-off near New Harmony, Indiana; Fulton County, Illinois.
1887. *Schizodus curtus*. Herrick, Bull. Den. Univ., vol. 2, p. 42, p. 145, pl. 14, fig. 20.
Coal Measures: Flint Ridge, Ohio.
1894. *Schizodus? curtus*. Keyes, Mo. Geol. Surv., vol. 5, p. 124.
Upper Coal Measures: Kansas City, Missouri.

Schizodus deparcus Walcott.

1884. *Schizodus deparcus* Walcott. Pal. Eureka Dist., p. 252, pl. 22, fig. 5.
Lower Carboniferous: Eureka District, Nevada.

Schizodus depressus Worthen.

1884. *Schizodus depressus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 11.
Oolite bed of St. Louis L. S.: Monroe County, Illinois.
1890. *Schizodus depressus*. Worthen, Geol. Surv. Ill., vol. 8, p. 109, pl. 18, figs. 8, 8a.
St. Louis L. S. (oolite): Monroe County, Illinois.
1897. *Schizodus depressus* (?) Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 267, pl. 20, figs. 7, 8.
Batesville S. S.: Batesville, Arkansas.

Schizodus harii Miller.

1891. *Schizodus harii*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 91, pl. 20, figs. 1-3.
Coal Measures: Kansas City, Missouri.
1892. *Schizodus harii*. Miller, 17th Rep. Geol. Surv. Ind., p. 701, pl. 20, figs. 1, 3.
Coal Measures: Kansas City, Missouri.
1894. *Schizodus harii*. Keyes, Mo. Geol. Surv., vol. 5, p. 123, pl. 46, fig. 4.
Upper Coal Measures: Kansas City, Missouri.

Schizodus harlamensis Herrick.

1888. *Schizodus harlamensis*. Herrick, Bull. Den. Univ., vol. 4, p. 117, pl. 6, fig. 3.
Waverly Group: 1 mile east of Harlam, Delaware County, Ohio.
1895. *Schizodus harlamensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 3.
Lower Cuyahoga Shale: Near Harlem, Delaware County, Ohio.

Schizodus magnus Worthen.

1884. *Schizodus magnus*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 9.
Chester L. S.: Randolph County, Illinois.

Schizodus magnus Worthen—Continued.

1890. *Leptodomus? magnus*. Worthen, Geol. Surv. Ill., vol. 8, p. 107, pl. 18, fig. 2.
Chester L. S.: About 2 miles below mouth of Mary's River, Randolph County, Illinois.

Schizodus medinænsis Meek.

1871. *Schizodus medinaensis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 165.
Waverly Group: Medina, Ohio.
1375. *Schizodus Medinaensis*. Meek, Pal. Ohio, vol. 2, p. 299, pl. 15, figs. 1a-c.
Waverly Group: Medina, Ohio.
1886. *Schizodus medinensis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 249.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Schizodus medinensis*. Herrick, Bull. Den. Univ., vol. 3, p. 65, pl. 1, fig. 16;
pl. 2, fig. 6.
Waverly Group: Licking County, Ohio.

Schizodus mooresi Miller.

1889. *Schizodus mooresi*. Miller, N. A. Geol. and Pal., p. 511, figs. 918, 919.
Coal Measures: Carbon Hill, Hocking Valley, Ohio.

Schizodus nauvoocensis Worthen.

1884. *Schizodus nauvoocensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 10.
Keokuk L. S.: Nauvoo, Illinois.
1890. *Schizodus nauvoocensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 108, pl. 20, fig. 3.
Keokuk L. S.: Nauvoo, Illinois.

Schizodus newarkensis Herrick.

1888. *Schizodus newarkensis*. Herrick, Bull. Den. Univ., vol. 3, p. 64, pl. 10, fig. 1.
Waverly Group: Licking County, Ohio.
1888. *Schizodus newarkensis*. Herrick, Bull. Den. Univ., vol. 4, p. 36, pl. 6, fig. 6.
Waverly Group: Newark, Ohio.
1895. *Schizodus newarkensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 6.
Burlington Group: Newark, Ohio.

Schizodus obscurus. See *Schizodus wheeleri*.**Schizodus ovatus** Meek and Hayden.

1858. *Axinus (Schizodus) ovatus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 262.
Upper Coal Measures: Cottonwood Creek, Kansas.
1864. *Schizodus ovatus*. Meek and Hayden, Pal. Up. Mo., p. 59, pl. 2, figs. 11a, b.
Permian: South Cottonwood Creek, Kansas.

Schizodus palæoneiliformis Herrick.

1888. *Schizodus (Protoschizodus) palæoneiliformis*. Herrick, Bull. Den. Univ., vol. 3, p. 96, pl. 12, fig. 44.
Waverly Group: Licking County, Ohio.
1888. *Schizodus palæoneiliformis*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 2.
Waverly Group: Ohio.
1895. *Schizodus palæoneiliformis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 2.
Kinderhook Freestone: Licking County, Ohio.

Schizodus perelegans Meek and Worthen.

1870. *Schizodus (Priscaia) perelegans*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 42.
Coal Measures: Danville, Illinois.
1873. *Schizodus (Priscaia) perelegans*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 581, pl. 26, fig. 19.
Coal Measures: Near Danville, Illinois.

Schizodus pintoensis Walcott.

1884. *Schizodus Pintoensis*. Walcott, Pal. Eureka Dist., p. 253, pl. 22, figs. 2-2a.
Lower Carboniferous: Eureka District, Nevada.

Schizodus prolongatus Herrick.

1883. *Schizodus chemungensis*. Herrick, Bull. Den. Univ., vol. 3, pl. 9, fig. 20.
(Not *S. chemungensis* Con. 1842.)
Waverly Group: Licking County, Ohio.
1888. *Schizodus (chemungensis, var.) prolongatus*. Herrick, Bull. Den. Univ.,
vol. 4, p. 36, pl. 6, fig. 1.
Waverly Group: Granville, Ohio.
1895. *Schizodus prolongatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 1.
Cuyahoga Shale: Licking County, Ohio.

Schizodus quadrangularis Hall.

- *1870. *Schizodus quadrangularis*. Hall, Prelim. Not. Lamell., 2, p. 96.
Chemung Group: New York.
1885. *Schizodus Chemungensis* var. *quadrangularis*. Hall, Pal. N. Y., vol. 5, pt. 1,
p. 454, pl. 75, figs. 31-34, 36.
Chemung Group: New York.
1886. *Schizodus quadrangularis*. Claypole, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, pp. 243 and 249.
Lower Coal Measures: Wilkesbarre, Pennsylvania.
1888. *Schizodus quadrangularis*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 12.
Waverly Group: Ohio.
1895. *Schizodus quadrangularis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 12.
Kinderhook: Granville, Ohio.

Schizodus randolphensis Worthen.

1890. *Schizodus randolphensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 110, pl. 20,
fig. 12.
Chester L. S.: Chester, Illinois.

Schizodus rossicus de Verneuil.

1858. *Schizodus Rossicus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 193.
Upper Permian: Near Smoky Hill Fork, Kansas.
1866. *Schizodus Rossicus*. Geinitz, Carb. und Dyas in Neb., p. 18, tab. 1, figs. 28, 29.
Nebraska City, Nebraska.
1873. *Schizodus Rossicus*? Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 26,
figs. 17a-e, 18.
Coal Measures.
1874. *Schizodus Rossicus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 580.

Schizodus sedaliensis Miller and Gurley.

1896. *Schizodus sedaliensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat.
Hist., p. 17, pl. 2, figs. 15, 16.
Chouteau L. S.: Sedalia, Missouri.

Schizodus spellmani Herrick.

1887. *Schizodus (?) spellmani*. Herrick, Bull. Den. Univ., vol. 2, p. 42, pl. 3, fig. 14.
Coal Measures: Flint Ridge, Ohio.

Schizodus subcircularis Herrick.

1887. *Schizodus sub-circularis*. Herrick, Bull. Den. Univ., vol. 2, p. 41, pl. 4, fig. 24;
p. 145, pl. 14, fig. 18.
Coal Measures: Flint Ridge, Ohio.

Schizodus subtrigonalis Meek.

1871. *Schizodus subtrigonalis*. Meek, Proc. Acad. Nat. Sci. Phil., p. 166.
Waverly Group: Wooster, Ohio.

Schizodus symmetricus Calvin.

1890. *Schizodus symmetricus*. Calvin, Bull. Lab. Nat. Hist., State Univ. Iowa, vol. 1, p. 176, pl. 2, figs. 3a, b.

Upper Coal Measures: Braddyville, Iowa.

Schizodus triangularis Swallow.

1858. *Schizodus triangularis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 193.

Lower Permian: Valley of Cottonwood, Kansas.

Schizodus triangularis Herrick.

1888. *Macrodon* ? ? *triangularis*. Herrick, Bull. Den. Univ., vol. 3, p. 74, pl. 8, fig. 8.

Waverly Group: Licking County, Ohio.

1888. *Schizodus triangularis*. Herrick, Bull. Den. Univ., vol. 4, p. 116, pl. 6, figs. 10, 13.

Middle Waverly Group: Ohio.

1895. *Schizodus triangularis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, figs. 10, 13.

Kinderhook: Granville, Ohio.

Schizodus ulrichi Worthen.

1890. *Schizodus ulrichi*. Worthen, Geol. Surv. Ill., vol. 8, p. 110, pl. 21, figs. 1-1b; pl. 20, fig. 9.

Upper Coal Measures: Fairfield, Wayne County, Illinois.

Schizodus varsoviensis Worthen.

1884. *Schizodus varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 10.

Upper Keokuk L. S.: Warsaw, Illinois.

1890. *Schizodus varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 107, pl. 19, fig. 7.

Keokuk L. S.: Warsaw, Illinois.

Schizodus wheeleri Swallow.

1858. *Schizodus obscurus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 193. (Not *Azinus obscurus* Sowerby, 1823.)

Lower Permian: Kansas.

1863. *Cypriocardia* (?) *Wheeleri*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 96.

Upper Coal Measures: Caldwell County, Missouri.

1866. *Schizodus obscurus*. Geinitz, Carb. und Dyas in Neb., p. 20, tab. 1, figs. 30, 31.

Nebraska City, Nebraska.

1872. *Schizodus Wheeleri*. Meek, U. S. Geol. Surv. Neb., p. 209, pl. 10, figs. 1a-f.

Upper Coal Measures: Caldwell County, Missouri; Nebraska City, Nebraska; Adams and Union counties, Iowa.

Coal Measures: Illinois.

1876. *Schizodus Wheeleri*. White, Powell's Rep. Geol. Uinta Mts., p. 91.

Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.

1877. *Schizodus Wheeleri*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 154, pl. 11, figs. 6a, b.

Carboniferous: Near Bear Spring, Camp Wingate, New Mexico.

1884. *Schizodus Wheeleri*. White, 13th Rep. Geol. Surv. Ind., p. 147, pl. 30, figs. 3-5.

Coal Measures: Indiana (?).

1886. *Schizodus Wheeleri*. Heilprin, 2d Geol. Surv. Penn., Cum. Rep. for 1885, p. 456, p. 442, fig. 7.

Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

1886. *Schizodus Wheeleri*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 275, p. 270, fig. 7, p. 274, fig. 7a.

Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.

1887. *Schizodus wheeleri*. Herrick, Bull. Den. Univ., vol. 2, p. 42, pl. 3, fig. 15.

Coal Measures: Flint Ridge, Ohio.

Schizodus wheeleri Swallow—Continued.

1894. *Schizodus wheeleri*. Keyes, Mo. Geol. Surv., vol. 5, p. 123, pl. 46, figs. 3a-c.
Upper Coal Measures: Kansas City, Missouri.
1897. *Schizodus wheeleri*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 36, pl. 22, fig. 4.
Lower Coal Measures: Conway County, Arkansas.

Schizodus (species undetermined).

1866. *Schizodus* — (sp. ?) Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 345, pl. 27, fig. 6.
Upper Coal Measures: North branch of Saline Creek, Gallatin County, Illinois.
1872. *Schizodus*, undt. Meek, U. S. Geol. Surv. Nebr., p. 210, pl. 10, fig. 2.
Upper Coal Measures: Nebraska City, Nebraska.
1887. *Schizodus*. Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 19.
Coal Measures: Flint Ridge, Ohio.
1888. *Schizodus* (sp. und.) Keyes, Proc. Acad. Nat. Sci. Phil., p. 233.
Lower Coal Measures: Des Moines, Iowa.
1897. *Schizodus*? sp. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 267, pl. 19, fig. 5.
Batesville S. S.: Batesville, Arkansas.

SCHIZOPHORIA King, 1850.**Schizophoria resupinata Martin.**

1877. *Orthis resupinata*? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 265, pl. 5, figs. 1, 2.
Lower Carboniferous L. S.: Dry Canyon, Oquirrh Mountains, Utah.

Schizophoria resupinoides Cox.

1857. *Orthis resupinoides*. Cox, Geol. Surv. Ky., vol. 3, p. 570, pl. 9, figs. 1-1b.
Coal Measures: Hawesville, Hancock County, Kentucky.
1881. *Orthis resupinoides*? White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxiii, pl. 3, figs. 2a, b.
Carboniferous: Manuelitos Creek, New Mexico.
1890. *Orthis resupinoides*. Worthen, Geol. Surv. Ill., vol. 8, p. 106, pl. 11, figs. 4a, b.
Lower Coal Measures: Mercer County, Illinois.
1897. *Orthis* conf. *resupinoides*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 28.
Lower Coal Measures: White and Conway counties, Arkansas.

Schizophoria swallowi Hall.

1848. *Orthis resupinata*. Christy, Letters on Geol., pl. 3, figs. 1, 2.
Carboniferous L. S.: Oquawka, Illinois.
1858. *Orthis swallowi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 597, pl. 12, figs. 5a, b.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Missouri.
1883. *Orthis Swallowi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (6) 36, figs. 23, 24.
Burlington L. S.: Burlington, Iowa.
1892. *Orthis Swallowi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 6, figs. 23, 24.
Burlington L. S.: Burlington, Iowa.
1894. *Orthis swallowi*. Keyes, Mo. Geol. Surv., vol. 5, p. 63, pl. 38, fig. 5.
Burlington L. S.: Hannibal, Missouri.

SCHENASTER Meek and Worthen, 1860.**Schoenaster fimbriatus Meek and Worthen.**

1860. *Palasterina (Schoenaster) fimbriata*. Meek and Worthen, Proc. Acad. Nat. Sci., Phil., p. 449.
St. Louis L. S.: St. Clair County, Illinois.
1866. *Schenaster fimbriatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 278, pl. 19, figs. 7a-d.
St. Louis Group: St. Clair County, Illinois.

Schœnaster legrandensis Miller and Gurley.

1890. *Schoenaster legrandensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 371, pl. 9, figs. 7, 8.
Kinderhook Group: Legrand, Iowa.

Schœnaster wachsmuthi Meek and Worthen.

1866. *Schoenaster Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 259.
Upper Burlington L. S.: Burlington, Iowa.
1868. *Schoenaster Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 499, pl. 17, fig. 4.
Burlington L. S.: Burlington, Iowa.

(SCORPIO.)

Scorpio carbonarius Meek and Worthen. See *Eoscorpius carbonarius*.

SCYTALOCRINUS Wachsmuth and Springer, 1879.**Scytalocrinus abnormis** Worthen.

1875. *Scaphiocrinus abnormis*. Worthen, Geol. Surv. Ill., vol. 6, p. 519, pl. 31, fig. 6.
St. Louis Group: Monroe County, Illinois.

Scytalocrinus bisselli Worthen.

1873. *Poteriocrinites Bisselli*. Worthen, Geol. Surv. Ill., vol. 5, p. 546, pl. 21, fig. 4.
Chester Group: Chester, Illinois.

Scytalocrinus dactylus Hall.

1860. *Graphiocrinus dactylus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Iowa, p. 80.
St. Louis L. S.: Near St. Louis, Missouri.
1873. *Graphiocrinus dactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 559, pl. 20, fig. 9.
St. Louis L. S.: Monroe County, Illinois.
1894. *Scytalocrinus dactylus*. Keyes, Mo. Geol. Surv., vol. 4, p. 213.
St. Louis L. S.: St. Louis, Missouri.

Scytalocrinus decabrachiatus Hall.

1858. *Scaphiocrinus decabrachiatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 679, pl. 25, fig. 1.
Kaskaskia L. S.: Kaskaskia, Illinois.
1860. *Scaphiocrinus longidactylus*. McChesney, Desc. New Pal. Foss., p. 7.
Kaskaskia L. S.: Kaskaskia, Illinois.
1865. *Scaphiocrinus longidactylus*. McChesney, Ill. New Spec. Foss., pl. 4, fig. 4.
1868. *Scaphiocrinus longidactylus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 4, pl. 4, fig. 4.
Chester L. S.: Kaskaskia, Illinois.
1882. *Scaphiocrinus decabrachiatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17.
St. Louis L. S. (not Chester, as reported by Hall).

Scytalocrinus decadactylus Meek and Worthen.

1860. *Pateriocrinus (Scaphiocrinus) decadactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 394.
Keokuk L. S.: Appanoose, Hancock County, Illinois.
1866. *Scaphiocrinus decadactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 238, pl. 17, fig. 6.
Keokuk L. S.: Appanoose, Hancock County, Illinois.

Scytalocrinus grandis Wachsmuth and Springer.

1860. *Cyathocrinus dekadactylus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 73.
 Subcarboniferous: Montgomery County, Indiana.
1875. *Poteriocrinus Coreyi*. Worthen, Geol. Surv. Ill., vol. 6, p. 516, pl. 29, figs. 2, 3 (not *P. coreyi* M. and W., 1869).
 Keokuk Group: Crawfordsville, Indiana.
1879. *Poteriocrinus (Scytalocrinus) grandis*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 341. (Rev. Palaeoc. I, p. 118.)

Scytalocrinus indianensis Meek and Worthen.

1865. *Poteriocrinus Indianensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 155.
 Keokuk Group: Crawfordsville, Indiana.
1868. *Poteriocrinus Indianensis*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 515, pl. 20, fig. 4.
 Keokuk Group: Crawfordsville, Indiana.

Scytalocrinus macrodactylus Meek and Worthen.

1861. *Poteriocrinus fusiformis*. Hall, Desc. New Spec. Crin., p. 6. (Not *P. fusiformis* Schultz.)
 Burlington L. S.
1861. *Poteriocrinus fusiformis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 302.
 Burlington L. S.: Burlington, Iowa.
1869. *Scaphiocrinus macrodactylus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 140.
 Lower Burlington L. S.: Burlington, Iowa.
1873. *Scaphiocrinus macrodactylus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 415, pl. 2, fig. 9.
 Burlington L. S.: Burlington, Iowa.

Scytalocrinus robustus Hall.

1861. *Scaphiocrinus robustus*. Hall, Desc. New Spec. Crin., p. 7.
 Keokuk L. S.
1861. *Scaphiocrinus robustus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 315.
 Keokuk L. S.: Crawfordsville, Indiana.
1872. *Scaphiocrinus robustus*. Hall, Photo. Plates of Crinoids, pl. 6, figs. 3-5.
1875. *Poteriocrinus Hoveyi*. Worthen, Geol. Surv. Ill., vol. 6, p. 516, pl. 29, fig. 6.
 Keokuk Group: Crawfordsville, Indiana.
1882. *Poteriocrinus hamiltonensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 7.
 Upper Keokuk L. S.: Hamilton, Illinois.
1883. *Poteriocrinus hamiltonensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 273, pl. 27, fig. 9.
 Keokuk Group: Hamilton, Illinois.

Scytalocrinus talboti Worthen.

1882. *Poteriocrinus talboti*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17.
 St. Louis L. S.: Monroe County, Illinois.
1883. *Poteriocrinus Talboti*. Worthen, Geol. Surv. Ill., vol. 7, p. 287, pl. 30, fig. 7.
 St. Louis L. S.: Monroe County, Illinois.

Scytalocrinus vanhornei Worthen.

1875. *Poteriocrinus Van Hornei*. Worthen, Geol. Surv. Ill., vol. 6, p. 517, pl. 31, figs. 2, 3.
 St. Louis L. S.: Alton, Illinois.
1894. *Scytalocrinus vanhornei*. Keyes, Mo. Geol. Surv., vol. 4, p. 213, pl. 26, fig. 3.
 St. Louis L. S.: St. Louis, Missouri.

Scytalocrinus wachsmuthi Wetherby.

1880. *Scytalocrinus wachsmuthi*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 3, p. 155, pl. 5, fig. 4.

Kaskaskia Group: Pulaski County, Kentucky.

Scytalocrinus wetherbyi Miller.

1879. *Poteriocrinus Wetherbyi*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 36, pl. 8, figs. 1-1b.

Kaskaskia Group: Pulaski County, Kentucky.

SEDGWICKIA McCoy, 1844.**Sedgwickia altirostrata Meek and Hayden.**

1858. *Allorisma? altirostrata*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 263.

Upper Coal Measures: Grasshopper Creek, Kansas.

1864. *Sedgwickia? altirostrata*. Meek and Hayden, Pal. Up. Mo., p. 41, pl. 1, fig. 9. Coal Measures: Juniata, on Big Blue River, Kansas.

Sedgwickia concava Meek and Hayden.

1858. *Lyonsia (Penopaea) concava*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 82.

Permian: Missouri River.

1864. *Sedgwickia? concava*. Meek and Hayden, Pal. Up. Mo., p. 41, pl. 1, figs. 8a, b. Coal Measures: Nebraska, opposite the northern boundary of Missouri.

1877. *Sedgwickia? concava*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 276, pl. 6, fig. 3.

Upper Coal Measures: Foothills southeast of Salt Lake City, Wahsatch range, Utah.

Sedgwickia subarcuata Meek and Worthen.

1835. *Sedgwickia (Sanguinolites?) subarcuata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 251.

Upper Keokuk Group.

1868. *Sedgwickia (Sanguinolites?) subarcuata*. Meek and Worthen, Geol. Surv., Ill., vol. 3, p. 537, pl. 19, fig. 3b.

Keokuk Group.

Sedgwickia topekaensis Shumard.

1858. *Leptodomus Topekaensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 208. Coal Measures: Missouri River bluffs, a short distance below mouth of Kansas River.

1864. *Sedgwickia topekaensis?* Meek and Hayden, Pal. Up. Mo., p. 40, figs. A, B. Coal Measures: Leavenworth City, Kansas.

1891. *Sedgwickia topekaensis*. White, Bull. U. S. Geol. Surv., No. 77, p. 26, pl. 4, fig. 11.

Permian: Goodwin Creek, Baylor County, Texas.

1894. *Allorisma topekaensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 128. Upper Coal Measures: Kansas City, Missouri.

SEMINULA McCoy, 1844.**Seminula argentea Shepard.**

1838. *Terebratula argentea*. Shepard, Am. Jour. Sci. (1), vol. 34, p. 152, fig. 8. Limestone: Western bluff of Little Vermilion River, Illinois.

1852. *Terebratula plano-sulcata*. Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 9.

Carboniferous L. S.: Near Council Bluffs.

Seminula argentea Shepard—Continued.

1852. *Terebratula subtilita*. Hall, Stansb. Exped. Gt. Salt Lake, p. 409, pl. 2, figs. 1a, b, 2a, b.
Carboniferous: Missouri River, near Weston.
1854. *Terebratula subtilita*. Shumard, Marcy's Expl. Red River of Louis., p. 176, pl. 4, fig. 8.
Carboniferous: Washington County, Arkansas.
1855. *Terebratula subtilita*. Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 1, figs. 2a, b.
Carboniferous L. S.: 6 miles west of Westport.
1856. *Terebratula subtilita*. Hall, Pac. R. R. Rep., vol. 3, p. 101, pl. 2, figs. 3-5.
Carboniferous: Pecos Village, New Mexico.
1858. *Terebratula subtilita*. Marcou, Geol. N. A., p. 52, pl. 6, figs. 9-9f.
Mountain L. S.: Sierra Madre; Sierra de Magoyon; Great Salt Lake; Tigras and Pecos Village, New Mexico; summit of Sierra de Sandia and Sierra de Mogoyon; El Paso Chihuahua; junction of rivers San Pedro and Gila, Arizona; sources of Rio Colorado Chiquito; Shasta County, California; Vancouver Island.
1858. *Terebratula subtilita*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 714.
Coal Measures: Ohio; Indiana; Illinois; Iowa; Missouri; Kansas; Nebraska; and Pecos Village, New Mexico.
1859. *Spirigera subtilita*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
Upper Coal Measures: Kansas.
1860. *Athyris differentius*. McChesney, Desc. New Pal. Foss., p. 47.
Coal Measures: Lasalle, Springfield, Belleville, and Sparta, Illinois; Charbonier and near Richmond, Missouri.
1860. *Spirigera Charitonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 651.
Coal Measures: Chariton and Randolph counties, Missouri.
1860. *Spirigera Hawuui*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 652.
Coal Measures: Missouri.
1861. *Athyris subtilita*. Newberry, Ives's Colo. Expl. Exped., p. 126.
Upper Carboniferous: Cherty L. S. on banks of Colorado between Little Colorado and Diamond rivers; Pecos Village, east of Santa Fe.
1863. *Spirigera Singletonii*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 87.
Lower Coal Measures: Boone and Adrain counties, Missouri.
1863. *Spirigera caput-serpentis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 90.
Upper Coal Measures: Missouri and Kansas.
1866. *Athyris subtilita*. Geinitz, Carb. und Dyas in Nebr., p. 40, tab. 3, figs. 7-9.
Omaha City, Plattsmouth, Bennett's Mill, and Nebraska City, Nebraska.
1872. *Athyris subtilita*. Meek, U. S. Geol. Surv. Nebr., p. 180, pl. 1, fig. 12; pl. 5, fig. 8; pl. 8, fig. 4.
Upper Coal Measures: Nebraska City, Bennett's Mill, Wyoming, Cedar Bluff, Rock Bluff, Plattsmouth, Bellevue, and Omaha, Nebraska.
Coal Measures: Illinois; Missouri; Iowa; West Virginia; Ohio; Kansas; Pecos Village, New Mexico.
1873. *Athyris subtilita*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 570, pl. 25, fig. 14.
Coal Measures: Illinois.
1874. *Athyris subtilita*. Derby, Bull. Cornell Univ. (science), vol. 1, No. 2, p. 7, pl. 1, figs. 5, 7, 8; pl. 3, figs. 8, 16, 19; pl. 6, fig. 2; pl. 9, fig. 4.
Coal Measures: Bomjardim, Itaituba, and Paredão, Brazil.
1876. *Spirigera subtilita*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, and near Echo Park, Utah.
Upper Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.

Seminula argentea Shepard—Continued.

1876. *Athyris subtilita*. Meek, Sampson's Expl. Gt. Basin, Utah, p. 350, pl. 2, figs. 4a, b.
Yellow L. S. (Coal Measures): Humboldt Mountains.
1876. *Athyris subtilita*. Newberry, U. S. Expl. Exp. from Santa Fé to Grand and Green rivers, p. 138.
Upper Carboniferous: On the Colorado; west of the San Francisco Mountains; junction of Grand and Green rivers; in the Sierra la Plata; at Santa Fé; Pecos.
1876. *Athyris subtilita*. Meek, Bull. U. S. G. and G. Surv. Terr., vol. 2, p. 355, pl. 1, figs. 2, 2a.
Carboniferous: Kattahwoke, Rocky Mountains.
1877. *Spirigera subtilita*. White, U. S. Geol. Surv., W. 100 Merid., vol. 4, p. 141, pl. 10, figs. 6a-c.
Carboniferous: Carizo Creek, Maricopa County; Camp Apache; Tenney's Ranch; Kaibab Plateau; confluence of White Mountain and Black rivers; Grass Mountain, 35 miles north of Pioche, and foothills of Dragoon Mountains, Arizona; Fossil Hill, White Pine County, and Camp Cottonwood, Nevada; 15 miles south of St. George; near Ophir City; Rock Canyon, Wasatch range, near Provo; and near Minersville, Utah.
1877. *Athyris subtilita*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 83, pl. 8, figs. 6, 6a.
Carboniferous L. S.: Ruby Group; Moleen Peak; near Humboldt River, Nevada.
1884. *Athyris subtilita*. White, 13th Rep. Geol. Surv. Ind., p. 136, pl. 35, figs. 6-9.
Coal Measures: Indiana.
1887. *Athyris subtilita*. Herrick, Bull. Den. Univ., vol. 2, p. 44, pl. 1, figs. 18 (16a-c?).
Coal Measures: Flint Ridge, Ohio.
1888. *Athyris subtilita*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231.
Lower Coal Measures: Des Moines, Iowa.
1891. *Athyris subtilita*. Whitfield, Am. N. Y. Acad. Sci., vol. 5, p. 604, pl. 16, figs. 7-9.
Coal Measures: Hocking County, Ohio.
1894. *Seminula subtilita*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 55, figs. 16-19.
Coal Measures: Chariton County, Missouri; Winterset, Iowa, near Kansas City, Missouri.
1894. *Athyris argentea*. Keyes, Mo. Geol. Surv., vol. 5, p. 92, pl. 39, figs. 11a-d.
Coal Measures: Kansas City, Lexington, and Clinton, Missouri.
1895. *Seminula subtilita*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 47, figs. 17-31.
Coal Measures: Manhattan, Kansas; Copper's Creek, Iowa; Chariton County, Missouri; Winterset, Iowa; Miami County, Kansas; Kansas City, Missouri; Ohio.
(?) Chester L. S.: Caldwell County, Kentucky; Chester, Illinois.
1895. *Athyris subtilita*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 488, pl. 12, figs. 7-9.
Coal Measures: Falls Township and Webb Summit, Hocking County, Ohio.
1897. *Athyris subtilita*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 31.
Upper Coal Measures: Sebastian County, Arkansas; Poteau Mountain, Indian Territory; Boone Chert, Stone County, Arkansas.

Seminula claytoni Hall and Whitfield.

1877. *Athyris claytoni*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 256, pl. 4, figs. 15-17.
Lower Carboniferous L. S. (Waverly?): Little Cottonwood, 800 feet east of Reed and Benson's mine, Wahsatch range, Utah.

Seminula dawsoni Hall and Clarke.

1863. *Athyris subtilita*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 170, pl. 9, figs. 4, 5. (Not *A. subtilita* Hall, 1852.)
Lower Carboniferous L. S.: Shubenacadie, Brookfield, etc., Nova Scotia.
1868. *Athyris subtilita*. Dawson, Acad. Geol., p. 290, figs. 88a-c.
Lower Carboniferous L. S.: Shubenacadie, Brookfield, etc., Nova Scotia.
1894. *Seminula Dawsoni*. Hall, 13th Am. Rep. N. Y. State Geol., p. 652.
Carboniferous L. S.: Windsor, Nova Scotia.
1895. *Seminula Dawsoni*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 364, pl. 47, figs. 32-34.
Carboniferous L. S.: Windsor, Nova Scotia.
1897. *Seminula Dawsoni*. Hall, 14th Rep. N. Y. State Geol., p. 359, pl. 9, figs. 14-16.
Carboniferous L. S.: Windsor, Nova Scotia.

Seminula formosa Swallow.

1863. *Spirigera formosa*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 91.
Archimedes L. S.: Boonville, Missouri.
1863. *Spirigera euzona*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 91.
Archimedes L. S.: Cooper County, Missouri.
1894. *Athyris formosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 91.
Keokuk L. S.: Boonville, Missouri.

Seminula maconensis Swallow.

1860. *Spirigera Maconensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 651.
Coal Measures: Montgomery County, Missouri.

Seminula parva Swallow.

1863. *Terebratula parva*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 83.
Keokuk, Iowa: Monroe and Cooper counties, Missouri.
1894. *Terebratula parva*. Keyes, Mo. Geol. Surv., vol. 5, p. 105.
Keokuk L. S.: Keokuk, Iowa.

Seminula persinuata Meek.

1877. *Athyris? persinuata*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 81, pl. 9, figs. 4-4b.
Carboniferous L. S.: White Pine Mountains, Nevada.

Seminula plattensis Swallow.

1863. *Spirigera plattensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 87.
Upper Coal Measures: Missouri, Kansas, and Nebraska.

Seminula subquadrata Hall.

1858. *Athyris subquadrata*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 703, pl. 27, figs. 2 a-d; p. 708, fig. 118.
Kaskaskia L. S.: Chester, Illinois; Crittenden County, Kentucky.
1877. *Athyris subquadrata?* Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 271, pl. 5, figs. 19, 20.
Wahsatch L. S.: Snowstorm Hill, near Dry Canyon, Oquirrh Mountains, Utah.
1886. *Athyris subquadrata*. Heilprin, 2d. Geol. Surv. Penn., Ann. Rep. for 1885, p. 453, p. 440, fig. 2.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Athyris subquadrata*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, p. 269, fig. 2.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1891. *Athyris subquadrata*. Whitfield, Am. N. Y. Acad. Sci., vol. 5, p. 585, pl. 14, figs. 1-3.
Maxville L. S.: Newtonville and Maxville, Ohio.

Seminula subquadrata Hall—Continued.

1894. *Seminula subquadrata*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 35, figs. 13, 15.
Chester L. S.: Crittenden County, Kentucky.
St. Louis L. S.: Pella, Iowa.
1894. *Athyris subquadrata*. Keyes, Mo. Geol. Surv., vol. 5, p. 92.
Kaskaskia L. S.: Ste. Mary, Missouri.
1895. *Seminula subquadrata*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 47, figs. 7-9, 15, 16; pl. 84, figs. 30, 31.
Kaskaskia L. S.: Chester, Ill.; Crittenden County, Kentucky.
St. Louis L. S.: Pella, Iowa; Spergen Hill, Indiana.
1895. *Athyris subquadrata*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 472, pl. 10, figs. 1-3.
Maxville L. S.: Newtonville and Maxville, Ohio.
1897. *Athyris subquadrata*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 258, pl. 18, fig. 16.
Batesville S. S.: Batesville, Arkansas.

Seminula trinuclea Hall.

1856. *Terebratula trinuclea*. Hall, Trans. Albany Inst., vol. 4, p. 7.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1858. *Terebratula trinuclea*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 659, pl. 23, figs. 4 a-c, 5.
Warsaw L. S.: Bloomington and Spergen Hill, Indiana.
1882. *Athyris trinucleus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 50, pl. 6, figs. 22-27.
St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois; near Boonville, Missouri.
1883. *Athyris trinucleus*. Hall, 12th Rep. Geol. Surv. Ind., p. 329, pl. 29, figs. 22-27.
St. Louis Group: Spergen Hill, Lanesville, Greencastle Junction, and Bloomington, Indiana.
1894. *Seminula trinuclea*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 35, figs. 11, 12, 14.
St. Louis Group: Harrison County and Spergen Hill, Indiana.
1894. *Athyris trinuclea*. Keyes, Mo. Geol. Surv., vol. 5, p. 92.
St. Louis L. S.: Barrett Station, Missouri.
1895. *Seminula trinuclea*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 47, figs. 5, 6, 10-14.
St. Louis L. S.: Harrison County, Spergen Hill, and Bloomington, Indiana.

Seminula wasatchensis White.

1874. *Rhynchonella Wasatchensis*. White, Prelim. Rep. Inv. Foss., p. 19.
Carboniferous (Coal Measures): Rock Canyon, Wasatch range, near Provo, Utah.
1877. *Rhynchonella Wasatchensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 130, pl. 9, figs. 3a-d.
Carboniferous: Rock Canyon, Wasatch range, near Provo, Utah.

Seminula (species undetermined).

1895. *Athyris (Seminula?)* sp.? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 47, fig. 35.
Coal Measures? Ohio.

SEPTOPORA Prout, 1859.**Septopora biserialis Swallow.**

1858. *Synocladia virgulacea* (?) Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 179.
(Not *S. virgulacea* Phillips.)
Lower Permian: Valley of the Cottonwood, Kansas.

Septopora biserialis Swallow—Continued.

1858. *Synocladia biserialis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 179.
Lower Permian: Valley of the Cottonwood, Kansas.
1859. *Synocladia biserialis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 24.
Upper Coal Measures: Fort Riley, Kansas.
1866. *Synocladia virgulacea*. Geinitz, Carb. und Dyas in Nebr., p. 70, tab. 5, fig. 14.
(Not *S. virgulacea* Phillips, 1829.)
Nebraska.
1872. *Synocladia biserialis*. Meek, U. S. Geol. Surv. Nebr., p. 156, pl. 7, figs. 5a-e.
Permian: Kansas.
Upper Coal Measures: Nebraska City, Nebraska; Kansas; Nebraska; Iowa;
Illinois.
Lower Coal Measures: Illinois.
1873. *Synocladia virgulacea*, var. *biserialis*. Meek and Worthen, Geol. Surv. Ill.,
vol. 5, pl. 24, figs. 15a-c.
1874. *Synocladia biserialis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 486.
Upper Coal Measures.
1875. *Synocladia biserialis*. Meek, Pal. Ohio, vol. 2, p. 326, pl. 20, figs. 5a, b.
Lower Coal Measures: Near Newark, Ohio.
1877. *Synocladia biserialis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 107,
pl. 7, figs. 3a-e.
Carboniferous (Red Wall L. S.): Camp Apache, Maricopa County, Arizona.
1884. *Synocladia biserialis*. White, 13th Rep. Geol. Surv. Ind., p. 138, pl. 25,
figs. 11-13.
Coal Measures: Above roof of Coal K, Indiana.
1887. *Septopora biserialis*. Foerste, Bull. Den. Univ., vol. 2, p. 87, pl. 7, figs. 16a, b.
Coal Measures: One-half mile west of Brownsville, Ohio.
1888. *Synocladia biserialis*. Keyes, Proc. Acad. Nat. Sci., Phil., p. 225.
Lower Coal Measures: Des Moines, Iowa.
1890. *Septopora biserialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 631, pl. 56, fig. 11.
Upper and Lower Coal Measures: Illinois; Iowa; Kansas; Nebraska;
Missouri; Kentucky.
1894. *Septopora biserialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 32, pl. 34, figs. 1a-d.
Lower Coal Measures: Des Moines, Iowa.
Upper Coal Measures: Kansas City, Missouri.
1897. *Septopora biserialis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 27.
Upper Coal Measures: Poteau Mountain, Indian Territory.

