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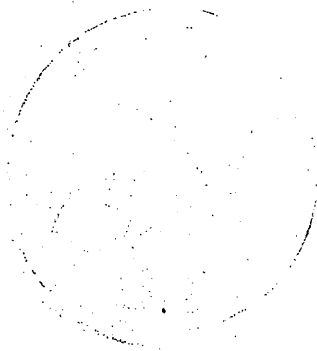
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UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

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A SYNOPSIS

OF

AMERICAN FOSSIL BRYOZOA

INCLUDING

BIBLIOGRAPHY AND SYNONYMY

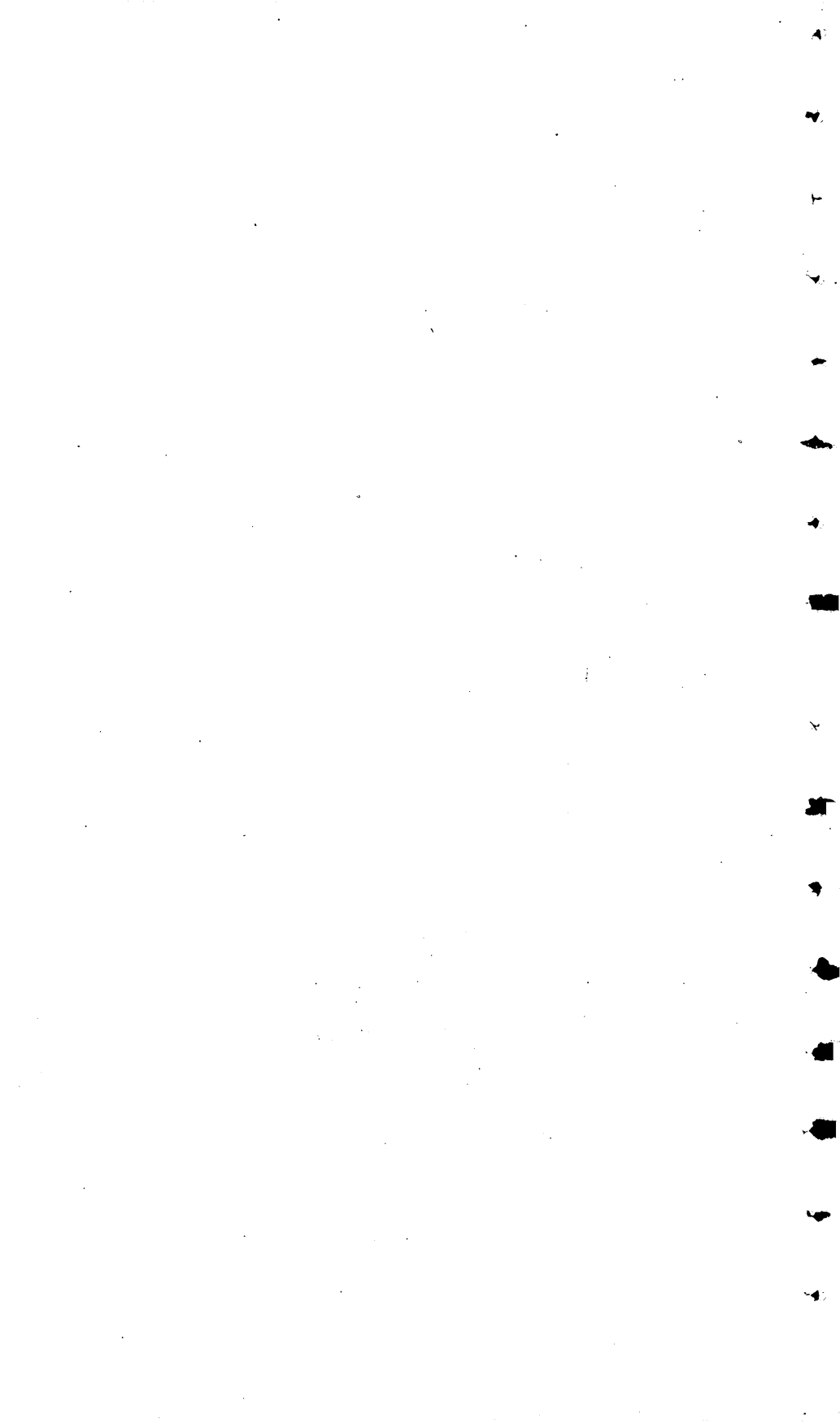
BY

JOHN M. NICKLES AND RAY S. BASSLER



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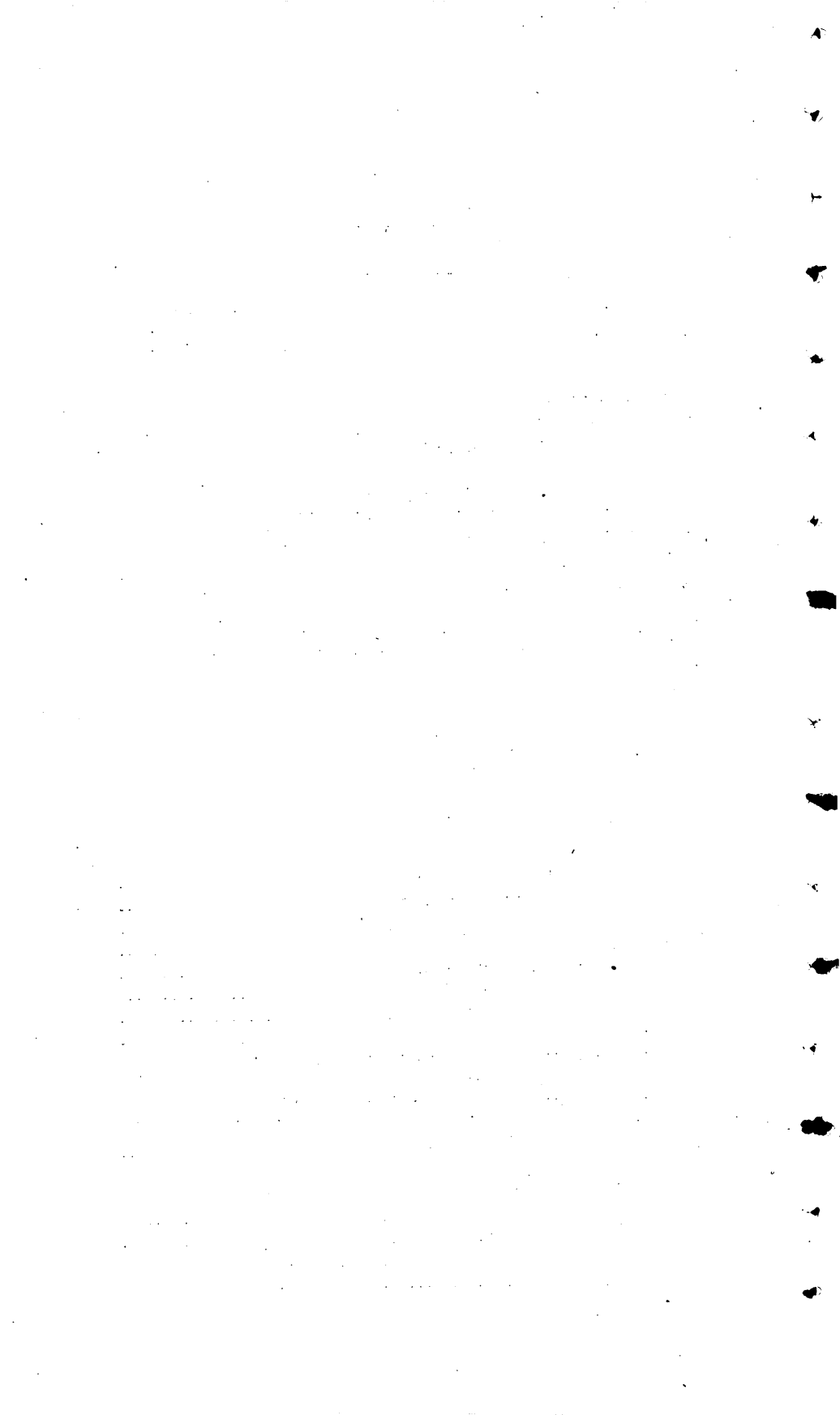
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# CONTENTS.

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	Page.
Letter of transmittal .....	7
Introduction and acknowledgments .....	9
Explanatory notes .....	11
Classification .....	12
Systematic position .....	12
History of classification .....	13
Scheme of classification of Paleozoic bryozoa .....	14
Terminology .....	17
Diagnoses of suborders, families, and genera .....	19
Alphabetic list of genera showing systematic position .....	57
Alphabetic list of invalid generic names .....	61
Distribution .....	62
Geographic .....	62
Geologic .....	65
List of localities .....	68
Table showing the occurrence of bryozoa by formations .....	73
Lists of species .....	74
Chazy .....	74
Trenton .....	74
Cincinnati .....	80
Silurian .....	85
Devonian .....	91
Mississippian .....	101
Carboniferous .....	108
Tables of genera and species .....	110
In the groups of the Trenton period .....	110
In the groups of the Cincinnati period .....	112
In the periods of Paleozoic time .....	115
General notes .....	121
Value of bryozoa in stratigraphic work .....	121
Collection and study .....	121
Making of sections .....	122
Bibliography and index .....	125
Chronological catalogue of papers containing descriptions and illustrations of American Paleozoic bryozoa .....	125
Chronological catalogue of papers containing descriptions and illustrations of American Mesozoic and Tertiary bryozoa, with lists of species described therein .....	151
Catalogue of the genera and species of American Paleozoic bryozoa, including bibliography and synonymy .....	161
Index of specific names .....	441
Index of authors and their papers .....	463
List of papers treating of bryozoa .....	468
The foregoing list classified .....	562



## LETTER OF TRANSMITTAL.

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CINCINNATI, OHIO,

*May 21, 1900.*

SIR: I have the honor to submit herewith, for publication as a bulletin of the United States Geological Survey, the manuscript of a joint work by Mr. Ray S. Bassler and myself, entitled A Synopsis of American Fossil Bryozoa, including Bibliography and Synonymy.

Very respectfully,

JOHN M. NICKLES.

HON. CHARLES D. WALCOTT,

*Director United States Geological Survey.*



# A SYNOPSIS OF AMERICAN FOSSIL BRYOZOA.

By JOHN M. NICKLES and RAY S. BASSLER.

## INTRODUCTION AND ACKNOWLEDGMENTS.

So voluminous has the literature of natural history become that the workers in any special branch, and the general student as well, feel the need of compilations showing what has been done. This need, keenly felt in our study of the fossil bryozoa, compelled us to begin such a compilation some years ago. This we now place at the service of our fellow-workers with the hope that it may lighten the labors of the systematist and open the way for an enlarged use of the bryozoa in stratigraphy.

The bryozoa are generally admitted to be one of the most difficult groups of fossils. They are often of small size and can seldom be determined by the unassisted eye. Their accurate discrimination necessitates tedious study. Few have cared to give this. Because, also, great uncertainty has prevailed as to what constitutes classificatory characters, a large amount of confusion and synonymy cumber the literature of the subject. Thus the study of the bryozoa has become doubly repellent.

The extended investigations of the structure of fossil bryozoa made by Mr. E. O. Ulrich, following in the lines pioneered by Dr. H. Alleyne Nicholson, have shown that we can not be sure of the position of any form in the scheme of classification until we have learned its internal structure by means of thin sections examined microscopically. This mode of investigation is difficult and tedious, but our studies have convinced us that a knowledge of internal characters is absolutely essential to a correct understanding of phylogeny and systematic position.

As but few authors have described the internal structure of their species, and as those who have given descriptions have not always had a clear understanding of what is essential in the appearance presented by thin sections, it is not possible to be sure of the generic placement of a large number of species. Some authors have referred species to genera to which we are certain they do not belong; but as enough has not been made known of such forms to enable us to refer them to other

genera, even doubtfully, we have left the species where placed by their authors, but have followed the generic name with two interrogation points (??).

We have deemed it best to be conservative in the matter of reducing to synonyms, and only where the author himself or some very good authority or our own investigation has justified such a course have we relegated a species to synonymy. At the same time we feel sure that future studies will show that a considerable number of species given in our catalogue as valid are synonyms of species previously described. This is especially the case with the bryozoa of the Hamilton group. These have been dealt with by a number of workers, most of whom have seemed to not concern themselves very much about what others may have been doing.

Some genera which future research may prove to be bryozoan we have excluded. Such are Aulopora, Monilopora, Vermipora, Striatopora, Michelinia, Chaetetes, Favosites, and Tetradium.

The catalogue gives a list, complete so far as we know, of the described species of bryozoa from American Paleozoic formations, arranged alphabetically under their genera, which are also arranged alphabetically for convenient reference. The bibliography of each species is given under its caption, thus enabling the student to easily trace the history of any particular form in the literature. The citations under the genus nearly always refer to a diagnosis; it has seemed to be of no value to record citations which do not contain some substantial contribution to the knowledge of the genus.

We have not been able to deal with American Mesozoic and Tertiary bryozoa in the same manner. Practically nothing has been done with these since the work of Gabb and Horn in 1862. But not much can be done yet, for the classification below the higher groups of recent and post-Paleozoic bryozoa is in a most chaotic condition. This systematization must be done by European writers, as America has but a comparatively feeble representation of post-Paleozoic bryozoa. The subject is difficult, but the researches of Smitt, Hincks, Jullien, and especially Waters, are laying a sure foundation upon which the classification of the future may be safely builded. As the best that can be done at present, we have given a list of all publications describing American Mesozoic and Tertiary bryozoa, with the species described in each.

As additional helps to the study of the bryozoa we have given a brief outline of the classification, with terminology and diagnoses of genera, families, and suborders; tables showing the distribution of genera and species geologically; and various notes and hints that we deemed might prove acceptable to the student.

One feature we have added which seems a little foreign to our purpose, but we believe it will be appreciated. It is a list of publications, as complete as we have been able to make it, treating of bryozoa.



This list will give a very fair idea of what has thus far been done for the bryozoa. For kindly help which has done much to make this list as full as it is, we have to thank Dr. Josua Lindahl, the accomplished Director of the Cincinnati Society of Natural History, and many workers abroad, more particularly Prof. Sidney F. Harmer, Mr. Arthur William Waters, Dr. Ed. Pergens, Prof. Hinrich Nitsche, Prof. E. Ehlers, Prof. F. A. Smitt, M. Gustave Dollfus, Inspector G. M. R. Levinsen, Mr. Robert Etheridge, jr., and Dr. A. Neviani.

It remains to acknowledge our very great indebtedness to Mr. E. O. Ulrich, of whose lifelong studies of the bryozoa, published and unpublished, carried on with a most noble integrity of purpose, often under most untoward circumstances, we have been freely permitted to avail ourselves.

To the Director of the United States Geological Survey, Hon. Charles D. Walcott, whose keen appreciation of all that tends to further geological and paleontological science has been many times proved, we are indebted for many favors.

#### EXPLANATORY NOTES.

It has seemed advisable to give a few brief explanatory notes.

1. In the catalogue of genera and species, valid genera and species are in black-faced type; an interrogation point following the generic name indicates that it is not certain that the species belongs to the genus under which it is placed; two interrogation points following the generic name indicate that, while we have left the species where it was referred by the author, we know that it does not belong there, but we do not know where it does belong. As a rule, we have excluded these species from the tables giving the numbers of species.

2. In giving the geologic formation we have usually adhered to commonly accepted designations, though this sometimes produces seeming ambiguity. Thus, when Trenton appears alone, followed by the locality, it denotes the group; when followed by a parenthesis including Black River or Stones River it denotes the period. Trenton in parentheses means the group. For the Trenton period Clarke and Schuchert<sup>1</sup> have proposed the name Mohawkian.

After the term Cincinnati (period) we have given the group in parentheses. This we have done because very few authors have given the group from which their species were derived. The recognition of these groups is comparatively recent.

The Lower Helderberg we have included with the Silurian in our table of formations. It is still an open question to which age it more properly belongs, the Devonian or the Silurian.

We have continued to use the name Upper Helderberg, though the name Ulsterian, lately proposed by Clarke and Schuchert,<sup>1</sup> may prove

<sup>1</sup> Science, new ser., X, 1899, pp. 874-878.

a better designation. Prof. James Hall regarded the locality at the Falls of the Ohio as of Upper Helderberg age, but we have followed Mr. E. O. Ulrich in considering this locality of Hamilton age. Future researches may prove that the Upper Helderberg and Hamilton, as now commonly understood, are to some extent synchronous.

To avoid ambiguity we have adopted the term Mississippian for the formations underlying the Coal Measures and overlying the Devonian, and have used the grouping of these formations given by Williams and Keyes, with some modifications.

3. In the diagnoses of suborders, families, and genera we thought it advisable to give the number of undescribed species known to us, as it would give a better idea of the number of bryozoa known from American Paleozoic strata. These undescribed species are in the collections of Mr. E. O. Ulrich and the authors.

4. In the list of publications preceding the catalogue of genera and species we have placed an asterisk before those which are of most importance to the student of the bryozoa. The dates we have given do not always agree with those on the title-pages. We have given the date of distribution in cases where we know this to be different from the date of publication.

### CLASSIFICATION.

#### SYSTEMATIC POSITION.

The earliest investigators of the bryozoa regarded them as plants, but by the beginning of the nineteenth century there was general agreement among naturalists as to the animal nature of these organisms, often so plant-like in appearance. For a time their systematic position remained in doubt, and they were uneasily shifted from class to class. In 1830 J. V. Thompson published his discoveries, On Polyzoa, a New Animal Discovered as an Inhabitant of some Zoophites;<sup>1</sup> whence most British authors have applied the name Polyzoa to these organisms, speedily dignified as a class. Almost simultaneously C. G. Ehrenberg<sup>2</sup> separated these organisms as a group of his Phytozoa Polypi under the name Bryozoa; which name became current among Continental authors and seems now gradually superseding Thompson's name also among British writers. For a considerable time the Bryozoa, with the Brachiopoda and Ascidia, formed the "subkingdom" Molluscoidea, but the Ascidia have been removed from this assemblage, and doubts have arisen whether the points of agreement of bryozoa and brachiopoda are of fundamental importance. The determination of the exact affinities of the bryozoa remains a subject for investigations.

<sup>1</sup> Zool. Researches, No. 5, pp. 89-102, pls. i-iii.

<sup>2</sup> Symbolæ Physicæ, seu Icones et Descriptiones Animalium Evertebratorum, 1828-1831.

## HISTORY OF CLASSIFICATION.

The first serious attempt at a classification of the bryozoa was made by D'Orbigny.<sup>1</sup> D'Orbigny's wide acquaintance with recent and fossil bryozoa has perhaps been equaled by no subsequent writer. But the system he devised was so largely artificial and burdened with so perplexing a nomenclature that it failed to gain acceptance. The labors of Nitsche, Allman, and Busk have fixed the principal groups. To Nitsche<sup>2</sup> is due the division into the two groups Ectoprocta and Entoprocta, the latter containing only the two singular genera *Pediacellina* and *Loxosoma*. Allman<sup>3</sup> formed the orders *Phylactolæmata* and *Gymnolæmata*, the latter including most of the bryozoa and all forms capable of preservation as fossils. Busk's suborders *Chilostomata*, *Cyclostomata*, and *Ctenostomata*<sup>4</sup> have been generally accepted. To these suborders Mr. Ulrich, in 1882,<sup>5</sup> added the suborder *Trepostomata*, to include, besides uncontested bryozoa, a number of forms which had been generally regarded as corals; and Mr. G. R. Vine, in 1883,<sup>6</sup> added the suborder *Cryptostomata*.

Recently Dr. J. W. Gregory<sup>7</sup> has raised these suborders to the rank of orders, and for the *Chilostomata* proposes five suborders: the *Stolonata*, with the families *Æteidæ*, *Eucratiidæ*, and *Chlidoniidæ*; the *Cellularina*, with the families *Cellulariidæ*, *Bicellulariidæ*, *Epistomiidæ*, *Catenicellidæ*, and *Bifaxariidæ*; the *Athyriata*, with the families *Farciminariidæ*, *Flustridæ*, *Membraniporidæ*, *Cribriliniidæ*, *Microporidæ*, *Steganoporellidæ*, and *Cellariidæ*; the *Schizothyriata*, with families *Schizoporellidæ*, *Adeonellidæ*, and *Microporellidæ*; and the *Holothyriata*, with the families *Lepraliidæ*, *Celleporidæ*, and *Smitiidiæ*. For the *Cyclostomata* he proposes three suborders: the *Articulata*, with one family, the *Crisiidæ*; the *Tubulata*, with the families *Tubuliporidæ*, *Entalophoridæ*, *Idmoneidæ*, *Horneridæ*, *Fascigeridæ*, *Osculiporidæ*, and *Theonoidæ*; and the *Dactylethrata*, with the families *Clausidæ* and *Reticuliporidæ*.

Zittel, in his excellent *Handbuch der Palæontologie* (Leipzig, 1880), utilizing the labors of Nitsche, Allman, Busk, Smitt, Hincks, Reuss, Stoliczka, and others, gave probably as good a classification as could be given at that time. We have followed in the main the classification in the English edition of Zittel's *Textbook of Palæontology* (Macmillan & Co., London, 1896); the section of this edition relating to the bryozoa was revised and in large part rewritten by Mr. E. O. Ulrich. Departures from this classification are based mainly upon later, hitherto unpublished, studies of this author.

<sup>1</sup> Pal. Franc. Terr. Crétacé, V, 1850-1.

<sup>2</sup> Zeitschrift für wissenschaftliche Zoologie, XX, 1869.

<sup>3</sup> Monograph of the Freshwater Polyzoa, 1856, p. 10.

<sup>4</sup> British Museum Catalogue of Marine Polyzoa, 1852.

<sup>5</sup> Jour. Cincinnati Soc. Nat. Hist., V, p. 151.

<sup>6</sup> Rept. Brit. Assoc. Adv. Sci., p. 196.

<sup>7</sup> Trans. Zool. Soc. London, XIII, 1893, and British Museum Catalogue of Jurassic Bryozoa, 1896.

While there is general agreement as to the suborders and higher groups, confusion reigns in the arrangement of the genera into families, more especially of the post-Paleozoic forms. This is due in large measure to the fact that the importance of the various structural features is very differently rated. Formerly most writers considered zoarial features of chiefest importance for family and generic groupings, but of late there has come substantial agreement that zoecial features far outweigh zoarial characters for classificatory purposes. But as to the relative importance of the various zoecial characters there is no agreement. A great deal of study is still required, especially to determine the relationship of Paleozoic to later forms, before the principles of classification applicable to this class shall be so well established that a classification can be made which will be correct phylogenetically.

#### OUTLINE OF CLASSIFICATION.

The subordination of the larger groupings of the bryozoa is shown in the tabular form following:

Subkingdom MOLLUSCOIDEA.

Class BRYOZOA Ehrenberg.

Group ECTOPROCTA Nitsche.

Order GYMNOLEAMATA Allman.

Suborder I. CTENOSTOMATA Busk.

Suborder II. CYCLOSTOMATA Busk.

Suborder III. TREPOSTOMATA Ulrich.

Suborder IV. CRYPTOSTOMATA Vine.

Suborder V. CHILOSTOMATA Busk.

Group ENTOPROCTA Nitsche.

Order PEDICELLINEA Hincks.

Subclass RHABDOPLEURAE Gill.

Order PODOSTOMATA Lankester.

#### SCHEME OF CLASSIFICATION OF PALEOZOIC BRYOZOA.

Subkingdom MOLLUSCOIDEA.

Class BRYOZOA Ehrenberg.

Group ECTOPROCTA Nitsche.

Order GYMNOLEAMATA Allman.

Suborder CTENOSTOMATA Busk.

Family Rhopalonariidæ.

Rhopalonaria Ulrich.

Family Ascodictyonidæ Ulrich.

Ascodictyon Nicholson and Etheridge, Jun., Vinella Ulrich.

## Suborder CYCLOSTOMATA Busk.

## Family Diastoporidæ Busk (emend. Ulrich).

Stomatopora Bronn, Proboscina Audouin, Berenicea Lamouroux,  
Diastoporina Ulrich, ? Hederella Hall, ? Hernodia Hall, ? Reptaria  
Rolle.

## Family Idmoneidæ Busk.

Crisinella Hall, Protocrisina Ulrich.

## Family Entalophoridæ Reuss.

Mitoclema Ulrich, Clonopora Hall, Diploclema Ulrich, ? Cystopora  
Hall.

## Family Phaceloporidæ Ulrich.

Phacelopora Ulrich.

## Family Ceramoporidæ Ulrich.

Ceramopora Hall, Ceramoporella Ulrich, Crepipora Ulrich, Chilopo-  
rella Ulrich, Cœloclema Ulrich, Anolotichia Ulrich, Ceramophylla  
Ulrich, Bythotrypa Ulrich, Scenellopora Ulrich, Spatiopora Ulrich.

## Family Fistuliporidæ Ulrich.

Fistulipora McCoy, Cyclotrypa Ulrich, Eridopora Ulrich, Hexago-  
nella Waagen and Wentzel, Pinacotrypa Ulrich, Chilotrypa Ulrich,  
Strotopora Ulrich, Meekopora Ulrich, Lichenotrypa Ulrich, Busko-  
pora Ulrich, Glossotrypa Hall, Selenopora Hall, Favicella Hall,  
Cœlocaulis Hall.

## Family Botrylloporidæ.

Botryllopora Nicholson.

## Suborder TREPOSTOMATA Ulrich.

## Family Monticuliporidæ Nicholson (emend. Ulrich).

Monticulipora D'Orbigny, Atactoporella Ulrich, Peronopora Nichol-  
son, Homotrypella Ulrich, Homotrypa Ulrich, Prasopora Nicholson  
and Etheridge, Jun., Aspidopora Ulrich, Mesotrypa Ulrich.

## Family Amplexoporidæ Ulrich.

Amplexopora Ulrich, Monotrypella Ulrich, Petalotrypa Ulrich, Dis-  
cotrypa Ulrich.

## Family Heterotrypidæ Ulrich.

Heterotrypa Nicholson, Dekayella Ulrich, Dekayia Milne Edwards  
and Haime, Petigopora Ulrich, Leptotrypa Ulrich, Atactopora  
Ulrich.

## Family Batostomellidæ Ulrich.

Batostomella Ulrich, Bythopora Miller and Dyer, Callotrypa Hall, Trematella Hall, Eridotrypa Ulrich, Stenopora Lonsdale, Anisotrypa Ulrich, Lioclema Ulrich, Lioclemella Foerste, ? Thallostigma Hall.

## Family Constellariidæ Ulrich.

Constellaria Dana, Stellipora Hall, Nicholsonella Ulrich, Idiotrypa Ulrich, ? Dittopora Dybowski.

## Family Trematoporidæ Ulrich.

Trematopora Hall, Batostoma Ulrich, Hemiphragma Ulrich, Stromatotrypa Ulrich, Monotrypa Nicholson, Diplotrypa Nicholson (emend. Ulrich).

## Family Calloporidæ Ulrich.

Callopora Hall (emend. Ulrich), ? Calloporella Ulrich.

## Suborder CRYPTOSTOMATA Vine.

## Family Phylloporinidæ Ulrich.

Phylloporina Ulrich, Drymotrypa Ulrich.

## Family Fenestellidæ King.

Fenestella Lonsdale, Semicoscinium Prout, Fenestrapora Hall, Isotrypa Hall, Loculipora Hall, Unitrypa Hall, Hemitrypa Phillips, Helicopora Claypole, Archimedes Owen, Polypora McCoy, Lyropora Hall, Fenestralia Prout, Thamniscus King, Phyllopora King, Reteporidra, Reteporina D'Orbigny, Ptiloporella Hall, Ptiloporina Hall.

## Family Acanthocladiidæ Zittel.

Pinnatopora Vine, Acanthocladia King, Septopora Prout, Synocladia King, Ptilopora McCoy, Ichthyorachis McCoy, Diploporaria, ? Ramipora Toula.

## Family Sphragioporidæ Ulrich.

Sphragiopora Ulrich.

## Family Arthrostylidæ Ulrich.

Arthrostylus Ulrich, Helopora Hall, Arthroclema Billings, Sceptropora Ulrich, Nematopora Ulrich.

## Family Rhabdomesontidæ Vine.

Rhombopora Meek, Rhabdomeson Young and Young, Cœloconus Ulrich, Bactropora Hall, Orthopora Hall, Acanthoclema Hall, Nemataxis Hall, ? Tropidopora Hall, ? Streblotrypa Ulrich, ? Hyphasmodora Etheridge, Jun.

## Family Chainodictyonidæ.

Chainodictyon Foerste.

## Family Ptilodictyonidæ Ulrich.

Ptilodictya Lonsdale, Escharopora Hall, Clathropora Hall, Phænopora Hall, Arthropora Ulrich, Graptodictya Ulrich, Stictoporina Hall.

## Family Stictoporellidæ.

Stictoporella Ulrich, Ptilotrypa Ulrich, Intrapora Hall, Coscinella Hall, Tæniodictya Ulrich, Stictopora Hall, Heliotrypa Ulrich.

## Family Rhinidictyonidæ Ulrich.

Rhinidictya Ulrich, Eurydictya Ulrich, Pachydictya Ulrich, Phyllodictya Ulrich, Euspilopora Ulrich, Dieranopora Ulrich, Goniotrypa Ulrich, Trigonodictya Ulrich.

## Family Cystodictyonidæ Ulrich.

Cystodictya Ulrich, Dichotrypa Ulrich, Coscinium Keyserling, Tæniopora Nicholson, Thamnotrypa Hall, Semiopora Hall, Ptilocella Simpson, Acrogenia Hall, Prismopora Hall, Scalaripora Hall, Glyptopora Ulrich, Phractopora Hall, Ceramella Hall, Evactinopora Meek and Worthen, ? Goniocladia Etheridge, Jun.

## Family Actinotrypidae Ulrich.

Actinotrypa Ulrich.

## Family Cycloporidæ.

Cyclopora Prout, Cycloporella Ulrich, Proutella Ulrich, Worthenopora Ulrich.

## Family Rhinoporidæ Ulrich.

Rhinopora Hall, Diamesopora Hall, Lichenalia Hall, Stictotrypa Ulrich.

## Suborder CHILOSTOMATA Busk.

## Family Palescharidæ Ulrich.

Paleschara Hall.

## TERMINOLOGY.

**ZOARIUM** (polyzoarium, cœnœcium).—The composite structure formed by repeated gemmation. The form which results is very variable, though usually fairly constant for each species. Gemmation in a plane produces *unilaminar* sheets which are often *parasitic* (incrusting) upon other organisms, but are sometimes free; in the latter case the protecting covering on the under side is the *epitheca*. Hollow branches lined with an *epitheca* are a special form of this mode of

gemmation. Two unilaminar sheets growing erect, back to back, form a *bilaminar* or *bifoliate* expansion or *frond*. The epithecæ of the two layers of zoecia thus brought together form a *mesotheca* (mesial or medial laminæ). The small pores seen in the mesotheca, or between the walls of adjoining zoecia of certain species when thin sections of well-preserved specimens are examined under the microscope, have received the name *median tubuli* (Ulrich).

When gemmation takes place on any side of the zoecium, *massy* forms result, which may be hemispherical, globular, or discoidal in shape. Gemmation in a particular direction will produce *ramose* or *dendroid* forms.

Among the Fenestellidæ and related families a network is formed. The openings in the network are *fenestrules*; bars connecting the branches are *dissepiments*. The surface upon which the zoecia open is the *obverse*, the other the *reverse*.

MONTICULES and MACULÆ.—It is quite common, especially in the Trepostomata, for some clusters of zoecia to outstrip the surrounding zoecia in growth and tower above them. The rounded elevations thus formed are termed *monticules*. Sometimes the clusters consist of mesopores instead of zoecia, surrounded by a zone of larger zoecia. In the latter case the clusters of mesopores may not be elevated above the general level, but may be even depressed below it. Such clusters are called *maculæ*.

ZOECIUM (cell).—The cavity with its bounding wall inhabited by the animal. The wall is constructed of laminated tissue. In particularly well-preserved specimens, thin sections reveal very small tubular passages penetrating the walls of adjoining zoecia. To these Ulrich has applied the term *communication pores*.

In some forms, especially among the Trepostomata, the zoecia have the form of elongated tubes, which are crossed by partitions termed *diaphragms*. The opening upon the surface of the zoecium or of the vestibule among the Cryptostomata is the *aperture*. It is often closed by a *zoecial cover* (closure or operculum).

One side of the zoecial cavity in some of the Trepostomata is lined with a series of superimposed vesicles, the *cystiphragms* (cystoid diaphragms); their purpose or use is unknown.

Among the Cryptostomata plates frequently project from the walls into the cavity; that upon the posterior wall of the zoecium is the *superior hemiseptum* (Ulrich), that upon the anterior wall is the *inferior hemiseptum*. The opening of the zoecium among the Cryptostomata is the *orifice*; the tubular shaft which is left above the orifice as the surface of the zoarium is thickened by strengthening or protective tissue in the *vestibule*.

INTERSPACE.—The part of the surface of the zoarium between the apertures of the zoecia.



**MESOPORES** (interstitial cells).—Tubular structures found between the zoëcia; they are commonly angular or irregular in outline in cross section.

**ACANTHOPORES** (spiniform corallites, spiniform tubuli).—Small cylindrical tubes usually situated at the angles of junction of adjoining zoëcia, forming spine-like projections upon the surface.

**VESICULAR TISSUE**.—In a number of forms the space between the zoëcia is occupied by tissue composed of irregularly superimposed vesicles. This probably served to give strength to the zoarium and to protect the zoëcia.

## DIAGNOSES OF SUBORDERS, FAMILIES, AND GENERA.

### Class BRYOZOA Ehrenberg.

#### Order GYMNOLEMATATA Allman.

#### Suborder CTENOSTOMATA Busk.

Zoëcia usually isolated and developed by budding from the internodes of a distinct tubular stolon or stem. Orifice terminal, with an operculum of setæ. Zoarium horny or membranaceous. Marsupia wanting.

#### Family RHOPALONARIIDÆ.

##### RHOPALONARIA Ulrich.

Fusiform segments (? stolons constricted fusiformly) arranged in a more or less pinnate manner, impressed or almost embedded in the host. Zoëcia unknown.

Genotype and only described species: *Rhopalonaria venosa* Ulrich. Range, Ordovician-Devonian. A species very similar to the genotype occurs in the Clinton, and another undescribed species is found in the Hamilton.

#### Family ASCODICTYONIDÆ Ulrich.

##### ASCODICTYON Nicholson and Etheridge, Jun.

Zoarium parasitic, of thread-like ramifying stolons, with bulbous enlargements, arranged irregularly or in stelliform clusters; surface minutely punctate. Zoëcia unknown.

Genotype: *Ascodictyon stellatum* Nicholson and Etheridge, Jun. Devonian. Two described species; also several undescribed species from the Chester group.

##### VINELLA Ulrich.

Zoarium parasitic, consisting of exceedingly slender, ramifying, thread-like, tubular stolons, arranged more or less distinctly in a radial manner. Surface of stolons sometimes faintly lined longitudinally and with a row of widely separated small pores along the top. Zoëcia unknown.

Genotype: *Vinella repens* Ulrich. Three described and five new species, ranging from Ordovician to Mississippian.

Suborder CYCLOSTOMATA Busk.

Zoecia simple, tubular; walls thin, minutely porous; apertures plain, inoperculate, commonly raised; interspaces with or without strengthening tissue; marsupia and appendicular organs wanting; oecium a large modified cell or an inflation of the zoarial surface.

Family DIASTOPORIDÆ Busk (emend. Ulrich).

Zoarium adnate or erect, the latter unilaminar, bilaminar, or forming hollow stems; zoecia generally tubular; apertures salient, usually narrower than the width of the zoecium, never clustered; interstitial cells wanting; ovicells mere inflations of the surface, with one or more openings.

STOMATOPORA Bronn (ALECTO Lamouroux, not Leach).

Zoarium adnate, branching dichotomously; zoecia subtubular or subpyriform, arranged typically in a single linear series; apertures subterminal.

Genotype: *Stomatopora dichotoma* Lamouroux. Range, Ordovician-Devonian; Jurassic-Recent. Nine described and eight new Paleozoic species, mostly from the Ordovician.

PROBOSCINA Audouin.

Zoarium adnate, multiserial, rarely widening into a sheet; zoecia tubular; apertures subterminal.

Genotype: *Proboscina boryi* Audouin. Range, Ordovician-Devonian; Jurassic-Recent. Five described and two new species in American Paleozoic strata, mostly Ordovician.

BERENICEA Lamouroux (DIASTOPORA of authors, not Lamouroux, SAGENELLA Hall, ROSACILLA Roemer, DIASTOPORELLA Vine).

Zoarium adnate, forming thin, discoid, flabellate, or irregular crusts; zoecia tubular, arranged in irregularly alternating lines.

Genotype: *Berenicea diluviana* Lamouroux. Range, Ordovician, Silurian, Jurassic-Recent. Six described and several new species in American Paleozoic strata, mainly Ordovician.

DIASTOPORINA Ulrich.

Zoarium bifoliate; zoecia subtubular, prostrate, immersed; apertures subcircular, not prominent; zoarial surface between apertures finely puncto-striate.

Genotype and only known species: *Diastoporina flabellata* Ulrich. Ordovician.

The systematic position of the following genera, placed provisionally in this family, is uncertain.

**HEDERELLA** Hall (NICHOLSONIA Davis).

Zoarium adnate, consisting of a tubular axis, from which the zoecia bend off alternately to left and right; zoecia annulated and striated transversely and finely striated longitudinally; apertures terminal, equaling in width the diameter of the zoecia.

Genotype: *Alecto canadensis* Nicholson. Devonian. Six species.

**HERNODIA** Hall.

Zoarium adnate, consisting of linear series of elongated, annulated zoecia, budded from the sides of preceding zoecia; apertures terminal, equaling in width the diameter of the zoecia.

Genotype and only known species: *Hernodia humifusa* Hall. Devonian.

**REPTARIA** Rolle (PTILIONELLA Hall).

Zoarium adnate, consisting of cylindrical, annulated zoecia in contact but not coalescing along their sides, and proceeding in the plane of their host laterally outward from a median line and then upward; apertures terminal, equaling in width the diameter of the zoecia.

Genotype: *Reptaria stolonifera* Rolle. Devonian. Two species

**Family IDMONEIDÆ** Busk.

Zoarium of free or adnate subcylindrical or subprismatic branches; zoecial apertures rounded, more or less elevated, usually arranged in transverse rows on two faces of branches, these two faces sometimes being confluent; dorsal surface of branches without zoecia; small tubular pores may open on either surface of the branches, but more frequently on the dorsal.

**CRISINELLA** Hall.

Zoarium ramose, solid; celluliferous on one face; apertures arranged in rows, alternately arranged, ascending obliquely from the middle to the margins of the branch; peristomes prominent.

Genotype and only known species: *Crisina* ? *scrobiculata* Hall. Devonian.

**PROTOCRISINA** Ulrich.

Zoarium consisting of narrow, bifurcating branches, celluliferous on one face only; zoecia subtubular, with prominent, circular apertures arranged in intersecting diagonal series; on both faces small pores irregularly distributed.

Genotype and only known species: *Protocrisina exigua* Ulrich. Ordovician.

Family **ENTALOPHORIDÆ** Reuss.

Zoarium ramose, branches free, subcylindrical, with rounded and more or less prominently exserted zoecial apertures opening on all sides of the branches.

**MITOCLEMA** Ulrich.

Zoarium ramose, cylindrical, consisting of long tubular zoecia, which are thin-walled and prismatic in the axial region, diverge gradually from the center, and bend abruptly outward near the surface, often becoming free and much exserted; apertures terminal, circular, usually arranged in regular transverse or subspiral series.

Genotype: *Mitoclema cinctosum* Ulrich. Ordovician. Two described and one new species.

**CLONOPORA** Hall.

Zoarium ramose; branches cylindrical, consisting of elongate tubular zoecia, cohering for part of their length, then bending outward and becoming free; apertures terminal, not contracted, arranged in rings or spirally around the branch.

Genotype: *Clonopora semireducta* Hall. Devonian. Three species.

**DIPLOCLEMA** Ulrich.

Zoarium dendroid, branches slightly compressed, spreading in the same plane; zoecia tubular, diverging from a wavy mesial mesotheca; apertures circular; prominent.

Genotype: *Diploclema trentonense* Ulrich. Ordovician, Silurian. Two species.

**CYSTOPORA** Hall.

Zoarium cylindrical, consisting of tubular, ampullate zoecia, cohering for the greater part of their length; distally the zoecia bend outward, becoming free and much contracted; apertures terminal.

Genotype and only known species: *Cystopora geniculata* Hall. Devonian.

Family **PHACELOPORIDÆ** Ulrich.**PHACELOPORA** Ulrich.

Zoarium articulated; zoecia conical, two or more aggregated to form cone-shaped bundles; apertures subterminal, circular, and slightly contracted.

Genotype and only described valid species: *Phacelopora pertenuis* Ulrich. Ordovician. One new species in the Clinton group.

## Family CERAMOPORIDÆ Ulrich.

Zoarium variable; maculae or clusters of mesopores or of zoecia larger than usual at regular intervals; zoecia tubular, at first prostrate, continue obliquely or directly to the surface, often with a few diaphragms; apertures commonly oblique, provided with a lunarium; mesopores generally present, always irregular and usually without diaphragms; walls minutely porous, formed of intimately connected and irregularly laminated tissue.

## CERAMOPORA Hall.

Zoarium discoidal, free or attached by the center of the base; under surface with one or more layers of small, irregular cells; zoecia radiating out on the upper surface from a depressed center; apertures oblique, imbricating; mesopores short, irregular, decreasing in number from center to margin.

Genotype: *Ceramopora imbricata* Hall. Silurian.

## CERAMOPORELLA Ulrich.

Zoarium of incrusting layers, which by superposition may form masses; zoecia short, tubular with thin walls; apertures oval, oblique, the lunarium forming a hood; mesopores abundant, often completely encircling the zoecia.

Genotype: *Ceramoporella distincta* Ulrich. Ordovician. Nine described and twenty new species.

## CREPIPORA Ulrich.

Zoarium incrusting, lamellate or massive, or, in one species, forming hollow branches; zoecia long, tubular, thin-walled, with diaphragms; apertures angular or subpyriform, lunarium not overarching, its ends usually projecting; mesopores generally restricted to the maculae, which are elevated or depressed.

Genotype: *Crepidopora simulans* Ulrich. Ordovician. Eight described and six new species.

## CHILOPORELLA Ulrich.

Zoarium forming parasitic sheets, from which rise flabellate fronds or compressed branches; zoecial tubes long, thin-walled, irregular in shape in immature region, near the surface walls much thickened, diaphragms rarely developed; apertures ovate, lunarium conspicuously elevated; mesopores numerous.

Genotype and only described species: *Fistulipora? flabellata* Ulrich = *Ceramopora nicholsoni* James. Ordovician.

**CŒLOCLEMA** Ulrich.

Zoarium forming hollow branches, lined internally with a striated epitheca; zoëcia as in *Ceramoporella*, but with thicker walls.

Genotype: *Diamesopora vaupeli* Ulrich = *Ceramopora alternata* James. Ordovician. Four described and three new species.

**ANOLOTICHIA** Ulrich.

Zoarium ramose, digitate, laminate, or incrusting; zoëcial tubes long, subpolygonal, intersected by remote diaphragms; lunarium elevated at the surface, traversed by two to six minute, vertical, closely tabulated tubes; mesopores sparingly developed.

Genotype: *Anolotichia ponderosa* Ulrich. Ordovician. Two described and three new species.

**CERAMOPHYLLA** Ulrich.

Zoarium erect, bifoliate, the two layers grown together back to back; in other respects like *Ceramoporella* and *Cœloclema*.

Genotype and only known species: *Ceramophylla frondosa* Ulrich. Ordovician.

**BYTHOTRYPA** Ulrich.

Zoarium massive or lamellate; zoëcial tubes long, intersected by thin diaphragms; apertures subovate, nearly direct, lunarium large, well-raised; mesopores numerous, open at the surface, forming internally a very loose vesicular tissue.

Genotype: *Fistulipora* ? *laxata* Ulrich. Ordovician. Two species.

**SCENELLOPORA** Ulrich.

Zoarium simple, pedunculate, under surface epitheated; upper surface slightly concave and celluliferous; zoëcial apertures occupy the summits of low ridges radiating from the center.

Genotype and only known species: *Scenellopora radiata* Ulrich. Ordovician.

**SPATIOPORA** Ulrich.

Zoarium forming thin crusts, usually on *Orthoceras*; zoëcia very short, nearly direct; apertures irregular, with blunt spines at the angles, no lunarium developed; elevated, elongated maculæ usually a conspicuous feature.

Genotype: *Spatiopora aspera* Ulrich. Ordovician. Ten described and seven new species.

**Family FISTULIPORIDÆ** Ulrich.

Zoarium massive, lamellate or ramose, showing on the surface at irregular intervals maculæ or monticules composed of clusters of vesti-

cles and of zoöcia slightly larger than the average; lunarium generally well developed, sometimes wanting; zoöcial tubes cylindrical or somewhat compressed, thin-walled, with diaphragms; walls minutely porous; apertures usually direct, closed at times by perforated covers; vesicular tissue occupies the interzoöcial space.

FISTULIPORA McCoy (LICHENALIA Hall, in part, DIDYMOPORA Ulrich, DYBOWSKIA and DYBOWSKIELLA Waagen and Wentzel, FISTULIPORELLA Simpson).

Zoarium massive, lamellate, ramose, parasitic or free; under surface with a wrinkled epitheca; zoöcia cylindrical or somewhat compressed, direct or almost so, thin-walled until near the surface, and provided usually with a few diaphragms, and encircled by one or more series of vesicles; apertures subradially arranged about the maculae, ovoid, subtriangular or pyriform, the lunarium more or less strongly developed; surface between apertures smooth or granular.

Genotype: *Fistulipora minor* McCoy = *Calamopora incrustans* Phillips. Range, Silurian-Carboniferous. Sixty-two described and a considerable number of new species.

#### CYCLOTRYPA Ulrich.

Like *Fistulipora*, but the lunarium obsolete and the zoöcial tubes circular in cross section.

Genotype: *Fistulipora communis* Ulrich. Devonian. Two species. Future work may disclose new species and show that species now referred elsewhere belong here.

#### ERIDOPORA Ulrich (PILEOTRYPA Hall).

Zoarium a thin, parasitic sheet; apertures oblique, subtriangular or ovoid; lunarium very prominent, overarching.

Genotype: *Eridopora macrostoma* Ulrich. Devonian, Mississippian. Four species described and several awaiting description.

#### HEXAGONELLA Waagen and Wentzel.

Zoarium as in *Fistulipora*, but the surface is marked off into generally hexagonal spaces, which are divided from each other by more or less elevated ridges, and usually have a macula in the center of the inclosed space.

Genotype: *Hexagonella ramosa* Waagen and Wentzel. From the Carboniferous of India. Two undescribed species from the Hamilton and Warsaw.

#### PINACOTRYPA Ulrich (FISTULIPORINA Simpson, FISTULICELLA Simpson).

Zoarium usually a thin contorted expansion, with a wrinkled epitheca on the basal surface; zoöcia thin-walled, with a few diaphragms;

interspaces wide, occupied by a single series of large angular mesopores with numerous diaphragms and never presenting the appearance of vesicular tissue; apertures subcircular, with a well-developed granose peristome, but no lunarium.

Genotype: *Fistulipora elegans* Rominger. Devonian.

#### CHILOTRYPA Ulrich.

Zoarium small, ramose, with a narrow, irregularly contracting and expanding axial tube; diaphragms few or absent; apertures elliptical, oblique, the lower margin thickened and elevated; interstitial vesicles commonly filled by a dense calcareous deposit near the surface.

Genotype: *Chilotrypa hispida* Ulrich. Range, Silurian-Mississippian. Eight described and five new species.

#### STROTOPORA Ulrich.

Zoarium ramose, with irregular branches. Like *Fistulipora*, but the surface presents distributed among the apertures large, abruptly spreading cells (regarded as broken ovicells); when perfectly preserved these appear as strongly convex elevations with a small opening on one side.

Genotype: *Strotopora foveolata* Ulrich. Devonian, Mississippian. Three species.

#### MEEKOPORA Ulrich.

Zoarium bifoliate, sometimes branching; the mesotheca thin and flexuous; zoecia tubular, proceeding in a gentle curve from the mesotheca and opening somewhat obliquely upon the surface and provided with numerous, often recurved, diaphragms; apertures oblique, all pointing distally; lunarium, when present, not very prominent; rather large ovicells developed, showing at the surface as a convex space with a small apical opening.

Genotype: *Meekopora eximia* Ulrich. Range, Silurian-Carboniferous. Six described and three new species.

#### LICHENOTRYPA Ulrich.

Zoarium thin, incrusting; in its first stages like *Fistulipora*; as it matures, large spines and thin walls are thrown up about the apertures; numerous subangular vesicular openings interspersed among the apertures and scarcely distinguishable from them.

Genotype and only known species: *Lichenotrypa cavernosa* Ulrich = *Lichenalia longispina* Hall. Devonian.

#### BUSKOPORA Ulrich (ODONTOTRYPA Hall).

Like *Fistulipora*, but lunarium remarkably developed, projecting as a strong, bidenticulate process nearly half way across the aperture.

Genotype: *Buskopora dentata* Ulrich. Devonian. Four species.



## GLOSSOTRYPA Hall.

Zoarium tubular, cylindrical, hollow; diameter of tube 2 mm.; thickness of zoarium 0.40 mm. Cells tubular, with frequent narrow projections (semidiaphragms) from the cell walls extending partially across the tube; two pseudosepta on one side; cell apertures paliform, very closely disposed, frequently in diagonally intersecting rows, the surface presenting a reticulated appearance; apertures with denticulated lunarium; interapertural space elevated, forming ridges; frequently a prominent node at the intersection of the ridges, sometimes a depression or pit; surface with monticules which are laterally in contact, giving to the frond an annulated appearance; intercellular space vesiculose.<sup>1</sup>

We interpret the foregoing description to mean that the genus is like *Buskopora*, save that the lunarium is developed interruptedly in the zoecial tubes.

Genotype and only known species: *Lichenalia paliformis* Hall. Devonian.

## SELENOPORA Hall.

Zoarium incrusting; surface with circular maculae surrounded by large apertures; zoecia tubular, oblique, surrounded by vesicular tissue; apertures subcircular, with overarching lunarium and situated in polygonal, vestibular areas formed by coalescing ridges traversing the interspaces.

Genotype: *Lichenalia circincta* Hall. Devonian. Two species.

## FAVICELLA Hall (FISTULIPORIDRA Simpson).

Zoarium lamellate, free or incrusting; surface with monticules surrounded by slightly larger apertures; zoecia tubular, cylindrical, at first prostrate and thin-walled, then bending rather abruptly and proceeding almost direct to the surface, surrounded by regularly superposed vesicles having the appearance of tabulated mesopores; apertures circular, with equally elevated peristome, but no lunarium, situated in polygonal vestibular areas formed by coalescing angular ridges traversing the interspaces; vestibular area surrounding the apertures occupied by minute angular pits.

Genotype: *Thallostigma inclusa* Hall. Devonian. Two species.

## COELOCAULIS Hall.

Zoarium ramose, hollow, inner surface a thin epitheca with transverse wrinkles, and fine longitudinal striations; cells tubular, arising from the epitheca and parallel with it for a short distance, then turning abruptly outward; apertures circular or oval, sometimes irregularly disposed, at other times in a more or less regular quin-cunx order; peristomes thin, distinctly and equally elevated, usually smooth, but sometimes with numerous nodes or spinules; intercellular space occupied by irregularly disposed vesicles, or by regularly superimposed vesicles, resembling tabulate mesopores; interapertural space occupied by minute angular pits.<sup>2</sup>

Genotype: *Callopora venusta* Hall. Silurian, Devonian. Three species.

<sup>1</sup> Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 562.

<sup>2</sup> Ibid., p. 554.