Septopora biserialis var. gracilis Foerste.

1887. *Septopora biserialis* var. *gracilis*. Foerste, Bull. Den. Univ., vol. 2, p. 80, pl. 7,
figs. 7a-c.
Coal Measures: Flint Ridge, Ohio.

Septopora biserialis var. nervata Ulrich.

1890. *Septopora biserialis* var. *nervata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 632, pl. 64,
fig. 6.
Chester Group: Kentucky.
Upper Coal Measures: Illinois; near Red Oak, Iowa.

Septopora cestriensis Prout.

1859. *Septopora Cestriensis*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 448, pl. 18,
figs. 2-2c.
Upper Archimedes L. S.: Chester, Illinois.
1873. *Synocladia cestriensis*. Meek and Worthen. (See *Septopora subquadrans*.)
1890. *Septopora cestriensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 628, pl. 64, figs. 1-1b.
Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.
1894. *Septopora cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 32.
Kaskaskia L. S.: Chester, Illinois.

Septopora decipiens Ulrich.

1890. *Septopora decipiens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 630, pl. 67, fig. 9.
Chester Group: Sloan's Valley, Kentucky.

Septopora delicatula Ulrich.

1890. *Septopora delicatula*. Ulrich, Geol. Surv. Ill., vol. 8, p. 634, pl. 64, figs. 5, 5a.
Lower Coal Measures: Seville, Illinois.

Septopora pinnata Ulrich.

1890. *Septopora pinnata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 633, pl. 64, fig. 7;
pl. 65, figs. 1, 1a.

Septopora rectistyla Whitfield.

1882. *Synocladia rectistyla*. Whitfield, Am. N. Y. Acad. Sci., vol. 2, p. 220.
Maxville L. S.: Newtonville, Ohio.
1891. *Synocladia rectistyla*. Whitfield, Am. N. Y. Acad. Sci., vol. 5, p. 579, pl. 13,
figs. 9, 10.
Maxville L. S.: Newtonville, Ohio.
1895. *Synocladia rectistyla*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 467, pl. 9,
figs. 9, 10.
Maxville L. S.: Newtonville, Ohio.

Septopora robusta Ulrich.

1890. *Septopora robusta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 633, pl. 56, figs. 9-9c;
pl. 64, figs. 3, 3a.
Upper Coal Measures: Fayette County, Illinois.

Septopora robusta var. intermedia Ulrich.

1890. *Septopora robusta* var. *intermedia*. Ulrich, Geol. Surv. Ill., vol. 8, p. 634,
pl. 56, fig. 10; pl. 64, figs. 4, 4a.
Chester Group: Litchfield and Sloan's Valley, Kentucky.

Septopora subquadrans Ulrich.

1873. *Synocladia Cestriensis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 24,
figs. 14a-c. (Not *S. cesteriensis* Prout, 1859.)
Chester L. S.
1874. *Synocladia Cestriensis*. Meek, Am. Jour. Sci. (3), vol. 7, p. 486.
Chester L. S.
1890. *Septopora subquadrans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 629, pl. 56,
figs. 7, 8; pl. 64, figs. 2-2b.

SERPULA Linnaeus, 1758.**Serpula insita White.**

1878. *Serpula insita*. White, Proc. Acad. Nat. Sci. Phil., p. 37.
Coal Measures: Newport, Vermilion County, Indiana.
1888. *Serpula insita*. White, Cont. to Inv. Pal., No. 8, p. 171, pl. 42, fig. 8a.
Coal Measures: Newport, Vermilion County, Indiana.

Serpula planorbites* Geinitz (not Mün.). See *Straparollus catilloides*.*Serpula (undetermined species).**

1858. *Serpula (Spirorbis) valvata* Goldfuss. Swallow, Trans. St. Louis Acad. Sci.,
vol. 1, p. 180.
Upper Permian: Kansas.

SERPULITES Murchison, 1839.**Serpulites annulatus Dawson.**

1868. *Serpulites annulatus*. Dawson, Acad. Geol., p. 312, fig. 131.
Carboniferous L. S.: Windsor, Nova Scotia.

Serpulites carbonarius McCoy.

*1844. *Serpulites carbonarius*. McCoy, Carb. Foss. Ireland, p. 170, Tab. 23, fig. 32.

1878. *Serpulites carbonarius*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 611.

Carboniferous: Rawling Bay.

Serpulites hortonensis Dawson.

1868. *Serpulites Hortonensis*. Dawson, Acad. Geol., p. 312, fig. 130.

Carboniferous L. S.: Halfway River, Nova Scotia.

Serpulites inelegrans Dawson.

1868. *Serpulites inelegrans*. Dawson, Acad. Geol., p. 312.

Carboniferous L. S.: Windsor, Nova Scotia.

Serpulites murrayi Dawson.

1883. *Serpulites Murrayi*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 13.

Lower Carboniferous L. S.: Port-au-Port, Newfoundland.

(SHUMARDOCRINUS Miller and Gurley, 1895.)

Shumardocrinus concinnus. See *Steganoocrinus concinnus*.

SOLEN Linnaeus, 1758.

Solen missouriensis. See *Promacrus missouriensis*.

Solen permianus. See *Solenopsis permianus*.

Solen quadrangularis Winchell

1862. *Solen quadrangularis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 422.

Marshall Group: Marshall, Michigan.

1870. *Solen quadrangularis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.

Waverly Group: Granville, Ohio.

Solen scalpriformis. See *Solenopsis scalpriformis*.

Solen (species undetermined).

1887. *Solen*? sp.? Herrick, Bull. Den. Univ., vol. 2, p. 38, pl. 1, fig. 19.

Coal Measures: Flint Ridge, Ohio.

SOLENISCUS Meek and Worthen, 1860.

Soleniscus altonensis Worthen.

1873. *Macrocheilus Altonensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 593, pl. 28, fig. 8.

Lower Coal Measures: Alton, Illinois.

1889. *Soleniscus altonensis*. Keyes, Am. Nat., vol. 23, p. 423.

1889. *Soleniscus altonensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.

Soleniscus? anguliferus White.

1874. *Macrocheilus angulifera*. White, Prelim. Rep. Inv. Foss., p. 22.

Carboniferous (Coal Measures): Camp Cottonwood, Spring Mountain range, Nevada.

1877. *Macrocheilus anguliferus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 160, pl. 12, figs. 3a-f.

Carboniferous: Camp Cottonwood, near Spring Mountain, Nevada.

1889. *Soleniscus*? *anguliferus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.

Soleniscus attenuatus. See *Soleniscus fusiformis*.

Soleniscus? blairi Miller.

1891. *Macrochilina blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 84, pl. 14, fig. 5.

Chouteau L. S.: Sedalia, Missouri.

1892. *Macrochilina blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 694, pl. 14, fig. 5.

Chouteau L. S.: Sedalia, Missouri.

Soleniscus brevis White.

1858. *Macrocheilus ventricosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 718, pl. 29, fig. 8.
(Not *Phasianella ventricosa* Goldf., 1841.)
Lower Coal Measures: Des Moines Valley, Iowa.
1881. *Soleniscus brevis*. White, U. S. Geol. Surv. W. 100 Merid., vol. 3, Supp.,
Appendix, p. xxviii, pl. 4, figs. 5a-c.
Carboniferous: Coyote Creek; north of Black Lake; and near Taos, New Mexico.
1884. *Soleniscus (Macrocheilus) ventricosus*. White, Proc. U. S. Nat. Mus., vol. 6,
p. 187, pl. 8, figs. 11, 12.
Carboniferous: Illinois.
1884. *Soleniscus (Macrocheilus) ventricosus*. White, 13th Rep. Geol. Surv. Ind.,
p. 155, pl. 34, figs. 11, 12.
Coal Measures: Illinois, Iowa, and New Mexico.
1889. *Soleniscus brevis*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, figs. 12-14.
1889. *Soleniscus brevis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.
1894. *Soleniscus brevis*. Keyes, Mo. Geol. Surv., vol. 5, p. 212.
Upper Coal Measures: Kansas City and Clinton, Missouri.

Soleniscus carinatus Stevens.

1858. *Loxonema carinata*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.
1889. *Soleniscus carinatus*. Keyes, Am. Nat., vol. 23, p. 423.
1889. *Soleniscus carinatus*. Keyes, Proc. Nat. Acad. Sci. Phil., p. 307.

Soleniscus cooperensis. See Sphaerodoma cooperensis.**Soleniscus fusiformis Hall.**

1858. *Macrocheilus fusiformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 718, pl. 29, fig. 7.
Coal Measures: Alpine Dam, Iowa.
1881. *Polyphemopsis fusiformis*. White, 2d Ann. Rep. Stat. and Geol. Ind., p. 519,
pl. 8, fig. 6.
Coal Measures: Newport, Indiana.
1884. *Soleniscus (Macrocheilus) fusiformis*. White, Proc. U. S. Nat. Mus., vol. 6,
p. 187, pl. 8, figs. 4-6.
Carboniferous: Illinois.
1884. *Soleniscus (Macrocheilus) fusiformis*. White, 13th Rep. Geol. Surv. Ind.,
p. 154, pl. 34, figs. 4-6.
Coal Measures: Illinois and Iowa.
1884. *Polyphemopsis* ? — ? White, 13th Rep. Geol. Surv. Ind., p. 164, pl. 32, fig. 6.
Coal Measures: Newport, Indiana.
1887. *Macrocheilus (Soleniscus) fusiformis* ? Herrick, Bull. Den. Univ., vol. 2,
p. 147, pl. 14, fig. 7.
Coal Measures: Flint Ridge, Ohio.
1888. *Macrocheilus fusiformis*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 7.
Coal Measures: Fultonham, Ohio.
1889. *Soleniscus attenuatus*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, figs. 7-9.
1889. *Soleniscus* ? *attenuatus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.
1897. *Macrocheilus* conf. *fusiformis*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 41.
Lower Coal Measures: Conway County, Arkansas.

Soleniscus gracilis Cox.

1857. *Macrocheilus gracilis*. Cox, Geol. Rep. Ky., vol. 3, p. 570, pl. 8, figs. 11, 11a.
Coal Measures: Bonharbour, Daviess County, Kentucky.
1888. *Macrocheilus gracilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 239.
Lower Coal Measures: Des Moines, Iowa.
1889. *Soleniscus gracilis*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 6.
1889. *Soleniscus gracilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 307.

Soleniscus gracilis Cox—Continued.

1891. *Soleniscus gracilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 262.
Lower Coal Measures; Des Moines, Iowa.
1894. *Soleniscus gracilis*. Keyes, Mo. Geol. Surv., vol. 5, p. 211.
Lower Coal Measures: Clinton, Missouri.

Soleniscus hallanus Geinitz.

1866. *Macrocheilus Hallanum*. Geinitz, Carb. und Dyas in Nebr., p. 5, tab. 1, fig. 7.
Wyoming, Nebraska.
1889. *Soleniscus hallanus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.

Soleniscus hildrethi Conrad.

1842. *Plectostylus hildrethi*. Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 275, pl. 17, fig. 2.
Carboniferous, Flint Ridge, Ohio.

Soleniscus humilis Keyes.

1888. *Macrocheilus humilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 239, pl. 12, fig. 1.
Lower Coal Measures: Des Moines, Iowa.
1889. *Soleniscus humilis*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 4.
1889. *Soleniscus humilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.
1891. *Soleniscus humilis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 262.
Lower Coal Measures: Des Moines, Iowa.
1892. *Soleniscus humilis*. Keyes, Proc. Iowa Acad. Sci., vol. 1, pt. 2, p. 23.
Lower Coal Measures: Near Des Moines, Iowa.

Soleniscus kansasensis Swallow.

1858. *Macrocheilus Kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 201.
Upper Coal Measures: Missouri and Kansas, Willow Springs, Kansas.
1889. *Soleniscus kansasensis*. Keyes, Am. Nat., vol. 23, p. 423.
1889. *Soleniscus kansasensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.

Soleniscus klippiarti Meek.

1872. *Macrocheilus klippiarti*. Meek, Proc. Acad. Nat. Sci. Phil. for 1871, p. 328.
Lower Coal Measures: Near Somerset, Perry County, Ohio.
1875. *Macrocheilus Klippiarti*. Meek, Pal. Ohio, vol. 2, p. 346, pl. 20, figs. 6a-c.
Lower Coal Measures: Near Somerset, Perry County, Ohio.
1889. *Soleniscus klippiarti*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 11.
1889. *Soleniscus klippiarti*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.

Soleniscus medialis. See *Sphærodoma medialis*.**Soleniscus missouriensis Swallow.**

1858. *Macrocheilus Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 201.
Lower Coal Measures: Howard County, Missouri.
1894. *Soleniscus missouriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 211.
Upper Coal Measures: Kansas City, Missouri.

Soleniscus newberryi Stevens.

1858. *Loxonema Newberryi*. Stevens, Am. Jour. Sci. (2), vol. 25, p. 259.
Coal Measures: Danville, Illinois.
1858. *Macrocheilus newberryi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 719, pl. 29, fig. 9.
Coal Measures: Illinois.
1873. *Macrocheilus Newberryi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 594, pl. 28, fig. 14.
Coal Measures: Danville, Illinois.

Soleniscus newberryi Stevens—Continued.

1884. *Soleniscus (Macrocheilus) newberryi*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, figs. 7, 8.
Carboniferous: Illinois.
1884. *Soleniscus (Macrocheilus) Newberryi*. White, 13th Rep. Geol. Surv. Ind., p. 153, pl. 34, figs. 7, 8.
Coal Measures: Danville, Illinois.
1888. *Macrocheilus newberryi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 240.
Lower Coal Measures: Des Moines, Iowa.
1889. *Soleniscus newberryi*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 5.
1889. *Soleniscus newberryi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.
1891. *Soleniscus newberryi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 206.
Lower Coal Measures: Des Moines, Iowa.
1894. *Soleniscus newberryi*. Keyes, Mo. Geol. Surv., vol. 5, p. 212.
Upper Coal Measures: Kansas City, Missouri.

Soleniscus paludinaeformis Hall.

1858. *Macrocheilus paludinaeformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 719, pl. 29, fig. 10.
Lower Coal Measures: Des Moines Valley, Iowa.
1884. *Soleniscus (Macrocheilus) paludinaeformis*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, fig. 17.
Carboniferous: Indiana.
1884. *Soleniscus (Macrocheilus) paludinaeformis*. White, 13th Rep. Geol. Surv. Ind., p. 154, pl. 34, fig. 17.
Coal Measures: Vermilion County, Indiana.
1888. *Macrocheilus paludinaeformis*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 10.
Coal Measures: Fultonham, Ohio.
1889. *Soleniscus paludinaeformis*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 16.
1889. *Soleniscus paludinaeformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.
1891. *Soleniscus paludinaeformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 262.
Lower Coal Measures: Des Moines, Iowa.
1894. *Soleniscus paludinaeformis*. Keyes, Mo. Geol. Surv., vol. 5, p. 211.
Upper Coal Measures: Kansas City, Missouri.

Soleniscus planus White.

1881. *Soleniscus planus*. White, U. S. Geog. Surv. W. 100 Merid., p. xxix, pl. 4, figs. 4a-c.
Carboniferous: Coyote Creek, and north of Black Lake, New Mexico.
1884. *Soleniscus planus*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, figs. 9, 10.
Carboniferous: Illinois.
1884. *Soleniscus planus*. White, 13th Rep. Geol. Surv. Ind., p. 153, pl. 34, figs. 9, 10.
Coal Measures: Danville, Illinois.
1887. *Soleniscus planus*. Herrick, Bull. Den. Univ., vol. 2, pl. 14, figs. 5, 6.
Coal Measures: Flint Ridge, Ohio.
1889. *Soleniscus planus*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 18.

Soleniscus ponderosus. See *Sphaerodoma ponderosa*.

Soleniscus primigenius. See *Sphaerodoma primogenia*.

Soleniscus regularis Cox.

1857. *Loxonema regularis*. Cox, Geol. Surv. Ky., vol. 3, p. 566, pl. 8, fig. 2.
Coal Measures: Daviess County, Kentucky.
1891. *Macrocheilus regularis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 600, pl. 15, fig. 13.
Coal Measures: Carbon Hill, Hocking County, Ohio.
1895. *Macrocheilus regularis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 485, pl. 11, fig. 13.
Coal Measures: Carbon Hill, Hocking County, Ohio.

Soleniscus? terranovicus Dawson.

1883. *Macrocheilus Terranovicus*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 14.
Lower Carboniferous L. S.: St. Georges Bay, Newfoundland.

Soleniscus texanus. See *Sphærodoma texana*.**Soleniscus typicus Meek and Worthen.**

1860. *Soleniscus typicus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 467.
Upper Coal Measures: Springfield, Illinois.
1866. *Soleniscus typicus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 384, pl. 31,
figs. 15a, b.
Upper Coal Measures: Springfield, Missouri.
1884. *Soleniscus typicus*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8,
figs. 18, 19.
Carboniferous.
1884. *Soleniscus typicus*. White, 13th Rep. Geol. Surv. Ind., p. 152, pl. 34,
figs. 18, 19.
Upper Coal Measures: Springfield, Illinois.
1889. *Soleniscus typicus*. Keyes, Am. Nat., vol. 23, p. 423, pl. 20, fig. 8.
1889. *Soleniscus typicus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 308.

Soleniscus ventricosus. See *Soleniscus brevis*.**Soleniscus? worthenanus Miller.**

1890. *Macrocheilus altonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 143, pl. 24,
figs. 1, 1a. (Not *S. altonensis* Worthen, 1873.)
St. Louis L. S.: Alton, Illinois.
1889. *Macrochilina worthenanus*. Miller, N. A. Geol. and Pal., p. 409.

Soleniscus (species undetermined).

1858. *Macrocheilus spiratus*. McCoy, Swallow, Trans. St. Louis Acad. Sci., vol. 1,
p. 196.
Lower Permian: Kansas.
1884. *Macrocheilus* sp. ? Walcott, Pal. Eureka Dist., p. 260, pl. 24, fig. 8.
Lower Carboniferous: Eureka District, Nevada.
1887. *Macrocheilus* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 21, pl. 2, fig. 2.
Coal Measures: Flint Ridge, Ohio.
1887. *Macrocheilus* sp. ? Herrick, Bull. Den. Univ., vol. 2, pl. 3, fig. 1.
Coal Measures: Flint Ridge, Ohio.

SOLENOCARIS Meek, 1872.**Solenocaris sancti-ludovici Worthen.**

1884. *Solenocaris st. ludovici*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 3.
St. Louis L. S.: South St. Louis, Missouri.
1890. *Solenocaris sancti-ludovici*. Worthen, Geol. Surv. Ill., vol. 8, p. 153, pl. 28,
fig. 3.
St. Louis L. S.: South St. Louis, Missouri.
1894. *Soleniscus sancti-ludovici*. Keyes, Mo. Geol. Surv., vol. 4, p. 239.
St. Louis L. S.: St. Louis, Missouri.

Solenocaris strigata Meek.

1872. *Ceratiocaris (Solenocaris) strigata*. Meek, Proc. Acad. Nat. Sci. Phil. for
1871, p. 335.
Base of Waverly Group: Danville, Kentucky.
1875. *Ceratiocaris (Solenocaris) strigata*. Meek, Pal. Ohio, vol. 2, p. 321, pl. 18,
figs 4a-c.
Waverly Group: Danville, Kentucky.

SOLENOCERAS Hyatt, 1883.

Solenoceras canaliculatum Cox.

1857. *Nautilus canaliculatus*. Cox, Geol. Rep. Ky., vol. 3, p. 575, pl. 10, figs. 3, 3a.
Coal Measures: Nolin Iron Works, Edmonson County, Kentucky.
1883. *Solenoceras canaliculatum*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 286.

SOLENOCHEILUS Meek and Worthen, 1870.

Solenocheilus blairi Miller.

1892. *Solenocheilus blairi*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 75, pl. 12, fig. 2.
Chouteau L. S.: Pin Hook Bridge, 6 miles from Sedalia, Missouri.
1894. *Solenocheilus blairi*. Miller, 18th Rep. Geol. Surv. Ind., p. 329, pl. 12, fig. 2.
Chouteau L. S.: Pin Hood Bridge, 6 miles from Sedalia, Missouri.

Solenocheilus collectus Meek and Worthen.

1870. *Nautilus (Solenocheilus) collectus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 48.
St. Louis L. S.: New Providence, Indiana.
1873. *Nautilus (Solenocheilus) collectus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 544, pl. 23, figs. 3, 4.
St. Louis Group: Greencastle, Indiana, near Waterloo, Monroe County, Illinois.
1893. *Solenocheilus collectus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 463, figs. 31, 32.
Carboniferous: Ballinger, Texas.

Solenocheilus henryvillense Miller and Gurley.

1897. *Solenocheilus henryvillense*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 51, pl. 4, figs. 4-6.
Knobstone Group: Near Henryville, Indiana.

Solenocheilus indianense Worthen.

1890. *Solenocheilus indianense*. Worthen, Geol. Surv. Ill., vol. 8, p. 150, pl. 28, figs. 1, 1a.
St. Louis L. S.: Greencastle, Indiana.
1893. *Solenocheilus indianensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 465.

Solenocheilus kentuckiensis Hyatt.

1893. *Solenocheilus kentuckiensis*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 461, figs. 28-30.
Carboniferous: Edmonson County, Kentucky.

Solenocheilus leidyi Meek and Worthen.

1865. *Nautilus (Cryptoceras?) Leidyi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 262.
Keokuk Group: Warsaw, Illinois.
1873. *Nautilus (Solenocheilus) Leidyi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 524, pl. 18, fig. 2.
Keokuk Group: Warsaw, Illinois.

Solenocheilus rockfordensis. See *Oncodoceras rockfordense*.

SOLENOMYA Lamark, 1818.

Solenomya anodontoides Meek.

1875. *Solenomya ?? anodontoides*. Meek, Pal. Ohio, vol. 2, p. 339, pl. 19, fig. 11.
Coal Measures: Newark, Ohio.

Solenomya anodontoides Meek—Continued.

1866. *Solenomya anodontoides*. Claypole, Proc. and Call. Wyo. Hist. and Geol. Soc., vol. 2, pt. 2, pp. 241-247.

Lower Coal Measures: Wilkesbarre, Pennsylvania.

1887. *Solenomya? anodontoides*. Herrick, Bull. Den. Univ., vol. 2, p. 29, pl. 4, fig. 10.

Coal Measures: Flint Ridge, Ohio.

Solenomya biarmica de Verneuil.

1858. *Solenomya Biarmica?* Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.

Upper Permian: Near Council Grove, Kansas.

Solenomya curta Walcott.

1884. *Solenomya curta*. Walcott, Pal. Eureka Dist., p. 242, pl. 22, figs. 6-11.

Lower Carboniferous: Eureka District, Nevada.

Solenomya cuyahogensis Herrick.

1888. *Solenomya?? cuyahogensis*. Herrick, Bull. Den. Univ., vol. 4, p. 115, pl. 10, fig. 1.

Waverly Group: Cuyahoga Falls, Ohio.

1895. *Solenomya (?) Cuyahogensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 22, fig. 25.

Cuyahoga Shale: Cuyahoga Falls, Ohio, 30 feet below conglomerate.

Solenomya iowensis Worthen.

1884. *Solenomya? iowensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 13. St. Louis L. S.: Near Pella, Iowa.

1890. *Solenomya? iowensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 132, pl. 19, figs. 5, 5a.

St. Louis L. S.: Near Pella, Iowa.

Solenomya meekiana Herrick.

1887. *Solenomya (?) meekiana*. Herrick, Bull. Den. Univ., vol. 2, p. 39, pl. 4, fig. 9.

Coal Measures: Flint Ridge, Ohio.

Solenomya monroensis Worthen.

1884. *Solenomya monroensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 13.

Oolite beds of St. Louis L. S.: Fountain Creek, Monroe County, Illinois.

1890. *Solenomya monroensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 131, pl. 18, figs. 5, 5a.

St. Louis L. S. (oolite): Fountain Creek, Monroe County, Illinois.

Solenomya radiata Meek and Worthen.

1860. *Solenomya radiata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 457.

Coal Measures: Grayville, Illinois.

1866. *Solenomya radiata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 349, pl. 26, figs. 10a, b.

Coal Measures: Schuyler County, Illinois.

Solenomya recurvata Swallow.

1858. *Solenomya (?) recurvata*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 208.

Upper Coal Measures: Clifton Park, Kansas.

Solenomya soleniformis Cox.

1857. *Solenomya soleniformis*. Cox, Geol. Rep. Ky., vol. 3, p. 573, pl. 9, fig. 5.

Coal Measures: Union County, Kentucky.

1888. *Solenomya soleniformis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 234.

Lower Coal Measures: Des Moines, Iowa.

Solenomya subradiata Herrick.

1887. *Solenomya subradiata*. Herrick, Bull. Den. Univ., vol. 2, p. 30, pl. 3, fig. 8.

Coal Measures: Flint Ridge, Ohio.

***Solenomya varsoviensis* Worthen.**

1884. *Solenomya varsoviensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 12.
Keokuk L. S.: Warsaw, Illinois.
1890. *Solenomya varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 131, pl. 19, fig. 8.
Keokuk L. S.: Warsaw, Illinois.

***Solenomya* (species undetermined).**

1872. *Solenomya* sp. Meek, U. S. Geol. Surv. Nebr., pl. 2, figs. 12a, b.
Upper Coal Measures: Rock Bluff, Nebraska.
1873. *Solenomya* (sp. undet). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 27,
figs. 1a, b.
1874. *Solenomya* (sp. undet). Meek, Am. Jour. Sci. (3), vol. 7, p. 582.

SOLENOPSIS McCoy, 1844.***Solenopsis permianus* Swallow.**

1858. *Solen* (?) *Permianus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 190.
Upper Permian: Near Smoky Hill Fork, Kansas.

***Solenopsis scalpriformis* Winchell.**

1862. *Solen scalpriformis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 422.
Marshall Group: Marshall, Moscow, and near Napoleon, Michigan.
1869. *Solen scalpriformis*. Winchell, Safford's Geol. of Tenn., p. 445.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Solen scalpriformis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.
Waverly Group: Tennessee.

***Solenopsis solenoides* Geinitz.**

1866. *Clidophorus solenoides*. Geinitz, Carb. und Dyas in Nebr., p. 25, tab. 2,
fig. 7.
Nebraska City.
1872. *Solenopsis solenoides*. Meek, U. S. Geol. Surv. Nebr., p. 223, pl. 10, fig. 3.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Illinois.
1894. *Solenopsis solenoides*. Keyes, Mo. Geol. Surv., vol. 5, p. 130.
Upper Coal Measures: Kansas City, Missouri.

SPATHELLA Hall, 1885.***Spathella ventricosa* White and Whitfield.**

1862. *Orthonota ventricosa*. White and Whitfield, Proc. Bost. Soc. Nat. Hist.,
vol. 8, p. 297.
Chemung Group: Burlington, Iowa.
1885. *Spathella ventricosa*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 408, pl. 66, figs. 41, 42.
Yellow S. S.: Burlington, Iowa.
1888. *Spathella ventricosa*? Herrick, Bull. Den. Univ., vol. 4, p. 31, pl. 4, fig. 20.
Middle Waverly Group: Ohio.
1889. *Spathella ventricosa*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 20.
1895. *Spathella ventricosa*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 20.
Keokuk: Granville, Ohio.

SPHÆRODOMA Keyes, 1889.***Sphærodroma cooperensis* Swallow.**

1863. *Macrocheilus cooperensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 100.
Archimedes L. S.: Cooper County, Missouri.
1889. *Sphærodroma cooperensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 305.
1894. *Soleniscus cooperensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 210.
Keokuk L. S.: Cooper County, Missouri.

Sphærodoma intercalaris Meek and Worthen.

1860. *Macrocheilus intercalaris*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 467.
Upper Coal Measures: Springfield, Illinois.
1860. *Macrocheilus pulchellus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 467.
Upper Coal Measures: Springfield, Illinois.
1866. *Macrocheilus intercalaris*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 371, pl. 31, fig. 6a, b.
Upper Coal Measures: Springfield, Illinois; Pittsburg, Pa.
1872. *Macrocheilus intercalaris* var. *pulchellus*. Meek, U. S. Geol. Surv. Nebr., p. 228, pl. 6, fig. 8.
Upper Coal Measures: Near Nebraska City, Nebraska; Springfield, Illinois.
Coal Measures: Pittsburg, Pennsylvania.
Lower Coal Measures: West Virginia.

Sphærodoma littonana Hall.

1856. *Natica littonana*. Hall, Trans. Albany Inst., vol. 4, p. 30.
St. Louis L. S.: Bloomington, Indiana.
1882. *Macrocheilus Littonanum*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 72, pl. 8, fig. 28.
St. Louis Group: Bloomington, Indiana.
1883. *Macrocheilus* ? *Littonanus*. Hall, 12th Rep. Geol. Surv. Ind., p. 369, pl. 31, fig. 28.
St. Louis Group: Bloomington, Indiana.
1889. *Sphærodoma littonana*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 305.

Sphærodoma littonana var. genevievensis Meek and Worthen.

1866. *Naticopsis Littonana* var. *genevievensis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 268.
Chester Group: Ste. Genevieve County, Missouri; Randolph County, Illinois.
1894. *Sphærodoma littonana*. Keyes, Mo. Geol. Surv., vol. 5, p. 214.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Sphærodoma medialis Meek and Worthen.

1860. *Macrocheilus medialis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 466.
Upper Coal Measures: Springfield, Illinois.
1866. *Macrocheilus medialis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 370, pl. 31, figs. 5a, b.
Upper Coal Measures: Springfield, Illinois.
1884. *Soleniscus* ? (*Macrocheilus*) *medialis*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187, pl. 8, figs. 15, 16.
Carboniferous: Indiana.
1884. *Soleniscus* ? (*Macrocheilus*) *medialis*. White, 13th Rep. Geol. Surv. Ind., p. 156, pl. 34, figs. 15, 16.
Coal Measures: Vermilion County, Indiana.
1887. *Macrocheilus* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 21, pl. 2, fig. 16.
(*M. medialis* in explanation of plate.)
Coal Measures: Flint Ridge, Ohio.
1887. *Soleniscus medialis*. Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 4.
Coal Measures: Flint Ridge, Ohio.
1889. *Sphærodoma medialis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
1891. *Sphærodoma medialis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 262.
Lower Coal Measures: Des Moines, Iowa.
1894. *Sphærodoma medialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 215.
Upper Coal Measures: Kansas City and Clinton, Missouri.

Sphaerodoma pinguis Winchell.

1863. *Macrocheilus pinguis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 21.
Yellow S. S.: Burlington, Iowa.
1889. *Sphaerodoma pinguis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 296.
Kinderhook Group: Burlington, Iowa.
1889. *Sphaerodoma pinguis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
1894. *Sphaerodoma pinguis*. Keyes, Mo. Geol. Surv., vol. 5, p. 213.
Burlington L. S.: Louisiana, Missouri.

Sphaerodoma ponderosa Swallow.

1858. *Macrocheilus ponderosus*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 202.
Upper Coal Measures: Valley of Verdigris River, Kansas.
1884. *Soleniscus?* (*Macrocheilus*) *ponderosus?* White, Proc. U. S. Nat. Mus., vol. 6,
p. 187, pl. 8, figs. 1, 2.
Carboniferous: Southern Iowa.
1884. *Soleniscus?* (*Macrocheilus*) *ponderosus*. White, 13th Rep. Geol. Surv. Ind.,
p. 156, pl. 34, figs. 1, 2.
Upper Coal Measures: Iowa.
1888. *Macrocheilus ponderosus*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 6.
Coal Measures: Fultonham, Ohio.
1889. *Sphaerodoma ponderosa*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
1894. *Sphaerodoma ponderosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 213.
Coal Measures: Kansas City, Missouri.

Sphaerodoma primogenia Conrad.

1835. *Stylifer primogenia*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 267,
pl. 12, fig. 2.
1836. *Fusus? inhabilis*. Morton, Am. Jour. Sci. (1), vol. 24, p. 150, pl. 3, fig. 14.
Coal Measures: Ohio Valley.
1855. *Macrocheilus inhabilis*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil.,
(2), vol. 2, p. 76, pl. 9, figs. 9a, b.
Coal Measures: Graysville and Galatia, Illinois; Posey County, Indiana.
1858. *Macrocheilus primogenius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 720, pl. 29,
fig. 11.
Coal Measures: Ohio, Indiana, Illinois, and Iowa.
1884. *Soleniscus?* (*Macrocheilus*) *primigenius?* White, Proc. U. S. Nat. Mus., vol. 6,
p. 187, pl. 8, fig. 3.
Carboniferous: Illinois.
1884. *Soleniscus?* (*Macrocheilus*) *primigenius*. White, 13th Rep. Geol. Surv. Ind.,
p. 157, pl. 34, fig. 3.
Coal Measures: Ohio, Indiana, Illinois, and Iowa.
1886. *Macrocheilus primigenius*. Heilprin, 2d Geol. Surv. Penn., Ann. Rep. for
1885, p. 446, fig. 16; p. 457, fig. 16a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1886. *Macrocheilus primigenius*. Heilprin, Proc. and Coll. Wyo. Hist. and Geol.
Soc., vol. 2, pt. 2, p. 274, fig. 16; p. 276, fig. 16a.
Mill Creek L. S., Upper Coal Measures: Wilkesbarre, Pennsylvania.
1889. *Sphaerodoma primogenia*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
1894. *Sphaerodoma primogenia*. Keyes, Mo. Geol. Surv., vol. 5, p. 215.
Upper Coal Measures: Kansas City, Missouri.
1897. *Macrocheilus (Soleniscus) primigenius*. Smith, Proc. Am. Phil. Soc., vol. 35,
p. 41.
Lower Coal Measures: Conway County, Arkansas.

Sphaerodoma subcorpulenta Whitfield.

1882. *Macrocheilus subcorpulentus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 2, p. 224.
Maxville L. S.: Newtonville, Ohio.

Sphærodoma subcorpulenta Whitfield—Continued.

1889. *Sphærodoma subcorpulenta*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.
 1891. *Macrocheilus subcorpulentus*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 591,
 pl. 14, fig. 14.
 Maxville L. S.: Newtonville, Ohio.
 1895. *Macrocheilus subcorpulentus*. Whitfield, Geol. Surv. Ohio, vol. 7 p. 478,
 pl. 10, fig. 14.
 Maxville L. S.: Newtonville, Ohio.

Sphærodoma texana Shumard.

1859. *Macrocheilus Texanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 402.
 Coal Measures: Four miles west of Sierra Hueco, El Paso County, Texas.
 1884. *Soleniscus (Macrocheilus) texanus*. White, Proc. U. S. Nat. Mus., vol. 6, p. 187,
 pl. 8, figs. 13, 14.
 Coal Measures: Illinois.
 1884. *Soleniscus (Macrocheilus) Texanus*. White, 13th Rep. Geol. Surv. Ind., p. 155,
 pl. 34, figs. 13, 14.
 Coal Measures: Danville, Illinois.
 1889. *Sphærodoma texana*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 306.

Sphærodoma (species undetermined).

1866. *Macrocheilus* (undt). Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 372,
 pl. 27, fig. 10.
 Upper Coal Measures: Bridge over north branch of Saline River, Gallatin
 County, Illinois.

(SPHENOPOTERIUM Meek and Worthen, 1860.)

Sphenopoterium compressum Meek and Worthen. See *Palæacis compressus*.

Sphenopoterium cuneatum Meek and Worthen. See *Palæacis cuneiformis*.

Sphenopoterium enorme Meek and Worthen. See *Palæacis enormis*.

Sphenopoterium enorme var. *depressum* Meek and Worthen. See *Palæacis enormis* var. *depressus*.

Sphenopoterium obtusum Meek and Worthen. See *Palæacis obtusus*.

SPHENOTUS Hall, 1885.

Sphenotus æolus Hall.

- *1870. *Sanguinolites Æolus*. Hall, Prelim. Not. Lamell., 2, p. 46.
 Waverly S. S.: Newark, Ohio.
 1875. *Sanguinolites æolus*. Meek, Pal. Ohio, vol. 2, p. 307, pl. 16, figs. 1a-c.
 Cuyahoga Shale: Medina County and Newark, Ohio!
 1884. *Sanguinolites Æolus*. Walcott, Pal. Eureka Dist., p. 247, pl. 20, figs. 6, 7, 9.
 Lower Carboniferous: Eureka District, Nevada.
 1885. *Sphenotus Æolus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 404, pl. 66, figs. 31-35.
 Waverly S. S.: Newark, Ohio.
 1888. *Sanguinolites æolus*. Herrick, Bull. Den. Univ., vol. 3, p. 70, pl. 8, figs. 1, 11.
 Waverly Group: Licking County, Ohio.

Sphenotus contractus Hall.

1843. *Cypriocardia contracta*. Hall, Geol. Surv. N. Y., Rep. 4th Dist., p. 292, tab. 139,
 fig. 4.
 Near Panama, Chautauqua County, New York.

Sphenotus contractus Hall—Continued.

1885. *Sphenotus contractus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 399, pl. 66, figs. 1, 3-9, 11-13, 15 (10, 16, 17, 19?), pl. 94, fig. 2.
Chemung Group: New York and Pennsylvania.
1888. *Sanguinolites (Sphenotus) contractus*. Herrick, Bull. Den. Univ., vol. 3, p. 69, pl. 12, fig. 4.
Waverly Group: Licking County, Ohio.
1888. *Sphenotus contractus*. Herrick, Bull. Den. Univ., vol. 4, p. 31.
Waverly Group: Ohio.
1895. *Sphenotus contractus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 22.
Cuyahoga Shale: Moot's Run, Ohio.

Sphenotus flavius Hall.

- *1870. *Sanguinolites? flavius*. Hall, Prelim. Not. Lamell., 2, p. 47.
Waverly S. S.: Licking County, Ohio.
1885. *Sphenotus flavius*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 403, pl. 66, figs. 27-29.
Waverly S. S.: Licking County, Ohio.
1888. *Sanguinolites (Sphenotus) flavius?* Herrick, Bull. Den. Univ., vol. 3, p. 69, pl. 9, fig. 10.
Waverly Group: Licking County, Ohio.

Sphenotus rigidus White and Whitfield.

1862. *Cypricardia? rigida*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 300.
Chemung Group: Burlington, Iowa.
1870. *Cypricardia (?) rigida*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 256.
Waverly Group: Newark, Ohio.
1885. *Sphenotus rigidus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 402, pl. 66, fig. 14.
Yellow S. S.: Burlington, Iowa.

Sphenotus signatus Hall.

1885. *Sphenotus signatus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 405, pl. 94, fig. 3.
Waverly Group: Warren, Pennsylvania.

Sphenotus sinuatus Miller and Gurley.

1896. *Sphenotus sinuatus*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 9, pl. 2, figs. 29, 30.
Chouteau L. S.: Near Sedalia, Missouri.

Sphenotus telamon Hall.

1885. *Sphenotus Telamon*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 406, pl. 94, fig. 1.
Chouteau L. S.: Cooper County, Missouri.

Sphenotus valvulus Hall.

- *1870. *Sanguinolites valvulus*. Hall, Prelim. Not. Lamell., 2, p. 46.
Waverly S. S.: Newark, Ohio.
1885. *Sphenotus valvulus*. Hall, Pal. N. Y., vol. 5, pt. 1, p. 403, pl. 66, fig. 30.
Waverly S. S.: Newark, Licking County, Ohio.
1888. *Sphenotus valvulus*. Herrick, Bull. Den. Univ., vol. 4, pl. 4, fig. 1.
Waverly Group: Ohio.
1889. *Sphenotus valvulus*. Herrick, Am. Geol., vol. 3, pl. 2, fig. 1.
1895. *Sphenotus valvulus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 16, fig. 1.
Upper Cuyahoga Shale: Ohio.

Sphenotus (species undetermined).

1888. *Sphenotus (Cypricardia)*. Herrick, Bull. Den. Univ., vol. 4, pl. 6, fig. 4.
Waverly Group: Ohio.
1895. *Sphenotus (Cypricardia?)* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 17, fig. 4.
Upper Cuyahoga Shale: Licking County, Ohio.

SPHRAGIOPORA Ulrich, 1890.

Sphragiopora parasitica Ulrich.

1890. *Sphragiopora parasitica*. Ulrich, Geol. Surv. Ill., vol. 8, p. 638, pl. 65, figs. 6, 6a.

Chester Group: Chester, Illinois.

1894. *Sphragiopora parasitica*. Keyes, Mo. Geol. Surv., vol. 5, p. 33.
Kaskaskia L. S.: Chester, Illinois.

SPIRIFER Sowerby, 1815.

Spirifer aciculiferus. See *Spiriferina aciculifera*.**Spirifer acuticostatus** De Koninck.

1843. *Spirifer acuticostatus*. De Koninck, Desc. Anim. Foss. Carb. Terr. Belg., p. 265, pl. 17, figs. 6 a-c.

1863. *Spirifera acuticostata*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 171, pl. 9, figs. 7, 8.

Lower Carboniferous L. S.: Brookfield, Shubenacadie, etc., Nova Scotia.

1868. *Spirifer acuticostata*. Dawson, Acad. Geol., p. 292, fig. 91.

Carboniferous L. S.: Brookfield, Shubenacadie, etc., Nova Scotia.

Spirifer agelaius Meek.

1873. *Spirifer agelaius*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 470.

Carboniferous: "Old Baldy," near Virginia City, Montana.

1880. *Spirifer agelaius*. White, Cont. to Inv. Pal., No. 6, p. 135, pl. 34, figs. 10a, b.

Carboniferous: "Old Baldy" Mountain, Virginia City, Montana.

Spirifer alabapinenensis Hall and Whitfield.

1877. *Spirifera Alba-pinensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 255, pl. 4, figs. 7, 8.

Near base of Wahsatch L. S.: Dry Canyon, Oquirrh Mountains, Logan and Ogden Canyons, Wahsatch range, Utah.

Carboniferous: White Pine District, Nevada.

Spirifer annectans Walcott.

1884. *Spirifera annectans*. Walcott, Pal. Eureka Dist., p. 216, pl. 18, figs. 7, 7a.

Lower Carboniferous: Eureka District, Nevada.

Spirifer attenuatus. See *Spirifer keokuk*.**Spirifer bifurcatus** Hall.

1856. *Spirifer bifurcata*. Hall, Trans. Albany Inst., vol. 4, p. 8.

St. Louis L. S.: Spergen Hill, Indiana.

1882. *Spirifera bifurcata*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 47, pl. 6, figs. 13-15.

St. Louis Group: Spergen Hill, Indiana.

1883. *Spirifera bifurcata*. Hall, 12th Rep. Geol. Surv. Ind., p. 326, pl. 29, figs. 13-15.

St. Louis Group: Spergen Hill, Indiana.

Spirifer biplicatus Hall.

1858. *Spirifer biplicatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 519, pl. 7, figs. 5a, b.

Chemung Group: Burlington, Iowa; Quincy, Illinois.

1870. *Spirifera buplicata*? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.

Waverly Group: Sciotoville, Ohio.

1875. *Spirifer (Trigonotreta) buplicatus*? Meek, Pal. Ohio, vol. 2, p. 290, pl. 14, fig. 5.

Waverly Group: Richfield, Ohio.

Spirifer buplicatus Hall—Continued.

1888. *Spirifer buplicatus*. Herrick, Bull. Den. Univ., vol. 3, p. 45.
Waverly Group: Licking County, Ohio.
1888. *Spirifer buplicatus*. Herrick, Bull. Den. Univ., vol. 4, p. 25, pl. 2, fig. 8; pl. 10, figs. 17, 18.
Waverly Group: Cuyahoga Falls, Ohio.
1895. *Spirifer buplicatus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 8.
Upper Layers of Waverly Group: Newark, Ohio.

Spirifer boonensis Swallow.

1860. *Spirifer Boonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 646.
Lower Coal Measures: Boone, Randolph, and Monroe counties, Missouri.

Spirifer cameratus Morton.

1836. *Spirifer cameratus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 2, fig. 3.
Coal Measures: Ohio Valley.
1852. *Spirifer triplicata*. Hall, Stansb. Exped. Gt. Salt Lake, p. 410, pl. 4, figs. 5a-e.
Carboniferous: Missouri River above Weston.
1852. *Spirifer fasciger*? Owen, Geol. Rep. Wis., Iowa, and Minn., tab. 5, fig. 4.
Carboniferous: Missouri River, near mouth of Keg Creek, and Plattsburg, Missouri.
1852. *Spirifer meusebachanus*. Roemer, Kreid. von Texas, p. 88, taf. 11, figs. 7a-c.
Carboniferous: San Saba Valley, about 20 miles below the old Spanish Forts, Texas.
1856. *Spirifer cameratus*. Hall, Pac. R. R. Rep., vol. 3, p. 102, pl. 2, figs. 9, 12, 13.
Carboniferous: Pecos Village, New Mexico.
1858. *Spirifer cameratus*. Hall, Geol. Iowa, vol. 1, pt. 2, pl. 709, pl. 28, figs. 2a, b.
Coal Measures: Ohio; Illinois; Iowa; Missouri; Nebraska; Santa Fé and Pimas Village, New Mexico.
1859. *Spirifer cameratus*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.
Upper Coal Measures: Kansas.
1859. *Spirifer cameratus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391.
Permian S. S. and White L. S.: Guadalupe Mountains.
1861. *Spirifer cameratus*. Newberry, Ives's Colo. Expl. Exped., p. 127.
Upper Carboniferous L. S.: Santa Fé and Pecos Village, New Mexico.
1868. *Spirifer*. Rogers, Geol. Rep. Penn., p. 833, fig. 694.
1872. *Spirifer cameratus*. Meek, U. S. Geol. Surv. Nebr., p. 183, pl. 6, fig. 12; pl. 8, fig. 15.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Eastern Ohio; West Virginia; Pennsylvania; Iowa; Kansas; Texas; New Mexico.
1873. *Spirifer cameratus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 573, pl. 25, fig. 7.
Coal Measures: Illinois.
1873. *Spirifer*, young of *S. cameratus*? Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 25, figs. 6a-c.
Coal Measures.
1874. *Spirifera camerata*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 12, pl. 1, figs. 1, 3, 6, 9, 14; pl. 2, figs. 2, 15; pl. 4, fig. 5; pl. 5, fig. 11.
Coal Measures: Bomjardim and Itaituba, Brazil.
1876. *Spirifer cameratus*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1876. *Spirifer cameratus*. Newberry, U. S. Expl. Exped., Santa Fé to Grand and Green rivers, p. 138.
Upper Carboniferous: New Mexico and Utah.
1876. *Spirifer camerata*. Meek, Simpson's Expl. Gt. Basin Utah, p. 353, pl. 2, figs. 3a, b.

Spirifer cameratus Morton—Continued.

Yellow L. S. (Upper Carboniferous?): Summit Spring Pass, east of Zuny Valley, etc.

1877. *Spirifer (Trigonotreta) cameratus*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 91, pl. 9, figs. 2, 2a.

Carboniferous L. S.: Fossil Hill, White Pine District; Ruby Group, Nevada. Also, latitude $39^{\circ} 33'$ north, longitude $115^{\circ} 12'$ west.

1877. *Spirifer cameratus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 132, pl. 10, figs. 1a-d.

Carboniferous: Fossil Hill, White Pine County; Ely range; Old Potosi Mine, Lincoln County; and Egan range, 35 miles south of Egan Pass, Nevada; Camp Apache, Maricopa County; Salt River; confluence of White Mountain and Black Rivers; and Canyon Butte, Arizona, Oquirrh range, near Camp Floyd; Lake range on Fairfield road; west face of Oquirrh range; north Fork of Lewiston Canyon, Oquirrh range; cliff east of Bellevue; Meadow Creek, south of Fillmore; North Star District, Picacho range; near Beckwith Spring, Cedar range; Rock Canyon, Wasatch range, near Provo; and Virgin range, southwest of Saint George, Utah.

1881. *Spirifer cameratus*. White, 2d Ann. Rep. Dept. Stat. and Geol. Ind., p. 517, pl. 8, fig. 3.

Coal Measures: Waterman, Parke County, Indiana.

1883. *Spirifera camerata*. Hall, Rep. N. Y. State Geol. for 1882, pl. (32) 57, figs. 9-15.

Coal Measures: Ohio; Illinois; Iowa; Missouri, etc.

1884. *Spirifer cameratus*. White, 13th Rep. Geol. Surv. Ind., p. 132, pl. 35, figs. 3-5. Coal Measures: Indiana.

1887. *Spirifera camerata*. Herrick, Bull. Den. Univ., vol. 2, p. 45, pl. 2, fig. 22. Coal Measures: Flint Ridge, Ohio.

1888. *Spirifera camerata*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 230. Lower Coal Measures: Des Moines, Iowa.

1894. *Spirifer cameratus*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 26, figs. 7, 8.

Coal Measures: Missouri; Illinois.

1894. *Spirifera camerata*. Keyes, Mo. Geol. Surv., vol. 5, p. 83, pl. 40, figs. 5a-c. Coal Measures: Clinton, Kansas City, and Lexington, Missouri.

1895. *Spirifer cameratus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 9-15. Coal Measures: Ohio and Illinois.

1897. *Spirifer cameratus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 31. Upper Coal Measures: Sebastian County, Arkansas; Poteau Mountains, Indian Territory.

Lower Coal Measures: Conway County, Arkansas.

Spirifer cameratus var. *kansasensis* Swallow.

1866. *Spirifer cameratus* var. *kansasensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.

Upper Coal Measures: Kansas.

Spirifer cameratus var. *percrassus* Swallow.

1866. *Spirifer cameratus* var. *percrassus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.

Upper Coal Measures: Missouri and Kansas.

Spirifer carteri. See *Syringothyris carteri* and *Syringothyris textus*.**Spirifer centronatus** Winchell.

1865. *Spirifera centronata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 118. Marshall Group: Cuyahoga Falls and Akron, Ohio.

Spirifer centronatus Winchell—Continued.

1874. *Spirifer centronata*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifer centronatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 86,
pl. 5, figs. 8a-c.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifera centronata*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4,
p. 254, pl. 4, figs. 5, 6.
Near base of Wahsatch L. S. (Waverly?): Dry Canyon, Oquirrh Mountains; Logan and Ogden Canyons, Wahsatch range, Utah.

Spirifer clarus. See *Reticularia clara*.

Spirifer clavatus McChesney.

1861. *Spirifer clavata*. McChesney, Desc. New Pal. Foss., p. 84.
Burlington L. S.: Burlington, Iowa.
1865. *Spirifer clavatus*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 5a, b.
1868. *Spirifera clavata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 36,
pl. 6, figs. 5a, b.
Burlington L. S.: Burlington, Iowa.

Spirifer contractus. See *Martinia contracta*.

Spirifer cooperensis. See *Reticularia cooperensis*.

Spirifer cuspidatus. See *Syringothyris carteri*.

Spirifer deltoideus Herrick.

1888. *Spirifer deltoideus*. Herrick, Bull. Den. Univ., vol. 4, p. 27, pl. 2, fig. 7.
Waverly Group: Granville, Ohio.
1895. *Spirifer deltoideus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 7.
Waverly Conglomerate (Kinderhook): Granville, Ohio.

Spirifer desideratus Walcott.

1884. *Spirifera desiderata*. Walcott, Pal. Eureka Dist., p. 217, pl. 7, fig. 8.
Lower Carboniferous: Eureka District, Nevada.

Spirifer duplicicostus Phillips.

1836. *Spirifera duplicicosta*. Phillips, Geol. Yorksh., vol. 2, p. 218, pl. 10, fig. 1.
Carboniferous: England.
1878. *Spirifera duplicicosta*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34,
p. 628.
Carboniferous L. S.: Feilden Isthmus, latitude 82° 43'.

Spirifer extenuatus. See *Syringothyris extenuatus*.

Spirifer fasciger. See *Spirifer cameratus*.

Spirifer fastigatus Morton.

1836. *Spirifer fastigatus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 152, pl. 14, fig. 35.
Coal Measures: Ohio Valley.

Spirifer fastigatus Meek and Worthen. See *Spirifer mortonanus*.

Spirifer fimbriatus Morton.

1836. *Spirifer fimbriatus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 150, pl. 2, fig. 1.
Coal Measures: Ohio Valley.

Spirifer forbesi Norwood and Pratten.

1855. *Spirifer Forbesii*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
vol. 2, p. 73, pl. 9, figs. 3a-c.
Middle of Mountain L. S.: Burlington, Iowa.
1858. *Spirifer forbesi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 600, pl. 13, fig. 1.
Burlington L. S.: Burlington, Iowa.

Spirifer forbesi Norwood and Pratten—Continued.

1894. *Spirifera forbesi*. Keyes, Mo. Geol. Surv., vol. 5, p. 80, pl. 40, fig. 3.
Burlington L. S.: Hannibal, Louisiana, Sedalia, and Springfield, Missouri.
1895. *Spirifer Forbesi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, fig. 18.
Burlington L. S.: Burlington, Iowa.

Spirifer fultonensis Wörthen.

1873. *Spirifer Fultonensis*. Worthen, Geol. Surv. Ill., vol. 5, p. 572, pl. 25, fig. 5.
Lower Coal Measures: Fulton County, Illinois.

Spirifer glabrus. See *Martinia glabra*.*Spirifer glabrus* var. *contractus*. See *Martinia contractus*.**Spirifer grimesi** Hall.

1858. *Spirifer grimesi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 604, pl. 14, figs. 1-5.
Burlington L. S.: Burlington, Iowa; Quincy and Jersey Landing, Illinois.
1878. *Spirifera* sp. allied to *S. Grimesi* Hall. Etheridge, Quart. Jour. Geol. Soc.
Lond., vol. 34, p. 628, pl. 25, fig. 5.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1883. *Spirifera Grimesi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs.
8, 16-19.
Burlington L. S.: Burlington, Iowa.
1894. *Spirifera grimesi*. Keyes, Mo. Geol. Surv., vol. 5, p. 79.
Chouteau L. S.: Hannibal, Louisiana, and Sedalia, Missouri.
Burlington L. S.: Palmyra, Hannibal, Louisiana, Sedalia, Springfield, and
Ste. Genevieve, Missouri.
1895. *Spirifer Grimesi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, figs. 8,
16-19.
Burlington L. S.: Burlington, Iowa.

Spirifer guadalupensis. See *Reticularia guadalupensis*.*Spirifer hannibalensis*. See *Syringothyris carteri*.*Spirifer hemiplicata*. See *Enteleutes hemiplicata*.*Spirifer hirtus*. See *Reticularia cooperensis*.**Spirifer imbrex** Hall.

1858. *Spirifer imbrex*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 601, pl. 13, fig. 2.
Burlington L. S.: Burlington, Iowa.
1883. *Spirifera imbrex*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs.
11, 12.
Burlington L. S.: Burlington, Iowa.
1894. *Spirifer imbrex*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27, fig. 1.
Burlington L. S.: Burlington, Iowa.
1894. *Spirifera imbrex*. Keyes, Mo. Geol. Surv., vol. 5, p. 80.
Burlington L. S.: Hannibal and Louisiana, Missouri.
1895. *Spirifer imbrex*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 31, figs. 11, 12.
Burlington L. S.: Burlington, Iowa.

Spirifer inæquicostus Owen.

1852. *Spirifer inequicostis*. Owen, Geol. Rep. Wis., Iowa, and Minn., p. 586, tab. 5,
fig. 6.
Carboniferous L. S.: Iowa.

Spirifer incertus Hall.

1858. *Spirifer incertus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 602, pl. 13, fig. 3.
Burlington L. S.: Burlington, Iowa.

Spirifer increbescens Hall.

1858. *Spirifer increbescens*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 706, pl. 27, figs. 6 a-i.
Kaskaskia L. S.: Kaskaskia and Chester, Illinois.

Spirifer increbescens Hall—Continued.

1883. *Spirifera increbescens*. Hall, Rep. N. Y. State Geol. for 1882, pl. (30) 55, figs. 27-30, pl. (31) 56, figs. 1-3.
Chester L. S.: Illinois.
1888. *Spirifer increbescens*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 14, 23.
Chester L. S.: Ohio.
Coal Measures: Licking County, Ohio.
1894. *Spirifer increbescens*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27 figs. 8-11.
Chester L. S.: Chester, Illinois.
1894. *Spirifera increbescens*. Keyes, Mo. Geol. Surv., vol. 5, p. 82.
Kaskaskia L. S.: Ste. Mary, Missouri.
1895. *Spirifer increbescens*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, figs. 27-30, pl. 31, figs. 1-3.
Chester L. S.: Chester, Illinois.

Spirifer increbescens var. americana Swallow.

1866. *Spirifer increbescens* var. *Americana*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 410.
Kaskaskia L. S.: Missouri and Illinois.

Spirifer increbescens var. transversalis Hall.

1858. *Spirifer increbescens* var. *transversalis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 708
Kaskaskia L. S.

Spirifer keilhavii von Buch.

1855. *Spirifer Keilhavii*. Salter, Belcher's "Last of the Arctic Voyages," p. 386, pl. 36, figs. 9-11.
Carboniferous: Depot Point, Exmouth Island.

Spirifer kelloggi Swallow.

1863. *Spirifer Kelloggi*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 86.
Lower Keokuk L. S.
1894. *Spirifera kelloggi*. Keyes, Mo. Geol. Surv., vol. 5, p. 81.
Keokuk L. S.: Keokuk, Iowa.

Spirifer kentuckensis*. See *Spiriferina kentuckensis*.**Spirifer kentuckensis* var. *propatulus*. See *Spiriferina kentuckensis* var. *propatulus*.****Spirifer keokuk Hall.**

1852. *Spirifer attenuatus*. Owen, Geol. Rep. Wis., Iowa., and Minn., tab. 5, tab. 3A, fig. 8.
Lower Carboniferous L. S.: Skunk River, Iowa.
Carboniferous L. S.: Keokuk Rapids of the Mississippi.
1858. *Spirifer keokuk*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 642, pl. 20, figs. 3a-d, 2d.
Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
1858. *Spirifer keokuk* var. Hall, Geol. Iowa, vol. 1, pt. 2, p. 676, pl. 24, figs. 4a-d.
St. Louis L. S.: Mouth of Lizard Creek, Webster County, Iowa.
1876. *Spirifer Keokuk* (?). Meek, Bull. U. S. Geol. and Geog. Surv. Terr., vol. 2, p. 355, pl. 1, figs. 3, 3a.
Carboniferous: Kootenay Range of Rocky Mountains.
1883. *Spirifera Keokuk*. Hall, Rep. N. Y. State Geol. for 1882, pl. (30) 55, figs. 21-24.
Keokuk and St. Louis L. S.: Keokuk, Iowa; Lizard Creek, Iowa; Marion County, Iowa.
1888. *Spirifer keokuk*. Herrick, Bull. Den. Univ., vol. 4, p. 114.
Waverly Group: Rushville and Loudonville, Ohio.

Spirifer keokuk Hall—Continued.

1891. *Spirifer Rockymontana?* Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 584, pl. 13, fig. 20.
 Maxville L. S.: Newtonville, Ohio.
1894. *Spirifer Keokuk*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27, figs. 14, 15.
 Keokuk Group: Keokuk, Iowa.
1894. *Spirifera keokuk*. Keyes, Mo. Geol. Surv., vol. 5, p. 81, pl. 40, fig. 2.
 Keokuk L. S.: Wayland, Missouri; Keokuk, Iowa.
1895. *Spirifera Rockymontana?* Whitfield, Geol. Surv. Ohio, vol. 7, p. 471, pl. 9, fig. 20.
 Maxville L. S.: Newtonville, Ohio.
1895. *Spirifer Keokuk*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, figs. 21-24.
 Keokuk Group: Keokuk, Lizard Creek, and Marion County, Iowa.
1895. *Spirifer Keokuk* var. ? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, figs. 13-15.
 St. Louis Group: Southern Indiana?
1897. *Spirifer keokuk*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 257, pl. 18, figs. 10-12.
 Batesville S. S.: Batesville, Arkansas.

Spirifer keokuk var. shelbyensis Swallow.

1866. *Spirifer Keokuk* var. *Shelbyensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 410.
 Archimedes L. S.: Shelby County, Missouri.

Spirifer lavigatus*. See *Spirifer logani*.**Spirifer laminosus*. See *Spiriferina kentuckensis*.****Spirifer lateralis Hall.**

1858. *Spirifer lateralis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 661, pl. 23, figs. 7a-c.
 Warsaw L. S.: Clifton, Illinois.
1883. *Spirifera lateralis?* Hall, Rep. N. Y. State Geol. for 1882, pl. (32) 57, figs. 1-3.
 Warsaw L. S.: Warsaw, Illinois.
1895. *Spirifer lateralis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 1-3; pl. 37, fig. 19.
 Warsaw L. S.: Warsaw and Clifton, Illinois.

Spirifer latior Swallow.

1863. *Spirifer latior*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 86.
 Chouteau L. S.: Cooper County, Missouri.

Spirifer leidyi Norwood and Pratten.

1855. *Spirifer Leidyi*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2), vol. 3, p. 72, pl. 9, figs. 2a-c.
 Upper Mountain L. S.: Chester, Illinois.
1883. *Spirifera Leidyi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (30) 55, figs. 25, 26.
 Chester L. S.: Chester, Illinois.
1884. *Spirifera Leidyi*. Walcott, Pal. Eureka Dist., p. 216, pl. 18, figs. 4, 4a.
 Lower Carboniferous: Eureka District, Nevada.
1894. *Spirifer Leidyi*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27, figs. 16, 17.
 Chester L. S.: Chester, Illinois.
1894. *Spirifera leidyi*. Keyes, Mo. Geol. Surv., vol. 5, p. 82.
 Kaskaskia L. S.: Ste. Mary, Missouri.
 St. Louis L. S.: Ste. Genevieve, Missouri.

Spirifer leidyi Norwood and Pratten—Continued.

1895. *Spirifer Leidyi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 30, figs. 25, 26.
Chester L. S.: Chester, Illinois.

Spirifer leidyi var. *chesterensis* Swallow.

1866. *Spirifer Leidyi* var. *Chesterensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.
Ste. Genevieve L. S.

Spirifer leidyi var. *merimacensis* Swallow.

1866. *Spirifer Leidyi* var. *Merimacensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 410.
Archimedes L. S.: Barrett's Station, Missouri.

Spirifer lineatoides. See *Reticularia lineatoides*.*Spirifer lineatus*. See *Reticularia perplexa*.*Spirifer lineatus* var. *perplexus*. See *Reticularia perplexa*.*Spirifer lineatus* var. *striato-lineatus*. See *Reticularia perplexa*.**Spirifer littoni** Swallow.

1860. *Spirifer Littoni*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 646.
St. Louis L. S.: St. Louis County, Missouri.

Spirifer logani Hall.

1858. *Spirifer logani*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 647, pl. 20, fig. 7; pl. 21, figs. 1a, b, 2.
Keokuk L. S.: Near Nauvoo, Illinois.
1863. *Spirifer laevigatus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 86.
Keokuk L. S.: Iowa and Missouri.
1869. *Spirifera Logani*? Winchell, Safford's Geol. Tenn., p. 442.
Immediately above Black Shale: Manchester, Cannon County, Tennessee.
1883. *Spirifera Logani*. Hall, Rep. N. Y. State Geol. for 1882, pl. (32) 57, figs. 7, 8.
1894. *Spirifer Logani*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 26, fig. 10.
Keokuk L. S.: Near Nauvoo, Illinois.
1894. *Spirifera logani*. Keyes, Mo. Geol. Surv., vol. 5, p. 81.
Keokuk L. S.: Wayland and St. Francisville, Missouri; Keokuk, Iowa.
1895. *Spirifer Logani*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 7, 8.
Keokuk L. S.: Near Nauvoo, Illinois.

Spirifer marionensis Shumard.

1855. *Spirifer Marionensis*. Shumard, Geol. Rep. Mo., p. 205, pl. C, figs. 8a, b.
Chemung Group: Chouteau Springs, Cooper County; Hannibal, Marion County; Louisiana, Pike County; and Moniteau County, Missouri.
1858. *Spirifer marionensis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 511, pl. 6, figs. 1a-c.
Hamilton Group: Louisiana and Hannibal, Missouri.
1870. *Spirifera Marionensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Sciotoville, Ohio.
1883. *Spirifera Marionensis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, fig. 15.
1888. *Spirifer marionensis*. Herrick, Bull. Den. Univ., vol. 3, p. 43, pl. 1, fig. 3; pl. 6, figs. 2-5; pl. 7, fig. 11; pl. 9, fig. 1.
Waverly Group: Licking County, Ohio.
1888. *Spirifer marionensis*. Herrick, Bull. Den. Univ., vol. 4, p. 26, pl. 2, figs. 2, 2a.
Waverly Group: Portsmouth, Ohio.
1894. *Spirifer Marionensis*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 27, fig. 3.
Chouteau L. S.: Pike County, Missouri.

Spirifer marionensis Shumard—Continued.

1894. *Spirifera marionensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 78, pl. 40, figs. 1a, b.
Kinderhook Group: Chouteau Springs, Hannibal, Louisiana, and Clarks-
ville, Missouri.
1895. *Spirifer marionensis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, figs. 2, 2a.
Cuyahoga Shale: Portsmouth, Ohio.
1895. *Spirifer Marionensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 31, fig. 15.
Chouteau L. S.: Pike County, Missouri.

Spirifer meeki Swallow.

1860. *Spirifer Meekii*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 645.
Encrinital L. S.: Pettis, Saline, and other counties in Missouri.

Spirifer meusebachanus*. See *Spirifer cameratus*.*Spirifer mexicana Shumard.**

1858. *Spirifer Mexicanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 293.
White Permian L. S.: Guadalupe Mountains.
1859. *Spirifer Mexicanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390, pl.
11, fig. 4.
White Permian L. S.: Guadalupe Mountains.

Spirifer missouriensis Swallow.

1860. *Spirifer Missouriensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 643.
Chouteau L. S.: Cooper County, Missouri.

Spirifer mortonanus Miller.

1870. *Spirifer fastigatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 36.
(Not *S. fastigatus* Morton, 1836.)
Keokuk Group: Crawfordsville, Indiana.
1875. *Spirifer fastigatus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 521, pl. 30,
fig. 3.
Keokuk Group: Crawfordsville, Indiana.
1883. *Spirifera mortonana*. Miller, Am. Pal. Foss., 2d ed., p. 298.
1895. *Spirifer Mortonanus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 38,
figs. 18, 19.
Keokuk Group: Crawfordsville, Indiana.

Spirifer multigranosus Worthen.

1890. *Spirifer multigranosa*. Worthen, Geol. Surv. Ill., vol. 8, p. 105, pl. 11,
figs. 5, 5b.
Coal Measures: Roll's Ford, Sangamon County, Illinois.

Spirifer mundulus Rowley.

1893. *Spirifera mundula*. Rowley, Am. Geol., vol. 12, p. 307, pl. 14, figs. 10-12.
Lower Burlington L. S.: Louisiana, Missouri.

Spirifer mysticensis Meek.

1873. *Spirifer Mysticensis*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah,
p. 466.
Carboniferous: Outlet of Mystic Lake, Montana.

Spirifer neglectus Hall.

1858. *Spirifer neglectus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 643, pl. 20, fig. 5.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1875. *Spirifer neglectus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 523, pl. 30,
figs. 1c, 2a.
Keokuk L. S.: Warsaw, Hamilton, and Nauvoo, Illinois; Keokuk, Iowa.
1884. *Spirifera neglecta*. Walcott, Pal. Eureka Dist., p. 217, pl. 18, fig. 10.
Lower Carboniferous: Eureka District, Nevada.

Spirifer newberryi Hall.

1883. *Spirifera Newberryi*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs. 9, 10.
Waverly Group: Ohio.
1894. *Spirifer Newberryi*. Hall, 13th Ann. Rep. N. Y. State Geol., p. 649.
Waverly Group: Ohio.
1895. *Spirifer Newberryi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 362, pl. 31, figs. 9, 10.
Waverly Group: Ohio.
1897. *Spirifer Newberryi*. Hall, 14th Rep. N. Y. State Geol., p. 357, pl. 7, figs. 25, 26.
Waverly Group: Ohio.

Spirifer norwoodanas. See *Spiriferina norwoodana*.

Spirifer nova-mexicanus Miller.

1881. *Spirifera novamexicana*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 314, pl. 7, figs. 10-10b.
Subcarboniferous: Lake Valley Mining District, New Mexico.

Spirifer octoplicatus. See *Spiriferina kentuckensis*.

Spirifer opimus. See *Spirifer rockymontanus*.

Spirifer organensis Shumard.

1863. *Spirifer Organensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 108.
Coal Measures: Oregon Mountains, near Fort Filmore, New Mexico.

Spirifer osagensis Swallow.

1860. *Spirifer Osagensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 641.
Chemung Rocks: Pettis County, Missouri.

Spirifer ovalis Phillips.

1878. *Spirifera ovalis*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.
Carboniferous: Feilden Isthmus, latitude 82° 43'.

Spirifer peculiaris Shumard.

1855. *Spirifer ? peculiaris*. Shumard, Geol. Rep. Mo., p. 202, pl. C, figs. 7a, b.
Chemung Group: Chouteau Springs, Cooper County, Missouri.
1874. *Spirifer (Martinia) peculiaris*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifer (Martinia) peculiaris*. White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 90, pl. 5, figs. 7a, b.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1894. *Spirifera peculiaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 79.
Kinderhook L. S.: Chouteau Springs, Missouri.

Spirifer perplexus. See *Reticularia perplexa*.

Spirifer planoconvexus. See *Ambocœlia planoconvexa*.

Spirifer plenus Hall.

1858. *Spirifer plenus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 603, pl. 13, figs. 4a-d.
Burlington L. S.: Burlington, Iowa; 9 miles below Iowa City, Iowa; Quincy, Illinois.
1890. *Syringothyris ? plena*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 37.
Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Pike County, Missouri.
1894. *Syringothyris plena*. Keyes, Mo. Geol. Surv., vol. 5, p. 88, pl. 40, fig. 8.
Burlington L. S.: Hannibal, Missouri.
1895. *Spirifer plenus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, figs. 32, 33.
Burlington L. S.: Burlington, Iowa.

Spirifer propinquus. See *Syringothyris textus*.

Spirifer pseudolineatus. See *Reticularia pseudolineata*.

Spirifer pulchrus. See *Spiriferina pulchra*.

***Spirifer rockymontanus* Marcou.**

1858. *Spirifer rocky-montana*. Marcou, Geol. N. A., p. 50, pl. 7, figs. 4-4e. Mountain L. S.: Tigerus, New Mexico.
 1858. *Spirifer opimus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 711, pl. 28, figs. 1a, b. Coal Measures: Ohio, Maryland, Iowa, etc.
 1860. *Spirifer subventricosa*. McChesney, Desc. New Pal. Foss., p. 44. Coal Measures: Big Creek, Indiana, near New Harmony.
 1861. *Spirifer Rockymontani*. Newberry, Ives's Colo. Expl. Exped., p. 127. Upper Carboniferous L. S.: New Mexico.
 1865. *Spirifer subventricosa*. McChesney, Ill. New Spec. Foss., pl. 1, figs. 4a, b.
 1868. *Spirifer opimus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 35, pl. 1, figs. 4a, b. Coal Measures: Big Creek, near New Harmony, Indiana.
 1874. *Spirifera opima*. Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 15, pl. 1, fig. 4; pl. 2, fig. 7; pl. 4, fig. 12. Coal Measures: Bomjardim, Paredao, and Itaituba, Brazil.
 1875. *Spirifer (Trigonotreta) opimus*?. Meek, Pal. Ohio, vol. 2, p. 329, pl. 19, figs. 14a-e. Coal Measures: Ohio; Illinois; Iowa; Missouri; West Virginia, and Rocky Mountains.
 1876. *Spirifer Rockymontanus*. White, Powell's Rep. Geol. Uinta Mts., p. 90. Lower Aubrey Group: Split Mountain Canyon and near Echo Park, Utah. Upper Aubrey Group: Beehive Point, near Horseshoe Canyon, Utah.
 1877. *Spirifer (Trigonotreta) opimus*?. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 88, pl. 9, fig. 6. Carboniferous L. S.: Six miles south of Promontory Station, Promontory Mountains, Railroad Canyon, Moleen Peak; Mount Nebo in Utah; Fossil Hill, White Pine District.
 1877. *Spirifer rockymontanus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 134, pl. 11, figs. 9a-d. Carboniferous: North Fork of Lewiston Canyon, Oquirrh range, and on west face of Oquirrh range, Utah; near Santa Fé, New Mexico.
 1883. *Spirifera opima*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs. 4-7. Coal Measures: Iowa; Brazil, South America.
 1887. *Spirifera opima*. Herrick, Bull. Den. Univ., vol. 2, p. 44, pl. 2, fig. 23. Coal Measures: Flint Ridge, Ohio.
 1888. *Spirifera rockymontana*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231. Lower Coal Measures: Des Moines, Iowa.
 1894. *Spirifer opimus*. Hall and Clarke, Int. Study of Brach., pt. 2, pl. 27, figs. 12, 13. Coal Measures: Iowa.
 1894. *Spirifera rockymontana*. Keyes, Mo. Geol. Surv., vol. 5, p. 84. Upper Coal Measures: Kansas City, Missouri.
 1895. *Spirifer opimus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 31, figs. 4-7. Coal Measures: Iowa; Bomjardim, Brazil.
 1879. *Spirifer rockymontanus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 32. Lower Coal Measures: White County and Crawford County, Arkansas.
- See also *Spirifer keokuk*.

***Spirifer rostellatus* Hall.**

1858. *Spirifer rostellatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 641, pl. 20, figs. 2a-c. Keokuk L. S.: Skunk River, Iowa.
1894. *Spirifera rostellata*. Keyes, Mo. Geol. Surv., vol. 5, p. 82. Keokuk L. S.: Bonaparte, Iowa.
1895. *Spirifer rostellatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, fig. 5. Keokuk Group: Skunk River, Iowa.

Spirifer rostratus Morton.

1836. *Spirifer rostratus*. Morton, Amer. Jour. Sci. (1), vol. 29, p. 152, pl. 14, fig. 34.
Coal Measures: Ohio Valley.

Spirifer scobinus Meek.

1860. *Spirifera scobina*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.
Upper Carboniferous?: Divide between Long and Ruby valleys, latitude 40°, longitude 115° 20'.
1876. *Spirifer (Spiriferina?) scobina*. Meek, Simpson's Exp. Gt. Basin Utah, p. 351, pl. 2, figs. 5a-c.
Yellow L. S. (Upper Carboniferous?): Between Long and Ruby valleys.
1877. *Spirifer (Trigonotreta) scobina*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 90, pl. 9, figs. 1-1d.
Carboniferous L. S.: Latitude 40° north, longitude 115° 20' west, Nevada.

Spirifer semiplicatus. See *Reticularia cooperensis*.

Spirifer setigerus. See *Reticularia setigera*.

Spirifer sillanus Winchell.

1865. *Spirifera Sillana*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Marshall Group: Valley Forge, one-half mile below Cuyahoga Falls, Ohio.

Spirifer spinosus. See *Spiriferina spinosa*.

Spirifer striatiformis Meek.

1875. *Spirifer (Trigonotreta) striatiformis*. Meek, Pal. Ohio, vol. 2, p. 289, pl. 14, figs. 8a-e.
Waverly Group: Sciotoville, Ohio.
1888. *Spirifer striatiformis*. Herrick, Bull. Den. Univ., vol. 3, p. 44, pl. 1, fig. 6; pl. 3, figs. 23, 26; pl. 6, figs. 6, 7; pl. 12, fig. 20.
Waverly Group: Licking County, Ohio.
1888. *Spirifer striatiformis*. Herrick, Bull. Den. Univ., vol. 4, pl. 2, fig. 9.
Waverly Group: Newark, Ohio.
1895. *Spirifer striatiformis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, fig. 9.
Upper Layers of Waverly Group: Newark, Ohio.

Spirifer striatus Martin.