**Family BOTRYLLOPORIDÆ.****BOTRYLLOPORA** Nicholson.

Zoarium of small, circular, parasitic disks which commonly coalesce, developing along the line of coalescence unusually large vesicles; surface marked by ridges radiating from the depressed center and increasing in number by bifurcation toward the margin; zoecial tubes occupying the ridges, traversed by occasional diaphragms; depressed space between ridges occupied by vesicles, presenting a solid interspace; apertures in two rows on the ridges, circular or oval, with no lunarium.

Genotype and only known species: *Botryllopora socialis* Nicholson. Devonian.

**Suborder TREPOSTOMATA** Ulrich.

Zoecia prismatic or cylindrical, coherent tubes clearly separable into two regions, an axial or immature, in which the diaphragms are remote and the walls thin and prismatic, and a thickened peripheral or mature, in which the walls are thickened and otherwise changed, diaphragms are more abundant, and accessory features, such as mesopores and acanthopores, are often developed; zoecial covers, with a small central orifice, present at times, though probably not developed in all the families; monticules or maculae a characteristic feature of the surface.

**Family MONTICULIPORIDÆ** Nicholson (emend. Ulrich).

Zoarium variable; zoecia with cystiphragms in the mature region always; apertures polygonal, rounded or irregularly petaloid; mesopores generally present, angular, with numerous diaphragms; acanthopores abundant, usually small.

**MONTICULIPORA** D'Orbigny.

Zoarium massy, lobate or lamellate, incrusting or free; monticules usually present; zoecia prismatic, usually thin-walled, with cystiphragms both in mature and immature regions; apertures polygonal; mesopores few or wanting; acanthopores small, generally numerous.

Genotype: *Monticulipora mammulata* D'Orbigny. Ordovician, ? Devonian. Sixteen described and sixteen new species.

**ATACTOPORELLA** Ulrich.

Zoarium generally incrusting, sometimes lobate or subramose; zoecia with very thin, inflected walls; apertures irregularly petaloid; mesopores numerous, frequently isolating the zoecia, largely filled by a secondary deposit; acanthopores very numerous.

Genotype: *Atactoporella typicalis* Ulrich. Ordovician. Eleven described and three new species.

## PERONOPORA Nicholson.

Zoarium bifoliate, through branching of the fronds often forming convoluted masses; surface smooth, usually with maculae; zoecia with rather thick walls, ring-like in transverse section, not inflected by the acanthopores; cystiphragms abundant; apertures circular or subpolygonal; mesopores and acanthopores variable in number.

Genotype: *Monticulipora frondosa* Nicholson (not D'Orbigny) = *Chaetetes decipiens* Rominger. Ordovician. Two described and two new species.

## HOMOTRYPELLA Ulrich.

Zoarium irregularly ramose or laminar; surface smooth, with small maculae; zoecia rather thin-walled, cystiphragms usually confined to the earlier part of the mature region and never present in the axial region; apertures subcircular, sometimes faintly petaloid; mesopores abundant, more or less completely separating the zoecia; acanthopores numerous.

Genotype: *Homotrypella instabilis* Ulrich. Ordovician, Silurian. Eight described and five new species.

## HOMOTRYPA Ulrich.

Zoarium frondescant or ramose; maculae or monticules of larger cell apertures a characteristic feature; apertures often oblique; zoecia with very thin or finely crenulated walls and remote diaphragms in immature region and cystiphragms, isolated or in series, confined to mature region; mesopores few, in clusters; acanthopores generally developed.

Genotype: *Homotrypa curvata* Ulrich. Ordovician, Silurian. Eighteen described and thirty new species.

## PRASOPORA Nicholson and Etheridge, Jun.

Zoarium massy, usually free, with wrinkled epitheca on the under surface; zoecia prismatic or cylindrical, thin-walled, with cystiphragms, and generally surrounded by angular mesopores; acanthopores sometimes present, but rarely numerous or strong; diaphragms crowded in mesopores.

Genotype: *Prasopora grayæ* Nicholson and Etheridge, Jun. Ordovician. Fourteen described and six new species.

## ASPIDOPORA Ulrich.

Zoarium a thin expansion, sometimes of superposed layers, usually free, with epitheca on under side; typically composed, according to age, of from one to many subequal parts, each gently convex, with the zoecia diminishing in size from center to margin; diaphragms wanting; cystiphragms few in the zoecia; mesopores numerous, with close diaphragms; acanthopores usually present, always small.

Genotype: *Aspidopora areolata* Ulrich. Ordovician, Silurian. Eight described and four new species.

## MESOTRYPA Ulrich.

Zoarium hemispheric, conical, or discoidal, generally free, with an epitheca on the under surface; zoecia prismatic or cylindrical, with oblique and sometimes funnel-shaped diaphragms, which are probably modified cystiphragms; zoecia more or less separated by angular mesopores, which become smaller with age, and are intersected by numerous diaphragms; acanthopores generally present, sometimes of large size.

Genotype: *Diplotrypa infida* Ulrich. Ordovician, Silurian. Ten described and seven new species.

## Family AMPLEXOPORIDÆ Ulrich.

Zoarium usually ramose or discoidal, rarely bifoliate; zoecia simple, prismatic tubes, with a well-marked divisional line (seen in tangential sections as a fine black line) between adjoining tubes; diaphragms present; mesopores practically absent, but small abortive cells sometimes occur among the larger ones in the monticules; acanthopores generally abundant, but may be wanting.

## AMPLEXOPORA Ulrich.

Zoarium ramose, discoidal, or massy; zoecia prismatic, with diaphragms; acanthopores always present, variable in size and number.

Genotype: *Amplexopora cingulata* Ulrich. Ordovician. Eight described and four new species.

## MONOTRYPELLA Ulrich.

Like Amplexopora, but distinguished by the absence of acanthopores.

Genotype: *Monotrypella æqualis* Ulrich. Range, Ordovician-Devonian. Nine species.

## PETALOTRYPA Ulrich.

Zoarium bifoliate, of irregular compressed branches or simple fronds; zoecia prismatic, arising from a strongly flexuous mesotheca; apertures subcircular or polygonal; mesopore-like interspaces that do not differ in their tabulation from the zoecia may occur; very small acanthopores (?) occupy many of the angles of junction.

Genotype: *Petalotrypa compressa* Ulrich. Devonian. Two species.

## DISCOTRYPA Ulrich.

Zoarium a thin, free, or parasitic circular expansion; surface smooth, or with low, broad monticules; zoecia thin-walled, direct; apertures hexagonal or rhomboidal, very regular in their arrangement, decreasing in size from the centers of the monticules outward; neither mesopores nor acanthopores present.

Genotype: *Chaetetes elegans* Ulrich. Ordovician, Devonian. Two species.

Family **HETEROTRYPIDÆ** Ulrich.

Zoarium frondescant, ramose, incrusting, or massy; zoecia polygonal, with moderately thin walls and diaphragms; walls of adjoining zoecia coalescent; mesopores often present; acanthopores occur, sometimes of large size.

**HETEROTRYPA** Nicholson.

Zoarium erect, frondescant, or ramose; zoecia with numerous diaphragms; acanthopores small, of one kind; mesopores variable in number, generally abundant, sometimes wanting.

Genotype: *Monticulipora frondosa* D'Orbigny. Ordovician, ? Devonian. Eleven described and four new species.

**DEKAYELLA** Ulrich.

Zoarium ramose; zoecia with numerous diaphragms; two sets of acanthopores, large and small; mesopores variable in number, generally numerous.

Genotype: *Dekayella obscura* Ulrich. Ordovician. Nine described and one new species.

**DEKAYIA** Milne-Edwards and Haime.

Zoarium erect, ramose; zoecia with few diaphragms; acanthopores usually large; mesopores few, or wanting.

Genotype: *Dekayia aspera* Milne-Edwards and Haime. Ordovician, ? Devonian. Six species.

**PETIGOPORA** Ulrich.

Zoarium forming small, circular, incrusting patches; zoecia direct, with few or no diaphragms; acanthopores rather large, of one kind only; mesopores wanting.

Genotype: *Petigopora gregaria* Ulrich. Ordovician. Four described and one new species.

**LEPTOTRYPA** Ulrich.

Zoarium incrusting, often assuming cylindrical, discoidal, or other forms; zoecial tubes polygonal, with thin walls, and few or no diaphragms; acanthopores very small, never abundant; no mesopores.

Genotype: *Leptotrypa minima* Ulrich. Ordovician, ? Silurian, ? Devonian. Sixteen described and eight new species.

**ATACTOPORA** Ulrich.

Zoarium forming thin, parasitic expansions, usually on species of *Orthoceras*; zoecia direct, with few or no diaphragms; surface with elevated, commonly elongated, subsolid monticules; acanthopores small, very numerous, inflecting the walls, giving the apertures an indented or petaloid aspect.

Genotype: *Atactopora hirsuta* Ulrich. Ordovician. Two described and two new species.

## ORBIPORA Eichwald (ORBITULITES Eichwald).

## Family BATOSTOMELLIDÆ Ulrich.

Zoarium usually ramose; zoecia with thick walls in the mature region, appearing here to be fused; diaphragms in the peripheral region often centrally perforated; acanthopores and mesopores usually present, the latter small and sometimes moniliform in shape.

## BATOSTOMELLA Ulrich (GEINITZELLA Waagen and Wentzel).

Zoarium ramose, branches slender; zoecia with few diaphragms; apertures of zoecia small, circular or oval; interspaces rounded or canaliculate, spinulose, the acanthopores small and usually very numerous; mesopores small, with subcircular openings.

Genotype: *Batostomella spinulosa* Ulrich. Range, Silurian-Permian. Six species.

## BYTHOPORA Miller and Dyer.

Zoarium ramose, branches usually slender, sometimes of considerable size; zoecia practically without diaphragms; apertures oblique, narrowing above; interspaces canaliculate; mesopores few; acanthopores comparatively strong, rarely more than one to each zoecium, sometimes wanting.

Genotype: *Bythopora fruticosa* Miller and Dyer = *Helopora dendrina* James. Range, Ordovician-Devonian. Ten described and five new species.

## CALLOTRYPA Hall.

Zoarium ramose; apertures oval, with equally elevated peristomes and with no definite arrangement; interspaces showing the openings of the numerous mesopores by which the zoecia are surrounded; acanthopores present.

Genotype: *Callopora macropora* Hall. Silurian, Devonian. Ten species.

## TREMATELLA Hall.

Zoarium ramose; more or less conspicuously annulated; zoecia oblique, with a few diaphragms and walls much thickened in the mature region; apertures arranged in a somewhat quincunx order, interspaces ridged, forming polygonal areas; acanthopores sometimes present.

Genotype: *Trematopora annulata* Hall. Devonian. Five species.

## ERIDOTRYPA Ulrich.

Zoarium ramose, branches slender; zoecia more or less oblique, thick-walled, and intersected by diaphragms, which are most numerous and

most closely set in the earlier portion of the short mature region; mesopores sometimes numerous, sometimes few, with closely set diaphragms; acanthopores small, few, or wanting.

Genotype: *Eridotrypa mutabilis* Ulrich. Range, Ordovician-Devonian. Ten described and four new species.

STENOPORA Lonsdale (TUBULICLIDIA Lonsdale, TABULIPORA Young).

Zoarium ramose, sublobate, massy, laminar, or parasitic; surface smooth or with monticules; walls of zoëcia thickened periodically in the mature region; diaphragms sometimes very few, but in most American species abundant in the mature region and perforated centrally; mesopores never very numerous, irregularly distributed; large acanthopores at the junction angles.

Genotype: *Stenopora tasmaniensis* Lonsdale. Mississippian, Carboniferous. Seventeen described and three new species.

ANISOTRYPA Ulrich.

Zoarium ramose, branches sometimes hollow and lined by an epitheca; divisional line between adjoining zoëcia (as seen in sections) sharply defined, periodical swelling of walls more or less marked; diaphragms centrally perforated, usually numerous; interspaces generally ridge-like; neither acanthopores nor mesopores.

Genotype: *Anisotrypa symmetrica* Ulrich. Mississippian. Four species.

LIOCLEMA Ulrich.

Zoarium ramose, lamellar, subglobose or incrusting; surface frequently exhibiting distinct monticules or maculæ; zoëcia with sub-circular or irregularly petaloid apertures, separated by abundant angular mesopores, which in some species are open at the surface, in others closed; diaphragms few in the zoëcia, abundant, sometimes crowded in the mesopores; acanthopores numerous and strong in the typical species, small and inconspicuous in others.

Genotype: *Callopora punctata* Hall. Range, Silurian-Mississippian. Twenty-nine described and five new species.

LIOCLEMELLA Foerste.

Zoarium cylindrical, rarely branched, pointed at the base (for articulation?); otherwise much as in Lioclema.

Genotype: *Callopora ohioensis* Foerste. Ordovician, Silurian. Six described and five new species.

## THALLOSTIGMA Hall.

## Family CONSTELLARIIDÆ Ulrich.

Zoarium ramose, frondescent, laminar, or incrusting; zoecia thin-walled and prismatic in the immature region, with thicker walls and subcylindrical when mature; apertures rounded, peristomes slightly elevated; mesopores angular, abundant, commonly isolating the zoecia, at intervals gathered into clusters, which are usually stellate, closed at the surface, the closure with numerous minute perforations; true acanthopores wanting, but granules often very abundant on the interspaces; diaphragms in both zoecia and mesopores.

## CONSTELLARIA Dana.

Zoarium growing into erect, flattened branches or fronds from a basal expansion which is attached to foreign bodies; surface with depressed stellate maculæ, the spaces between the rays elevated and occupied by two or three short rows or clusters of closely approximated apertures; mesopores aggregated into maculæ, internally with gradually crowding diaphragms.

Genotype: *Ceriopora constellata* (Van Cleve) Dana. Ordovician. Nine described and three new species.

## STELLIPORA Hall.

Differs from Constellaria in its incrusting habit and in having only mesopores in the interspaces between the raised zoecial clusters.

Genotype and only known species: *Stellipora antheloidea* Hall. Ordovician.

## NICHOLSONELLA Ulrich.

Zoarium a laminar expansion, sometimes giving off flattened intertwining branches or fronds; interspaces often granose, interzoecial spaces wide, filled with numerous mesopores, which have thicker and more numerous diaphragms than the zoecial tubes; with age the spaces become filled up with a calcareous deposit, rendering the walls of the mesopores unrecognizable.

Genotype: *Nicholsonella ponderosa* Ulrich. Ordovician. Five described and nine new species.

## IDIOTRYPA Ulrich.

Zoarium parasitic; zoecia and mesopores alike crossed by thick diaphragms at short and regular intervals, diaphragms apparently perforated by numerous minute foramina; mesopores surround the zoecia, numerous, irregular in shape, closed at the surface; walls with numerous minute vertical tubuli or cells.

Genotype and only known species: *Idiotrypa parasitica* Ulrich. Silurian.



## DITTOPORA Dybowski.

## Family TREMATOPORIDÆ Ulrich.

Zoarium ramose or incrusting; zoëcia irregular in axial region, their proximal ends with diaphragms and usually constricted where these occur; walls thickened in the mature region; lines of contact of walls of adjoining zoëcia distinct; mesopores generally abundant, usually of large size, closed at the surface; acanthopores more or less abundant; diaphragms in both zoëcia and mesopores.

## TREMATOPORA Hall.

Zoarium ramose; surface smooth or with monticules; zoëcia thin-walled and with few diaphragms; apertures circular or oval, with a more or less well-marked peristome; interspaces solid; mesopores irregularly angular, often obscurely moniliform, with diaphragms at the constricted parts; acanthopores of medium or small size usually present.

Genotype: *Trematopora tuberculosa* Hall. Ordovician, Silurian. Ten species.

## BATOSTOMA Ulrich.

Zoarium irregularly ramose, branches arising from a large basal expansion; zoëcia with walls that are thin in the immature region, much thickened and in sections appearing ringlike (but seldom in contact) in mature region; diaphragms present; mesopores numerous or few, irregular in size or shape; acanthopores usually of large size and abundant, sometimes few.

Genotype: *Monticulipora (Heterotrypa) implicata* Nicholson. Ordovician. Eighteen described and fifteen new species.

## HEMIPHAGMA Ulrich.

Like Batostoma, but diaphragms in mature region of zoëcia incomplete.

Genotype: *Batostoma irrasum* Ulrich. Ordovician. Five species.

## STROMATOTRYPA Ulrich.

Zoarium consisting of one thin layer, or several superimposed, growing upon foreign bodies; zoëcia short, with few diaphragms, the proximal end scarcely prostrate, oval in cross section; walls thin; containing periodically constricted, bead-like tubuli (modified acanthopores?), one or more to each zoëcium; apertures oval, separated by depressed interspaces, the peristomes minutely papillose; mesopores abundant, beginning on the basal lamina, decreasing in size with age, closely tabulate, the diaphragms finely punctured, their openings rarely showing, being closed by a common dermal sheet.

Genotype and only described species: *Stromatotrypa ovata* Ulrich. Ordovician. Three new species.

## MONOTRYPA Nicholson (PTYCHONEMA Hall and Simpson).

Zoarium massy, hemispherical, subglobose, or discoidal; zoecia not distinguishable into mature and immature regions, comparatively large, prismatic, with walls thin throughout and often crinkled; diaphragms remote; neither mesopores nor acanthopores.

Genotype: *Chaetetes undulatus* Nicholson. Ordovician, Silurian. Fourteen described and two new species.

## DILOTRYPA Nicholson (emend. Ulrich).

Zoarium hemispheric, discoid, globular, or irregularly massy, generally free; zoecia comparatively large, prismatic, with diaphragms; mesopores few to many, varying in size.

Genotype: *Favosites petropolitanus* Pander. Ordovician, Silurian. Four described and two new species.

## Family CALLOPORIDÆ Ulrich.

Zoarium ramose, subfrondescent, or discoidal; zoecia increasing in size very gradually, their proximal portion very much like mesopores; apertures subcircular, the openings of a greater or less number of mesopores interspersed among them, or polygonal, in which case the mesopores are few or wanting; no acanthopores.

## CALLOPORA Hall (emend. Ulrich).

Zoarium usually ramose, the branches frequently anastomosing and forming bushy clumps; zoecia at first prismatic, four to eight sided, gradually becoming cylindrical in most cases; at first with closely set diaphragms, then diaphragms more distant, finally in the mature region diaphragms usually closely set; apertures closed at times by perforated, often ornamented covers; mesopores more or less numerous, angular, crowded with diaphragms.

Genotype: *Callopora elegantula* Hall. Ordovician, Silurian. Twenty-three described and ten new species.

## CALLOPORELLA Ulrich.

Zoarium a thin expansion, free or incrusting; surface smooth or undulated; zoecia cylindrical, with thick walls and numerous diaphragms; apertures circular, arranged in regular intersecting series; mesopores numerous, angular, surrounding the zoecia in one or two series; acanthopores small and few.

Genotype: *Calloporella harrisi* Ulrich = *Monticulipora (Heterotrypa) circularis* James. Ordovician. Three species.

## Suborder CRYPTOSTOMATA Vine.

Zoecia short, pyriform to oblong, quadrate or hexagonal, sometimes tubular; orifice anterior, usually circular; the upper or front

side of the zoecium strengthened by a calcareous deposit, solid or vesicular in nature, which, as it proceeds, leaves an opening above the orifice, thus producing a shaft or vestibule, which may be crossed by diaphragms or hemisepta.

**Family PHYLLOPORINIDÆ Ulrich.**

Zoarium branching; branches free or anastomosing, celluliferous on one side only, the other side striated; zoecia more or less tubular, often with diaphragms; hemisepta wanting.

**PHYLLOPORINA Ulrich.**

Zoarium with branches irregularly anastomosing, with two to eight rows of apertures on the obverse side, on the reverse longitudinally striated; tabulated interstitial spaces generally present, closed at the surface; acanthopores often present.

Genotype: *Retepora trentonensis* Nicholson. Ordovician, Silurian. Fifteen described and four new species.

**DRYMOTRYPA Ulrich (THAMNOCELLA Simpson).**

Zoarium branching dichotomously at frequent intervals, on reverse longitudinally striated; zoecia in several ranges, tubular, springing from a thin double plate, beneath which a number of vesicles (aborted zoecia?) are present; vestibules expanding from the orifices to the angular apertures.

Genotype: *Retepora diffusa* Hall. Ordovician, Silurian. Four species.

**Family FENESTELLIDÆ King.**

Zoarium a reticulated expansion, celluliferous on one side only, composed of rigid branches, united by regular nonporiferous bars (dissepiments), or branches may be sinuous and anastomose at regular intervals, or may remain free; zoecia oblong, quadrate, or hexagonal in outline, embedded in a calcareous crust which is minutely porous, especially on the noncelluliferous side; orifice anterior, semielliptical, truncated behind; apertures rounded, with peristome and closed at times by a centrally perforated closure; a superior hemiseptum generally present, an inferior one less frequently.

**FENESTELLA Lonsdale (ACTINOSTOMA Young and Young, FLABELLIPORINA Simpson).**

Zoarium flabellate or funnel shaped, celluliferous on the inner side; branches generally straight, sometimes flexuous, connected at regular intervals by dissepiments; apertures in two rows, separated by a plain or tuberculated median keel.

Genotype: *Gorgonia antiqua* (Goldfuss?) Lonsdale. Accepted genotype: *Fenestella plebeia* McCoy. Range, Ordovician-Carboniferous. One hundred and eleven described and a considerable number of new species.

SEMICOSCINIUM Prout (CRYPTOPORA Nicholson, CARINOPORA Nicholson, CYCLOPORINA Simpson).

Zoarium funnel shaped, celluliferous on the outer side; dissepiments wide, very short, the branches appearing to anastomose on the non-poriferous face, where the fenestrules are subrhomboidal or rounded; apertures in two rows, median keel very high and expanded at the summit.

Genotype: *Semicoscinium rhomboideum* Prout. Silurian, Devonian. Twenty-six species.

#### FENESTRAPORA Hall.

Zoarium as in *Semicoscinium*, except that the reverse of the zoarium and the expanded summits of the carinae bear large scattered pores or pits.

Genotype: *Fenestrapora biperforata* Hall. Devonian. Three species.

#### ISOTRYPA Hall (TECTULIPORELLA Simpson).

Zoarium funnel-shaped, branches connected by dissepiments; apertures in two rows, separated by a carina; the carinae prominent, expanded at the summit; summits connected by round or oval lateral bars, usually situated above the dissepiments; on the reverse face a more or less conspicuous pore occurs on or near each dissepiment. The superstructure gives the obverse much the appearance of the reverse of the zoarium.

Genotype: *Fenestella (Isotrypa) conjunctiva* Hall. Devonian. Two species.

#### LOCULIPORA Hall (emend.) (TECTULIPORA Hall).

Zoarium funnel-shaped, branches connected by short, typically reduced to a minimum, nonporiferous dissepiments; apertures in two rows; branches and dissepiments carinated, the carinae coalescing; summits of carinae much expanded, angular, and slightly carinated, their width usually equaling that of the branches and dissepiments below and hence causing difficulty in distinguishing the obverse and reverse sides.

Genotype: *Fenestella perforata* Hall. Silurian, Devonian. Four species.

#### UNITRYPA Hall.

Zoarium funnel-shaped; branches connected by dissepiments; apertures in two rows, separated by a carina; carinae prominent, thickened

above and connected by thin oblique subimbricating plates (scalæ), which may be as numerous as the zoecia, or only two to each fenestrule.

Genotype: *Fenestella (Hemitrypa) lata* Hall. Silurian, Devonian. Sixteen species.

#### HEMITRYPA Phillips.

Zoarium as in *Fenestella*, but has a reticulated superstructure whose meshes correspond in number and position with the zoöcial apertures; the structure rests on pillars which rise at regular intervals from the moderate median keel of the branches.

Genotype: *Hemitrypa oculata* Phillips. Range, Silurian-Carboniferous. Sixteen species.

#### HELICOPORA Clappole.

Zoarium spiral, the inner edge thickened and nonporiferous, but without forming a solid axis; otherwise as in *Fenestella*.

Genotype: *Helicopora latispiralis* Clappole. Silurian, Devonian. Two species.

#### ARCHIMEDES Owen (ARCHIMEDIPORA D'Orbigny).

Zoarium a spirally wound fenestrated expansion supported by a solid calcareous, central axis; otherwise as in *Fenestella*.

Genotype: *Fenestella (Archimedes) wortheni* Hall. Mississippian. Sixteen species.

#### POLYPORA McCoy (PROTORETEPORA De Koninck, POLYPORELLA Simpson, FLABELLIPORELLA Simpson).

Zoarium as in *Fenestella* but has from two to eight rows of zoöcia on a branch, and lacks the median keel, though this is sometimes represented by a row of strong nodes or tubercles.

Genotype: *Polypora dendroides* McCoy. Range, Silurian-Carboniferous. Eighty-two described and other new species.

#### LYROPORA Hall (LYRORELLA, LYROPORINA, LYROPORIDRA Simpson).

Zoarium flabellate, the fenestrated portion spread between the arms of a nonporiferous U or V shaped calcareous support, which is free or pedunculate at the base; zoöcia in from two to five ranges; no median keel.

Genotype: *Fenestella (Lyropora) subquadrans* Hall. Mississippian. Seven species.

#### FENESTRALIA Prout.

Zoarium as in *Fenestella*, but with four rows of apertures, two on each side of the prominent median keel.

Genotype: *Fenestralia sancti-ludovici* Prout. Mississippian. Two species.

## THAMNISCUS King.

Zoarium as in Polypora, but branches bifurcate more frequently and are rarely or not at all connected by dissepiments.

Genotype: *Ceratophytes dubius* Schlotheim. Range, Silurian-Carboniferous. Thirteen species.

## PHYLLOPORA King.

Zoarium funnel-shaped, celluliferous on the outer face; fenestrules oval, branches anastomosing or connected by broad celluliferous dissepiments; zoecia in two ranges normally; without median keel.

Genotype: *Gorgonia ehrenbergi* Geinitz. Devonian. One species.

RETEPORIDRA (=RETEPORELLA Simpson)<sup>1</sup> (ANASTOMOPORA Simpson).

Zoarium a flabellate or undulating expansion with thickened margins; branches sinuous or zigzag, anastomosing at short and regular intervals so as to produce a regular series of oval fenestrules; apertures in three to seven rows; branches without a median carina.

Genotype: *Retepora undulata* Simpson = *Fenestella perundata* Hall. Devonian. Three species.

## RETEPORINA D'Orbigny.

Zoarium as in Reteporidra, but the zoecia are in two ranges, with the apertures separated or not by a more or less well-marked median carina.

Genotype: *Retepora prisca* Goldfuss. Devonian, Mississippian. Eight species.

PTILOPORELLA Hall (PINNAPORELLA Simpson, 1897).

Zoarium a fenestrated funnel-shaped expansion; branches of two sizes, the smaller or secondary branches proceeding laterally from the larger or primary ones, either from one or both sides; as the frond expands, other large branches proceed from the primary ones, this process continuing during the growth of the frond; apertures in two rows separated by a carina; the carinae of the primary branches more prominent than those of the secondary branches.

Genotype: *Fenestella (Ptiloporella) laticrescens* Hall. Silurian, Devonian. Four species.

PTILOPORINA Hall (PINNAPORELLA Simpson, 1895, PINNAPORINA Simpson).

Zoarium like that of Ptiloporella in mode of growth, but branches have three or more rows of apertures and no median carina.

Genotype: *Fenestella (Ptiloporina) conica* Hall. Devonian. Four species.

<sup>1</sup> Reteporidra is proposed for Reteporella, preoccupied by Busk, Challenger Report, X, 1884, p. 126.

**Family ACANTHOCLADIIDÆ Zittel.**

Zoarium a pinnate or fenestrate expansion, celluliferous on one face only, consisting of strong central stems which give off numerous smaller, lateral branches from their margins; the lateral branches are free or unite with those of the next stem; nonporiferous dissepiments rarely present; zoecial characters mostly as in the Fenestellidæ.

**PINNATOPORA Vine (GLAUCONOME of authors).**

Zoarium a small delicate stipe, with short, free lateral branches given off frequently and at regular intervals; apertures in two rows, separated by a moderate median keel.

Genotype: *Glaucome elegans* Young and Young. Range, Devonian-Carboniferous. Nineteen species.

**ACANTHOCLADIA King.**

Zoarium as in Pinnatopora, but larger and stronger and with three or more rows of apertures between which the surface is elevated into small longitudinal ridges or series of tubercules.

Genotype: *Ceratophytes anceps* Schlotheim. Carboniferous. One species.

**SEPTOPORA Prout.**

Zoarium a fenestrate, flabellate or leaf-like expansion; primary branches numerous, increasing by bifurcation or interpolation; the lateral branches unite with those from the adjacent primary branches; apertures in two rows on primary and lateral branches; reverse usually with fine striæ and scattered dimorphic pores.

Genotype: *Septopora cestriensis* Prout. Mississippian, Carboniferous. Eleven species.

**SYNOCLADIA King.**

Zoarium as in Septopora, but branches stronger and with three or more rows of apertures, usually between elevated ridges.

Genotype: *Retepora virgulacea* Phillips. No American species known.

**PTILOPORA McCoy (DENDRICOPORA De Koninck).**

Zoarium pinnate, the stipe much stronger than the oblique lateral branches, which are occasionally and irregularly united by dissepiments; apertures in two rows.

Genotype: *Ptilopora pluma* McCoy. Devonian, Mississippian. Eight species.

**ICHTHYORACHIS McCoy.**

Zoarium as in Ptilopora, but the stipe bears five or more rows of apertures and the branches usually three.

Genotype: *Ichthyorachis newenhami* McCoy. Silurian. One species.

DIPLOPORARIA (= DIPLOPORA Young and Young).<sup>1</sup>

Zoarium as in Pinnatopora, but has no lateral branchlets.

Genotype: *Diplopora marginalis* Young and Young. Mississippian, Carboniferous. Two species.

## RAMIPORA Toula.

## Family SPHRAGIOPORIDÆ Ulrich.

## SPHRAGIOPORA Ulrich.

Zoarium parasitic, forming small, circular, subhemispheric patches on foreign bodies; zoecia of the same type as in Fenestella; apertures circular, with a slight peristome, arranged in one or two rows on the summits of slightly elevated, radially arranged, broad ridges; spaces between raised portions solid.

Genotype and only known species: *Sphragiopora parasitica* Ulrich. Mississippian.

## Family ARTHROSTYLIDÆ Ulrich.

Zoarium articulated, consisting of numerous subcylindrical segments, united into small pinnate or bushy colonies, or of continuous, dichotomously divided branches; zoecia subtubular, more or less oblique, radially arranged about a central axis, and opening on all sides of the segments; or one side may be noncelluliferous and longitudinally striated.

## ARTHROSTYLUS Ulrich (Arthronema Ulrich).

Zoarium bushy, dichotomously branching, the whole consisting of numerous exceedingly slender, equal, subquadrate segments, united by terminal articulation; one face longitudinally striated, on each of the other, commonly three, faces a linear series of apertures between longitudinal ridges.

Genotype: *Helopora tenuis* James. Ordovician. Four species.

## HELOPORA Hall.

Like Arthrostylus, but the segments are generally larger and have zoecial apertures on all sides.

Genotype: *Helopora fragilis* Hall. Ordovician, Silurian. Twelve species.

## ARTHROCLEMA Billings.

Zoarium of segments celluliferous on all sides, articulated terminally and laterally in a pinnate manner; apertures oval, in series between longitudinal ridges.

Genotype: *Arthroclema pulchellum* Billings. Ordovician. Six species.

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<sup>1</sup>Diploporaria proposed for Diplopora, preoccupied by Schafhäütl.



## SCEPTROPORA Ulrich.

Zoarium of segments which become much expanded in their upper portion and at the top have a socket for the articulation of the next segment; lower portion striated, without apertures; upper part with apertures all around; apertures subovate, in linear series between longitudinal ridges.

Genotype: *Sceptropora facula* Ulrich. Ordovician, Silurian. Two species.

## NEMATOPORA Ulrich.

Zoarium very slender, ramose, continuous above the pointed basal extremity; zoecia subtubular, arranged radially around one or two minute axial tubes; apertures oval or subcircular; with peristome, generally in linear series between longitudinal ridges.

Genotype: *Nematopora ovalis* Ulrich. Range, Ordovician-Devonian. Fifteen species.

## Family RHABDOMESONTIDÆ Vine.

Zoarium ramose or simple, not articulated, sometimes with an axial tube, but generally solid, in which case the axial region is occupied by thin-walled primitive tubes, with or without diaphragms; hemisepta usually present, but never conspicuous; apertures circular or oval, usually in linear series between longitudinal elevated ridges, or in diagonally intersecting series; vestibule a rhombic or hexagonal sloping area; mesopores generally absent.

## RHOMBOPORA Meek.

Zoarium slender, ramose, solid; zoecia thick-walled in vestibular region; apertures in longitudinal or diagonally intersecting series; acanthopores present, sometimes of two kinds, large and small.

Genotype: *Rhombopora lepidodendroides* Meek. Range, Silurian-Carboniferous. Twenty-nine described and several undescribed species.

## RHABDOMESON Young and Young.

Zoarium with a slender axial tube, to which the proximal ends of the zoecia are attached; otherwise like Rhombopora.

Genotype: *Millepora gracilis* Phillips; from the Carboniferous of England and Scotland. No American species have yet been made known.

## CÆLOCONUS Ulrich.

Zoarium simple, hollow, very gradually expanding from an attenuated, striated base; zoecia short, with well developed hemisepta, apertures in diagonally intersecting series.

Genotype: *Cæloconus rhombicus* Ulrich. Mississippian. Two species.

## BACTROPORA Hall.

Zoarium simple or only slightly branched; lower extremity pointed; otherwise as in Rhombopora.

Genotype: *Trematopora* ? *granistriata* Hall. Devonian, Mississippian. Three species.

## ORTHOPORA Hall.

Zoarium ramose, solid; apertures in parallel longitudinal rows, with ridges between; acanthopores present.

Genotype: *Trematopora regularis* Hall. Silurian, Devonian. Twenty-six species.

## ACANTHOCLEMA Hall.

Zoarium slender, ramose; zoecia tubular, arising from a filiform axis in the center of the branch; apertures oval, in diagonally intersecting series, or linear series separated by ridges; vestibules polygonal, broadly sloping; acanthopores between the apertures.

Genotype: *Trematopora alternata* Hall. Devonian, Mississippian. Six species.

## NEMATAXIS Hall.

Zoarium slender, ramose; zoecia long, tubular, diverging obliquely from a central filiform axis, near the surface bending abruptly; interspaces solid; apertures oval, in linear series, separated by ridges, with very thin, slightly elevated peristomes; on the surface at intervals there are monticules destitute of cell apertures, which extend around the branch, giving it an annulated appearance.

Genotype: *Nemataxis fibrosus* Hall. Devonian. Two species.

## TROPIDOPORA Hall.

Zoarium slender, ramose; apertures in irregular longitudinal series, separated by sinuous ridges, with very thin slightly elevated peristomes.

Genotype and only known species: *Tropidopora nana* Hall. Devonian.

## STREBLOTRYPA Ulrich.

Zoarium ramose, slender, solid; zoecia long, tubular, diverging from the center; inferior hemiseptum best developed, situated rather far down; apertures regularly elliptical, with peristome, usually arranged in longitudinal series; below the apertures there are from one to twelve or more small pits, arranged, when numerous, in two or three rows; occasionally very small acanthopores present.

Genotype: *Streblotrypa nicklesi* Ulrich. Devonian, Carboniferous. Fifteen species.

## HYPHASMOPORA Etheridge, Jun.

From the Carboniferous of Scotland.

## Family CHAINODICTYONIDÆ.

## CHAINODICTYON Foerste.

Zoarium retiform, of inosculating branches, which are undulated transversely on the reverse; zoecia elongate, conical, or subtubular; apertures large, with thin interspaces in several rows, arranged in acutely diagonally intersecting series.

Genotype: *Chainodictyon laxum* Foerste. Carboniferous. Two species.

## Family PTILODICTYONIDÆ Zittel.

Zoarium bifoliate, composed of two layers of zoecia, grown together back to back, usually jointed, at least at the base, and forming leaf-like expansions or compressed branching or inosculating stems; mesotheca without median tubuli; zoecia usually have hemisepta and semielliptical orifices; apertures usually ovate, surrounded either by a sloping area or a ringlike peristome; vestibules separated by thick walls.

## PTILODICTYA Lonsdale (HETERODICTYA Nicholson).

Zoarium a simple, unbranched, lanceolate or falciform frond, narrow or wide, which articulates with a small basal expansion; in the young condition the zoarium consists of longitudinally arranged, narrow, oblong-quadrate zoecia, new zoecia of different width and arrangement being added subsequently on each side; walls of vestibules thick, solid, and with a double row of minute dots.

Genotype: *Flustra lanceolata* Lonsdale. Ordovician, Silurian. Sixteen species.

## ESCHAROPORA Hall (NICHOLSONIA Waagen and Wentzel).

Like Ptilodictya, but distinguished chiefly by the arrangement of the apertures, which are in decussating series, and by the sloping hexagonal area which surrounds the apertures.

Genotype: *Escharopora recta* Hall. Ordovician. Fourteen described, and eleven new species.

## CLATHROPORA Hall.

Zoarium composed of anastomosing branches, forming a regular network with round or oval fenestrules, with a pointed, articulating base; apertures usually subquadrate, arranged longitudinally.

Genotype: *Clathropora frondosa* Hall. Silurian, Devonian. Five species.

**PHÆNOPORA Hall.**

Like *Ptilodictya*, except that there are two mesopores in each interspace between the ends of the apertures.

Genotype: *Phænopora explanata* Hall. Ordovician, Silurian, Fourteen species.

**ARTHROPORA Ulrich.**

Zoarium bushy, composed of numerous articulating equal segments, spread in a plane; apertures elliptical, surrounded by a delicate peristome; interspaces with one or more thread-like ridges variously disposed, and with a row of minute papillæ.

Genotype: *Stictopora (Ptilodictya) shafferi* Meek. Ordovician. Five described and four new species.

**GRAPTODICTYA Ulrich.**

Zoarium a narrow bifurcating frond with a pointed base articulating with a small basal expansion; apertures subcircular, surrounded by a peristome subpolygonal in outline; interspaces depressed, usually with one or two fine tortuous elevated lines.

Genotype and only known species: *Ptilodictya elegans* Ulrich. Ordovician.

**STICTOPORINA Hall.**

Zoarium a simple or branching frond, from an obtusely pointed, articulating base; apertures oval, in decussating series, inclosed in rhomboidal or polygonal areas; interspaces elevated, angular.

Genotype: *Trematopora claviformis* Hall. Devonian. Three species.

**Family STICTOPORELLIDÆ.**

This family differs from the *Ptilodictyonidæ* mainly in that the zoarium is not articulated, but grows upward from, and is continuous with, a spreading base.

**STICTOPORELLA Ulrich.**

Zoarium branching, cribose, or leaf-like; zoœcia with the primitive portion tubular, usually long, generally without hemisepta, the inferior one only occasionally present; orifices at the bottom of a wide, sloping vestibule; thick-walled, untabulated mesopores occur between the apertures and line the margins of the zoarium.

Genotype: *Stictoporella interstincta* Ulrich = *Ptilodictya flexuosa* James. Ordovician. Nine described and four new species.

**PTILOTRYPA Ulrich.**

Zoarium ramose, with compressed or frondescent branches; surface with irregular longitudinally channeled areas appearing like maculæ;

zoecia long oblique tubes, with an occasional diaphragm; apertures ovate, very oblique, acute anteriorly, posterior margin somewhat elevated; at the upper extremity of the aperture an accessory pore.

Genotype and only known species: *Ptilotrypa obliquata* Ulrich. Ordovician.

#### INTRAPORA Hall.

Zoarium ramose, from a spreading base, branches compressed, dividing dichotomously; zoecia tubular, at first parallel to the mesotheca, then bend abruptly outward; apertures oval, with peristome; interspaces with minute angular pits, the openings of the numerous tabulated mesopores; the interspaces sometimes solid, the mesopores having been closed by a deposit of horizontally laminated calcareous tissue.

Genotype: *Intrapora puteolata* Hall. Devonian, Mississippian. Three species.

#### COSCINELLA Hall.

Zoarium an explanate frond, of anastomosing branches, from a spreading base; zoecia tubular, resting upon the mesotheca, with rather long, direct vestibules; spaces between the vestibules and the margins of the fenestrules occupied by numerous tabulated mesopores, opening upon the surface as minute angular pits; apertures circular, irregularly disposed.

Genotype: *Coscinella elegantula* Hall and Simpson. Devonian. Two species.

#### TÆNIODICTYA Ulrich.

Zoarium ramose, rising from a basal expansion; branches rather narrow, compressed; zoecia short, tubular, oblong, both hemisepta present; orifices subcircular, at bottom of a sloping vestibular area; interspaces ridgelike.

Genotype: *Tæniodictya ramulosa* Ulrich. Devonian, Mississippian. Seven species.

#### STICTOPORA Hall.

Zoarium ramose; zoecial tubes long, without hemisepta; apertures with distinct peristomes; interspaces wide, sometimes with raised lines.

Genotype: *Stictopora elegantula* Hall. Ordovician.

#### HELIOTRYPA Ulrich.

Zoarium bifoliate; zoecia subtubular, thin-walled, and prostrate upon the mesotheca, superior hemiseptum moderately developed; vestibules with thick walls, traversed obliquely by radially arranged minute tubuli; spaces between vestibules of variable width, occupied

by numerous, irregular, thick-walled, tabulated mesopores, which are also clustered at intervals into maculæ; orifices circular, at the bottom of the sloping vestibule.

Genotype and only known species: *Heliotrypa bifolia* Ulrich. Mississippian.

#### Family RHINIDICTYONIDÆ Ulrich.

Zoarium bifoliate, continuous or jointed, consisting of compressed branches or leaf-like expansions; occasionally trifoliate; zoœcia subquadrate, arranged longitudinally, inferior hemiseptum wanting; orifices and apertures elliptical or subcircular, sometimes a little truncated posteriorly; median tubuli between the median laminae and between the longitudinal rows of zoœcia; mesopores wanting, but vesicular tissue often developed.

#### RHINIDICTYA Ulrich.

Zoarium ramose, consisting of narrow, compressed, bifurcating, straight-edged branches with parallel margins, attached to foreign bodies by a continuous expanded base; apertures in longitudinal series between slightly elevated or flexuous ridges, carrying a crowded row of small blunt spines; space immediately surrounding the apertures sloping up to the summits of the ridges.

Genotype: *Rhinidictya nicholsoni* Ulrich. Ordovician. Nineteen species.

#### EURYDICTYA Ulrich.

Zoarium a broad, simple or irregularly divided, bifoliate expansion; surface with more or less conspicuous, small, solid maculæ or monticules; structure otherwise about as in Rhinidictya.

Genotype: *Eurydictya montifera* Ulrich. Ordovician. Four species.

#### PACHYDICTYA Ulrich.

Zoarium ramose, of narrow bifurcating stipes, with parallel margins, or irregular undulating fronds, with acute, nonporiferous margins; surface with small maculæ, surrounded by apertures slightly larger than the average; sometimes the marginal rows of apertures are also slightly larger than the average; zoœcia with thin walls, elliptical or subquadrate in shape, separated from adjoining zoœcia by small vesicles; vestibules direct, walls thickened and appearing ringlike in sections; spaces between vestibules traversed by one or more series of minute tubuli; one or more diaphragms developed; apertures commonly elliptical; interspaces usually forming a peristome about the apertures.

Genotype: *Pachydictya robusta* Ulrich. Ordovician, Silurian. Twenty-five described and several new species.

## PHYLLODICTYA Ulrich.

Zoarium simple or irregularly branched, growing from an expanded basal attachment; zoecia long, tubular, with diaphragms but no hemisepta, bending very gradually outward from the central axis, thus causing the apertures to be more or less strongly oblique, with the posterior edge liplike; interspaces wide, subsolid, traversed vertically by one or two rows of minute tubuli, which appear as papillæ at the surface.

Genotype: *Phyllodictya frondosa* Ulrich. Ordovician. Two species.

## EUSPILOPORA Ulrich.

Zoarium consisting of small, irregularly divided branches, with serrated or wavy edges; apertures in four or more linear series on the middle of the branch, between slightly elevated longitudinal ridges bearing numerous small nodes; alternately on the two sides are short rows directed obliquely upward; between the ends of the zoecia shallow, lenticular vesicles are found; interspaces traversed vertically by numerous minute tubuli.

Genotype: *Euspilopora serrata* Ulrich. Devonian. Four species.

## DICRANOPORA Ulrich.

Zoarium jointed; segments ligulate, rarely simple, usually bifurcating at the upper end; each extremity somewhat thickened; minute structure of zoecia and arrangement of apertures as in Rhinidictya.

Genotype: *Ptilodictya internodia* Miller and Dyer. Ordovician, Silurian. Five species.

## GONIOTRYPA Ulrich.

Zoarium with a prominent median ridge upon both sides of the double-leaved segments; otherwise like Dicanopora.

Genotype and only known species: *Goniotrypa bilateralis* Ulrich. Ordovician.

## TRIGONODICTYA Ulrich.

Zoarium of triangular branches, constructed upon the plan of Prismopora, but with zoecia and all minute details of structure as in Pachydictya.

Genotype: *Trigonodictya conciliatrix* Ulrich. Ordovician, Silurian. Two described and two new species.

## Family CYSTODICTYONIDÆ Ulrich.

Zoarium consisting of two or three layers of cells grown together back to back, forming branching, fenestrated, or entire leaf-like

expansions or triangular branches; zoecia semicordate or obovate-acuminate in outline, arranged longitudinally; orifices subcircular, vestibule elongated; apertures with peristome and more or less well-developed lunarium; interzoecial spaces occupied by vesicular tissue, often filled with a calcareous deposit near the surface.

CYSTODICTYA Ulrich (ARCANOPORA Vine, STICTOCELLA Simpson).

Zoarium ramose, branches sharply elliptical in cross section, with subparallel, nonporiferous margins; apertures subelliptical, in linear series between longitudinal ridges, which may not always be present, lunarium on the side of the aperture nearest the margin of the branch; interspaces finely striated, granulose or smooth; pits and cells show only in a worn condition.

Genotype: *Cystodictya ocellata* Ulrich. Range, Devonian-Carboniferous. Thirty-five species.

DICHOTRYPA Ulrich.

Zoarium a large, thin, bifoliate expansion; surface with solid maculae; otherwise as in *Cystodictya*.

Genotype: *Dichotrypa foliata* Ulrich. Devonian, Mississippian. Seven species.

COSCINIUM Keyserling (COSCINOTRYPA Hall and Simpson).

Zoarium of flattened branches, celluliferous on both sides, which inosculate at short intervals till there is produced a broad frond, perforated at rythmical intervals by circular or elliptical fenestrules; in other respects like *Cystodictya*.

Genotype: *Coscinium cyclops* Keyserling. Range, Devonian-Carboniferous. Five species.

TÆNIOPORA Nicholson (PTEROPORA Hall, STICTOPORIDRA Simpson).

Zoarium with a strongly elevated longitudinal central ridge on each face, so that a cross section of the branches is somewhat rhomboidal; otherwise like *Cystodictya*.

Genotype: *Tæniopora exigua* Nicholson. Devonian. Five species.

THAMNOTRYPA Hall (Thamnopora Hall).

Zoarium consisting of a very narrow stipe, from which proceed rectangularly lateral branches; celluliferous on each face; cell apertures oval; usually disposed in two parallel longitudinal rows, separated by a prominent ridge. Sometimes three rows occur and occasionally four rows for a short distance on the stipe. On the lateral branches there are never more than two rows.<sup>1</sup>

Genotype and only known species: *Thamnopora divaricata* Hall. Devonian.

<sup>1</sup> Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 546.



## SEMIOPORA Hall.

Zoarium a flattened, bifurcating frond, proceeding from a spreading base; branches narrow, with parallel margins and a narrow non-celluliferous marginal space; interzoecial spaces occupied by vesicular tissue; apertures oval or subcircular, regularly disposed in parallel longitudinal rows; apertures largest in marginal rows; between the apertures in a longitudinal direction are the openings of two small mesopores side by side.

Genotype and only known species: *Semiopora bistigmata* Hall. Devonian.

## PTILOCELLA Simpson.

Zoarium ensiform, with a pointed, striated base; apertures circular, arranged in parallel, longitudinal rows, separated by ridges; margins of frond striated, non-celluliferous.

Genotype and only known species: *Ptilodictya parallela* Hall. Devonian

## ACROGENIA Hall.

Zoarium segmented, arising from cylindrical rootlets; two segments proceed from the truncated termination of the proceeding one; segments obconical and striated at the base, gradually becoming flattened and showing apertures; apertures largest in the marginal rows, with prominent lunarium, in linear series separated by ridges.

Genotype and only known species: *Acrogenia prolifera* Hall. Devonian.

## PRISMOPORA Hall.

Zoarium ramose, of triangular, bifurcating or trifurcating branches, sometimes anastomosing and forming clumps; branches with the sides subequal, usually a little concave, edges sharp, sometimes serrated or wavy; zoecia arise from mesothecæ which radiate from the center to the margins; apertures varying in arrangement, sometimes on the summits of small papillæ; structure otherwise as given for the family.

Genotype: *Prismopora triquetra* Hall. Range, Devonian-Carboniferous. Nine species.

## SCALARIPORA Hall.

Zoarium with the faces of the triangular branches crossed by salient transverse ridges; otherwise like Prismopora.

Genotype: *Scalaripora scalariformis* Hall. Devonian. Five species.

## GLYPTOPORA Ulrich.

Zoarium a thin expansion, traversed on both surfaces by salient ridges or crests, uniting so as to form larger or smaller cup-shaped

cavities; or a unilaminar base on which the ridges are greatly developed and form large leaves; these ridges or leaves are composed of two layers of zoecia growing in opposite directions from a mesotheca; in the angles of each cup is a depressed noncelluliferous furrow which with similar furrows in neighboring cups produces a thin junction between the leaves; surface of the ridges and of the cups with elongated solid maculae or "dimples;" structure otherwise as given for the family.

Genotype: *Cosciniurn plumosum* Prout. Mississippian. Eight species.

#### PHRACTOPORA Hall.

Like Glyptopora except that the apertures are relatively more rounded and larger, and the junction angles are celluliferous and thicker than any other part of the leaves.

Genotype: *Phractopora cristata* Hall. Devonian, Mississippian. Four species.

#### CERAMELLA Hall.

Zoarium consisting of thin, foliaceous expansions, arising from a spreading base; celluliferous on each face; cells tubular, oblique; cell apertures oval or circular, disposed in quincunx order; surface marked by sterile maculae, which are usually depressed below the general surface of the branch.<sup>1</sup>

Genotype and only known species: *Ceramella scidacea* Hall. Devonian.

#### EVACTINOPORA Meek and Worthen.

Zoarium free, consisting of four or more vertical leaves, arranged in a cruciform or stellate manner; rays free in the upper half, united, thick, and nonporiferous in the basal portion; apertures on both faces of the leaves or rays, subcircular; interspaces solid at the surface, occupied by vesicular tissue internally.

Genotype: *Evactinopora radiata* Meek and Worthen. Mississippian. Four species.

GONIOCLADIA Etheridge, Jun. (CARINELLA Etheridge, Jun.).

#### Family ACTINOTRYPIDÆ Ulrich

##### ACTINOTRYPA Ulrich.

Zoarium a thin bifoliate expansion; apertures show the projecting ends of from eight to ten vertical septa-like ridges that extend down along the sides of the vestibule nearly or quite to the orifice.

Genotype and only known species: *Fistulipora peculiaris* Rominger. Mississippian.

<sup>1</sup> Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.

## Family CYCLOPORIDÆ.

## CYCLOPORA Prout.

Zoarium unilaminar, parasitic or free; zoecia subtubular, hemisepta wanting or but little developed; vestibules with rather thick walls; between the vestibules are mesopores crossed by thick diaphragms, which usually have a central perforation and are open at the surface; apertures subcircular, with a smooth or granulose peristome; acanthopores sometimes present.

Genotype: *Cycloporella fungia* Prout. Mississippian. Two species.

## CYCLOPORELLA Ulrich.

Zoarium a thin discoidal expansion; zoecia subtubular; vestibules with a succession of superior hemisepta; irregular mesopores abundant; numerous acanthopores of large size.

Genotype: *Cycloporella spinifera* Ulrich. Mississippian. Two species.

## PROUTELLA Ulrich.

Zoarium discoid, thin, free, under surface with a concentrically wrinkled epitheca; zoecia subtubular, thin-walled; apertures broad-elliptical, surrounded by a narrow sloping area, hexagonal in outline; when perfect the apertures have a depressed calcareous plate that closes a little less than two-thirds of the opening, the orifice left being subtriangular in form, without thickened margins, and situated at the anterior side; with age the vestibules become elongated and are intersected by incomplete diaphragms.

Genotype and only known species: *Cycloporella discoides* Prout. Mississippian.

## WORTHENOPORA Ulrich.

Zoarium bifoliate, branching or palmate; zoecia very regularly arranged, elongate rhomboidal; apertures semielliptical, the truncated posterior margin somewhat raised; on the surface the line of junction between adjoining zoecia is marked by an elevated ridge; the elongate triangular space below the apertures perfectly plain.

Genotype: *Worthenopora spinosa* Ulrich. Mississippian. Two species.

## Family RHINOPORIDÆ Ulrich.

Zoarium variable in form; zoecia prone along the basal membrane, simple, oblong, or rhomboidal; vestibules direct, hemisepta wanting or almost so; front of zoecia below vestibule commonly strengthened with solid or vesicular tissue.

## RHINOPORA Hall.

Zoarium forming large, undulating bifoliate expansions, celluliferous on both sides; surface usually smooth, rarely with solid monticules, and traversed by slender, rounding, bifurcating ridges, which appear as shallow grooves when the surface is worn; apertures nearly circular, occupying the summits of prominent papillæ; mesopores present, but closed at the surface; large median tubuli in the mesotheca.

Genotype: *Rhinopora verrucosa* Hall. Silurian. Three species.

## DIAMESOPORA Hall.

Zoarium ramose, of hollow stems lined internally by an epitheca; zoecia simple, hexagonal, or rhomboidal, with an oval orifice in the anterior half, which with growth forms a tubular vestibule; apertures with peristomes equally elevated or highest posteriorly; intervestibular spaces compact or horizontally laminated.

Genotype: *Diamesopora dichotoma* Hall. Silurian. Five species.

## LICHENALIA Hall.

Zoarium a subcircular unilaminar expansion; zoecia prostrate; elongate-subrhomboidal, with direct subtubular vestibules; apertures rounded, with peristome much elevated on the posterior side; interspaces depressed, ? cellulose.

Genotype and only known species: *Lichenalia concentrica* Hall. Silurian.

## STICTOTRYPA Ulrich.

Zoarium ramose, not pointed at the base; branches dichotomously dividing, narrow, compressed; apertures circular or elliptical, with distinct, evenly elevated peristome; interspaces flat or concave, composed of horizontally laminated solid tissue.

Genotype: *Stictopora similis* Hall. Silurian. Three species.

## Suborder CHILOSTOMATA Busk.

Zoecia oval, turbinate, urceolate, quadrate, or hexagonal, arranged usually side by side; orifice more or less anterior, of less diameter than the zoecium, closed by a movable cover; ova commonly matured in external marsupia: appendicular organs frequently present.

## Family PALESCHARIDÆ Ulrich.

## PALESCHARA Hall.

Zoarium forming thin incrustations upon Orthocerata and other organisms; zoecia very short, direct, with thin walls; apertures (if such they can be called) long hexagonal or polygonal.

Genotype: *Paleschara incrustans* Hall. Range, Ordovician-Devonian. Thirteen species.

## FOREIGN GENERA.

A number of generic terms, founded for species occurring in European Paleozoic deposits, have been proposed in European publications, but have not found their way into American literature. A list of these is subjoined, though it is scarcely probable that the list is complete. A considerable number of these generic terms appeared before naturalists had begun to feel the necessity for precise and complete diagnoses and descriptions, so that it is not possible to fit them into our present classification. When the material is examined upon which they were based, most of these early genera will be found to occupy the same ground as genera founded much later and now in current use. Scarcely any of the genera listed below have received a second treatment, so that nothing has been added to the original unsatisfactory descriptions. We have thought that it might not be amiss to hazard a guess, based on descriptions and figures, both commonly lacking definiteness, as to what these genera may prove to be.

## ACANTHOPORA Young and Young.

*Acanthopora* Young and Young, Proc. Nat. Hist. Soc. Glasgow, II, 1875, p. 327; Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, 1885, p. 83. Genotype: *Glauconome* (*Acanthopora*) *stellipora* Young and Young, Proc. Nat. Hist. Soc. Glasgow, II, 1875, p. 327, pl. iv, 25, 26.

This subgenus seems to be based upon the perfect condition of the aperture of *Pinnatopora*, a feature of not even specific importance. However, the name would drop anyway, as it was used by D'Orbigny, Prodr. de Pal., I, 1850, p. 318.

## AMORPHOTRYPA Whidborne.

*Amorphotrypa* Whidborne, Devonian Fauna England, II, Part 4, 1895, p. 181 (Pal. Soc. Publ., XLIX). Genotype: *Isotrypa*? *Gregorii* Whidborne, loc. cit., p. 181, pl. xx, 1-2 e.

This genus, whose structure can not be said to be fully understood as yet, seems closely related to *Isotrypa*. It is a member of the Fenestellidæ.

## ARCHÆOPORA Eichwald.

*Archæopora* Eichwald, Lethæa Rossica, I, 1860, p. 405.

Eight species are given by Eichwald under this genus, which appears to cover some of the ground, at least, which is now included in *Callopora* Hall.

## CHASMATOPORA Eichwald.

*Chasmatopora* Eichwald, Lethæa Rossica, I, 1860, p. 370. Only species given: *C. tenella* Eichwald, loc. cit., p. 371.

This appears to be a *Phylloporina*.

## DIPHOTHEROPORA De Koninck.

*Diphtheropora* De Koninck, Recherches sur les Animaux Fossiles, part 2, 1873, p. 13.

Genotype (only species): *D. regularis* De Koninck, loc. cit., p. 13, pl. i, 4.

This is almost certainly an *Eridopora*.

## DISTEICHIA Sharpe.

*Disteichia* Sharpe, Quar. Jour. Geol. Soc. London, IX, 1853, p. 146. Only species:

*D. reticulata* Sharpe, loc. cit., p. 146, pl. vii, 8 a-d.

This appears to be a synonym for *Clathropora* Hall

## FILITES (Barrande) Pořta.

*Filites* (Barrande) Pořta, Systême Silurien Bohême, VIII, tome 1, 1894, p. 108.

Genotype: *F. cribrosus* Pořta, loc. cit., p. 110, pl. x, 19-25.

This appears to be a type not yet discovered in American strata.

## LEMMATOPORA Pořta.

*Lemmatopora* Pořta, Systême Silurien Bohême, VIII, tome 1, 1894, p. 102. Genotype:

*L. angulosa* Pořta, loc. cit., p. 105, pl. ii, 20-21.

This genus as described seems in part equivalent to *Stictoporella* Ulrich, but probably includes forms referable to other genera.

## MASTOPORA Eichwald.

*Mastopora* Eichwald, Lethæa Rossica, I, 1860, p. 434. Only species: *M. concava*

Eichwald, loc. cit., p. 434, pl. xxvii, 7 a-d.

This may be related to *Rhinopora* Hall.

## MICROPORA Eichwald.

*Micropora* Eichwald, Lethæa Rossica, I, 1860, p. 393.

Three species are given, *M. gracilis* Eichwald, *M. cyclostomoides*, *M. rhombica*. May be *Stictoporella*, or perhaps *Clathropora*.

## MYRIOLITHES Eichwald.

*Myriolites* Eichwald, Lethæa Rossica, I, 1860, p. 450.

Four species are cited; probably monticuliporoids.

## PTEROPORA Eichwald.

*Pteropora* Eichwald, Lethæa Rossica, I, 1860, p. 395.

Two species, *P. pennula* and *P. exilis*, are given. Eichwald says his genus is related to *Ichthyorachis* McCoy.

## RHABDINOPORA Eichwald.

*Rhabdinopora* Eichwald, Lethæa Rossica, I, 1860, p. 368.

Two species, *R. flabelliformis* Eichwald and *R. undulata* Eichwald, are given. Seems to be a fenestellid with one row of cells to the branch; this is a type unknown to us, unless it be a case of defective observation.

## SERIOPORA Počta.

*Seriopora* Počta, Système Silurien Bohême, VIII, tome 1, 1894, p. 78. Genotype: *S. petala* Počta, loc. cit., p. 79, pl. xiii, 8-12.

Počta has undoubtedly wrongly interpreted D'Orbigny's genus *Reteporina*, which was based on Goldfuss's *Retepora prisca*. Počta's *Seriopora* is the *Reteporina* of D'Orbigny, as interpreted by Simpson and as we give it; Počta's *Reteporina* (loc. cit., p. 80) appears to be in part *Fenestella* and perhaps, in part, another as yet unnamed genus of the Fenestellidæ.

## SULCORETEPORA D'Orbigny.

*Sulcoretepora* D'Orbigny, Prodr. de Pal., I, 1850, p. 152.

This genus was based upon *Flustra parallela* Phillips, 1833. The definition given is too meager for recognition. The *Flustra parallela* of Phillips is now considered to be a *Cystodictya*.

## UTROPORA Počta.

*Utropora* Počta, Système Silurien Bohême, VIII, tome 1, 1894, p. 75. Genotype: *U. nobilis* (Barrande) Počta, loc. cit., p. 76, pl. xvii, 4-17.

Like *Fenestella*, but differs chiefly in having very much elongated fenestrules (6 by 1 mms.) and in lacking a median keel.

## LIST OF GENERA, SHOWING SYSTEMATIC POSITION.

Genus.	Family.	Suborder.
<i>Acanthocladia</i> King.	Acanthocladiidæ.	Cryptostomata.
<i>Acanthoclema</i> Hall.	Rhabdomesontidæ.	Cryptostomata.
<i>Acrogenia</i> Hall.	Cystodictyonidæ.	Cryptostomata.
<i>Actinotrypa</i> Ulrich.	Actinotrypidae.	Cryptostomata.
<i>Amplexopora</i> Ulrich.	Amplexoporidae.	Trepostomata.
<i>Anisotrypa</i> Ulrich.	Batostomellidæ.	Trepostomata.
<i>Anolotichia</i> Ulrich.	Ceramoporidæ.	Cyclostomata.
<i>Archimedes</i> Owen.	Fenestellidæ.	Cryptostomata.
<i>Arthroclema</i> Billings.	Arthrostylidæ.	Cryptostomata.
<i>Arthropora</i> Ulrich.	Ptilodictyonidæ.	Cryptostomata.
<i>Arthrostylus</i> Ulrich.	Arthrostylidæ.	Cryptostomata.
<i>Ascodictyon</i> Nicholson and Etheridge Jun.	Ascodictyonidæ.	Ctenostomata.
<i>Aspidopora</i> Ulrich.	Monticuliporidæ.	Trepostomata.
<i>Atactopora</i> Ulrich.	Heterotrypidae.	Trepostomata.

Genus.	Family.	Suborder.
Atactoporella Ulrich.	Monticuliporidae.	Trepostomata.
Bactropora Hall.	Rhabdomesontidae.	Cryptostomata.
Batostoma Ulrich.	Trematoporidae.	Trepostomata.
Batostomella Ulrich.	Batostomellidae.	Trepostomata.
Berenicea Lamouroux.	Diastoporidae.	Cyclostomata.
Botryllopora Nicholson.	Botrylloporidae.	Cyclostomata.
Buskopora Ulrich.	Fistuliporidae.	Cyclostomata.
Bythopora Miller and Dyer.	Batostomellidae.	Trepostomata.
Bythotrypa Ulrich.	Ceramoporidae.	Cyclostomata.
Callopora Hall.	Calloporidae.	Trepostomata.
Calloporella Ulrich.	Calloporidae.	Trepostomata.
Callotrypa Hall.	Batostomellidae.	Trepostomata.
Ceramella Hall.	Cystodictyonidae.	Cryptostomata.
Ceramophylla Ulrich.	Ceramoporidae.	Cyclostomata.
Ceramopora Hall.	Ceramoporidae.	Cyclostomata.
Ceramoporella Ulrich.	Ceramoporidae.	Cyclostomata.
Chainodictyon Foerste.	Chainodictyonidae.	Cryptostomata.
Chiloporella Ulrich.	Ceramoporidae.	Cyclostomata.
Chilotrypa Ulrich.	Fistuliporidae.	Cyclostomata.
Clathropora Hall.	Ptilodictyonidae.	Cryptostomata.
Clonopora Hall.	Entalophoridae.	Cyclostomata.
Cœlocaulis Hall.	Fistuliporidae.	Cyclostomata.
Cœloclema Ulrich.	Ceramoporidae.	Cyclostomata.
Cœloconus Ulrich.	Rhabdomesontidae.	Cryptostomata.
Constellaria Dana.	Constellariidae.	Trepostomata.
Coscinella Hall.	Stictoporellidae.	Cryptostomata.
Coscinium Keyserling.	Cystodictyonidae.	Cryptostomata.
Crepidopora Ulrich.	Ceramoporidae.	Cyclostomata.
Crisinella Hall.	Idmoneidae.	Cyclostomata.
Cyclopora Prout.	Cycloporidae.	Cryptostomata.
Cycloporella Ulrich.	Cycloporidae.	Cryptostomata.
Cyclotrypa Ulrich.	Fistuliporidae.	Cyclostomata.
Cystodictya Ulrich.	Cystodictyonidae.	Cryptostomata.
Cystopora Hall.	Entalophoridae.	Cyclostomata.
Dekayella Ulrich.	Heterotrypidæ.	Trepostomata.
Dekayia Milne-Edwards and Haime.	Heterotrypidæ.	Trepostomata.
Diamesopora Hall.	Rhinoporidae.	Cryptostomata.
Diastoporina Ulrich.	Diastoporidae.	Cyclostomata.
Dichotrypa Ulrich.	Cystodictyonidae.	Cryptostomata.
Dicranopora Ulrich.	Rhinodictyonidae.	Cryptostomata.
Diploclema Ulrich.	Entalophoridae.	Cyclostomata.
Diploporaria.	Acanthocladiidae.	Cryptostomata.
Diplotrypa Nicholson.	Trematoporidae.	Trepostomata.
Discotrypa Ulrich.	Amplexoporidae.	Trepostomata.
Dittopora Dybowski.	Constellariidae.	Trepostomata.
Drymotrypa Ulrich.	Phylloporinidae.	Cryptostomata.
Eridopora Ulrich.	Fistuliporidae.	Cyclostomata.
Eridotrypa Ulrich.	Batostomellidae.	Trepostomata.
Escharopora Hall.	Ptilodictyonidae.	Cryptostomata.
Eurydictya Ulrich.	Rhinodictyonidae.	Cryptostomata.
Euspiopora Ulrich.	Rhinodictyonidae.	Cryptostomata.



Genus.	Family.	Suborder.
Evactinopora Meek and Worthen.	Cystodictyonidæ.	Cryptostomata.
Favicella Hall.	Fistuliporidæ.	Cyclostomata.
Fenestella Lonsdale.	Fenestellidæ.	Cryptostomata.
Fenestralia Prout.	Fenestellidæ.	Cryptostomata.
Fenestrapora Hall.	Fenestellidæ.	Cryptostomata.
Fistulipora McCoy.	Fistuliporidæ.	Cyclostomata.
Glossotrypa Hall.	Fistuliporidæ.	Cyclostomata.
Glyptopora Ulrich.	Cystodictyonidæ.	Cryptostomata.
Goniocladia Etheridge, Jun.	Cystodictyonidæ.	Cryptostomata.
Goniotrypa Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Graptodictya Ulrich.	Ptilodictyonidæ.	Cryptostomata.
Hederella Hall.	Diastoporidæ.	Cyclostomata.
Helicopora Claypole.	Fenestellidæ.	Cryptostomata.
Heliotrypa Ulrich.	Stictoporellidæ.	Cryptostomata.
Helopora Hall.	Arthrostylidæ.	Cryptostomata.
Hemiphragma Ulrich.	Trematoporidæ.	Trepostomata.
Hemitrypa Phillips.	Fenestellidæ.	Cryptostomata.
Hernodia Hall.	Diastoporidæ.	Cyclostomata.
Heterotrypa Nicholson.	Heterotrypidæ.	Trepostomata.
Hexagonella Waagen and Wentzel.	Fistuliporidæ.	Cyclostomata.
Homotrypa Ulrich.	Monticuliporidæ.	Trepostomata.
Homotrypella Ulrich.	Monticuliporidæ.	Trepostomata.
Hyphasmopora Etheridge, Jun.	Rhabdomesontidæ.	Cryptostomata.
Ichthyorachis McCoy.	Acanthocladiidæ.	Cryptostomata.
Idiotrypa Ulrich.	Constellariidæ.	Trepostomata.
Intrapora Hall.	Stictoporellidæ.	Cryptostomata.
Isotrypa Hall.	Fenestellidæ.	Cryptostomata.
Leptotrypa Ulrich.	Heterotrypidæ.	Trepostomata.
Lichenalia Hall.	Rhinoporidæ.	Cryptostomata.
Lichenotrypa Ulrich.	Fistuliporidæ.	Cyclostomata.
Lioclema Ulrich.	Batostomellidæ.	Trepostomata.
Lioclemella Foerste.	Batostomellidæ.	Trepostomata.
Loculipora Hall.	Fenestellidæ.	Cryptostomata.
Lyropora Hall.	Fenestellidæ.	Cryptostomata.
Meekopora Ulrich.	Fistuliporidæ.	Cyclostomata.
Mesotrypa Ulrich.	Monticuliporidæ.	Trepostomata.
Mitoclema Ulrich.	Entalophoridæ.	Cyclostomata.
Monotrypa Nicholson.	Trematoporidæ.	Trepostomata.
Monotrypella Ulrich.	Amplexoporidæ.	Trepostomata.
Monticulipora D'Orbigny.	Monticuliporidæ.	Trepostomata.
Nemataxis Hall.	Rhabdomesontidæ.	Cryptostomata.
Nematopora Ulrich.	Arthrostylidæ.	Cryptostomata.
Nicholsonella Ulrich.	Constellariidæ.	Trepostomata.
Orbipora Eichwald.	Heterotrypidæ.	Trepostomata.
Orthopora Hall.	Rhabdomesontidæ.	Cryptostomata.
Pachydictya Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Paleschara Hall.	Palescharidæ.	Chilostomata.
Peronopora Nicholson.	Monticuliporidæ.	Trepostomata.
Petalotrypa Ulrich.	Amplexoporidæ.	Trepostomata.

Genus.	Family.	Suborder.
Petigopora Ulrich.	Heterotrypidæ.	Trepostomata.
Phacelopora Ulrich.	Phaceloporidae.	Cyclostomata.
Phænopora Hall.	Ptilodictyonidæ.	Cryptostomata.
Phractopora Hall.	Cystodictyonidæ.	Cryptostomata.
Phyllodictya Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Phyllopora King.	Fenestellidæ.	Cryptostomata.
Phylloporina Ulrich.	Phylloporinidæ.	Cryptostomata.
Pinacotrypa Ulrich.	Fistuliporidae.	Cyclostomata.
Pinnatopora Vine.	Acanthocladiidæ.	Cryptostomata.
Polypora McCoy.	Fenestellidæ.	Cryptostomata.
Prasopora Nicholson and Etheridge Jun.	Monticuliporidae.	Trepostomata.
Prismopora Hall.	Cystodictyonidæ.	Cryptostomata.
Proboscina Audouin.	Diastoporidæ.	Cyclostomata.
Protocrisina Ulrich.	Idmoneidæ.	Cyclostomata.
Proutella Ulrich.	Cycloporidæ.	Cryptostomata.
Ptilocella Simpson.	Cystodictyonidæ.	Cryptostomata.
Ptilodictya Lonsdale.	Ptilodictyonidæ.	Cryptostomata.
Ptilopora McCoy.	Acanthocladiidæ.	Cryptostomata.
Ptiloporella Hall.	Fenestellidæ.	Cryptostomata.
Ptiloporina Hall.	Fenestellidæ.	Cryptostomata.
Ptilotrypa Ulrich.	Stictoporellidæ.	Cryptostomata.
Ramipora Toulæ.	Acanthocladiidæ.	Cryptostomata.
Reteporida.	Fenestellidæ.	Cryptostomata.
Reteporina D'Orbigny.	Fenestellidæ.	Cryptostomata.
Reptaria Rolle.	Diastoporidæ.	Cyclostomata.
Rhabdomeson Young and Young.	Rhabdomesontidæ.	Cryptostomata.
Rhinidictya Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Rhinopora Hall.	Rhinoporidæ.	Cryptostomata.
Rhombopora Meek.	Rhabdomesontidæ.	Cryptostomata.
Rhopalonaria Ulrich.	Rhopalonariidæ.	Ctenostomata.
Scalaripora Hall.	Cystodictyonidæ.	Cryptostomata.
Scenellopora Ulrich.	Ceramoporidæ.	Cyclostomata.
Sceptropora Ulrich.	Arthrostylidæ.	Cryptostomata.
Selenopora Hall.	Fistuliporidae.	Cyclostomata.
Semicoscium Prout.	Fenestellidæ.	Cryptostomata.
Semiopora Hall.	Cystodictyonidæ.	Cryptostomata.
Septopora Prout.	Acanthocladiidæ.	Cryptostomata.
Spatiopora Ulrich.	Ceramoporidæ.	Cyclostomata.
Sphragiopora Ulrich.	Sphragioporidae.	Cryptostomata.
Stellipora Hall.	Constellariidæ.	Trepostomata.
Stenopora Lonsdale.	Batostomellidæ.	Trepostomata.
Stictopora Hall.	Stictoporellidæ.	Cryptostomata.
Stictoporella Ulrich.	Stictoporellidæ.	Cryptostomata.
Stictoporina Hall and Simpson.	Ptilodictyonidæ.	Cryptostomata.
Stictotrypa Ulrich.	Rhinoporidæ.	Cryptostomata.
Stomatopora Bronn.	Diastoporidæ.	Cyclostomata.
Streblotrypa Ulrich.	Rhabdomesontidæ.	Cryptostomata.
Stromatotrypa Ulrich.	Trematoporidæ.	Trepostomata.
Strotopora Ulrich.	Fistuliporidae.	Cyclostomata.
Synocladia King.	Acanthocladiidæ.	Cryptostomata.

Genus.	Family.	Suborder.
Tæniodictya Ulrich.	Stictoporellidæ.	Cryptostomata.
Tæniopora Nicholson.	Cystodictyonidæ.	Cryptostomata.
Thallostigma Hall.	Batostomellidæ.	Trepostomata.
Tnamniscus King.	Fenestellidæ.	Cryptostomata.
Thamnotrypa Hall.	Cystodictyonidæ.	Cryptostomata.
Trematella Hall.	Batostomellidæ.	Trepostomata.
Trematopora Hall.	Trematoporidae.	Trepostomata.
Trigonodictya Ulrich.	Rhinodictyonidæ.	Cryptostomata.
Tropidopora Hall.	Rhabdomesontidæ.	Cryptostomata.
Unitrypa Hall.	Fenestellidæ.	Cryptostomata.
Vinella Ulrich.	Ascodictyonidæ.	Ctenostomata.
Worthenopora Ulrich.	Cycloporidæ.	Cryptostomata.

## LIST OF INVALID GENERIC NAMES.

Actinostoma Young and Young=Fenestella Lonsdale.  
 Alecto Lamouroux (preoccupied). Now Stomatopora Bronn.  
 Anastomopora Simpson=Reteporida.  
 Arcanopora Vine=Cystodictya Ulrich.  
 Archimediopora D'Orbigny=Archimedes Owen.  
 Arthronema Ulrich (preoccupied). Now Arthrostylus Ulrich.  
 Carinella Etheridge, Jun. Now Goniocladia Etheridge, Jun.  
 Carinopora Nicholson=Semicoscinium Prout.  
 Coscinotrypa Hall and Simpson=Coscinium Keyserling.  
 Cryptopora Nicholson=Semicoscinium Prout.  
 Cycloporina Simpson=Semicoscinium Prout.  
 Dendricopora De Koninck=Ptilopora McCoy.  
 Dianulites Eichwald.  
 Diastopora of authors (not Lamouroux)=Berenicea Lamouroux.  
 Diastoporella Vine=Berenicea Lamouroux.  
 Didymopora Ulrich=Fistulipora McCoy.  
 Diplopora Young and Young=Diploporaria.  
 Dybowskia Waagen and Pichl=Fistulipora McCoy.  
 Dybowskiella Waagen and Pichl=Fistulipora McCoy.  
 Enallopora D'Orbigny. Not recognized.  
 Fenestrellina D'Orbigny. Not recognized.  
 Fistulicella Simpson=Pinacotrypa Ulrich.  
 Fistuliporella Simpson=Fistulipora McCoy.  
 Fistuliporidra Simpson=Favicella Hall.  
 Fistuliporina Simpson=Pinacotrypa Ulrich.  
 Flabelliporella Simpson=Polypora McCoy.  
 Flabelliporina Simpson=Fenestella Lonsdale.  
 Geinitzella Waagen and Wentzel=Batostomella Ulrich.  
 Glauconome of authors (not Goldfuss)=Pinnatopora Vine.  
 Heterodictya Nicholson=Ptilodictya Lonsdale.  
 Lichenalia Hall (in part)=Fistulipora McCoy.  
 Lyroporella Simpson=Lyropora Hall.  
 Lyroporidra Simpson=Lyropora Hall.  
 Lyroporina Simpson=Lyropora Hall.  
 Nebulipora McCoy. Not recognized.  
 Nicholsonia Davis=Hederella Hall.  
 Nicholsonia Waagen and Wentzel=Escharopora Hall.  
 Odontotrypa Hall=Buskopora Ulrich.

Omniretepora D'Orbigny. Not recognized.  
 Orbitulites Eichwald (preoccupied). Now Orbipora Eichwald.  
 Penniretepora D'Orbigny. Not recognized.  
 Pileotrypa Hall=Eridopora Ulrich.  
 Pinnaporella Simpson (1895)=Ptiloporina Hall.  
 Pinnaporella Simpson (1897)=Ptiloporella Hall.  
 Pinnaporina Simpson=Ptiloporina Hall.  
 Polyporella Simpson=Polypora McCoy.  
 Protoretepora De Koninck=Polypora McCoy.  
 Pteropora Hall=Tæniopora Nicholson.  
 Ptilionella Hall=Reptaria Rolle.  
 Ptychonema Hall and Simpson=Monotrypa Nicholson.  
 Reteoporella Simpson=Reteporidra.  
 Rosacilla Roemer=Berenicea Lamouroux.  
 Sagenella Hall=Berenicea Lamouroux.  
 Stictocella Simpson=Cystodictya Ulrich.  
 Stictoporidra Simpson=Tæniopora Nicholson.  
 Subretepora D'Orbigny. Not recognized.  
 Tabulipora Young=Stenopora Lonsdale.  
 Tectulipora Hall=Loculipora Hall.  
 Tectuliporella Simpson=Isotrypa Hall.  
 Thamnocella Simpson=Drymotrypa Ulrich.  
 Thamnopora Hall (preoccupied). Now Thamnotrypa Hall.  
 Tubuliclidia Lonsdale=Stenopora Lonsdale.

## DISTRIBUTION.

### GEOGRAPHIC DISTRIBUTION

The most favored part of the earth for reading Paleozoic history is the continent of North America. On this continent the deposition of sediments proceeded under such fortunate conditions in the Paleozoic ages and the sediments have since been so little disturbed that their succession is easily made out. A large inland sea occupied the interior of the continent flanked on the east and west by more or less continuing barriers. The wide area of this sea, coupled with its comparative shallowness, provided conditions highly favorable for an abundant marine life, and especially for bryozoa. In the region of the eastern barrier, now the eastern highland of the continent, judging from the fossil remains hitherto made known, the conditions were often, perhaps generally, unfavorable for bryozoan life and only locally are the remains of this class found in the Paleozoic rocks of the Appalachian region; but the wide sea stretching for a thousand or more miles westward from the eastern barrier, gradually filling with the detritus from the earlier-formed or primeval rocks, supported a wealth of marine forms, among which the bryozoa formed a leading element.

The Eurasian land mass presents many surface exposures of Paleozoic age, but they are to a greater or less extent disconnected. In Asia the Salt Range of India has yielded Carboniferous bryozoa with its other fossils. The region of the Ural Mountains, the regions bordering upon

the Baltic Sea, England, and Scotland, contain most of the Paleozoic strata which have thus far yielded bryozoa. Three or four times as many species have been made known from North America as from all the rest of the world.

The earliest bryozoa, so far as we now know, are in the Chazy. They are few in numbers, but this may be because they have not been systematically collected and studied.

The Trenton period, in all its subdivisions, Stones River (Birdseye), Black River, and Trenton proper (including the Galena), is a vast tomb of bryozoa. The seas seem to have swarmed with these minute creatures. In eastern Canada and New York, thence stretching through Ontario to the northwest into Wisconsin, Minnesota, and Manitoba, are deposits following roughly the outline of the northern or north-eastern border of the interior sea. Deposits formed along what was soon to appear as an island or islands—the Cincinnati anticline—are also open to our inspection in Kentucky and Tennessee. At isolated points in Illinois and Missouri Trenton deposits are also exposed. Also isolated tracts of early Silurian times are exposed in the western highland. The Trenton is preeminently a continental formation. Scarcely anywhere between the two highlands does the drill fail to show Trenton if sent deep enough.

The succeeding period, the Cincinnati—by some authors still termed the Hudson River group, though the name seems to be a misnomer—is again a formation of continental extent, in which bryozoa flourished. The deposits in eastern New York along the Hudson River, supposedly of this age, have yielded no bryozoa and few other fossils. The Utica shale and the Lorraine and Pulaski shales and sandstones in the region of the Mohawk Valley and southeast of Lake Ontario were formed under conditions not generally propitious for bryozoa. But in the interior, in the region of the Cincinnati anticline, conditions were congenial and bryozoa flourished. Ohio, Kentucky, Indiana, and some limited areas in Illinois, Minnesota, Wisconsin, and Iowa, all yield well-preserved bryozoa and usually in great abundance. Outcrops occur also in Canada and as far east as Anticosti Island, in the gulf of St. Lawrence.

The Upper Silurian deposits in this country are exposed rather locally. Many of them were formed under conditions which precluded bryozoan life, but in some bryozoa are exceedingly abundant. From the Medina and Waterlime no bryozoa have been made known. The Clinton has yielded a considerable number both in New York and in Ontario, as well as around the borders of the Cincinnati anticline, but they are seldom finely preserved. The Niagara deposits are generally of a character unfavorable to the preservation of its fauna, but there are two good exceptions—an area in western New York, typically exposed at Lockport, and one in the vicinity of Waldron, Indiana.

The Lower Helderberg, succeeding the Niagara, is local in its distribution. But its exposures in Albany and Schoharie counties, New York, have yielded a large number of bryozoa, which, however, are not favorably preserved for microscopic study. By some writers the Lower Helderberg is considered Devonian. Its bryozoan fauna indicates relationship about equally with both Niagara and Upper Helderberg.

The Devonian age was ushered in by conditions unfavorable for bryozoan life. The Onondaga and Saliferous have yielded no bryozoa. The Upper Helderberg, in a belt extending from eastern New York west into Ontario, has proved rather prolific. The succeeding formation, the Hamilton, is preeminently a bryozoan epoch. In western New York, Ontario, Michigan, Manitoba, and Iowa its deposits are characterized generally by an abundance of bryozoa in a good state of preservation. A coral reef in the ancient sea, now forming the obstruction in the Ohio River at the Falls of the Ohio, afforded a hospitable abode for immense numbers of bryozoa. The later formations of the Devonian, best displayed in New York and Pennsylvania, have yielded very few bryozoa. None have yet been described.

For the early part of the Carboniferous age the name Mississippian seems to be gradually displacing in this country the terms Subcarboniferous and Lower Carboniferous, which have been so variously used that their use now produces ambiguity. The Mississippian series is characterized in North America by limestone formations, mainly located in the Mississippi Valley, though deposits also occur, not so sharply differentiated, in the trough between the Cincinnati anticline and the eastern highland, to which such local names as Waverly, Marshall, and Maxville limestone have been applied. Being limestone formations, they are, as might be expected, very prolific of bryozoa, some, however, much less so than others. The earlier formations, the Kinderhook and Burlington, also have yielded but a limited number of bryozoa, but this may be due to the comparatively limited areas of outcrop and to lack of systematic collecting.

In the Coal Measures conditions producing brackish or fresh water and marine formations alternated irregularly. Naturally, marine fossils are quite local in occurrence. But among the marine fossils bryozoa hold their place extremely well, though they are much reduced from the opulence of the Mississippian series in kinds and numbers.

By the close of the Coal Measures the interior sea had been well-nigh effaced, and in the West and Southwest only—Kansas and Texas—do we find Permian deposits of any considerable extent. But few bryozoa are known from these deposits; whether this is due to their absence or to lack of collecting we do not know.

During later geological times marine deposits in this country are limited to the Atlantic and Gulf Coastal Plain, to a few favored areas

in the Great Plains and Rocky Mountain regions, and the territory bordering the Pacific. Comparatively few bryozoa of later age have been made known, though the indications are that a large number of species will be the reward of thorough collecting. In central and southern Europe Mesozoic and Tertiary beds often abound in bryozoa.

#### GEOLOGIC DISTRIBUTION.

Though the materials for the history of the biologic and phylogenetic development of the Paleozoic bryozoa are to be found in the rocks of the North American continent, scarcely a beginning has yet been made. Before this history can be written with any degree of correctness, the preliminary work of collecting, studying, classifying, and comparing the faunas of successive formations must be well under way. This work is still in its infancy. The only worker in this field who has yet cared to do any generalizing is Mr. E. O. Ulrich, and he has not ventured very far.

A study of the tables given farther on will afford some indications of the rich results which the future may be expected to bring. It is not possible to use the numbers there given determinatively for generalizations, for while the tables give the numbers of all species and genera thus far described and recognized as valid, there remains in various collections, public and private, a very large number of undescribed species and some new genera. Therefore, any conclusions based upon the numbers in the tables can at best be merely tentative.

No bryozoa have yet been known from the Cambrian, or the lowest of the Ordovician formations—the Calcareous. Whether this means that they are actually absent, or that they are so rare as not yet to have fallen under collectors' eyes, can not be said. From the Chazy rocks come the oldest unequivocal bryozoa, three species of *Phylloporina*, one of *Rhinidictya*, and one of *Stictopora*, all cryptostomatous genera, with indications of the presence of some *Trepustomata*. It is probable that future collecting will very much increase this meager list, though good localities seem to be rare.

In the Trenton period the bryozoa occur in the greatest profusion. The few Chazy forms have multiplied, as if by magic, into the large Trenton fauna. One of the missing links in paleontological history doubtless occurs at this point. The Trenton formation stands second in the number of described species, though it will probably in the end lead. Not less than 80 species are known that await description. The *Trepustomata* form half the fauna. The *Cryptostomata* rank next. The latter soon became and continued the predominant type of the Paleozoic eon, yielding their supremacy in later times to the *Chilostomata*, which are represented doubtfully in the Paleozoic seas by the single genus *Paleschara*. In the Trenton the *Cyclostomata* are fairly

well represented—the Ctenostomata scarcely at all—but this may be because ctenostomatous bryozoa rarely admit of preservation as fossils. Of the Ctenostomata only six species have been described, all Eopaleozoic; but about twenty other undescribed species are known, some of which are from Neopaleozoic formations. Among the Cyclostomata the Ceramoporidæ and Diastoporidæ predominate during the Trenton, the Monticuliporidæ and Trematoporidæ among the Trepotomata, the Arthrostylidæ and Rhinidictyonidæ among the Cryptostomata.

The succeeding period, the Cincinnati, is very similar to its predecessor in its bryozoan fauna, the various suborders maintaining about the same relative representation. About one hundred undescribed species are known, and it is probable that many species still await discovery. The predominant families are the Ceramoporidæ among the Cyclostomata, the Monticuliporidæ and Heterotrypidæ among the Trepotomata, and the Ptilodictyonidæ and Rhinidictyonidæ among the Cryptostomata.

The Anticosti group forms the connecting link between the Ordovician and Silurian eras. In this formation the Trepotomata will be found fairly numerous. A few species have been described by Billings, but were so meagerly characterized that we are unable to place them generically, and hence have omitted them from our tables. The Cryptostomata appear to predominate, though when the fauna shall have been thoroughly studied the Trepotomata may be found to be still slightly in the lead.

From the Medina, which is practically limited to the State of New York, no bryozoa have been made known. The Clinton contains but few bryozoa, and these are generally not well preserved. The Trepotomata have now dropped from first to second place, the Cryptostomata are very much in the lead, the Cyclostomata rare. The Ptilodictyonidæ now reach their maximum and are the predominant family both in number of species and in individuals.

With the Niagara a decided change has come. Large forms are comparatively rare; even among the Trepotomata the tendency to diminutiveness is very noticeable. The Cryptostomata greatly predominate; the Cyclostomata and Trepotomata are about equally represented. The Ceramoporidæ are giving place to the Fistuliporidæ, probably their descendants. Among the Trepotomata the Batostomellidæ, the most enduring family of the bryozoa in Paleozoic time, predominate. Among the Cryptostomata the Fenestellidæ lead, and from this time on are the chief family.

The Lower Helderberg is similar in its bryozoan fauna to the Niagara, but the Fenestellidæ have been increasing rapidly and now form nearly one-third of the bryozoa. No Cyclostomata except those belonging to the Fistuliporidæ and Ceramoporidæ have been recorded.



The Upper Helderberg fauna emphasizes the tendency begun in the Niagara and strengthened in the Lower Helderberg—namely, the diminution of the Trepotomata and the augmentation of the Cryptostomata. The Trepotomata are now of little importance; the Fenestellidæ far outweigh all other families and constitute considerably over one-half the fauna.

The Hamilton fauna excels all others at present in the number of described species and genera represented. Probably a large amount of synonymy still exists which time will eliminate. However, future discoveries will probably disclose a number of new species more than sufficient to offset the loss by reduction from synonyms. The Trepotomata are the least important element, and are about ready to disappear. Naturally they present a jumble of features which makes them difficult to classify along with those of Eopaleozoic age. The Fistuliporidae have become wonderfully numerous in species and genera. The Batostomellidæ are at their maximum; so also are the Fenestellidæ. The Falls of the Ohio has proved, probably, to be the most prolific single locality for bryozoa in the world. The Cystodictyonidæ are also at their maximum. In fact, the Hamilton may be said to mark the culmination of Paleozoic bryozoa.

In the interval between the Hamilton and the Osage, the next formation in which the bryozoa form a large element of the fauna, several formations were laid down under conditions commonly unfavorable for bryozoan life, though future collections may materially alter this conclusion. The earliest of the Mississippian series, the Kinderhook, has thus far shown but few bryozoa. The earlier of the Osage formations, the Burlington, has also thus far proved poor collecting ground, but the Keokuk and Warsaw, following, have an abundant bryozoan fauna. At Warsaw, Ill., the Warsaw formation bears a close relationship to the Keokuk fauna, but at other points the Warsaw seems more closely allied to the St. Louis, following it, than to the Keokuk, preceding. In these formations the Cryptostomata are monopolists, but few Cyclostomata and Trepotomata occurring. So it continues throughout the Mississippian series. The Fenestellidæ continue to be the predominant family. As is the case in other tribes of the animal kingdom, when a type of structure culminates, the family evolves a great many variations, some curious, and even grotesque, ere it reaches its extinction. The St. Louis, an almost solid limestone formation, has not been favorable for the preservation of bryozoa. The Ste. Genevieve, which differs from the St. Louis in having less limestone and more shale, has a considerable bryozoan fauna, with the Fenestellidæ still much in excess of the other groups. In the Chester the Fenestella type produces two curious genera in form of growth, the Lyropora and Archimedes, both of which must have been beautiful objects when living.

It might be expected that the Coal Measures, from the mode of their formation, would not yield many bryozoa. Not many individuals comparatively have been found, yet 62 species assigned to 15 genera have been recorded. The Fenestellidæ are still the most numerous. The Permian, perhaps because it has been but little investigated, has but few species. The close of the Paleozoic sees the extinction of its bryozoan fauna. The next fauna in America, the bryozoa from the Cretaceous marl of New Jersey, wears an entirely different facies. The Trepostomata and Cryptostomata are scarcely, if at all, represented; the Cyclostomata are numerous, and the Chilostomata even more so.

### LIST OF LOCALITIES.

The following list gives the principal localities from which bryozoa have been recorded. The asterisk (\*) has been placed before the most important and typical localities.

#### ORDOVICIAN.

##### CHAZY.

*Canada*.—Mingan.

*Vermont*.—Granville.

*New York*.—\*Chazy, Galway.

##### TRENTON.

#### STONES RIVER (BIRDSEYE) DIVISION.

*Lake Huron*.—St. Joseph Island.

*New York*.—\*Watertown.

*Illinois*.—\*Dixon and Calhoun County.

*Wisconsin*.—Mineral Point, Janesville, Beloit.

*Minnesota*.—\*Minneapolis, \*St. Paul, \*Cannon Falls, Chatfield, Fountain, Lanesboro, Preston.

*Kentucky*.—\*High Bridge, Frankfort.

*Tennessee*.—Knoxville, \*Lebanon, \*Murfreesboro, Shelbyville, Lavergne, Columbia, Franklin.

#### BLACK RIVER DIVISION.

*New York*.—Watertown, Chazy.

*Wisconsin*.—Beloit.

*Minnesota*.—\*Minneapolis, \*St. Paul; Cannon Falls, Fountain, Preston, Lanesboro, and other localities in Goodhue and Fillmore counties.

*Iowa*.—Decorah.

*Illinois*.—Rockton.

#### TRENTON DIVISION.

*Quebec*.—Montreal, Joliette, Quebec.

*Ontario*.—\*Ottawa, \*Peterborough, Belleville.

*Vermont*.—Chimney Point, Bridport.

*New York*.—\*Trenton Falls, Middleville, Jacksonburg, \*Watertown, Lowville, Turin, Little Falls, Chazy.

*Manitoba*.—St. Andrews, East Selkirk; Big, Deer, and Little Black islands, in Lake Winnipeg.

*Minnesota*.—\*St. Paul, \*Cannon Falls, Kenyon, Berne, Hader, Mantorville, and localities in Ramsay, Goodhue, Olmstead, and Fillmore counties.

*Michigan*.—Escanaba River.

*Wisconsin*.—Neenah.

*Illinois*.—Rockton, Calhoun County, Alexander County (Thebes).

*Kentucky*.—\*Covington, \*Burgin, \*Frankfort, Harrodsburg, Paris, Georgetown, Lexington, Nicholasville, Danville, Colby, Mercer County, Garrard County.

*Tennessee*.—\*Nashville, Franklin, Mt. Pleasant, and many other localities in the central basin.

*Nevada*.—Silver Canyon, Pahrangat Range.

#### CINCINNATI.

##### UTICA DIVISION.

*Canada*.—Ottawa.

*New York*.—Utica, Rome.

*Ohio*.—\*Cincinnati, Milford, Loveland, Batavia.

*Indiana*.—Numerous localities in the southeastern corner of the State.

*Kentucky*.—\*Covington, \*Newport, Maysville, Augusta, Frankfort, Harrodsburg.

*Iowa*.—Graf, Lanterville.

*Minnesota*.—Fillmore County.

##### LORRAINE DIVISION.

*Ontario*.—Toronto, Weston, River Credit.

*New York*.—Turin, Lorraine, Pulaski.

*Ohio*.—\*Cincinnati, \*Hamilton, \*Lebanon, Mason, Morrow, Loveland, and other localities in Hamilton, Clermont, Warren, and Butler counties.

*Indiana*.—Numerous localities in the southeastern part of the State.

*Kentucky*.—\*Covington, \*Newport, Maysville, McKinnys, and many localities in Boyle, Lincoln, and other counties in the central part of the State.

*Tennessee*.—\*Nashville, \*Columbia, Mt. Pleasant, Swan Creek, and many localities in middle Tennessee.

##### RICHMOND DIVISION.

*Anticosti Island (Gulf of St. Lawrence)*.

*Ontario*.—Toronto, Oakville, ? Weston.

*Ohio*.—\*Blanchester, Westboro, \*Oregonia, \*Waynesville, Middletown, \*Oxford, Clarksville, Hanover, Camden, Jacksonburg, Lynchburg, and other localities in Highland, Brown, Clinton, Warren, and Butler counties.

*Indiana*.—\*Richmond, \*Versailles, Osgood, Weisburg, and other localities in the southeastern part of the State.

*Kentucky*.—\*Lebanon, Raywick, Mount Washington, Richmond, and localities in Marion, Washington, and Nelson counties.

*Illinois*.—\*Wilmington, Savannah, Sterling, South Elgin.

*Wisconsin*.—Delafield, Iron Ridge.

*Minnesota*.—Spring Valley.

*Manitoba*.—Stony Mountain.

#### SILURIAN (UPPER).

##### ANTICOSTI.

*Anticosti Island (Gulf of St. Lawrence)*.—The lower part of the Anticosti occupies the interval between the Richmond and the Clinton, probably contemporaneous with the Medina. The upper part is the equivalent of the Clinton.

## CLINTON.

*Ontario*.—Flamborough Head, Dundas, \*Hamilton.

*New York*.—Wayne County.

*Tennessee*.—Cumberland Gap.

*Alabama*.—Collinsville.

*Ohio*.—\*Dayton, \*Eaton, Centreville, \*Fair Haven, near New Carlisle, Belfast, Todds Fork, and other localities in Clinton and Preble counties.

*Indiana*.—Hanover.

## NIAGARA.

*Ontario*.—Hamilton, Thorold, Flamborough Head.

*New York*.—\*Lockport, Rochester, Reynales Basin, Gasport.

*Ohio*.—Cedarville.

*Indiana*.—\*Waldron, \*Osgood.

*Illinois*.—Sterling, Savannah, South Elgin, Chicago.

*Tennessee*.—Localities in Perry, Hardin, Hickman, and Wayne counties.

## LOWER HELDERBERG.

*New York*.—\*Clarksville, \*Schoharie, Catskill.

*Tennessee*.—Localities in Perry and Hickman counties.

## DEVONIAN:

## ORISKANY (?).

None recorded except from the Gaspé Limestone at Indian Cove, Gaspé Bay, and Grand Creve, Canada.

## UPPER HELDERBERG (CORNIFEROUS).

*New York*.—Onondaga Valley, Cherry Valley, near Caledonia, Stafford, Schoharie, Thompsons Lake (Albany County), Waterville, Falkirk, near Buffalo, \*Le Roy.

*Ontario*.—Port Colborne, Port Jarvis, \*Walpole, Wainfleet.

*Ohio*.—Sandusky, Columbus, Sylvania, Marblehead, Whitehouse (Lucas County).

## HAMILTON.

*New York*.—Cazenovia, near Leonardsville, New Berlin, Delphi, Nortons Landing (Cayuga Lake), Owasco Lake, Lodi Landing (Seneca Lake), Bellona, Hopeton (Yates County), \*Canandaigua, Monteiths Point (Lake Canandaigua), Fall Brook, near Lake Canandaigua, West Bloomfield, near Muttonville (Ontario County), \*Moscow, \*York, near Geneseo, Darien Center, Pavilion, \*West Hamburg, Alden, \*Eighteen-mile Creek, and other localities in Cayuga, Seneca, Ontario, Livingston, and Erie counties.

*Ontario*.—\*Widder (now Thedford), Arkona, Bartletts Mills, West Williams.

*Canada*.—Lake Winnepegosis, Hay River, Athabasca River, near Dawson Bay, Red Deer River.

*Michigan*.—\*Alpena, Thunder Bay Island, Partridge Point (near Alpena), \*Petoskey.

*Indiana*.—Utica, \*Falls of the Ohio.

*Illinois*.—Rock Island, Andalusia.

*Iowa*.—\*Buffalo, Davenport, Muscatine, Independence, Hackberry, Rockford, Iowa City.

*Wisconsin*.—Milwaukee.

*Missouri*.—Calloway County.

## MISSISSIPPIAN.

## KINDERHOOK.

*Iowa*.—Marshalltown.

## BURLINGTON.

*Iowa*.—Burlington.

*Illinois*.—Quincy, Montezuma, Sagetown (Henderson County), Calhoun County.

## WAVERLY (=KINDERHOOK TO KEOKUK).

*Ohio*.—Lodi, Richfield, Sciotoville, Newark, Burbank, Moots Run, Cuyahoga County.

*Michigan*.—Hillsdale.

## KEOKUK.

*Illinois*.—\*Nauvoo, Warsaw, near Whitehall, Jersey County, near Plymouth, Greene County, Appanoosa (near Quincy).

*Iowa*.—\*Keokuk, \*Bentonsport.

*Missouri*.—Lagrange, St. Francisville, Clark County.

*Kentucky*.—\*Kings Mountain, near Somerset, Button Mole Knob (near Louisville).

## WARSAW.

*Indiana*.—Spergen Hill.

*Illinois*.—\*Warsaw, Columbia and other localities in Monroe County, near New Providence.

*Missouri*.—Barrett's (St. Louis County), Curryville.

## ST. LOUIS.

*Illinois*.—Alton, Waterloo, Prairie du Rocher.

*Missouri*.—St. Louis, Ste. Genevieve.

*Kentucky*.—Eddyville, Elizabethtown, Somerset, Colesburg, and other localities in Caldwell, Lyon, and Crittenden counties.

*Tennessee*.—Clarksville.

*West Virginia*.—Between Fort Springs and Ronceverte.

## STE. GENEVIEVE.

*Iowa*.—Pella.

*Missouri*.—Ste. Genevieve.

*Illinois*.—Rosiclare.

*Kentucky*.—Princeton, Cerulean Springs, and other localities in Trigg and Caldwell counties.

## CHESTER.

*Ohio*.—Newtonville.

*Illinois*.—\*Chester, Kaskaskia (now Fort Gage), \*Red Bud, Ruma, Baldwin, Rockwood, Anna.

*Kentucky*.—\*Sloans Valley (or Tateville), Grayson Springs, Litchfield, Stephensport, Smithland, and localities in Crittenden, Caldwell, Livingston, Meade, Pulaski, and Jackson counties.

*Alabama*.—Huntsville.

## CARBONIFEROUS.

## COAL MEASURES.

*Ohio*.—Newark, Flint Ridge, Bald Hill.

*Illinois*.—Lasalle, \*Seville, Knox County, Peoria, Danville, Springfield and other localities in Sangamon County, Caseyville, Sparta, near Centralia, and localities in Macoupin, Jasper, and Fayette counties.

*Iowa*.—Red Oak.

*Missouri*.—Kansas City.

*Nebraska*.—Nebraska City, Wyoming.

*Kansas*.—Manhattan, Fort Riley, Greenwood County.

*Indian Territory*.—Poteau Mountain.

## PERMIAN.

*Kansas*.—Cottonwood Valley and other unrecorded localities.

*New Mexico*.—Guadalupe Mountains, Jornada de Muerto.

## CARBONIFEROUS (division not specified).

*Nova Scotia*.—Windsor, Stewiacke.

*Montana*.—Mystic Lake.

*New Mexico*.—Organ Mountains.

*Arizona*.—White Mountains, confluence White Mountain and Black rivers.

*Texas*.—Fort Belknap.

## CRETACEOUS.

*New Jersey*.—Timber Creek, Mullica Hill, Brownsville, Vincentown.

*Mississippi*.—Seven miles below Yazoo.

*Arkansas*.—Pulaski County (10 miles south of Little Rock).

## EOCENE.

*Maryland*.—Upper Marlboro.

*Virginia*.—"Rock's bridge" (may not be in Virginia) and other localities.

*North Carolina*.—Wilmington.

*South Carolina*.—Eutaw, Wantoot, Charleston.

*Alabama*.—Claiborne.

*Mississippi*.—Vicksburg.

## MIOCENE.

*Maryland*.—St. Mary's River, Jones' Wharf.

*Virginia*.—Williamsburg, Petersburg, Evergreen, Yorktown, Carter's Landing.

## PLIOCENE.

*South Carolina*.—Darlington District, Giles Bluff on Peedee River, Smith's on Goose Creek. (Note.—Holmes considered these deposits of Pliocene age, Gabb and Horn think them Miocene.)

## POST-PLIOCENE.

*South Carolina*.—Charleston.