1858. *Spirifer striatus*. Marcou, Geol. N. A., p. 49, pl. 7, figs. 2, 2a.
Mountain L. S.: Pecos Village, Tigras, and summit of the Sierra de Sandia, New Mexico; Salt Lake City, Utah; Shasta County, California; Vancouver Island; Ohio; Kentucky; Tennessee; Indiana; Illinois; Iowa; Missouri; Arkansas.
1858. *Spirifer striatus?* var. Hall, Geol. Iowa, vol. 1, pt. 2, p. 647.
Keokuk L. S.
1868. *Spirifera striata*. Dawson, Acad. Geol., p. 301.
Carboniferous L. S.: Windsor, Nova Scotia.
1874. *Spirifer striatus*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifera striata*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 269, pl. 5, figs. 13-15.
Lower Carboniferous L. S. Snowstorm Hill, Dry Canyon, Oquirrh Mountains, Utah.
1877. *Spirifer striatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 134, and p. 88, pl. 5, fig. 10a.
Carboniferous: Fort Bayard, New Mexico; North Star District, Picacho range, Utah.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1887. *Spirifer striata?* Herrick, Bull. Den. Univ., vol. 2, pl. 2, fig. 24.
Coal Measures: Flint Ridge, Ohio.

***Spirifer striatus* var. *triplicatus* Marcou.**

1858. *Spirifer striatus* var. *triplicatus*. Marcou, Geol. N. A., p. 49, pl. 7, fig. 3.
Mountain L. S.: Pecos Village, Tigras, on the summit of the Sierra de Sandia, New Mexico; Great Salt Lake; Vancouver Island.

***Spirifer subæqualis* Hall.**

1858. *Spirifer subæqualis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 663, pl. 23, figs. 9a-c.
Warsaw L. S.: Warsaw, Illinois.
1883. *Spirifera subæqualis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (31) 56, figs. 13, 14.
Warsaw L. S.: Warsaw, Illinois.
1894. *Spirifer subæqualis*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 27, fig. 2.
Warsaw L. S.: Warsaw, Illinois.
1895. *Spirifer subæqualis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 31, figs. 13, 14.
Warsaw L. S.: Warsaw, Illinois.

***Spirifer subcardiiformis* Hall.**

1858. *Spirifer subcardiiformis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 660, p. 23, figs. 6a, b.
Warsaw L. S.: Above Alton, Illinois.
1880. *Spirifer subcardiiformis*. White, Cont. to Inv. Pal., No. 8, p. 165, pl. 41, figs. 2a-c.
Warsaw Group: Alton, Illinois; Spengen Hill, Indiana.

Spirifer subcuspidatus. See *Syringothyris textus*.

Spirifer subelliptica. See *Spiriferina subelliptica*.

***Spirifer suborbicularis* Hall.**

1858. *Spirifer suborbicularis*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 644.
Keokuk L. S.: Keokuk, Iowa; Warsaw, Illinois.
1875. *Spirifer suborbicularis*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 523, pl. 30, fig. 1.
Keokuk L. S.: Warsaw, Hamilton, Nauvoo, and Niota, Illinois; Keokuk, Iowa.

***Spirifer subrotundatus* Hall.**

1858. *Spirifer subrotundatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 521, pl. 7, figs. 8a, b.
Chemung Group: Burlington, Iowa.
1870. *Spirifera subrotundata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Sciotoville, Ohio.
1894. *Spirifera subrotundata*. Keyes, Mo. Geol. Surv., vol. 5, p. 78.
Chouteau L. S.: Sedalia, Missouri.

Spirifer subventricosus. See *Spirifer rockymontanus*.

***Spirifer sulciferus* Shumard.**

1858. *Spirifer sulcifera*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 293.
White Permian L. S.: Guadalupe Mountains.
1859. *Spirifer sulciferus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391, pl. 11, fig. 3.
White Permian L. S.: Guadalupe Mountains.

***Spirifer taneyensis* Swallow.**

1860. *Spirifer Taneyensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 645.
Chemung Rocks: Taney County, Missouri.
1894. *Spirifera taneyensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 78.
Kinderhook Group: Taney County, Missouri.

Spirifer temerarius. See *Reticularia temeraria*.

Spirifer tenuicostus Hall.

1858. *Spirifer tenuicostus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 662, pl. 23, figs. 8a-c.
Keokuk and Warsaw L. S.: Keokuk, Iowa; Warsaw and Dallas, Illinois.

Spirifer tenuimarginatus Hall.

1858. *Spirifer tenuimarginatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 641, pl. 20, figs. 1a-c.
Keokuk L. S.: Warsaw, Illinois.
1883. *Spirifera tenuimarginata*. Hall, Rep. N. Y. Stat. Geol. for 1882, pl. (32) 57, figs. 4-6.
Keokuk Group: Keokuk, Iowa.
1895. *Spirifer tenuimarginatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 32, figs. 4, 6.
Keokuk Group: Keokuk, Iowa.

Spirifer tenuispinatus*. See Reticularia tenuispinata.*Spirifer texanus Meek.**

1871. *Spirifer (Trigonotreta?) texanus*. Meek, Proc. Acad. Nat. Sci. Phil., p. 179.
Coal Measures: Young County, Texas.
1876. *Spirifer (Trigonotreta?) Texanus*. Newberry, U. S. Expl. Exped. from Santa Fe to Grand and Green rivers, p. 139, pl. 3, figs. 5-5b.
Coal Measures: Young County and Jack County, Texas; West Fork of Trinity River, Texas.
1894. *Spirifer Texana*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 26, fig. 9.
Coal Measures: Missouri.
1895. *Spirifer Texanus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 37, figs. 16, 17.
Carboniferous L. S.: Graham County, Texas.

Spirifer textus*. See Syringothyris textus.**Spirifer translatus*. See Reticularia translata.*****Spirifer transversus*. See Spiriferina transversa.****Spirifer trigonalis Martin.**

1884. *Spirifer trigonalis*. Walcott, Pal. Eureka Dist., p. 215, pl. 18, fig. 11.
Lower Carboniferous: Eureka District, Nevada.

Spirifer triplicatus*. See Spirifer cameratus.*Spirifer vernonensis Swallow.**

1860. *Spirifera Vernonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 644.
Chemung rocks: St. Louis County, Missouri.
1865. *Spirifer Vernonensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Sulphur Springs, Missouri.

***Spirifer vernonensis* var. *ozarkensis* Swallow.**

1860. *Spirifer Vernonensis* var. *Ozarkensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 644.
Chemung Rocks: Taney County, Missouri.

Spirifer waverlyensis Winchell.

1870. *Spirifera Waverlyensis*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group.

Spirifer winchelli Herrick.

1888. *Spirifer winchelli*. Herrick, Bull. Den. Univ., vol. 3, p. 46, pl. 1, fig. 1, pl. 2, fig. 16; pl. 5, figs. 2, 3.
Waverly Group: Licking County, Ohio.
1895. *Spirifer winchelli*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, figs. 2, 3.
Lower part of Burlington, above Conglomerate II: Ohio.

Spirifer (species undetermined).

1848. *Spirifer*. Christy, Letters on Geol., pl. 5, figs. 1-4.
 Sandstone above black slate: Elk River, Tennessee.
1854. *Spirifer* (undet.). Shumard, Marcy's Expl. Red River of Louis., p. 177, pl. 1, fig. 3.
 Carboniferous: Washington County, Arkansas.
1855. *Spirifer* (undet.). Schiel, Pac. R. R. Rep., vol. 2, p. 108, pl. 1, fig. 5.
 Carboniferous L. S.: Near Westport.
1858. *Spirifer* — (n. s.). Hall, Geol. Iowa, vol. 1, pt. 2, p. 647.
 Keokuk L. S.
1859. *Spirifer* —. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 28.
 Upper Coal Measures: Above Fort Riley, Kansas.
1877. *Spirifer* — sp.? Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 271, pl. 5, fig. 16.
 Weber Quartzite: Bear River, Uinta Range, Utah.
1877. *Spirifer* (?) cf. *S. disjuncta*. Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 100.
 Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1877. *Spirifer* — (?). Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 101.
 Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1878. *Spirifer* sp. allied to *S. lamellosa* McCoy. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.
 Carboniferous: Feilden Isthmus, latitude 82° 43'.
1887. *Spirifer* sp.? Herrick, Bull. Den. Univ., vol. 2, p. 46, pl. 2, fig. 6.
 Coal Measures: Flint Ridge, Ohio.
1888. *Spirifer* sp.? Herrick, Bull. Den. Univ., vol. 3, pl. 1, fig. 2.
 Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. (cf. *S. varicosta* Con.). Herrick, Bull. Den. Univ., vol. 3, p. 46, pl. 1, fig. 5.
 Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 24.
 Waverly Group: Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 9, fig. 19.
 Waverly Group: Licking County, Ohio.
1888. *Spirifer* (resembling *altus*). Herrick, Bull. Den. Univ., vol. 4, pl. 2, figs. 3, 10.
 Waverly Group: Moot's Run, Licking County, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 2, fig. 6.
 Waverly Group: Newark, Ohio.
1888. *Spirifer* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 10, fig. 19.
 Waverly Group: Cuyahoga Falls, Ohio.
1895. *Spirifer*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 46, fig. 22.
 Waverly Group: Richfield, Ohio.
1895. *Spirifer* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 14, fig. 6.
 Keokuk division of Waverly Group: Newark, Ohio.
1895. *Spirifer* (like *S. altus*). Herrick, Geol. Surv. Ohio, vol. 7, pl. 15, figs. 3-10.
 Waverly Group: Moot's Run, Licking County, Ohio.

SPIRIFERINA D'Orbigny, 1847.***Spiriferina aciculifera* Rowley.**

1893. *Spiriferina aciculifera*. Rowley, Am. Geol., vol. 12, p. 307, pl. 14, figs. 13, 14.
 (*Spiriferina* in Expl. of Plate.)
 Louisiana (Lithographic) L. S.: Louisiana, Missouri.

***Spiriferina billingsi* Shumard.**

1858. *Spiriferina Billingsii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 294.
White Permian L. S.: Guadalupe Mountains, and at mouth of Delaware
Creek, New Mexico.
1859. *Spiriferina Billingsii*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 391.
White and Dark Permian L. S.: Guadalupe Mountains.

***Spiriferina binacuta* Winchell.**

1865. *Spiriferina binacuta*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 120.
Base of Burlington, L. S.: Burlington, Iowa.

***Spiriferina clarksvillensis* Winchell.**

1865. *Spiriferina Clarkesvillensis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Lithographic L. S.: Clarksville, Missouri.
1894. *Spiriferina clarksvillensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 85.
Louisiana L. S.: Clarksville, Mo.

***Spiriferina cristata*.**

1863. *Spiriferina cristata*. Davidson, Quart. Jour. Geol. Soc. Lond., vol. 19, p. 170,
pl. 9, fig. 6.
Lower Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, Debert
River, and East River, Nova Scotia.
1868. *Spiriferina cristata*. Dawson, Acad. Geol., p. 291, fig. 90.
Carboniferous L. S.: Windsor, Brookfield, Shubenacadie, Debert River,
and East River, Nova Scotia.
1884. *Spiriferina cristata*. Walcott, Pal. Eureka Dist., p. 218, pl. 18, figs. 12, 13.
Lower Carboniferous: Eureka District, Nevada.
- See also *Spiriferina kentuckiensis*.

***Spiriferina depressa* Herrick.**

1888. *Spiriferina depressa*. Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 10, fig. 3.
Waverly Group: Licking County, Ohio.

***Spiriferina kentuckiensis* Shumard.**

1852. *Spirifer octoplicata*? Hall, Stansb. Exped. to Gt. Salt Lake, p. 409, pl. 4,
figs. 4a, b.
Carboniferous: Missouri River, near Weston.
1855. *Spirifer Kentuckensis*. Shumard, Geol. Rep. Mo., p. 203.
Coal Measures: On the Missouri River near Weston, and Grayson County,
Kentucky.
1856. *Spirifer kentuckensis*. Hall, Pac. R. R. Rep., vol. 3, p. 102, pl. 2, figs. 10, 11.
Carboniferous: Pecos Village, New Mexico.
1859. *Spirifer Kentuckensis*. Meek and Hayden, Proc. Acad. Nat. Sci. Phil., p. 27.
Upper Coal Measures: Leavenworth, Kansas.
1866. *Spirifer laminosus*. Geinitz, Carb. und Dyas in Nebr., p. 45, tab. 3, figs. 19a-d.
Plattsmouth and Nebraska City, Nebraska.
1872. *Spiriferina Kentuckensis*. Meek, U. S. Geol. Surv. Nebr., p. 185, pl. 6, figs.
3a-d; pl. 8, figs. 11a, b.
Upper Coal Measures: Nebraska City, Nebraska.
Coal Measures: Kentucky, Illinois, Missouri, Iowa, Nebraska, Kansas,
Texas, New Mexico.
1876. *Spiriferina Kentuckensis*. White, Powell's Rep. Geol. Uinta Mts., p. 90.
Lower and Upper Aubrey Group: Confluence of Grand and Green Rivers,
Utah.
1877. *Spiriferina Kentuckensis*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4,
p. 138, pl. 10, figs. 4a-c.
Carboniferous: Santa Fé, New Mexico; Meadow Creek, south of Fillmore,
Utah; Camp Apache, Arizona.

Spiriferina kentuckiensis Shumard—Continued.

1883. *Spirifera (Spiriferina) Kentuckiensis*. Hall, Rep. N. Y. State Geol. for 1882, pl. (36) 61, figs. 14-16.
Coal Measures.
1884. *Spiriferina Kentuckensis*. White, 13th Rep. Geol. Surv. Ind., p. 135, pl. 35, figs. 13, 14.
Middle and Upper Coal Measures: Vermilion, Vigo, Knox, Gibson, Posey, Vanderburg, Dubois, and Spencer counties, Indiana.
1888. *Spiriferina kentuckensis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 231.
Lower Coal Measures: Des Moines, Iowa.
1894. *Spiriferina kentuckensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 86.
Upper Coal Measures: Kansas City and Lexington, Missouri.
1895. *Spiriferina Kentuckiensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 29, fig. 17; pl. 36, figs. 14-16.
Coal Measures: Vinton County, Ohio; Illinois.
1897. *Spiriferina cristata*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 32.
Lower Coal Measures: Conway County, Arkansas.
Upper Coal Measures: Sebastian County, Arkansas, and Poteau Mountain, Indian Territory.

Spiriferina kentuckiensis var. propatula Swallow.

1866. *Spiriferina Kentuckensis* var. *propatulus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 409.
Upper Coal Measures: Missouri.

Spiriferina norwoodana Hall.

1856. *Spirifer norwoodana*. Hall, Trans. Albany Inst., vol. 4, p. 7.
St. Louis L. S.: Spergen Hill, Indiana; Alton, Illinois.
1882. *Spiriferina Norwoodana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 48, pl. 6, figs. 16, 17.
St. Louis Group: Spergen Hill, Indiana; Alton, Illinois.
1883. *Spiriferina norwoodana*. Hall, 12th Rep. Geol. Surv. Ind., p. 327, pl. 29, figs. 16, 17.
St. Louis Group: Alton, Illinois; Spergen Hill, Indiana.

Spiriferina octoplicata Sowerby.

1874. *Spiriferina spinosa* var. *campestris*. White, Prelim. Rep. Surv. Inv. Foss., p. 21.
Carboniferous (Coal Measures): Near Santa Fé, New Mexico; Camp Cottonwood, Lincoln County, Nevada.
1877. *Spiriferina octoplicata*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 139, pl. 10, figs. 8a-c.
Carboniferous: Near Santa Fé, New Mexico; Camp Cottonwood, Lincoln County, Nevada.
1878. *Spiriferina cristata?* var. *octoplicata*. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 629.
Carboniferous: Cape Joseph Henry, latitude 82° 43'.
1888. *Spiriferina octoplicata?* Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 16.
Waverly Group: Licking County, Ohio.

Spiriferina pulchra Meek.

1860. *Spirifera pulchra*. Meek, Proc. Acad. Nat. Sci. Phil., p. 310.
Upper Carboniferous: East and west sides of Long Valley, and Pass east of Ruby Valley, latitude 40°, longitude 115° 20'.
1864. *Spiriferina pulchra*. Meek, Pal. Up. Mo., p. 19.
Nevada Territory.
1876. *Spirifer (Spiriferina) pulchra*. Meek, Simpson's Exp. Gt. Basin, Utah, p. 352, pl. 2, figs. 1a-h.

Spiriferina pulchra Meek—Continued.

1876. Yellow L. S. (Upper Carboniferous): Long Valley and Ruby Valley.

1877. *Spiriferina pulchra*. Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 85, pl. 8, figs. 1-1e, pl. 12, figs. 12-12d.

Carboniferous L. S.: Nevada, latitude 40° north, longitude 115° 20' west;
White Pine County, Nevada, 25 miles northeast of Hamilton, Ruby
Group; mouth of Weber Canyon.

Spiriferina solidirostris Winchell.

1865. *Spiriferina solidirostris*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 120.
Base of Burlington L. S.: Burlington, Iowa; Hamburg, Illinois.

1870. *Spiriferina solidirostris*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Newark, Sciotoville, and Rockville, Ohio.

1888. *Spiriferina solidirostris*. Herrick, Bull. Den. Univ., vol. 3, p. 47, pl. 1, fig. 8;
pl. 2, figs. 9-11; pl. 5, fig. 13.
Waverly Group: Licking County, Ohio.

1895. *Spiriferina solidirostris*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, fig. 13.
Burlington: Ohio.

Spiriferina spinosa Norwood and Pratten.

1855. *Spirifer spinosus*. Norwood and Pratten, Jour. Acad. Nat. Sci. Phil. (2),
vol. 3, p. 71, pl. 9, figs. 1a-d.

Top of Mountain L. S.: Chester, Illinois; Pope County, Illinois; and in
Missouri opposite Hat Island.

1856. *Spiriferina spinosa*. Hall, Trans. Albany Inst., vol. 4, p. 8.
St. Louis L. S.: Bloomington, Indiana; Alton, Illinois.

1858. *Spirifer spinosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 706, pl. 27, figs. 5a-c.
Kaskaskia L. S.: Kaskaskia and Chester, Illinois; Crittenden County,
Kentucky.

1874. *Spiriferina spinosa* (?) Derby, Bull. Cornell Univ. (Sci.), vol. 1, No. 2, p. 23,
pl. 6, figs. 8, 13, 14.
Coal Measures: Itaituba, Brazil.

1883. *Spiriferina spinosa*. Hall, Rep. N. Y. State Geol. for 1882, pl. (35) 60, figs.
26-29.
Chester L. S.: Chester, Illinois.

1891. *Spiriferina spinosa*. Herrick, Bull. Geol. Soc. Am., vol. 2, p. 46, pl. 1, fig. 19.
Upper Waverly Group: Scioto County, Ohio.

1894. *Spiriferina spinosa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 31,
figs. 4-7.
Chester L. S.: Chester, Illinois.

1894. *Spiriferina spinosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 85.
Kaskaskia L. S.: Ste. Mary, Missouri.

1895. *Spiriferina spinosa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
26-29.
Chester L. S.: Chester, Illinois.

Spiriferina spinosa var *campestris*. See *Spiriferina octoplicata*.

Spiriferina subelliptica McChesney.

1860. *Spirifer subelliptica*. McChesney, Desc. New Pal. Foss., p. 43.
Kaskaskia L. S.: Button-mould Knob, Kentucky.

1894. *Spiriferina subelliptica*. Hall and Clarke, Int. to Study of Brach., pt. 2,
pl. 2, fig. 2.
Keokuk Group: New Providence, Indiana.

1895. *Spiriferina subelliptica*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
21, 22.
Keokuk Group: New Providence, Indiana.

Spiriferina subtexta White.

1862. *Spiriferina? subtexta*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 25.
Lower Burlington L. S.: Burlington, Iowa.

Spiriferina transversa McChesney.

1860. *Spirifer transversa*. McChesney, Desc. New Pal. Foss., p. 42.
Kaskaskia L. S.: Buzzard's Roost, Alabama.
1865. *Spirifer transversa*. McChesney, Ill. New Spec. Foss., pl. 6, figs. 3a-c.
1868. *Spirifer transversa*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 34,
pl. 6, figs. 3a-c.
Chester L. S.: Buzzard's Roost, Alabama.
1874. *Spiriferina transversa*. Derby, Bull. Cornell Univ. (Science), vol. 1, No. 2,
p. 21, pl. 2, figs. 4, 6, 13; pl. 3, figs. 12, 14, 17; pl. 5, fig. 4.
Coal Measures: Bomjardim and Itaituba, Brazil.
1883. *Spirifer transversa*. Hall, Rep. N. Y. State Geol. for 1882, pl. (35) 60, figs.
19-25.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous: Brazil, South America.
1894. *Spiriferina transversa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 31,
figs. 1-3.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous L. S.: Itaituba, Brazil.
1895. *Spiriferina transversa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 35, figs.
19, 20, 23-25.
Chester L. S.: Buzzard's Roost, Alabama.
Carboniferous L. S.: Itaituba, Brazil.

Spiriferina (species undetermined.)

1864. *Spiriferina* (sp. undt.) Meek, Pal. Cal., vol. 1, p. 14.
Carboniferous: Bass's Ranch, Shasta County, California.
1877. *Spiriferina* (undt. sp.) Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 84, pl. 8, figs.
5-5b.
Carboniferous L. S.: Railroad Canyon, Diamond Mountains, Nevada.
1895. *Spiriferina* sp? Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 39, figs. 23, 24.
Chester L. S.: Caldwell County, Kentucky.
1897. *Spiriferina* sp? Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 258.
Batesville S. S.: Batesville, Arkansas.

(SPIRIGERA D'Orbigny, 1847.)

- Spirigera americana*. See *Cleiothyris roissyi*.
- Spirigera biloba*. See *Athyris biloba*.
- Spirigera caput-serpentis*. See *Seminula argentea*.
- Spirigera charitonensis*. See *Seminula argentea*.
- Spirigera clintonensis*. See *Cleiothyris clintonensis*.
- Spirigera corpulenta*. See *Athyris corpulenta*.
- Spirigera euzona*. See *Athyris euzona*.
- Spirigera formosa*. See *Athyris formosa*.
- Spirigera hannibalensis*. See *Athyris hannibalensis*.
- Spirigera hawni*. See *Seminula argentea*.
- Spirigera hirsuta*. See *Cleiothyris hirsuta*.
- Spirigera maconensis*. See *Athyris maconensis*.

Spirigera missouriensis. See *Cleiothyris missouriensis*.

Spirigera monticola. See *Athyris monticola*.

Spirigera obmaxima. See *Cleiothyris obmaxima*.

Spirigera ohioensis. See *Athyris ohioensis*.

Spirigera pectinifera. See *Cleiothyris roissyi*.

Spirigera planosulcata. See *Cleiothyris roissyi*.

Spirigera plattensis. See *Athyris plattensis*.

Spirigera proutii. See *Athyris prouti*.

Spirigera reflexa. See *Cleiothyris reflexa*.

Spirigera singletonii. See *Seminula argentea*.

Spirigera subtilita. See *Seminula argentea*.

SPIRODOMUS Beecher, 1886.

Spirodomus insignis Beecher.

1886. *Spirodomus insignis*. Beecher, 39th Rep. N. Y. State Mus. Nat. Hist., p. 162, pl. 12, fig. 1-5.

Waverly Group: Warren County, Pennsylvania.

SPIRORBIS Lamark, 1801.

Spirorbis angulatus Dawson.

1868. *Spirorbis angulatus*. Dawson, Acad. Geol., p. 312.

Carboniferous L. S.: Windsor, Nova Scotia.

(This name was preoccupied by Hall in 1862.)

Spirorbis annulatus Hall.

1856. *Spirorbis annulatus*. Hall, Trans. Albany Inst., vol. 4, p. 34.

St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1882. *Spirorbis annulatus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 92, pl. 9, fig. 30.

St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.

1883. *Spirorbis annulatus*. Hall, 12th Rep. Geol. Surv. Ind., p. 374, pl. 32, fig. 30.

St. Louis Group: Alton, Illinois; Spergen Hill, Bloomington, and Lanesville, Indiana.

Spirorbis annulatus var. *nodulosus*. See *Spirorbis nodulosus*.

Spirorbis anthracosia Whitfield.

1881. *Spirorbis anthracosia*. Whitfield, Am. Jour. Sci. (3), vol. 21, p. 128.

Coal Measures: Near Marietta, Ohio.

1891. *Spirorbis anthracosia*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 608, pl. 16, figs. 18, 19.

Coal Measures: Marietta, Ohio.

1895. *Spirorbis anthracosia*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 492, pl. 12, figs. 18, 19.

Coal Measures: Near Marietta, Ohio.

Spirorbis arietinus Dawson.

1871. *Spirorbis arietina*. Dawson, Geol. Surv. Canada, Rep. Prog. 1866-1869, p. 15, fig.

Carboniferous: Near New Glasgow, Nova Scotia.

Spirorbis blairi Miller and Gurley.

1895. *Spirorbis blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 89, pl. 5, figs. 14, 15.

Chouteau L. S.: Sedalia, Missouri.

Spirorbis carbonarius Dawson.

- * 1845. *Spirorbis carbonarius*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 1, p. 326.
Coal Measures: Nova Scotia.
1889. *Spirorbis carbonarius*. Packard, Proc. Bost. Soc. Nat. Hist., vol. 24, p. 214.
Carboniferous: Pawtucket, Rhode Island.

Spirorbis kinderhookensis Gurley.

1883. *Spirorbis Kinderhookensis*. Gurley, New Carb. Foss. Bull., No. 1, p. 9.
Kinderhook Group: Pike County, Missouri.

Spirorbis nodulosus Hall.

1856. *Spirorbis annulatus* var. *nodulosus*. Hall, Trans. Albany Inst., vol. 4, p. 34.
St. Louis L. S.: Spergen Hill, Indiana.
1882. *Spirorbis nodulosus*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 93, pl. 9,
fig. 31.
St. Louis Group: Spergen Hill, Indiana.
1883. *Spirorbis nodulosus*. Hall, 12th Rep. Geol. Surv. Ind., p. 375, pl. 32, fig. 31.
St. Louis Group: Spergen Hill and Lanesville, Indiana.

Spirorbis orbiculostoma Swallow.

1858. *Spirorbis orbiculostoma*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 181.
Permian: Kansas.

Spirorbis (undetermined species).

1891. *Spirorbis*. White, Bull. U. S. Geol. Surv., No. 77, p. 30, pl. 3, fig. 17.
Permian: Military Crossing, Baylor County, Texas.

SPRAGIOPORA Ulrich, 1890.**Spragiopora parasitica Ulrich.**

1890. *Spragiopora parasitica*. Ulrich, Geol. Surv. Ill., vol. 8, p. 638, pl. 65,
figs. 6, 6a.
Chester Group: Chester, Illinois.

STEAROCERAS Hyatt, 1893.**Stearoceras gibbosum Hyatt.**

1891. *Endolobus gibbosus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 353,
figs. 55, 56.
Carboniferous: Colorado River, San Saba County, near Bend, Texas.
1893. *Stearoceras gibbosum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 424,
figs. 7a, 8.
Carboniferous: Near Bend, San Saba County, Texas.

STEGANOCRINUS Meek and Worthen, 1866.**Stegancrinus albersi Miller and Gurley.**

1897. *Stegancrinus albersi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat.
Hist., p. 33, pl. 2, figs. 13-16.
Burlington Group: Burlington, Iowa.

Stegancrinus araneolus Meek and Worthen.

1860. *Actinocrinus araneolus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 387.
Burlington L. S.: Burlington, Iowa.
1866. *Stegancrinus araneolus*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 198, pl. 15, figs. 1a, b.
Burlington L. S.: Burlington, Iowa.
1894. *Stegancrinus araneolus*. Keyes, Mo. Geol. Surv., vol. 4, p. 194.
Lower Burlington L. S.: Kinderhook, Illinois; Burlington, Iowa.

Steganocrinus araneolus Meek and Worthen—Continued.

1897. *Steganocrinus araneolus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 581, pl. 61, figs. 2a, b.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Steganocrinus benedicti Miller.

1892. *Steganocrinus benedicti*. Miller, Adv. Sheets, 18th Rep. Geol. Surv. Ind., p. 27, pl. 4, figs. 10-12.
Keokuk Group: Canton, Washington County, Indiana.
1894. *Steganocrinus benedicti*. Miller, 18th Rep. Geol. Surv. Ind., p. 281, pl. 4, figs. 10-12.
Keokuk Group: Canton, Washington County, Indiana.

Steganocrinus blairi Miller and Gurley.

1897. *Steganocrinus blairi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 35, pl. 2, figs. 21, 22.
Burlington Group: Near Sharon, Missouri.

Steganocrinus concinnus Shumard.

1855. *Actinocrinus concinnus*. Shumard, Geol. Rep. Mo., p. 189, pl. A, fig. 5.
Encirinal L. S.: North River, Marion County, Missouri.
1860. *Actinocrinus validus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 384.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1866. *Actinocrinus concinnus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 200, pl. 15, figs. 9a, b.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1894. *Steganocrinus concinnus*. Keyes, Mo. Geol. Surv., vol. 4, p. 194.
Upper Burlington L. S.: Marion County, Missouri; Springfield, Missouri; Kinderhook, Illinois.
1895. *Shumardocrinus concinnus*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 41, pl. 2, figs. 7-10.
Burlington Group: Sedalia, Missouri.
1897. *Steganocrinus concinnus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 582, pl. 61, figs. 5a, b.
Upper Burlington L. S.: Burlington and Pleasant Grove, Iowa; Marion County, Missouri.

Steganocrinus globosus Wachsmuth and Springer.

1897. *Steganocrinus globosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 585, pl. 61, fig. 6.
Kinderhook Group: Burlington, Iowa.

Steganocrinus griffithi Miller and Gurley.

1897. *Steganocrinus griffithi*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 17-20.
Burlington Group: Burlington, Iowa.

Steganocrinus pentagonus Hall.

1858. *Actinocrinus pentagonus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 577, pl. 10, figs. 6a, b.
Burlington L. S.: Burlington, Iowa.
1866. *Steganocrinus pentagonus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 196, fig. 9.
1868. *Steganocrinus pentagonus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 474, pl. 16, fig. 8.
Burlington Group: Burlington, Iowa.
1894. *Steganocrinus pentagonus*. Keyes, Mo. Geol. Surv., vol. 4, p. 195, pl. 24, fig. 9.
Lower Burlington L. S.: Louisiana, Missouri.

Steganoecrinus pentagonus Hall—Continued.

1897. *Steganoecrinus pentagonus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 579, pl. 61, figs. 3a-e, 4a, b.
Lower Burlington L. S.: Burlington, Iowa; Sedalia, Missouri; Lake Valley, New Mexico.

Steganoecrinus sculptus Hall.

1858. *Actinoecrinus sculptus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 582, pl. 10, figs. 11a, b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinoecrinus sculptus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 3, fig. 3.
1873. *Actinoecrinus sculptus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 343, pl. 4, fig. 2.
Burlington L. S.: Burlington, Iowa.
1874. *Actinoecrinus sculptus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 190.
1894. *Steganoecrinus sculptus*. Keyes, Mo. Geol. Surv., vol. 4, p. 194.
Lower Burlington L. S.: White Ledge, Marion County, Missouri.
1897. *Steganoecrinus sculptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 583, pl. 61, figs. 1a-f.
Lower Burlington L. S.: Burlington, Iowa; Lake Valley, New Mexico.

Steganoecrinus sharonensis Miller and Gurley.

1897. *Steganoecrinus sharonensis*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 32, pl. 2, figs. 10-12.
Burlington Group: Near Sharon, Missouri.

Steganoecrinus spergenensis Miller and Gurley.

1896. *Steganoecrinus spergenensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 29, pl. 2, figs. 4-7.
St. Louis Group: Spergen Hill, Indiana.

STEMMATOCRINUS Trautschold, 1867.**Stemmatocrinus trautscholdi Wachsmuth and Springer.**

1886. *Stemmatocrinus trautscholdi*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 180, pl. 9, figs. 7, 8. (Rev. Palaeocr., pt. 3, p. 256.)
Keokuk L. S.: Near Nashville (White's Creek), Tennessee.

STENOPORA Lonsdale, 1844.**Stenopora americana Ulrich.**

1890. *Stenopora americana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 437, pl. 74, figs. 1, 1a.
Keokuk Group: Jersey County and Warsaw, Illinois.
1894. *Stenopora americana*. Keyes, Mo. Geol. Surv., vol. 5, p. 14.
Keokuk L. S.: Warsaw, Illinois.

Stenopora americana var. varsoviensis Ulrich.

1890. *Stenopora americana* var. *varsoviensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 437, pl. 74, figs. 3, 3a.
Keokuk Group: Warsaw, Illinois.

Stenopora angularis Ulrich.

1890. *Stenopora angularis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 439, pl. 74, figs. 6-6b.
Keokuk Group: Lagrange, Missouri.
1894. *Stenopora angularis*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.
Keokuk L. S.: Lagrange, Missouri.

Stenopora carbonaria Worthen.

1875. *Chaetetes? carbonaria*. Worthen, Geol. Surv. Ill., vol. 6, p. 526, pl. 32, fig. 5.
Coal Measures: St. Clair County, Illinois.

Stenopora carbonaria Worthen—Continued.

1887. *Stenopora carbonaria*. Foerste, Bull. Den. Univ., vol. 2, p. 85, pl. 7, figs. 13a-c.
Coal Measures: Bald Hill and Flint Ridge, Ohio.
1890. *Stenopora carbonaria*. Ulrich, Geol. Surv. Ill., vol. 8, p. 445, pl. 73, figs. 8, 8a.
Coal Measures: Caseyville, Illinois; Lawrence, Kansas; Ohio.

Stenopora carbonaria var. conferta Ulrich.

1890. *Stenopora carbonaria* var. *conferta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 446, pl. 73, figs. 9, 9a.
Coal Measures: Caseyville, Illinois.

Stenopora carbonaria var. maculosa Ulrich.

1890. *Stenopora carbonaria* var. *maculosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 445, pl. 73, figs. 10, 10a.
Coal Measures: Caseyville, Illinois.

Stenopora cestriensis Ulrich.

1890. *Stenopora cestriensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 442, pl. 74, figs. 7, 7a.
Chester Group: Chester, Illinois.
1894. *Stenopora cestriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.
Kaskaskia L. S.: Chester, Illinois.

Stenopora columnaris. See *Rhombopora lepidodendroides* and *Fistulipora nodulifera*.

Stenopora emaciata Ulrich.

1890. *Stenopora emaciata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 438, pl. 74, figs. 2, 2a.
Keokuk Group: Warsaw, Illinois; Keokuk, Iowa.
1894. *Stenopora emaciata*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.
Keokuk L. S.: Warsaw, Illinois.

Stenopora exilis Dawson.

1868. *Stenopora exilis*. Dawson, Acad. Geol., p. 287, fig. 85a.
Carboniferous L. S.: Shubenacadie, Windsor, and Stewiacke, Nova Scotia.

Stenopora intercalaris Ulrich.

1890. *Stenopora intercalaris*. Ulrich, Geol. Surv. Ill., vol. 8, p. 439, pl. 74, figs. 5, 5a.
Keokuk Group: Warsaw, Illinois.
1894. *Stenopora intercalaris*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.
Keokuk L. S.: Warsaw, Illinois.

Stenopora intermittens Ulrich.

1890. *Stenopora intermittens*. Ulrich, Geol. Surv. Ill., vol. 8, p. 440, fig. 16.
Keokuk Group: Warsaw, Illinois.
1894. *Stenopora intermittens*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.
Keokuk L. S.: Warsaw, Illinois.

Stenopora meekana Ulrich.

1890. *Stenopora meekana*. Ulrich, Geol. Surv. Ill., vol. 8, p. 443, pl. 73, figs. 7, 7a.
Chester Group: Chester, Illinois.
1894. *Stenopora meekana*. Keyes, Mo. Geol. Surv., vol. 5, p. 16.
Kaskaskia L. S.: Chester, Illinois.

Stenopora montifera Ulrich.

1890. *Stenopora montifera*. Ulrich, Geol. Surv. Ill., vol. 8, p. 438, pl. 74, figs. 4-4b.
Keokuk Group: Otter Creek, Jersey County, Illinois; Bentonsport, Iowa.
1894. *Stenopora montifera*. Keyes, Mo. Geol. Surv., vol. 5, p. 14.
Keokuk L. S.: Clark County, Missouri; Bentonsport, Iowa.

Stenopora ohioensis Foerste.

1887. *Stenopora Ohioensis*. Foerste, Bull. Den. Univ., vol. 2, p. 85, pl. 7, figs. 12a-c.
Coal Measures: Flint Ridge, Ohio.

Stenopora ramosa Ulrich.

1890. *Stenopora ramosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 442, pl. 73, figs. 6-6c.
Chester Group: Sloan's Valley, Pulaski County, Kentucky; ? Chester, Illinois.

Stenopora rudis Ulrich.

1890. *Stenopora rudis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 444, pl. 72, figs. 8-8b.
Chester Group: Sloan's Valley, Pulaski County, Kentucky.

Stenopora? signata Ulrich.

1890. *Stenopora? signata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 446, pl. 73, figs. 5-5b.
Coal Measures: Caseyville, Illinois.

Stenopora tuberculata Prout.

1859. *Flustra tuberculata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 447, pl. 17, figs. 3-3f.
Second Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.
1860. *Cyclopora polymorpha*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 578.
Chester L. S.: Pope County, Illinois.
1866. *Cyclopora polymorpha*. Prout, Geol. Surv. Ill., vol. 2, p. 421, pl. 21, figs. 5-5b.
Chester Group: Pope County, Illinois.
1890. *Stenopora tuberculata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 441, fig. 17.
Chester Group: Chester, Illinois.
St. Louis L. S. and Warsaw Beds.
1894. *Stenopora tuberculata*. Keyes, Mo. Geol. Surv., vol. 5, p. 15.
St. Louis L. S.: Barrett Station, Missouri.
Kaskaskia L. S.: Chester, Illinois.

Stenopora (species undetermined).

1888. *Stenopora* (sp. undet.). Ulrich, Bull. Den. Univ., vol. 4, p. 92.
Cuyahoga Shale: Near Richfield, Ohio.

STICTOPORA Hall, 1847.**Stictopora striata** Hall.