*California*.—Santa Barbara. (See Gabb and Horn, Journal Academy Natural Sciences Philadelphia, series 2, V, p. 179.)

## SUCCESSION OF BRYOZOAN FAUNAS.

The subjoined table is designed to show the succession of bryozoan faunas. The formations in the same column do not always have the same taxonomic rank, as now generally regarded. It is to be noted that usage in such matters is not uniform and is probably in a transitional stage.

*Table showing the occurrence of bryozoa by formations.*

Neocene.....	{ Pliocene .....		{ Not many known in North America; very abundant in Europe.
Eocene .....	{ Miocene .....		
Cretaceous .....			A moderate number known.
Juratrias .....			None known.
			A limited number.
	{ Permian .....		
Carboniferous .....	{ Upper Coal Measures.....		{ A fair number.
	{ Lower Coal Measures .....		
	{ Conglomerate.....		{ None known.
		{ Upper .....	
		{ Middle (Lyropora beds) ..	{ Abundant.
	Chester .....	{ Lower (Kaskaskia lime- stone) ..	
		{ Big Clifty (=Aux Vases) sandstone.	{ None known.
		{ Ste. Genevieve limestone..	{ A fair number.
Mississippian .....	St. Louis .....	{ St. Louis limestone .....	{ Rather few.
		{ Warsaw beds .....	
		{ Keokuk .....	{ Abundant.
	Osage .....	{ Upper Burlington .....	{ Few.
		{ Lower Burlington.....	
		{ Choteau limestone .....	
	Kinderhook .....	{ Hannibal shale.....	{ Very few known.
		{ Louisiana limestone.....	
	Chemung .....		Very few known.
Devonian.....	Hamilton .....		
	Upper Helderberg .....		Abundant.
	Oriskany .....		Very few known.
	Lower Helderberg .....		Abundant.
	Onondaga .....		None known.
Silurian (Upper) .....		{ Lockport <sup>1</sup> .....	{ Abundant.
		{ Rochester <sup>1</sup> .....	
	Niagara .....	{ Clinton and Anticosti .....	{ A moderate number.
		{ Medina .....	{ None known.
		{ Richmond.....	
	Cincinnati .....	{ Lorraine .....	
		{ Utica .....	
Ordovician .....		{ Trenton .....	{ Very abundant.
	Trenton.....	{ Black River .....	
		{ Stones River.....	
	Chazy.....		A few known.
	Calcliferous.....		None known.
Cambrian .....			Do.

<sup>1</sup> Names adopted by the United States Geological Survey for formations formerly called Niagara limestone and Niagara shale, respectively. In this work the term Niagara refers to these two formations taken together and excluding Clinton and Medina.

## LISTS OF SPECIES.

## CHAZY.

Phylloporina aspera (Hall).	Stenopora ?? adherens Billings.
gracilis (Hall).	?? patula Billings.
incepta (Hall).	Stictopora ? glomerata Hall.
Rhinidictya fenestrata (Hall).	

## TRENTON.

	Stones River.	Black River.	Trenton.
Amplexopora ? discoidea (Nicholson) .....			×
Anolotichia impolita (Ulrich) .....	×		
Arthroclema armatum Ulrich .....			×
billingsi Ulrich .....			×
cornutum Ulrich .....		×	
pulchellum Billings .....			×
striatum Ulrich .....		×	
Arthropora bifurcata Ulrich .....		×	
reversa Ulrich .....			×
simplex Ulrich .....	×	×	
Arthrostylus conjunctus Ulrich .....		×	
obliquus Ulrich .....	×		
tenuis (James) .....			×
Aspidopora calycula (James) .....			×
elegantula Ulrich .....			×
parasitica Ulrich .....	×	×	
Atactoporella ? crassa Ulrich .....			×
insueta Ulrich .....		×	
ramosa Ulrich .....		×	
typicalis-præcipua Ulrich .....		×	
Batostoma canadense (Foord) .....		×	×
? decipiens Ulrich .....	×	×	
fertile Ulrich .....	×		
fertile-circulare Ulrich .....	×		
humile Ulrich .....			×
magnoporum Ulrich .....		×	
minnesotense Ulrich .....		×	
montuosum Ulrich .....		×	
superbum (Foord) .....			×
varium Ulrich .....		×	
winchelli (Ulrich) .....		×	
winchelli-nodosum Ulrich .....		×	
winchelli-spinulosum Ulrich .....		×	
Berenicea minnesotensis Ulrich .....	×	×	



*Lists of species—Continued.*

## TRENTON—Continued.

	Stones River.	Black River.	Trenton.
<i>Bythopora alcicornis</i> Ulrich.....		×	.....
<i>herricki</i> Ulrich.....		×	.....
<i>Bythotrypa laxata</i> (Ulrich).....	×	×	×
<i>Callopora ampla</i> Ulrich.....		×	×
<i>angularis</i> Ulrich.....	×		.....
? <i>crenulata</i> Ulrich.....		×	×
<i>dumalis</i> Ulrich.....	×	×	.....
<i>goodhuensis</i> Ulrich.....			×
<i>incontroversa</i> Ulrich.....	×		.....
<i>multitabulata</i> (Ulrich).....		×	×
<i>pulchella</i> Ulrich.....		×	.....
<i>pulchella-persimilis</i> Ulrich.....		×	.....
<i>undulata</i> Ulrich.....		×	.....
<i>Ceramophylla frondosa</i> Ulrich.....		×	.....
<i>Ceramoporella inclusa</i> Ulrich.....	×	×	×
<i>interporosa</i> Ulrich.....			×
<i>Chætetes?? rugosus</i> Hall.....			×
<i>Cœloclema trentonense</i> (Ulrich).....			×
<i>Constellaria fischeri</i> Ulrich.....			×
<i>varia</i> Ulrich.....			×
<i>Crepidopora perampla</i> Ulrich.....	×		.....
<i>simulans</i> Ulrich.....			×
<i>spatiosa</i> Ulrich.....			×
<i>subæquata</i> Ulrich.....		×	.....
<i>venusta</i> (Ulrich).....			×
<i>Dekayella prænuntia</i> Ulrich.....		×	.....
<i>prænuntia-echinata</i> Ulrich.....		×	.....
<i>prænuntia-multipora</i> Ulrich.....		×	.....
<i>prænuntia-nævigera</i> Ulrich.....		×	.....
<i>prænuntia-simplex</i> Ulrich.....	×	×	.....
<i>trentonensis</i> (Ulrich).....			×
<i>Diastoporina flabellata</i> Ulrich.....			×
<i>Diploclema trentonense</i> Ulrich.....			×
<i>Diplotrypa limitaris</i> Ulrich.....			×
<i>neglecta</i> Ulrich.....			×
<i>westoni</i> Ulrich.....			×
<i>Drymotrypa dichotoma</i> Ulrich.....			×
<i>Eridotrypa briareus</i> (Nicholson).....			×
<i>exigua</i> Ulrich.....			×

*Lists of species—Continued.*

## TRENTON—Continued.

	Stones River.	Black River.	Trenton.
<i>Eridotrypa mutabilis</i> Ulrich.....	.....	.....	×
<i>mutabilis-minor</i> Ulrich.....	.....	.....	×
<i>trentonensis</i> (Nicholson).....	.....	.....	×
<i>Escharopora angularis</i> Ulrich.....	×	.....	.....
<i>briareus</i> (Ulrich).....	×	.....	.....
<i>confluens</i> Ulrich.....	.....	×	.....
<i>libana</i> (Safford).....	×	.....	.....
? <i>limitaris</i> Ulrich.....	×	×	.....
<i>ramosa</i> (Ulrich).....	×	.....	.....
<i>recta</i> Hall.....	.....	.....	×
<i>recta-nodosa</i> Hall.....	.....	.....	×
<i>subrecta</i> (Ulrich).....	.....	×	.....
<i>Eurydictya calhounensis</i> Ulrich.....	.....	.....	×
<i>multi-pora</i> (Hall).....	.....	×	×
<i>Helopora alternata</i> Ulrich.....	.....	×	.....
<i>divaricata</i> Ulrich.....	×	.....	.....
<i>mucronata</i> Ulrich.....	.....	.....	×
<i>quadrata</i> Ulrich.....	.....	.....	×
<i>spiniformis</i> (Ulrich).....	×	.....	.....
<i>Hemiphragma irrasum</i> (Ulrich).....	×	×	×
<i>ottawense</i> (Foord).....	.....	×	×
<i>tenuimurale</i> Ulrich.....	.....	.....	×
<i>Homotrypa</i> ? <i>arbuscula</i> Ulrich.....	×	.....	.....
<i>callosa</i> Ulrich.....	.....	.....	×
<i>exilis</i> Ulrich.....	×	.....	.....
? <i>intercalaris</i> Ulrich.....	.....	×	.....
<i>minnesotensis</i> Ulrich.....	×	×	.....
<i>minnesotensis-montifera</i> Ulrich.....	.....	×	.....
<i>separata</i> Ulrich.....	×	.....	.....
? <i>similis</i> Foord.....	.....	.....	×
<i>subramosa</i> Ulrich.....	.....	×	.....
<i>subramosa-insignis</i> Ulrich.....	.....	.....	×
<i>tuberculata</i> Ulrich.....	.....	×	.....
<i>Homotrypella granulifera</i> (Ulrich).....	.....	.....	×
<i>instabilis</i> Ulrich.....	.....	×	.....
<i>multi-porata</i> Ulrich.....	.....	×	.....
<i>mundula</i> Ulrich.....	.....	.....	×
? <i>ovata</i> Ulrich.....	.....	×	×
? <i>subgracilis</i> Ulrich.....	.....	×	.....

*Lists of species—Continued.*

## TRENTON—Continued.

	Stones River.	Black River.	Trenton.
<i>Leptotrypa</i> ? <i>acervulosa</i> Ulrich .....			×
? <i>claviformis</i> Ulrich .....		×	
? <i>hexagonalis</i> Ulrich .....	×		
<i>informis</i> Ulrich .....	×		
<i>Mesotrypa</i> <i>discoidea</i> Ulrich .....			×
<i>infida</i> (Ulrich) .....		×	
<i>quebecensis</i> (Ami) .....			×
<i>regularis</i> (Foord) .....			×
? <i>rotunda</i> Ulrich .....			×
<i>selkirkensis</i> Whiteaves .....			×
? <i>spinosa</i> Ulrich .....		×	
<i>whiteavesi</i> (Nicholson) .....			×
<i>Mitoclema</i> <i>cinctosum</i> Ulrich .....	×		
? <i>mundulum</i> Ulrich .....			×
<i>Monotrypa</i> <i>cumulata</i> Ulrich .....			×
<i>intabulata</i> Ulrich .....			×
<i>magna</i> Ulrich .....	×		
<i>rectimuralis</i> Ulrich .....			×
<i>undulata</i> (Nicholson) .....			×
<i>Monticulipora</i> <i>arborea</i> Ulrich .....			×
<i>billingsi</i> Foord .....			×
? <i>cannonensis</i> Ulrich .....		×	×
<i>incompta</i> Ulrich .....		×	
<i>westoni</i> Foord .....			×
<i>wetherbyi</i> Ulrich .....	×		
<i>Nematopora</i> <i>alternata</i> Ulrich .....			×
<i>conferta</i> Ulrich .....			×
<i>delicatula</i> Ulrich .....			×
<i>fragilis</i> Ulrich .....			×
<i>granosa</i> Ulrich .....			×
<i>ovalis</i> Ulrich .....			×
<i>retrorsa</i> Ulrich .....			×
<i>Nicholsonella</i> <i>laminata</i> Ulrich .....		×	
<i>ponderosa</i> Ulrich .....	×		
<i>pulchra</i> Ulrich .....	×		
<i>Pachydictya</i> <i>acuta</i> (Hall) .....			×
<i>elegans</i> Ulrich .....			×
<i>everetti</i> Ulrich .....	×		
<i>fimbriata</i> Ulrich .....		×	

*Lists of species—Continued.*

## TRENTON—Continued.

	Stones River.	Black River.	Trenton.
<i>Pachydietya foliata</i> Ulrich	×		
<i>magnipora</i> Ulrich			×
<i>occidentalis</i> Ulrich		×	
<i>pumila</i> Ulrich			×
<i>pumila-sublata</i> Ulrich			×
<i>robusta</i> Ulrich	×		
<i>triserialis</i> Ulrich			×
<i>Phacelopora pertenuis</i> Ulrich			×
<i>Phænopora incipiens</i> Ulrich			×
<i>Phyllodictya frondosa</i> Ulrich	×		
<i>varia</i> Ulrich		×	
<i>Phylloporina corticosa</i> (Ulrich)			×
<i>dawsoni</i> Ulrich			×
<i>fenestrata</i> (Hall)			×
<i>granistriata</i> Ulrich			×
<i>halli</i> Ulrich		×	
<i>reticulata</i> (Hall)		×	×
<i>sublaxa</i> Ulrich	×		
<i>trentonensis</i> (Nicholson)			×
<i>Prasopora affinis</i> Foord			×
<i>conoidea</i> Ulrich		×	
<i>contigua</i> Ulrich		×	
<i>grandis</i> (Ulrich)	×		×
<i>insularis</i> Ulrich			×
<i>insularis-filmorensis</i> Ulrich			×
<i>lenticularis</i> Ulrich		×	
<i>nodosa</i> Ulrich			×
<i>oculata</i> Foord			×
<i>selwyni</i> (Nicholson)			×
<i>simulatrix</i> Ulrich		×	×
<i>simulatrix-orientalis</i> Ulrich			×
<i>Proboscina tumulosa</i> Ulrich		×	
<i>Protocrisina exigua</i> Ulrich			×
<i>Rhinidictya basalis</i> (Ulrich)	×		
<i>exigua</i> Ulrich	×	×	
<i>fidelis</i> Ulrich	×		
<i>grandis</i> Ulrich	×		
<i>minima</i> Ulrich			×
<i>minima-modesta</i> Ulrich			×

*Lists of species—Continued.*

## TRENTON—Continued.

	Stones River.	Black River.	Trenton.
<i>Rhinidietya mutabilis</i> (Ulrich) .....	×	×	×
<i>mutabilis-major</i> (Ulrich) .....		×	
<i>mutabilis-senilis</i> Ulrich .....		×	
<i>nashvillensis</i> (Miller) .....	×		
<i>neglecta</i> Ulrich .....			×
<i>neglecta-canadensis</i> Ulrich .....			×
<i>nicholsoni</i> Ulrich .....	×		
<i>paupera</i> Ulrich .....		×	
<i>pediculata</i> Ulrich .....	×		
<i>trentonensis</i> (Ulrich) .....	×		
<i>Scenellopora radiata</i> Ulrich .....	×		
<i>Spatiopora</i> ? <i>areolata</i> Foord .....			×
<i>labeculosa</i> Ulrich .....		×	
<i>lineata-incepta</i> Ulrich .....		×	
<i>Stellipora antheloidea</i> Hall .....			×
<i>Stictopora elegantula</i> Hall .....			×
? <i>labyrinthica</i> Hall .....	×		
? <i>ramosa</i> Hall .....	×		
<i>Stictoporella angularis</i> Ulrich .....	×		
<i>angularis-intermedia</i> Ulrich .....	×		
<i>cribrosa</i> Ulrich .....	×	×	
<i>dumosa</i> Ulrich .....		×	
<i>exigua</i> Ulrich .....			×
<i>flabellata</i> (Hall) .....			×
<i>frondifera</i> Ulrich .....	×		
<i>rigida</i> Ulrich .....		×	
<i>Stomatopora arachnoidea</i> (Hall) .....			×
<i>canadensis</i> Whiteaves .....			×
<i>delicatula</i> (James) .....	×	×	×
<i>inflata</i> (Hall) .....		×	×
<i>Stromatotrypa oyata</i> Ulrich .....	×	×	
<i>Trematopora calloporoides</i> Ulrich .....			×
<i>debilis</i> Ulrich .....			×
? <i>primigenia</i> Ulrich .....		×	
? <i>primigenia-ornata</i> Ulrich .....		×	
? <i>primigenia-spinosa</i> Ulrich .....		×	
<i>Trigonodictya conciliatrix</i> Ulrich .....		×	
<i>Vinella repens</i> Ulrich .....		×	

*Lists of species—Continued.*

## CINCINNATI.

	Utica.	Lorraine.	Richmond.
<i>Amplexopora cingulata</i> Ulrich .....	.....	×	.....
? discoidea (Nicholson) .....	.....	×	.....
filiosa (D'Orbigny) .....	.....	×	.....
petasiformis (Nicholson) .....	×	.....	.....
petasiformis-welchi (James) .....	×	.....	.....
pustulosa Ulrich .....	.....	.....	×
robusta Ulrich .....	.....	×	.....
septosa (Ulrich) .....	×	×	.....
<i>Anolotichia ponderosa</i> Ulrich .....	.....	.....	×
<i>Arthroclema angulare</i> Ulrich .....	.....	.....	×
<i>Arthropora shafferi</i> (Meek) .....	.....	×	.....
shafferi-cleavelandi (James) .....	×	.....	.....
<i>Arthrostylus curtus</i> Ulrich .....	×	.....	.....
tenuis (James) .....	×	.....	.....
<i>Aspidopora areolata</i> Ulrich .....	×	.....	.....
eccentrica (James) .....	×	.....	.....
newberryi (Nicholson) .....	×	.....	.....
<i>Atactopora hirsuta</i> Ulrich .....	×	×	.....
maculata Ulrich .....	.....	×	.....
<i>Atactoporella multigranosa</i> (Ulrich) .....	.....	×	.....
mundula (Ulrich) .....	.....	×	.....
newportensis Ulrich .....	×	.....	.....
ortonii (Nicholson) .....	.....	×	.....
schucherti Ulrich .....	.....	.....	×
tenella (Ulrich) .....	.....	×	.....
typicalis Ulrich .....	×	.....	.....
<i>Batostoma implicatum</i> (Nicholson) .....	×	.....	.....
jamesi (Nicholson) .....	×	.....	.....
manitobense Ulrich .....	.....	.....	×
? rugosum (Whitfield) .....	.....	.....	×
varians (James) .....	.....	.....	×
<i>Berenicea primitiva</i> Ulrich .....	.....	×	×
vesiculosa Ulrich .....	×	.....	.....
<i>Bythopora arctipora</i> (Nicholson) .....	×	.....	.....
delicatula (Nicholson) .....	.....	.....	×
dendrina (James) .....	.....	×	.....
gracilis (Nicholson) .....	.....	×	.....
meeki (James) .....	.....	.....	×
parvula (James) .....	×	.....	.....
striata Ulrich .....	.....	.....	×

*Lists of species—Continued.*

## CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
<i>Bythotrypa epidermata</i> (Ulrich) .....			×
<i>Callopora andrewsi</i> (Nicholson) .....		×	
<i>dalei</i> (Edwards and Haime) .....		×	
<i>nodulosa</i> (Nicholson) .....	×		
<i>onealli</i> (James) .....	×		
<i>onealli-communis</i> (James) .....	×		
<i>onealli-sigillarioides</i> (Nicholson) .....	×		
<i>ramosa</i> (D'Orbigny) .....		×	
<i>rugosa</i> (Edwards and Haime) .....		×	
<i>subnodosa</i> Ulrich .....			×
<i>subplana</i> Ulrich .....		×	
<i>Calloporella circularis</i> (James) .....			×
? <i>lens</i> (Whitfield) .....			×
? <i>nodulosa</i> Ulrich .....			×
<i>Ceramoporella distincta</i> Ulrich .....	×	×	
<i>granulosa</i> Ulrich .....			×
<i>granulosa-milfordensis</i> (James) .....	×		
<i>irregularis</i> (Whitfield) .....			×
<i>ohioensis</i> (Nicholson) .....	×	×	×
<i>stellata</i> Ulrich .....			×
<i>whitei</i> (James) .....		×	×
<i>Chiloporella nicholsoni</i> (James) .....		×	
<i>Cœloclema alternatum</i> (James) .....	×		
<i>concentricum</i> (James) .....	×		
<i>oweni</i> (James) .....		×	
<i>Constellaria constellata</i> (Van Cleve) Dana .....		×	
<i>constellata-plana</i> Ulrich .....		×	
<i>constellata-prominens</i> Ulrich .....	×	×	
<i>limitaris</i> (Ulrich) .....			×
<i>parva</i> Ulrich .....			×
<i>polystomella</i> Nicholson .....			×
<i>punctata</i> (Whitfield) .....			×
<i>Crepipora hemispherica</i> Ulrich .....			×
<i>impressa</i> Ulrich .....		×	
<i>simulans</i> Ulrich .....		×	×
<i>solida</i> Ulrich .....	×		
<i>venusta</i> (Ulrich) .....	×		
<i>Dekayella obscura</i> Ulrich .....	×		
<i>ulrichi</i> (Nicholson) .....	×		
<i>ulrichi-robusta</i> Foord .....	×		

*Lists of species*—Continued.

## CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
<i>Dekayia appressa</i> Ulrich.....		×	
<i>aspera</i> Edwards and Haime.....		×	
<i>maculata</i> James.....	×		
<i>multispinosa</i> Ulrich.....		×	
<i>pelliculata</i> Ulrich.....		×	
<i>Dicranopora emacerata</i> (Nicholson) .....		×	×
<i>fragilis</i> (Billings) .....			×
<i>internodia</i> (Miller and Dyer) .....		×	
<i>nitidula</i> (Billings) .....			×
<i>Diplotrypa</i> ? <i>dubia</i> Ulrich.....			×
<i>Discotrypa elegans</i> (Ulrich) .....		×	
<i>Eridotrypa simulatrix</i> (Ulrich) .....			×
<i>Escharopora acuminata</i> (James).....	×		
<i>falciformis</i> (Nicholson).....		×	
<i>hilli</i> (James) .....		×	
<i>maculata</i> (Ulrich) .....		×	
<i>pavonia</i> (D'Orbigny).....		×	
<i>Eurydictya montifera</i> Ulrich.....			×
<i>sterlingensis</i> Ulrich .....			×
<i>Fenestella granulosa</i> Whitfield.....			×
<i>Goniotrypa bilateralis</i> Ulrich .....			×
<i>Graptodictya perelegans</i> (Ulrich) .....			×
<i>Helopora elegans</i> Ulrich.....			×
<i>harrisi</i> James.....			×
<i>imbricata</i> Ulrich.....			×
<i>Hemiphragma imperfectum</i> (Ulrich) .....			×
<i>whitfieldi</i> (James) .....	×		
<i>Heterotrypa affinis</i> (Ulrich) .....			×
<i>frondosa</i> (D'Orbigny) .....		×	
<i>inflecta</i> Ulrich .....		×	
<i>paupera</i> (Ulrich).....		×	
<i>singularis</i> Ulrich.....			×
<i>solitaria</i> Ulrich.....		×	
<i>subpulchella</i> (Nicholson) .....		×	
<i>subramosa</i> (Ulrich) .....			×
<i>subramosa-prolifera</i> Ulrich .....			×
<i>Homotrypa curvata</i> Ulrich.....		×	
<i>dawsoni</i> (Nicholson).....		×	×
<i>flabellaris</i> Ulrich .....		×	×
<i>gelasinosa</i> Ulrich .....			×
<i>obliqua</i> Ulrich.....		×	



*Lists of species—Continued.*

## CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
<i>Homotrypella contexta</i> Ulrich .....			×
<i>rustica</i> Ulrich .....			×
<i>Leptotrypa calceola</i> (Miller and Dyer) .....		×	
<i>clavacoidea</i> (James) .....		×	
? <i>clavis</i> Ulrich .....	×		
? <i>cortex</i> Ulrich .....	×		
? <i>dychei</i> (James) .....		×	
? <i>irregularis</i> (Ulrich) .....		×	
<i>minima</i> Ulrich .....		×	
<i>ornata</i> Ulrich .....		×	
? <i>semipilaris</i> Ulrich .....		×	
<i>stidhami</i> Ulrich .....			×
<i>Lioclema</i> ? <i>wilmingtonense</i> Ulrich .....			×
<i>Lioclemella annulifera</i> (Whitfield) .....			×
<i>fusiformis</i> (Whitfield) .....			×
<i>nitida</i> (Ulrich) .....			×
<i>solidissima</i> (Whitfield) .....			×
<i>subfusiformis</i> (James) .....			×
<i>Mesotrypa patella</i> (Ulrich) .....			×
<i>Monotrypa nodosa</i> Ulrich .....			×
<i>turbinata</i> (James) .....	×		
<i>undulata-hemispherica</i> (J. F. James) .....			×
<i>Monotrypella æqualis</i> Ulrich .....	×		
<i>crassimuralis</i> Ulrich .....			×
<i>quadrata</i> (Rominger) .....			×
<i>subquadrata</i> Ulrich .....			×
<i>Monticulipora cincinnatiensis</i> (James) .....		×	
?? <i>cleavelandi</i> James .....			×
<i>lævis</i> Ulrich .....			×
<i>lævis-consimilis</i> Ulrich .....			×
<i>lamellosa</i> Ulrich .....			×
<i>mammulata</i> D'Orbigny .....		×	
<i>molesta</i> Nicholson .....		×	
<i>parasitica</i> Ulrich .....			×
<i>parasitica-plana</i> Ulrich .....			×
?? <i>winchelli</i> James .....			×
?? <i>wortheni</i> James .....			×
<i>Nicholsonella cumulata</i> Ulrich .....			×
<i>vaupeli</i> (Ulrich) .....		×	

*Lists of species—Continued.*

## CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
<i>Pachydictya fenestelliformis</i> (Nicholson) .....	.....	.....	×
<i>fenestelliformis-corticula</i> Ulrich .....	.....	.....	×
? <i>firma</i> Ulrich .....	.....	.....	×
<i>gigantea</i> Ulrich .....	.....	.....	×
<i>hexagonalis</i> Ulrich .....	.....	.....	×
? <i>splendens</i> Ulrich .....	.....	.....	×
<i>Paleschara beani</i> (James) .....	×	.....	×
<i>Peronopora compressa</i> (Ulrich) .....	.....	×	.....
<i>decipiens</i> (Rominger) .....	.....	×	×
<i>Petigopora asperula</i> Ulrich .....	.....	×	.....
<i>gregaria</i> Ulrich .....	.....	×	.....
<i>petechialis</i> (Nicholson) .....	.....	×	.....
<i>scabiosa</i> Ulrich .....	.....	×	.....
<i>Phænopora wilmingttonensis</i> Ulrich .....	.....	.....	×
<i>Phylloporina clathrata</i> (Miller and Dyer) .....	.....	×	.....
<i>variolata</i> (Ulrich) .....	×	.....	.....
<i>Prasopora</i> ? <i>hospitalis</i> (Nicholson) .....	.....	.....	×
<i>Proboscina auloporoides</i> (Nicholson) .....	.....	×	×
<i>confusa</i> (Nicholson) .....	×	.....	.....
<i>frondosa</i> (Nicholson) .....	.....	×	×
<i>Protocrisina exigua</i> Ulrich .....	.....	.....	×
<i>Ptilodictya canadensis</i> Billings .....	.....	.....	×
<i>flagellum</i> Nicholson .....	.....	.....	×
<i>magnifica</i> Miller .....	.....	.....	×
<i>nodosa</i> James .....	.....	.....	×
<i>plumaria</i> James .....	.....	.....	×
<i>whiteavesi</i> Ulrich .....	.....	.....	×
<i>Ptilotrypa obliquata</i> Ulrich .....	.....	.....	×
<i>Rhinidictya lata</i> (Ulrich) .....	.....	.....	×
<i>parallela</i> James .....	×	.....	.....
<i>Rhopalonaria venosa</i> Ulrich .....	.....	×	×
<i>Sceptropora facula</i> Ulrich .....	.....	.....	×
<i>Spatiopora aspera</i> Ulrich .....	.....	×	.....
<i>corticans</i> (Nicholson) .....	.....	×	×
<i>iowensis</i> Ulrich .....	×	.....	.....
<i>lineata</i> Ulrich .....	.....	×	.....
<i>maculosa</i> Ulrich .....	.....	×	.....
<i>montifera</i> Ulrich .....	.....	.....	×
<i>tuberculata</i> (Edwards and Haime) .....	.....	×	×

*Lists of species—Continued.*

## CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
<i>Stictoporella flexuosa</i> (James).....	×	.....	.....
<i>Stomatopora arachnoidea</i> (Hall).....	×	×	×
<i>delicatula</i> (James).....	×	×	×
<i>delicatula-tenuissima</i> Ulrich.....	×	.....	.....
<i>inflata</i> (Hall).....	.....	×	×
<i>turgida</i> Ulrich.....	.....	.....	×
<i>Trematopora</i> ?? <i>granulata</i> Whitfield.....	.....	.....	×
<i>Vinella radialis</i> Ulrich.....	.....	×	.....

## SILURIAN.

	Anticosti.	Clinton.	Niagara.	Lower Held.
<i>Aspidopora parmula</i> (Foerste).....	.....	×	.....	.....
<i>parmula-fenestelliformis</i> Foerste.....	.....	×	.....	.....
<i>Batostomella</i> ? <i>aspera</i> (Hall).....	.....	.....	×	.....
<i>granulifera</i> (Hall).....	.....	.....	×	.....
<i>Berenicea elegans</i> (Hall).....	.....	.....	×	.....
<i>membranacea</i> (Hall).....	.....	.....	×	.....
<i>Bythopora spinulosa</i> (Hall).....	.....	.....	×	.....
<i>Callopora</i> ?? <i>cervicornis</i> Hall.....	.....	.....	×	.....
?? <i>diversa</i> Hall.....	.....	.....	×	.....
<i>elegantula</i> Hall.....	.....	.....	×	.....
<i>magnopora</i> Foerste.....	.....	×	.....	.....
?? <i>nummiformis</i> Hall.....	.....	.....	×	.....
?? <i>oppleta</i> Hall and Simpson.....	.....	.....	.....	×
<i>perelegans</i> Hall.....	.....	.....	.....	×
<i>Callotrypa heteropora</i> (Hall).....	.....	.....	.....	×
<i>macropora</i> (Hall).....	.....	.....	.....	×
<i>macropora-signata</i> (Hall).....	.....	.....	.....	×
<i>oculifera</i> (Hall).....	.....	.....	.....	×
<i>paucipora</i> Hall and Simpson.....	.....	.....	.....	×
<i>striata</i> (Hall and Simpson).....	.....	.....	.....	×
<i>unispina</i> (Hall).....	.....	.....	.....	×
<i>Ceramopora</i> ? <i>confluens</i> Hall.....	.....	.....	×	.....
? <i>expansa</i> James.....	.....	×	.....	.....
? <i>explanata</i> Hall.....	.....	.....	×	.....
<i>imbricata</i> Hall.....	.....	.....	×	.....
? <i>labeculoidea</i> Hall.....	.....	.....	.....	×

*Lists of species—Continued.*

## SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
<i>Ceramopora</i> ? <i>maculata</i> Hall.....				×
? <i>notha</i> Hall.....			×	
<i>orbiculata</i> Ringueberg.....			×	
? <i>parvicella</i> Hall.....				×
? <i>raripora</i> Hall.....			×	
<i>Chaetetes</i> ?? <i>expansus</i> Ringueberg.....			×	
<i>Chilotrypa</i> ? <i>coalescens</i> (Hall).....			×	
<i>dispersa</i> (Hall).....				×
<i>ostiolata</i> (Hall).....			×	
<i>varia</i> (Hall).....			×	
<i>variolata</i> (Hall).....			×	
<i>Clathropora</i> ? <i>alcicornis</i> Hall.....			×	
<i>frondosa</i> Hall.....		×	×	
<i>frondosa-clintonensis</i> Hall and Whitfield.....		×		
<i>intermedia</i> Nicholson and Hinde.....			×	
<i>Cœlocaulis</i> ? <i>mediopora</i> (Hall).....				×
<i>venusta</i> (Hall).....				×
<i>Diamesopora</i> <i>dichotoma</i> Hall.....			×	
<i>infrequens</i> (Hall).....			×	
<i>osculum</i> (Hall).....			×	
<i>subimbricata</i> (Hall).....			×	
? <i>tubulosa</i> (Hall).....		×		
<i>Dicranopora</i> <i>fragilis</i> (Billings).....	×			
<i>granulosa</i> (Hall and Simpson).....				×
<i>Diploclima</i> <i>sparsum</i> (Hall).....			×	
<i>Drymotrypa</i> <i>cisseis</i> (Hall).....				×
<i>diffusa</i> (Hall).....			×	
<i>niagarensis</i> (Hall).....			×	
<i>Eridotrypa</i> <i>corticosa</i> (Hall).....				×
<i>echinata</i> (Hall).....			×	
<i>Fenestella</i> <i>acuticosta</i> Roemer.....			×	
<i>adornata</i> Hall and Simpson.....				×
<i>adraste</i> Hall.....				×
<i>æsyle</i> Hall.....				×
<i>althæa</i> Hall.....				×
<i>bellistriata</i> Hall.....			×	
<i>cleia</i> Hall.....				×
<i>crebripora</i> Hall.....				×
? <i>cribrosa</i> Hall.....			×	

*Lists of species—Continued.*

## SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
<i>Fenestella elegans</i> Hall .....			×	.....
? frequens Hall .....				×
hestia Hall .....				×
? idalia Hall .....				×
juncea Hall .....				×
noe Hall and Simpson .....				×
parvulipora Hall .....			×	.....
pertenuis Hall .....			×	.....
philia Hall .....				×
prolixa Hall .....			×	.....
spio Hall and Simpson .....				×
sylvia Hall .....				×
tenuis Hall .....		×		.....
<i>Fistulipora</i> ? crassa (Hall) .....				×
distan (Hall) .....				×
halli-Rominger .....			×	.....
hemispherica (Roemer) .....			×	.....
maculosa (Hall) .....				×
neglecta Rominger .....			×	.....
neglecta-maculata Hall .....			×	.....
serialis (Hall and Simpson) .....				×
torta (Hall) .....				×
? triloba Hall and Simpson .....				×
<i>Helicopora latispiralis</i> Claypole .....			×	.....
<i>Helopora armata</i> Billings .....	×			.....
bellula Billings .....	×			.....
?? circe Billings .....	×			.....
?? concava Billings .....	×			.....
fragilis Hall .....		×	×	.....
?? irregularis Billings .....	×			.....
nodosa Billings .....	×			.....
?? varipora Billings .....	×			.....
<i>Hemitrypa biserialis</i> (Hall) .....				×
biserialis-exilis (Hall and Simpson) .....				×
ulrichi Foerste .....		×		.....
<i>Homotrypa</i> ? confluens Foerste .....		×		.....
? solida (Hall) .....			×	.....
<i>Ichthyorachis nereis</i> Hall .....				×
<i>Idiotrypa parasitica</i> Ulrich .....			×	.....
<i>Leptotrypa</i> ? sphaerion (Hall) .....			×	.....

*Lists of species—Continued.*

## SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
<i>Lichenalia concentrica</i> Hall .....			×	.....
<i>Lioclema asperum</i> (Hall) .....			×	.....
<i>cellulosum</i> (Hall) .....				×
? <i>exsul</i> (Hall) .....			×	.....
(? <i>Nicholsonella</i> ) <i>floridum</i> (Hall) .....			×	.....
(? <i>Nicholsonella</i> ) <i>laminatum</i> (Hall) .....			×	.....
<i>parasiticum</i> (Hall) .....				×
<i>ponderosum</i> (Hall) .....				×
<i>Lioclemella ohioensis</i> (Foerste) .....		×		.....
<i>Loculipora ambigua</i> (Hall) .....			×	.....
<i>loculata</i> (Hall) .....				×
<i>Meekopora foliacea</i> (Hall) .....			×	.....
<i>Mesotrypa milleri</i> (Ulrich) .....			×	.....
<i>Monotrypa colliculata</i> (Hall) .....				×
? <i>helderbergiae</i> (Hall) .....				×
<i>monticulata</i> (Hall) .....				×
? <i>proxima</i> (Hall) .....				×
<i>sphaerica</i> (Hall) .....				×
?? <i>spinulosa</i> (Hall and Simpson) .....				×
<i>tabulata</i> (Hall) .....				×
<i>Monotrypella</i> ? <i>abrupta</i> (Hall) .....				×
? <i>arbuscula</i> (Hall) .....				×
? <i>consimilis</i> (Hall) .....			×	.....
? <i>densa</i> (Hall) .....				×
<i>Nematopora formosa</i> (Billings) .....	×			.....
<i>lineata</i> (Billings) .....	×			.....
? <i>lineopora</i> (Billings) .....	×			.....
<i>macropora</i> (Hall) .....			×	.....
<i>minuta</i> (Hall) .....			×	.....
<i>rariopora</i> (Hall) .....		×	×	.....
<i>striatopora</i> (Billings) .....	×			.....
<i>strigosa</i> (Billings) .....	×			.....
<i>Orthopora canaliculata</i> (Hall) .....				×
<i>granilinea</i> (Hall and Simpson) .....				×
<i>nodosa</i> (Hall and Simpson) .....				×
<i>ovatifora</i> (Hall) .....				×
<i>parallela</i> (Hall) .....				×
<i>regularis</i> (Hall) .....				×
<i>rhombifera</i> (Hall) .....				×

*Lists of species—Continued.*

## SILURIAN—Continued.

	Anticosti.	Clinton.	Niagarn.	Lower Held.
<i>Pachydietya aleyone</i> (Billings) .....	×	.....	.....	.....
<i>bifurcata</i> (Hall) .....	.....	×	.....	.....
<i>bifurcata-instabilis</i> Foerste .....	.....	×	.....	.....
<i>crassa</i> (Hall) .....	×	×	×	.....
<i>emaciata</i> Foerste .....	.....	×	.....	.....
? <i>famelica</i> Foerste .....	.....	×	.....	.....
<i>obesa</i> Foerste .....	.....	×	.....	.....
<i>turgida</i> Foerste .....	.....	×	.....	.....
<i>Paleschara</i> ?? <i>bilateralis</i> Hall .....	.....	.....	.....	×
<i>concentrica</i> Hall and Simpson .....	.....	.....	.....	×
? <i>dissimilis</i> (Hall) .....	.....	.....	.....	×
? <i>incrassata</i> Hall .....	.....	.....	×	.....
<i>incrustans</i> Hall .....	.....	.....	.....	×
? <i>maculata</i> Hall .....	.....	.....	×	.....
? <i>offula</i> Hall .....	.....	.....	×	.....
<i>radiata</i> Hall .....	.....	.....	.....	×
? <i>tenuis</i> Hall and Simpson .....	.....	.....	.....	×
<i>Phænopora constellata</i> Hall .....	.....	×	.....	.....
<i>ensiformis</i> Hall .....	.....	×	.....	.....
<i>excellens</i> (Billings) .....	×	.....	.....	.....
<i>expansa</i> Hall and Whitfield .....	.....	×	.....	.....
<i>explanata</i> Hall .....	.....	×	.....	.....
<i>fimbriata</i> (James) .....	.....	×	.....	.....
<i>lirata</i> (Hall) .....	.....	.....	.....	×
<i>magna</i> (Hall and Whitfield) .....	.....	×	.....	.....
<i>multifida</i> (Hall) .....	.....	×	.....	.....
<i>punctata</i> (Nicholson and Hinde) .....	.....	×	.....	.....
<i>superba</i> (Billings) .....	×	.....	.....	.....
<i>tenuis</i> (Hall) .....	.....	.....	.....	×
<i>Phylloporina angulata</i> (Hall) .....	.....	×	.....	.....
<i>asperato-striata</i> (Hall) .....	.....	.....	×	.....
<i>Polypora albionensis</i> Spencer .....	.....	.....	×	.....
<i>arta</i> (Hall) .....	.....	.....	.....	×
<i>compacta</i> (Hall) .....	.....	.....	.....	×
<i>compressa</i> (Hall) .....	.....	.....	.....	×
<i>conferta</i> Hall .....	.....	.....	×	.....
<i>eudora</i> (Hall) .....	.....	.....	.....	×
<i>idothea</i> (Hall) .....	.....	.....	.....	×
<i>incepta</i> Hall .....	.....	.....	×	.....

*Lists of species*—Continued.

## SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
<i>Polypora lilæa</i> Hall.....				×
<i>obliqua</i> (Hall) .....				×
<i>paxillata</i> (Hall) .....				×
<i>punctostriata</i> (Hall) .....			×	
? <i>stricta</i> (Hall and Simpson) .....				×
<i>tantula</i> (Hall) .....			×	
<i>varia</i> (Hall) .....				×
<i>Ptilodictya angusta</i> (Hall) .....			×	
<i>expansa</i> Hall .....		×		
<i>expansa-emarcescens</i> Foerste .....		×		
<i>gladiola</i> Billings .....	×			
<i>nebulosa</i> (Hall) .....				×
<i>obliqua</i> Ringueberg .....		×		
<i>sulcata</i> Billings .....	×			
? <i>tenera</i> (Billings) .....	×			
<i>whitfieldi</i> Foerste .....		×		
<i>Ptiloporella nervata</i> (Nicholson) .....			×	
<i>Rhinopora</i> ? <i>tuberculosa</i> Hall .....			×	
? <i>tubulosa</i> Hall .....		×		
<i>verrucosa</i> Hall .....		×		
<i>Sceptropora fustiformis</i> Ulrich .....		×		
<i>Semicoscinium acmeum</i> (Hall) .....			×	
? <i>cleis</i> (Hall) .....				×
<i>coronis</i> (Hall) .....				×
<i>tenuiceps</i> (Hall) .....			×	
<i>thyene</i> (Hall) .....				×
<i>Stictopora</i> ?? <i>granatula</i> Hall .....				×
?? <i>obsoleta</i> Hall and Simpson .....				×
?? <i>papillosa</i> Hall .....				×
<i>Stictotrypa orbipora</i> (Hall) .....			×	
<i>punctipora</i> (Hall) .....			×	
<i>similis</i> (Hall) .....			×	
<i>Stomatopora parva</i> Ringueberg .....			×	
<i>recta</i> Ringueberg .....			×	
<i>Thamniscus dichotomus</i> (Hall) .....			×	
<i>fruticellus</i> Hall .....				×
<i>nysa</i> Hall .....				×
<i>variolatus</i> Hall .....				×
<i>Trematopora halli</i> Ulrich .....			×	
?? <i>punctata</i> Hall .....			×	



*Lists of species—Continued.*

## SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
<i>Trematopora</i> ? <i>singularis</i> Hall .....			×	.....
? <i>spiculata</i> Miller .....			×	.....
?? <i>superba</i> Billings .....		×	×	.....
<i>tuberculosa</i> Hall .....			×	.....
<i>whitfieldi</i> Ulrich .....			×	.....
<i>Trigonodictya eatonensis</i> Ulrich .....		×		.....
<i>Unitrypa nervia</i> (Hall) .....				×
<i>nervia-constricta</i> (Hall) .....				×
<i>præcursor</i> (Hall) .....				×
<i>quadrula</i> (Hall) .....				×
<i>Vinella radiceformis-conferta</i> Ulrich .....			×	.....

## DEVONIAN.

	Oriskany.	Upper Held.	Hamilton.
<i>Acanthoclema alternatum</i> (Hall) .....		×	.....
<i>divergens</i> Hall and Simpson .....		×	.....
<i>ovatum</i> Hall and Simpson .....		×	.....
<i>sulcatum</i> Hall and Simpson .....			×
<i>triseriale</i> (Hall) .....		×	.....
<i>Acrogenia prolifera</i> Hall .....			×
<i>Ascodictyon fusiforme</i> Nicholson and Etheridge, Jun .....			×
<i>stellatum</i> Nicholson and Etheridge, Jun .....			×
<i>Bactropora curvata</i> Hall and Simpson .....			×
<i>granistriata</i> (Hall) .....			×
<i>Botryllopora socialis</i> Nicholson .....			×
<i>Buskopora bistriata</i> (Hall) .....			×
<i>dentata</i> Ulrich .....			×
<i>lunata</i> (Rominger) .....		×	.....
<i>pyriformis</i> (Hall) .....			×
<i>Callotrypa</i> ? <i>geniculata</i> (Hall) .....		×	.....
<i>internodata</i> (Hall) .....			×
<i>multiseriata</i> (Hall) .....		×	.....
<i>Ceramella scidacea</i> Hall and Simpson .....			×
<i>Ceramopora</i> ?? <i>imbricella</i> Hall .....			×
<i>Chætetes</i> ?? <i>hamiltonensis</i> Winchell .....			×
?? <i>microscopicus</i> Winchell .....			×

*Lists of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamil- ton.
<i>Chaetetes</i> ?? <i>ponderosus</i> Rominger .....			×
?? <i>tenuis</i> Hall .....		×	×
<i>Chilotrypa</i> <i>camerata</i> (Hall) .....		×	
<i>Clathropora</i> <i>intertexta</i> Nicholson .....		×	
<i>Clonopora</i> <i>incurva</i> Hall .....		×	
<i>fasciculata</i> Hall and Simpson .....		×	
<i>semireducta</i> Hall .....			×
<i>Cœlocaulis</i> ?? <i>aculeolata</i> Hall .....		×	
?? <i>hyale</i> Hall .....		×	
? <i>irregularis</i> (Hall) .....		×	
<i>Coscinnella</i> <i>coscinniformis</i> (Nicholson) .....			×
<i>elegantula</i> Hall and Simpson .....			×
<i>Coscinium</i> <i>cribriforme</i> Prout .....			×
<i>striatum</i> Hall and Simpson .....			×
<i>striaturum</i> (Hall) .....		×	
<i>Crisinella</i> <i>scrobiculata</i> (Hall) .....		×	
<i>Cyclotrypa</i> <i>collina</i> (Ulrich) .....			×
<i>communis</i> (Ulrich) .....			×
<i>Cystodictya</i> <i>angularis</i> (Hall and Simpson) .....			×
<i>bifurcata</i> (Hall and Simpson) .....			×
<i>crescens</i> (Hall) .....		×	
<i>gilberti</i> (Meek) .....		×	×
<i>harliltonensis</i> Ulrich .....			×
<i>incisurata</i> (Hall) .....			×
? <i>invertis</i> (Hall) .....		×	
<i>limata</i> (Hall and Simpson) .....			×
<i>linearis</i> (Hall) .....		×	
<i>meeki</i> (Nicholson) .....		×	×
<i>ovata</i> (Hall and Simpson) .....			×
<i>ovatipora</i> (Hall) .....			×
<i>perarcta</i> (Hall) .....		×	
<i>recta</i> (Hall and Simpson) .....			×
<i>rectilinea</i> (Hall and Simpson) .....			×
<i>rigida</i> (Hall) .....		×	
<i>semistriata</i> (Hall) .....		×	
<i>sinuosa</i> (Hall) .....			×
<i>subrigida</i> (Hall) .....			×
<i>sulcata</i> (Winchell) .....			×
<i>trilineata</i> (Hall and Simpson) .....			×

*Liste of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamil- ton.
<i>Cystodictya tumulosa</i> (Hall) .....			×
<i>vermicula</i> (Hall) .....			×
<i>Cystopora geniculata</i> Hall .....			×
<i>Dekayia</i> ? <i>devonica</i> Ulrich .....			×
<i>Dichotrypa foliata</i> Ulrich .....			×
<i>Discotrypa</i> ? <i>devonica</i> Ulrich .....			×
<i>Eridopora</i> ? <i>clivulata</i> (Hall) .....			×
<i>denticulata</i> (Hall) .....			×
<i>Eridotrypa appressa</i> (Ulrich) .....			×
? <i>obliqua</i> (Ulrich) .....			×
<i>Euspilopora</i> ? <i>barrisi</i> Ulrich .....			×
<i>lobata</i> (Hall and Simpson) .....			×
<i>palmipes</i> (Hall) .....			×
<i>serrata</i> Ulrich .....			×
<i>Favicella inclusa</i> (Hall) .....			×
<i>tessellata</i> (Hall and Simpson) .....			×
<i>Fenestella æqualis</i> Hall .....			×
<i>angustata</i> Hall .....			×
<i>arkonensis</i> Whiteaves .....			×
<i>assita</i> Hall .....			×
<i>biseriata</i> Hall .....		×	-----
<i>clathrata</i> Hall and Simpson .....		×	-----
<i>cultrata</i> Hall .....			×
<i>curvata</i> Hall .....			×
<i>curvijunctura</i> Hall .....			×
<i>depressa</i> Hall .....			×
<i>dilata</i> Prout .....			×
<i>dispanda</i> Hall .....		×	-----
<i>emaciata</i> Hall .....			×
? <i>erectipora</i> Hall .....		×	-----
<i>eximia</i> Winchell .....			×
<i>filitexta</i> Winchell .....			×
<i>magnifica</i> Nicholson .....		×	-----
<i>marcida</i> Hall .....			×
<i>marginalis</i> Nicholson .....		×	-----
? <i>nexilis</i> Hall .....		×	-----
<i>nicholsoni</i> Whiteaves .....			×
<i>nodosa</i> Prout .....			×
<i>parallela</i> Hall .....		×	-----

*Lists of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
<i>Fenestella peculiaris</i> Hall.....		×	
<i>perplexa</i> Hall.....			×
<i>planiramosa</i> Hall.....			×
<i>proceritas</i> Hall and Simpson.....		×	
<i>proutana</i> Miller.....			×
<i>pulchella</i> Ulrich.....			×
<i>quadrangula</i> Hall.....			×
<i>serrata</i> Hall.....			×
<i>singularitas</i> Hall.....			×
<i>sinuosa</i> Hall.....		×	
<i>spissa</i> Hall.....			×
<i>stellata</i> Hall.....			×
<i>tenella</i> Hall.....			×
<i>tuberculata</i> Hall and Simpson.....		×	
<i>variapora</i> Hall.....			×
<i>vera</i> Ulrich.....			×
<i>verrucosa</i> Hall.....			×
<i>Fenestrapora biperforata</i> Hall.....			×
<i>infraporosa</i> (Ulrich).....			×
<i>occidentalis</i> Ulrich.....			×
<i>Fistulipora acervulosa</i> Rominger.....			×
<i>alternata</i> (Hall).....			×
<i>astrica</i> Ulrich.....			×
? <i>bullata</i> (Hall and Simpson).....			×
<i>colliculata</i> (Hall).....			×
? <i>confusa</i> (Hall and Simpson).....			×
? <i>constricta</i> (Hall).....			×
<i>conulata</i> (Hall).....			×
<i>cornuta</i> (Hall and Simpson).....			×
(? <i>Dichotrypa</i> ) <i>corrugata</i> Ulrich.....			×
<i>cultellata</i> (Hall).....			×
<i>distensa</i> (Hall).....			×
<i>eriensis</i> Rominger.....			×
<i>foliacea</i> (Hall).....			×
<i>foordi</i> Ulrich.....			×
<i>geometrica</i> (Hall).....			×
<i>granifera</i> (Hall).....			×
?? <i>helios</i> Rominger.....		×	
? <i>hemispherica</i> (Hall).....			×

*Lists of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
<i>Fistulipora huronensis</i> (Nicholson) .....			×
<i>incrassata</i> (Nicholson) .....			×
<i>interaspera</i> Hall and Simpson .....			×
<i>labiosa</i> Winchell .....			×
? <i>lamellata</i> (Hall) .....		×	-----
<i>longimacula</i> (Hall) .....			×
<i>monticulata</i> Ulrich .....			×
<i>normalis</i> Ulrich .....			×
<i>ovata</i> (Hall) .....			×
? <i>permarginata</i> (Hall) .....		×	-----
? <i>pustulosa</i> (Hall and Simpson) .....			×
<i>ramosa</i> (Hall and Simpson) .....			×
<i>romingeri</i> Nicholson and Foord .....			×
<i>saffordi</i> Winchell .....			×
? <i>scrobiculata</i> (Hall) .....			×
<i>spinulifera</i> Rominger .....			×
<i>subcava</i> (Hall) .....			×
<i>substellata</i> (Hall) .....			×
<i>subtrigona</i> (Hall and Simpson) .....			×
<i>sulcata</i> Rominger .....			×
? <i>triangularis</i> (Hall) .....			×
? <i>trifaria</i> Hall and Simpson .....			×
? <i>umbilicata</i> (Hall) .....			×
? <i>unilinea</i> Hall and Simpson .....			×
<i>utriculus</i> Rominger .....			×
<i>vesiculata</i> Hall and Simpson .....			×
<i>Glossotrypa paliformis</i> (Hall) .....			×
<i>Hederella alternata</i> (Hall and Whitfield) .....			×
<i>canadensis</i> (Nicholson) .....		×	×
<i>cirrhusa</i> Hall .....			×
<i>conferta</i> (Hall) .....			×
<i>filiformis</i> (Billings) .....			×
<i>magna</i> Hall .....			×
<i>Helicopora ulrichi</i> Claypole .....			×
<i>Hemitrypa biordo</i> Hall .....		×	-----
<i>columellata</i> (Hall and Simpson) .....		×	-----
<i>cribrosa</i> (Hall) .....			×
<i>favosa</i> (Hall) .....		×	-----
<i>tenera</i> Ulrich .....			×

*Lists of species*—Continued.