1887. *Stictopora striata*. Hall, Pal. N. Y., vol. 6, p. 246, pl. 63, fig. 22.
Hamilton Group: Ontario County, New York.
1888. *Stictopora striata*. Herrick, Bull. Den. Univ., vol. 3, p. 95, pl. 12, fig. 40.
Waverly Group: Licking County, Ohio.

STICTOPORELLA Ulrich, 1882.**Stictoporella basalis** Ulrich.

1890. *Stictoporella basalis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 532, pl. 75, figs. 5-5b.
Warsaw beds: Warsaw, Illinois.
1894. *Stictoporella basalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Keokuk L. S.: Warsaw, Illinois.

Stictoporella? undulata Ulrich.

1890. *Stictoporella? undulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 533, pl. 69, figs. 6-6b.
Chester Group: Litchfield, Kentucky.

STRAPAROLLUS Montfort, 1810.**Straparollus ammon** White and Whitfield.

1862. *Euomphalus ammon*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 301.
Chemung Group: Burlington, Iowa.

Straparollus ammon White and Whitfield—Continued.

1865. *Straparollus ammon*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.
Millstone Grit: Western New York.
1889. *Straparollus (Euomphalus) ammon*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 295.
Kinderhook Group: Burlington, Iowa.
1894. *Straparollus ammon*. Keyes, Mo. Geol. Surv., vol. 5, p. 158, pl. 51, fig. 6.
Lower Burlington L. S.: Louisiana, Missouri.

Straparollus barrisi Winchell.

1863. *Straparollus Barrisi*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 20.
Yellow S. S.: Burlington, Iowa.
1889. *Straparollus barrisi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 295.
Kinderhook Group: Burlington, Iowa.
1890. *Straparollus barrisi*. Keyes, Am. Geol., vol. 5, p. 195, pl., figs. 5a-c.
Kinderhook Group: Southeastern Iowa.

Straparollus blairi Miller.

1891. *Straparollus blairi*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 86,
pl. 15, fig. 3.
Chouteau L. S.: Sedalia, Missouri.
1892. *Straparollus blairi*. Miller, 17th Rep. Geol. Surv. Ind., p. 696, pl. 15, fig. 3.
Chouteau L. S.: Sedalia, Missouri.

Straparollus boonensis Swallow.

1863. *Euomphalus Boonensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 99.
Encrinital L. S.: Missouri.

Straparollus catilloides Conrad.

- *1842. *Inachus catilloides* Conrad, Jour. Acad. Nat. Sci. Phil. (1), vol. 8, p. 273.
Coal Measures.
1858. *Euomphalus rugosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 722, pl. 29, figs. 14a-c.
Coal Measures: Illinois.
1866. *Serpula (Spirorbis) Planorbites*. Geinitz, Carb. und Dyas in Nebr., p. 3, tab. 1,
fig. 6.
Nebraska.
1872. *Straparollus (Euomphalus) rugosus*. Meek, U. S. Geol. Surv. Nebr., p. 230,
pl. 6, figs. 5a, b, pl. 11, figs. 4a, b.
Upper Coal Measures: Nebraska City, Rock Bluff, Aspinwall, and Cedar
Bluff, Nebraska.
Coal Measures: Kansas; Missouri; Iowa; Illinois.
1873. *Straparollus (Euomphalus) subrugosus*. Meek and Worthen, Geol. Surv. Ill.,
vol. 5, p. 607, pl. 29, fig. 11.
Coal Measures: Springfield, Illinois.
1874. *Euomphalus rugosus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 583.
1884. *Euomphalus (Straparollus) subrugosus*. Walcott, Pal. Eureka Dist., p. 255,
pl. 18, fig. 19.
Lower Carboniferous: Eureka District, Nevada.
1884. *Euomphalus rugosus*. White, 13th Rep. Geol. Surv. Ind., p. 161, pl. 32,
figs. 11, 12.
Cool Measures: Indiana.
1888. *Euomphalus rugosus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 241.
Lower Coal Measures: Des Moines, Iowa.
1891. *Straparollus catilloides*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 255.
Lower Coal Measures: Des Moines, Iowa.
1894. *Straparollus catilloides*. Keyes, Mo. Geol. Surv., vol. 5, p. 160.
Upper Coal Measures: Kansas City, Missouri; Atchison, Kansas.

Straparollus cornudanus Shumard.

1859. *Straparollus Cornudanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 400.

Coal Measures: Sierra Cornudanus, and 4 miles west of Sierra Hueco, El Paso County, Texas.

Straparollus exortivus Dawson.

1868. *Euomphalus exortivus*. Dawson, Acad. Geol., p. 308, fig. 118.

Carboniferous L. S.: East River, Pictou, Nova Scotia.

Straparollus latus Hall.

1858. *Euomphalus latus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 605, pl. 12, figs. 7a, b. Burlington L. S.: Burlington, Iowa; Quincy, Illinois.

1888. *Euomphalus latus?* Herrick, Bull. Den. Univ., vol. 3, p. 87, pl. 12, fig. 26. Waverly Group: Licking County, Ohio.

1888. *Euomphalus latus*. Herrick, Bull. Den. Univ., vol. 4, pl. 7, fig. 5. Waverly Group: Ohio.

1889. *Straparollus latus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 292. Burlington L. S.: Burlington, Iowa.

1890. *Straparollus latus*. Keyes, Am. Geol., vol. 5, p. 196, pl., figs. 1a, b. Lower Burlington L. S.: Southeastern Iowa.

1894. *Straparollus latus*. Keyes, Mo. Geol. Surv., vol. 5, p. 158, pl. 51, fig. 9.

Burlington L. S.: Springfield, Ash Grove, Osceola, Louisiana, and Hannibal, Missouri.

1895. *Euomphalus latus*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 18, fig. 5.

Kinderhook freestone: Granville, Ohio.

Straparollus lens Hall.

1860. *Euomphalus lens*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 109.

Goniatite L. S.: Rockford, Indiana.

1866. *Straparollus lens*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 159, pl. 14, figs. 7a, b.

Chouteau L. S.: Moniteau County, Missouri; Illinois.

1894. *Pleurotomaria lens*. Keyes, Mo. Geol. Surv., vol. 5, p. 134.

Chouteau L. S.: Moniteau County, Missouri.

Straparollus luxus White.

1877. *Euomphalus luxus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 94, pl. 5, figs. 13a, b.

Subcarboniferous: Ophir City, Utah.

1877. *Euomphalus luxus*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 260, pl. 4, figs. 24, 25.

Near base of Wasatch L. S. (Waverly): Dry Canyon, Oquirrh Mountains, and Logan Canyon, Wahsatch range, Utah.

Straparollus macromphalus Winchell.

1863. *Straparollus macromphalus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 20. Yellow S. S.: Burlington, Iowa.

1865. *Straparollus macromphalus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 132. Bed No. 1, and Oolite bed No. 6: Burlington, Iowa.

1889. *Straparollus macromphalus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 295. Kinderhook Group: Burlington, Iowa.

1890. *Straparollus macromphalus*. Keyes, Am. Geol., vol. 5, p. 197, pl., figs. 4a-c. Kinderhook Group: Southeastern Iowa.

Straparollus magnificus Shumard.

1863. *Straparollus magnificus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 110.

Carboniferous: Kentucky.

1891. *Straparollus magnificus*. Anon., Trans. St. Louis Acad. Sci., vol. 5, pl. 15, figs. 1-3.

Carboniferous: Kentucky.

Straparollus missouriensis Miller and Gurley.

1896. *Straparollus missouriensis*. Miller and Gurley, Bull. No. 11, Ill. State Mus. Nat. Hist., p. 20, pl. 2, figs. 35, 36.
Chouteau L. S.: Sedalia, Missouri.

Straparollus obtusus Hall.

1858. *Euomphalus obtusus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 523.
Chemung Group: Burlington, Iowa.
1889. *Straparollus obtusus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 296.
Kinderhook Group: Burlington, Iowa.
1890. *Straparollus obtusus*. Keyes, Am. Geol., vol. 5, p. 197, pl., figs. 2a-c.
Kinderhook Group (Oolite): Southeastern Iowa.
1894. *Straparollus obtusus*. Keyes, Mo. Geol. Surv., vol. 5, p. 157, pl. 51, fig. 5.
Lower Burlington L. S.: Louisiana and Hannibal, Missouri.

Straparollus ophirensis Hall and Whitfield.

1877. *Euomphalus (Straparollus) Ophirensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 261, pl. 4, figs. 26, 27.
Waverly Group: Dry Canyon, Oquirrh Mountains, Utah.

Straparollus pernodusus Meek and Worthen.

1870. *Straparollus (Euomphalus) pernodusus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 45.
Lower Coal Measures: Alton, Illinois.
1873. *Straparollus (Euomphalus) pernodusus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 604, pl. 29, fig. 14.
Lower Coal Measures: Alton, Illinois.
1877. *Euomphalus pernodusus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 158, pl. 12, figs. 2a, b.
Carboniferous: Mesa, Carrizo River, Arizona.
1888. *Euomphalus pernodusus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 241.
Lower Coal Measures: Des Moines, Iowa.
1891. *Straparollus pernodusus*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 256.
Lower Coal Measures: Des Moines, Iowa.
1894. *Straparollus pernodusus*. Keyes, Mo. Geol. Surv., vol. 5, p. 161.
Upper Coal Measures: Kansas City, Missouri.

Straparollus planidorsatus Meek and Worthen.

1860. *Euomphalus planidorsatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 462.
Chester L. S.: Thompson's quarry, Randolph County, Illinois.
1863. *Euomphalus perspectivus*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 98.
Kaskaskia L. S.
1866. *Straparollus planidorsatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 302, pl. 24, figs. 2a-c.
Chester Group: Thompson's quarry, Randolph County, Illinois.
1894. *Straparollus planidorsatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 160.
Kaskaskia L. S.: Ste. Mary, Missouri.

Straparollus planispira Hall.

1856. *Euomphalus planispira*. Hall, Trans. Albany Inst., vol. 4, p. 20.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Euomphalus planispira*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 70, pl. 8, figs. 22, 23.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana.
1883. *Euomphalus planispira*. Hall, 12th Rep. Geol. Surv. Ind., p. 351, pl. 31, figs. 22, 23.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Straparollus quadrivolis Hall.

1856. *Euomphalus quadrivolis*. Hall, Trans. Albany Inst., vol. 4, p. 19.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Euomphalus quadrivolis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 71,
pl. 8, figs. 24, 25.
St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana.
1883. *Euomphalus quadrivolis*. Hall, 12th Rep. Geol. Surv. Ind., p. 349, pl. 31,
figs. 24, 25.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana

Straparollus roberti White.

1862. *Euomphalus roberti*. White, Proc. Bos. Soc. Nat. Hist., vol. 9, p. 22.
Upper Burlington L. S.: Burlington, Iowa.
1889. *Straparollus roberti*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 291.
Burlington L. S.: Burlington, Iowa.
1890. *Straparollus roberti*. Keyes, Am. Geol., vol. 5, p. 197, pl., figs. 3a, b.
Upper Burlington L. S.: Southeastern Iowa.

Straparollus similis Meek and Worthen.

1861. *Straparollus similis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 145.
St. Louis L. S.: Waterloo, Monroe County, Illinois.
1866. *Straparollus similis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 285,
pl. 19, figs. 4a, b.
St. Louis Group: Waterloo, Monroe County, Illinois.
1891. *Straparollus similis*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 589, pl. 14,
figs. 9-11.
Maxville L. S.: Newtonville and near Maxville, Ohio.
1895. *Straparollus similis*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 476, pl. 10,
figs. 9-11.
Maxville L. S.: Maxville and Newtonville, Ohio.
1897. *Straparollus similis* (?). Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 270.
Batesville S. S.: Batesville, Arkansas.

Straparollus similis var. planus Meek and Worthen.

1861. *Straparollus similis* var. *planus*. Meek and Worthen, Proc. Acad. Nat. Sci.
Phil., p. 146.
St. Louis L. S.: Waterloo, Monroe County, Illinois.
1866. *Straparollus similis* var. *planus*. Meek and Worthen, Geol. Surv. Ill. vol. 2,
p. 286, pl. 19, figs. 5a-c.
St. Louis Group: Waterloo, Monroe County, Illinois.

Straparollus spergenensis Hall.

1856. *Euomphalus Spergenensis*. Hall, Trans. Albany Inst., vol. 4, p. 19.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana.
1882. *Euomphalus Spergenensis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 69,
pl. 8, figs. 16-19.
St. Louis Group: Spergen Hill, Paynter's Hill, Bloomington, and Ellettsville, Indiana.
1883. *Euomphalus Spergenensis*. Hall, 12th Rep. Geol. Surv. Ind., p. 350, pl. 31,
figs. 16-19.
St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.
1894. *Straparollus spergenensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 159.
St. Louis L. S.: St. Louis, Missouri.

Straparollus spergenensis var. planorbiformis Hall.

1856. *Euomphalus Spergenensis* var. *planorbiformis*. Hall, Trans. Albany Inst.,
vol. 4, p. 20.
St. Louis L. S.: Bloomington and Spergen Hill, Indiana.

Straparollus spergenensis var. planorbiformis Hall—Continued.

1882. *Euomphalus Spergenensis* var. *planorbiformis*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 70, pl. 8, figs. 20, 21.

St. Louis Group: Spergen Hill, Paynter's Hill, and Bloomington, Indiana.

1883. *Euomphalus Spergenensis* var. *planorbiformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 351, pl. 31, figs. 20, 21.

St. Louis Group: Spergen Hill, Lanesville, and Bloomington, Indiana.

Straparollus spirorbis Hall.

1860. *Euomphalus spirorbis*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 109.

Goniatite L. S.: Rockford, Indiana.

1888. *Euomphalus (spirorbis?)* Herrick, Bull. Den. Univ., vol. 3, p. 88, pl. 2, fig. 33.

Waverly Group: Licking County, Ohio.

Straparollus springvalensis. See Omphalotrochus springvalensis.**Straparollus subquadratus Meek and Worthen.**

1870. *Straparollus (Euomphalus) subquadratus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 46.

Upper Coal Measures: Montgomery County, Illinois.

1873. *Straparollus (Euomphalus) subquadratus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 605, pl. 29, figs. 12, 13.

Upper Coal Measures: Montgomery County, Illinois.

1877. *Euomphalus subquadratus*. Herrick, Bull. Den. Univ., vol. 2, p. 147, pl. 14, fig. 9.

Coal Measures: Flint Ridge, Ohio.

1891. *Euomphalus subquadratus*. White, Bull. U. S. Geol. Surv., No. 77, p. 25, pl. 3, fig. 9.

Permian: Military Crossing, Baylor County, Texas.

1894. *Straparollus subquadratus*. Keyes, Mo. Geol. Surv., vol. 5, p. 162.

Upper Coal Measures: Kansas City, Missouri.

1897. *Euomphalus (Straparollus) subquadratus*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.

Lower Coal Measures: White County, Arkansas.

Straparollus subumbilicatus Worthen.

1890. *Straparollus sub-umbilicatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 142, pl. 24, figs. 3-3b.

Chester Group: Near Evansville, Randolph County, Illinois.

Straparollus umbilicatus Meek and Worthen.

1860. *Euomphalus umbilicatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 462.

Lower Coal Measures: St. Clair County, Illinois.

1866. *Straparollus umbilicatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 362, pl. 29, figs. 1a-c.

Lower Coal Measures: St. Clair County, Illinois.

Straparollus utahensis Hall and Whitfield.

1877. *Euomphalus (Straparollus) Utahensis*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 259, pl. 4, figs. 20-23.

Near base of Wahsatch L. S. (Waverly): Dry Canyon, Oquirrh Mountains, Ogden and Logan Canyons, Wahsatch range, Utah.

Straparollus warsoviensis Worthen.

1890. *Straparollus warsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 142, pl. 25, figs. 2, 2a.

Keokuk L. S.: Warsaw, Illinois.

Straparollus (species undetermined).

1859. *Straparollus* sp. (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 399.
Gray Permian L. S.: Guadalupe Mountains.
1868. *Euomphalus* (resembles *E. quadratus* McCoy). Dawson, Acad. Geol., p. 308.
Carboniferous L. S.: Windsor and Gays River, Nova Scotia.
1876. *Euomphalus* — ? —. White, Powell's Rep. Geol. Uinta Mts., p. 91.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1887. *Euomphalus* sp. ? Herrick, Bull. Den. Univ., vol. 2, p. 22, pl. 2, figs. 4, 5;
pl. 5, fig. 5.
Coal Measures: Flint Ridge, Ohio.
1887. *Straparollus* ? Herrick, Bull. Den. Univ., vol. 2, pl. 14, fig. 3.
Coal Measures: Flint Ridge, Ohio.
1888. *Euomphalus* sp. Herrick, Bull. Den. Univ., vol. 3, pl. 7, fig. 17.
Waverly Group: Licking County, Ohio.
1891. *Euomphalus* — ? White, Bull. U. S. Geol. Surv., No. 77, p. 25.
Permian: Military Crossing, Baylor County, Texas.
1897. *Euomphalus* (*Straparollus*) sp. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.
Lower Coal Measures: Independence County, Arkansas,

STREBLOPTERIA McCoy, 1851.**Streblopteria gracilis Herrick.**

1888. *Streblopteria gracilis*. Herrick, Bull. Den. Univ., vol. 3, p. 57, pl. 7, fig. 12.
Waverly Group: Licking County, Ohio.
1895. *Streblopteria gracilis*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 15.
Kinderhook or Burlington: Ohio.

Streblopteria media Herrick.

1888. *Streblopteria media*. Herrick, Bull. Den. Univ., vol. 3, p. 56, pl. 3, figs. 4, 8, 9;
pl. 1, figs. 13, 19; pl. 7, figs. 2, 6.
Waverly Group: Licking County, Ohio.
1895. *Streblopteria media*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, figs. 16, 17.
Cuyahoga Shale: Moot's Run, Ohio.

Streblopteria similis Walcott.

1884. *Streblopteria similis*. Walcott, Pal. Eureka Dist., p. 230, pl. 8, figs. 4-4d;
pl. 19, fig. 7.
Lower Carboniferous: Eureka District, Nevada.

Streblopteria squama Herrick.

1888. *Streblopteria squama*. Herrick, Bull. Den. Univ., vol. 3, p. 57, pl. 7, fig. 14.
Waverly Group: Licking County, Ohio.
1895. *Streblopteria squama*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 14.
Cuyahoga Shale: Granville, Ohio.

Streblopteria tenuilineatus Meek and Worthen.

1860. *Pecten tenuilineatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 452.
Upper Coal Measures: South line of Clinton County, Illinois.
1866. *Streblopteria* ? *tenuilineata*. Meek and Worthen, Geol. Surv. Ill., vol. 2,
p. 334, pl. 26, figs. 9a, b.
Upper Coal Measures: South line of Clinton County, Illinois.

Streblopteria (species undetermined).

1888. *Streblopteria*. Herrick, Bull. Den. Univ., vol. 4, pl. 5, fig. 10.
Waverly Group: Gann, Ohio.
1888. *Streblopteria* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 5, fig. 15.
Waverly Group: Newark, Ohio.

Streblopteria (species undetermined)—Continued.

1889. *Streblopteria*. Herrick, Am. Geol., vol. 3, pl. 3, fig. 10.
 1889. *Streblopteria* sp. Herrick, Am. Geol., vol. 3, pl. 3, fig. 15.
 1895. *Streblopteria* sp. Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 5.
 Kinderhook: Gann, Ohio.
 1895. *Streblopteria* sp. ? Herrick, Geol. Surv. Ohio, vol. 7, pl. 24, fig. 6.
 Burlington Group: Newark, Ohio.

STREBLOTRYPA Ulrich, 1890.**Streblotrypa amplexa** Ulrich.

1888. *Streblotrypa amplexa*. Ulrich, Bull. Den. Univ., vol. 4, p. 86, pl. 14, fig. 13.
 Waverly Group: Near Sciotoville, Ohio.

Streblotrypa denticulata Ulrich.

1888. *Streblotrypa* (? *Leioclema*) *denticulata*. Ulrich, Bull. Den. Univ., vol. 4, p. 88, pl. 14, figs. 18, 19.
 Cuyahoga Shale: Richfield and Lodi, Ohio.

Streblotrypa distincta Ulrich.

1890. *Streblotrypa distincta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 669, pl. 71, figs. 10-10b.
 Chester Group: Chester, Illinois.
 1894. *Streblotrypa distincta*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.
 Kaskaskia L. S.: Chester, Illinois.

Streblotrypa hertzeri Ulrich.

1888. *Streblotrypa hertzeri*. Ulrich, Bull. Den. Univ., vol. 4, p. 85, pl. 14, fig. 8.
 Cuyahoga Shale: Richfield and Lodi, Ohio.
 Keokuk Group: Keokuk, Iowa.

Streblotrypa major Ulrich.

1888. *Streblotrypa major*. Ulrich, Bull. Den. Univ., vol. 4, p. 84, pl. 14, fig. 10.
 Cuyahoga Shale: Richfield, Ohio.
 Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa.
 1890. *Streblotrypa major*. Ulrich, Geol. Surv. Ill., vol. 8, p. 666, pl. 71, figs. 8-8d; pl. 72, figs. 1-1a.
 Keokuk Group: King's Mountain, Kentucky; Keokuk, Iowa; Nauvoo, Illinois.
 1894. *Streblotrypa major*. Keyes, Mo. Geol. Surv., vol. 5, p. 35.
 Keokuk L. S.: Keokuk, Iowa.

Streblotrypa multiporata Ulrich.

1888. *Streblotrypa multiporata*. Ulrich, Bull. Den. Univ., vol. 4, p. 87, pl. 14, fig. 11.
 Waverly Group: Moot's Run, Licking County, Ohio.

Streblotrypa nicklesi Ulrich.

1890. *Streblotrypa nicklesi*. Ulrich, Geol. Surv. Ill., vol. 8, p. 667, pl. 71, figs. 9-9c.
 Chester Group: Kaskaskia, Illinois; Sloan's Valley, Kentucky.
 1894. *Streblotrypa nicklesi*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.
 Kaskaskia L. S.: Ste. Genevieve, Missouri.

Streblotrypa obliqua Ulrich.

1888. *Streblotrypa obliqua*. Ulrich, Bull. Den. Univ., vol. 4, p. 85, pl. 14, fig. 9.
 Cuyahoga Shale: Lodi, Ohio.

Streblotrypa radialis Ulrich.

1890. *Streblotrypa radialis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 667, pl. 72, figs. 2-2d.
 Keokuk Group: Near Nauvoo, Illinois; Bentonsport, Iowa.
 1894. *Streblotrypa radialis*. Keyes, Mo. Geol. Surv., vol. 5, p. 35.
 Keokuk L. S.: Bentonsport, Iowa.

Streblotrypa regularis Ulrich.

1888. *Streblotrypa regularis*. Ulrich, Bull. Den. Univ., vol. 4, p. 88, pl. 14, fig. 14.
Cuyahoga Shale: Cuyahoga County and Burbank, Ohio.

Streblotrypa striata Ulrich.

1888. *Streblotrypa striata*. Ulrich, Bull. Den. Univ., vol. 4, p. 87, pl. 14, figs. 12, 12a.
Cuyahoga Shale: Richfield, Ohio.

Streblotrypa subspinoso Ulrich.

1890. *Streblotrypa subspinoso*. Ulrich, Geol. Surv. Ill., vol. 8, p. 668, pl. 71, figs. 7, 7a.

Chester Group: Chester, Illinois; Sloan's Valley, Kentucky.

STREPTAXIS Gray, 1837.**Streptaxis whitfieldi Meek.**

1871. *Streptaxis whitfieldi*. Meek, Proc. Acad. Nat. Sci. Phil., p. 173.
Coal Measures: Danville, Illinois.
1873. *Streptaxis Whitfieldi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 596,
pl. 29, fig. 1.
Coal Measures: Danville, Illinois.
1888. *Streptaxis whitfieldi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 241.
Lower Coal Measures: Des Moines, Iowa.

(STREPTODISCUS Miller, 1892.)

Streptodiscus indianensis Miller. See *Nautilus indianensis*.

STREPTORHYNCHUS King, 1850.

Streptorhynchus æquivalvis. See *Orthothetes inæqualis*.

Streptorhynchus biloba. See *Derbya biloba*.

Streptorhynchus crassum. See *Derbya crassa*.

Streptorhynchus crenistria. See *Orthothetes crenistria* and *Derbya crassa*.

Streptorhynchus equivalvis. See *Orthothetes inæqualis*.

Streptorhynchus inequalis. See *Orthothetes inæqualis*.

Streptorhynchus inflatus. See *Orthothetes inflatus*.

Streptorhynchus keokuk. See *Derbya keokuk*.

Streptorhynchus lens. See *Orthothetes lens*.

Streptorhynchus occidentalis. See *Meekella occidentalis*.

Streptorhynchus pyramidale. See *Meekella pyramidale*.

Streptorhynchus richmondi. See *Derbya crassa*.

Streptorhynchus robusta. See *Derbya robusta*.

Streptorhynchus shumardianus. See *Meekella striato-costata*.

Streptorhynchus striatocostata. See *Meekella striato-costata*.

Streptorhynchus ulrichi Hall and Clarke.

1892. *Streptorhynchus Ulrichi*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, p. 351,
pl. 11B, fig. 15.

Chester L. S.: Crittenden County, Kentucky.

1897. *Streptorhynchus Ulrichi*. Hall, 14th Rep. N. Y. State Geol., p. 350, pl. 6, fig. 3.
Chester L. S.: Crittenden County, Kentucky.

Streptorhynchus umbraculum. See *Orthothetes umbraculum*, *Orthothetes crenistria*, and *Derbya crassa*.

Streptorhynchus williamsi Weller.

1897. *Streptorhynchus williamsi*. Weller, Trans. N. Y. Acad. Sci., vol. 16, p. 255, pl. 18, figs. 1-3.

Batesville S. S.: Batesville, Arkansas.

STRIATOPORA Hall, 1852.

Striatopora carbonaria White.

1862. *Striatopora carbonaria*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 32. Upper and Lower Burlington L. S.: Burlington, Iowa.
1894. *Striatopora carbonaria*. Keyes, Mo. Geol. Surv., vol. 4, p. 121, pl. 14, fig. 7. Burlington L. S.: Ste. Genevieve and Hamilton, Missouri; Burlington, Iowa.

STRICKLANDINIA Billings, 1859.

Stricklandinia (?) *subquadrata* Herrick.

1887. *Stricklandinia* (?) *subquadrata*. Herrick, Bull. Den. Univ., vol. 2, p. 49, pl. 1, figs. 14, 14a.

Coal Measures: Flint Ridge, Ohio.

STROBOCERAS Hyatt, 1883.

Stroboceras hartii Dawson.

1868. *Gyroceras Harttii*. Dawson, Acad. Geol., p. 311, fig. 125. Carboniferous L. S.: Windsor, Nova Scotia.
1883. *Discites Hartii*. Dawson, Rep. Peter Redpath Mus., No. 2, p. 10. Lower Carboniferous L. S.: Brookfield, Nova Scotia.
1883. *Stroboceras Hartii*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 291.

Stroboceras trigonus Winchell.

1862. *Nautilus* (*Trematodiscus*) *trigonus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 359. Marshall S. S.: Marshall, Michigan.
1893. *Stroboceras* (*Naut.*) *trigonus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 412.

Stroboceras trisulcatus Meek and Worthen.

1860. *Nautilus* (*Discus*) *trisulcatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 470. Goniatite Beds: Rockford, Indiana.
1861. *Nautilus trisulcatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
1866. *Nautilus* (*Trematodiscus*) *trisulcatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 162, pl. 14, figs. 10a-c. Goniatite Bed: Rockford, Indiana.
1870. *Nautilus* (*Trematodiscus*) *trisulcatus*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 258. Waverly Group: Rockville, Ohio.
1893. *Stroboceras* (*Tremat.*) *trisulcatum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 412.

STROPHALOSIA King, 1844.

Strophalosia beecheri Rowley.

1893. *Strophalosia beecheri*. Rowley, Am. Geol., vol. 12, p. 308, pl. 14, figs. 18, 19. Louisiana (Lithographic) L. S.: Louisiana, Missouri.

Strophalosia cymbula Hall and Clarke.

1892. *Strophalosia cymbula*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 3, 4, 8, 9.

Keokuk Group: Lebanon, Kentucky, and south of Louisville, Kentucky.

1897. *Strophalosia cymbula*. Hall, 14th Rep. N. Y. State Geol., p. 355, pl. 7, fig. 5.

Keokuk Group: Lebanon, Kentucky.

Strophalosia guadalupensis Shumard.

1858. *Aulosteges Guadalupensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 292.

White Permian L. S.: Guadalupe Mountains.

1859. *Strophalosia (Aulosteges) Guadalupensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 390, pl. 11, figs. 5a, b.

Permian White L. S.: Guadalupe Mountains.

Strophalosia horrescens. See *Productus nebraskensis*.

Strophalosia keokuk Beecher.

1890. *Strophalosia Keokuk*. Beecher, Am. Jour. Sci. (3), vol. 40, p. 244, pl. 9, figs. 18-24.

Keokuk Shales: Crawfordsville, Indiana.

1892. *Strophalosia Keokuk*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 5-7.

Keokuk Group: Crawfordsville, Indiana.

Strophalosia nummularis Winchell.

1863. *Strophalosia ? nummularis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 4.

Yellow S. S.: Burlington, Iowa.

Strophalosia scintilla Beecher.

1890. *Strophalosia scintilla*. Beecher, Am. Jour. Sci. (3), vol. 40, p. 243, pl. 9, figs. 10-13.

Chouteau L. S.: Pike County, Missouri.

1892. *Strophalosia scintilla*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, figs. 32-34.

Chouteau L. S.: Pike County, Missouri.

Strophalosia spondyliiformis White and St. John.

1868. *Aulosteges spondyliiformis*. White and St. John, Trans. Chicago Acad. Sci., vol. 1, p. 118, fig. 2.

Upper Coal Measures: Appanoose and Pottawattamie counties, Iowa.

1890. *Strophalosia spondyliiformis*. Beecher, Am. Jour. Sci. (3), vol. 40, p. 242.

1892. *Strophalosia spondyliiformis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 17A, figs. 25, 26.

Coal Measures: Missouri.

Strophalosia (species undetermined).

1892. *Strophalosia* sp. ? Hall and Clarke, Pal. N. Y., vol. 8, pt. 1, pl. 15B, fig. 35.

Chouteau L. S.: Pike County, Missouri.

(STROPHOMENA Rafinesque, 1825.)

Strophomena analoga. See *Leptaena analoga*.

Strophomena nassuta Conrad.

1846. *Strophomena nassuta*. Conrad, Proc. Acad. Nat. Sci. Phil., p. 23.

Carboniferous: Jersey Shore, Lycoming County, Pennsylvania.

Strophomena rhomboidalis. See *Leptaena rhomboidalis*.

STROPHOSTYLUS Hall, 1859.

Strophostylus bivolva White and Whitfield.

1862. *Platyceras bivolva*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 302.
Chemung Group: Burlington, Iowa.
1888. *Platyceras bivolva?* Herrick, Bull. Den. Univ., vol. 3, p. 92.
Waverly Group: Licking County, Ohio.
1889. *Platystoma bivolva*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 293.
Kinderhook Group: Burlington, Iowa.
1890. *Platystoma bivolva*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 179.
1894. *Strophostylus bivolvis*. Keyes, Mo. Geol. Surv., vol. 5, pl. 53, fig. 4.

Strophostylus carleyana Hall.

1856. *Natica Carleyana*. Hall, Trans. Albany Inst., vol. 4, p. 31.
St. Louis L. S.: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1882. *Naticopsis Carleyana*. Whitfield, Bull. Am. Mus. Nat. Hist., vol. 1, p. 71, pl. 8, figs. 26, 27.
St. Louis Group: Spergen Hill and Bloomington, Indiana; Alton, Illinois.
1883. *Naticopsis Carleyana*. Hall, 12th Rep. Geol. Surv. Ind., p. 369, pl. 31, figs. 26, 27.
St. Louis Group: Alton, Illinois; Spergen Hill and Bloomington, Indiana.
1894. *Strophostylus? carleyana*. Keyes, Mo. Geol. Surv., vol. 5, p. 196.
St. Louis L. S.: Alton, Illinois.

Strophostylus grayvillensis Worthen.

1860. *Platystoma? tumida*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 463. (Name preoccupied.)
Coal Measures: Grayville, Illinois.
1866. *Pleurotomaria? tumida*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 361, pl. 31, figs. 1a, b.
Upper Coal Measures: Grayville, Illinois.
1882. *Platystoma Grayvillensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 38.

Strophostylus inornatus Walcott.

1884. *Platystoma inornatum*. Walcott, Pal. Eureka Dist., p. 255, pl. 24, figs. 3, 3a.
Lower Carboniferous: Eureka District, Nevada.

Strophostylus madisonensis Worthen.

1884. *Naticopsis madisonensis*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 9.
St. Louis L. S.: Madison County, Illinois.
1890. *Naticopsis madisonensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 144, pl. 25, figs. 4-6.
St. Louis L. S.: Madison County, Illinois.

Strophostylus nana Meek and Worthen.

1860. *Platystoma nana*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 463.
Upper Coal Measures: Springfield, Illinois.
1861. *Naticopsis nana*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 148.
1866. *Naticopsis nana*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 365, pl. 31, figs. 4a, b.
Upper Coal Measures: Springfield, Illinois.
1877. *Naticopsis nana*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 159, pl. 12, figs. 4a, b.
Carboniferous: Camp Cottonwood, near Spring Mountain, Lincoln County, Nevada.
1884. *Naticopsis nana*. White, 13th Rep. Geol. Surv. Ind., p. 162, pl. 36, figs. 6, 7.
Middle and Upper Coal Measures: Indiana.

Strophostylus nana Meek and Worthen—Continued.

1888. *Naticopsis nana*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 8.
Coal Measures: Fultonham, Ohio.
1891. *Naticopsis nana*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 257.
Lower Coal Measures: Des Moines, Iowa.
1894. *Strophostylus nana*. Keyes, Mo. Geol. Surv., vol. 5, p. 196.
Upper Coal Measures: Clinton and Kansas City, Missouri.
1897. *Naticopsis nana*. Smith, Proc. Am. Phil. Soc., vol. 35, p. 40.
Upper Coal Measures: Sebastian County, Arkansas.

Strophostylus peoriensis McChesney.

1860. *Platystoma peoriensis*. McChesney, Desc. New. Pal. Foss., p. 62.
Upper Coal Measures: Peoria and Fulton counties, Illinois.
1865. *Platystoma peoriensis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 11a, b.
1868. *Platystoma peoriense*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 49,
pl. 2, figs. 11a, b.
Upper Coal Measures L. S.: Peoria and Fulton counties, Illinois.
1894. *Strophostylus peoriensis*. Keyes, Mo. Geol. Surv., vol. 5, p. 197, pl. 52, fig. 6.
Upper Coal Measures: Kansas City, Missouri.

Strophostylus remex White.

1876. *Naticopsis remex*. White, Powell's Rep. Geol. Uinta Mts., p. 109.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1880. *Naticopsis remex*. White, Cont. to Inv. Pal., No. 6, p. 139, pl. 34, fig. 6a.
Middle Carboniferous: Confluence of Grand and Green rivers, Utah.
1891. *Naticopsis remex*. White, Bull. U. S. Geol. Surv., No. 77, p. 24, pl. 3, fig. 10.
Permian: Military Crossing and Goodwin Creek, Baylor County, Texas.
1894. *Strophostylus remex*. Keyes, Mo. Geol. Surv., vol. 5, p. 197, pl. 55, figs. 7a, b.
Upper Coal Measures: Kansas City, Missouri.

Strophostylus reversum Hall.

1860. *Platyceras reversum*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 91.
Burlington L. S.
- 1868: *Platyceras* [?] *reversum*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 508,
pl. 15, figs. 4a, b.
Burlington L. S.: Boonville, Missouri.
1894. *Strophostylus reversum*. Keyes, Mo. Geol. Surv., vol. 5, p. 195.
Keokuk L. S.: Boonville, Missouri.

Strophostylus subovatus Worthen.

1873. *Naticopsis subovatus*. Worthen, Geol. Surv. Ill., vol. 5, p. 595, pl. 28, fig. 9.
Upper Coal Measures: Lasalle, Illinois.

STROTOCRINUS Meek and Worthen, 1866.

Strotocrinus asper. See *Physetocrinus asper*.

Strotocrinus asperrimus. See *Actinocrinus asperrimus*.

Strotocrinus blairi Miller and Gurley.

1895. *Strotocrinus blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist.,
p. 48, pl. 2, fig. 24.
Burlington Group: Sedalia, Missouri.

Strotocrinus bloomfieldensis. See *Strotocrinus regalis*.

Strotocrinus dilatatus. See *Physetocrinus dilatatus*.

Strotocrinus ectypus. See *Cactocrinus ectypus*.

Strotocrinus glyptus Hall.

1860. *Actinocrinus glyptus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 2.
Burlington L. S.: Burlington, Iowa.

Strotocrinus glyptus Hall—Continued.

1897. *Strotocrinus glyptus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 640, pl. 60, figs. 1a-c; pl. 65, figs. 2a, b.
Upper Burlington L. S.: Burlington, Iowa; Missouri.

Strotocrinus liratus. See *Teleiocrinus liratus*.**Strotocrinus ornatus Miller and Gurley.**

1896. *Strotocrinus ornatus*. Miller and Gurley, ^aBull. No. 8, Ill. State Mus. Nat. Hist., p. 30, pl. 2, figs. 12-14.
Burlington Group: Near Burlington, Iowa.

Strotocrinus perumbrosus. See *Strotocrinus regalis*.**Strotocrinus regalis Hall.**

1860. *Actinocrinus regalis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 8.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus perumbrosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 7.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus speciosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 386.
Burlington L. S.: Three miles west of Burlington, Iowa.
1866. *Strotocrinus perumbrosus*? Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 188, fig. 5.
1866. *Strotocrinus regalis*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 191, fig. 6, p. 192, fig. 7, pl. 16, figs. 6a, b.
Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus perumbrosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 357, pl. 8, fig. 4.
Burlington L. S.: Burlington, Iowa.
1880. *Strotocrinus bloomfieldensis*. Miller, Jour. Cin. Soc. Nat. Hist., vol. 2, p. 258, pl. 15, figs. 6, 6a.
Keokuk Group: New Bloomfield, Missouri.
1894. *Strotocrinus regalis*. Keyes, Mo. Geol. Surv., vol. 4, p. 193, pl. 24, fig. 9.
Upper Burlington L. S.: Ash Grove, New Bloomfield, and Hannibal, Missouri.
1897. *Strotocrinus regalis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 638, pl. 65, figs. 1a-d.
Upper Burlington L. S.: Burlington, Iowa; Quincy, Illinois; Hannibal, Missouri.