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
<i>Hernodia humifusa</i> Hall.....	.....	.....	×
<i>Heterotrypa</i> ? <i>barrandei</i> (Nicholson) .....	.....	.....	×
? <i>moniliformis</i> (Nicholson) .....	.....	.....	×
<i>Intrapora puteolata</i> Hall .....	.....	.....	×
<i>Isotrypa conjunctiva</i> (Hall).....	.....	×	.....
<i>consimilis</i> Hall .....	.....	×	.....
<i>Leptotrypa</i> ? <i>quadrangularis</i> (Nicholson).....	.....	.....	×
<i>Lichenotrypa longispina</i> (Hall) .....	.....	.....	×
<i>Lioclema confertiporum</i> (Hall).....	.....	.....	×
<i>decipiens</i> (Hall) .....	.....	.....	×
<i>densum</i> (Hall) .....	.....	.....	×
<i>digitatum</i> (Hall).....	.....	.....	×
<i>intercellatum</i> (Hall) .....	.....	.....	×
<i>involvens</i> (Hall and Simpson) .....	.....	.....	×
<i>microporum</i> (Hall) .....	.....	.....	×
<i>minutissimum</i> (Nicholson) .....	.....	.....	×
<i>minutum</i> (Rominger) .....	.....	.....	×
<i>multaculeatum</i> (Hall) .....	.....	.....	×
<i>occidens</i> (Hall and Whitfield) .....	.....	.....	×
<i>punctillatum</i> (Winchell) .....	.....	.....	×
<i>segregatum</i> (Hall) .....	.....	.....	×
<i>spheroideum</i> (Hall).....	.....	.....	×
<i>subtile</i> (Hall).....	.....	.....	×
<i>Loculipora circumstata</i> (Hall and Simpson) .....	.....	×	.....
<i>perforata</i> (Hall) .....	.....	.....	×
<i>Meekopora stellifera</i> (Rominger) .....	.....	.....	×
<i>Monotrypa</i> ? <i>amplectens</i> Grabau.....	.....	.....	×
<i>Monotrypella</i> ? <i>unjiga</i> Whiteaves.....	.....	.....	×
<i>Monticulipora</i> ? <i>monticula</i> (White).....	.....	.....	×
? <i>winchelli</i> Ulrich .....	.....	.....	×
<i>Nemataxis fibrosus</i> Hall .....	.....	×	.....
? <i>simplex</i> Hall and Simpson.....	.....	.....	×
<i>Orthopora bispinulata</i> (Hall) .....	.....	.....	×
<i>carinata</i> Hall and Simpson .....	.....	.....	×
<i>elongata</i> (Hall and Simpson).....	.....	.....	×
<i>granifera</i> (Hall and Simpson).....	.....	.....	×
<i>hexagona</i> (Hall and Simpson) .....	.....	.....	×
<i>immersa</i> (Hall and Simpson).....	.....	.....	×
<i>interplana</i> (Hall and Simpson) .....	.....	.....	×

*Lists of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
<i>Orthopora lineata</i> (Hall and Simpson).....			×
<i>orbipora</i> (Hall).....			×
<i>ornata</i> (Hall and Simpson).....			×
<i>polygona</i> (Hall).....			×
<i>regularis</i> (Hall).....			×
<i>reticulata</i> (Hall and Simpson).....			×
<i>rhombifera</i> (Hall).....			×
<i>scutulata</i> (Hall).....		×	
<i>subquadrata</i> (Hall).....			×
<i>tortilinea</i> (Hall).....			×
<i>transversa</i> (Hall).....			×
<i>Paleschara</i> ? <i>intercella</i> Hall.....			×
? <i>pertenuis</i> Hall.....			×
? <i>reticulata</i> Hall.....			×
? <i>variacella</i> Hall.....			×
<i>Petalotrypa compressa</i> Ulrich.....			×
<i>delicata</i> Ulrich.....			×
<i>Phractopora cristata</i> (Hall).....			×
<i>Phyllopora aspera</i> Ulrich.....			×
<i>Pinacotrypa elegans</i> (Rominger).....			×
<i>marginata</i> Whiteaves.....			×
<i>operculata</i> (Hall and Simpson).....			×
<i>plana</i> (Hall).....			×
<i>serrulata</i> (Hall).....			×
<i>stellata</i> (Hall).....			×
<i>variapora</i> (Hall).....			×
<i>Pinnatopora carinata</i> (Hall).....			×
<i>nodata</i> (Hall).....		×	
<i>sinuosa</i> (Hall).....		×	
<i>tenuistriata</i> (Hall).....		×	
<i>Polypora aculeata</i> (Hall).....			×
<i>arkonensis</i> Miller.....			×
<i>aspectans</i> (Hall).....			×
<i>blandida</i> Ulrich.....			×
<i>brevisulcata</i> (Hall).....		×	
<i>carinella</i> (Hall and Simpson).....		×	
<i>celsipora</i> (Hall).....		×	
<i>celsipora-minima</i> Hall.....			×
<i>celsipora-minor</i> Hall.....		×	

*Lists of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
<i>Polypora crebrescens</i> (Hall) .....		×	
<i>cylindracea</i> (Hall) .....		×	
<i>distans</i> (Hall) .....		×	
<i>elongata</i> (Hall) .....		×	
<i>fistulata</i> (Hall) .....			×
<i>flabelliformis</i> (Hall) .....		×	
<i>granilinea</i> (Hall) .....		×	
<i>hexagonalis</i> (Hall) .....		×	
<i>hexagonalis-foraminulosa</i> (Hall) .....		×	
<i>intermedia</i> Prout .....			×
<i>lævistriata</i> (Hall) .....			×
<i>largissima</i> (Hall) .....		×	
<i>latitruncata</i> (Hall) .....			×
<i>levinodata</i> (Hall) .....			×
<i>manitobensis</i> Whiteaves .....			×
<i>multiplex</i> (Hall) .....			×
<i>mutabilis</i> (Hall) .....		×	
<i>nexa</i> (Hall) .....		×	
<i>perangulata</i> (Hall) .....		×	
<i>porosa</i> (Hall) .....		×	
<i>propria</i> (Hall) .....		×	
? <i>psyche</i> Billings .....	×		
<i>pulchella</i> Nicholson .....		×	
<i>quadrangularis</i> (Hall) .....			×
<i>rigida</i> (Hall) .....		×	
<i>robusta</i> (Hall) .....		×	
<i>rustica</i> (Hall and Simpson) .....		×	
<i>separata</i> (Hall and Simpson) .....		×	
<i>shumardi</i> Prout .....			×
<i>striatopora</i> (Hall) .....			×
<i>submutans</i> (Hall) .....			×
<i>tenella</i> Nicholson .....		×	
<i>transversa</i> Ulrich .....			×
<i>Prismopora dilatata</i> Hall .....			×
<i>lata</i> Hall and Simpson .....			×
<i>paucirama</i> Hall .....		×	
<i>sparsipora</i> (Hall) .....			×
<i>triquetra</i> Hall .....			×
<i>Proboscina</i> ? <i>laxa</i> Whiteaves .....			×



*Lists of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
<i>Ptilocella parallela</i> (Hall and Simpson).....			×
<i>Ptilodictya gigantea</i> (Nicholson) .....		×	.....
?? <i>tarda</i> Billings .....	×		.....
<i>Ptilopora infrequens</i> (Hall and Simpson) .....			×
<i>nodosa</i> (Hall) .....			×
<i>striata</i> Hall.....			×
<i>Ptiloporella bifurca</i> (Ulrich).....			×
<i>inaequalis</i> (Hall and Simpson).....		×	.....
<i>laticrescens</i> (Hall and Simpson).....		×	.....
<i>Ptiloporina conica</i> (Hall and Simpson) .....		×	.....
<i>disparilis</i> (Hall and Simpson) .....		×	.....
<i>pinnata</i> (Hall and Simpson).....		×	.....
<i>sinistralis</i> (Hall and Simpson) .....		×	.....
<i>Reptaria nodata</i> (Hall).....			×
<i>stolonifera</i> Rolle.....			×
<i>Reteporidra adnata</i> (Hall).....			×
<i>cinctuta</i> (Hall) .....			×
<i>perundata</i> (Hall) .....			×
<i>Reteporina coalescens</i> (Hall and Simpson).....		×	.....
<i>hamiltonensis</i> (Prout).....			×
<i>perundulata</i> (Hall).....			×
<i>phillipsi</i> (Nicholson).....		×	.....
<i>prisca</i> (Goldfuss?) (Nicholson) .....		×	×
<i>rhombifera</i> (Hall) .....		×	.....
<i>striata</i> (Hall) .....			×
<i>Rhombopora lineinodis</i> Ulrich.....			×
<i>lineinodis-humilis</i> Ulrich.....			×
<i>subannulata</i> Ulrich .....			×
<i>sulcifera</i> Ulrich .....			×
<i>Scalaripora approximata</i> Ulrich .....			×
<i>canadensis</i> Whiteaves .....			×
<i>scalariformis</i> Hall .....			×
<i>separata</i> Ulrich .....			×
<i>subconcava</i> Hall .....			×
<i>Selenopora circincta</i> (Hall) .....			×
<i>complexa</i> (Hall) .....			×
<i>Semicoscinium biimbricatum</i> (Hall).....			×
<i>biserrulatum</i> Hall .....			×
<i>davidsoni</i> (Nicholson) .....			×

*Lists of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton
<i>Semicoscium erienne</i> Prout.....	.....	.....	.....
<i>exornatum</i> (Hall) .....	.....	.....	×
<i>graniferum</i> (Hall) .....	.....	×	.....
<i>hindei</i> (Nicholson) .....	.....	×	.....
<i>inflexum</i> (Hall) .....	.....	.....	×
<i>interruptum</i> (Hall) .....	.....	.....	×
<i>labiatum</i> (Hall) .....	.....	.....	×
<i>latijunctum</i> (Hall) .....	.....	.....	×
<i>lunulatum</i> (Hall) .....	.....	.....	×
<i>mirabile</i> (Nicholson) .....	.....	×	.....
<i>permarginatum</i> (Hall) .....	.....	.....	×
<i>planidorsatum</i> Ulrich .....	.....	.....	×
<i>rhombicum</i> Ulrich .....	.....	.....	×
<i>rhomboideum</i> Prout .....	.....	.....	×
<i>semirotundum</i> (Hall) .....	.....	.....	×
<i>subtortile</i> (Hall) .....	.....	.....	×
<i>tortum</i> (Hall) .....	.....	.....	×
<i>tuberculatum</i> (Prout) .....	.....	.....	×
<i>Semiopora bistigmata</i> Hall .....	.....	.....	×
<i>Stictopora</i> ?? <i>divergens</i> Hall and Simpson .....	.....	.....	×
?? <i>fruticosa</i> Hall .....	.....	×	.....
?? <i>granifera</i> Hall .....	.....	.....	×
?? <i>incrassata</i> Hall .....	.....	.....	×
?? <i>interstriata</i> Hall .....	.....	.....	×
?? <i>permarginata</i> Hall .....	.....	.....	×
?? <i>striata</i> Hall and Simpson .....	.....	.....	×
<i>Stictoporina claviformis</i> (Hall) .....	.....	.....	×
<i>plumea</i> (Hall and Simpson) .....	.....	.....	×
<i>scutulata</i> (Hall) .....	.....	.....	×
<i>Stomatopora</i> ?? <i>moniliformis</i> Whiteaves .....	.....	.....	×
<i>Streblotrypa hamiltonensis</i> (Nicholson) .....	.....	.....	×
<i>scutulata</i> (Hall) .....	.....	.....	×
<i>Strotopora perminuta</i> Ulrich .....	.....	.....	×
<i>Tæniodictya</i> ? <i>rhomboidea</i> (Hall) .....	.....	×	.....
<i>Tæniopora exigua</i> Nicholson .....	.....	.....	×
<i>occidentalis</i> Ulrich .....	.....	.....	×
<i>penniformis</i> Nicholson .....	.....	.....	×
<i>recubans</i> (Hall and Simpson) .....	.....	.....	×
<i>subcarinata</i> (Hall) .....	.....	.....	×

*Lists of species—Continued.*

## DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
<i>Thamniscus multiramus</i> Hall.....		×	
<i>nanus</i> Hall.....			×
<i>pauciramus</i> Hall.....			×
<i>Thamnotrypa divaricata</i> (Hall).....		×	
<i>Trematella annulata</i> (Hall).....			×
<i>arborea</i> (Hall).....			×
<i>glomerata</i> (Hall).....		×	
<i>nodosa</i> (Hall and Simpson).....			×
<i>perspinulata</i> (Hall).....			×
<i>Tropidopora nana</i> Hall.....		×	
<i>Unitrypa acaulis</i> (Hall).....			×
<i>acclivis</i> (Hall and Simpson).....		×	
<i>anonyma</i> (Hall).....			×
? <i>elegantissima</i> (Hall).....		×	
<i>fastigata</i> (Hall).....			×
<i>ficticia</i> (Hall and Simpson).....		×	
<i>lata</i> (Hall).....		×	
<i>nana</i> (Hall and Simpson).....		×	
<i>pernodosa</i> (Hall).....		×	
<i>scalaris</i> (Hall).....			×
<i>substriata</i> (Hall).....		×	
<i>tegulata</i> (Hall).....			×

## MISSISSIPPIAN.

	Ki.	Osage:			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
<i>Acanthoclema confluens</i> (Ulrich).....		×		×				
<i>Actinotrypa peculiaris</i> (Romin- ger).....				×				
<i>Anisotrypa fistulosa</i> Ulrich.....							×	
<i>ramulosa</i> Ulrich.....							×	
<i>solida</i> Ulrich.....								×
<i>symmetrica</i> Ulrich.....								×
<i>Archimedes communis</i> Ulrich.....								×
<i>compactus</i> Ulrich.....								×
<i>distans</i> Ulrich.....								×
<i>grandis</i> Ulrich.....				×				
<i>intermedius</i> Ulrich.....								×

*Lists of species—Continued.*

## MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
<i>Archimedes invaginatus</i> Ulrich.....								×
<i>laxus</i> (Hall) .....								×
<i>meekanus</i> (Hall) .....								×
<i>negligens</i> Ulrich.....				×				
<i>owenanus</i> (Hall) .....				×				
<i>perminimus</i> Ulrich .....								×
<i>proutanus</i> Ulrich .....								×
<i>sublaxus</i> Ulrich .....								×
<i>swallovanus</i> (Hall) .....								×
<i>terebriformis</i> Ulrich .....								×
<i>wortheni</i> (Hall) .....					×			
<i>Bactropora simplex</i> Ulrich .....				×				
<i>Batostomella abrupta</i> Ulrich .....								×
<i>interincta</i> Ulrich .....							×	
<i>nitidula</i> Ulrich .....								×
<i>spinulosa</i> Ulrich .....								×
<i>Berenicea</i> ? <i>insueta</i> Dawson .....								
<i>Chilotrypa hispida</i> Ulrich .....								×
<i>Cœloconus granosus</i> Ulrich .....								×
<i>rhombicus</i> Ulrich .....					×			
<i>Coscinium latum</i> Ulrich .....			×					
<i>Cyclopora expatiata</i> Ulrich .....				×				
<i>fungia</i> Prout .....		×		×				
<i>Cycloporella</i> ? <i>perversa</i> Ulrich .....				×				
<i>spinifera</i> Ulrich .....				×				
<i>Cystodictya americana</i> Ulrich .....				×				
<i>angusta</i> Ulrich .....		×						
<i>lineata</i> Ulrich .....				×				
<i>lineata-major</i> Ulrich .....						×		
<i>lineata-sancti-ludovi-</i> <i>ci</i> Ulrich .....						×		
<i>nitida</i> Ulrich .....				×				
<i>ocellata</i> Ulrich .....				×				
<i>pustulosa</i> Ulrich .....				×				
<i>simulans</i> Ulrich .....		×		×				
<i>zigzag</i> Ulrich .....		×		×				
<i>Dichotrypa elegans</i> Ulrich .....						×		
<i>expatiata</i> Ulrich .....						×		
<i>flabellum</i> (Rominger) .....						×		

*Lists of species—Continued.*

## MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
<i>Dichotrypa intermedia</i> Ulrich.....						×		
<i>lyroides</i> Ulrich .....						×		
<i>Diploporaria bifurcata</i> Ulrich .....								×
<i>Eridopora macrostoma</i> Ulrich.....								×
<i>punctifera</i> Ulrich .....								×
<i>Evactinopora grandis</i> Meek and Worthen.....			×					
<i>quinqueradiata</i> Ul- rich .....			×					
<i>radiata</i> Meek and Worthen.....				×				
<i>sexradiata</i> Meek and Worthen....			×					
<i>Fenestella albida</i> Hall.....		×						
<i>aperta</i> Hall.....		×						
<i>banyana</i> Prout.....					×			
<i>burlingtonensis</i> Ulrich.....		×	×					
<i>cavernosa</i> Ulrich.....		×						
<i>cestriensis</i> Ulrich .....								×
<i>cingulata</i> Ulrich .....				×				
<i>compressa</i> Ulrich .....				×				
<i>delicata</i> Meek .....		×						
<i>elevatipora</i> Ulrich .....								×
<i>exigua</i> Ulrich.....					×			
<i>filistriata</i> Ulrich .....			×					
<i>foliata</i> Ulrich.....		×						
<i>funicula</i> Ulrich .....				×				
<i>herrickana</i> Ulrich.....		×						
<i>limitaris</i> Ulrich.....				×				
<i>lodiensis</i> Meek.....		×						
<i>meekana</i> Ulrich .....		×						
<i>multispinosa</i> Ulrich.....				×				
<i>nododorsalis</i> Ulrich .....				×				
<i>regalis</i> Ulrich.....				×				
<i>regalis-macra</i> Ulrich .....				×				
<i>richfieldensis</i> Ulrich .....		×						
<i>rudis</i> Ulrich .....				×	×			
<i>serratula</i> Ulrich.....				×	×	×		×
<i>subflexuosa</i> Ulrich.....		×						
<i>tenax</i> Ulrich.....		×			×			×

*Lists of species—Continued.*

## MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
<i>Fenestella triserialis</i> Ulrich .....				×				
<i>Fenestralia compacta</i> Ulrich .....						×		
<i>sancti-ludovici</i> Prout .....					×	×		
<i>Fistulipora asteria</i> (Prout) .....				×				
<i>compressa</i> Rominger .....				×				
<i>excellens</i> Ulrich .....								×
<i>prolifca</i> Ulrich .....						×		
<i>spergenensis</i> Rominger .....					×			
? <i>tuberculata</i> Prout .....				×				
<i>Glyptopora elegans</i> (Prout) .....					×			
<i>keyserlingi</i> (Prout) .....				×				
<i>melchioria</i> (Prout) .....					×			
<i>plumosa</i> (Prout) .....					×			
<i>punctipora</i> Ulrich .....								×
<i>sagenella</i> (Prout) .....				×	×			
<i>sagenella-caliculosa</i> Ulrich .....					×			
<i>sagenella-lata</i> Ulrich .....					×			
<i>Heliotrypa bifolia</i> Ulrich .....								×
<i>Hemitrypa aspera</i> Ulrich .....				×				
<i>nodosa</i> Ulrich .....				×				
<i>pateriformis</i> Ulrich .....				×				
<i>perstriata</i> Ulrich .....				×				
<i>plumosa</i> (Prout) .....					×			
<i>proutana</i> Ulrich .....				×	×	×		
<i>proutana-nodulosa</i> Ul- rich .....				×				
<i>proutana-vermifera</i> Ulrich .....					×			
<i>Intrapora basalis</i> (Ulrich) .....					×			
<i>undulata</i> (Ulrich) .....								×
<i>Lioclema</i> ? <i>araneum</i> Ulrich .....								×
<i>foliatum</i> Ulrich .....					×			
<i>gracillimum</i> Ulrich .....	×	×	×	×	×			
<i>punctatum</i> (Hall) .....		×		×	×	×		
<i>subglobosum</i> Ulrich .....	×							
<i>wachsmuthi</i> Ulrich .....	×							
<i>Lyropora divergens</i> Ulrich .....								×
<i>ovalis</i> Ulrich .....								×
<i>quincuncialis</i> (Hall) .....								×

*Lists of species—Continued.*

## MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
<i>Lyropora ranosculum</i> Ulrich.....								×
<i>retrorsa</i> (Meek and Worthen).....			×					
<i>subquadrans</i> (Hall).....								×
<i>subquadrans-lyra</i> (Hall).....								×
<i>Meekopora</i> ? <i>aperta</i> Ulrich.....				×				
<i>approximata</i> Ulrich.....								×
<i>clausa</i> (Ulrich).....								×
<i>eximia</i> Ulrich.....						×		×
<i>Phractopora megastoma</i> (Ulrich).....		×		×				
<i>pinnata</i> (Ulrich).....			×					
<i>trifolia</i> (Rominger).....				×				
<i>Pinnatopora conferta</i> Ulrich.....				×				
<i>curvata</i> Ulrich.....		×						
<i>flexuosa</i> Ulrich.....				×				
<i>intermedia</i> Ulrich.....		×						
<i>minor</i> Ulrich.....		×						
<i>simulatrix</i> Ulrich.....		×						
<i>striata</i> Ulrich.....				×				
<i>subangulata</i> Ulrich.....		×						
<i>tenuiramosa</i> Ulrich.....		×						
<i>vinei</i> Ulrich.....		×		×				
<i>youngi</i> Ulrich.....		×		×				
<i>Polypora approximata</i> Ulrich.....								×
<i>biseriata</i> Ulrich.....					×			
<i>burlingtonensis</i> Ulrich.....			×					
<i>cestriensis</i> Ulrich.....								×
<i>complanata</i> Ulrich.....								×
<i>corticiosa</i> Ulrich.....								×
? <i>gracilis</i> Prout.....				×				
<i>halliana</i> Prout.....				×	×			
<i>impressa</i> Ulrich.....		×						
<i>maccoyana</i> Ulrich.....				×				
<i>radialis</i> Ulrich.....		×		×				
<i>retrorsa</i> Ulrich.....				×				
<i>simulatrix</i> Ulrich.....				×				
<i>spinipodata</i> Ulrich.....					×			
<i>spinulifera</i> Ulrich.....								×

*Lists of species—Continued.*

## MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
<i>Polypora tuberculata</i> Prout .....								×
<i>varsoviensis</i> Prout .....					×			
<i>Prismopora serrulata</i> Ulrich .....								×
<i>Proutella discoidea</i> (Prout) .....				×				
<i>Ptilopora acuta</i> Ulrich .....			×	×				
<i>cylindracea</i> Ulrich .....				×				
<i>paupera</i> Ulrich .....		×		×				
<i>prouti</i> Hall .....					×			
<i>valida</i> Ulrich .....				×				
<i>Reteporina flexuosa</i> (Ulrich) .....								×
<i>Rhombopora angustata</i> Ulrich .....				×				
<i>armata</i> Ulrich .....								×
? <i>asperula</i> Ulrich .....				×				
<i>attenuata</i> Ulrich .....				×				
<i>decipiens</i> Ulrich .....						×		
<i>dichotoma</i> Ulrich .....			×	×				
<i>elegantula</i> Ulrich .....				×				
<i>exigua</i> Ulrich .....			×					
<i>gracilis</i> Ulrich .....			×					
<i>incrassata</i> Ulrich .....		×		×				
<i>minor</i> Ulrich .....								×
<i>ohioensis</i> Ulrich .....		×						
<i>persimilis</i> Ulrich .....								×
<i>pulchella</i> Ulrich .....								×
<i>simulatrix</i> Ulrich .....						×		
? <i>spiralis</i> Ulrich .....				×				
<i>tabulata</i> Ulrich .....								×
<i>tenuirama</i> Ulrich .....								×
<i>transversalis</i> Ulrich .....				×				
<i>varians</i> Ulrich .....				×				
<i>wortheni</i> Ulrich .....						×		
<i>Septopora biserialis-nervata</i> Ulrich .....								×
<i>cestriensis</i> Prout .....								×
<i>decipiens</i> Ulrich .....								×
<i>rectistyla</i> (Whitfield) .....								×
<i>robusta-intermedia</i> Ulrich .....								×
<i>subquadrans</i> Ulrich .....								×
<i>Sphragiopora parasitica</i> Ulrich .....								×



*Lists of species—Continued.*

## MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
<i>Stenopora americana</i> Ulrich.....				×				
<i>americana-varsoviensis</i> Ulrich.....					×			
<i>angularis</i> Ulrich.....				×				
<i>cestriensis</i> Ulrich.....								×
<i>emaciata</i> Ulrich.....				×				
<i>intercalaris</i> Ulrich.....				×				
<i>intermittens</i> Ulrich.....				×				
<i>meekana</i> Ulrich.....								×
<i>montifera</i> Ulrich.....				×				
<i>ramosa</i> Ulrich.....								×
<i>rudis</i> Ulrich.....								×
<i>tuberculata</i> (Prout).....					×	×		×
<i>Streblotrypa amplexa</i> Ulrich.....		×						
(? <i>Lioclema</i> ) <i>denticulata</i> Ulrich.....		×						
<i>distincta</i> Ulrich.....								×
<i>hertzeri</i> Ulrich.....		×		×				
<i>major</i> Ulrich.....		×		×				
<i>multiporata</i> Ulrich.....		×						
<i>nicklesi</i> Ulrich.....								×
<i>obliqua</i> Ulrich.....		×						
<i>radialis</i> Ulrich.....				×				
<i>regularis</i> Ulrich.....		×						
<i>striata</i> Ulrich.....		×						
<i>subspinosa</i> Ulrich.....								×
<i>Strotopora dermatata</i> Ulrich.....				×				
<i>foveolata</i> Ulrich.....				×				
<i>Tæniodictya cingulata</i> Ulrich.....				×				
<i>frondosa</i> Ulrich.....				×				
<i>interpolata</i> Ulrich.....		×						
<i>ramulosa</i> Ulrich.....				×				
<i>ramulosa-burlingtonensis</i> Ulrich.....			×					
<i>subrecta</i> Ulrich.....						×		
<i>Thamniscus divaricans</i> Ulrich.....				×				
<i>furcillatus</i> Ulrich.....								×
<i>ramulosus</i> Ulrich.....								×
<i>sculptilis</i> Ulrich.....				×				

*Lists of species—Continued.*

## MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	St. G.	
<i>Trematopora</i> ?? <i>americana</i> Miller.	-----		×	-----	-----	-----	-----	-----
?? <i>fragilis</i> Winchell.	-----		×	-----	-----	-----	-----	-----
?? <i>vesiculosa</i> Winchell	-----	×	×	-----	-----	-----	-----	-----
<i>Worthenopora spatulata</i> (Prout)	-----			-----	×	-----	-----	-----
<i>spinosa</i> Ulrich	-----			×	-----	-----	-----	-----

## CARBONIFEROUS.

	Coal Measures.	Permian.
<i>Acanthocladia fruticosa</i> Ulrich	×	-----
<i>Chainodictyon laxum</i> Foerste	×	-----
<i>laxum-minor</i> Ulrich	×	-----
<i>Coscinium dictyotum</i> (Meek)	-----	-----
<i>Cystodictya carbonaria</i> (Meek)	×	-----
? <i>concentrica</i> (Prout)	-----	-----
<i>Diploporaria biserialis</i> Ulrich	×	-----
<i>Fenestella conradi</i> Ulrich	×	-----
<i>corticata</i> Prout	-----	-----
<i>delicatula</i> Ulrich	×	-----
<i>inæqualis</i> Ulrich	×	-----
<i>intermedia</i> Prout	-----	-----
<i>limbata</i> Foerste	×	-----
<i>lyelli</i> Dawson	-----	-----
<i>mimica</i> Ulrich	×	-----
<i>modesta</i> Ulrich	×	-----
<i>norwoodiana</i> Prout	-----	-----
<i>perelegans</i> Meek	×	-----
<i>perminuta</i> Ulrich	×	-----
<i>popeana</i> Prout	-----	×
<i>remota</i> Foerste	×	-----
<i>sevillensis</i> Ulrich	×	-----
<i>shumardi</i> Prout	-----	-----
<i>subretiformis</i> Prout	-----	-----
<i>trituberculata</i> Prout	-----	-----
<i>variabilis</i> Prout	-----	-----
<i>wortheni</i> Ulrich	×	-----

*Lists of species—Continued.*

## CARBONIFEROUS—Continued.

	Coal Measures.	Permian.
<i>Fistulipora carbonaria</i> Ulrich.....	×	.....
<i>nodulifera</i> Meek.....	×	.....
<i>Pinnatopora bellula</i> Ulrich.....	×	.....
<i>neredis</i> (White).....		.....
<i>trilineata</i> (Meek).....	×	.....
<i>whitii</i> Foerste.....	×	.....
<i>Polypora crassa</i> Ulrich.....	×	.....
<i>distincta</i> Ulrich.....	×	.....
<i>mexicana</i> Prout.....		×
<i>nodocarinata</i> Ulrich.....	×	.....
<i>spinulifera</i> Ulrich.....	×	.....
<i>stragula</i> White.....		.....
<i>submarginata</i> Meek.....	×	.....
<i>whitei</i> Ulrich.....	×	.....
<i>whitei-insculpta</i> Ulrich.....	×	.....
<i>Prismopora minima</i> Ulrich.....	×	.....
? <i>serrata</i> Meek.....	×	.....
<i>triangulata</i> (White).....	×	.....
<i>Rhombopora crassa</i> Ulrich.....	×	.....
<i>exilis</i> (Dawson).....		.....
<i>lepidodendroides</i> Meek.....	×	.....
<i>multipora</i> Foerste.....	×	.....
<i>nicklesi</i> Ulrich.....	×	.....
<i>Septopora biserialis</i> (Swallow).....	×	.....
<i>biserialis-gracilis</i> (Meek).....	×	.....
<i>biserialis-nervata</i> Ulrich.....	×	.....
<i>delicatula</i> Ulrich.....	×	.....
<i>pinnata</i> Ulrich.....	×	.....
<i>robusta</i> Ulrich.....	×	.....
<i>Stenopora carbonaria</i> (Worthen).....	×	.....
<i>carbonaria-conferta</i> Ulrich.....	×	.....
<i>carbonaria-maculosa</i> Ulrich.....	×	.....
<i>ohioensis</i> Foerste.....	×	.....
? <i>signata</i> Ulrich.....	×	.....
<i>Streblotrypa prisca</i> (Gabb and Horn).....		.....
<i>Thamniscus octonarius</i> Ulrich.....	×	.....
<i>sevillensis</i> Ulrich.....	×	.....

## TABLES OF GENERA AND SPECIES.

These tables show the number of species of the various genera present in the different geologic formations. The tables of the Trenton and Cincinnati periods show also the number of species common to two or more of the divisions and those restricted to one division.

## TRENTON.

	Stones R.	Stones R. and Black R.	Black R.	Black R. and Trenton.	Trenton.	Stones R., Black R., Trenton.	Into Cin- cinnati.	Total.
CTENOSTOMATA.								
Ascodictyonidæ:								
Vinella .....			1					1
CYCLOSTOMATA.								
Diastoporidæ:								
Stomatopora .....				1	2	1		4
Proboscina .....				1				1
Berenicea .....		1						1
Diastoporina .....					1			1
Idmoneidæ:								
Protocrisina .....					1			1
Entalophoridæ:								
Mitoclema .....	1					1		2
Diploclema .....						1		1
Phaceloporidæ:								
Phacelopora .....						1		1
Ceramoporidæ:								
Ceramoporella .....						1	1	2
Crepipora .....	1		1		1			3
Cœloclema .....					1			1
Anolotichia .....	1							1
Ceramophylla .....			1					1
Bythotrypa .....						1		1
Scenellopora .....	1							1
Spatiopora .....			2		1			3
TREPOSTOMATA.								
Monticuliporidæ:								
Monticulipora .....	1		1	1	3			6
Atactoporella .....			3		1			4
Homotrypella .....			3	1	2			6
Homotrypa .....	3	1	4		3			11

*Tables of genera and species—Continued.*

## TRENTON—Continued.

	Stones R.	Stones R. and Black R.	Black R.	Black R. and Trenton.	Trenton.	Stones R., Black R., Trenton.	Into Cin- cinnati.	Total.
TREPOSTOMATA—Continued.								
Monticuliporidae:								
Prasopora <sup>1</sup> .....			3	1	8			13
Aspidopora.....		1			2			3
Mesotrypa.....			2		6			8
Amplexoporidae:								
Amplexopora.....					1			1
Heterotrypidae:								
Dekayella.....		1	4		1			6
Leptotrypa.....	2		1		1			4
Batostomellidae:								
Bythopora.....			2					2
Eridotrypa.....					5			5
Constellariidae:								
Constellaria.....					2			2
Stellipora.....					1			1
Nicholsonella.....	2		1					3
Trematoporidae:								
Trematopora.....			3		2			5
Batostoma.....	2	1	7	1	2			13
Hemiphragma.....				1	1	1		3
Stromatotrypa.....		1						1
Monotrypa.....	1				4			5
Diplotrypa.....					3			3
Calloporidae:								
Callopora.....	2	1	3	3	1			10
CRYPTOSTOMATA.								
Phylloporinidae:								
Phylloporina.....	1		1	1	5			8
Drymotrypa.....					1			1
Arthrostylidae:								
Arthrostylus.....	1		1		1			3
Helopora.....	2		1		2			5
Arthroclema.....			2		3			5
Nematopora.....					7			7

<sup>1</sup>One species Stones River and Trenton.

## Tables of genera and species—Continued.

## TRENTON—Continued.

	Stones R.	Stones R. and Black R.	Black R.	Black R. and Trenton.	Trenton.	Stones R., Black R., Trenton.	Into Cin- cinnati.	Total.
CRYPTOSTOMATA—Continued.								
Ptilodictyonidæ:								
Escharopora .....	4	1	2	.....	2	.....	.....	9
Phænopora .....	.....	.....	.....	.....	1	.....	.....	1
Arthropora .....	.....	1	1	.....	1	.....	.....	3
Stictoporellidæ:								
Stictoporella .....	3	1	2	.....	2	.....	.....	8
Stictopora .....	2	.....	.....	.....	1	.....	.....	3
Rhinidictyonidæ:								
Rhinidictya .....	7	1	3	.....	4	1	.....	16
Eurydictya .....	.....	.....	.....	1	1	.....	.....	2
Pachydictya .....	3	.....	2	.....	6	.....	.....	11
Phyllodictya .....	1	.....	1	.....	.....	.....	.....	2
Trigonodictya .....	.....	.....	1	.....	.....	.....	.....	1
Total .....	41	11	59	12	93	8	1	226

## CINCINNATI.

	Utica.	Utica and Lorraine.	Lorraine.	Lorraine and Rich- mond.	Richmond.	Utica, Lor- raine, Rich- mond.	Utica, Rich- mond.	Total.
CTENOSTOMATA.								
Rhopalonariidæ:								
Rhopalonaria .....	.....	.....	.....	1	.....	.....	.....	1
Ascodictyonidæ:								
Vinella .....	.....	.....	1	.....	.....	.....	.....	1
CYCLOSTOMATA.								
Diastoporidæ:								
Stomatopora .....	1	.....	.....	1	1	2	.....	5
Proboscina .....	1	.....	.....	2	.....	.....	.....	3
Berenicea .....	1	.....	.....	1	.....	.....	.....	2
Idmoneidæ:								
Protocrisina .....	.....	.....	.....	.....	1	.....	.....	1
Ceramoporidæ:								
Ceramoporella .....	1	1	.....	1	3	1	.....	7
Crepidopora .....	2	.....	2	.....	1	.....	.....	5
Chiloporella .....	.....	.....	1	.....	.....	.....	.....	1

## Tables of genera and species—Continued.

## CINCINNATI—Continued.

	Utica.	Utica and Lorraine.	Lorraine.	Lorraine and Rich- mond.	Richmond.	Utica, Lor- raine, Rich- mond.	Utica, Rich- mond.	Total.
CYCLOSTOMATA—Continued.								
Ceramoporidæ—Continued.								
Cœloclema.....	2	.....	1	.....	.....	.....	.....	3
Anotichia.....	.....	.....	.....	.....	1	.....	.....	1
Bythotrypa.....	.....	.....	.....	.....	1	.....	.....	1
Spatiopora.....	1	.....	3	2	1	.....	.....	7
TREPOSTOMATA.								
Monticuliporidæ:								
Monticulipora.....	.....	.....	3	.....	5	.....	.....	8
Atactoporella.....	2	.....	4	.....	1	.....	.....	7
Peronopora.....	.....	.....	1	1	.....	.....	.....	2
Homotrypella.....	.....	.....	.....	.....	2	.....	.....	2
Homotrypa.....	.....	.....	2	2	1	.....	.....	5
Prasopora.....	.....	.....	.....	.....	1	.....	.....	1
Aspidopora.....	3	.....	.....	.....	.....	.....	.....	3
Mesotrypa.....	.....	.....	.....	.....	1	.....	.....	1
Amplexoporidæ:								
Amplexopora.....	2	1	4	.....	1	.....	.....	8
Monotrypella.....	1	.....	.....	.....	3	.....	.....	4
Discotrypa.....	.....	.....	1	.....	.....	.....	.....	1
Heterotrypidæ:								
Heterotrypa.....	.....	.....	5	.....	4	.....	.....	9
Dekayella.....	3	.....	.....	.....	.....	.....	.....	3
Dekayia.....	1	.....	4	.....	.....	.....	.....	5
Petigopora.....	.....	.....	3	.....	1	.....	.....	4
Leptotrypa.....	2	.....	7	.....	1	.....	.....	10
Atactopora.....	.....	1	1	.....	.....	.....	.....	2
Batostomellidæ:								
Bythopora.....	2	.....	2	.....	3	.....	.....	7
Eridotrypa.....	.....	.....	.....	.....	1	.....	.....	1
Lioclema.....	.....	.....	.....	.....	1	.....	.....	1
Lioclemella.....	.....	.....	.....	.....	5	.....	.....	5
Constellariidæ:								
Constellaria.....	.....	1	2	.....	4	.....	.....	7
Nicholsonella.....	.....	.....	1	.....	1	.....	.....	2
Trematoporidæ:								
Batostoma.....	2	.....	.....	.....	3	.....	.....	5
Hemiphragma.....	1	.....	.....	.....	1	.....	.....	2

*Tables of genera and species—Continued.*

## CINCINNATI—Continued.

	Utica.	Utica and Lorraine.	Lorraine.	Lorraine and Rich- mond.	Richmond.	Utica, Lor- raine, Rich- mond.	Utica, Rich- mond.	Total.
TREPOSTOMATA—Continued.								
Trematoporidæ—Continued.								
Monotrypa .....	1	.....	.....	.....	2	.....	.....	3
Diplotrypa .....	.....	.....	.....	.....	1	.....	.....	1
Calloporidæ:								
Callopora .....	4	.....	5	.....	1	.....	.....	10
Calloporella .....	.....	.....	.....	.....	3	.....	.....	3
CRYPTOSTOMATA.								
Phylloporinidæ:								
Phylloporina .....	1	.....	1	.....	.....	.....	.....	2
Fenestellidæ:								
Fenestella .....	.....	.....	.....	.....	1	.....	.....	1
Arthrostylidæ:								
Arthrostylus .....	2	.....	.....	.....	.....	.....	.....	2
Helopora .....	.....	.....	.....	.....	3	.....	.....	3
Arthroclema .....	.....	.....	.....	.....	1	.....	.....	1
Sceptropora .....	.....	.....	.....	.....	1	.....	.....	1
Ptilodictyonidæ:								
Ptilodictya .....	.....	.....	.....	.....	6	.....	.....	6
Escharopora .....	1	.....	4	.....	.....	.....	.....	5
Phænopora .....	.....	.....	.....	.....	1	.....	.....	1
Arthropora .....	1	.....	1	.....	.....	.....	.....	2
Graptodictya .....	.....	.....	.....	.....	1	.....	.....	1
Stictoporellidæ:								
Stictoporella .....	1	.....	.....	.....	.....	.....	.....	1
Ptilotrypa .....	.....	.....	.....	.....	1	.....	.....	1
Rhinidictyonidæ:								
Rhinidictya .....	1	.....	.....	.....	1	.....	.....	2
Eurydictya .....	.....	.....	.....	.....	2	.....	.....	2
Pachydictya .....	.....	.....	.....	.....	6	.....	.....	6
Dicranopora .....	.....	.....	1	1	2	.....	.....	4
Goniotrypa .....	.....	.....	.....	.....	1	.....	.....	1
CHILOSTOMATA.								
Palescharidæ:								
Paleschara .....	.....	.....	.....	.....	.....	.....	1	1
Total .....	40	4	60	12	83	3	1	203



*Genera with number of species present in Paleozoic formations.*

	Ordovician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total species.
	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Kl.	Os.	S. L.	Ch.	C. M.	Per.	
CTENOSTOMATA.																	
Rhopalonariidae:																	
Rhopalonaria .....			1														1
Ascodictyonidae:																	
Ascodictyon .....										2							2
Vinella .....		1	1			1											3
CYCLOSTOMATA.																	
Diastoporidae:																	
Stomatopora .....		4	5			2											8
Proboscina .....		1	3							1							5
Berenicea .....		1	2			2											6
Diastoporina .....		1															1
Hederella .....									1	6							6
Hernodia .....										1							1
Reptaria .....										2							2
Idmoneidae:																	
Crisinella .....									1								1
Protocrisina .....		1	1														1
Entalophoridae:																	
Mitoclema .....		2															2
Clonopora .....									2	1							3
Diploclema .....		1				1											2
Cystopora .....										1							1
Phaceloporidae:																	
Phacelopora .....		1															1
Ceramoporidae:																	
Ceramopora .....					1	6	3										10
Ceramoporella .....		2	7														9
Crepipora .....		4	5														8
Chiloporella .....			1														1
Cœloclema .....		1	3														4
Anolotichia .....		1	1														2
Ceramophylla .....		1															1
Bythotrypa .....		1	1														2
Scenellopora .....		1															1
Spatiopora .....		3	7														10
Fistuliporidae:																	
Fistulipora .....						4	6		2	43		3	2	1	2		62
Cyclotrypa .....										2							2
Eridopora .....										2				2			4
Pinacotrypa .....										7							7
Chilotrypa .....						4	2		1					1			8
Strotopora .....										1		2					3
Meekopora .....						1				1		1	1	3			6
Lichenotrypa .....										1							1
Buskopora .....									1	3							4
Glossotrypa .....										1							1
Selenopora .....										2							2
Favicella .....										2							2
Cœlocaulis .....							2		1								3
Botrylloporidae:																	
Botryllopora .....										1							1



*Genera with number of species present in Paleozoic formations—Continued.*

	Ordivician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total species.
	Chz.	Tr.	Cin.	An.	Cl.	Nl.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.	
CRYPTOSTOMATA—Cont'd.																	
Fenestellidæ:																	
Fenestella .....			1		1	7	14		12	28		23	5	4	19	1	111
Semicoscinium .....						2	3		4	17							26
Fenestråpora .....										3							3
Isotrypa .....									2								2
Loculipora .....						1	1		1	1							4
Unitrypa .....								4	7	5							16
Hemitrypa .....					1		2		3	2		6	3				16
Helicopora .....						1				1							2
Archimedes .....												3	1	12			16
Polypora .....						5	10	1	24	17		8	4	6	8	1	82
Lyropora .....												1		6			7
Fenestralia .....													2				2
Thamniscus .....						1	3		1	2		2		2	2		13
Phyllopora .....										1							1
Reteporidra .....									1	3							3
Reteporina .....									4	4				1			8
Ptiloporella .....						1			2	1							4
Ptiloporina .....										4							4
Acanthocladidiæ:																	
Pinnatopora .....									3	1		11			4		19
Acanthocladia .....															1		1
Septopora .....														6	6		11
Ptilopora .....										3		4	1				8
Ichthyorachis .....							1										1
Diploporearia .....														1	1		2
Sphragioporiðæ:																	
Sphragiopora .....														1			1
Arthrostylidæ:																	
Arthrostylus .....		3	2														4
Helopora .....		5	3	3	1	1											12
Arthroclema .....		5	1														6
Sceptropora .....			1		1												2
Nematopora .....		7		5	1	3											15
Rhabdomesontidæ:																	
Rhombopora .....										3		12	3	6	5		29
Rhabdomeson .....													1	1			2
Cœloconus .....																	3
Bactropora .....										2		1					26
Orthopora .....							8		1	17		1					6
Acanthoclema .....									4	1		1					2
Nemataxis .....									1	1							1
Tropidopora .....									1								15
Streblotrypa .....										2		9		3	1		15
Chainodictyonidæ:																	
Chainodictyon .....															2		2
Ptilodictyonidæ:																	
Ptilodictya .....			6	3	4	1	1		1								16
Escharopora .....		9	5														14
Clathropora .....					2	3			1								5
Phenopora .....		1	1	2	8		2										14

*Genera with number of species present in Paleozoic formations—Continued.*

	Ordovician.			Silurian.			Devonian.			Mississippian.				Carbon.		Total species.	
	Chz.	Tr.	Cin.	An.	Cl.	Nl.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.		Per.
CRYPTOSTOMATA—Cont'd.																	
Ptilodictyonidæ—Cont'd.																	
Arthropora .....		3	2														5
Graptodictya .....			1														1
Stictoporina .....										3							3
Stictoporellidæ:																	
Stictoporella .....		8	1														9
Ptilotrypa .....			1														1
Intrapora .....										1		1		1			3
Coscinella .....										2							2
Tæniodictya .....									1			5	1				7
Stictopora .....	1	3															4
Heliotrypa .....														1			1
Rhinidictyonidæ:																	
Rhinidictya .....	1	16	2														19
Eurydictya .....		2	2														4
Pachydictya .....		11	6	2	7	1											25
Phyllodictya .....		2															2
Euspilopora .....										4							4
Dicranopora .....			4	1			1										5
Goniotrypa .....			1														1
Trigonodictya .....		1			1												2
Cystodictyonidæ:																	
Cystodictya .....									8	17		8	2		2		35
Dichotrypa .....										1			5				6
Coscinium .....									1	2		1			1		5
Tæniopora .....										5							5
Thamnotrypa .....									1								1
Semiopora .....										1							1
Ptilocella .....										1							1
Acrogenia .....										1							1
Prismopora .....									1	4				1	3		9
Scalaripora .....										5							5
Glyptopora .....												2	6	1			8
Phractopora .....										1		3					4
Ceramella .....										1							1
Evactinopora .....												4					4
Actinotrypidae:																	
Actinotrypa .....												1					1
Cycloporidae:																	
Cyclopora .....												2					2
Cycloporella .....												2					2
Proutella .....												1					1
Worthenopora .....												1	1				2
Rhinoporidae:																	
Rhinopora .....					2	1											3
Diamesopora .....					1	4											5
Lichenalia .....						1											1
Stictotrypa .....					1	3											3
CHILOSTOMATA.																	
Palescharidae:																	
Paleschara .....			1			3	5			4							13

*Genera with number of species present in Paleozoic formations—Continued.*

## SUMMARY OF SPECIES BY FAMILIES.

	Ordovician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total species.
	Chz.	Tr.	Cin.	An.	Cl.	Nl.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.	
CTENOSTOMATA.																	
Rhopalonariidae.....			1														1
Ascodietyonidae.....		1	1			1				2							5
CYCLOSTOMATA.																	
Diastoporidae.....		7	10			4			1	10							29
Idmoneidae.....		1	1						1								2
Entalophoridae.....		3				1			2	2							8
Phaceloporidae.....		1															1
Ceramoporidae.....		14	25		1	6	3										48
Fistuliporidae.....						9	10		5	65		6	3	7	2		105
Botrylloporidae.....										1							1
TREPOSTOMATA.																	
Monticuliporidae.....		51	29		3	2				2							87
Amplexoporidae.....		1	13			1	3			4							21
Heterotrypidae.....		10	33			1				4							48
Batostomellidae.....		7	14		1	8	11		3	22	2	8	8	10	5		97
Constellaridae.....		6	9			1											16
Trematoporidae.....		30	11			5	6			1							53
Calloporidae.....		10	13		1	1	1										26
CRYPTOSTOMATA.																	
Phylloporinidae.....	3	9	2		1	3	1										19
Fenestellidae.....			1		2	18	37	1	65	85		43	15	31	29	2	20
Acanthocladiidae.....							1		3	4		15	1	7	12		42
Sphragioporidae.....														1			1
Arthrostylidae.....		20	7	8	3	4											39
Rhabdomesontidae.....							8		7	26		23	4	10	6		84
Chainodictyonidae.....															2		2
Ptilodictyonidae.....		13	15	5	14	4	3		2	3							58
Stictoporellidae.....	1	11	2						1	3		6	1	2			27
Rhinidictyonidae.....	1	32	15	3	8	1	1			4							62
Cystodictyonidae.....									11	39		18	13	2	6		86
Actinotrypidae.....												1					1
Cycloporidae.....												6	1				7
Rhinoporidae.....					4	9											12
CHILOSTOMATA.																	
Palescharidae.....			1			3	5			4							13

## SUMMARY OF SPECIES BY SUBORDERS.

CTENOSTOMATA .....	1	2			1				2								6
CYCLOSTOMATA .....	26	36		1	20	13		9	78		6	3	7	2			194
TREPOSTOMATA .....	115	122		5	19	21		3	33	2	8	8	10	5			348
CRYPTOSTOMATA .....	5	85	42	16	32	39	51	1	89	164		112	35	53	55	2	760
CHILOSTOMATA .....			1			3	5			4							13
Total .....	5	227	203	16	38	82	90	1	101	281	2	126	46	70	62	2	1,321

*Families with number of genera present in Paleozoic formations.*

	Ordovician.			Silurian.				Devonian.			Mississippian.				Carbon.			Total genera.
	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.		
CTENOSTOMATA.																		
Rhopalonariidae .....			1														1	
Ascodictyonidae .....		1	1			1				1							2	
CYCLOSTOMATA.																		
Diastoporidae .....		4	3			2			1	4							7	
Idmoneidae .....		1	1						1								2	
Entalophoridae .....		2				1			1	2							4	
Phaceloporidae .....		1															1	
Ceramoporidae .....		8	7		1	1	1										10	
Fistuliporidae .....						3	3		4	11		3	2	4	1		13	
Botrylloporidae .....										1							1	
TREPOSTOMATA.																		
Monticuliporidae .....		7	8		2	2				1							8	
Amplexoporidae .....		1	3			1	1			3							4	
Heterotrypidae .....		2	6			1				3							6	
Batostomellidae .....		2	4		1	4	3		2	4	1	2	3	3	1		9	
Constellariidae .....		3	2			1											4	
Trematoporidae .....		6	4			1	1			1							7	
Calloporidae .....		1	2		1	1	1										2	
CRYPTOSTOMATA.																		
Phylloporinidae .....	1	2	1		1	2	1										2	
Fenestellidae .....			1		2	7	7	1	12	13		6	5	6	3	2	18	
Acanthocladiidae .....							1		1	2		2	1	2	4		6	
Sphragioporidae .....														1			1	
Arthrostylidae .....		4	4	2	3	2											5	
Rhabdomesontidae .....							1		4	6		4	2	3	2		8	
Chainodictyonidae .....															1		1	
Ptilodictyonidae .....		3	5	2	3	2	2		2	1							7	
Stictoporellidae .....	1	2	2						1	2		2	1	2			7	
Rhinodictyonidae .....	1	5	5	2	2	1	1			1							8	
Cystodictyonidae .....									4	11		5	3	2	3		14	
Actinotrypidae .....												1					1	
Cycloporidae .....												4	1				4	
Rhinoporidae .....					3	4											4	
CHILOSTOMATA.																		
Palescharidae .....			1			1	1			1							1	

SUMMARY OF GENERA BY SUBORDERS.