Strotocrinus umbrosus. See *Teleiocrinus umbrosus*.**Strotocrinus venustus Miller and Gurley.**

1894. *Strotocrinus venustus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 26, pl. 6, fig. 1.
Burlington Group: Burlington, Iowa.

STROTOPORA Ulrich, 1890.**Strotopora dermatata Ulrich.**

1890. *Strotopora dermatata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 488, pl. 77, figs. 8, 8a.
Keokuk Group: Keokuk, Iowa; Warsaw, Illinois.
1894. *Strotopora dermatata*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.
Keokuk L. S.: Keokuk, Iowa.

Strotopora faveolata Ulrich.

1890. *Strotopora faveolata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 487, pl. 77, figs. 9, 9a.
Keokuk Group: Bentonsport, Iowa; Warsaw, Illinois.

Strotopora faveolata Ulrich—Continued.1894. *Strotopora faveolata*. Keyes, Mo. Geol. Surv., vol. 5, p. 17.

Keokuk L. S.: St. Francisville, Missouri; Warsaw, Illinois; Bentonsport, Iowa.

STYLASTREA Lonsdale, 1845.**Stylastrea inconferta** Lonsdale.1855. *Stylastrea Inconferta*. Salter, Belcher's "Last of the Arctic Voyages," p. 381, pl. 36, fig. 4.

Carboniferous: Depot Point.

(STYLIFER Broderip, 1829.)

Stylifer primogenia. See *Sphærodoma primogenia*.**SYNBATHOCRINUS** Phillips, 1836.**Synbathocrinus angularis** Miller and Gurley.1894. *Synbathocrinus angularis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 42, pl. 4, figs. 3, 4.

Keokuk Group: Buttonmould Knob, Kentucky.

Synbathocrinus blairi Miller.1891. *Synbathocrinus Blairi*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 32, pl. 4, figs. 13-15.

Keokuk Group: Boonville, Missouri.

Synbathocrinus brevis Meek and Worthen.1869. *Synbathocrinus brevis*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 68. Lower Burlington L. S.: Burlington, Iowa.1873. *Synbathocrinus brevis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 439, pl. 2, fig. 6.

Burlington L. S.: Burlington, Iowa.

Synbathocrinus dentatus Owen and Shumard.1852. *Synbathocrinus dentatus*. Owen and Shumard, Jour. Acad. Nat. Sci. Phil. (2), vol. 2, p. 93, pl. 11, figs. 7a, b.

Subcarboniferous L. S.: Burlington, Iowa.

1852. *Synbathocrinus dentatus*. Owen and Shumard, Geol. Rep. Wis., Iowa, and Minn., p. 597, tab. 5B, figs. 7a, b.

Subcarboniferous L. S.: Burlington, Iowa.

1894. *Synbathocrinus dentatus*. Keyes, Mo. Geol. Surv., vol. 4, p. 206, pl. 25, fig. 14. Burlington L. S.: Columbia, Springfield, and Ste. Genevieve, Missouri.**Synbathocrinus granuliferus** Wetherby.1880. *Synbathocrinus granuliferus*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 2, p. 250, pl. 16, figs. 3, 3a.

Kinderhook Group: King's Mountain Tunnel, Kentucky.

Synbathocrinus illinoisensis Miller and Gurley.1896. *Synbathocrinus illinoisensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 53, pl. 3, figs. 29-31.

Burlington Group: Adams County, Illinois.

Synbathocrinus oweni Hall.1860. *Synbathocrinus oweni*. Hall, 13th Rep. N. Y. State Cab. Nat. Hist., p. 111. Goniatic L. S.: Rockford, Indiana.

Synbathocrinus papillatus Hall.

- *1861. *Synbathocrinus papillatus*. Hall, Desc. New Spec. Crin., p. 18.
Burlington L. S.

Synbathocrinus robustus Shumard.

1865. *Synbathocrinus robustus*. Shumard, Trans. St. Louis Acad. Sci., vol. 2, p. 397.
Blue Marl (Keokuk): Buttonmould Knob, 7 miles south of Louisville, Kentucky.
1875. *Synbathocrinus robustus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 514,
pl. 29, fig. 4.
Keokuk Group: Green County, Illinois; Buttonmould Knob, Kentucky.

Synbathocrinus swallovi Hall.

1858. *Synbathocrinus swallovi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 672, pl. 17, figs. 8, 9.
St. Louis L. S.: Near St. Louis, Missouri.
1894. *Synbathocrinus swallovi*. Keyes, Mo. Geol. Surv., vol. 4, p. 207.
Keokuk L. S.: St. Louis County and Boonville, Missouri; Keokuk, Iowa.

Synbathocrinus wachsmuthi Meek and Worthen.

1869. *Synbathocrinus Wachsmuthi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 67.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Synbathocrinus Wachsmuthi*. Meek and Worthen, Geol. Surv. Ill., vol. 5,
p. 437, pl. 2, fig. 5.
Burlington L. S.: Burlington, Iowa.
- See also *Catillocrinus wachsmuthi*.

Synbathocrinus wortheni Hall.

1858. *Synbathocrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 560, pl. 9, fig. 9.
Burlington L. S.: Jersey Landing, Illinois.
1894. *Synbathocrinus wortheni*. Keyes, Mo. Geol. Surv., vol. 4, p. 206, pl. 25, fig. 15.
Burlington L. S.: Springfield and Hannibal, Missouri.

(SYNOCLADIA King, 1849.)

Synocladia biserialis Swallow. See *Septopora biserialis*.

Synocladia cestriensis Meek and Worthen. See *Septopora subquadrans*.

Synocladia rectistyla Whitfield. See *Septopora rectistyla*.

Synocladia virgulacea Swallow. See *Septopora biserialis*.

(SYNTRIELASMA Meek and Worthen, 1865.)

Syntrielasma hemiplicata. See *Enteletes hemiplicata*.

SYRINGOPORA Goldfuss, 1826.

Syringopora harveyi White.

1862. *Syringopora Harveyi*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 32.
Chemung Group and Lower Burlington, L. S.: Burlington, Iowa.
1874. *Syringopora Harveyi*? White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Ewells Spring, Arizona.
1877. *Syringopora Harveyi*? White, U. S. Geol. Surv. W. 100 Merid., vol. 4, p. 80.
Subcarboniferous: Ewells Spring, Arizona.
1894. *Syringopora harveyi*? Keyes, Mo. Geol. Surv., vol. 4, p. 121, pl. 14, fig. 6a.
Keokuk L. S.: Boonville, Canton, and Curryville, Missouri.

Syringopora multattenuata McChesney.

1860. *Syringopora multattenuata*. McChesney, Desc. New Pal. Foss., p. 75.
Coal Measures: Eight miles south of Springfield, Illinois.
1865. *Syringopora multattenuata*. McChesney, Ill., New Spec. Foss., pl. 2, figs. 4, 4a.
1867. *Syringopora multattenuata*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 2, pl. 2, figs. 4, 4a.
Coal Measures: Eight miles south of Springfield, Illinois.
1872. *Syringopora multattenuata*. Meek, U. S. Geol. Surv. Nebr., p. 144, pl. 1, figs. 5a-d.
Upper Coal Measures: Four miles up Platte River, north side; 8 miles south of Springfield, Illinois.
1876. *Syringopora multattenuata*. White, Powell's Geol. Rep. Uinta Mts., p. 88.
Red Wall Group: Gypsum Canyon, Colorado River, Utah.
1877. *Syringopora multattenuata?* White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 100.
Carboniferous: Nevada and Utah.
1894. *Syringopora multattenuata*. Keyes, Mo. Geol. Surv., vol. 4, p. 122, pl. 14, fig. 6b.
Upper Coal Measures: Kansas City, Missouri.

Syringopora (species undetermined).

1855. *Syringopora (Aulopora)*. Salter, Belcher's "Last of the Arctic Voyages," p. 385, pl. 36, fig. 7.
Carboniferous: Depot Point.
1876. *Syringopora* —? White, Powell's Geol. Rep. Uinta Mts., p. 88.
Lower Aubrey Group: Confluence of Grand and Green rivers, Utah.
1877. *Syringopora* (undet. sp.). Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 50, pl. 6, figs. 2, 2a.
Carboniferous L. S.: Southwest of Bald Mountain, Uinta Range; Morgan Peak, Wasatch range, Utah.
1877. *Syringopora* (?) species. Whiteaves, Geol. Surv. Canada, Rep. of Prog. 1875-76, p. 98.
Devonian or Carboniferous: Fossil Point, Peace River, Canada.
1878. *Syringopora* sp. Etheridge, Quart. Jour. Geol. Soc. Lond., vol. 34, p. 609.
Carboniferous: Feilden Isthmus, latitude 82° 43'.
1891. *Syringopora* —? White, Bul. U. S. Geol. Surv., No. 77, p. 29.
Permian: Camp Creek, Archer County, Texas; Goodwin Creek, Baylor County, Texas.
1894. *Syringopora* sp.? Keyes, Mo. Geol. Surv., vol. 4, p. 122, pl. 14, fig. 5.
Kinderhook L. S.: Kinderhook, Illinois.

SYRINGOTHYRIS Winchell, 1863.**Syringothyris angulatus Simpson.**

1889. *Syringothyris angulata*. Simpson, Trans. Am. Phil. Soc., vol. 15, p. 440, figs. 1-3.
Waverly Group: Near Warren, Pennsylvania.
1890. *Syringothyris angulata*. Schuchert, 9th Rep. N. Y. State Geol., p. 32.
Waverly Group: Near Warren, Pennsylvania.

Syringothyris carteri Hall.

1857. *Spirifer carteri*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 170.
Waverly S. S.: Licking County, Ohio.
1860. *Spirifer (Cyrtia?) Hannibalensis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 647.
Lithographic L. S.: Marion County, Missouri.

Syringothyris carteri Hall—Continued.

1863. *Syringothyris typa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 7.
Base of Burlington L. S.: Burlington, Iowa.
1870. *Spirifera Carteri*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Sciotoville and Rockville, Ohio; near Shafer's, Pennsylvania.
1870. *Syringothyris typa*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 252.
Waverly Group: Newark and Sciotoville, Ohio; near Shafer's, Pennsylvania.
1877. *Spirifer cuspidatus*? Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 87, pl. 3, figs. 11, 11a.
Carboniferous or Devonian L. S.: White Pine Mountains, Treasure Hill, Nevada.
1884. *Syringothyris cuspidata*. Walcott, Pal. Eureka Dist., p. 219.
Lower Carboniferous: Eureka District, Nevada; near Clendenin, Montana.
1888. *Syringothyris cuspidatus*. Herrick, Bull. Den. Univ., vol. 3, p. 41, pl. 1, fig. 7; pl. 2, fig. 17.
Waverly Group: Licking County, Ohio.
1890. *Syringothyris Carteri*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 30.
Bedford Shale: Bedford, Ohio.
Waverly S. S.: Licking County, Ohio.
Chouteau L. S.: Marion and Pike Counties, Missouri.
Kinderhook Group: Burlington, Iowa.
Burlington Group: Burlington, Iowa.
Lower Carboniferous: White Pine Mountains, Richmond Mountain, Eureka District, Nevada; near Clendenin, Montana.
1894. *Syringothyris typa*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 30, figs. 1, 2.
Burlington L. S.: Burlington, Iowa.
1894. *Syringothyris carteri*. Keyes, Mo. Geol. Surv., vol. 5, p. 87, pl. 40, fig. 10.
Kinderhook Group: Clarksville, Louisiana, and Hannibal, Missouri.
Burlington L. S.: Springfield, Missouri.
1895. *Syringothyris Hannibalensis*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 25, figs. 33-35.
Chouteau L. S.: Pike County, Missouri.
1895. *Syringothyris typa*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 26, figs. 6, 7, 10; pl. 27, figs. 1-3.
Burlington L. S.: Burlington, Iowa.

Syringothyris cuspidatus. See *Syringothyris carteri* and *Syringothyris hericki*.

Syringothyris extenuatus Hall.

1858. *Spirifer extenuatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 520, pl. 7, fig. 6.
Chemung Group: Burlington, Iowa.
1863. *Syringothyris Halli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 8.
Yellow S. S.: Burlington, Iowa.
1865. *Spirifera extenuata*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Marshall Group: Battle Creek and Hillsdale, Michigan.
1865. *Syringothyris Halli*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 119.
Marshall Group: Battle Creek, Michigan.
1870. *Spirifera extenuata*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 251.
Waverly Group: Newark, Ohio.
1874. *Spirifer (Syringothyris) extenuatus*. White, Prelim. Rep. Inv. Foss., p. 17.
Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
1877. *Spirifer extenuatus*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 88, pl. 5, figs. 9a-d.

Syringothyris extenuatus Hall—Continued.

1877. Subcarboniferous: Mountain Spring, Old Mormon Road, Nevada.
 1890. *Syringothyris extenuatus*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 33.
 Kinderhook Group: Burlington, Iowa; Battle Creek, Michigan; Clarksville, Missouri; Mountain Spring, Old Mormon Road, Nevada.
 Waverly S. S.: Licking County, Ohio.
 1894. *Syringothyris extenuata*. Keyes, Mo. Geol. Surv., vol. 5, p. 86.
 Kinderhook L. S.: Clarksville, Missouri.

Syringothyris gigas Troost.

- *1841. *Cyrtia gigas*. Troost, 6th Geol. Rep. Tenn., p. 12.
 1890. *Syringothyris gigas*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 33.
 Encrinital stratum, near the Harpeth River, Davidson County, Tennessee.

Syringothyris halli*. See *Syringothyris extenuatus*.**Syringothyris hannibalensis*. See *Syringothyris carteri*.****Syringothyris herricki Schuchert.**

1888. *Syringothyris cuspidatus*. Herrick, Bull. Den. Univ., vol. 3, pl. 5, figs. 4-7.
 Waverly Group: Licking County, Ohio.
 1890. *Syringothyris herricki*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 36.
 Waverly Group: Ohio.
 1895. *Syringothyris herricki*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 21, figs. 4-7.
 Kinderhook freestone: Granville, Ohio.

Syringothyris missouri Hall.

1894. *Syringothyris Missouri*. Hall, 13th Ann. Rep. N. Y. State Geol., p. 650.
 Chouteau L. S.: Chouteau Springs, Missouri.
 1895. *Syringothyris Missouri*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, p. 363,
 pl. 39, figs. 29-31.
 Chouteau L. S.: Chouteau Springs and Pike County, Missouri.
 1897. *Syringothyris Missouri*. Hall, 14th Rep. N. Y. State Geol., p. 358, pl. 8,
 figs. 14-16.
 Chouteau L. S.: Chouteau Springs, Missouri.

Syringothyris plena*. See *Spirifer plenus*.*Syringothyris randalli Simpson.**

1889. *Syringothyris randalli*. Simpson, Trans. Am. Phil. Soc., vol. 15, p. 441,
 figs. 1, 2.
 Chemung Group: Near Warren, Pennsylvania, and at Union City, Pennsylvania.
 1890. *Syringothyris randalli*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 36.
 Waverly Group: Warren and Erie counties, Pennsylvania.
 1894. *Syringothyris Randallii*. Hall and Clarke, Int. to Study of Brach., pt. 2,
 pl. 30, figs. 10, 11.
 Waverly Group: Warren, Pennsylvania.
 1895. *Syringothyris Randallii*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 27,
 figs. 13-17.
 Waverly Group: Warren, Pennsylvania.

Syringothyris subcuspidatus*. See *Syringothyris textus*.*Syringothyris textus Hall.**

1857. *Spirifer textus*. Hall, 10th Rep. N. Y. State Cab. Nat. Hist., p. 169.
 Chemung S. S.: "The Knobs," near New Albany, Indiana.
 1858. *Spirifer subcuspidatus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 646, pl. 20, figs. 5a, b.
 Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
 1858. *Spirifer propinquus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 647.
 Keokuk L. S.: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.

Syringothyris textus Hall—Continued.

1868. *Spirifer propinquus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 530, pl. 19, figs. 8a-c.
Keokuk Group: Near Warsaw, Illinois.
1875. *Spirifer Carteri*. Meek, Pal. Ohio, vol. 2, p. 285, pl. 14, figs. 7a-d.
Waverly Group: Sciotoville and Licking County, Ohio.
1881. *Spirifer textus*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 512, pl. 7, figs. 1, 2.
Knobstone Group: Near Providence and New Albany, Indiana.
1890. *Syringothyris texta*. Schuchert, 9th Ann. Rep. N. Y. State Geol., p. 34.
Waverly Group: Sciotoville, Ohio.
Knobstone Group: Near New Albany and New Providence, Indiana.
Keokuk Group: Crawfordsville, Indiana; Keokuk, Iowa; Warsaw and Nauvoo, Illinois.
1894. *Syringothyris subcuspidata*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 30, fig. 3.
Keokuk Group: Nauvoo, Illinois.
1894. *Syringothyris texta*. Hall and Clarke, Int. to Study of Brach., pt. 2, pl. 30, figs. 4-9.
Keokuk Group: New Providence, Indiana.
1894. *Syringothyris texta*. Keyes, Mo. Geol. Surv., vol. 5, p. 88.
Keokuk L. S.: Keokuk, Iowa.
1895. *Syringothyris subcuspidatus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 26, figs. 8, 11; pl. 27, fig. 18.
Keokuk L. S.: Keokuk, Iowa; Nauvoo, Illinois.
1895. *Syringothyris texta*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 26, figs. 9-12; pl. 27, figs. 4-12.
Keokuk Group: New Providence, Indiana.

Syringothyris typa. See *Syringothyris carteri*.

Syringothyris (species undetermined).

1888. *Syringothyris* sp. Herrick, Bull. Den. Univ., vol. 4, pl. 3, fig. 7.
Waverly Group: Ohio.
1895. *Syringothyris*. Herrick, Geol. Surv. Ohio, vol. 7, pl. 23, fig. 8.
(Waverly Group): Ohio.

TÆNIDICTYA Ulrich, 1890.**Tæniodictya cingulata Ulrich.**

1890. *Tæniodictya cingulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 530, pl. 67, figs. 3-3b.
Keokuk Group: Warsaw, Illinois.

Tæniodictya frondosa Ulrich.

1890. *Tæniodictya frondosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 529, pl. 67, fig. 5; pl. 69, figs. 5-5c.
Keokuk Group: Keokuk, Iowa.
1894. *Tæniodictya frondosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Keokuk L. S.: Keokuk, Iowa.

Tæniodictya interpolata Ulrich.

1888. *Tæniodictya interpolata*. Ulrich, Bull. Den. Univ., vol. 4, p. 80, pl. 13, figs. 9, 9a.
Cuyahoga Shale: Richfield, Ohio.

Tæniodictya ramulosa Ulrich.

1890. *Tæniodictya ramulosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 528, pl. 67, figs. 1-1b.
Keokuk Group: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.
1894. *Tæniodictya ramulosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 22.
Keokuk L. S.: Keokuk, Iowa.

Tæniodictya ramulosa var. burlingtonensis Ulrich.

1890. *Tæniodictya ramulosa* var. *burlingtonensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 529, pl. 67, figs. 2-2b.

Burlington L. S.: Burlington, Iowa.

Tæniodictya subrecta Ulrich.

1890. *Tæniodictya subrecta*. Ulrich, Geol. Surv. Ill., vol. 8, p. 530, pl. 67, figs. 4-4d. St. Louis Group: Elizabethtown, Kentucky.

TAINOCERAS Hyatt, 1883.**Tainoceras cavatum Hyatt.**

1891. *Tainoceras cavatum*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 341, figs. 42-44. Carboniferous: Texas.

1893. *Tainoceras cavatum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 398. Carboniferous: Ballinger, Texas.

Tainoceras duttoni Hyatt.

1893. *Tainoceras duttoni*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 401, figs. 3, 4. Carboniferous: Upper Valley of Zuni Plateau, 12 to 15 miles southwest of Grant's, a station on New Mexico, Arizona and Pacific Railroad.

Tainoceras occidentalis Swallow.

1858. *Nautilus occidentalis*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 196. Permian: Valley of Cottonwood, Kansas.

1860. *Nautilus quadrangulus*. McChesney, Desc. New Pal. Foss., p. 65. Coal Measures, Grayville, Illinois.

1860. *Nautilus nodocarinatus*. McChesney, Desc. New Pal. Foss., p. 66. Coal Measures: Grayville, Illinois.

1860. *Nautilus biserialis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 92. Coal Measures: Iowa and Illinois.

1865. *Nautilus quadrangulus*. McChesney, Ill. New Spec. Foss., pl. 3, figs. 5a-b.

1865. *Nautilus nodocarinatus*. McChesney, Ill. New Spec. Foss., pl. 3, fig. a.

1868. *Nautilus occidentalis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 51, pl. 3, figs. 5-7.

Coal Measures: Grayville, Illinois.

1872. *Nautilus occidentalis*. Meek, U. S. Geol. Surv. Nebr., p. 234, pl. 11, fig. 17. Upper Coal Measures: Nebraska City and Rock Bluff, Nebraska; Valley of Cottonwood Creek, Kansas; Grayville and Lasalle, Illinois.

Coal Measures: Near Pittsburg, Pennsylvania.

Lower Coal Measures: West Virginia.

1888. *Nautilus occidentalis*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.

Lower Coal Measures: Des Moines, Iowa.

1891. *Nautilus occidentalis*. White, Bull. U. S. Geol. Surv., No. 77, p. 23, pl. 2, figs. 11, 12.

Permian: Military Crossing of the Big Wichita, Baylor County, Texas.

1893. *Tainoceras quadrangulum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 402, figs. 5-7.

Carboniferous: Military Crossing, Baylor County, Texas.

1894. *Nautilus occidentalis*. Keyes, Mo. Geol. Surv., vol. 5, p. 224.

Upper Coal Measures: Kansas City, Missouri.

TALAROCRINUS Wachsmuth and Springer, 1881.**Talarocrinus cornigerus Shumard.**

*1857. *Dichocrinus cornigerus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 72, pl. 1, figs. 1a, b.

1873. *Dichocrinus cornigerus*? Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 537, pl. 20, fig. 6.

St. Louis Group: Near Roseclaire, Hardin County, Illinois.

Talarocrinus cornigerus Shumard—Continued.

1897. *Talarocrinus cornigerus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 783, pl. 78, figs. 6a, b, 7a, b.

St. Louis Group: Franklin County, Alabama; Tateville, Kentucky.

Talarocrinus decornis Wachsmuth and Springer.

1897. *Talarocrinus decornis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 788, pl. 78, figs. 3a-c.

St. Louis Group: Tateville, Pulaski County, Kentucky.

Talarocrinus ovatus Worthen.

1882. *Talarocrinus ovatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 36. Chester L. S.: Monroe County, Illinois.

1883. *Talarocrinus ovatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 314, pl. 29, fig. 11. Chester L. S.: Monroe County, Illinois.

1897. *Talarocrinus ovatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 787, pl. 78, figs. 2a, b.

(?) Kaskaskia Group: Monroe County, Illinois.

Talarocrinus patei Miller and Gurley.

1897. *Talarocrinus patei*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 44, pl. 3, figs. 9-12.

Kaskaskia Group: Breckinridge County, Kentucky.

Talarocrinus sexlobatus Shumard.

- *1857. *Dichocrinus sexlobatus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 73, pl. 1, figs. 3a-c.

1897. *Talarocrinus sexlobatus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 784, pl. 78, figs. 1a-c.

St. Louis Group: Russellville, Kentucky; Logan County, Kentucky; Flagpond, Virginia.

Talarocrinus simplex Shumard.

- *1857. *Dichocrinus simplex*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 74, pl. 1, figs. 2a, b.

1858. *Dichocrinus simplex*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 654, pl. 22, figs. 12a, b. Warsaw L. S.: Spengen Hill, Indiana.

1860. *Dichocrinus simplex*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., pl. 1, figs. 4a-c.

1894. *Talarocrinus simplex*. Keyes, Mo. Geol. Surv., vol. 4, p. 205, pl. 25, fig. 6. St. Louis L. S.: Ste. Mary, Missouri.

1897. *Talarocrinus simplex*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 790, pl. 78, figs. 8a, b.

Warsaw L. S.: Spengen Hill, Indiana; St. Genevieve County, Missouri; Kentucky; Tennessee.

Talarocrinus subglobosus Wachsmuth and Springer.

1897. *Talarocrinus subglobosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 789, pl. 79, figs. 1a, b.

St. Louis Group: Tateville, Pulaski County, Kentucky.

Talarocrinus symmetricus Lyon and Casseday.

1862. *Dichocrinus symmetricus*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 20.

Chester Group: Breckinridge, Grayson, Edmonson, Hart, and Warren Counties, Kentucky.

1862. *Dichocrinus elegans*. Lyon and Casseday, Proc. Am. Acad. Arts and Sci. Bost., vol. 5, p. 22.

Subcarboniferous: Edmonson County, near Mammoth Cave, Kentucky.

1897. *Talarocrinus symmetricus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 786, pl. 78, figs. 4a, b, 5.

St. Louis L. S.: Grayson, Edmonson, and Pulaski counties, Kentucky.

Talarocrinus trijugis Miller and Gurley.

1894. *Talarocrinus trijugis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 45, pl. 3, figs. 9-11.
St. Louis Group: Rose Clare, Hardin County, Illinois.

TAXOCRINUS Phillips, 1843.**Taxocrinus communis** Hall.

1864. *Forbesiocrinus communis*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 55.
Waverly Group: Richfield, Ohio.
1875. *Forbesiocrinus communis*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 169, pl. 12, figs. 3-5.
Waverly Group. Richfield, Ohio.

Taxocrinus crawfordsvillensis Miller and Gurley.

1894. *Taxocrinus crawfordsvillensis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 49, pl. 4, fig. 3.
Keokuk Group: Crawfordsville, Ind.

Taxocrinus fletcheri Worthen.

1882. *Taxocrinus fletcheri*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 31.
Kinderhook Group: Marshalltown, Iowa.
1883. *Taxocrinus Fletcheri*. Worthen, Geol. Surv. Ill., vol. 7, p. 308, pl. 30, fig. 2.
Kinderhook Group: Marshalltown, Iowa.
1890. *Taxocrinus fletcheri*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 197, pl. 15, figs. 6, 9.
Kinderhook Group: Legrand, Iowa.

Taxocrinus giddingsei Hall.

1858. *Forbesiocrinus giddingsei*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 633, pl. 17, figs. 2-4.
Keokuk L. S.: Boonville, Missouri.
1894. *Taxocrinus giddingsei*. Keyes, Mo. Geol. Surv., vol. 4, p. 223.
Keokuk L. S.: Boonville, Missouri.

Taxocrinus intermedius Wachsmuth and Springer.

1890. *Taxocrinus intermedius*. Wachsmuth and Springer, Geol. Surv. Ill., vol. 8, p. 199, pl. 15, fig. 11.
Kinderhook Group: Legrand, Iowa.

Taxocrinus juvenis Hall.

1861. *Forbesiocrinus juvenis*. Hall, Desc. New Spec. Crin., p. 8.
Burlington L. S.
1861. *Forbesiocrinus juvenis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 319.
Burlington L. S.: Burlington, Iowa.
1872. *Forbesiocrinus juvenis*. Hall, Photo. Plates of Crinoids, pl. 7, fig. 3.
1893. *Taxocrinus juvenis*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 35, pl. 3, figs. 21, 22.
Burlington L. S.: Burlington, Iowa.

Taxocrinus kelloggi Hall.

1864. *Forbesiocrinus kelloggi*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 56.
Waverly Group: Richfield, Ohio.
1875. *Forbesiocrinus Kelloggi*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 171, pl. 12, fig. 1.
Waverly Group: Richfield, Ohio.

Taxocrinus meeki Hall.

1858. *Forbesiocrinus meeki*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 631, pl. 17, fig. 3.
Keokuk L. S.: Warsaw, Illinois.

Taxocrinus multibrachiatus Lyon and Casseday.

1859. *Forbesiocrinus multibrachiatus*. Lyon and Casseday. Am. Jour. Sci. (2), vol. 28, p. 235.

Subcarboniferous L. S. (Knobstone): Clear Creek, Hardin County, Kentucky; Washington and Montgomery counties, Indiana.

1896. *Forbesiocrinus multibrachiatus*. Miller and Gurley, Bul. No. 8, Ill. State Mus. Nat. Hist., p. 55, pl. 4, fig. 1.

Knob Sandstone: Hardin County, Kentucky; Washington and Montgomery counties, Indiana.

Taxocrinus multibrachiatus var. *colletti* White.

1881. *Taxocrinus multibrachiatus* var. *colletti*. White, 2d Ann. Rep. Dep. Stat. and Geol. Ind., p. 506, pl. 7, fig. 3.

Keokuk Group: Crawfordsville, Indiana.

Taxocrinus ramulosus Hall.

1860. *Forbesiocrinus ramulosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 67.

Burlington L. S.: Burlington, Iowa.

Taxocrinus semiovatus Meek and Worthen.

1860. *Forbesiocrinus* ? *semiovatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 389.

St. Louis L. S.: Hardin County, Illinois.

1866. *Taxocrinus semiovatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 272, pl. 20, figs. 4a, b.

St. Louis Group: Hardin County, Illinois.

Taxocrinus shumardianus Hall.

1858. *Forbesiocrinus shumardianus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 671, pl. 17, fig. 1.

St. Louis L. S.: St. Louis, Missouri.

1894. *Taxocrinus shumardianus*. Keyes, Mo. Geol. Surv., vol. 4, p. 224.

St. Louis L. S.: St. Louis, Missouri.

Taxocrinus splendens Miller and Gurley.

1896. *Taxocrinus splendens*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 61, pl. 5, figs. 3, 4.

Keokuk Group: Crawfordsville, Indiana.

Taxocrinus subovatus Miller and Gurley.

1890. *Taxocrinus subovatus*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 347, pl. 5, fig. 3.

Keokuk Group: Near Canton, Indiana.

Taxocrinus tardus Hall.

1864. *Forbesiocrinus lobatus* var. *tardus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 56.

Waverly Group: Richfield, Ohio.

1875. *Forbesiocrinus tardus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 170, pl. 12, fig. 2.

Waverly Group: Richfield, Ohio.

Taxocrinus thiemei Hall.

1861. *Forbesiocrinus thiemei*. Hall, Desc. New Spec. Crin., p. 8.

Burlington L. S.

1861. *Forbesiocrinus spiniger*. Hall, Desc. New Spec. Crin., p. 9.

Burlington L. S.

1861. *Forbesiocrinus Thiemei*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 317.

Burlington L. S.: Burlington, Iowa.

1861. *Forbesiocrinus spinifer*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 318.

Burlington L. S.: Burlington, Iowa.

Taxocrinus thiemei Hall—Continued.

1872. *Forbesiocrinus Theimeii*. Hall, Photo. Plates of Crinoids, pl. 7, fig. 4.
 1873. *Taxocrinus Thiemei*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 399, pl. 4, fig. 1.
 Burlington L. S.: Burlington, Iowa.
 1874. *Taxocrinus Thiemei*. Meek, Am. Jour. Sci. (3), vol. 7, p. 191.
 1894. *Taxocrinus thiemii*. Keyes, Mo. Geol. Surv., vol. 4, p. 223, pl. 30, fig. 5.
 Lower Burlington L. S.: Hannibal, Missouri.

Taxocrinus ungula Miller and Gurley.

1896. *Taxocrinus ungula*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 59, pl. 5, figs. 1, 2.
 Keokuk Group: Crawfordsville, Indiana.

Taxocrinus wetherbyi Miller and Gurley.

1895. *Taxocrinus wetherbyi*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 41, pl. 4, figs. 3-5.
 Kaskaskia Group: Pulaski County, Kentucky.

Taxocrinus whitfieldi Hall.

1858. *Forbesiocrinus whitfieldi*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 632.
 Keokuk L. S.: Warsaw, Illinois.
 1860. *Forbesiocrinus whitfieldi*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 88.
 Warsaw L. S. (not Keokuk as recorded in 1858).
 1873. *Onychocrinus Whitfieldi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 552, pl. 20, fig. 3.
 Chester Group: Opposite Kaskaskia in Randolph County, Illinois.

TELEIOCRINUS Wachsmuth and Springer, 1881.**Teleiocrinus adolescens Wachsmuth and Springer.**

1897. *Teleiocrinus adolescens*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 635, pl. 59, fig. 4.
 Lower Burlington L. S.: Burlington, Iowa.

Teleiocrinus agilops. See Teleiocrinus umbrosus.**Teleiocrinus althaea Hall.**

- *1861. *Actinocrinus (Calathocrinus) althaea*. Hall, Desc. New Spec. Crin., p. 13.
 Burlington L. S.
 1872. *Actinocrinus (Strotocrinus) Althaea*. Hall, Photo. Plates of Crin., pl. 4, fig. 13.
 1897. *Teleiocrinus althaea*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 632, pl. 60, fig. 4; pl. 63, fig. 9.
 Upper Burlington L. S.: Burlington, Iowa.

Teleiocrinus liratus Hall.

1860. *Actinocrinus liratus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 1.
 Burlington L. S.: Burlington, Iowa.
 1860. *Actinocrinus subumbrosus*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 3.
 Burlington L. S.: Burlington, Iowa.
 1872. *Actinocrinus (Strotocrinus) liratus*. Hall, Photo. Plates of Crin., pl. 4, fig. 3.
 1873. *Strotocrinus liratus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 355, pl. 7, fig. 2.
 Burlington L. S.: Burlington, Iowa.
 1894. *Teleiocrinus liratus*. Keyes, Mo. Geol. Surv., vol. 4, p. 191, pl. 24, fig. 8.
 Upper Burlington L. S.: Ash Grove, Missouri.
 1897. *Teleiocrinus liratus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 633, pl. 60, fig. 3.
 Upper Burlington L. S.: Burlington, Iowa.

Teleocrinus rudis Hall.

1860. *Actinocrinus rudis*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 33.
Burlington L. S.: Burlington, Iowa.
- *1861. *Actinocrinus insculptus*. Hall, Desc. New Spec. Crin., p. 12.
Burlington L. S.
1861. *Actinocrinus erodus*. Hall, Desc. New Spec. Crin., p. 12.
Burlington L. S.
1861. *Actinocrinus clivosus*. Hall, Jour. Bost. Nat. Hist., vol. 7, p. 274.
Burlington L. S.: Burlington, Iowa.
1897. *Teleocrinus rudis*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 630,
pl. 59, figs. 1-3.
Upper Burlington L. S.: Burlington, Iowa.

Teleocrinus tenuiradiatus Hall.

1861. *Actinocrinus tenuiradiatus*. Hall, Desc. New Spec. Crin., p. 12.
Burlington L. S.
1897. *Teleocrinus tenuiradiatus*. Wachsmuth and Springer, N. Am. Crin. Cam.,
p. 634, pl. 59, figs. 5, 6.
Upper Burlington L. S.: Burlington, Iowa.

Teleocrinus umbrosus Hall.

1858. *Actinocrinus umbrosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 590, pl. 9, figs. 3a, b.
Burlington L. S.: Burlington, Iowa.
1860. *Actinocrinus agilops*. Hall, Supp. vol. 1, pt. 2, Geol. Rep. Ia., p. 5.
Burlington L. S.: Quincy, Illinois.
1869. *Actinocrinites delicatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil.,
p. 156.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Actinocrinites delicatus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 343,
pl. 8, fig. 2.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Strotocrinus umbrosus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 360,
pl. 8, fig. 5.
Burlington L. S.: Burlington, Iowa.
1874. *Actinocrinites delicatus*. Meek, Am. Jour. Sci. (3), vol. 7, p. 192.
1893. *Teleocrinus agilops*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 20, pl.
2, figs. 27, 28.
Burlington L. S.: Quincy, Illinois.
1894. *Teleocrinus umbrosus*. Keyes, Mo. Geol. Surv., vol. 4, p. 190.
Upper Burlington L. S.: Ashgrove, Missouri.
1897. *Teleocrinus umbrosus*. Wachsmuth and Springer, N. Am. Crin. Cam., p. 628,
pl. 59, fig. 7; pl. 60, figs. 2a-d.
Upper Burlington L. S.: Burlington, Iowa; Quincy, Illinois.

TELLINOMYA Hall, 1847.**Tellinomya protensa Hall.**

1852. *Tellinomya protensa*. Hall, Stansb. Exped. Gt. Salt Lake, p. 412, pl. 2, fig. 3.
Carboniferous: Near Le Bonte.

TEMNOCHEILUS McCoy, 1844.**Temnocheilus conchiferous Hyatt.**

1891. *Temnocheilus Conchiferous*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 329,
figs. 23, 24.
Carboniferous: Texas.
1893. *Temnocheilus conchiferus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 391.
Carboniferous: Military Crossing, Baylor County, Texas.

Temnocheilus coxanus Meek and Worthen.

1870. *Nautilus (Temnocheilus) Coxanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 50.
St. Louis L. S.: Near New Providence, Indiana.
1873. *Nautilus (Temnocheilus) Coxanus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 543, pl. 23, fig. 1.
St. Louis Group: Waterloo, Illinois; Greencastle, Indiana.
1891. *Temnocheilus coxanus*. Foord, Cat. Foss. Ceph. Brit. Mus., vol. 2, p. 153.
St. Louis L. S.: Putnam County, Indiana.
1893. *Temnocheilus coxanus*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 392.
Carboniferous: Ballinger, Texas.

Temnocheilus crassus Hyatt.

1891. *Temnocheilus crassus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 333, figs. 27-29.
Carboniferous: Near Oswego, Kansas.
1893. *Temnocheilus crassus*. Hay, Trans. Kansas Acad. Sci., vol. 13, p. 38, figs. 3-5.
Carboniferous: Oswego, Kansas.

Temnocheilus depressus Hyatt.