CTENOSTOMATA .....	1	2			1				1									3
CYCLOSTOMATA .....	16	11		1	7	4		7	18		3	2	4	1				38
TREPOSTOMATA .....	22	29		4	11	6		2	12	1	2	3	3	1				40
CRYPTOSTOMATA .....	3	16	18	6	14	18	13	1	24	36		24	13	16	13	2		86
CHILOSTOMATA .....			1			1	1			1								1
Total .....	3	55	61	6	19	38	24	1	33	68	1	29	18	23	15	2		168

## GENERAL NOTES.

## VALUE OF BRYOZOA IN STRATIGRAPHIC WORK.

The value of the bryozoa in stratigraphic work has scarcely yet begun to be appreciated. In American Paleozoic strata they are pre-eminently the fossils to be relied upon in correlation work. They are nearly always abundant, and even when poorly preserved exteriorly can be identified by microscopic sections. Crinoids and crustacea are usually too scarce; mollusca, abundant in some formations, are almost wanting in others, and likely to be poorly preserved; vertebrate remains are too few, and usually local in distribution. The brachiopods are also usually abundant in all Paleozoic strata, but have commonly too great a range vertically to be trustworthy guides in close work.

Because to the unaided eye there seems little variation of form among the bryozoa, they have been generally neglected by collectors and geologists. Early writers are also to some extent responsible for this neglect, for they failed to discriminate the different species, and made a few names, such as *Chaetetes lycoperdon*, *Stenopora fibrosa*, etc., serve for a multitude of diverse forms. It is no doubt true, and this is another cause for the neglect of the bryozoa, that their discrimination does require good powers of observation and careful, often tedious, study. Furthermore, the number of species is appalling. Somewhat more than 1,300 species have been described from American Paleozoic formations, yet these are probably but a half or a third of the distinguishable forms present. These various considerations compel greater labor for the mastery of the bryozoa than for any other class. The determination—at least the first determination—of a species often, and among the Trepostomata nearly always, requires the preparation of microscopic sections, a tedious operation at best. However, when once a species has been thoroughly worked out, it can generally be distinguished externally from associated forms of similar appearance by quite constant differences, which often seem trifling, and yet are doubtless of morphological importance.

A beginning only has been made in the work of determining the geographical distribution of species and genera and elucidating the many obscure questions regarding the migration of faunas in the ancient seas, their extinction or evolution, their reappearance, and like phenomena.

## COLLECTION AND STUDY.

In sandstone formations bryozoa—and this is true of most other fossils as well—are practically wanting, but there is scarcely a limestone formation, especially if there be shale alternations, in which they are not abundant. Generally they are calcareous, and in this condition are easily sectioned for microscopic study. Sometimes, however, they are found silicified. Then the internal structure is to a greater or less

extent obliterated, and they can rarely be successfully sectioned for study. Sometimes their substance has been dissolved away, leaving a perfect mold in the matrix. A gutta-percha impression will then often give a very satisfactory idea of the exterior of the original fossil.

The best specimens are usually obtained from the shales between or just above or below limestone layers. The smaller forms may be obtained free by carefully washing the shales and picking them out from the débris. Some kinds of shales or clay will wash away better if first allowed to become thoroughly dry. Others do better if allowed to soak in water for a longer or a shorter period of time.

Often the surface characters are obscured by the clayey matrix. This may be removed by the use of caustic potash. The deliquescence of small pieces of this substance, which needs to be handled gingerly with unprotected hands, laid upon the fossil loosens the clay, which is then easily brushed off. Some workers accomplish the same result by placing their specimens in a saturated solution of Glauber's salts, which in crystallizing loosens the clay.

#### MAKING OF SECTIONS.

The preparation of thin sections for microscopic examination is indispensable if one would understand the bryozoa. Directions for making sections of fossil bryozoa, more particularly the Paleozoic, are given in the report of the Geological Survey of Illinois, VIII, 1890, p. 292, and in the Geology of Minnesota, III, 1893, p. 100, and with a few additional notes are here repeated. Some experience and considerable care are required to produce satisfactory sections. In the absence of a lathe or machine for cutting rock sections, the following method will give as good and, with experience, even better results than the lathe.

The materials required are (1) a piece of sandstone, not too gritty, 8 or 10 inches wide, 18 or 20 inches long, and of sufficient thickness to insure stability; (2) a water hone 1 inch thick, a little wider, and 4 or 5 inches long; (3) a block of wood (walnut is the best) 1 inch thick, 2 inches wide, and  $4\frac{1}{2}$  inches long. The edges of the upper side of this block should be rounded to fit the hand, while in the lower side a shallow excavation  $1\frac{1}{8}$  by  $3\frac{1}{8}$  inches is made to fit the ordinary glass slip. The excavation must be so made that the central portion of the glass slip will bear upon the block, while the ends may have a little play.

The procedure for sectioning specimens large enough to be handled without difficulty is as follows: With a strong pair of "wire nippers" a fragment is pinched from the specimen to be sectioned. This fragment is rubbed upon the sandstone until the surface is perfectly flat. In doing this the greatest care must be exercised to retain or obtain, as the case may be, the desired angle. This surface is



smoothed upon the hone, and the fragment is ready for mounting. A drop of Canada balsam is placed upon the center of a glass slip of the usual size, which, for economy's sake, may be cut from ordinary window glass, and the smoothed face of the fragment upon it. The slip is now heated on a heating stage or over a lamp and the Canada balsam allowed to boil for a certain time, the length of which must be learned by experience. The thickness of the glass and the amount of gum are factors to be considered, but in general it may be stated that with a slide of average thickness and a medium amount of gum the boiling is complete when the edges of the balsam commence to turn brown. The slip is then laid upon a horizontal piece of wood to cool. After it is cold the balsam should be tested. The exact hardness required must be intermediate between brittleness and the point where the finger nail can make an impression upon it. If too soft, the slip must be carefully reheated; if too hard, fresh gum and reheating may suffice, but it is better to remove the fragment, clean it and the slide, and remount. If of the proper hardness, the slip is placed in the excavation of the block, which has been dipped into water to secure adhesion, and the superfluous material is rubbed away upon the sandstone. When nearly thin enough the slide is taken out of the block and finished upon the hone. As the glass slip has become scratched and generally unsightly during the foregoing process, the section may be transferred to a good slip, mounted, and covered in the usual way for permanent preservation. The slide should be carefully labeled, so that it can always be known from which particular specimen the section was made.

Specimens too small to be worked in the manner above described—as, for example, small forms of *Bythopora*, *Rhombopora*, or *Streblotrypa*—may be sectioned in the following way: Place a little balsam on a slip and heat it, but only enough to partially harden it. Into this heated balsam place several specimens without any rubbing. After cooling rub down a little carefully; reheat cautiously, and with a sharp-pointed instrument turn one or more specimens so that the smoothed face is against the glass. Now cool and rub down farther. Again cautiously reheat, and turn the specimens which have not yet been turned. After cooling rub again until the sections are thin enough for microscopic examination, and finish as before.

These sections must be prepared with a knowledge of certain structural features. The zoarium of most bryozoa is composed of two zones, an inner, in which the zoecia are immature, and an outer or peripheral, in which the zoecia are in the mature state, and accessory features, such as acanthopores and mesopores, are developed. To observe all these features usually three sections are needed, a vertical, or, in ramose or frondescant forms, a longitudinal parallel with the axis, a transverse, which cuts across the axis, and a tangential, which

is parallel to the surface and close enough to it to show the structures developed in the peripheral region. Of bifoliate forms two tangential sections are needed, one close to the surface and another near the middle (mesotheca), though often one tangential section may be made so as to show all the features.

Care must be taken to select specimens that have not suffered from compression. Sections of specimens compressed or otherwise distorted have occasionally given rise to grave errors, as, for example, when Waagen and Wentzel, misled by sections of specimens of the *Fistuliporidae* with the axial region crushed, believed they had found evidence of the development of zoecia from the intermediate cœnenchymal (vesicular) tissue.

## BIBLIOGRAPHY AND INDEX.

### CHRONOLOGICAL CATALOGUE OF PAPERS CONTAINING DESCRIPTIONS AND ILLUSTRATIONS OF AMERICAN PALEOZOIC BRYOZOA.

[Papers in which an asterisk (\*) precedes the name of the author are of special importance to the student of bryozoa.]

#### 1832.

**Eaton, Amos.** Geological Text-book for aiding the study of North American Geology, edition 2, 1832. 134 pp. Paleontology, 22 pp., 5 pls.

Contains a brief description of *Flustra carbaseoides*, n. sp. The name has not come into use.

#### 1840.

**Troost, Gerard.** Organic remains discovered in the strata of Tennessee. (Fifth Geol. Rep. Tennessee, 1840, pp. 45-76.)

This is known as "Troost's Catalogue." Two species of bryozoa, *Escharia ovatopora* and *reticulata*, are in the list, but the descriptions are so inadequate that they have never since been recognized.

#### 1842.

**Orbigny, Alcide d'.** Voyage dans l'Amérique Méridionale. Tome III. Paris, 1842.

In this work *Cerriopora ramosa* and *Retepora flexuosa* are described from the Carboniferous of Bolivia. These are the only Paleozoic bryozoa made known from South America, so far as we know, but it is doubtful whether the forms can be recognized from the descriptions or figures without material from the typical locality.

**Owen, David Dale.** Regarding human footprints in solid limestone. (Amer. Jour. Sci. Arts, ser. 1, XLIII, p. 19, fig. 2.)

The author gives a figure of *Archimedes*, calling it *Retepora Archimedes*, and states that the name was given by Leseuer. The latter, however, seems never to have published the name.

**Vanuxem, Lardner.** Geology of New York, Part III, comprising the survey of the third geological district. Albany, 1842.

On page 46 a figure is given of the "puff-ball Favosite (*Favosites lycopodites*)" from the Trenton. The form can not be identified.

## 1843.

**Castelnau, F. de.** Essai sur le Système Silurien de l'Amérique Septentrionale. Paris, 1843, 56 pp., 25 pls.

Contains—

*Gorgonia repisteria* (Goldfuss), p. 50, pl. xxiv, 3; from Schoharie, New York.

*Gorgonia anticorum* n. sp., p. 50, pl. xxiv, 1; from Lake Huron.

*Gorgonia siluriana* n. sp., p. 50; from Lake Huron.

*Eschara scalpellum* (Murchison), p. 50; from Isles Mantoulines.

The descriptions are so meager that no one has succeeded in identifying any of these forms.

## 1846.

**Dana, James D.** Zoophytes. (Wilkes's U. S. Exploring Expedition, VIII, Philadelphia, 1846, 740 pp., 61 plates in atlas.)

This work contains a description of Lonsdale's genus *Stenopora* and of a new genus *Constellaria* (p. 537), both being considered corals by the author. The latter was established for a species named *Ceriopora constellata* on plates of Western Fossils by Van Cleve. The form was later erroneously identified as the *Stellipora antheloidea* of Hall and became currently known as *Constellaria antheloidea*, Dana's name *Constellaria* having replaced Hall's *Stellipora*.

## 1847.

\* **Hall, James.** Paleontology of New York, Vol. I. Albany, 1847. 338 pp., 98 pls.

About twenty new species of bryozoa from the Trenton and Chazy periods are described in this greatest of early works on American paleontology. The new genera established are *Stictopora*, *Escharopora*, and *Stellipora*. As is usual with the early work on fossil bryozoa, both the descriptions and the figures leave much to be desired. Even to-day several of the species are not satisfactorily recognized, while the number and diversity of distinguishable forms referred to "*Chaetetes lycoperdon*" is distressing to the modern student.

## 1850.

**Orbigny, Alcide d'.** Prodromé de Paleontologie, Tome I. Paris, 1850.

In this extensive catalogue the following American paleozoic bryozoa are listed: *Ptilodictya cruciformis*, *Ptilodictya pavonia*, *Sulcopora fenestrata*, *Subretepora reticulata*, *Enallopora perantiqua*, *Constellaria antheloidea*, and the new genus *Monticulipora* with the species *mammulata*, *ramosa*, *frondosa*, and *filiata*. Most of the names are accompanied by quite inadequate descriptive remarks, and the validity of those now recognized depends upon the work of subsequent authors. *Sulcopora*, *Subretepora*, and *Enallopora* are new generic terms founded not upon the fossils themselves, but upon Hall's incorrect descriptions and figures of *Stictopora fenestrata*, *Intricaria reticulata* and *Gorgonia perantiqua*, respectively. Resting, therefore, upon fictitious characters, these names have deservedly failed to gain recognition.

## 1851.

**Hall, James.** Description of new or rare species of fossils from the Paleozoic series. (Foster and Whitney's Report on the Geology of the Lake Superior Land District, 1851. Bryozoa, pp. 206-208, pls. xxiv, xxv.)

Among the descriptions occur three of bryozoa: *Phænopora multipora*, *Clathropora fiabellata* n. sp., and *Chaetetes lycoperdon* Say.

**Hall, James.** New Genera of fossil Corals. (Amer. Jour. Sci. Arts, ser. 2, XI, 1851, pp. 398-401.)

The following new genera, which soon appeared more fully described in Paleontology of New York, II, are described for the first time: *Helopora*, *Phænopora*, *Rhinopora*, *Callopora*, *Trematopora*, *Clathropora*, *Ceramopora*, *Lichenalia*, *Sagenella*.

**Milne-Edwards, Henri, and Haime, Jules.** Monographie des Polypiers Fossiles des Terrains Paléozoïques. (Archives du Museum, V, 1851, 502 pp., 20 pls.)

The following bryozoa from America are described: *Chaetetes filiosa* (d'Orbigny), *dalii* n. sp., *ramosus* (d'Orbigny), *mammulatus* (d'Orbigny), *frondosus* (d'Orbigny), *pavonia* (d'Orbigny), *tuberculatus* n. sp., *rugosus* n. sp., *Dekayia* n. gen., *D. aspera* n. sp., *Constellaria Dana*, *C. antheloidea* (Hall).

**Rolle, Friedrich.** Ueber zwei neue devonische Korallen einer neuen Sippe, *Reptaria*. (Leonhard und Brönn's Neues Jahrbuch, 1851, pp. 810-814, pl. ixB.)

Describes the new genus *Reptaria* with two species, *R. orthoceratum* n. sp., from the Eifel of Germany, and *R. stolonifera* n. sp., from Cazenovia, New York.

## 1852.

\* **Hall, James.** Paleontology of New York, Vol. II. Albany, 1852. Bryozoa, pp. 40-52, 144-173, pls. xvii-xix, xl-xIE.

This work gives a full account as then known of the bryozoa of the Clinton and Niagara groups of New York. About forty species are described, which, with few exceptions, are easily identified from the descriptions and figures. The following are characterized as new genera: *Helopora*, *Phænopora*, *Rhinopora*, *Callopora*, *Trematopora*, *Clathropora*, *Ceramopora*, *Lichenalia*, *Sagenella*. Species are also described referred to *Chaetetes*, *Stictopora*, *Retepora*, *Fenestella*, *Diamesopora* (a new genus whose characterization is reserved for future study), *Hornera*, *Polypora*.

## 1854.

**Milne-Edwards, Henri, and Haime, Jules.** A Monograph of the British fossil Corals. (Publications Palæontographical Society, London, 1854.)

In a footnote on page 265 the authors refer to the genus *Monticulipora* the following forms, which, in their French work (Monographie des Polypiers Fossiles des Terrains Paleozoïques, pp. 266-279), they had referred to *Chaetetes*: *M. filiosa* d'Orbigny, *C. Dalei* Milne-Edwards and Haime, *M. ramosa* d'Orbigny, *M. mammulata* d'Orbigny, *M. frondosa* d'Orbigny, *Ptilodictya pavonia* d'Orbigny, *C. rugosus* Milne-Edwards and Haime. They also describe the genera *Fistulipora* M'Coy and *Stenopora* Lonsdale.

**Shumard, Benjamin F.** Description of the species of Carboniferous and Cretaceous fossils collected. (Marcy's Report of the U. S. Exploration of the Red River of Louisiana, 1854, Appendix E, pp. 186-199, 6 pls.)

*Archimediopora archimedes* (page 175, pl. i, 6) is described.

## 1857.

- \* **Hall, James.** Remarks upon the genus *Archimedes*, or *Fenestella*, from the Carboniferous limestones of the Mississippi Valley. (Amer. Jour. Sci. Arts, ser. 2, XXIII, pp. 203-204.)

This paper contains a general discussion of characters and relationship of *Archimedes* and *Fenestella*.

- \* **Hall, James.** Observations on the genus *Archimedes*, or *Fenestella*, with description of species. (Proc. Amer. Assoc. Adv. Sci., X, 1857, pp. 176-180.)

*Archimedes* and *Lyropora* are defined as subgeneric terms under *Fenestella*, and the following species are described: *Fenestella* (*Archimedes*) *Owenana*, *Wortheni*, *Swallowana*, *Meekana*, *laxa*, *Fenestella* (*Lyropora*) *lyra*, *quincuncialis*, *subquadrans*. Unfortunately no figures accompany the paper.

## 1858.

- Hall, James.** Geological Survey of Iowa. Volume I, Part II, Paleontology, 1858. Bryozoa, pp. 651-653, pl. xxii.

Descriptions and good figures are given of *Archimedes wortheni*, *reversa* n. sp., *Ptylopora prouti* n. sp., and a description only of *Callopora punctata* n. sp.

- \* **Prout, Hiram A.** Description of new species of Bryozoa from Texas and New Mexico. (Trans. St. Louis Acad. Sci., I, 1858, pp. 228-235.)

Describes the following species from Carboniferous and Permian formations: *Fenestella trituberculata*, *Popeana*, *corticata*, *intermedia*, *variabilis*, *Shumardii*, *Norwoodiana*, *subretiformis*, *Eschara?* *concentrica*, ? *tuberculata*. No illustrations were given. Some of these may never be identified.

- \* **Prout, Hiram A.** First of a series of descriptions of Carboniferous Bryozoa. (Trans. St. Louis Acad. Sci., I, 1858, pp. 235-237, pl. xv.)

Describes *Fenestralia* n. subg., *F. St. Ludovici*, *Fenestella plumosa*, *Polypora varsoviensis*.

- \* **Prout, Hiram A.** Second series of descriptions of Bryozoa, from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1858, pp. 266-273, pls. xv, xvi.)

Contains descriptions of *Coscinium Keyserling*, *C. cyclops Keyserling*, *cribriformis* Prout, *Keyserlingi* Prout, *Polypora Mexicana* Prout, *Shumardii* Prout, *intermedia* Prout.

- Swallow, George C.** Fossils of the Permian rocks of Kansas. (Trans. St. Louis Acad. Sci., I, 1858, pp. 178-197.)

Proposes the name *Synocladia biserialis* for a form which he thinks may be *Synocladia virgulacea* Phillips, and the name *Acanthocladia americana* for a form which he thinks may be *Acanthocladia anceps?* Schlotheim. Also notes a form which he refers to *Phyllopora ehrenbergi* Geinitz.

## 1859.

- Billings, E.** Fossils of the Chazy Limestone, with descriptions of new species. (Canadian Naturalist and Geologist, IV, 1859, pp. 426-470.)

Contains rather brief descriptions of the monticuliporoids *Stenopora adherens* and *patula*.

\* **Prout, Hiram A.** Third series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1859, pp. 443-452, pls. xvii, xviii.)

Contains descriptions of *Semicoscium* n. g., *S. rhomboideum* n. sp., *Fenestella hemitrypa* n. sp., *Linaria Steininger*, *L. falcata* n. sp., *Flustra spatulata* n. sp., *tuberculata* n. sp., *Septopora* n. g., *S. Cestriensis* n. sp., *Polypora tuberculata* n. sp., *biarmica* Keyserling, *Fenestella banyana* n. sp.

### 1860.

**Hall, James.** Descriptions of new species of fossils from the Silurian rocks of Nova Scotia. (Canadian Naturalist and Geologist, V, 1860, pp. 144-159.)

The author notes the occurrence of a variety of *Helopora fragilis*, which he names var. *acadiensis*, from the "Arisaig Series."

**Milne-Edwards, H.** Histoire Naturelle des Coralliaires ou polypes propriement dits. Tome III. Paris, 1860. [Monticuliporoids, pp. 272-284.]

In this work the descriptions are repeated of the American forms described in the joint work of Milne-Edwards and Haime, *Monographie des Polypiers Fossiles des Terrains Paleozoiques*, 1851.

\* **Prout, Hiram A.** Fourth series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1860, pp. 571-581.)

Contains descriptions, without figures, of *Coscium Wortheni* n. sp., *elegans* n. sp., *plumosum* n. sp., *Michelinia* n. sp., *saganella* n. sp., *tuberculatum* n. sp., *asteria* n. sp., *escharense*, n. sp., *Cyclopora* n. g., *C. fungia* n. sp., *discoidea* n. sp., *polymorpha* n. sp., *Jamesii* n. sp., *Semicoscium Eriense* n. sp., *tuberculatum* n. sp., *Polypora Halliana* n. sp., *gracilis* n. sp.

Some of these appear again, with figures, in *Geological Survey of Illinois*, II. Considering the early date at which Prout's work was done, it is of a very high order.

**Roemer, Ferdinand.** Die Silurische Fauna des westlichen Tennessee. Breslau, 1860. 97 pp., 5 pls.

Two species of bryozoa from the Niagara of Tennessee are described: *Thecostegites hemisphaericus* n. sp., and *Fenestella acuticosta* n. sp.

### 1862.

**Billings, E.** Paleozoic Fossils. Volume I, 1862. (Geological Survey of Canada.)

Contains descriptions of *Arthroclema* n. g., and *A. pulchella* n. sp. (pp. 54-55). The descriptions are very good considering the date.

### 1863.

**Winchell, Alexander.** Descriptions of fossils from the yellow sandstones lying beneath the "Burlington limestone" at Burlington, Iowa. (Proc. Acad. Nat. Sci. Philadelphia, 1863, pp. 2-25.)

Describes *Trematopora ? vesiculosa* n. sp. and *Trematopora ? fragilis* n. sp.

## 1865.

**Billings, E.** Notice of some new genera and species of Paleozoic fossils. (Canadian Naturalist, new ser., II, 1865, pp. 425-432.)

Contains a meager description of *Stenopora bulbosa*, a massy monticuliporoid.

**Meek, F. B. and Worthen, A. H.** Description of new species of Crinoidea, etc., from the Paleozoic rocks of Illinois and some adjoining States. (Proc. Acad. Nat. Sci. Philadelphia, 1865, pp. 155-166.)

Characterize *Evactinopora* (nov. gen.) *radiata* n. sp. (p. 165).

## 1866.

\* **Billings, E.** Catalogue of the Silurian fossils of the Island of Anticosti, with descriptions of some new genera and species. (Geological Survey of Canada, Montreal, 1866. 93 pp.)

Contains descriptions of the following new species: *Ptilodictya fragilis*, *nitidula*, *canadensis*, *gladiola*, *excellens*, *sulcata*, *superba*, *rustica*, *tenera*, *arguta*, *alcione*, *Helopora lineata*, *formosa*, *concava*, *strigosa*, *nodosa*, *lineopora*, *armata*, *bellula*, *striatopora*, *irregularis*, *Circe*, *varipora*.

The descriptions give no structural details. Some of the forms it may not be possible to recognize; a few others may prove to be synonyms.

\* **Prout, Hiram A.** Descriptions of new species of Bryozoa. (Trans. St. Louis Acad. Sci., II, 1866, pp. 410-413.)

The species described are *Fenestella nodosa*, *dilata*, *bifurcata*, *Polypora imbricata*, *rigida*, *Retepora hamiltonensis*, *Ptilodictya* (*Stictopora*) *variabilis*.

\* **Prout, Hiram A.** Descriptions of Polyzoa from the Paleozoic rocks. (Geological Survey of Illinois, II, 1866, pp. 412-423, pls. xxi, xxii.)

Gives descriptions with figures of *Coscinium Wortheni*, *elegans*, *plumosum*, *Michelinia*, *saganella*, *tuberculatum*, *asteria*, *Cyclopora*, *C. fungia*, *discoidea*, *polymorpha*, *Polypora Halliana*, *gracilis*, *Hamiltonensis*. These had all but the last previously appeared in the Trans. St. Louis Acad. Sci., I, 1860.

\* **Rominger, Carl.** Observations on *Chaetetes* and some related genera, in regard to their systematic position, with an appended description of some new species. (Proc. Acad. Nat. Sci. Philadelphia, 1866, pp. 113-123.)

After a general discussion descriptions are given of a number of species, including, besides the *Stellipora antheloidea* Hall, *Trematopora tubulosa* Hall, *Ceramopora foliacea* Hall, the following new species: *Chaetetes quadratus*, *decipiens*, *Callopora missouriensis*, *Fistulipora neglecta*, *Halli*, *lunata*, *helios*, *stellifera*, *sulcata*, *minuta*, *acervulosa*, *spinulifera*, *Eriensis*, *utriculus*, *crassa*, *elegans*, *Spergenensis*, *flabellum*, *trifolia*, *compressa*, *peculiaris*. The descriptions are unaccompanied by figures, but are usually sufficient for identification—a decided merit in a work of that date.

**Winchell, Alexander.** A report on the Lower Peninsula of Michigan. Ann Harbor, 1866. 97 pp. Paleontology, pp. 83-97.

Brief descriptions of the following bryozoa are included: *Fistulipora labiosa*, *Saffordi*, *Callopora punctillata*, *Chaetetes Hamiltonensis*, *microscopica*, *Fenestella eximia*, *filitexta*, *Stictopora sulcata*.



## 1867.

**Geinitz, Hans Bruno.** Carbonformation und Dyas in Nebraska. (Verhandlungen der kais. Leopoldino-Carolinischen Deutschen Akademie der Naturforscher, XXXIII, 1867, pp. i-xii, 1-91, 5 pls.)

Also separate, Dresden, 1866, 4to. Bryozoa, pp. 66-72, pl. v.

The author identified Permian forms from Nebraska with forms from the Dyas of Europe. Meek later showed that the identifications were erroneous.

## 1868.

**Dawson, J. W.** Acadian Geology, edition 2. Montreal, 1868. Bryozoa, pp. 287-289.

Contains rather meager descriptions of *Stenopora exilis* n. sp., *Chaetetes tumidus* Milne-Edwards and Haime, *Fenestella lyelli* n. sp.

**Meek, F. B., and Worthen, A. H.** Paleontology of Illinois. (Geological Survey of Illinois, III, 1868.) Bryozoa, pp. 501-504.

Descriptions are given of *Evactinopora* and three species—*E. radiata*, *sexradiata*, *grandis*, and of *Fenestella* (*Lyropora*) *retrorsa*.

## 1869.

**Safford, J. M.** Geology of Tennessee. Nashville, 1869.

On page 286 the following new species are named: *Ptilodictya symmetrica*, *explanans*, *multiramis*, ? *Libana*; the last one is very briefly characterized.

## 1870.

\* **Meek, F. B., and Worthen, A. H.** Note on the relations of *Synocladia* King 1849 to the proposed genus *Septopora* Prout 1858. (Proc. Acad. Nat. Sci. Philadelphia, 1870, pp. 15-18.)

## 1871.

**Meek, F. B.** Description of new species of invertebrate fossils from the Carboniferous and Devonian rocks of Ohio. (Proc. Acad. Nat. Sci. Philadelphia, 1871, pp. 57-93.)

Contains a description of *Ptilodictya* (*Stictopora*) *Gilberti*.

**Meek, F. B.** Descriptions of new western Paleozoic fossils mainly from the Cincinnati group of the Lower Silurian series of Ohio. (Proc. Acad. Nat. Sci. Philadelphia, 1871, pp. 308-336.)

Contains a description of *Ptilodictya* (*Stictopora*) *Shafferi*.

## 1872.

**Meek, F. B.** Paleontological Report. (Hayden's Sixth Ann. Rep. U. S. Geol. Sur. of the Territories, 1872, pp. 431-518.)

Contains description of *Ptilodictya* (*Stictopora*) *dictyota*.

\* **Meek, F. B.** Report on the Paleontology of Eastern Nebraska, with some remarks on the Carboniferous rocks of that district. (Hayden's Final Report of the U. S. Geol. Sur. of Nebraska and portions of adjacent Territories. Washington, 1872. 264 pp., 11 pls. Part II, Paleontology, pp. 81-264.) Bryozoa, pp. 141-158.

The author gives full and critical descriptions and figures of *Fenestella* sp. (*Fen-*

estella plebeia Geinitz), Shumardi Prout, submarginata Meek, Polypora sp. ind., Synocladia biserialis Swallow, Glauconome trilineata Meek, Rhombopora Meek, R. lepidodendroides Meek, and Fistulipora nodulifera Meek.

## 1873.

**Hall, James, and Whitfield, R. P.** Descriptions of new species of fossils from the Devonian of Iowa. (Twenty-third Annual Report New York State Museum Nat. Hist., 1873, pp. 223-239, 5 pls.)

Contains descriptions of *Fistulipora occidentis* n. sp. and *Stomatopora* ? *alternata* n. sp.

**Meek, F. B.** Descriptions of invertebrate fossils of the Silurian and Devonian systems. (Paleontology of Ohio, I, 1873, pp. 1-243, pls. i-xxii.)

Contains descriptions of *Ptilodictya* (*Stictopora*) *Shafferi*, *Gilberti*, *lichenoides*.

## 1874.

**Billings, E.** Paleozoic Fossils, Vol. II, Part I, 1874. 144 pp., 9 pls. (Memoirs of the Geological Survey of Canada.)

Contains descriptions of two species of bryozoa from the Gaspé limestone of Canada, *Polypora* ? *Psyche* n. sp., and *Ptilodictya tarda* n. sp.

\* **Hall, James.** Descriptions of Bryozoa and Corals of the Lower Helderberg group. (Twenty-sixth Ann. Rep. New York State Museum Nat. Hist., 1874, pp. 93-115.)

This paper is devoted to the bryozoan fauna of the Lower Helderberg group. Descriptions only are given. Figures and fuller descriptions are later given in the Paleontology of New York, VI. Thirty-four new species are described, referred to the genera *Fenestella*, *Polypora*, *Hemitrypa*, *Ichthyorachis*, *Escharopora*, *Callopora*, *Trematopora*, *Ceramopora*, *Chaetetes*, and *Palescharcha*, the last a new genus whose systematic position is still somewhat doubtful.

\* **Miller, S. A.** Observations upon *Stenopora fibrosa* and the genus *Chaetetes*. (Cincinnati Quarterly Journal of Science, I, 1874, pp. 368-375.)

After a general discussion the writer gives descriptions of *Stenopora* *Lonsdale*, *Stenopora fibrosa* Goldfuss 1826 from Lexington, Kentucky, *Stenopora lycoperdon* Say, *Chaetetes* *Fischer*, *Chaetetes petropolitanus* (Pander). These are all incorrect identifications.

\* **Nicholson, H. Alleyne.** Summary of recent researches on the Paleontology of the Province of Ontario, with brief descriptions of some new genera. (Canadian Journal, new ser., XIV, 1874, pp. 125-136.)

The new genera *Cryptopora*, *Carinopora*, *Tæniopora*, and *Botryllopora* are described.

\* **Nicholson, H. Alleyne.** Descriptions of two new genera and species of Polyzoa from the Devonian rocks. (Ann. Mag. Nat. Hist., ser. 4, XIII, 1874, pp. 77-85.)

The author describes *Cryptopora* n. g. with the new species *C. mirabilis* and *Carinopora* n. g. with the species *Hindei* n. sp. Both genera have proved untenable, being founded upon imperfect material in a peculiar state of preservation.

**Nicholson, H. Alleyne.** Descriptions of new fossils from the Devonian formation of Canada West. (Geol. Mag. new ser., I, 1874, pp. 10-16, 54-60, 117-126, 159-163, 197-201, pls. ii, iv, vi, ix.)

This series of papers contains the descriptions of a large number of Corniferous and Hamilton fossils, including bryozoa, which are incorporated in the author's Report on the Paleontology of the Province of Ontario, 1874.

\* **Nicholson, H. Alleyne.** Descriptions of species of *Chaetetes* from the Lower Silurian rocks of North America. (Quar. Jour. Geol. Soc. London, XXX, 1874, pp. 499-515, pls. xxix, xxx.)

The author gives a description of *Stenopora* Lonsdale and nineteen species of Monticuliporoids mainly from the Cincinnati group of Ohio, all of which he refers to the genus *Chaetetes*. These are all redescribed in the Paleontology of Ohio, vol. II, which made its appearance in the following year.

\* **Nicholson, H. Alleyne.** Report upon the Paleontology of the Province of Ontario, Toronto, 1874. 133 pp., 8 pls.

The author describes the following genera with from one to four species under each: *Aulopora* (= *Hederella*), *Chaetetes*, *Callopora*, *Fistulipora*, *Botryllopora*, *Ptilodictya*, *Polypora*, *Retepora*, *Cryptopora*, and *Fenestella*.

\* **Nicholson, H. Alleyne, and Hinde, George Jennings.** Notes on the fossils of the Clinton, Niagara, and Guelph formations of Ontario, with descriptions of new species. (Canadian Journal, new ser., XIV, 1874, pp. 137-144.)

Descriptions are given of species referred to *Chaetetes*, *Helopora*, *Rhinopora*, *Phanopora*, *Ptilodictya*, *Clathropora*. The work is, in the main, repeated in the Report upon the Paleontology of the Province of Ontario, 1875.

**White, Charles A.** Preliminary report upon invertebrate fossils with descriptions of new species. (Wheeler's Geographical and Geological Exploration and Survey west of the 100th meridian.) Washington, 1874. 27 pp.

Contains descriptions of *Glaucanome nereidis* sp. nov. and *Polypora stragula* sp. nov.

### 1875.

**Hall, James, and Whitfield, R. P.** Descriptions of invertebrate fossils mainly from the Silurian system. (Paleontology of Ohio, II, 1875, pp. 67-161, pls. i-ix.)

Several bryozoa from the Clinton of Ohio are described: *Retepora angulata*? Hall, *Rhinopora frondosa* n. sp., *Stictopora magna* n. sp., *Clathropora clintonensis* n. sp., *Phanopora* (*Ptilodictya*) *expansa*.

\* **James, U. P.** Catalogue of Lower Silurian fossils at Cincinnati, Ohio, and vicinity, with descriptions of some new species of corals and polyzoa. Cincinnati, 1875. 8 pp.

The introduction to the catalogue proper contains descriptions of the following new species from the Cincinnati group: *Chaetetes*? *calycula*, *clavacoideus*, *Cincinnatiensis*, ? *O'Neilli*, *Ceramopora nicholsoni*, *Ptilodictya acuminata*, *Alecto nexilis*.

**Meek, F. B.** A report on some of the invertebrate fossils of the Waverly group and Coal Measures of Ohio. (Paleontology of Ohio, II, 1875, pp. 269-347, pls. x, xiv-xx.)

Contains descriptions of *Fenestella delicata* Meek, *multioporata*? var. *Lodiensis* Meek,

*Synocladia biserialis* Swallow, *Ptilodictya* (*Stictopora*) *serrata* Meek, *Ptilodictya* (*Stictopora*) *carbonaria* Meek.

**Meek, F. B., and Worthen, A. H.** Paleontology of Illinois. Descriptions of invertebrates. (Geological Survey of Illinois, VI, 1875, pp. 491-532, pls. xxiii-xxxii.)

Contains description of one bryozoan, *Chaetetes* ? *carbonaria* Worthen.

**Miller, S. A.** Some new species of fossils from the Cincinnati group and remarks upon some described forms. (Cincinnati Quarterly Journal Science, II, 1875, pp. 349-355.)

The writer gives descriptions of *Calamopora fibrosa* Goldfuss and *Monticulipora dalei* Milne-Edwards and Haime, the latter in reality *Monticulipora ramosa* d'Orbigny.

\* **Nicholson, H. Alleyne.** Report upon the Paleontology of the Province of Ontario, Toronto, 1875. 96 pp., 4 pls.

Some thirty-two species of bryozoa are described, only part for the first time, mainly from the Trenton, Hudson River (Cincinnati), Clinton and Niagara formations, referred to the genera *Chaetetes*, *Ptilodictya*, *Retepora*, *Helopora*, *Rhinopora*, *Phanopora*, *Clathropora*, *Callopora*, *Ceramopora*; also the new genus *Heterodictya* with one new species, *H. gigantea*.

\* **Nicholson, H. Alleyne.** Descriptions of species of *Hippothoa* and *Alecto* from the Lower Silurian rocks of Ohio, with a description of *Aulopora arachnoidea* Hall. (Ann. Mag. Nat. Hist., ser. 4, XV, 1875, pp. 123-127, pl. xi.)

Describes from the Cincinnati group of Ohio *Hippothoa inflata* (Hall), *Alecto auloporoides* n. sp., *frondosa* James, *confusa* n. sp., *Aulopora arachnoidea* Hall.

\* **Nicholson, H. Alleyne.** Descriptions of new species of *Polyzoa* from the Lower and Upper Silurian rocks of North America. (Ann. Mag. Nat. Hist., ser. 4, XV, 1875, pp. 177-184, pl. xiv.)

Describes from the Cincinnati group *Ptilodictya falciformis* n. sp., *emacerata* n. sp., *flagellum* n. sp., ? *arctipora* n. sp., *fenestelliformis* n. sp., *Ceramopora ohioensis* n. sp., and from the Niagara *Fenestella nervata* n. sp.

\* **Nicholson, H. Alleyne.** Descriptions of new species and of a new genus of *Polyzoa* from the Paleozoic rocks of North America. (Geol. Mag., new ser., II, 1875, pp. 33-38, pl. ii.)

Describes *Heterodictya* and *H. gigantea*, *Ptilodictya cosciniformis*, *Fenestella Davidsoni*, *Ceramopora Huronensis*, *Retepora Trentonensis*. These are also described in the Report upon the Paleontology of Ontario, 1875.

\* **Nicholson, H. Alleyne.** On some of the massive forms of *Chaetetes* from the Lower Silurian. (Geol. Mag., new ser., II, 1875, pp. 175-177.)

Describes *Chaetetes petropolitanus* Pander and *Chaetetes undulatus* Nicholson.

\* **Nicholson, H. Alleyne.** Description of the corals of the Silurian and Devonian systems. (Paleontology of Ohio, II, 1875, pp. 181-242, pls. xxi, xxii.)

This paper contains descriptions of twenty-five species of *Chaetetes*, two of *Constellaria* and *Aulopora arachnoidea* Hall.

\***Nicholson, H. Alleyne.** Descriptions of Polyzoa from the Silurian formation. (Paleontology of Ohio, II, 1875, pp. 257-268, pl. xxv.)

This article contains the descriptions which appeared earlier in the year in the two papers in the Annals and Magazine of Natural History.

### 1876.

\***Hall, James.** The fauna of the Niagara group in central Indiana. (Twenty-eighth Ann. Rep. New York State Museum Nat. Hist., 1876 (Documentary edition), 32 plates, with explanation sheets.)

The plates only of this article made their appearance in the Documentary edition of the Twenty-eighth Museum Report. The complete edition (Museum edition) did not appear until 1879. The article is devoted to descriptions of a large number of species obtained from the now famous locality on Conns Creek near Waldron, Indiana. Twenty species of bryozoa are described (Museum edition) and figured. They are referred to the genera *Chaetetes*, *Trematopora*, *Callopora*, *Lichenalia*, *Sagenella*, *Ceramopora*, *Paleschara*, *Stictopora*, *Fenestella*, *Thamniscus*.

**Hall, James.** Paleontology of New York. Illustrations of Devonian fossils.

This work consisted only of plates designed for the Paleontology of New York. It is questionable whether this can be considered a publication, as but a limited number of copies were sent out. *Chaetetes furcatus*, *tenuis*, *humilis*, *tabulatus*, and *fruticosus* are the new species of bryozoa incompletely figured in this work (pls. xxxvii, xxxviii).

**Nicholson, H. Alleyne.** On the mode of growth and increase amongst the corals of the Paleozoic period. (Trans. Royal Soc. Edinburgh, XXVII, pp. 237-250, 1876.)

A general discussion involving some monticuliporoid forms.

\***Nicholson, H. Alleyne.** Notes on the Paleozoic corals of the State of Ohio. (Ann. Mag. Nat. Hist., ser. 4, XVIII, 1876, pp. 85-94, pl. v.)

This paper marks the opening of a new epoch in the study of Paleozoic bryozoa. For the first time, so far as we are aware, the appearances presented by thin sections viewed under the microscope form the subject of study and illustration. The species whose internal structure is described, and in most cases figured, are *Chaetetes rhombicus*, *sigillarioides*, *nodulosus*, *rugosus*, *ramosus*, *petropolitanus*, *discoideus*, *Newberryi*, *Jamesi*, *gracilis*, *Fletcheri*, *tuberculatus*, *clathratulus*, *frondosus*, *Constellaria antheloidea*, *Dekayia attrita*.

**White, C. A.** Descriptions of new species of fossils from the Paleozoic rocks of Iowa. (Proc. Acad. Nat. Sci. Philadelphia, 1876, pp. 27-34.)

Describes *Chaetetes muscatinensis* n. sp. and *Monticulipora monticula* n. sp.

### 1877.

**Miller, S. A.** American Paleozoic fossils; a catalogue of the genera and species. Cincinnati, 1877. xv, 246 pp. Supplement 1883, pp. 247-334. Bryozoa, pp. 95-102, 289-294.

- \* **Nicholson, H. Alleyne, and Etheridge, Robert, Jun.** On *Ascodictyon*, a new provisional and anomalous genus of Paleozoic fossils. (Ann. Mag. Nat. Hist., ser. 4, XIX, 1877, pp. 463-8, pl. xix.)

The authors characterize very fully the new genus *Ascodictyon* and describe three species, two from the Hamilton of Ontario and one from the Lower Carboniferous of Scotland, and then discuss at some length the systematic position of the genus.

- White, C. A.** Report upon the invertebrate fossils collected in portions of Nevada, Utah, Colorado, New Mexico, and Arizona by parties of the expeditions of 1871-1874. (Wheeler's Exploration and Survey west of the 100th Meridian, IV, 1877.) Bryozoa, pp. 99-109, pls. vi, vii.

Describes *Rhombopora lepidodendroides* Meek, *Glaucanome nereidis* White, *Synocladia biserialis* Swallow, *Polypora stragula* White, *Monticulipora Dalii* Milne-Edwards and Haime (p. 67).

- \* **James, U. P.** The Paleontologist, Cincinnati, 1878-1883. No. 1, July 2, 1878, pp. 1-8; No. 2, Sept. 14, 1878, pp. 9-16; No. 3, Jan. 15, 1879, pp. 17-24; No. 4, July 10, 1879, pp. 25-32; No. 5, June 10, 1881, pp. 33-44; No. 6, Sept. 12, 1882, pp. 45-56; No. 7, Apr. 16, 1883, pp. 57-59, pls. i, ii.

In this small brochure, appearing at irregular intervals, a large number of new species are described, mainly from the Cincinnati group. Some writers have considered that this work should be disregarded on account of its obscure mode of publication. Inasmuch, however, as it has received some recognition, we have deemed it best to recognize the work and regard as valid such of the species as can be identified from the descriptions. The two plates included in the last number are of no value for identifying the species.

- Mickleborough, John, and Wetherby, A. G.** A classified list of Lower Silurian fossils of the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., I, 1878, pp. 61-86.)

- Miller, S. A.** Description of a new genus and eleven new species of fossils. (Jour. Cincinnati Soc. Nat. Hist., I, 1878, pp. 100-108, pl. iii.)

Describes *Ptilodictya magnifica* n. sp.

- Miller, S. A., and Dyer, C. B.** Contributions to Paleontology. (Jour. Cincinnati Soc. Nat. Hist., I, 1878, pp. 24-39, pls. i, ii.)

The authors describe *Monticulipora calceolus* n. sp.

- \* **Miller, S. A., and Dyer, C. B.** Contributions to Paleontology, No. 2. Cincinnati, 1878. 11 pp., 2 pls. (Published by the authors.)

The authors describe the new bryozoan genus *Bythopora*, with the type species *B. fruticosa* n. sp.; also *Ptilodictya internodia* n. sp., and *Intricaria clathrata* n. sp.

- Ulrich, E. O.** Descriptions of some new species of fossils from the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., I, 1878, pp. 92-100, pl. iv.)

Describes *Callopora cincinnatiensis* n. sp., *Chaetetes venustus* n. sp., *Ptilodictya perelegans* n. sp.

**White, C. A.** Descriptions of new species of invertebrate fossils from the Carboniferous and Upper Silurian rocks of Illinois and Indiana. (Proc. Acad. Nat. Sci. Philadelphia, 1878, pp. 29-37.)  
Describes *Ptilodictya triangulata* n. sp.

\* **Whitfield, R. P.** Preliminary descriptions of new species of fossils from the lower geological formations of Wisconsin. (Annual report of the Geological Survey of Wisconsin for 1877, 1878, pp. 50-89.)

The author describes the following new species, which are afterwards described and figured in Geological Survey Wisconsin, IV, 1882: *Trematopora annulifer*, *granulata*, *Fenestella granulosa*, *Fistulipora solidissima*, *lens*, *Chaetetes fusiformis*, *Monticulipora rectangularis*, *punctata*, *multituberculata*, *Alveolites irregularis*.

### 1879.

\* **Hall, James.** Descriptions of new species of fossils from the Niagara formation at Waldron, Indiana. (Trans. Albany Institute, X, 1883, pp. 57-76.) Extract distributed 1879.

In this paper the author describes fifteen additional new species of bryozoa from the noted Waldron locality. These species have not been illustrated. A few will probably prove synonyms, while some others can not be recognized from the descriptions.

\* **Hall, James.** The fauna of the Niagara group in central Indiana. (Twenty-eighth Ann. Rep. New York State Museum Nat. Hist., Museum edition, 1879, pp. 99-203, 32 pls.) Bryozoa, pp. 110-126, pls. v-xii.

\* **Nicholson, H. Alleyne.** On the structure and affinities of the "Tabulate Corals" of the Paleozoic period, with critical descriptions of illustrative species. Edinburgh, 1879. 342 pp., 15 pls. Bryozoa, pp. 253-327, pls. xii-xv.

Among the Tabulate Corals the author includes the monticuliporoids and their allies. The following genera of bryozoa are characterized and critically discussed: *Monticulipora*, *Heterotrypa*, *Dekayia*, *Constellaria*, *Fistulipora*, *Diplotrypa*, *Monotrypa*, *Prasopora*. One or more typical species of each are described and their internal structure elucidated.

\* **Ulrich, E. O.** Descriptions of new genera and species of fossils from the Lower Silurian about Cincinnati. (Jour. Cincinnati Soc. Nat. Hist., II, 1879, pp. 9-30, pl. vii.)

Two new genera, *Rhopalonaria* and *Crateripora*, and five new species are described, *Rhopalonaria venosa*, *Chaetetes compressus*, *Fistulipora flabellata*, *Crateripora lineata* and var. *expansa*, *Crateripora erecta*.

\* **Ulrich, E. O.** Description of a new genus and some new species of Bryozoans from the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., II, 1879, pp. 119-131, pl. xii.)

Describes the new genus *Atactopora* with seven new species, *A. hirsuta*, *maculata*, *multigranosa*, *mundula*, *tenella*, *subramosa*, *septosa*; also *Stellipora limitaris* and *Chaetetes granuliferus*, *irregularis*, *subglobosus*, *elegans*.

**Walcott, C. D.** Fossils of the Utica slate. (Trans. Albany Institute, X, 1883, pp. 18-38.) Extract distributed 1879.

Describes *Sagenella ambigua* n. sp. from the Utica slate.

**White, C. A.** Paleontological Papers No. 11: Remarks upon certain Carboniferous fossils from Colorado, Arizona, Idaho, Utah, Wyoming, and certain Cretaceous corals from Colorado, together with descriptions of new forms. (Bulletin U. S. Geological Survey, V, 1879, pp. 209-221.)

This paper contains a description of *Ptilodictya triangulata* White.

### 1880.

\* **Hall, James.** Corals and Bryozoans of the Lower Helderberg group. (Thirty-second Ann. Rep. New York State Museum Nat Hist., Albany, 1879, pp. 141-176, pls. vii-xxii.)

This work is a continuation of the work on the bryozoan fauna of the Lower Helderberg group published in 1874. Seventy-four species are described and figured, most of them new, referred to the genera *Chaetetes*, *Trematopora*, *Callopora*, *Lichenalia*, *Ceramopora*, *Paleschara*, *Stictopora*, *Escharopora*, *Fenestella*, *Ichthyorachis*, and *Thamniscus*.

**Miller, S. A.** Description of four new species of Silurian fossils. (Jour. Cincinnati Soc. Nat. Hist., III, 1880, pp. 140-144, pl. iv.)

Describes *Bythopora nashvillensis* n. sp.

**Ulrich, E. O.** Catalogue of fossils occurring in the Cincinnati group of Ohio, Indiana, and Kentucky. Cincinnati, 1880. iv, 31 pp.

**Whitfield, R. P.** Descriptions of new species of fossils from the Paleozoic formations of Wisconsin. (Ann. Rep. Wisconsin Geological Survey for 1879, 1880, pp. 45-71.)

Contains description of one new species of bryozoa, *Fistulipora rugosa*.

### 1881.

**Claypole, E. W.** On the occurrence of an archimediform *Fenestellid* in the Upper Silurian rocks of Ohio. (Proceedings of the American Association for the Advancement of Science, XXX, 1881, p. 191.)

The author notes the occurrence of this remarkable form for which he proposes the new genus and species *Helicopora latispiralis*.

\* **Hall, James.** Bryozoans of the Upper Helderberg and Hamilton groups. (Trans. Albany Institute, X, 1883, pp. 145-197.) Distributed in the form of extracts separately pagged in 1881.

This paper contains brief, usually inadequate descriptions, without illustrations, of 189 new species from the Upper Helderberg of New York and Ontario, and from the Falls of the Ohio, which deposit Hall considered of Upper Helderberg age, and from the Hamilton group of New York, Ontario, and elsewhere. Most of these species were later more fully described and figured in the Paleontology of New York, VI, 1887. The new genera and subgenera proposed are *Phractopora*, *Thallostigma*, *Intrapora*, *Thamnopora*, *Prismopora*, *Scalaripora*, *Cystopora*, *Clonopora*, *Pteropora*, *Semiopora*, *Acrogenia*, *Hederella*, *Ptilionella*, and *Hernodia*.

**Miller, S. A.** Subcarboniferous fossils from the Lake Valley mining district of New Mexico, with descriptions of new species. (Jour. Cincinnati Soc. Nat. Hist., IV, 1881, pp. 306-315, pl. vii.)

Describes *Trematopora americana* n. sp.



- \* **Nicholson, H. Alleyne.** On the structure and affinities of the genus *Monticulipora* and its subgenera, with critical descriptions of illustrative species. Edinburgh, 1881. 240 pp., 6 pls. A review of this work appeared in the *Ann. Mag. Nat. Hist.*, ser. 5, VIII, 1881, pp. 61-63.

This memoir is an expansion of the latter part of the author's work "On the Structure and Affinities of the Paleozoic Tabulate Corals." After chapters on the General History of the Genus *Monticulipora*, Its General and Comparative Structure, Development, Affinities and Zoological Position, Relations to Other Genera and Subdivisions, full and careful descriptions are given of the genera and subgenera (as the author calls some of them) *Fistulipora*, *Constellaria*, *Dekayia*, *Monticulipora*, *Diplotrypa*, *Monotrypa*, *Prasopora*, *Peronopora*, *Heterotrypa*, with illustrative species fully and accurately described and amply figured. This memoir marks a very great advance over any previous work.

- Quenstedt, Friedrich Augustus.** Die Roehren- und Sternkorallen. (Petrefactenkunde Deutschlands, VI.) Leipzig, 1881. Plates in Atlas.

In this work, a general review of corals and some bryozoa, are references with more or less extended descriptive remarks to a number of American species, accompanied by very good figures in the atlas. *Chaetetes frondosus* var. *limatus*, *Chaetetes leviramus*, and *Fenestella incongruens* are new names proposed for American forms. The first and third are inadequately described; the second is a synonym for *Bythopora gracilis* (Nicholson).