1891. *Temnocheilus depressus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 331, figs. 25, 26.
Carboniferous: Near Oswego, Kansas.

Temnocheilus forbesianus McChesney.

1860. *Nautilus forbesianus*. McChesney, Desc. New Pal. Foss., p. 6a.
Coal Measures: Carnahan's Mine, Mercer County, Illinois.
1865. *Nautilus Forbesianus*. McChesney, Ill. New Spec. Foss., pl. 3, figs. 4a-b.
1868. *Nautilus Forbesianus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 50, pl. 3, figs. 4a, b.
Coal Measures: Carnahan's Mine, Mercer County, Illinois.
1884. *Nautilus Forbesianus*. White, 13th Rep. Geol. Surv. Ind., p. 165, pl. 36, figs. 3, 4.
Coal Measures: Newport, Indiana.
1887. *Nautilus forbesianus*. Herrick, Bull. Den. Univ., vol. 2, p. 146, pl. 14, fig. 13.
Coal Measures: Flint Ridge, Ohio.
1891. *Temnocheilus Forbesianus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 330.
Carboniferous: Texas.
1894. *Nautilus forbesianus*. Keyes, Mo. Geol. Surv., vol. 5, p. 223, pl. 56, figs. 4a, b.
Upper Coal Measures: Kansas City, Missouri.

Temnocheilus greenense Miller and Gurley.

1897. *Temnocheilus greenense*. Miller and Gurley, Bull. No. 12, Ill. State Mus. Nat. Hist., p. 52, pl. 5, fig. 3.
Kaskaskia Group: Fish Creek, Green County, Indiana.

Temnocheilus latus Meek and Worthen.

1870. *Nautilus (Temnocheilus) latus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 49.
Lower Coal Measures: Carbon Cliff Mines, Rock Island County, Illinois.
1873. *Nautilus (Temnocheilus) latus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 608, pl. 30, fig. 2.
Coal Measures: Carbon Cliff, Rock Island County, Illinois.
1891. *Temnocheilus latus*. Hyatt, 2d Ann. Rep. Geol. Surv. Tex., p. 330.
Carboniferous: Near Oswego, Kansas.
1891. *Temnocheilus latus*. Foord, Cat. Foss. Ceph. Brit. Mus., vol. 2, p. 151.
Coal Measures: Illinois.

Temnocheilus scottense Worthen. See Koninckioceras scottense.

-*Temnocoelilus winslowi* Meek and Worthen.

1870. *Nautilus (Temnochilus) Winslowi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 50.
Lower Coal Measures: Danville, Illinois.
1873. *Nautilus (Temnocheilus) Winslowi*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 609, pl. 32, fig. 2.
Coal Measures: Danville, Ill.
1884. *Nautilus Winslowi*. White, 13th Rep. Geol. Surv. Ind., p. 165, pl. 36, figs. 1, 2.
Coal Measures: Indiana (?).
1888. *Nautilus winslowi*. Keyes, Proc. Acad. Nat. Sci. Phil., p. 242.
Lower Coal Measures: Des Moines, Iowa.
1891. *Nautilus (Temnocheilus) winslowi*. White, Bull. U. S. Geol. Surv., No. 77, p. 23, pl. 3, figs. 1-5.
Permian: Military Crossing of the Big Wichita, Baylor County, Texas.
1894. *Nautilus winslowi*. Keyes, Mo. Geol. Surv., vol. 5, p. 223, pl. 56, fig. 2.
Upper Coal Measures: Lexington, Missouri.

TEREBRATULA Llhwyd, 1699.

Terebratula arcuata. See *Dielasma shumardanum*.

Terebratula argentea. See *Seminula argentea*.

Terebratula bisacula McChesney.

1860. *Terebratula bisacula*. McChesney, Desc. New Pal. Foss., p. 82.
Kaskaskia Group.: Chester and Golconda, Illinois.

Terebratula bovidens. See *Dielasma bovidens*.

Terebratula brevilobata Swallow.

1863. *Terebratula brevilobata*. Swallow, Trans. St. Louis Acad. Sci., vol. 2, p. 84.
Archimedes L. S.: Ste. Genevieve County, Missouri.

Terebratula burlingtonensis. See *Dielasma burlingtonensis*.

Terebratula elongata. See *Dielasma bovidens*.

Terebratula formosa. See *Dielasma formosa*.

Terebratula geniculosa. See *Dielasma bovidens*.

Terebratula gorbyi. See *Dielasma gorbyi*.

Terebratula gracilis. See *Terebratula swallowana*.

Terebratula hastata. See *Dielasma hastata* and *Dielasma bovidens*.

Terebratula inconstans. See *Cryptonella inconstans*.

Terebratula inornata McChesney.

1860. *Terebratula inornata*. McChesney, Desc. New Pal. Foss., p. 48.
Coal Measure L. S.: Sangamon County, Illinois.
Also Carboniferous L. S. as low down as Keokuk division.

Terebratula lapillus Morton.

1836. *Terebratula lapillus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 153, pl. 26, fig. 36.
Coal Measures: Ohio Valley.

Terebratula marcyi. See *Eumetria marcyi*.

Terebratula millepunctata. See *Dielasma bovidens*.

Terebratula mormoni. See *Hustedia mormoni*.

Terebratula nuciformis Morton.

1836. *Terebratula nuciformis*. Morton, Am. Jour. Sci. (1), vol. 28, p. 150, pl. 2, fig. 5.
Coal Measures: Ohio Valley.

Terebratula occidentalis. See *Dielasme occidentalis*.

Terebratula parva. See *Seminula parva*.

Terebratula perinflata Shumard.

1859. *Terebratula perinflata*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 392.
White Permian L. S.: Guadalupe Mountains.

Terebratula plano-sulcata. See *Seminula argentea* and *Cleiothyris roissyi*.

Terebratula pugnus. See *Pugnax uta*.

Terebratula rockymontana. See *Pugnax rockymontana*.

Terebratula rowleyi. See *Dielasma rowleyi*.

Terebratula royssii. See *Cleiothyris roissyi*.

Terebratula sacculus. See *Dielasma sacculus*.

Terebratula serpentaria. See *Eumetria marcyi*.

Terebratula subretziaforma McChesney.

1861. *Terebratula subretziaforma*. McChesney, Desc. New Foss., p. 82.
Kaskaskia: Fountain Bluff, Illinois.

Terebratula subtilita. See *Seminula argentea*.

Terebratula swallovana Miller.

1863. *Terebratula gracilis*. Swallow, Trans. St. Louis Acad., vol. 2, p. 83.
Archimedes L. S.: St. Mary's, Missouri; Chester, Illinois.

1883. *Terebratula swallovana*. Miller, Am. Pal. Foss., 2d ed., p. 299.

Terebratula trinuclea. *Seminula trinuclea*.

Terebratula turgida. See *Dielasma turgida*.

Terebratula uta. See *Pugnax uta*.

Terebratula utah Hall and Whitfield.

1877. *Terebratula Utah*. Hall and Whitfield, U. S. Geol. Expl. 40 Par., vol. 4, p. 258,
pl. 4, fig. 18.

Lower Carboniferous L. S. (Waverly?): Cottonwood Divide, 800 feet east
of Reed and Benson's mine, Wasatch range, Utah.

(TERMES Linnaeus 1748.)

Termes contusus Scudder. See *Didymophleps contusa*.

THAMNISCUS King, 1849.

Thamniscus divaricans Ulrich.

1890. *Thamniscus divaricans*. Ulrich, Geol. Surv. Ill., vol. 8, p. 608, pl. 62,
figs. 6-6c.

Keokuk Group: King's Mountain, Kentucky.

Thamniscus furcillatus Ulrich.

1890. *Thamniscus furcillatus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 609, pl. 62,
figs. 9-9b.

Chester Group: Chester and Kaskaskia, Illinois; Sloan's Valley and Litch-
field, Kentucky.

1894. *Thamniscus furcillatus*. Keyes, Mo. Geol. Surv., vol. 5, p. 31, pl. 33, fig. 6.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

Thamniscus octonarius Ulrich.

1890. *Thamniscus octonarius*. Ulrich, Geol. Surv. Ill., vol. 8, p. 611, pl. 62,
figs. 7-7b.

Upper Coal Measures: Greenwood County, Kansas.

Thamniscus ramulosus Ulrich.

1890. *Thamniscus ramulosus*. Ulrich, Geol. Surv. Ill., vol. 8, p. 610, pl. 62, figs. 4-4b.

Chester Group: Sloan's Valley, Kentucky; Chester, Illinois.

Thamniscus ramulosus var. sevilensis Ulrich.

1890. *Thamniscus ramulosus* var. *sevilensis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 610, pl. 55, fig. 6; pl. 62, figs. 5, 5a.

Lower Coal Measures: Seville, Illinois.

Thamniscus sculptilis Ulrich.

1890. *Thamniscus sculptilis*. Ulrich, Geol. Surv. Ill., vol. 8, p. 608, pl. 62, figs. 8-8b.

Keokuk Group: King's Mountain, Kentucky.

THAMNODICTYA Hall, 1884.**Thamnodictya newberryi** Hall.

1863. *Dictyophyton newberryi*. Hall, 16th Rep. N. Y. State Cab. Nat. Hist., p. 87.

Waverly Group: Cuyahoga Falls and Richfield, Ohio.

1884. *Thamnodictya Newberryi*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 477, pl. 18, figs. 10, 11.

Waverly S. S.: Cuyahoga Falls and Richfield, Ohio.

THRINCOCERAS Hyatt, 1893.**Thrinoceras depressum** Hyatt.

1893. *Thrinoceras depressum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 430, figs. 9, 10.

Carboniferous: Bullitt County, Kentucky.

Thrinoceras kentuckiense Hyatt.

1893. *Thrinoceras kentuckiense*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 432, figs. 11-15.

Carboniferous: Franklin County, Kentucky.

TITANOCERAS Hyatt, 1883.**Titanoceras ponderosum** Meek.

1872. *Nautilus ponderosus*. Meek, U. S. Geol. Surv. Nebr., p. 236, pl. 3, figs. 7a, b.

Upper Coal Measures: Plattsmouth, Nebraska; Lasalle, Illinois; Iowa.

1883. *Titanoceras ponderosum*. Hyatt, Proc. Bost. Soc. Nat. Hist., vol. 22, p. 290.

1894. *Nautilus ponderosus*. Keyes, Mo. Geol. Surv., vol. 5, p. 222.

Upper Coal Measures: Kansas City, Missouri.

1896. *Nautilus ponderosus*. Keyes, Proc. Iowa Acad. Sci., vol. 3, p. 76.

Upper Coal Measures: Kansas City, Missouri.

TITANOPHAMA Brongniart.**Titanophasma jucunda** Scudder.

1884. *Titanophasma jucunda*. Scudder, Proc. Am. Acad. Arts and Sci., vol. 20, p. 169.

Carboniferous: Near Pittston, Pennsylvania.

TORYNIFER Hall, 1894.**Torynifer criticus** Hall and Clarke.

1895. *Torynifer criticus*. Hall and Clarke, Pal. N. Y., vol. 8, pt. 2, pl. 84, figs. 34, 35.

St. Louis Group: La Rue, Kentucky.

1897. *Torynifer criticus*. Hall, 14th Rep. N. Y. State Geol., p. 353, pl. 9, fig. 1.

St. Louis Group: La Rue, Kentucky.

TRACHYDOMIA Meek and Worthen, 1866.

Trachydomia nodosum. Meek and Worthen.

1860. *Naticopsis nodosus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 463.
 Lower Coal Measures: St. Clair County, Illinois.
1866. *Naticopsis nodosa*. Meek and Worthen, Geol. Surv. Ill., vol. 2, 366, pl. 31, figs. 2a, b.
 Lower Coal Measures: St. Clair County, Illinois.
1888. *Naticopsis nodosa*. Herrick, Bull. Den. Univ., vol. 4, pl. 11, fig. 9.
 Coal Measures: Fultonham, Ohio.
1894. *Trachydomia nodosum*. Keyes, Mo. Geol. Surv., vol. 5, p. 201.
 Upper Coal Measures: Kansas City, Missouri.

Trachydomia nodosum var. hollidayi Meek and Worthen.

1860. *Naticopsis Hollidayi*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 463.
 Coal Measures: Hodge's Creek, Macoupin County, Illinois.
1866. *Naticopsis nodosa* var. *Hollidayi*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 367, pl. 31, figs. 3a, b.
 Lower Coal Measures: Hodge's Creek, Macoupin County, Illinois.

Trachydomia nodulosa Worthen.

1884. *Trachydomia nodulosa*. Worthen, Bull. No. 2, Ill. State Mus. Nat. Hist., p. 8.
 Coal Measures: Peoria County, Illinois.
1891. *Trachydomia nodulosa*. Worthen, Geol. Surv. Ill., vol. 8, p. 146, pl. 23, figs. 11, 11a.
 Coal Measures: Peoria County, Illinois.

Trachydomia wheeleri Swallow.

1860. *Littorina Wheeleri*. Swallow, Trans. St. Louis Acad. Sci., vol. 1, p. 658.
 Coal Measures: Monroe County, Missouri.
1873. *Naticopsis Wheeleri*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 595, pl. 28, fig. 3.
 Upper and Lower Coal Measures: Springfield and Alton, Illinois.
1881. *Naticopsis wheeleri* var. White, U. S. Geog. Surv. W. 100 Merid., vol. 3, Supp., Appendix, p. xxxiii, pl. 4, figs. 6a, b.
 Carboniferous: Near Taos, New Mexico.
1884. *Naticopsis Wheeleri*. White, 13th Rep. Geol. Surv. Ind., p. 162, pl. 32, figs. 13, 14.
 Upper Coal Measures: Western part of Vigo County, Indiana.
1889. *Trachydomia wheeleri*. Keyes, Am. Geol., vol. 4, p. 195, fig. 2.
1891. *Trachydomia wheeleri*. Keyes, proc. Acad. Nat. Sci. Phil., p. 257.
 Lower Coal Measures: Des Moines, Iowa.
1894. *Trachydomia wheeleri*. Keyes, Mo. Geol. Surv., vol. 5, p. 200, pl. 55, fig. 8.
 Coal Measures: Clinton and Kansas City, Missouri; Peoria, Springfield and Alton, Illinois; Des Moines, Iowa.

TRACHYPORA Edwards and Haime, 1851.

Trachypora austini Worthen.

1890. *Trachypora austini*. Worthen, Geol. Surv. Ill., vol. 8, p. 81, pl. 11, figs. 1-1d.
 Coal Measures: Labette County, Kansas.

TREMATASTER Worthen and Miller, 1883.

Tremataster difficilis Worthen and Miller.

1883. *Tremataster difficilis*. Worthen and Miller, Geol. Surv. Ill., vol. 7, p. 330, pl. 31, figs. 3a, b.
 Chester L. S.: Prairie du Long Creek, Monroe County, Illinois.

TREMATOCERAS Hyatt, 1883.

Trematoceras altidorsalis Winchell.

1862. *Nautilus (Trematodiscus) altidorsalis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 429.

Marshall Group: Marshall, Michigan.

Trematoceras discoidalis Winchell.

1862. *Nautilus (Trematodiscus) discoidalis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 360.

Marshall S. S.: Marshall and Battle Creek, Michigan.

1865. *Nautilus (Trematodiscus) discoidalis?* Winchell, Proc. Acad. Nat. Sci. Phil., p. 132.

Marshall Group: Rockford, Indiana.

Trematoceras konincki Wetherby.

1881. *Trematodiscus konincki*. Wetherby, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 79, pl. 2, fig. 4.

Lower Waverly Group: King's Mountain Tunnel, on Cincinnati Southern Railroad, Kentucky.

Trematoceras meekianus Winchell.

1862. *Nautilus (Trematodiscus) Meekianus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 360.

Marshall S. S.: Marshall, Michigan.

Trematoceras ohioense Miller and Faber.

1892. *Trematoceras ohioense*. Miller and Faber, Jour. Cinn. Soc. Nat. Hist., vol. 14, p. 168, pl. 6, figs. 4, 5.

Upper Waverly Group: Near Sciotoville, Ohio.

Trematoceras planidorsalis Winchell.

1862. *Nautilus (Trematodiscus) planidorsalis*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 358.

Marshall S. S.: Marshall, Michigan.

Trematoceras rockymontanus Miller.

1881. *Trematodiscus rockymontanus*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 312, pl. 7, fig. 6.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Trematoceras striatulus Winchell.

1862. *Nautilus (Trematodiscus) striatulus*. Winchell, Am. Jour. Sci. (2), vol. 33, p. 359.

Marshall S. S.: Marshall, Michigan.

Trematoceras strigatus Winchell.

1862. *Nautilus (Trematodiscus) strigatus*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 428.

Marshall Group: Marshall, Michigan.

Trematoceras sulcatus Meek and Worthen.

1866. *Nautilus (Trematodiscus) sulcatus?* Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 274.

Chester Group: Ste. Genevieve County, Missouri.

(TREMATOCRINUS Hall, 1860.)

Trematocrinus fiscellus. See *Gilbertsocrinus fiscellus*.

Trematocrinus papillatus. See *Gilbertsocrinus papillatus*.

Trematocrinus reticulatus. See *Gilbertsocrinus reticulatus*.

Trematocrinus robustus. See *Gilbertsocrinus robustus*.

Trematocrinus tuberculosus. See *Gilbertsocrinus tuberculosus*.

Trematocrinus typus. See *Gilbertsocrinus typus*.

(*TREMATODISCUS* Meek and Worthen, 1861.)

Trematodiscus konincki Wetherby. See *Trematoceras konincki*.

Trematodiscus rockymontanus Miller. See *Trematoceras rockymontanus*.

TREMATOPORA Hall, 1852.

Trematopora? americana Miller.

1881. *Trematopora americana*. Miller, Jour. Cinn. Soc. Nat. Hist., vol. 4, p. 312, pl. 7, figs. 5, 5a.

Subcarboniferous: Lake Valley Mining District, New Mexico.

Trematopora? fragilis Winchell.

1863. *Trematopora? fragilis*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 3.
Base of Burlington L. S.: Burlington, Iowa.

Trematopora? vesiculosa Winchell.

1863. *Trematopora? vesiculosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 3.
Base of Burlington L. S.: Burlington, Iowa.
(?) Waverly S. S.: Ohio.

1865. *Trematopora? vesiculosa*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 112.
Marshall Group: Alan's Quarry, Hillsdale, Michigan.

1870. *Trematopora? vesiculosa*. Winchell, Proc. Am. Phil. Soc., vol. 11, p. 247.
Waverly Group: Sciotoville, Ohio.

TRIBOLOCERAS Hyatt, 1883.

Triboloceras digonum Meek and Worthen.

1860. *Nautilus (Discus) digonus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 470.

Goniatite Beds: Rockford, Indiana.

1866. *Nautilus digonus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 163, pl. 14, figs. 9a-d.

Goniatite Bed: Rockford, Indiana.

Kinderhook Group: Jersey County, Illinois; Central Missouri.

1893. *Triboloceras (Tremat.) digonum*. Hyatt, 4th Ann. Rep. Geol. Surv. Tex., p. 418.

1894. *Nautilus digonus*. Keyes, Mo. Geol. Surv., vol. 5, p. 222.
Kinderhook Group: Callaway County, Missouri.

TRICÆLOCERINUS Meek and Worthen, 1868.

Tricælocrinus meekianus Etheridge and Carpenter.

1886. *Tricælocrinus Meekianus*. Etheridge and Carpenter, Cat. Blast., p. 208, pl. 16, figs. 17, 18.

St. Louis Group: Spenen Hill, Indiana.

Tricælocrinus obliquatus Roemer.

- *1851. *Pentatremites obliquatus*. Roemer, Archiv. fur Naturgesch., Jahrg. 17, p. 367, taf. 6, figs. 11a, b.

1869. *Pentatremites obliquatus?* Safford, Geol. of Tenn., p. 346, pl. 6, figs. 2a-d.
St. Louis Group: Clarksville, Tennessee.

Tricelocrinus obliquatus Roemer—Continued.

1875. *Pentremites (Tricelocrinus) obliquatus*. Meek and Worthen, Geol. Surv. Ill., vol. 6, p. 521, pl. 31, fig. 4.
Warsaw beds: Monroe County, Illinois, and not in Archimedes beds of Randolph County, as cited by Roemer.
1886. *Tricelocrinus obliquatus*. Etheridge and Carpenter, Cat. Blast., p. 206, pl. 18, figs. 10-13.
St. Louis L. S.: Washington, Indiana.

Tricelocrinus woodmani Meek and Worthen.

1868. *Pentremites (Troostocrinus) Woodmani*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 356.
Keokuk Group?: Salem, Indiana.
1873. *Pentremites (Troostocrinus?) Woodmani*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 506, pl. 16, fig. 4.
Keokuk Group?: Salem, Indiana.
1874. *Pentremites (Troostocrinus?) Woodmani*. Meek, Am. Jour. Sci. (3), vol. 7, p. 375.

TROCHITA Schumacher, 1817.**Trochita? carbonaria Meek and Worthen.**

1866. *Trochita? carbonaria*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 270.
Chester Group: Ste. Genevieve County, Missouri.

TROCHOPHYLLUM Milne-Edwards and Haime, 1851.**Trochophyllum verneuianum Milne-Edwards and Haime.**

1851. *Trochophyllum verneuianum*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 357, pl. 5, figs. 6-6a.
Carboniferous: Hills 7 miles from Louisville, Kentucky.
1860. *Trochophyllum Verneuianum*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 359.
Carboniferous: Kentucky.

(TROCHUS Adanson, 1757.)**Trochus missouriensis. See Pleurotomaria missouriensis.****TROOSTOCRINUS Shumard, 1865.****Troostocrinus grosvenori Shumard.**

1858. *Pentremites Grosvenori*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 240, pl. 9, figs. 2a-d.
Archimedes L. S.: Spargen Hill, Indiana.
1860. *Pentremites grosvenori*. Hall, Supp., vol. 1, pt. 2, Geol. Rep. Ia., pl. 1, fig. 3a, b.

Troostocrinus nitidulus. See Metablastus nitidulus.**Troostocrinus wachsmuthi. See Metablastus gurleyi.****TROPIDOCARIS Beecher, 1884.****Tropidocaris alternata Beecher.**

1884. *Tropidocaris alternata*. Beecher, Rep. PPP, 2d Geol. Surv. Penn., p. 19, pl. 2, figs. 7, 8.
Waverly Group: Warren, Pennsylvania.
1888. *Tropidocaris alternata*. Hall and Clarke, Pal. N. Y., vol. 7, p. 186, pl. 31, figs. 14, 15.
Waverly Group: Warren, Pennsylvania.

TURBO Klein, 1753.**Turbo guadalupensis** Shumard.

1859. *Turbo Guadalupensis*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 398.
Dark Permian L. S.: Guadalupe Mountains.

Turbo helycinus Shumard.

1859. *Turbo helycinus* (?) Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 398.
White Permian L. S.: Guadalupe Mountains.

Turbo insectus Conrad.

1835. *Turbo insectus*. Conrad, Trans. Geol. Soc. Penn., vol. 1, pt. 2, p. 267, pl. 12,
fig. 4.

Turpo obesus Shumard.

1858. *Turpo obesus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 202.
Upper Coal Measures: Iowa Point, Nebraska.

Turbo tabulatus. See *Pleurotomaria tabulata*.**Turbo texana** Shumard.

1859. *Turbo Texanus*. Shumard, Trans. St. Louis Acad. Sci., vol. 1, p. 400.
Coal Measures: 4 miles west of Sierra Hueco, El Paso County, Texas.

Turbo (undetermined species).

1868. *Turbo* (two species). Dawson, Acad. Geol., p. 309.
Carboniferous L. S.: Pugwash and Windsor, Nova Scotia.

(TURBONILLA Leach, 1826.)

Turbonilla swallovia. See *Aclisina swallovana*.

(TURRITELLA Lamarck, 1801.)

Turritella stevensana. See *Aclisina stevensana*.**ULOCINUS** Miller and Gurley, 1890.**Ulocrinus blairi** Miller and Gurley.

1894. *Ulocrinus blairi*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist.,
p. 57, pl. 5, figs. 16-18.
Upper Coal Measures: Weston, Missouri.

Ulocrinus buttsi Miller and Gurley.

1890. *Ulocrinus buttsi*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol. 13, p.
7, pl. 1, figs. 5, 6.
Upper Coal Measures: Kansas City, Missouri.
1890. *Ulocrinus buttsi*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 331, pl. 1,
figs. 5, 6.
Upper Coal Measures: Kansas City, Missouri.
1890. *Ulocrinus buttsi*. Anon., The Naturalist (Kansas City), vol. 4, No. 10, fig.
Coal Measures: Kansas City, Missouri.
1894. *Cromyocrinus buttsi*. Keyes, Mo. Geol. Surv., vol. 4, p. 216.
Upper Coal Measures: Kansas City, Missouri.

Ulocrinus kansasensis Miller and Gurley.

1890. *Ulocrinus kansasensis*. Miller and Gurley, Jour. Cinn. Soc. Nat. Hist., vol.
13, p. 8, pl. 1, figs. 7-10.
Upper Coal Measures: Kansas City, Missouri.
1890. *Ulocrinus kansasensis*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 332,
pl. 1, figs. 7-10.
Upper Coal Measures: Kansas City, Missouri.
1894. *Cromyocrinus kansasensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 216, pl. 24, fig. 7.
Upper Coal Measures: Kansas City, Missouri.

Ulocrinus occidentalis Miller and Gurley.

1894. *Ulocrinus occidentalis*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 58, pl. 6, figs. 6-8.

Upper Coal Measures: Gilpin, Missouri.

Ulocrinus (species undetermined).

1890. *Ulocrinus* sp. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 370, pl. 10, figs. 9-13.

ULRICHIA Jones, 1890.**Ulrichia ? confuens** Ulrich.

1891. *Ulrichia* (?) *confuens*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 203, pl. 12, figs. 11a, b.

Chester Group: Near Grayson Springs, Kentucky.

Ulrichia emarginata Ulrich.

1891. *Ulrichia emarginata*. Ulrich, Jour. Cinn. Soc. Nat. Hist., vol. 13, p. 203, pl. 12, figs. 10a-c.

Chester Group: Near Grayson Springs, Kentucky.

(UNIO Philippson, 1788.)

(Unio petrosus Morton.)

1836. *Unio petrosus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 17.

Coal Measures: Ohio Valley.

(Unio saxulum Morton.)

1836. *Unio saxulum*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 20.

Coal Measures: Ohio Valley.

(Unio terrenus Morton.)

1836. *Unio terrenus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, fig. 19.

Coal Measures: Ohio Valley.

(Unio tumulatus Morton.)

1836. *Unio tumulatus*. Morton, Am. Jour. Sci. (1), vol. 29, p. 149, pl. 1, figs. 18, 21.

Coal Measures: Ohio Valley.

(UPHANTÆNIA Vanuxem, 1842.)**Uphantænia dawsoni** Whitfield. See *Physospongia dawsoni*.**VALVULINA** D'Orbigny, 1826.**Valvulina bulloides** Brady.

1876. *Valvulina bulloides*. Brady, Monog. Carb. and Perm. Foram., p. 89, pl. 4, figs. 12-15.

Upper Coal Measures: Southern Iowa.

Valvulina decurrens Brady.

1876. *Valvulina decurrens*. Brady, Monog. Carb. and Perm. Foram., p. 87, pl. 3, figs. 17, 18.

Upper Coal Measures: Southern Iowa and mouth of Platte River.

Valvulina palæotrochus Ehrenberg.

1876. *Valvulina palæotrochus*. Brady, Monog. Carb. and Perm. Foram., p. 83, pl. 4, figs. 1-4.

Upper Coal Measures: Southern Iowa, and mouth of Platte River.

Valvulina plicata Brady.

1876. *Valvulina plicata*. Brady, Monog. Carb. and Perm. Foram., p. 88, pl. 4, figs. 10, 11.

Upper Coal Measures: Southern Iowa.

Valvulina rudis Brady.

1876. *Valvulina rudis*. Brady, Monog. Carb. and Perm. Foram., p. 90, pl. 3, figs. 19, 20.

Upper Coal Measures: Southern Iowa.

VASOCRINUS Lyon, 1857.**Vasocrinus hexadactylus** Lyon and Casseday.

1860. *Cyathocrinus hexadactylus*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 74.

Subcarboniferous: Clear Creek, Hardin County, Kentucky; Montgomery County, Indiana.

1861. *Cyathocrinus lyoni*. Hall, Desc. New Spec. Crin., p. 5.

Keokuk L. S.

1861. *Cyathocrinus Lyoni*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 298.

Keokuk L. S.: Crawfordsville, Indiana.

1872. *Cyathocrinus Lyoni*. Hall, Photo. Plates of Crinoids, pl. 5, figs. 12, 13.

Vasocrinus macropleurus Hall.

1861. *Cyathocrinus macropleurus*. Hall, Desc. New Spec. Crin., p. 5.

Burlington L. S.

1861. *Cyathocrinus macropleurus*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 295.

Burlington L. S.: Burlington, Iowa.

WAAGENOCERAS Gemmellaro, 1888.**Waagenoceras cumminsi** White.

1889. *Ptychites cumminsi*. White, Am. Nat., vol. 23, p. 117, pl. 1, figs. 4-8.

Permian: Baylor County, Texas.

1891. *Waagenoceras cumminsi*. White, Bull. U. S. Geol. Surv., No. 77, p. 20, pl. 1, figs. 4-8.

Permian: Military Crossing of the Big Wichita, Baylor County, Texas.

(WALDHEIMA King, 1849.)**Waldheimia compacta**. See *Cryptacanthia compacta*.**WOODOCRINUS** De Koninck, 1854.**Woodocrinus æqualis** Hall.

1861. *Scaphiocrinus æqualis*. Hall, Desc. New Spec. Crin., p. 8.

Keokuk L. S.

1861. *Scaphiocrinus æqualis*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 316.

Keokuk L. S.: Crawfordsville, Indiana.

1872. *Scaphiocrinus æqualis*. Hall, Photo Plates of Crin., pl. 5, fig. 10.

1873. *Scaphiocrinus æqualis*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 494, pl. 15, fig. 6.

Keokuk Group: Crawfordsville, Indiana.

Woodocrinus arboreus Worthen.

1873. *Zeacrinus arboreus*. Worthen, Geol. Surv. Ill., vol. 5, p. 534, pl. 20, fig. 5.

St. Louis L. S.?: Near Huntsville, Alabama.

Woodocrinus asper Meek and Worthen.

1869. *Zeacrinus asper*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 150.

Upper Burlington L. S.: Burlington, Iowa.

1873. *Zeacrinus asper*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 430, pl. 1, fig. 7.

Burlington L. S.: Burlington, Iowa.

Woodocrinus asperatus Worthen.

1882. *Poteriocrinus asperatus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 12.

Upper part of geodiferous shales of Keokuk Group: 1 mile below Keokuk, Iowa.

1883. *Poteriocrinus asperatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 280, pl. 28, fig. 2.

Keokuk Group (upper part of geode bed): 1 mile below Keokuk, Iowa.

Woodocrinus bursæformis White.

1862. *Poteriocrinus bursæformis*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 10.
Lower Burlington L. S.: Burlington, Iowa.

Woodocrinus claytonensis Worthen.

1882. *Poteriocrinus claytonensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 18.

Warsaw Beds: Near Clayton, Adams County, Illinois.

1883. *Poteriocrinus Claytonensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 288, pl. 30, fig. 6.

Warsaw Beds: Near Clayton, Adams County, Illinois.

Woodocrinus concinnus Meek and Worthen.

1870. *Poteriocrinus (Zeacrinus?) concinnus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 26.

Keokuk Group: Crawfordsville, Indiana.

1873. *Poteriocrinites (Zeacrinus?) concinnus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 490, pl. 14, fig. 3.

Keokuk Group: Crawfordsville, Indiana.

Woodocrinus coxanus Worthen.

1882. *Zeacrinus coxanus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 27.
Upper Keokuk L. S.: Hamilton, Illinois.

1883. *Zeacrinus Coxanus*. Worthen, Geol. Surv. Ill., vol. 7, p. 302, pl. 28, fig. 1.
Keokuk L. S.: Hamilton, Illinois.

Woodocrinus elegans Hall.

1858. *Zeacrinus elegans*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 547, pl. 9, figs. 1, 2.
Burlington L. S.: Burlington, Iowa.

1894. *Woodocrinus elegans*. Keyes, Mo. Geol. Surv., vol. 4, p. 214, pl. 26, fig. 5.
Lower Burlington L. S.: Louisiana, Missouri.

Woodocrinus liliiformis Meek and Worthen.

1861. *Poteriocrinus carinatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 139.

Burlington L. S.: Burlington, Iowa.

1868. *Poteriocrinus carinatus*. Meek and Worthen, Geol. Surv. Ill., vol. 3, p. 486, pl. 17, fig. 1.

Burlington Group: Burlington, Iowa.

Woodocrinus merope Hall.

1864. *Zeacrinus merope*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 60.
Waverly Group: Richfield, Ohio.

1875. *Zeacrinus merope*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 178, pl. 12, fig. 18.

Waverly Group: Richfield, Ohio.

Woodocrinus paternus Hall.

1864. *Zeacrinus paternus*. Hall, 17th Rep. N. Y. State Cab. Nat. Hist., p. 59.
Waverly Group: Richfield, Ohio.

1875. *Zeacrinus paternus*. Hall and Whitfield, Pal. Ohio, vol. 2, p. 177, pl. 12, fig. 17.

Waverly Group: Richfield, Ohio.

Woodocrinus perangulatus White.

1862. *Zeacrinus perangulatus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 11.
Upper Burlington, L. S.: Burlington, Iowa.

Woodocrinus planobrachiatus Meek and Worthen.

1860. *Zeacrinus planobrachiatus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 391.
Keokuk L. S.: Monroe County, Illinois.
1866. *Zeacrinus planobrachiatus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 240, pl. 18, fig. 5.
Keokuk L. S.: South line of Monroe County, Illinois.

Woodocrinus pocillum Miller.

1891. *Zeacrinus pocillum*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 28, pl. 4, figs. 1, 2.
Keokuk Group: Boonville, Missouri.
1894. *Woodocrinus pocillum*. Keyes, Mo. Geol. Surv., vol. 4, p. 214.
Keokuk L. S.: Boonville, Missouri.

Woodocrinus ramosus Hall.

1858. *Zeacrinus ramosus*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 548, pl. 9, fig. 3.
Burlington L. S.: Burlington, Iowa.

Woodocrinus richfieldensis Worthen.

1882. *Poteriocrinus richfieldensis*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 15.
Shaly S. S. of Kinderhook Group: Near Richfield, Ohio.
1883. *Poteriocrinus Richfieldensis*. Worthen, Geol. Surv. Ill., vol. 7, p. 285, pl. 30, fig. 5.
Kinderhook Group: Near Richfield, Ohio.

Woodocrinus scobina Meek and Worthen.

1869. *Zeacrinus scobina*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 149.
Upper Burlington L. S.: Burlington, Iowa.
1873. *Zeacrinus scobina*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 426, pl. 1, fig. 2.
Burlington L. S.: Burlington, Iowa.

Woodocrinus serratus Meek and Worthen.

1869. *Zeacrinus serratus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 151.
Burlington L. S.: Burlington, Iowa.
1873. *Zeacrinus serratus*. Meek and Worthen, Geol. Surv. Ill., vol. 5, p. 428, pl. 1, fig. 6.
Burlington L. S.: Burlington, Iowa.

Woodocrinus tentaculatus Worthen.

1882. *Poteriocrinus tenuidactylus*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 10.
Upper shales of geode bed, Keokuk Group: 1 mile below Keokuk, Iowa.
1883. *Poteriocrinus tentaculatus*. Worthen, Geol. Surv. Ill., vol. 7, p. 277, pl. 28, fig. 11.
Keokuk Group (upper shales of geode bed): 1 mile below Keokuk, Iowa.

Woodocrinus troostanus Meek and Worthen.

1860. *Zeacrinus Troostanus*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 390.
Burlington L. S.: Cedar Creek, Warren County, Illinois.
1861. *Zeacrinus scoparius*. Hall, Desc. New Spec. Crin., p. 8.
Burlington L. S.
1861. *Zeacrinus scoparius*. Hall, Jour. Bost. Soc. Nat. Hist., vol. 7, p. 305.
Burlington L. S.: Burlington, Iowa.

Woodocrinus troostanus Meek and Worthen—Continued.

1862. *Zeacrinus sacculus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 12.
Upper Burlington L. S.: Burlington, Iowa.
1862. *Zeacrinus sacculus* var. *concinus*. White, Proc. Bost. Soc. Nat. Hist., vol. 9,
p. 13.
Upper Burlington L. S.: Burlington, Iowa.
1866. *Zeacrinus Troostanus*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 186,
pl. 16, fig. 2.
Burlington L. S.: Burlington, Iowa.
1893. *Zeacrinus scoparius*. Whitfield, Mem. Am. Mus. Nat. Hist., vol. 1, p. 34, pl. 3,
figs. 19, 20.
Burlington L. S.: Burlington, Iowa.

WORTHENOPORA Ulrich, 1890.**Worthenopora spatulata Prout.**

1859. *Flustra spatulata*. Prout, Trans. St. Louis Acad. Sci., vol. 1, p. 446, pl. 17,
figs. 2-2c.
Second Archimedes L. S.: Barrett's Station, St. Louis County, Missouri.
1890. *Worthenopora spatulata*. Ulrich, Geol. Surv. Ill., vol. 8, p. 670, pl. 68,
figs. 2, 2a.
Warsaw beds: Warsaw, Illinois; Barrett's Station, Missouri.
1894. *Worthenopora spatulata*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.
St. Louis L. S.: Barrett Station, Missouri.

Worthenopora spinosa Ulrich.

1890. *Worthenopora spinosa*. Ulrich, Geol. Surv. Ill., vol. 8, p. 669, pl. 68, figs. 1-1g.
Keokuk Group: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport,
Iowa.
Warsaw beds: Warsaw, Illinois.
1894. *Worthenopora spinosa*. Keyes, Mo. Geol. Surv., vol. 5, p. 36.
Keokuk L. S.: Keokuk, Iowa.