## 1882.

- Buel, Ira M.** The corals of Delafield. (Transactions of the Wisconsin Academy of Science, V, 1882, pp. 185-193.)

The paper is a general discussion more particularly of the monticuliporoid forms occurring at this noted locality and described in the *Geology of Wisconsin*, IV.

- \* **Hall, James.** Descriptions of species of fossils found in the Niagara group at Waldron, Indiana. (Indiana, Department of Geology and Nat. Hist., Eleventh Ann. Rep., 1882, pp. 217-345, pls. iv-xi.)

This is a reproduction for the benefit of Indiana readers of Hall's papers on the Waldron fossils, which appeared in the *Twenty-eighth Ann. Rep. New York State Museum*, 1876-1879, and the *Trans. Albany Institute*, X, Extract, 1879.

- \* **Miller, S. A.** Notice of a work by Prof. Nicholson on the Genus *Monticulipora*. (Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 25-33.)

An iconoclastic review of Prof. Nicholson's "Genus *Monticulipora*."

- Miller, S. A.** Description of two new genera and eight new species of fossils from the Hudson River group, with remarks upon others. (Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 34-44, pls. i, ii.)

Describes *Stomatopora proutana* n. sp.

- \* **Ulrich, E. O.** American Paleozoic bryozoa. (Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 121-175, pls. vi-viii, pp. 232-257, pls. x, xi; VI, 1883, pp. 82-92, pl. i, pp. 148-168, pls. vi, vii, pp. 245-279, pls. xii-xiv; VII, 1884, pp. 24-51, pls. i-iii.)

This is the first attempt at a comprehensive account of the bryozoa found in American Paleozoic strata. After a general discussion regarding the affinities and systematic position of some groups of bryozoa (*Trepostomata*), whose systematic position

had been a bone of contention for many years, the author gives brief diagnoses of most of the Paleozoic genera hitherto known and proposes the new genera *Eridopora*, *Leioclema*, *Scenellopora*, *Mitoclema*, *Arthronema*, *Graptodictya*, *Arthropora*, *Dicranopora*, *Stictoporella*, *Rhinidictya*, *Cystodictya*, *Pachydictya*, *Phyllodictya*, *Amplexopora*, *Batostomella*, *Calloporella*, *Aspidopora*, *Dekayella*, *Petigopora*, *Discotrypa*, *Spatiopora*, *Didymopora*, *Ceramoporella*, *Cheiloporella*, *Crepipora*. Then are described a large number of new species (81). The descriptions are full and accurate; comparisons with related species and often critical notes are given. A new suborder, the *Trepostomata*, is founded.

**White, C. A.** Van Cleve's fossil corals. (Indiana, Department of Geology and Nat. Hist., Eleventh Ann. Rep., 1882, pp. 376-401, pls. xlv-iv.)

Contains descriptions of *Constellaria antheloidea* Hall, *Monticulipora frondosa* d'Orbigny, and *Clathropora frondosa* Hall.

\* **Whitfield, R. P.** Paleontology. (Geology of Wisconsin, IV, 1882, pp. 163-349, pls. i-xxvii.)

Contains descriptions of the following species: *Chaetetes fusiformis*, *Monticulipora rectangularis*, *punctata*, *multituberculata*, ? *Ortoni*, *Alveolites irregularis*, *Fenestella granulosa*, *Stictopora fragilis*, *Trematopora granulata*, *annulifera*, *Fistulipora solidissima*, *rugosa*, *lens*, *Constellaria polystomella*.

**Whitfield, R. P.** Descriptions of new species of fossils from Ohio. (Annals New York Acad. Sci., II, 1882, pp. 193-244.)

Describes *Synocladia rectistyla*.

### 1883.

\* **Claypole, E. W.** On *Helicopora*, a new spiral genus (with three species) of North American *Fenestellids*. (Quar. Jour. Geol. Soc. London, XXXIX, 1883, pp. 30-38, pl. iv.)

Gives a description of *Helicopora* n. gen. with three new species—*H. latispiralis*, *Ulrichii*, and *archimedisformis*, and a brief discussion of the family *Fenestellidae*, to which the new genus is referred by the author.

\* **Foord, A. H.** Contributions to the micro-paleontology of the Cambro-Silurian rocks of Canada. (Geol. Nat. Hist. Survey Canada, Ottawa, 1883. 26 pp., 7 pls.)

The writer gives a good account of monticuliporoids from Ordovician strata of Canada. The species were studied according to modern methods and the details of internal structure are well described and figured. The new species are *Monticulipora Westoni*, *Billingsi*, *Homotrypa similis*, *Prasopora oculata*, *affinis*, *Diplotrypa regularis*, *Amplexopora superba*, *Canadensis*, *Batostoma Ottawaense*, *Spatiopora areolata*.

**Hall, James.** Van Cleve's fossil corals. (Indiana, Department Geology and Nat. Hist., Twelfth Ann. Rep., 1883, pp. 239-270, pls. i-xiv.)

In this volume are reproduced a number of plates of western fossils, drawn and engraved by John W. Van Cleve previous to 1853. The publication of the work was prevented by the author's death. The bryozoa, derived from the *Cincinnati* and *Clinton* groups, are identified by Professor Hall. The new species are *Ptilodictya bipunctata*, *Stictopora compressa*, *bifurcata*, and *Van Clevii*.

- \* **Hall, James.** Discussion upon the manner of growth, variation of form, and characters of the genus *Fenestella*, and its relations to *Hemitrypa*, *Polypora*, *Retepora*, *Cryptopora*, etc. (Report of the State Geologist of New York for the year 1882, Albany, 1883, pp. 5-16, 36 figs.)

Contains a discussion of *Fenestella* and related genera, and 25 plates prepared for, and later appearing in, *Paleontology of New York*, VI, 1887.

- \* **Hall, James.** Fossil corals and bryozoans of the Upper Helderberg group. 25 plates with explanation sheets. (Report of the State Geologist of New York for the year 1882, Albany, 1883, pls. vii-xxxiii.)

**James, U. P.** Descriptions of fossils from the Cincinnati group. (*Jour. Cincinnati Soc. Nat. Hist.*, VI, 1883, pp. 235-236, pl. x.)

Contains description of *Monticulipora dychei* n. sp.

- White, C. A.** Contributions to invertebrate paleontology, No. 6: certain Carboniferous fossils from the Western States and Territories. (Hayden's Twelfth Ann. Rep. U. S. Geogr. Geol. Surv. of the Territories, Part I, 1883, pp. 119-141, pls. xxxiii-xxxvi.)

Contains description and figures of *Ptilodictya triangulata*.

#### 1884.

- \* **Foord, Arthur H.** On three new species of Monticuliporoid Corals. (*Ann. Mag. Nat. Hist.*, ser. 5, XIII, 1884, pp. 338-342, pl. xii.)

Describes *Monotrypa macropora* and *Amplexopora microtoma* from the Wenlock of England, and *Dekayella robusta* from Cincinnati, Ohio.

- \* **Hall, James.** Descriptions of the Bryozoans of the Hamilton group. (Report of the State Geologist of New York for the year 1883, Albany, 1884, pp. 5-61.)

Contains descriptions of 74 species of bryozoa, all of which afterwards reappeared in *Paleontology of New York*, VI, 1887.

- \* **Hall, James.** Bryozoa (*Fenestellidæ*) of the Hamilton group. (Thirty-sixth Ann. Rep. New York State Museum Nat. Hist., Albany, 1883, pp. 57-72.)

Contains descriptions of 20 species of *Fenestella*, which afterwards reappeared in *Paleontology of New York*, VI, 1887.

- \* **James, U. P.** Descriptions of three species of fossils. (*Jour. Cincinnati Soc. Nat. Hist.*, VII, 1884, pp. 21-24.)

Describes *Fistulipora oweni* sp. nov. and *Ceramopora ? beani* James, both species illustrated with woodcuts.

- \* **James, U. P.** Descriptions of four new species of fossils from the Cincinnati group. (*Jour. Cincinnati Soc. Nat. Hist.*, VII, 1884, pp. 137-139, pl. vii.)

Describes *Monticulipora ohioensis* n. sp. and *falsi* n. sp.

- Ringueberg, Eugene N. S.** New fossils from the four groups of the Niagara period of western New York. (*Proc. Acad. Nat. Sci. Philadelphia*, 1884, pp. 144-150, pls. ii, iii.)

Describes *Stictopora obliqua* n. sp. and *graminifolia* n. sp. Descriptions and figures are both worthless.

**Spencer, J. W.** Niagara fossils. Part III. Fifteen new species of Niagara fossils. (Trans. St. Louis Acad. Sci., IV, 1884, pp. 602-610, pls. vii-ix.) Also in (Bulletin of the Museum of the University of the State of Missouri, I, No. 1, 1884, pp. 52-61, pls. vii-ix).

Describes *Rhinopora venosa* n. sp., *Clathropora* ? *gracilis* n. sp., *Fenestella bicornis* n. sp., *Polypora* (*Fenestella*?) *Albionensis* n. sp. The fossils themselves are very poorly preserved, the descriptions given are inadequate, and the illustrations are almost worthless. It is doubtful if any can be recognized. The first two are almost certainly synonyms for other species.

### 1885.

**Davis, William J.** Kentucky fossil Corals. Part II, 1885. (Kentucky Geological Survey, John R. Proctor, director.) 139 pls., no text.

Of this work only the plates have appeared. In the explanation sheets of plates 51, 73, 78, and 80 occurs a new generic term, *Nicholsonia*, with three species—*canadensis* (= *Hederella canadensis* (Nicholson)), *adnata*, and *angulata*. The last is not a bryozoan nor even a fossil, while the second, though too poorly figured to be determined with certainty, is probably the same as *Hederella filiformis* (Billings).

\* **Hall, James.** On the mode of growth and relations of the *Fenestellidae*. (Report of the State Geologist of New York for the year 1884, Albany, 1885, pp. 35-46, pls. i, ii.)

The author defines various genera referred to the *Fenestellidae* and gives two plates to illustrate generic structure. The work was in large part later incorporated in the *Paleontology of New York*, VI, 1887. New genera, mostly called subgenera by the author, are *Fenestrellina* [d'Orbigny?], *Fenestropora*, *Ptyloporina*, *Ptyloporella*, *Unitrypa*, *Isotrypa*.

\* **Nicholson, H. Alleyne, and Foord, Arthur H.** On the genus *Fistulipora* M'Coy, with descriptions of several species. (*Ann. Mag. Nat. Hist.*, ser. 5, XVI, 1885, pp. 496-517, pls. xv-xviii.)

An admirable study of the genus *Fistulipora* and a number of its species. The structure of a number of previously recorded species is well worked out and the following new species fully described: *Fistulipora muscosa* (Lower Carboniferous—Scotland), *nummilina* (Wenlock—England), *dobunica* (Wenlock—England), *cornavica* (Wenlock—England). American species described are *F. utriculus* Rominger, *ericensis* Rominger.

### 1886.

\* **Hall, James.** Bryozoa of the Upper Helderberg group. Plates and explanations. (Fifth Ann. Rep. State Geologist, New York, for the year 1885, Albany, 1886, 14 pls.) Twelve plates bound in quarto form were sent out in 1886 under the above title in brochure form.

These plates appeared subsequently in the *Paleontology of New York*, VI, 1887.

**Ringueberg, Eugene N. S.** New genera and species of fossils from the Niagara shales. (Bulletin Buffalo Soc. Nat. Sci., V, 1886, pp. 5-22, pls. i, ii.)

Describes the following new species: *Ceramopora orbiculata*, *Rhinopora curvata*, *Stomatopora recta*, *parva*, *Chatetes expansus*. The illustrations are very poor.

- \* **Ulrich, E. O.** Descriptions of new Silurian and Devonian fossils. (Contributions to American Paleontology, Volume I, No. 1, Cincinnati, 1886, pp. 3-35, pls. i-iii.) Bryozoa, pp. 3-25, pls. i, ii.

This publication, designed as a serial, ended with its first number. The author discusses critically the families Fenestellidæ and Acanthocladiidæ and diagnoses their genera. Two new genera are defined, Buskopora and Lichenotrypa, and sixteen new species from the Falls of the Ohio, referred to the genera Fenestella, Semicoscinium, Unitrypa, Polypora, Fistulipora, Eridopora, Buskopora, Lichenotrypa, and Discotrypa.

- \* **Ulrich, E. O.** Report on the Lower Silurian Bryozoa, with preliminary descriptions of some of the new species. (Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, 1886, pp. 57-103.)

One new genus is established, Homotrypella, and 37 new species described from the Trenton strata of Minnesota, which are later fully described and figured in Geology of Minnesota, III.

### 1887.

- \* **Foerste, August F.** Flint Ridge Bryozoa. (Bulletin of the Scientific Laboratories of the Denison University, II, 1887, pp. 71-88, pl. vii.)

This paper, following the lines of work laid down by Mr. Ulrich, deals fairly well with the Coal Measures fauna of Flint Ridge in central Ohio. One new genus, Chainodictyon, is proposed, and the following new species are described: Rhombopora multipora, Glauconome whitii, Chainodictyon laxum, Fenestella limbatus and var. remotus, Stenopora Ohioensis.

- \* **Foerste, August F.** The Clinton group of Ohio, Part III. (Bulletin of the Scientific Laboratories of the Denison University, II, 1887, pp. 149-176, pls. xv-xvii.) [The plates were, however, omitted from this volume, but pls. xv and xvi appear in the succeeding volume, III, 1888.]

This paper contains the best account which has yet appeared of the bryozoan fauna of the Clinton group in Ohio. The new species are Hemitrypa ulrichi, Pachydictya emaciata, bifurcata-instabilis, turgida, obesa, Prasopora parmula, Monotrypella confluens, Callopora magnopora, Ohioensis.

- \* **Foerste, August F.** Recent methods in the study of the Bryozoa. (Science, X, 1887, pp. 225-226.) Also, Sections of fossils. (Science, XI, 1888, p. 22.)

These two articles, written in reply to earlier communications in Science by Joseph F. James decrying the newer methods of investigating Paleozoic bryozoa, set forth admirably the spirit and method of modern studies on the Paleozoic bryozoa.

- \* **Hall, James.** Descriptions of Fenestellidæ of the Hamilton group of New York. (Sixth Ann. Rep. State Geologist New York for the year 1886, Albany, 1887, pp. 43-70, pls. i-vii.)

Contains descriptions of twenty-two species of Fenestella, of which four are called n. sp., from the Hamilton group, illustrated by thirteen plates, of which seven appear in this report and the remainder in the Forty-first Ann. Rep. New York State Museum Nat. Hist., 1888.

- \* **Hall, James, and Simpson, George B.** Paleontology of New York, VI, Corals and Bryozoa: Text and plates containing descriptions and figures of species from the Lower Helderberg, Upper Helderberg and Hamilton groups. Albany, 1887. xxvi, 298 pp., 67 pls.

It is to be regretted that this, the most important work of the New York Survey upon the bryozoa, should prove on critical examination to be of so little value either to the systematist or to the practical paleontologist. As Hall acknowledges that the work was practically done by the draftsman, Mr. George B. Simpson, the merits and demerits of the volume may be properly charged to the latter. The drawings, however beautiful, are diagrammatic to an extreme and are of little assistance to the student. The descriptions are in many cases vague, and often differ so decidedly from previous descriptions of the same form that no reliance can be placed upon them. The great number of forms distinguished is confusing. Synonyms, we believe, abound. (See note under *Lioclema minutum* in the Catalogue of Genera and Species. The bryozoa of New York still require study.

Brief generic diagnoses of the genera and subgenera used, 60 in number, are given in the preliminary pages, prepared by Mr. Charles E. Beecher. Descriptions follow of 83 species and 3 named varieties from the Lower Helderberg, 153 species and 6 named varieties from the Upper Helderberg (a large number of these are from the Falls of the Ohio and are now considered by Ulrich of Hamilton age), and 113 species from the Hamilton. A few species (one from the Niagara) have crept into the plates without description.

- \* **James, U. P., and James, Joseph F.** On the Monticuliporoid corals of the Cincinnati group, with a critical revision of the species. (Jour. Cincinnati Soc. Nat. Hist., X, 1887, pp. 118-141; X, 1888, pp. 158-184; XI, 1888, pp. 15-47.

The title is sufficiently explanatory of these papers, which are iconoclastic in spirit and decry modern methods of research. A few species described by Mr. U. P. James are wretchedly illustrated.

- Rominger, Carl.** Description of a new form of Bryozoa. (Proc. Acad. Nat. Sci. Philadelphia, 1887, p. 11, pl. i.)

Gives a description of the exterior appearance of three specimens of a new bryozoan discovered in Corniferous drift boulders of Michigan for which the new generic and specific name *Patellipora stellata* is proposed.

## 1888.

- Foerste, August F.** Notes on Paleozoic fossils. (Bulletin Scientific Laboratories Denison University, III, 1888, pp. 117-136, pl. xiii.)

This paper contains an additional note on *Chainodictyon laxum*.

- \* **Hall, James.** Description of new species of *Fenestellidæ* of the Lower Helderberg, with explanations of plates illustrating species of the Hamilton group, described in the report of the State Geologist for 1886. (Report of State Geologist of New York for the year 1887, pp. [393-4], pls. viii-xv.) This report is bound with the Forty-first Ann. Rep. New York State Museum Nat. Hist., 1888.

Contains descriptions of *Fenestella* (*Tectulipora* nov. subgen.) *loculata* n. sp. and *Fenestella frequens*, and eight plates, the first six illustrating species of *Fenestella* described the preceding year in the Sixth An. Rep. State Geologist of New York.

The last two illustrate species of *Fenestella*, *Fistulipora*, and *Lichenalia* described but not figured in Paleontology of New York, VI, 1887.

**Herrick, C. L.** Geology of Licking County. (Bulletin Denison University, IV, 1888, pp. 11-60, pl. x.)

On the plate the author figures *Fenestella albida*? and *Pinnatopora intermdia* Ulrich.

**James, Joseph F.** Monticulipora, a coral and not a polyzoon. (American Geologist, I, 1888, pp. 386-392.)

**Keyes, C. R.** On the fauna of the Lower Coal Measures of central Iowa. (Proc. Acad. Nat. Sci. Philadelphia, 1888, pp. 222-246, pl. xii.)

Gives descriptions of *Rhombopora lepidodendroides* Meek, and *Synocladia biserialis* Swallow.

\* **Ulrich, E. O.** On *Sceptropora*, a new genus of Bryozoa, with remarks on *Helopora*, Hall, and other genera of that type. (American Geologist, I, 1888, pp. 228-234.)

In this paper the genera *Sceptropora* (nov. gen.), *Helopora* Hall, *Arthroclema* Billings, and *Arthrostylus* (proposed for *Arthronema*, found to be preoccupied) are described and the new species *Sceptropora facula* and *Helopora lindstromi* from Gotland.

\* **Ulrich, E. O.** A list of the Bryozoa of the Waverly group in Ohio; with descriptions of new species. (Bulletin Denison University, IV, 1888, pp. 62-96, pls. xiii, xiv.)

The paper includes the descriptions of five new and three other species of *Fenestella*, one new species of *Polypora*, five new species of *Pinnatopora*, one new species of *Taniodictya*, three of *Cystodictya*, seven of *Streblotrypa*, one of *Rhombopora*.

## 1889.

**Foerste, August F.** Notes on Clinton group fossils, with special reference to collections from Indiana, Tennessee, and Georgia. (Proc. Boston Soc. Nat. Hist., XXIV, 1889, pp. 263-355, pls. v-ix.)

The author gives notes on additional species from the Clinton group. Three new species and one new variety of bryozoa are described: *Ptilodictya expansa-emarcescens*, *farcatus*, *famelicus*, *rudis*.

\* **Miller, S. A.** North American Geology and Paleontology. Cincinnati, 1889. 664 pp., 1194 figs. in text. Bryozoa, pp. 289-330, figs. 448-531. First Appendix, 1892, pp. 665-718, figs. 1195-1265. Bryozoa, pp. 684-685. Second Appendix, 1897, pp. 719-793. Bryozoa, pp. 755-758.

This ambitious work, a catalogue of the genera and species of North American Paleozoic fossils, the genera diagnosed, must be used with caution. Many of the bryozoa are found classed among the Coelenterata, and the Bryozoa section is badly mixed.

**Nettleroth, Henry.** Kentucky fossil shells, 1889. (Kentucky Geological Survey, John R. Procter, Director.) 245 pp., 36 pls.

Descriptions are included in this work of *Ptilodictya* and *Ptilodictya hilli* James.

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- \* **Ulrich, E. O.** Contributions to the micro-paleontology of the Cambro-Silurian rocks of Canada. Part II. Geol. Nat. Hist. Sur. Canada, Montreal, 1889, pp. 27-57, pls. viii, ix.)

The paper contains an account with descriptions of the bryozoa collected from Stony Mountain, Manitoba. One new genus is created, *Goniotrypa*, and a number of new species.

### 1890.

- \* **Nickles, J. M.** Studies on Monticulipora. (American Geologist, VI, 1890, pp. 396-399.)

A rejoinder to Rominger's Studies on Monticulipora, American Geologist, VI, 1890, pp. 102-121.

- \* **Rominger, Carl.** Studies on Monticulipora. (American Geologist, VI, 1890, pp. 102-121.)

A paper general and critical in nature, and taking strong ground against modern methods of determination.

- \* **Ulrich, E. O.** New Silurian Bryozoa. (Jour. Cincinnati Soc. Nat. Hist., XII, 1890, pp. 173-198, 22 figs. in text.)

Describes the new genera, *Vinella* and *Diastoporina*, and new species belonging to the genera *Vinella*, *Stomatopora*, *Mitoclema*, *Diastoporina*, *Phylloporina*, *Rhindiactya*, *Pachydiactya*, *Stictoporella*, *Arthrostylus*, *Helopora*, *Arthroclema*, *Nematopora*. These afterwards appeared in the Geology of Minnesota, III, 1893.

- \* **Ulrich, E. O.** Paleozoic Bryozoa. (Geological Survey of Illinois, VIII, 1890, pp. 285-688, pls. xxix-lxxviii.)

The publication of this most important memoir marks an epoch in the study of the Paleozoic Bryozoa. Based upon an elaborate series of investigations embracing a very large number of Paleozoic species and a vast amount of material, a classification is proposed laid down along lines which are not likely soon to be disturbed. The "Introduction and terminology" is followed by chapters on the "General and comparative structure of Paleozoic Bryozoa" and the "Classification and interrelations of families and genera." The definitions of suborders, families, and genera are carefully drawn, some 310 species, many of them new, described and figured. This work is indispensable to the student of Paleozoic Bryozoa.

### 1891.

- \* **Hall, James.** Continuation of descriptions of Bryozoa not printed in Volume VI, Paleontology of New York, for the Report of the State Geologist, 1890. (Tenth Annual Report of the State Geologist of New York for the Year 1890, Albany, 1891, pp. 37-57. Also in Forty-fourth Annual Report of the New York State Museum, 1891, pp. 67-87.)

Contains descriptions of Hamilton group bryozoa, for which there was not room in Paleontology of New York, VI. There are described: *Paleschara*, five species; *Stictopora*, nineteen species; *Semiopora*, one species; *Prismopora*, two species; *Ptilodictya*, two species; *Thamniscus*, one species; *Hederella*, one species; *Ptilopora*, two species. There are no illustrations.



**Whiteaves, J. F.** Contributions to Canadian Paleontology, Volume I, Part III. The fossils of the Devonian rocks of the Mackenzie River Basin. (Geol. Nat. Hist. Sur. Canada, 1891, pp. 197-253, pls. xxvii-xxxii.)

Contains the following new species: *Proboscina laxa*, *Stomatopora moniliformis*, *Monotrypella Unjiga*.

### 1892.

**Ami, Henry M.** Notes and descriptions of some new or hitherto unrecorded species of fossils from the Cambro-Silurian (Ordovician) Rocks of the Province of Quebec. (Canadian Record of Science, V, 1892, pp. 96-103.)

Contains descriptions of *Dicranopora parva*, n. sp.; *Prasopora lycoperdon* Vanuxem, var. *Selwyni*, n. var.; *Diplotrypa Quebecensis*, n. sp.; *Monotrypa incerta*, n. sp. It is doubtful whether any of these, except *Diplotrypa Quebecensis*, which has since been redescribed and figured by Ulrich, will gain recognition.

**Rominger, Carl.** On the occurrence of typical *Chaetetes* in the Devonian strata at the Falls of the Ohio, and likewise in the analogous beds of the Eifel in Germany. (American Geologist, X, 1892, pp. 56-63, pl. iii.)

A general discussion with figures and some description of *Monotrypa tenuis* Hall, *Chaetetes ponderosus* Rominger, and two species not bryozoans.

### 1893.

**Cole, Grenville, A. J.** On *Hemitrypa hibernica* McCoy. (Scientific Proceedings of the Royal Dublin Society, (n. s.) VIII, 1893, pp. 132-144, pl. viii.)

The author gives an admirable account of the history of the genus *Hemitrypa*, whose structure he apprehends correctly. The article contains numerous references to American work and American species.

\* **James, Joseph F.** Manual of the paleontology of the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist. 1893-1896. Part IV in Vol. XV, 1893, pp. 144-159; Part V in Vol. XVI, 1894, pp. 178-208; [Part VI] in Vol. XVIII, 1895, pp. 67-88; [Part VII] in Vol. XVIII, 1896, pp. 115-140.)

Descriptions are given of the species of monticuliporoids of the Cincinnati group which the author considered valid, and those which he considered synonyms are referred to the species of which he considered them synonyms. The work, which is rather iconoclastic, was left unfinished by the death of the author.

\* **Ulrich, E. O.** On Lower Silurian Bryozoa of Minnesota (Geology of Minnesota, III, Part I, Minneapolis, 1893, pp. 96-332, pls. i-xxviii.)

Next to the memoir in the Geological Survey of Illinois, VIII, 1890, this is the most important work on the Paleozoic Bryozoa, even though it deals mainly with the Trenton of Minnesota. The classification given in the Illinois work is improved in some particulars. The descriptive part contains 157 species, many of them new, referred to 50 genera.

## 1894.

- \* **Keyes, Charles Rollin.** Missouri Geological Survey, V, Paleontology of Missouri, Part II, Jefferson City, 1894. 226 pp., 24 pls. Bryozoa, pp. 13-37, pls. xxxiii, xxxiv.

Catalogues with synonymy and localities the species of bryozoa found in the State of Missouri or near its boundaries. Some species are described and figured, the descriptions and figures being mostly reproductions from the Geological Survey of Illinois, VIII, 1890.

## 1895.

- Ami, H. M.** Notes on Canadian fossil bryozoa. (Canadian Record of Science, VI, 1895, pp. 222-229.)

Notes the Canadian forms described by E. O. Ulrich in the Geology of Minnesota, III.

- Foerste, August F.** Fossils of the Clinton group in Ohio and Indiana. (Geol. Sur. Ohio, VII, 1895, pp. 516-601, pls. xxviii-xxxviiA.)

In this work there is reproduced with more or less fullness, for the benefit of Ohio readers, what Mr. Foerste had published regarding the Clinton group in Ohio in previous papers.

- Herrick, C. L.** Observations upon the so-called Waverly group of Ohio. (Geol. Sur. Ohio, VII, 1895, pp. 495-515, pl. xix, 9.)

*Rhombopora ohioensis* Ulrich is figured on pl. xix.

- \* **Simpson, George B.** A discussion of the different genera of Fenestellidae. (Thirteenth Ann. Rep. State Geologist New York for the year 1893, Albany, 1894 [distributed 1895], pp. 687-727; also in Forty-seventh Ann. Rep. New York State Museum Nat. Hist., 1894, pp. 881-921.)

A general discussion of the Fenestellidae and inter-relations of the genera. The author reproduces original figures by Prout and King of species of *Semicoscinium*, *Fenestralia*, *Phyllopora*, *Synocladia*. The following new generic names appear: *Flabelliporina*, *Polyporella*, *Flabelliporella*, *Reteporella*, *Pinnaporina*, *Pinnaporella*, *Cycloporina*, *Tectuliporella*, *Lyroporina*, *Lyroporella*.

- Whiteaves, J. F.** Systematic list, with references, of the fossils of the Hudson River or Cincinnati formation at Stony Mountain, Manitoba. (Paleozoic Fossils, III, Part II, 1895, pp. 111-128. Geol. Sur. Canada.)

The paper contains no descriptions, but synonymy and localities are given.

- Whitfield, R. P.** Contributions to the paleontology of Ohio. (Geol. Sur. Ohio, VII, 1895, pp. 407-494, pls. i-xii.)

Contains a description of *Synocladia rectistyla*.

## 1896.

- Harper, George W., and Bassler, R. S.** Catalogue of the fossils of the Trenton and Cincinnati periods, occurring in the vicinity of Cincinnati, Ohio. Cincinnati, 1896. 34 pp.

A list of fossils, including bryozoa, showing their vertical range.

**Smith, James Perrin.** Marine fossils from the Coal Measures of Arkansas. (Proc. American Phil. Soc., XXXV, 1896, pp. 213-285, pls. xvi-xxiv.)

Records the occurrence of several Coal Measures bryozoa at Poteau Mountain, Indian Territory, and in northeastern Arkansas.

\* **Ulrich, E. O.** Bryozoa. (Zittel's Text-book of Paleontology (English edition). Translated and edited by Charles R. Eastman. Vol. I, Part I.) Bryozoa, pp. 257-291, figs. 411-488.

This work gives a comprehensive survey and classification of all the bryozoa. Five suborders are recognized: Ctenostomata, Cyclostomata, Cryptostomata, Trepostomata, and Chilostomata. One new genus is defined, *Cyclotrypa*.

### 1897.

\* **Simpson, George B.**

A handbook of the genera of the North American Paleozoic Bryozoa. With an introduction upon the structure of living species. (Fourteenth Ann. Rep. State Geologist New York for the year 1894, Albany, 1895 [distributed 1897], pp. 407-608, pls. A-E, i-xxv.) This report of the State Geologist also appears as part of the Forty-eighth Annual Report of the New York State Museum.

To give a critical review of this work would require a volume in itself. The "Historical introduction," "Bibliography of recent forms," and the account of the structure of the polypide, or living animal, are valuable, bringing together, as they do, much useful knowledge. The list of North American species is but a condensation from Miller's North American Geology and Paleontology, without an attempt even to refer any of the species to the new genera described in succeeding pages of the Handbook. The "Descriptions of Families and Genera" forms the most disappointing part of the work. Many new, and generally needless, family names are proposed. As one of numerous similar examples, we may mention that the family Monticuliporidae is defined as embracing forms with cystiphragms and no interstitial cells, and then a new family, Prasoporidae, is proposed for forms having cystiphragms and interstitial cells. But the genus *Monticulipora* often has interstitial cells, and, moreover, Simpson figures it so. Many of the genera proposed are very artificial and in at least one instance imaginary (see remark under *Lyropora* in the Catalogue following). Diagnoses of genera by other authors are in some cases put in quotation marks, but are entirely misquoted; misspellings of generic and specific names are frequent; a number of important genera are omitted, whether designedly or not is not stated; sometimes reproductions of figures of other authors, and also of Hall and Simpson, are given under different names; some specific names, which are found nowhere else, are given without explanation or definition.

The new generic names found in this handbook are *Lyroporida*, *Anastomopora*, *Thamnocella*, *Stictocella*, *Stictoporidra* (page 527; called *Stictoporina* by error on page 532), *Fistuliporina*, *Fistuliporella*, *Ptilocella*, *Fistuliporida*, *Fistulicella*.

**Whiteaves, J. F.** The fossils of the Galena-Trenton and Black River formations of Lake Winnepeg and its vicinity. (Paleozoic Fossils, III, Part II, 1897, pp. 129-242, pls. xvi-xxii.) Bryozoa, pp. 161-163, pls. xviii, xix (in part).

The new species are *Stomatopora Canadensis*, *Mesotrypa Selkirkensis*.

## 1898.

**Whiteaves, J. F.** On some additional or imperfectly understood fossils from the Hamilton formation of Ontario, with a revised list of the species therefrom. (Contributions to Canadian Paleontology, I, Part V, 1898, pp. 361-418, pls. xlviii-l. Geol. Surv. Canada.) Bryozoa, pp. 376-382, pl. xlviii (in part).

One new species is described, *Scalaripora Canadensis*.

## 1899.

**Grabau, Amadeus W.** Geology and Paleontology of Eighteen-Mile Creek and the Lake Shore Sections of Erie County, New York. Part II. Paleontology. (Bulletin of the Buffalo Society of Natural Sciences, VI, 1899, pp. 98-403, 263 figs.) Bryozoa, pp. 136-139, 158-179, figs. 47-77A.

In the fauna of this region the author enumerates, giving brief descriptions copied or adapted from Hall and Simpson's Paleontology of New York, VI, or Simpson's Handbook of Genera, some forty species of bryozoa. Diagnoses are also given of the genera used. One new species appears, *Monotrypa amplexans*.

## 1900.

**Grabau, Amadeus W.** The faunas of the Hamilton group of Eighteen-Mile Creek and vicinity, in western New York. (Sixteenth Annual Report of the State Geologist of New York for the year 1896, New York and Albany, 1899, [issued April, 1900], pp. 227-335.)

In the fauna is noted the occurrence of seven species of bryozoa. In a later work, but appearing earlier (see under 1899), the author gives a full account of the bryozoan fauna.

**Rogers, Austin F.** New Bryozoans from the coal measures of Kansas and Missouri. (Kansas University Quarterly, ser. A, IX, No. 1, January, 1900, 12 pp., pls. i-iv.)

This paper came to hand too late to be incorporated into our work at any point but this. It contains good descriptions and figures of the following species, all new: *Stenopora spinulosa*, *spissa*, *Cystodictya inequimarginata*, *divisa*, *Streblotrypa ulrichi*, *striatopora*, *Fenestella hexagonalis*, *dentata*, *kansasensis*, *ovatipora*, *missouriensis*, *Polypora aspera*, *flexuosa*, *elliptica*, *triangularis*, *Thamniscus tenuiramus*, *Pinnatopora pyriformipora*, *ptiloporoidea*, *multiopora*, *Septopora interporata*, *Acanthocladia pinnata*, *Rhombocladia delicata*.

*Rhombocladia* is a new genus which the author refers provisionally to the *Acanthocladiidae*. *Streblotrypa ulrichi* is a synonym for *Streblotrypa prisca* (Gabb and Horn).

CHRONOLOGICAL CATALOGUE OF PAPERS CONTAINING DESCRIPTIONS AND ILLUSTRATIONS OF AMERICAN MESOZOIC AND TERTIARY BRYOZOA, WITH LISTS OF THE SPECIES DESCRIBED THEREIN.

[Papers in which an asterisk (\*) precedes the name of the author are of special importance to the student of bryozoa.]

1829.

**Morton, Samuel G.** Note: Containing a notice of some fossils recently discovered in New Jersey. In Vanuxem and Morton's observations on the geology and organic remains of the Secondary, Tertiary, and Alluvial formations of the Atlantic coast of the United States of America. Philadelphia, 1828. (Extract from Jour. Acad. Nat. Sci. Philadelphia, VI, 1829, pp. 120-129.)

On page 62 (p. 124 of the Journal) the author records the occurrence of fragments of *Eschara*, *Flustra*, and *Retepora* from the marl pits on Big Timber Creek.

1830.

**Morton, Samuel G.** Synopsis of the Organic Remains of the Ferruginous Sand Formation of the United States. (Amer. Jour. Sci. Arts, ser. 1, XVII, 1830, pp. 274-295.)

On page 288 the author notes the occurrence of fragments of *Eschara*, *Flustra*, and *Retepora* from Gloucester County, New Jersey.

1833.

**Lea, Isaac.** Contributions to Geology. Philadelphia, 1833. 227 pp., 6 pls.

The bryozoa described are—

*Lunulites Bouei*, p. 189, pl. vi, 202.

*Lunulites Duclosii*, p. 190, pl. vi, 203.

*Orbitolites interstitia*, p. 191, pl. vi, 204.

*Orbitolites discoidea*, p. 192, pl. vi, 205.

All are from the Eocene of Claiborne, Alabama.

1834.

**Morton, Samuel G.** Synopsis of the Organic Remains of the Cretaceous Group of the United States. Philadelphia, 1834. 88+8 pp., 19 pls.

The bryozoa described are—

*Eschara digitata* n. sp., p. 79, pl. xiii, 8.

*Flustra sagena* n. sp., p. 79, pl. xiii, 7.

*Retepora* sp. und., p. 79.

All come from the Cretaceous of New Jersey.

## 1841.

**Conrad, T. A.** Observations on the Secondary and Tertiary formations of the southern Atlantic States, by James T. Hodge. With an appendix by T. A. Conrad. (Amer. Jour. Sci. Arts, ser. 1, XLI, 1841, pp. 344-348.)

The bryozoa in the paper are—

*Lunulites denticulata*, p. 348.

*Lunulites depressa*, p. 348.

Medial Tertiary: Natural Well, Duplin County, North Carolina.

## 1845.

\* **Lonsdale, William.** Account of six species of Polyparia obtained from Timber Creek, New Jersey. (Quar. Jour. Geol. Soc. London, I, 1845, pp. 65-75, 22 figs. in text.)

The bryozoa described are—

*Idmonea contortilis* n. sp., p. 68.

*Tubulipora Megæra* n. sp., p. 69.

*Cellepora tubulata* n. sp., p. 70.

*Escharina ? sagena* (Morton), p. 71.

*Eschara digitata* Morton, p. 73.

\* **Lonsdale, William.** Report on the Corals from the Tertiary formations of North America. (Quar. Jour. Geol. Soc. London, I, 1845, pp. 495-509.)

The following bryozoa are included in the paper:

*Heteropora ? tortilis* n. sp., p. 500. Miocene: Williamsburg, Petersburg.

*Escharina tumidula* n. sp., p. 502. Miocene: Petersburg.

*Lunulites denticulata* Conrad, p. 503. Miocene: Petersburg.

*Cellepora informata* n. sp., p. 505. Miocene: Petersburg, Virginia.

*Cellepora umbilicata* n. sp., p. 507. Miocene: Petersburg.

*Cellepora quadrangularis* n. sp., p. 508. Miocene: Williamsburg, Evergreen.

*Cellepora similis* n. sp., p. 509. Miocene: Williamsburg.

\* **Lonsdale, William.** Account of twenty-six species of Polyparia obtained from the Eocene Tertiary formation of North America. (Quar. Jour. Geol. Soc. London, I, pp. 509-533.)

*Tubulipora proboscidea ?* (Milne-Edwards), p. 522. Eocene: Rock's Bridge.

*Idmonea maxillaris* n. sp., p. 523. Eocene: Wantoot, South Carolina.

*Idmonea commiscens* n. sp., p. 524. Eocene: Rock's Bridge.

*Hippothoa tuberculum* n. sp., p. 527. Eocene: Rock's Bridge.

*Eschara tubulata* n. sp., p. 528. Eocene: Wilmington.

*Eschara petiolus* n. sp., p. 528. Eocene: Eutaw.

*Eschara incumbens* n. sp., p. 529. Eocene: Rock's Bridge.

*Eschara lineæ* n. sp., p. 530. Eocene: Eutaw.

*Eschara viminea* n. sp., p. 530. Eocene: Eutaw.

*Lunulites sexangula* n. sp., p. 531. Eocene: Wilmington.

*Lunulites distans* n. sp., p. 531. Eocene: Wilmington, Wantoot(?).

*Lunulites contigua* n. sp., p. 533. Eocene: Wilmington.

## 1847.

**Conrad, T. A.** Observations on the Eocene formation, and descriptions of one hundred and five new fossils of that period, from the vicinity of Vicksburg, Mississippi, with an appendix. (Proc. Acad. Nat. Sci. Philadelphia, III, 1847, pp. 280-299.)

*Lunulites Vicksburgensis*, p. 296.

The same paper occurs also in Journal Acad. Nat. Sci. Philadelphia, ser. 2, I, 1848, pp. 111-134, pls. xi-xiv.

*Lunulites vicksburgensis*, p. 127.

## 1855.

**Conrad, T. A.** Note on the Miocene and Post-Pliocene deposits of California, with descriptions of two new fossil corals. (Proc. Acad. Nat. Sci. Philadelphia, VII, 1855, p. 441.)

*Idmonea Californica*, p. 441. Miocene: Santa Barbara, California.

*Lichenopora Californica*, p. 441. Miocene: Santa Barbara, California.

Obs. These deposits have since been determined to be of Pleistocene age.

## 1857.

**Tuomey, M., and Holmes, F. S.** Pleiocene Fossils of South Carolina. Charleston, 1857. xvi+152 pp., 30 pls.

The bryozoa are—

*Lunulites denticulata* Conrad, p. 11, pl. iv, 1-5. Darlington district, South Carolina.

*Cellepora formosa* n. sp., p. 12, pl. iv, 6. Darlington district, South Carolina.

*Cellepora tessellata* n. sp., p. 13, pl. iv, 7. Giles Bluff, Peedee River.

*Cellepora radiata* n. sp., p. 13, pl. iv, 8. Smith's, Goose Creek.

*Cellepora depressa* n. sp., p. 14, pl. iv, 9. Smith's, Goose Creek.

*Membranipora lacinia* n. sp., p. 14, pl. iv, 10. Smith's, Goose Creek.

*Reptocelleporaria informata* (Lonsdale), p. 15, pl. iv, 11, 12. Darlington district.

*Reptocelleporaria similis* (Lonsdale), p. 16, pl. iv, 13, 14. Darlington district, South Carolina; Petersburg, Va.

*Heteropora tortilis* Lonsdale, p. 16, pl. iv, 15, 16. Smith's, Goose Creek.

## 1858.

**Emmons, Ebenezer.** Report of the North Carolina Geological Survey. Raleigh, 1858. Paleontology, pp. 193-314.

The bryozoa described are—

*Lunulites denticulata*, p. 311, figs. 248, 249. Miocene: Beds on Neuse and Cape Fear rivers.

*Lunulites contigua*, p. 311, figs. 250, 251. Eocene: Wilmington, North Carolina.

*Lunulites oblongus* n. sp., p. 312, figs. 252, 253. Locality not given.

*Discoporella umbellata*, p. 312, figs. 254, 255. Locality not given.

## 1860.

\* **Gabb, William M., and Horn, George H.** Descriptions of new Cretaceous corals from New Jersey. (Proc. Acad. Nat. Sci. Philadelphia, XII, 1860, pp. 366-367.)

*Hippothoa irregularis*, p. 366.

*Cellepora bilabiata*, p. 366.

*Cellepora carinata*, p. 366.

*Cellepora typica*, p. 366.

*Reticulipora sagena*, p. 366.

*Reptomulticava cepularis*, p. 367.

*Multicrescis parvicella*, p. 367.

Localities are not given.

- \* **Gabb, William M.**, and **Horn, George H.** Descriptions of new species of American Tertiary and Cretaceous fossils. (Jour. Acad. Nat. Sci. Philadelphia, ser. 2, IV, 1860, pp. 375-404.)

The bryozoa described are—

*Hypothoa irregularis* G. & H., p. 400, pl. lxix, 18, 20. Cretaceous: Timber Creek, New Jersey.

*Cellepora bilabiata* G. & H., p. 400, pl. lxix, 21, 23. Cretaceous: Timber Creek, New Jersey.

*Cellepora carinata* G. & H., p. 400, pl. lxix, 24, 26. Cretaceous: Timber Creek, New Jersey.

*Cellepora typica* G. & H., p. 400, pl. lxix, 27, 29. Cretaceous: Marl of New Jersey.

*Reticulipora sagena* G. & H., p. 400, pl. lxix, 30, 32. Cretaceous: Timber Creek, New Jersey.

*Reptomulticava cepularis* G. & H., p. 401, pl. lxix, 33, 35. Cretaceous: Timber Creek, New Jersey.

*Multicrescis parvicella* G. & H., p. 401, pl. lxix, 36, 38. Cretaceous: Timber Creek, New Jersey.

*Acerviclausa* n. gen. G. & H., p. 403.

*Acerviclausa vermicularis* G. & H., p. 403, pl. lxix, 42, 44. Cretaceous: Near Mullica Hill, New Jersey.

*Heterocrisina* n. gen. G. & H., p. 404.

*Heterocrisina Abbottii* G. & H., p. 404, pl. lxix, 45, 47. Cretaceous: Near Mullica Hill, New Jersey.

- Holmes, Francis S.** Postpleiocene fossils of South Carolina. Charleston, 1860. xii+v+122 pp., 28 pls.

The bryozoa described are—

*Reptocelleporaria informata* (Lonsdale), p. 6, pl. i, 5. Charleston, South Carolina.

*Lunulites denticulata* Conrad, p. 6, pl. ii, 4-4b. Simmons'; Abbapoola; St. Andrew's.

## 1862.

- \* **Gabb, William M.**, and **Horn, George H.** Monograph of the fossil Polyzoa of the Secondary and Tertiary formations of North America. (Jour. Acad. Nat. Sci. Philadelphia, ser. 2, V, 1862, pp. 111-178, pls. xix-xxi.)

*Eschara Lamarck*, p. 114.

*Eschara digitata* Morton, p. 114. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

*Eschara tubulata* Lonsdale, p. 115. Eocene: Wilmington, North Carolina.

*Eschara petiolus* Lonsdale, p. 116. Eocene: Eutaw, South Carolina.

*Eschara incumbens* Lonsdale, p. 116. Eocene: Rock's Bridge.

*Eschara ? viminea* Lonsdale, p. 116. Eocene: Eutaw, South Carolina.

*Eschara texta* n. sp., p. 117, pl. xix, 1. Eocene: Charleston, South Carolina.

*Eschara ovalis* n. sp., p. 118, pl. xix, 2. Eocene: Claiborne, Alabama.

*Eschara ? fragilissima* n. sp., p. 118, pl. xix, 3. Miocene: St. Marys River, Maryland.



- Lunulites Lamarck*, p. 119.  
*Lunulites sexangula* Lonsdale, p. 119. Eocene: Wilmington, North Carolina.  
*Lunulites distans* Lonsdale, p. 119. Locality not given.  
*Lunulites interstitia* (Lea), p. 120. Eocene: Claiborne, Alabama.  
*Lunulites contigua* Lonsdale, p. 121. Eocene: Wilmington, North Carolina.  
*Lunulites oblonga* Emmons, p. 121. Miocene (?): North Carolina.  
*Semieschara* D'Orbigny, p. 121.  
*Semieschara tubulata* n. sp., p. 122, pl. xix, 5. Eocene: Claiborne, Alabama.  
*Cellepora Fabricius*, p. 122.  
*Cellepora prolifica* G. & H., p. 124. Cretaceous: Timber Creek, New Jersey.  
*Cellepora exserta* n. sp., p. 125, pl. xix, 6. Cretaceous: Mullica Hill, New Jersey.  
*Cellepora Janewayi* n. sp., p. 126, pl. xix, 7. Cretaceous: Seven miles below Yazoo, Mississippi.  
*Cellepora pumila* n. sp., p. 126, pl. xix, 8. Cretaceous: Timber Creek, New Jersey.  
*Cellepora cycloris* n. sp., p. 127, pl. xix, 9. Eocene: Claiborne, Alabama.  
*Cellepora inornata* n. sp., p. 127, pl. xix, 10. Eocene: (?) Claiborne, Alabama.  
*Cellepora tumidula* D'Orbigny, p. 127. Miocene: Petersburg, Virginia.  
*Cellepora formosa* Tuomey and Holmes, p. 129. Miocene (? Pliocene): Darlington district, South Carolina.  
*Cellepora tessellata* Tuomey and Holmes, p. 129. Miocene (? Pliocene): Giles Bluff, Peedee River, South Carolina.  
*Cellepora radiata* Tuomey and Holmes, p. 129. Miocene (? Pliocene): Goose Creek, South Carolina.  
*Cellepora depressa* Tuomey and Holmes, p. 129. Miocene (? Pliocene): Goose Creek, South Carolina.  
*Cellepora urceolata* n. sp., p. 129, pl. xix, 11, Miocene: New Jersey.  
*Cellepora californiensis* n. sp., p. 130, pl. xix, 12. Postpliocene: Santa Barbara, California.  
*Cellepora bellerophon* n. sp., p. 130, pl. xix, 13. Postpliocene: Santa Barbara, California.  
*Reptocelleporaria* D'Orbigny, p. 131.  
*Reptocelleporaria aspera* n. sp., p. 131, pl. xix, 14. Cretaceous: Timber Creek and near Mullica Hill, New Jersey.  
*Reptocelleporaria informata* D'Orbigny, p. 132. Miocene: Petersburg, Virginia; and South Carolina.  
*Reptocelleporaria quadrangularis* D'Orbigny, p. 132. Locality not given.  
*Reptocelleporaria similis* D'Orbigny, p. 133. Miocene (? Pliocene): Virginia and South Carolina.  
*Reptocelleporaria glomerata* n. sp., p. 134, pl. xix, 15. Eocene: Vicksburg, Mississippi.  
*Escharipora* D'Orbigny, p. 134.  
*Escharipora typica* (G. & H.), p. 134, pl. xix, 16. Cretaceous: Timber Creek and near Mullica Hill, New Jersey.  
*Escharella* D'Orbigny, p. 135.  
*Escharella micropora* n. sp., p. 136, pl. xix, 17. Eocene: ? Alabama.  
*Reptescharella* D'Orbigny, p. 136.  
*Reptescharella carolinensis* n. sp., p. 136, pl. xix, 18. Eocene: Charleston, South Carolina.  
*Reptescharella Hermannii* n. sp., p. 137, pl. xix, 20. Postpliocene: Santa Barbara, California.  
*Reptescharella plana* n. sp., p. 137, pl. xix, 19. Postpliocene: Santa Barbara, California.  
*Pholidoloporidae* (new family), p. 138.  
*Pholidolopora* n. gen., p. 138.

*Pholidolopora labiata* n. sp., p. 138, pl. xix, 21. Postpliocene: Santa Barbara, California.

*Oligotresium* n. gen., p. 139.

*Oligotresium vicksburgensis* (Conrad), p. 139, pl. xix, 22. Upper Eocene: Vicksburg, Mississippi.

*Escharinella D'Orbigny*, p. 140.

*Escharinella muralis* n. sp., p. 140, pl. xix, 23. Cretaceous: Mullica Hill, New Jersey.

*Escharinella ? lineata* (Lonsdale), p. 140. Eocene: Eutaw, South Carolina.

*Ennallipora* n. gen., p. 141.

*Ennallipora quadrangularis* n. sp., p. 141, pl. xx, 24. Miocene: Petersburg, Virginia.

*Discoporella D'Orbigny*, p. 142.

*Discoporella denticulata* (Conrad), p. 142, pl. xx, 25. Miocene: Generally distributed from New Jersey to South Carolina.

*Reptopora D'Orbigny*, p. 144.

*Reptopora carinata* (G. & H.), p. 144. Locality not given.

*Reptopora customata* n. sp., p. 144, pl. xx, 26. Postpliocene: Santa Barbara, California.

*Multipora* n. gen., p. 145.

*Multipora umbilicata* (Lonsdale), p. 145, pl. xx, 27. Miocene: Petersburg, Virginia.

*Reptescharella D'Orbigny*, p. 146.

*Reptescharenilla prolifera* n. sp., p. 146, pl. xx, 28. Cretaceous: Mullica Hill, New Jersey.

*Reptescharenilla disparilis* n. sp., p. 147, pl. xx, 29. Postpliocene: Santa Barbara, California.

*Reptescharenilla ? Hermannii* n. sp., p. 147, pl. xx, 30. Postpliocene: Santa Barbara, California.

*Reptescharenilla cornuta* n. sp., p. 147, pl. xx, 31. Postpliocene: Santa Barbara, California.

*Escharipora D'Orbigny*, p. 148.

*Escharipora distans* n. sp., p. 148, pl. xx, 32. Cretaceous: Timber Creek, New Jersey.

*Escharipora Abbottii* n. sp., p. 149, pl. xx, 33. Cretaceous: Mullica Hill, New Jersey.

*Escharipora immersa* n. sp., p. 149. Cretaceous: Timber Creek, New Jersey.

*Pliophloea*, n. gen., p. 150.

*Pliophloea sagena* (Morton), p. 150, pl. xx, 34. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

*Reptescharipora D'Orbigny*, p. 151.

*Reptescharipora marginata* n. sp., p. 151, pl. xx, 35. Cretaceous: Mullica Hill, New Jersey.