XYLOBIUS Dawson, 1860.**Xylobius dawsoni Scudder.**

1868. *Xylobius dawsoni*. Scudder, Dawson's Acad. Geol., p. 496.
Carboniferous: Nova Scotia.
1873. *Xylobius Dawsoni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 235.
Carboniferous: Nova Scotia.
1878. *Xylobius Dawsoni*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, fig. 4.
Carboniferous: Joggins, Nova Scotia.
1878. *Xylobius Dawsoni*. Dawson, Supp. to Acad. Geol., p. 56, fig. 11d.
Carboniferous: Nova Scotia.
1890. *Xylobius Dawsoni*. Scudder, Foss. Insc. N. A., vol. 1, p. 25; fig. 4, p. 31.
Carboniferous: Joggins, Nova Scotia.

Xylobius fractus Scudder.

1868. *Xylobius fractus*. Scudder, Dawson's Acad. Geol., p. 496.
Carboniferous: Nova Scotia.
1873. *Xylobius fractus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 234.
Carboniferous: Nova Scotia.
1878. *Xylobius fractus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, fig. 3.
Carboniferous: Joggins, Nova Scotia.
1878. *Xylobius fractus*. Dawson, Supp. to Acad. Geol., p. 56, fig. 11c.
Carboniferous: Nova Scotia.
1890. *Xylobius fractus*. Scudder, Foss. Insc. N. A., vol. 1, p. 24; fig. 3, p. 31.
Carboniferous: Joggins, Nova Scotia.

Xylobius frus. ulentus Scudder.

1890. *Xylobius frustulentus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 438, pl. 37, figs. 4, 6.

Carboniferous: Mazon Creek, Illinois.

1890. *Xylobius frustulentus*. Scudder, Foss. Insc. N. A., vol. 1, p. 414, pl. 29, figs. 4, 6.

Carboniferous: Mazon Creek, Illinois.

Xylobius mazonus Scudder.

1890. *Xylobius mazonus*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 4, p. 439, pl. 37, figs. 7-11.

Carboniferous: Mazon Creek, Illinois.

1890. *Xylobius mazonus*. Scudder, Foss. Insc. N. A., vol. 1, p. 415, pl. 29, figs. 7-11.

Carboniferous: Mazon Creek, Illinois.

Xylobius sigillariae Dawson.

1860. *Xylobius Sigillariae*. Dawson, Quart. Jour. Geol. Soc. Lond., vol. 16, p. 271, figs. 4-9.

Coal Formation: South Joggins, Nova Scotia.

- * 1863. *Xylobius Sigillariae*. Dawson, Can. Nat. and Geol., vol. 8, p. 280, pl. 6, figs. 57-61.

Coal Formation: South Joggins, Nova Scotia.

1868. *Xylobius sigillariae*. Scudder, Am. Nat., vol. 1, p. 630, pl. 16, fig. 4.

Coal Measures: Nova Scotia.

1868. *Xylobius Sigillariae*. Dawson, Acad. Geol., p. 385, figs. 151a-c.

Coal Measures: South Joggins, Nova Scotia.

1873. *Xylobius sigillariae*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, pp. 232.

Carboniferous: Nova Scotia.

1878. *Xylobius sigillariae*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, fig. 1.

Carboniferous: Nova Scotia.

1890. *Xylobius sigillariae*. Scudder, Foss. Insc. N. A., vol. 1, p. 22; fig. 1, p. 31.

Carboniferous: Nova Scotia.

Xylobius similis Scudder.

1868. *Xylobius similis*. Scudder, Dawson's Acad. Geol., p. 496.

Carboniferous: Nova Scotia.

1873. *Xylobius similis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 233.

Carboniferous: Nova Scotia.

1878. *Xylobius similis*. Scudder, Mem. Bost. Soc. Nat. Hist., vol. 2, p. 561, fig. 2.

Carboniferous: Joggins, Nova Scotia.

1878. *Xylobius similis*. Dawson, Supp. to Acad. Geol., p. 56, fig. 11b.

Carboniferous: Nova Scotia.

1890. *Xylobius similis*. Scudder, Foss. Insc. N. A., vol. 1, p. 23; fig. 2, p. 31.

Carboniferous: Joggins, Nova Scotia.

YOLDIA Muller, 1842.**Yoldia carbonaria** Meek.

- * 1871. *Yoldia (Palwoneilo?) carbonaria*. Meek, Rep. Regents Univ. W. Va.

Coal Measures: Monongahela County, West Virginia.

1875. *Yoldia (Palwoneilo?) carbonaria*. Meek, Pal. Ohio, vol. 2, p. 336, pl. 19, fig. 5.

Coal Measures: Monongahela County, West Virginia.

Yoldia knoxensis McChesney.

1860. *Leda polita*. McChesney, Desc. New Pal. Foss., p. 53.

Coal Measures: Dr. E. Hall's Mill, Pope Creek, Knox County, Illinois.
(Name preoccupied.)

1865. *Leda knoxensis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 9 a-c.

***Yoldia knoxensis* McChesney—Continued.**

1868. *Yoldia knoxensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 39, pl. 2, figs. 9a-c.

Coal Measures: Pope Creek, Knox County, Illinois.

***Yoldia levistriata* Meek and Worthen.**

1860. *Leda (Yoldia?) levistriata*. Meek and Worthen, Proc. Acad. Nat. Sci. Phil., p. 457.

St. Louis, L. S.: Waterloo, Monroe County, Illinois.

1866. *Yoldia? levistriata*. Meek and Worthen, Geol. Surv. Ill., vol. 2, p. 282, pl. 20, figs. 7a, b.

St. Louis Group: Waterloo, Monroe County, Illinois.

***Yoldia oweni* McChesney.**

1860. *Leda oweni*. McChesney, Desc. New Pal. Foss., p. 52.

Coal Measures: Mouth of Rush Creek, 5 miles below New Harmony, Indiana.

1865. *Leda oweni*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 10 a-c.

1868. *Yoldia? Oweni*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 38, pl. 2, figs. 10a-c.

Coal Measures: Mouth of Rush Creek, 5 miles below New Harmony, Indiana.

***Yoldia rushensis* McChesney.**

1860. *Leda gibbosa*. McChesney, Desc. New Pal. Foss., p. 53.

Coal Measures: On Wabash River, 5 miles below New Harmony, Indiana. (Name preoccupied.)

1865. *Leda rushensis*. McChesney, Ill. New Spec. Foss., pl. 2, figs. 13 a-b.

1868. *Yoldia rushensis*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 38, pl. 2, figs. 13a-c.

Coal Measures: On Wabash River, 5 miles below New Harmony, Indiana.

***Yoldia stevensoni* Meek.**

- *1871. *Yoldia Stevensoni*. Meek, Rep. Regents Univ. W. Va.

Coal Measures: Monongahela County, West Virginia.

1875. *Yoldia Stevensoni*. Meek, Pal. Ohio, vol. 2, p. 335, pl. 19, figs. 4a, b.

Coal Measures: Monongahela County, West Virginia.

***Yoldia subscitula* Meek and Hayden.**

1858. *Leda subscitula*. Meek and Hayden, Trans. Albany Inst., vol. 4, p. 79.

Permian: Kansas.

1864. *Yoldia? subscitula*. Meek and Hayden, Pal. Up. Mo., p. 60, pl. 2, figs. 4a, b.

Permian: Near Mouth of Smoky Hill Fork of Kansas River and on Cottonwood Creek, Kansas.

1866. *Nucula (Leda) subscitula*. Geinitz, Carb. und Dyas in Nebr., p. 22, tab. 1, fig. 35.

Nebraska City, Nebraska.

1872. *Yoldia subscitula?* Meek, U. S. Geol. Surv. Nebr., p. 205, pl. 10, fig. 10.

Upper Coal Measures: Nebraska City, Nebraska.

1891. *Yoldia? subscitula*. White, Bull. U. S. Geol. Surv., No. 77, p. 27, pl. 4, fig. 4.

Permian: Goodwin Creek, Baylor County, Texas.

1894. *Yoldia subscitula*. Keyes, Mo. Geol. Surv., vol. 5, p. 123.

Upper Coal Measures: Kansas City, Missouri.

ZAPHRENTIS Rafinesque, 1820.***Zaphrentis acuta* White and Whitfield.**

1862. *Zaphrentis acutus*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 306.

Chemung Group: Burlington, Iowa.

Zaphrentis acuta White and Whitfield—Continued.

1865. *Zaphrentis acutus?* Winchell, Proc. Acad. Nat. Sci. Phil., p. 111.
Lithographic L. S.: Clarksville, Missouri.
1894. *Zaphrentis acuta*. Keyes, Mo. Geol. Surv., vol. 4, p. 109, pl. 13, fig. 4.
Kinderhook L. S.: Clarksville and Louisiana, Missouri.

Zaphrentis calcariformis Hall.

1882. *Zaphrentis calcariformis*. Hall, 12th Rep. Geol. Surv. Ind., p. 293, pl. 21, figs. 10, 11.
Corniferous L. S.: Falls of the Ohio.
1884. *Zaphrentis calcariformis*. Hall, 35th Rep. N. Y. State Mus. Nat. Hist., p. 437.
Corniferous L. S.: Falls of the Ohio.
1890. *Zaphrentis calcariformis*. Worthen, Geol. Surv. Ill., vol. 8, p. 74, pl. 10, figs. 2, 2a.
Warsaw L. S.: Colesburg, Kentucky.

Zaphrentis calceola White and Whitfield.

1862. *Lophophyllum calceola*. White and Whitfield, Proc. Bost. Soc. Nat. Hist., vol. 8, p. 305.
Chemung Group: Burlington, Iowa.
1880. *Zaphrentis calceola*. White, Cont. to Inv. Pal., No. 8, p. 156, pl. 39, figs. 6a-d.
Top of Chouteau L. S. and base of Burlington L. S.: Sedalia, Missouri.
1889. *Zaphrentis calceola*. Rowley, Am. Geol., vol. 3, p. 275.
Upper Chouteau L. S.: Four miles east of Curryville, Missouri.
Lower Burlington L. S.: Louisiana, Missouri.
Upper Burlington L. S.: Two miles north of Curryville, Missouri.
1894. *Zaphrentis calceola*. Keyes, Mo. Geol. Surv., vol. 4, p. 110.
Kinderhook L. S.: Sedalia, Clarksville, Louisiana, and Hannibal, Missouri;
Burlington, Iowa.

Zaphrentis calyculus Miller.

1891. *Zaphrentis calyculus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 10, pl. 1, figs. 13, 14.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Zaphrentis calyculus*. Miller, 17th Rep. Geol. Surv. Ind., p. 620, pl. 1, figs. 13, 14.
Chouteau L. S.: Near Sedalia, Missouri.

Zaphrentis cannonensis Winchell.

1869. *Zaphrentis Cannonensis*. Winchell, Safford's Geol. Tenn., p. 442.
Immediately above Black Shale: Manchester, Cannon County, Tennessee.

Zaphrentis carinatus Worthen.

1890. *Zaphrentis carinatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 75, pl. 10, figs. 3, 3a.
Keokuk or St. Louis L. S.: Bentonsport, Iowa.

Zaphrentis casedayi Milne-Edwards.

1860. *Zaphrentis Casedayi*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 341, pl. G1, fig. 2.
Carboniferous: Spergen Hill, Indiana.

Zaphrentis centralis Milne-Edwards and Haime.

1851. *Zaphrentis centralis*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 328, pl. 3, fig. 6.
Carboniferous: Hills near Louisville, Kentucky.
1860. *Zaphrentis centralis*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 336.
Carboniferous: Near Louisville, Kentucky.
1890. *Zaphrentis centralis*. Worthen, Geol. Surv. Ill., vol. 8, p. 72, pl. 9, figs. 1, 1a; pl. 10, figs. 13, 13a.
Keokuk L. S.: Warsaw and near Plymouth, Illinois.

Zaphrentis centralis Milne-Edwards and Haime—Continued.

1894. *Zaphrentis centralis*. Keyes, Mo. Geol. Surv., vol. 4, p. 112.
 Burlington L. S.: Louisiana, Hannibal, Helton, Ash Grove, Springfield, Sedalia, and Ste. Genevieve, Missouri.
 Keokuk L. S.: Lagrange and St. Francisville, Missouri; Keokuk and Bonaparte, Iowa; Warsaw, Illinois.

Zaphrentis chesterensis Worthen.

1890. *Zaphrentis chesterensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 73, pl. 9, figs. 3, 3a.
 Chester L. S.: Monroe and Randolph counties, Illinois.
 1894. *Zaphrentis chesterensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 115.
 Kaskaskia L. S.: Ste. Genevieve, Missouri.

Zaphrentis chouteauensis Miller.

1891. *Zaphrentis chouteauensis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 10, pl. 1, figs. 11, 12.
 Chouteau L. S.: Near Sedalia, Missouri.
 1892. *Zaphrentis chouteauensis*. Miller, 17th Rep. Geol. Surv. Ind., p. 620, pl. 1, figs. 11, 12.
 Chouteau L. S.: Near Sedalia, Missouri.
 1894. *Zaphrentis chouteauensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 112.
 Chouteau L. S.: Sedalia, Missouri.

Zaphrentis cliffordana Milne-Edwards and Haime.

1851. *Zaphrentis cliffordana*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 329, pl. 3, fig. 5.
 Carboniferous: Buttonmould Knobs, near Louisville; Mammoth Cave and Grayson County, Kentucky.
 1860. *Zaphrentis Cliffordana*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 337.
 Carboniferous: Kentucky.
 1890. *Zaphrentis cliffordana*. Worthen, Geol. Surv. Ill., vol. 8, p. 75, pl. 10, figs. 1, 1b.
 Kinderhook Group: Monroe County, Illinois.
 1891. *Zaphrentis Cliffordana*. Whitfield, Ann. N. Y. Acad. Sci., vol. 5, p. 576, pl. 13, figs. 1-3.
 Maxville L. S.: Maxville and Newtonville, Ohio.
 1895. *Zaphrentis Cliffordana*. Whitfield, Geol. Surv. Ohio, vol. 7, p. 465, pl. 9, figs. 1-3.
 Maxville L. S.: Maxville and Newtonville, Ohio.

Zaphrentis compressa Milne-Edwards.

1860. *Zaphrentis compressa*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 342, pl. G1, figs. 3, 4.
 Carboniferous: Spergen Hill, Indiana.

Zaphrentis cylindraceus Worthen.

1890. *Zaphrentis cylindraceus*. Worthen, Geol. Surv. Ill., vol. 8, p. 78, pl. 9, figs. 5, 5a.
 Chester L. S.: Chester, Illinois.
 1894. *Zaphrentis cylindracea*. Keyes, Mo. Geol. Surv., vol. 4, p. 111, pl. 13, fig. 5.
 Kaskaskia L. S.: Ste. Genevieve, Missouri; Chester, Illinois.

Zaphrentis cylindrica Milne-Edwards and Haime.

1858. *Zaphrentis cylindrica*. Marcou, Geol. N. A., p. 53, pl. 8, fig. 8.
 Mountain Limestone: Sierre de Sandia and Tigras, New Mexico.

Zaphrentis dalei Milne-Edwards and Haime.

1851. *Zaphrentis dalii*. Milne-Edwards and Haime, Monog. des Polyp. Foss., p. 329.
 Carboniferous: Warsaw, Illinois.

Zaphrentis dalei Milne-Edwards and Haime—Continued.

1852. *Cyathophyllum (fungites?)*. Owen, Geol. Rep. Wis., Iowa., and Minn., tab. 4, fig. 4.
Carboniferous L. S.: Keokuk Rapids of the Mississippi.
1858. *Zaphrentis spinulifera*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 650, pl. 22, figs. 1a, b.
Warsaw L. S.: Warsaw, Illinois.
1860. *Zaphrentis Dalii*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 337.
Carboniferous: Illinois.
1873. *Zaphrentis spinulifera*. White, Am. Jour. Sci. (3), vol. 5, p. 72.
St. Louis L. S.: Marion County, Iowa.
1890. *Zaphrentis dalei*. Worthen, Geol. Surv. Ill., vol. 8, p. 71, pl. 10, figs. 12, 12a.
Warsaw L. S.: Warsaw, Illinois.
1894. *Zaphrentis dalei*. Keyes, Mo. Geol. Surv., vol. 4, p. 113, pl. 13, fig. 12.
Keokuk L. S. and Shale: St. Francisville, Boonville, and Canton, Missouri.
Burlington L. S.: Hannibal, Louisiana, and Springfield, Missouri.

Zaphrentis declinis Miller.

1891. *Zaphrentis declinis*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 12, pl. 1, figs. 25, 26.
Keokuk Group: New Providence, Indiana.
1892. *Zaphrentis declinis*. Miller, 17th Rep. Geol. Surv. Ind., p. 622, pl. 1, figs. 25, 26.
Keokuk Group: New Providence, Indiana.

Zaphrentis elliptica White.

1862. *Zaphrentis elliptica*. White, Proc. Bost. Soc. Nat. Hist., vol. 9, p. 31.
Lower Burlington L. S.: Burlington, Iowa.
1880. *Zaphrentis elliptica*. White, Cont. to Inv. Pal. No. 8, p. 155, pl. 39, figs. 4a, b.
Burlington L. S.: Burlington, Iowa.
1894. *Zaphrentis elliptica*. Keyes, Mo. Geol. Surv., vol. 4, p. 111, pl. 13, figs. 6a, b.
Burlington L. S.: Louisiana, Missouri; Kinderhook, Illinois; Bonaparte, Iowa.

Zaphrentis excentrica Meek.

1873. *Zaphrentis excentrica*. Meek, U. S. Geol. Surv. Mont., Idaho, Wyo., and Utah, p. 468.
Carboniferous: "Old Baldy," near Virginia City, Montana.
1877. *Zaphrentis excentrica*. Meek, U. S. Geol. Surv. Expl. 40 Par., vol. 4, p. 52, pl. 4, figs. 1-1d.
Carboniferous L. S.: Boxelder Peak, Wasatch range, Utah.
1877. *Zaphrentis excentrica*. White, U. S. Geog. Surv. W. 100 Merid., vol. 4, p. 101, pl. 6, fig. 3a.
Carboniferous: Fossil Hill, White Pine County, Nevada.

Zaphrentis exigua Miller.

1891. *Zaphrentis exigua*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 11, pl. 1, figs. 19, 20.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Zaphrentis exigua*. Miller, 17th Rep. Geol. Surv. Ind., p. 621, pl. 1, figs. 19, 20.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Zaphrentis exigua*. Keyes, Mo. Geol. Surv., vol. 4, p. 112.
Chouteau L. S.: Sedalia, Missouri.

Zaphrentis gibsoni White.

1884. *Zaphrentis Gibsoni*. White, 13th Rep. Geol. Surv. Ind., p. 117, pl. 23, figs. 4, 5.
Coal Measures: Vermilion County, Indiana.

Zaphrentis glans. See *Hadrophyllum glans*.

Zaphrentis ida Winchell.

1865. *Zaphrentis Ida*. Winchell, Proc. Acad. Nat. Sci. Phil., p. 111.
Goniatite L. S.: Rockford, Indiana.
1869. *Zaphrentis Ida*? Winchell, Safford's Geol. Tenn., p. 444.
Shales just above Black Shale: Hickman and Maury counties, Tennessee.
1870. *Zaphrentis Ida*? Winchell, Proc. Am. Phil. Soc., vol. 11, p. 247.
Waverly Group: Hickman County, Tennessee; Sciotoville, Ohio.

Zaphrentis illinoisensis Worthen.

1890. *Zaphrentis illinoiensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 77, pl. 9,
figs. 4, 4a.
Keokuk L. S.: Warsaw and near Plymouth, Illinois.
1894. *Zaphrentis illinoisensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 113.
Keokuk L. S.: Wayland, Missouri; Warsaw, Illinois; Keokuk and Bonaparte, Iowa.

Zaphrentis lanceolata Worthen.

1890. *Zaphrentis lanceolatus*. Worthen, Geol. Surv. Ill., vol. 8, p. 76, pl. 10,
figs. 4, 4a.
Warsaw L. S.: Spergen Hill, Indiana; Colesburg, Kentucky.

Zaphrentis minas Dawson.

1868. *Zaphrentis Minas*. Dawson, Acad. Geol., p. 286, fig. 84a.
Carboniferous L. S.: Kennetcook, Nova Scotia.

Zaphrentis multilamella Hall.

1852. *Faprentis? multilamella*. Hall. Stansb. Exped. Gt. Salt Lake, p. 408, pl. 1,
fig. 2.
Carboniferous: Cloth Cap and Flat Rock, Great Salt Lake, Utah.
1877. *Zaphrentis*? (*Clisiophyllum*?) *multilamella*. Meek, U. S. Geol. Expl. 40 Par.,
vol. 4, p. 53, pl. 6, figs. 4-4b.
Carboniferous L. S.: Strong's Knob, on an island in Great Salt Lake, Utah

Zaphrentis ovidos Salter.

1855. *Zaphrentis Ovidos*. Salter, Belcher's "Last of the Arctic Voyages," p. 382,
pl. 36, fig. 5.
Carboniferous: Depot Point.

Zaphrentis parasitica Worthen.

1890. *Zaphrentis parasitica*. Worthen, Geol. Surv. Ill., vol. 8, p. 79, pl. 10, figs.
5, 5a.
Kinderhook Group: Clarksville, Missouri.

Zaphrentis pellaensis Worthen.

1890. *Zaphrentis pellaensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 74, pl. 9, figs.
6, 6a; pl. 10, figs. 11, 11a.
St. Louis Shales: Near Pella, Iowa.

Zaphrentis prona Milne-Edwards.

1860. *Zaphrentis prona*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 342.
Carboniferous: Spergen Hill, Indiana.

Zaphrentis reversa Worthen.

1890. *Zaphrentis reversa*. Worthen, Geol. Surv. Ill., vol. 8, p. 78.
Warsaw L. S.: Near Columbia, Monroe County, Illinois.

Zaphrentis spergenensis Worthen.

1890. *Zaphrentis spergenensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 77, pl. 10,
figs. 8, 8a.
Warsaw L. S.: Spergen Hill, Indiana; Warsaw, Illinois.
1894. *Zaphrentis spergenensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 115.
Keokuk L. S.: Wayland and Booneville, Missouri; Keokuk, Iowa; Warsaw,
Illinois.

Zaphrentis spinulifera. See *Zaphrentis dalei*.

***Zaphrentis spinulosa* Milne-Edwards and Haime.**

1851. *Zaphrentis spinulosa*. Milne-Edwards and Haime, Monog. des Blyp. Foss., p. 334, pl. 5, figs. 7, 7a.
Carboniferous: Chester and Kaskaskia, Illinois.
1860. *Zaphrentis spinulosa*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 340, pl. 5, figs. 7, 7a.
Carboniferous: Illinois.
1876. *Zaphrentis spinulosa* (?) Rominger, Geol. Surv. Mich., vol. 3, pt. 2, p. 152, pl. 54, 5 figures.
Carboniferous L. S.: Saginaw Bay, Point aux Grees and on Charity Islands, Michigan.
1890. *Zaphrentis spinulosa*. Worthen, Geol. Surv. Ill., vol. 8, p. 73, pl. 10, figs. 6, 6a.
Chester L. S.: Chester, Illinois.
1894. *Zaphrentis spinulosa*. Keyes, Mo. Geol. Surv., vol. 4, p. 114.
Keokuk L. S.: Curryville, St. Francisville, and Boonville, Missouri; Keokuk, Iowa.
St. Louis L. S.: Clark County and St. Louis County, Missouri; Fort Dodge, Pella, Fairfield, and Mount Pleasant, Iowa.
Kaskaskia L. S.: Ste. Genevieve, Missouri.

***Zaphrentis stansburyi* Hall.**

1852. *Zaphrentis stansburyi*. Hall, Stansb. Exped. Gt. Salt Lake, p. 408, pl. 1, figs. 3a, b.
Carboniferous: Stansbury's Island, Cloth Cap, and Flat Rock Point, Great Salt Lake, Utah.
1858. *Zaphrentis stansburyi*. Marcon, Geol. N. A., p. 52, pl. 7, fig. 7.
Mountain L. S.: Tigras, Pecos Village, and Sierra de Sandia, New Mexico.
1860. *Zaphrentis Stansburyi*. Milne-Edwards, Hist. Nat. Corr., vol. 3, p. 347.
Carboniferous: Great Salt Lake.
1877. *Zaphrentis ? Stansburyi ?* Meek, U. S. Geol. Expl. 40 Par., vol. 4, p. 54, pl. 6, figs. 3-3c.
Carboniferous L. S.: Boxelder and Logan's peaks, Wasatch range. Divide between Ross Fork and Lincoln Valley, Idaho.

***Zaphrentis tantilla* Miller.**

1891. *Zaphrentis tantilla*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 11, pl. 1, figs. 23, 24.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Zaphrentis tantilla*. Miller, 17th Rep. Geol. Surv. Ind., p. 621, pl. 1, figs. 23, 24.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Zaphrentis tantilla*. Keyes, Mo. Geol. Surv., vol. 4, p. 111.
Kinderhook L. S.: Sedalia, Missouri.
Burlington L. S.: Louisiana and Hannibal, Missouri.

***Zaphrentis tenella* Miller.**

1891. *Zaphrentis tenella*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 11, pl. 1, figs. 17, 18.
Chouteau L. S.: Near Sedalia, Missouri.
1892. *Zaphrentis tenella*. Miller, 17th Rep. Geol. Surv. Ind., p. 621, pl. 1, figs. 17, 18.
Chouteau L. S.: Near Sedalia, Missouri.
1894. *Zaphrentis tenella*. Keyes, Mo. Geol. Surv., vol. 4, p. 111, pl. 13, fig. 10.
Kinderhook L. S.: Sedalia and Louisiana, Missouri.

***Zaphrentis ulrichi* Worthen.**

1890. *Zaphrentis ulrichi*. Worthen, Geol. Surv. Ill., vol. 8, p. 76, pl. 10, figs. 10, 10a.
Warsaw L. S.: Colesburg, Kentucky.

Zaphrentis varsoviensis Worthen.

1890. *Zaphrentis varsoviensis*. Worthen, Geol. Surv. Ill., vol. 8, p. 78, pl. 10, figs. 9, 9a.
 Keokuk L. S.: Warsaw, Hamilton, and Nauvoo, Illinois; Keokuk, Iowa.
 1894. *Zaphrentis varsavensis*. Keyes, Mo. Geol. Surv., vol. 4, p. 114.
 Keokuk L. S.: La Grange, Missouri; Warsaw, Ill.

Zaphrentis (undetermined species).

1877. *Zaphrentis* — (?) Whiteaves, Geol. Surv. Can. Rep. of Prog. 1875-76, p. 98.
 Devonian or Carboniferous: Fossil Point, Peace River, Canada.
 1887. *Zaphrentis* sp. Herrick, Bull. Den. Univ., vol. 2, p. 50, pl. 2, fig. 21.
 Coal Measures: Flint Ridge, Ohio.
 1888. *Zaphrentis* (?) Herrick, Bull. Den. Univ., vol. 4, pl. 8, fig. 6.
 Waverly Group: Rushville, Ohio.
 1895. *Zaphrentis*? Herrick, Geol. Surv. Ohio, vol. 7, pl. 19, fig. 6.
 Burlington or Keokuk: Rushville, Ohio.
 1897. *Zaphrentis* sp. indet. Smith, Proc. Am. Phil. Soc., vol. 35, p. 25.
 Lower Coal Measures: Crawford and Conway counties, Arkansas.

ZAPTYCHIUS Walcott, 1884.**Zaptychius carbonaria** Walcott.

1883. *Zaptychius carbonaria*. Walcott, Science, vol. 2, p. 808, fig. 1.
 Base of Carboniferous: Eureka District, Nevada.
 1884. *Zaptychius carbonaria*. Walcott, Pal. Eureka District, p. 263, fig. 7.
 Lower Carboniferous: Eureka District, Nevada.

ZEACRINUS Troost, 1850.

Zeacrinus acanthophorus. See *Hydreionocrinus acanthophorus*.

Zeacrinus arboreus. See *Woodocrinus arboreus*.

Zeacrinus armiger. See *Hydreionocrinus armiger*.

Zeacrinus asper. See *Woodocrinus asper*.

Zeacrinus bellulus Miller and Gurley.

1894. *Zeacrinus bellulus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 34, pl. 3, fig. 8.
 Kaskaskia Group: Near Shoals, Martin County, Indiana.

Zeacrinus bifurcatus McChesney.

1860. *Zeacrinus bifurcatus*. McChesney, Desc. New Pal. Foss, p. 9.
 Kaskaskia L. S.: Kaskaskia, Illinois.
 1865. *Zeacrinus bifurcatus*. McChesney, Ill. New Spec. Foss., pl. 5, fig. 3.
 1868. *Zeacrinus bifurcatus*. McChesney, Trans. Chicago Acad. Sci., vol. 1, p. 6, pl. 5, fig. 3.
 Chester L. S.: Kaskaskia, Illinois.

Zeacrinus blairi Miller and Gurley.

1895. *Zeacrinus blairi*. Miller and Gurley, Bull. No. 7, Ill. State Mus. Nat. Hist., p. 66, pl. 4, figs. 5, 6.

Zeacrinus cariniferus. See *Cœliocrinus cariniferus*.

Zeacrinus commaticus Miller.

1891. *Zeacrinus commaticus*. Miller, Bull. Geol. Surv. Mo., No. 4, p. 36, pl. 5, figs. 10, 11.
 Keokuk Group: Boonville, Missouri.
 1891. *Zeacrinus commaticus*. Miller, Adv. Sheets, 17th Rep. Geol. Surv. Ind., p. 44, pl. 8, fig. 8.
 Keokuk Group: Boonville, Missouri.

***Zeacrinus compactilis* Worthen.**

1873. *Zeacrinus compactilis*. Worthen, Geol. Surv. Ill., vol. 5, p. 536, pl. 21, fig. 5.
Lower Carboniferous: Cumberland County, Kentucky.

Zeacrinus coxanus. See *Woodocrinus coxanus*.

Zeacrinus crassus. See *Eupachycrinus crassus*.

***Zeacrinus cylindricus* Miller and Gurley.**

1894. *Zeacrinus cylindricus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 38, pl. 3, figs. 19-21.
Kaskaskia Group: Pulaski County, Kentucky.

Zeacrinus depressus. See *Hydreionocrinus depressus*.

Zeacrinus discus. See *Hydreionocrinus discus*.

***Zeacrinus doverensis* Miller and Gurley.**

1896. *Zeacrinus doverensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 35, pl. 2, figs. 20-22.
Kaskaskia Group: Dover Hill, Indiana.

***Zeacrinus dubius* Miller and Gurley.**

1890. *Zeacrinus dubius*. Miller and Gurley, 16th Rep. Geol. Surv. Ind., p. 361, pl. 7, figs. 7, 8.
Keokuk Group: Bono, Indiana.

***Zeacrinus durabilis* Miller and Gurley.**

1895. *Zeacrinus durabilis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 48, pl. 4, figs. 14-15.
Kaskaskia Group: Pulaski County, Kentucky.

Zeacrinus elegans. See *Woodocrinus elegans*.

***Zeacrinus faggi* Rowley and Hare.**

1891. *Zeacrinus faggi*. Rowley and Hare. The Kansas City Scientist, vol. 5, p. 103, pl. 2, fig. 20.
Upper Burlington L. S.: Spencer Creek, 2 miles north of Curryville, Missouri.

***Zeacrinus florealis* Yandell and Shumard.**

1847. *Cyathocrinus floralis*. Yandell and Shumard, Cont. to Geol. of Ky., p. 24, pl., fig. 1.
Grayson, Kentucky.

Zeacrinus formosus. See *Eupachycrinus formosus*.

***Zeacrinus grandiculus* Miller and Gurley.**

1894. *Zeacrinus grandiculus*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 32, pl. 2, figs. 31, 32.
Kaskaskia Group: Bowling Green, Kentucky.

***Zeacrinus intermedius* Hall.**

1858. *Zeacrinus intermedius*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 681, pl. 25, fig. 4.
Kaskaskia L. S.: Chester, Illinois.
1882. *Zeacrinus intermedius*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 17 (footnote).
St. Louis L. S. (not Chester, as reported by Hall).

***Zeacrinus kentuckiensis* Miller and Gurley.**

1896. *Zeacrinus kentuckiensis*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 37, pl. 2, figs. 23, 24.
Kaskaskia Group: Pulaski County, Kentucky.

***Zeacrinus keokuk* Worthen.**

1882. *Zeacrinus keokuk*. Worthen, Bull. No. 1, Ill. State Mus. Nat. Hist., p. 28.
Upper part of geodiferous shales of Keokuk Group: One mile below Keokuk, Iowa.
1883. *Zeacrinus Keokuk*. Worthen, Geol. Surv. Ill., vol. 7, p. 303, pl. 28, fig. 3.
Keokuk Group (upper part of geode bed): One mile below Keokuk, Iowa.

Zeacrinus lyra. See *Cœliocrinus lyra*.

***Zeacrinus magnoliaeformis* Owen and Norwood.**

- *1846. *Cyathocrinus magnoliaeformis*. Owen and Norwood, Researches Carb. Rocks, Kentucky.
1858. *Zeacrinus magnoliaeformis*. Hall, Geol. Iowa, vol. 1, pt. 2, pp. 544 and 684.
Kaskaskia L. S.: Tennessee.
1894. *Zeacrinus magnoliaeformis*. Keyes, Mo. Geol. Surv., vol. 4, p. 214
Kaskaskia L. S.: Chester, Illinois.

Zeacrinus maniformis. See *Eupachycrinus maniformis*.

Zeacrinus merope. See *Woodocrinus merope*.

Zeacrinus mooresi. See *Eupachycrinus mooresi*.

Zeacrinus mucrospinus. See *Hydreionocrinus mucrospinus*.

***Zeacrinus nitidus* Miller and Gurley.**

1894. *Zeacrinus nitidus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 36, pl. 6, figs. 3, 4.
Kaskaskia Group: Randolph County, Illinois.

***Zeacrinus nodosus* Wachsmuth and Springer.**

1886. *Zeacrinus nodosus*. Wachsmuth and Springer, Proc. Acad. Nat. Sci. Phil., p. 167. (Rev. Palaeocr. III, p. 243, pl. 6, fig. 9, and pl. 9, fig. 3.)
Keokuk L. S.: White's Creek Springs, Tennessee.

***Zeacrinus obesus* Miller and Gurley.**

1894. *Zeacrinus obesus*. Miller and Gurley, Bull. No. 3, Ill. State Mus. Nat. Hist., p. 35, pl. 4, figs. 6-8.
Kaskaskia Group: Flag Pond, Virginia.

***Zeacrinus ovalis* Lyon and Casseday.**

1860. *Zeacrinus ovalis*. Lyon and Casseday, Am. Jour. Sci. (2), vol. 29, p. 71.
Third L. S. of Millstone Grit Series: Grayson, Breckenridge, Edmonson, and Todd counties, Kentucky.

Zeacrinus paternus. See *Woodocrinus paternus*.

***Zeacrinus peculiaris* Miller and Gurley.**

1896. *Zeacrinus peculiaris*. Miller and Gurley, Bull. No. 8, Ill. State Mus. Nat. Hist., p. 34, pl. 2, figs. 17-19.
Kaskaskia Group: Pulaski County, Kentucky.

Zeacrinus perangulatus. See *Woodocrinus perangulatus*.

Zeacrinus pikensis. See *Scaphiocrinus pikensis*.

Zeacrinus planobrachiatus. See *Woodocrinus planobrachiatus*.

Zeacrinus pocillum. See *Woodocrinus pocillum*.

***Zeacrinus pulaskiensis* Miller and Gurley.**

1895. *Zeacrinus pulaskiensis*. Miller and Gurley, Bull. No. 6, Ill. State Mus. Nat. Hist., p. 47, pl. 4, figs. 12, 13.
Kaskaskia Group: Pulaski County, Kentucky.

Zeacrinus ramosus. See *Woodocrinus ramosus*.

Zeacrinus sacculus. See *Woodocrinus troostanus*.

Zeacrinus sacculus var. *concinuus*. See *Woodocrinus troostanus*.

Zeacrinus salemensis Miller and Gurley.

1894. *Zeacrinus salemensis*. Miller and Gurley, Bull. No. 5, Ill. State Mus. Nat. Hist., p. 37, pl. 3, fig. 17.

Keokuk Group: Salem, Indiana.

Zeacrinus scobina. See *Woodocrinus scobina*.

Zeacrinus scoparius. See *Woodocrinus troostanus*.

Zeacrinus serratus. See *Woodocrinus serratus*.

Zeacrinus spinuliferus Worthen.

1890. *Poteriocrinus spinuliferus*. Worthen, Geol. Surv. Ill., vol. 8, p. 90, pl. 17, figs. 1, 1a.

Chester L. S., Monroe County, Illinois.

Zeacrinus stimpsoni. See *Decadocrinus stimpsoni*.

Zeacrinus subtumidus. See *Eupachycrinus subtumidus*.

Zeacrinus troostanus. See *Woodocrinus troostanus*.

Zeacrinus wortheni Hall.

1858. *Zeacrinus wortheni*. Hall, Geol. Iowa, vol. 1, pt. 2, p. 683.

Kaskaskia L. S.: Chester, Illinois.

Zeacrinus (species undetermined).

1873. *Zeacrinus* (sp. undet.). Meek and Worthen, Geol. Surv. Ill., vol. 5, pl. 1, fig. 4.

Burlington Group.

ZONITES Montfort, 1810.

Zonites priscus Carpenter.

1867. *Zonites* (*Conulus*) *priscus*. Carpenter, Quart. Jour. Geol. Soc. Lond., vol. 23, p. 331, figs. a-e.

Coal Formation: South Joggins, Nova Scotia.

1868. *Zonites* (*Conulus*) *priscus*. Dawson, Acad. Geol., p. 385, figs. 150a, b.
Coal Measures: Joggins, Nova Scotia.

1880. *Zonites* (*Conulus*) *priscus*. Dawson, Am. Jour. Sci. (3), vol. 20, p. 411, figs. 10, 11, 14d.

Coal Measures: South Joggins, Nova Scotia.

1883. *Zonites priscus*. White, 3d Am. Rep. U. S. Geol. Surv., p. 453, pl. 2, figs. 11, 12.