*Biflustra D'Orbigny*, p. 152.

*Biflustra torta* n. sp., p. 152, pl. xx, 36. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

*Biflustra disjuncta* n. sp., p. 153, pl. xx, 37. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

*Siphonella Hagenow*, p. 154.

*Siphonella multipora* n. sp., p. 154, pl. xx, 38. Postpliocene: Santa Barbara, California.

*Discoflustrellaria D'Orbigny*, p. 154.

*Discoflustrellaria Bouei* (Lea), p. 154. Eocene: Claiborne, Alabama.

*Cupularia Lamarck*, p. 155.

*Cupularia discoidea* (Lea), p. 155. Eocene: Claiborne, Alabama.

- Heteractis* n. gen., p. 156.  
*Heteractis Duclosii* (Lea), p. 156, pl. xx, 39. Eocene: Claiborne, Alabama.  
*Pyripora* D'Orbigny, p. 157.  
*Pyripora irregularis* (G. & H.), p. 157, pl. xx, 40. Cretaceous: Timber Creek and Mullica Hill, New Jersey.  
*Membranipora* Blainville, p. 157.  
*Membranipora abortiva* n. sp., p. 157, pl. xx, 41. Cretaceous: Timber Creek and Mullica Hill, New Jersey.  
*Membranipora perampla* n. sp., p. 158, pl. xx, 42. Cretaceous: Mullica Hill, New Jersey.  
*Membranipora plebia* n. sp., p. 158, pl. xx, 43. Cretaceous: Mullica Hill, New Jersey.  
*Membranipora sexpunctata* n. sp., p. 159, pl. xx, 44. Miocene or Eocene: Locality unknown.  
*Membranipora speciosa* (G. & H.), p. 159, pl. xx, 45. Miocene (?): Chiriqui, Central America.  
*Membranipora Californica* n. sp., p. 160, pl. xx, 46. Postpliocene: Santa Barbara, California.  
*Membranipora Barbarensis* n. sp., p. 160, pl. xx, 47. Postpliocene: Santa Barbara, California.  
*Flustrella* D'Orbigny, p. 160.  
*Flustrella capistrata* n. sp., p. 161, pl. xx, 48. Cretaceous: Mullica Hill, New Jersey.  
*Flustrella cylindrica* n. sp., p. 161, pl. xx, 49. Cretaceous: Mullica Hill, New Jersey.  
*Reptoflustrella* D'Orbigny, p. 161.  
*Reptoflustrella ? heteropora* n. sp., p. 162, pl. xx, 50. Cretaceous: Mullica Hill and Timber Creek, New Jersey.  
*Reptoflustrella tubulata* n. sp., p. 162, pl. xx, 51. With *Membranipora sexpunctata*. Locality unknown, probably from the Virginia Miocene.  
*Pyriplustrella* D'Orbigny, p. 163.  
*Pyriplustrella tuberculum* D'Orbigny, p. 163. Locality not given.  
*Retelea* D'Orbigny, p. 164.  
*Retelea ovalis* n. sp., p. 164, pl. xxi, 52. Cretaceous: Mullica Hill, New Jersey.  
*Filifascigera* D'Orbigny, p. 165.  
*Filifascigera megæra* (Lonsdale), p. 165, pl. xxi, 53. Cretaceous: Timber Creek, New Jersey.  
*Fascipora* D'Orbigny, p. 165.  
*Fascipora Americana* n. sp., p. 165, pl. xxi, 54. Cretaceous: Timber Creek and Mullica Hill, New Jersey.  
*Spiropora* D'Orbigny, p. 166.  
*Spiropora calamus* n. sp., p. 166, pl. xxi, 55. Cretaceous: Timber Creek, New Jersey.  
*Idmonea* Lamouroux, p. 167.  
*Idmonea contortilis* Lonsdale, p. 167. Cretaceous: Timber Creek and Mullica Hill, New Jersey.  
*Idmonea maxillaris* Lonsdale, p. 167. Eocene: Wantoot, South Carolina.  
*Idmonea commiscens* Lonsdale, p. 168. Eocene: Rocks Bridge.  
*Idmonea Californica* Conrad, p. 168, pl. xxi, 56. Postpliocene: Santa Barbara, California.  
*Semitubigera* D'Orbigny, p. 169.  
*Semitubigera tuba* n. sp., p. 169, pl. xxi, 57. Postpliocene: Santa Barbara, California.  
*Entalophora* Lamouroux, p. 170.  
*Entalophora quadrangularis* n. sp., p. 170, pl. xxi, 58. Cretaceous: Timber Creek and Mullica Hill, New Jersey.  
*Entalophora Conradii* n. sp., p. 170, pl. xxi, 59. Cretaceous: Mullica Hill, New Jersey.

*Entalophora proboscideoides* (Lonsdale), p. 170, pl. xxi, 60. Eocene: ? Alabama.  
*Entalophora punctulata* n. sp., p. 171, pl. xxi, 61. Postpliocene: Santa Barbara, California.

*Diastopora Lamouroux*, p. 171.

*Diastopora lineata* n. sp., p. 172, pl. xxi, 62. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

*Stomatopora Bronn*, p. 172.

*Stomatopora regularis* n. sp., p. 172, pl. xxi, 63. Cretaceous: New Jersey.

*Reticulipora D'Orbigny*, p. 173.

*Reticulipora sagena* G. & H., p. 173. Cretaceous: Timber Creek, New Jersey.

*Reticulipora dichotoma* n. sp., p. 173, pl. xxi, 64. Cretaceous: Timber Creek, New Jersey.

*Bicrisina D'Orbigny*, p. 173.

*Bicrisina Abbotii* (G. & H.), p. 174, pl. xxi, 65. Cretaceous: Mullica Hill, New Jersey.

*Crisina D'Orbigny*, p. 174.

*Crisina serrata* n. sp., p. 174, pl. xxi, 66. Postpliocene: Santa Barbara, California.

*Cavea D'Orbigny*, p. 175.

*Cavea prisca* n. sp., p. 175, pl. xxi, 67. Carboniferous (?): Fort Belknap, Texas.

*Lichenopora DeFrance*, p. 176.

*Lichenopora Californica* Conrad, p. 176, pl. xxi, 68. Postpliocene: Santa Barbara, California.

*Reptomulticava D'Orbigny*, p. 176.

*Reptomulticava cepularis* G. & H., p. 177. Cretaceous: Timber Creek, New Jersey.

*Crescis D'Orbigny*, p. 177.

*Crescis labiata* n. sp., p. 177, pl. xxi, 69. Cretaceous: Mullica Hill and Timber Creek, New Jersey.

*Multicrescis D'Orbigny*, p. 178.

*Multicrescis parvicella* G. & H., p. 178, pl. xxi, 70. Cretaceous: Mullica Hill and Timber Creek, New Jersey.

*Multicrescis tortilis* (Lonsdale), p. 178. Miocene (? Pliocene): Virginia and South Carolina.

*Pumiscaria* n. gen., p. 179. Type: "Alveolites glomeratus" Say, from the seacoast of New Jersey.

## 1870.

**Credner, H.** Die Kreide von New Jersey. (Zeitschriften der Deutsch. Geol. Gesellsch., XXII, 1870, pp. 191-251, pl. iv.)

*Ditaxia compressa* (Goldfuss), p. 220. Cretaceous: Timber Creek, New Jersey.

*Eschara dichotoma* (Goldfuss), p. 218. Cretaceous: Brownsville, New Jersey.

## 1879.

**White, Charles A.** Paleontological Papers No. 11. Remarks upon certain Carboniferous fossils from Colorado, Arizona, Idaho, and Wyoming, and certain Cretaceous corals from Colorado, together with descriptions of new forms. (Bull. U. S. Geol. Geogr. Sur. Terr. (Hayden's), V, pp. 209-221.)

*Chaetetes* ?? *demissus* n. sp., p. 220. Cretaceous (Fox Hills group): Six miles south of Fort Collins, Colorado.

The author is inclined to think this a bryozoan.

**White, Charles A.** Report on the Paleontological Field Work for the season of 1877: Laramie Fossils. (Eleventh Ann. Rep. U. S. Geol. Geogr. Sur. Terr. (Hayden's), 1879, pp. 161-272.)

*Membranipora* (?), pp. 216, 217. Cretaceous (Laramie group): Point of Rocks Station, Wyoming.

*Membranipora* (?), p. 242. Cretaceous (Laramie group): Bear River Valley, Wyoming.

### 1882.

**Ulrich, E. O.** American Paleozoic Bryozoa. (Jour. Cincinnati Soc. Nat. Hist., V, 1882.)

*Heteropora attenuata* n. sp., p. 144, pl. vi, 12. Cretaceous: Pulaski County, Arkansas.

*Heteropora consimilis* n. sp., p. 145, pl. vi, 11. Cretaceous: Pulaski County, Arkansas.

### 1887.

**White, Charles A.** Contributions to the paleontology of Brazil. [Contribuições á Paleontologia do Brazil.] (Archivos do Museo Nacional do Rio de Janeiro, VII, 1887.)

*Lunulites pileolus* n. sp., pp. 208-209, pl. xviii, 21-23. Cretaceous: Rio Piabas, Provincia do Pará, Brazil.

### 1890.

**Gregorio, Antonio de.** Monographie de la Faune Eocenique de l'Alabama et surtout de celle de Claiborne de l'Etage Parisien. (Annales de Géologie et de Paléontologie. Livraisons VII, VIII. Palermo, 1890. 316 pp., 46 pls.)

The bryozoa described from the Eocene of Claiborne, Alabama, are:

*Crisia læta* De Greg., p. 239, pl. 39, f. 10, 11.

*Myrizozoum propepunctatum* De Greg., p. 239, pl. 39, f. 12-13.

*Myrizozoum fervens* De Greg., p. 239, pl. 39, f. 14-15.

*Idmonea subdisticha* De Greg., p. 239, pl. 39, f. 16-20.

*Entalophora proboscoidoides* G. & H., p. 240, pl. 39, f. 26-27.

*Entalophora amœna* De Greg., p. 240, pl. 39, f. 21.

*Hornera mirifica* De Greg., p. 240, pl. 39, f. 31-32.

*Hornera multiramosa* De Greg., p. 240, pl. 39, f. 28-30.

*Hornera claibornensis* De Greg., p. 241, pl. 39, f. 22-23, 33-34.

*Hornera* sp. (?), p. 241, pl. 39, f. 24-25.

*Eschara* (?) *spongiopsis* De Greg., p. 241, pl. 40, f. 1-2.

*Eschara ovalis* G. & H., p. 241, pl. 40, f. 3-5.

*Escharella sifra* De Greg., p. 242, pl. 40, f. 6-7.

*Escharella micropora* G. & H., p. 242, pl. 40, f. 8-22, 23.

*Escharella micropora* var. *asperulata* De Greg., p. 242, pl. 40, f. 21-22.

*Semieschara tubulata* G. & H., p. 242, pl. 40, f. 24-28, 29-31.

*Vincularia* (?) *insolita* De Greg., p. 243, pl. 40, f. 32-37.

*Lunulites* (*Discofustrellaria*) *Bouei* Lea, p. 243, pl. 41, f. 1-4, 5-6, 7-9; pl. 42, f. 1-6.

*Idem*, var. *concava* De Greg., p. 244, pl. 41, f. 10-14.

*Idem*, var. *depressa* De Greg., p. 244, pl. 41, f. 15-19.

*Idem*, var. *ellipsoides* De Greg., p. 245, pl. 41, f. 20-21, 23-25.

- Idem, var. *Duclosii* (Lea) De Greg., non G. & H., p. 245, pl. 41, f. 26-31, 32-33.  
Idem, var. *truncata* De Greg., p. 245, pl. 41, f. 34-46.  
Idem, var. *almina* De Greg., p. 246, pl. 42, f. 7-10.  
Idem, var. *tiza* De Greg., p. 246, pl. 42, f. 11-12.  
Idem, var. *minutecellulata* De Greg., p. 246, pl. 42, f. 13-15.  
*Batopora convivalis* De Greg., p. 246, pl. 42, f. 30-33.  
*Cellepora inornata* G. & H., p. 247, pl. 43, f. 2, 3-4.  
*Cellepora cycloris* G. & H., p. 247, pl. 43, f. 1.  
*Celleporaria figula* De Greg., p. 247, pl. 43, f. 5-6.  
*Biflustra* (?) *supradubia* De Greg., p. 248, pl. 43, f. 11-12.  
*Membranipora simplex* De Greg., p. 248, pl. 43, f. 7-8.  
*Membranipora contemplata* De Greg., p. 248, pl. 43, f. 9-10.  
*Dimiclausa* De Greg., n. subgen., p. 248.  
*Lunulites* (*Dimiclausa*) *fenestrata* De Greg., p. 249, pl. 42, f. 23-27.  
*Lunulites* (*Cupularia*) *interstitia* (Lea) De Greg., p. 249, pl. 42, f. 16-21, 22.  
*Cupularia discoidea* Lea sp., p. 249, pl. 42, f. 28.  
*Lunulites distans* Lonsdale, sp. dub., p. 250, pl. 42, f. 29.

CATALOGUE OF THE GENERA AND SPECIES OF AMERICAN PALEOZOIC BRYOZOA, INCLUDING BIBLIOGRAPHY AND SYNONYMY.

**ACANTHOCLADIA** King. Genotype: *Ceratophytes anceps* Schlotheim.

- 1849. *Acanthocladia*. King, Ann. Mag. Nat. Hist., ser. 2, II, p. 389.
- 1850. *Acanthocladia*. King, Mon. British Permian Foss., p. 48.
- 1860. *Acanthocladia*. Eichwald, Lethæa Rossica, I, p. 384.
- 1880. *Acanthocladia*. Zittel, Handb. der Pal., p. 603.
- 1885. *Acanthocladia*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 811.
- 1886. *Acanthocladia*. Ulrich, Contr. American Pal., I, p. 6.
- 1889. *Acanthocladia*. Miller, North American Geol. Pal., p. 291.
- 1890. *Acanthocladia*. Ulrich, Geol. Surv. Illinois, VIII, pp. 398, 635.
- 1896. *Acanthocladia*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.
- 1897. *Acanthocladia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 522.

*Acanthocladia americana* Swallow. Not recognizable.

- 1858. *Acanthocladia anceps* ? Schlotheim. If distinct *A. americana* proposed. Swallow, Trans. St. Louis Acad. Sci., I, p. 180.
  - 1859. *Acanthocladia americana*. Shumard, Trans. St. Louis Acad. Sci., I, p. 388.
  - 1860. *Acanthocladia americana*. Meek and Hayden, Proc. Acad. Nat. Sci., Philadelphia, p. 24.
- Lower Permian or Upper Coal Measures: Cottonwood Valley, Kansas; Guadalupe Mountains, Texas and New Mexico.

*Acanthocladia anceps* Swallow (not Schlotheim). See *Acanthocladia americana* Swallow.

**Acanthocladia fruticosa** Ulrich.

- 1890. *Acanthocladia fruticosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 635, pl. lxxv, 2-2c.
- Upper Coal Measures: Springfield, Illinois.

**ACANTHOCLEMA** Hall. Genotype: *Trematopora alternata* Hall.

- 1886. *Acanthoclema*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.
- 1887. *Acanthoclema*. Hall and Simpson, Pal. New York, VI, p. xv.
- 1889. *Acanthoclema*. Miller, North American Geol. Pal., p. 291.
- 1890. *Acanthoclema*. Ulrich, Geol. Surv. Illinois, VIII, pp. 402, 661.
- 1897. *Acanthoclema*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 552.

**Acanthoclema alternatum** (Hall).

- 1883. *Trematopora alternata*. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 6).
- 1886. *Acanthoclema alternata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 8-10.
- 1887. *Acanthoclema alternatum*. Hall and Simpson, Pal. New York, VI, p. 72, pl. xxv, 8-10.

**Acanthoclema alternatum** (Hall)—Continued.

1897. *Acanthoclema alternatum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 6, 7.

Upper Helderberg: Onondaga Valley, New York.

**Acanthoclema bispinulatum** Miller. See *Orthopora bispinulata* (Hall).**Acanthoclema confluens** (Ulrich).

1888. *Rhombopora confluens*. Ulrich, Bull. Denison Univ., IV, p. 91, pl. xiv, 17.

1890. *Acanthoclema confluens*, Ulrich. Geol. Surv. Illinois, VIII, p. 662, pl. lxx, 5-5b.

Waverly: Lodi, Ohio.

Keokuk: Nauvoo, Illinois.

**Acanthoclema divergens** Hall and Simpson.

1883. *Trematopora?* sp. indt. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 2.

1887. *Acanthoclema divergens*. Hall and Simpson, Pal. New York, VI, p. 73, pl. xxviii, 2.

Upper Helderberg: Onondaga Valley, New York.

**Acanthoclema Hamiltonense** Hall and Simpson. See *Streblotrypa hamiltonensis* (Nicholson).**Acanthoclema ovatum** Hall and Simpson.

1883. *Trematopora?* sp. indt. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 3.

1887. *Acanthoclema ovatum*. Hall and Simpson, Pal. New York, VI, p. 73, pl. xxviii, 3.

Upper Helderberg: Onondaga Valley, New York.

**Acanthoclema scutulatum** Hall and Simpson. See *Streblotrypa scutulata* (Hall) and *Rhombopora reticulata* (Hall).**Acanthoclema sulcatum** Hall and Simpson.

1887. *Acanthoclema sulcatum*. Hall and Simpson, Pal. New York, VI, p. 192, pl. lv. 7, pl. lvi. 7.

Hamilton: Near Canandaigua Lake, New York.

**Acanthoclema triseriale** (Hall).

1883. *Stictopora?* triserialis. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 6, 7.

1887. *Acanthoclema triseriale*, Hall and Simpson, Pal. New York, VI, p. 74, pl. xxviii, 6, 7.

Upper Helderberg: Near Caledonia, New York.

**ACROGENIA** Hall. Genotype: *Acrogenia prolifera* Hall.

1883. *Acrogenia*. Hall, Trans. Albany Institute, X, p. 193 (abstract, 1881, p. 193).

1884. *Acrogenia*. Hall, Rep. State Geologist New York for the year 1883, p. 51.

1887. *Acrogenia*. Hall and Simpson, Pal. New York, VI, p. xx.

1889. *Acrogenia*. Miller, North American Geol. Pal., p. 291.

1890. *Acrogenia*. Ulrich, Geol. Surv. Illinois, VIII, p. 388.

1897. *Acrogenia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 544.

1899. *Acrogenia*. Grabau, Bull. Buffalo Acad. Nat. Sci., VI, p. 175.

**Acrogenia prolifera** Hall.

1883. *Acrogenia prolifera*. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).



**Acrogenia prolifera** Hall—Continued.

1884. *Acrogenia prolifera*. Hall, Rep. State Geologist New York for the year 1883, p. 52.  
 1887. *Acrogenia prolifera*. Hall and Simpson, Pal. New York, VI, p. 267, pl. lxiii, 7-15.  
 1889. *Acrogenia prolifera*. Miller, North American Geol. Pal., fig. 448 (p. 291).  
 1897. *Acrogenia prolifera*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 11-20.  
 1899. *Acrogenia prolifera*. Grabau, Bull. Buffalo Acad. Nat. Sci., VI, p. 175, fig. 72.  
 Hamilton: Bellona, Lodi Landing (Seneca Lake), and Darien Center, New York.

*Actinostoma*. Young and Young. See *Fenestella Lonsdale*.

**ACTINOTRYPA** Ulrich. Genotype: *Fistulipora peculiaris* Rominger.

1889. *Actinotrypa*. (Ulrich, in press), Miller, North American Geol. Pal., p. 291.  
 1890. *Actinotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 386.  
 1897. *Actinotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 540.

**Actinotrypa peculiaris** (Rominger).

1866. *Fistulipora peculiaris*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 123.  
 1890. *Actinotrypa peculiaris*. Ulrich, Geol. Surv. Illinois, VIII, p. 503, pl. lxxvii, 3-3b.  
 1894. *Actinotrypa peculiaris*. Keyes, Missouri Geol. Surv., V, p. 18, pl. xxxiv, 6.  
 1897. *Actinotrypa peculiaris*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 97-99 (p. 540).  
 Keokuk: Lagrange, Missouri; Keokuk, Iowa; Warsaw and Nauvoo, Illinois.

*Alecto* of authors. See *Stomatopora Bronn*.

*Alecto auloporoides* Nicholson. See *Proboscina auloporoides* (Nicholson).

*Alecto?* *Canadensis* Nicholson. See *Hederella canadensis* (Nicholson).

*Alecto confusa* Nicholson. See *Proboscina confusa* (Nicholson).

*Alecto frondosa* Nicholson. See *Proboscina frondosa* (Nicholson).

*Alecto inflata* Hall. See *Stomatopora inflata* (Hall).

*Alecto nexilis* James. See *Batostoma implicatum* (Nicholson).

*Alveolites* Lamarck. Not a bryozoan genus.

*Alveolites expansa* James. See *Ceramopora expansa* (James).

*Alveolites exsul* Hall. See *Lioclema?* *exsul* (Hall).

*Alveolites irregularis* Whitfield. See *Ceramoporella?* *irregularis* (Whitfield).

**AMPLEXOPORA** Ulrich. Genotype: *Amplexopora cingulata* Ulrich.

1882. *Amplexopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.  
 1883. *Amplexopora*. Foord, Contr. Micro-Pal. Cambro.-Sil., p. 15.  
 1889. *Amplexopora*. Miller, North American Geol. Pal., p. 291.  
 1890. *Amplexopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 377, 450.  
 1896. *Amplexopora*. Ulrich, Zittel's Textb. Pal. (Engl. Ed.), p. 278.  
 1897. *Amplexopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 577.

*Amplexopora affinis* Ulrich. See *Heterotrypa affinis* (Ulrich).

*Amplexopora barrandei* Ulrich. See *Heterotrypa ? barrandei* (Nicholson).

*Amplexopora Canadensis* Foord. See *Batostoma canadense* (Foord).

***Amplexopora cingulata* Ulrich.**

1882. *Amplexopora cingulata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 254, pl. xi, 5-5c.

1889. *Amplexopora cingulata*. Miller, North American Geol. Pal., fig. 449 (p. 292).

1890. *Amplexopora cingulata*. Ulrich, Geol. Surv. Illinois, VIII, fig. 3c (p. 308), fig. 4c (p. 309).

1894. *Amplexopora cingulata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 193.

Cincinnati (Lorraine): McKinney's Station and Boyle County, Kentucky; Cincinnati, Ohio.

***Amplexopora ? discoidea* (Nicholson).**

1871. *Chætetes discoideus*. James, Catal. Foss. Cincinnati group. (Not defined, only named.)

1874. *Chætetes discoideus*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 511, pl. xxx, 4-4d.

1875. *Chætetes discoideus*. Nicholson, Pal. Ohio, II, p. 206, pl. xxi, 15-15c.

1875. *Chætetes discoideus*. Nicholson, Pal. Province Ontario, pp. 10, 32.

1876. *Chætetes discoideus*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 88, pl. v, 7, 7a.

1881. *Monticulipora* (*Monotrypa*) *discoidea*. Nicholson, Genus *Monticulipora*, p. 193, pl. iv, 3-3f.

1882. *Amplexopora discoidea*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 255.

1883. *Leptotrypa discoidea*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 158.

1883. *Amplexopora discoidea*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 17.

1883. *Monticulipora discoidea*. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 247, pl. x, 4, 5.

1888. *Monticulipora discoidea*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 163.

1894. *Monticulipora discoidea*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 178.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Trenton: Ottawa (Foord) and Weston (Nicholson), Canada.

Obs. The forms from Canada identified as *Amplexopora discoidea* by Nicholson and by Foord may be specifically distinct.

***Amplexopora filiosa* (D'Orbigny).**

1850. *Monticulipora filiosa*. D'Orbigny, Prodr. de Pal., I, p. 25.

1851. *Chætetes filiosa*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 261.

1860. *Monticulipora filiosa*. Milne-Edwards, Hist. Nat. des Corall., III, p. 274.

1875. *Chætetes filiosa* (?). Nicholson, Pal. Ohio, II, p. 206.

1883. *Monotrypa* (?) *filiosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 163.

1888. *Monticulipora filiosa*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 162.

1890. *Leptotrypa filiosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 456, pl. xxxvi, 7, 7a.

1893. *Monticulipora filiosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 158.

**Amplexopora filiosa (D'Orbigny)—Continued.**

1896. *Monticulipora subcylindrica* (James, U. P., *mss.*). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 123, fig. 13a-c.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity; Maury County, Tennessee. Trenton: Calhoun County, Illinois (Ulrich).  
 Obs. The form from Calhoun County, Illinois, identified as above, is probably specifically distinct.

**Amplexopora moniliformis Ulrich. See *Heterotrypa? moniliformis* (Nicholson).****Amplexopora petasiformis (Nicholson).**

1878. *Chaetetes petropolitanus*. James, Paleontologist, No. 2, p. 11.  
 1881. *Monticulipora* (Monotrypa) *petasiformis*. Nicholson, Genus *Monticulipora*, p. 190, fig. 40.  
 1882. *Monotrypa petasiformis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.  
 1883. *Monotrypa? petasiformis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 163.  
 1888. *Monticulipora petasiformis*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 168.  
 1894. *Monticulipora petasiformis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 186.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Amplexopora petasiformis-welchi (James).**

1882. *Monticulipora* (Monotrypa) *welchi*. James, Paleontologist, No. 6, p. 50. *ibid.*, No. 7, pl. i, 4-4c, 1883.  
 1888. *Monticulipora petasiformis* var. *welchi*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 169.  
 1894. *Monticulipora petasiformis* var. *welchi*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 187.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Amplexopora pustulosa Ulrich.**

1890. *Amplexopora pustulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 451, pl. xxxvi, 3-3c.  
 1895. *Monticulipora pustulosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 72.  
 Cincinnati (Richmond): Hanover and Clarksville, Ohio.

**Amplexopora robusta Ulrich.**

1883. *Amplexopora robusta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 82, pl. i, 1-1b.  
 1889. *Amplexopora robusta*. Miller, North American Geol. Pal., fig. 450 (p. 292).  
 1890. *Amplexopora robusta*. Ulrich, Geol. Surv. Illinois, VIII, fig. 7d (p. 318).  
 Cincinnati (Lorraine): Cincinnati, Ohio; Boyle County, Kentucky.

**Amplexopora septosa (Ulrich).**

1879. *Atactopora septosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 125, pl. xii, 7-7c.  
 1882. *Amplexopora septosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 255.  
 1888. *Monticulipora septosa*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 180.  
 1894. *Monticulipora septosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 203.  
 Cincinnati (Utica and Lorraine): Covington and Newport, Kentucky; Cincinnati, Ohio.

*Amplexopora superba* Foord. See *Batostoma superbum* (Foord).

*Amplexopora superba* Ulrich (not Foord). See *Batostoma minnesotense* Ulrich.

*Amplexopora winchelli* Ulrich. See *Batostoma winchelli* (Ulrich).

*Anastomopora* Simpson. See *Reteporidra*.

*Anastomopora cinctuta* Simpson. See *Reteporidra cinctuta* (Hall).

**ANISOTRYPA** Ulrich. Genotype: *Anisotrypa symmetrica* Ulrich.

1883. *Anisotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 275.

1889. *Anisotrypa*. Miller, North American Geol. Pal., p. 292.

1890. *Anisotrypa*. Ulrich, Geol. Surv. Illinois, VIII, pp. 376, 447.

1896. *Anisotrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 277.

*Anisotrypa elegantula* Ulrich. See *Rhombopora elegantula* (Ulrich).

***Anisotrypa fistulosa*** Ulrich.

1890. *Anisotrypa fistulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 448, pl. lxxii, 6-6c.

Ste. Genevieve: Pella, Iowa.

***Anisotrypa ramulosa*** Ulrich.

1890. *Anisotrypa ramulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 449, pl. lxxii, 7-7a.

Ste. Genevieve: Pella, Iowa.

***Anisotrypa solida*** Ulrich.

1890. *Anisotrypa solida*. Ulrich, Geol. Surv. Illinois, VIII, p. 449, pl. lxxii, 9-9c.

1894. *Anisotrypa solida*. Keyes, Missouri Geol. Surv., V, p. 16.

Chester: Sloans Valley, Kentucky; Chester, Illinois.

***Anisotrypa symmetrica*** Ulrich.

1883. *Anisotrypa symmetrica*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 276, pl. xiii, 5-5c.

1890. *Anisotrypa symmetrica*. Ulrich, Geol. Surv. Illinois, VIII, p. 448, pl. lxxii, 5.

Chester: Grayson Springs and Sloans Valley, Kentucky; Chester, Illinois.

**ANOLOTICHIA** Ulrich. Genotype: *Anolotichia ponderosa* Ulrich.

1890. *Anolotichia*. Ulrich, Geol. Surv. Illinois, VIII, pp. 381, 473.

1893. *Anolotichia*. Ulrich, Geol. Minnesota, III, p. 326.

1896. *Anolotichia*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 268.

***Anolotichia impolita*** (Ulrich).

1886. *Crepipora impolita*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 77.

1893. *Anolotichia impolita*. Ulrich, Geol. Minnesota, III, p. 327, pl. xxviii, 15-20.

1896. *Anolotichia impolita*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 437A-C (p. 268).

Trenton (Stones River): Minneapolis, St. Paul, Chatfield, Cannon Falls, Lanesboro, and Fountain, Minnesota.

***Anolotichia ponderosa*** Ulrich.

1890. *Anolotichia ponderosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 473, pl. xli, 3-3d, fig. 8c (p. 320).

1896. *Anolotichia ponderosa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 437D (p. 268).

Cincinnati (Richmond): Wilmington, Illinois.

*Arcanopora* Vine. See *Cystodictya* Ulrich.

**ARCHIMEDES** Owen. Genotype: *Archimedes wortheni* (Hall).

1842. *Archimedes*. (Le Seuer) Owen, American Jour. Sci., XLIII, p. 19.  
 1857. *Archimedes*. Hall, Proc. American Assoc. Adv. Sci., X, p. 176.  
 1858. *Archimedes*. Hall, Pal. Iowa, p. 651.  
 1882. *Archimedes*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.  
 1883. *Archimedes*. Clappole, Quar. Jour. Geol. Soc. London, XXXIX, p. 31.  
 1885. *Archimedes*. Hall, Rep. State Geologist New York for the year 1884, p. 37.  
 1885. *Archimedes*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 774.  
 1886. *Archimedes*. Ulrich, Contr. American Pal., I, p. 5.  
 1889. *Archimedes*. Miller, North American Geol. Pal., p. 292.  
 1890. *Archimedes*. Ulrich, Geol. Surv. Illinois, VIII, pp. 396, 565.  
 1895. *Archimedes*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 726; Forty-fourth Ann. Rep. New York State Museum, p. 920.  
 1896. *Archimedes*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.  
 1897. *Archimedes*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 519, 522.  
 1850. *Archimediopora*. D'Orbigny, Prodr. de Pal., I, p. 102.

**Archimedes communis** Ulrich.

1890. *Archimedes communis*. Ulrich, Geol. Surv. Illinois, VIII, p. 573, pl. lxiii, 1-1d.  
 Chester: Sloans Valley, Kentucky.

**Archimedes compactus** Ulrich.

1890. *Archimedes compactus*. Ulrich, Geol. Surv. Illinois, VIII, p. 572, pl. lxiii, 2-2b, 2d (not 2c).  
 Chester: Sloans Valley, Kentucky.

**Archimedes distans** Ulrich.

1890. *Archimedes distans*. Ulrich, Geol. Surv. Illinois, VIII, p. 578, pl. lxiii, 9-9b.  
 Chester: Chester, Illinois; Sloans Valley, Kentucky.

**Archimedes grandis** Ulrich.

1890. *Archimedes grandis*. Ulrich, Geol. Surv. Illinois, VIII, p. 569, pl. lxiii; 10.  
 Keokuk: Jersey County, Illinois.

**Archimedes intermedius** Ulrich.

1890. *Archimedes intermedius*. Ulrich, Geol. Surv. Illinois, VIII, p. 574, pl. lxiii, 2c.  
 Chester: Chester, Illinois; Sloans Valley, Kentucky.

**Archimedes invaginatus** Ulrich.

1890. *Archimedes invaginatus*. Ulrich, Geol. Surv. Illinois, VIII, p. 575, pl. lxiii, 11a, 11c.  
 Chester: Chester, Illinois.

**Archimedes laxa** White (not Hall). See *Archimedes owenanus* (Hall).**Archimedes latus** (Hall).

1857. *Fenestella* (*Archimedes*) *latus*. Hall, Proc. American Assoc. Adv. Sci., X, p. 178.  
 1890. *Archimedes latus*. Ulrich, Geol. Surv. Illinois, VIII, p. 580, pl. lxiii, 15, 15a.  
 1894. *Archimedes latus*. Keyes, Missouri Geol. Surv., V, p. 27.  
 1883. *Helicopora archimediiformis*. Clappole, Quar. Jour. Geol. Soc. London, XXXIX, p. 34, pl. iv, 3, 4.

**Archimedes laxus (Hall)—Continued.**

1897. *Helicopora archimedisformis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 70, 3, 4 (p. 518).  
Chester: Chester, Illinois; Litchfield, Kentucky.

**Archimedes meekanus (Hall).**

1857. *Fenestella (Archimedes) Meekana*. Hall, Proc. American Assoc. Adv. Sci., X, p. 178.  
1890. *Archimedes meekanus*. Ulrich, Geol. Surv. Illinois, VIII, p. 578, pl. lxiii, 4.  
Chester: Chester, Illinois; Sloans Valley and Grayson Springs, Kentucky.

**Archimedes negligens Ulrich.**

1890. *Archimedes negligens*. Ulrich, Geol. Surv. Illinois, VIII, p. 569, pl. lxiii, 7, 7a.  
Keokuk: Keokuk and Bentonsport, Iowa.

**Archimedes owenanus (Hall).**

1857. *Fenestella (Archimedes) Owenana*. Hall, Proc. American Assoc. Adv. Sci., X, p. 178.  
1890. *Archimedes owenanus*. Ulrich, Geol. Surv. Illinois, VIII, p. 570, pl. lxiii, 6-6c.  
1894. *Archimedes owenanus*. Keyes, Missouri Geol. Surv., V, p. 26, pl. xxxiii, 2.  
1882. *Archimedes laxa*. White, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 361, pl. xli, 7.  
Keokuk: Keokuk, Iowa; Appanoosa, near Quincy, Illinois; St. Francisville, Missouri.

**Archimedes perminimus Ulrich.**

1890. *Archimedes perminimus*. Ulrich, Geol. Surv. Illinois, VIII, p. 572, pl. lxiii, 13, 11 (in part).  
Chester: Chester, Illinois.

**Archimedes proutanus Ulrich.**

1890. *Archimedes proutanus*. Ulrich, Geol. Surv. Illinois, VIII, p. 576, pl. lxiii, 3-3c, 11, 11b.  
Chester: Sloans Valley, Kentucky; Chester, Illinois.

**Archimedes reversa Hall. See *Archimedes wortheni* Hall.****Archimedes sublaxus Ulrich.**

1890. *Archimedes sublaxus*. Ulrich, Geol. Surv. Illinois, VIII, p. 579, pl. lxiii, 14.  
Chester: Chester, Illinois.

**Archimedes swallovanus (Hall).**

1857. *Fenestella (Archimedes) Swallovana*. Hall, Proc. American Assoc. Adv. Sci., X, p. 178.  
1890. *Archimedes swallovanus*. Ulrich, Geol. Surv. Illinois, VIII, p. 574, pl. lxiii, 12-12d.  
1894. *Archimedes swallovanus*. Keyes, Missouri Geol. Surv., V, p. 26.  
Chester: Chester and Kaskaskia, Illinois; Crittenden County, Kentucky.

**Archimedes terebriformis Ulrich.**

1890. *Archimedes terebriformis*. Ulrich, Geol. Surv. Illinois, VIII, p. 575, pl. lxiii, 5-5c.  
Chester: Chester, Illinois; Sloans Valley and Grayson Springs, Kentucky.

**Archimedes wortheni (Hall).**

1852. *Retepora archimedes*. Owen, Rep. Geol. Surv. Wisconsin, Iowa, and Minnesota, pl. iv, 1.

**Archimedes wortheni** (Hall)—Continued.

1881. *Retepora Archimedes*. Quenstedt, *Roehren- und Sternkorallen*, p. 174, pl. cl. 4-10.
1857. *Fenestella* (*Archimedes*) *Wortheni*. Hall, *Proc. American Assoc. Adv. Sci.*, X, p. 178.
1858. *Archimedes Wortheni*. Hall, *Pal. Iowa*, p. 651, pl. xxii, 3, 4a, b, 5a, b.
1889. *Archimedes wortheni*. Miller, *North American Geol. Pal.*, fig 452 (p. 292).
1890. *Archimedes wortheni*. Ulrich, *Geol. Surv. Illinois*, VIII, p. 571, pl. lxiii, 8, 8a.
1894. *Archimedes wortheni*. Keyes, *Missouri Geol. Surv.*, V, p. 26, pl. xxxiii, 1.
1896. *Archimedes Wortheni*. Ulrich, *Zittel's Textb. Pal. (Engl. ed.)*, fig. 468 (p. 282).
1897. *Archimedes Wortheni*. Simpson, *Fourteenth Ann. Rep. State Geologist New York for the year 1894*, figs. 71, 72 (p. 519).
1858. *Archimedes reversa*. Hall, *Pal. Iowa*, p. 652, pl. xxii, 2.
1889. *Archimedes reversus*. Miller, *North American Geol. Pal.*, fig. 451 (p. 292).  
Warsaw: Warsaw, Illinois.

*Archimediopora* D'Orbigny. See *Archimedes* Owen.

**Archimediopora** Simpson (not D'Orbigny).

1895. *Archimediopora*. Simpson, *Thirteenth Ann. Rep. State Geologist New York for the year 1893*, pp. 701, 723, 726; *Forty-seventh Ann. Rep. New York State Mus.*, pp. 895, 917, 920.
1897. *Archimediopora*. Simpson, *Fourteenth Ann. Rep. State Geologist New York for the year 1894*, p. 522.

Obs. This genus as defined by Mr. Simpson is imaginary. The author cites no species. We know of no species of *Archimedes* with more than two rows of apertures on a branch.

**ARTHROCLEMA** Billings. Genotype: *Arthroclema pulchellum* Billings.

1862. *Arthroclema*. Billings, *Pal. Foss.*, I, p. 54.
1882. *Arthroclema* (in part). Ulrich, *Jour. Cincinnati Soc. Nat. Hist.*, V, p. 151.
1886. *Arthroclema*. Ulrich, *Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota*, p. 60.
1888. *Arthroclema*. Ulrich, *American Geologist*, I, p. 232.
1889. *Arthroclema*. Miller, *North American Geol. Pal.*, p. 293.
1890. *Arthroclema*. Ulrich, *Jour. Cincinnati Soc. Nat. Hist.*, XII, p. 192.
1890. *Arthroclema*. Ulrich, *Geol. Surv. Illinois*, VIII, p. 400.
1893. *Arthroclema*. Ulrich, *Geol. Minn.*, III, p. 197.
1896. *Arthroclema*. Ulrich, *Zittel's Textb. Pal. (Engl. ed.)*, p. 281.
1897. *Arthroclema*. Simpson, *Fourteenth Ann. Rep. State Geologist, New York, for the year 1894*, p. 546.

**Arthroclema angulare** Ulrich.

1889. *Arthroclema angulare*. Ulrich, *Contr. Micro-Pal. Cambro-Sil.*, Part II, p. 45.
1890. *Arthroclema angulare*. Ulrich, *Geol. Surv. Illinois*, VIII, p. 641, pl. xxix, 6-6b.
1895. *Arthroclema angulare*. Whiteaves, *Pal. Foss.*, III, p. 117.  
Cincinnati (Richmond): Wilmington, Illinois; Stony Mountain, Manitoba.
- Obs. See *Helopora imbricata* Ulrich.

**Arthroclema armatum** Ulrich.

1890. *Arthroclema armatum*. Ulrich, *Jour. Cincinnati Soc. Nat. Hist.*, XII, p. 194, fig. 19a-d (not e-h = *Arthroclema pulchellum* Billings).
1893. *Arthroclema armatum*. Ulrich, *Geol. Minnesota*, III, p. 201, pl. ii, 8-11, 25, 28-33, pl. iii, 7.

**Arthroclema armatum** Ulrich—Continued.

1897. *Arthroclema armatum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 111 (p. 547).  
Trenton: Cannon Falls and St. Paul, Minnesota.

**Arthroclema billingsi** Ulrich.

1890. *Arthroclema billingsi*. Ulrich, Geol. Surv. Illinois, VIII, p. 642.  
1893. *Arthroclema billingsi*. Ulrich, Geol. Minnesota, III, p. 197, pl. ii, 7.  
1897. *Arthroclema Billingsi*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 105 (p. 547).  
Trenton: Ottawa, Canada.

**Arthroclema cornutum** Ulrich.

1890. *Arthroclema cornutum*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 193, fig. 18.  
1893. *Arthroclema cornutum*. Ulrich, Geol. Minnesota, III, p. 200, pl. ii, 16–21, 23, pl. iii, 34.  
1897. *Arthroclema cornutum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 106–108, 112 (p. 547).  
Trenton (Black River): Minneapolis, Minnesota.

**Arthroclema pulchellum** Billings.

1862. *Arthroclema pulchellum*. Billings, Pal. Foss., I, p. 54, fig. 60.  
1890. *Arthroclema pulchellum*. Ulrich, Geol. Surv. Illinois, VIII, p. 642, pl. xxix, 6c.  
1893. *Arthroclema pulchellum*. Ulrich, Geol. Minnesota, III, pl. ii, 12–15.  
1890. *Arthroclema armatum* (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 194, fig. 19 *e-h* (not 19 *a-d*).  
Trenton: Ottawa City and Peterboro, Canada.

*Arthroclema spiniforme* Ulrich. See *Helopora spiniformis* (Ulrich).

**Arthroclema striatum** Ulrich.

1893. *Arthroclema striatum*. Ulrich, Geol. Minn., III, p. 198, pl. ii, 22, 24, pl. iii, 28–33.  
1897. *Arthroclema striatum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 109, 110 (p. 547).  
Trenton (Black River): Minneapolis and St. Paul, Minnesota.

*Arthronema* Ulrich (preoccupied). See *Arthrostylus* Ulrich.

*Arthronema curtum* Ulrich. See *Arthrostylus curtus* (Ulrich).

*Arthronema tenue* Ulrich. See *Arthrostylus tenuis* (James).

**ARTHROPORA** Ulrich. Genotype: *Ptilodictya* (*Stictopora*) *Shafferi* Week.

1882. *Arthropora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 152, 167.  
1889. *Arthropora*. Miller, North American Geol. Pal., p. 293.  
1890. *Arthropora*. Ulrich, Geol. Surv. Illinois, VIII, p. 393.  
1893. *Arthropora*. Ulrich, Geol. Minnesota, III, p. 176.  
1896. *Arthropora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.  
1897. *Arthropora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 605.

**Arthropora bifurcata** Ulrich.

1893. *Arthropora bifurcata*. Ulrich, Geol. Minnesota, III, p. 178, pl. xiv, 22–25.  
Trenton (Black River): St. Paul and Cannon Falls, Minnesota.

**Arthropora reversa** Ulrich.

1893. *Arthropora reversa*. Ulrich, Geol. Minnesota, III, p. 178, pl. xiv, 26.  
Trenton: St. Paul, Minnesota.



**Arthropora shafferi** (Meek).

1872. *Ptilodictya* (*Stictopora*) *Shafferi*. Meek, Proc. Acad. Nat. Sci. Philadelphia, p. 317.
1873. *Ptilodictya* (*Stictopora*) *Shafferi*. Meek, Pal. Ohio, I, p. 69, pl. v. 1*a-c*.
1875. *Ptilodictya* *Shafferi*. Nicholson, Pal. Province Ontario, p. 33, fig. 4.
1882. *Arthropora shafferi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 167, pl. vii, 10, 10*a*.
1889. *Arthropora shafferi*. Miller, North American Geol. Pal., figs. 453-455 (p. 293).
1890. *Arthropora shafferi*. Ulrich, Geol. Surv. Illinois, VIII, fig. 3*e* (p. 308).
1879. *Crateripora erecta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 29, pl. vii, 29, 29*a*.
1879. *Stromatopora* (?) *lichenoides*. James, Paleontologist, No. 3, p. 18. Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.
- Obs. The names *Crateripora erecta* Ulrich and *Stromatopora* (?) *lichenoides* James were applied to the articulating basal socket of this species before its true nature was understood.

**Arthropora shafferi-cleavelandi** (James).

1881. *Ptilodictya cleavelandi*. James, Paleontologist, No. 5, p. 38.
1881. *Ptilodictya* ? *cincinnatiensis*. James, Paleontologist, No. 5, p. 39.
1881. *Ptilodictya grahami*. James, Paleontologist, No. 5, p. 39.
1881. *Ptilodictya dubia*. James, Paleontologist, No. 5, p. 40. Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Arthropora simplex** Ulrich.

1886. *Arthropora simplex*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 65.
1893. *Arthropora simplex*. Ulrich, Geol. Minnesota, III, p. 177, pl. xiv, 12-21. Trenton (Stones River and Black River): Minneapolis, St. Paul, and Fountain, Minnesota; Decorah, Iowa.

**ARTHROSTYLUS** Ulrich. Genotype: *Helopora tenuis* James.

1882. *Arthronema* (preoccupied). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 151, 160.
1888. *Arthrostylus*. Ulrich, American Geologist, I, p. 230.
1889. *Arthrostylus*. Miller, North American Geol. Pal., p. 293.
1890. *Arthrostylus*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 188.
1890. *Arthrostylus*. Ulrich, Geol. Surv. Illinois, VIII, p. 400.
1893. *Arthrostylus*. Ulrich, Geol. Minnesota, III, p. 187.
1896. *Arthrostylus*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.
1897. *Arthrostylus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.

**Arthrostylus conjunctus** Ulrich.

1890. *Arthrostylus conjunctus*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 189, fig. 14.
1893. *Arthrostylus conjunctus*. Ulrich, Geol. Minnesota, III, p. 188, pl. iii, 13, 14.
1897. *Arthrostylus conjunctus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 78, 79, 79*a* (p. 526). Trenton (Black River): Fountain, Minnesota.

**Arthrostylus curtus** (Ulrich).

1882. *Arthronema curtum*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 161, pl. vi, 9.
1889. *Arthrostylus curtus*. Miller, North American Geol. Pal., p. 293. Cincinnati (Utica): Covington, Kentucky.
- Obs. This may be a basal segment of some species of *Arthropora*.

**Arthrostylus obliquus** Ulrich.

1890. *Arthrostylus obliquus*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 190, figs. 14c, d.  
 1893. *Arthrostylus obliquus*. Ulrich, Geol. Minnesota, III, p. 188, pl. iii, 15, 16.  
 Trenton (Stones River): Minneapolis, Minnesota.

**Arthrostylus tenuis** (James).

1878. *Helopora tenuis*. James, Paleontologist No. 1, p. 3.  
 1882. *Arthronema tenuis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 160, pl. vi, 8-8c.  
 1893. *Arthrostylus tenuis*. Ulrich, Geol. Minnesota, III, pl. iii, 16e.  
 Trenton: Covington, Kentucky.  
 Cincinnati (Utica): Covington and Newport, Kentucky; Cincinnati, Ohio.

**ASCODICTYON** Nicholson and Etheridge, Jun. Genotype: *Ascodictyon stellatum* Nicholson and Etheridge, Jun.

1877. *Ascodictyon*. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XIX, p. 463.  
 1882. *Ascodictyon*. Vine, Quar. Jour. Geol. Soc. London, XXXVIII, p. 52.  
 1889. *Ascodictyon*. Miller, North American Geol. Pal., p. 293.  
 1890. *Ascodictyon*. Ulrich, Geol. Surv. Illinois, VIII, p. 367.  
 1897. *Ascodictyon*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 603.  
 Obs. *Ascodictyon fusiforme* was the first species described, but, judging from the generic description, the authors intended *A. stellatum* to be the genotype.

**Ascodictyon fusiforme** Nicholson and Etheridge, Jun.

1877. *Ascodictyon fusiforme*, Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XIX, p. 463, pl. xix, 7, 8.  
 Hamilton: Widder, Ontario; Alpena, Michigan.

**Ascodictyon stellatum** Nicholson and Etheridge, Jun.

1877. *Ascodictyon stellatum*. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XIX, p. 464, pl. xix, 1-6.  
 1881. *Ascodictyon stellatum*. Vine, Quar. Jour. Geol. Soc. London, XXXVII, p. 618.  
 1891. *Ascodictyon stellatum*. Whiteaves, Contr. Canadian Pal., I, p. 213.  
 1893. *Ascodictyon stellatum*. Ulrich, Geol. Minnesota, III, p. 113, fig. 8a.  
 1897. *Ascodictyon stellatum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 220 (p. 603).  
 Hamilton: Widder, Ontario; Eighteenmile Creek, New York.

**ASPIDOPORA** Ulrich. Genotype: *Aspidopora areolata* Ulrich.

1882. *Aspidopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155.  
 1889. *Aspidopora*. Miller, North American Geol. Pal., p. 293.  
 1890. *Aspidopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 373.  
 1893. *Aspidopora*. Ulrich, Geol. Minnesota, III, p. 254.  
 1897. *Aspidopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 584.

**Aspidopora areolata** Ulrich.

1883. *Aspidopora areolata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 164, pl. vii, 2-2c.  
 1894. *Monticulipora areolata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 183.  
 Cincinnati (Utica): Cincinnati, Ohio.

**Aspidopora calycula (James).**

1871. *Lichenalia?* calycula. James, Catal. Foss. Cincinnati Group. (Not defined.)  
 1875. *Chaetetes?* calyculus. James, Introd. Catal. Foss. Cincinnati Group, p. 1.  
 1881. *Monticulipora* (*Diplotrypa*) calycula. Nicholson, Genus *Monticulipora*,  
 p. 165, pl. iv, 4-4b.  
 1883. *Prasopora* calycula. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 165.  
 1888. *Monticulipora* calycula. James and James, Jour. Cincinnati Soc. Nat.  
 Hist., X, p. 167.  
 1894. *Monticulipora* calycula. J. F. James, Jour. Cincinnati Soc. Nat. Hist.,  
 XVI, p. 184.  
 Trenton: Covington, Kentucky.

**Aspidopora eccentrica (James).**

1882. *Monticulipora* (*Heterotrypa?*) eccentrica. James, Paleontologist, No. 6,  
 p. 48; *ibid.*, No. 7, pl. i, 6, 6a.  
 1888. *Monticulipora* eccentrica. James and James, Jour. Cincinnati Soc. Nat.  
 Hist., X, p. 167, pl. ii, 2a-c.  
 1893. *Aspidopora* eccentrica. Ulrich, Geol. Minnesota, III, p. 255.  
 1894. *Monticulipora* eccentrica. J. F. James, Jour. Cincinnati Soc. Nat. Hist.,  
 XVI, p. 185.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Aspidopora elegantula (Ulrich).**

1893. *Aspidopora* elegantula. Ulrich, Geol. Minnesota, III, p. 256, pl. xvii,  
 13-21.  
 1897. *Aspidopora* elegantula. Simpson, Fourteenth Ann. Rep. State Geologist  
 New York for the year 1894, figs. 162-164 (p. 584).  
 Trenton: Kenyon and St. Paul, Minnesota.

**Aspidopora newberryi (Nicholson).**

1875. *Chaetetes* Newberryi. Nicholson, Pal. Ohio, II, p. 212, pl. xxii, 4, 4a.  
 1881. *Monticulipora* (*Prasopora*) Newberryi. Nicholson, Genus *Monticulipora*,  
 p. 212, pl. iv, 1-1c.  
 1883. *Prasopora* ? newberryi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p.  
 165.  
 1886. *Aspidopora* newberryi. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist.  
 Surv. Minnesota, p. 91.  
 1888. *Monticulipora* newberryi. James and James, Jour. Cincinnati Soc. Nat.  
 Hist., X, p. 164.  
 1894. *Monticulipora* newberryi. J. F. James, Jour. Cincinnati Soc. Nat. Hist.,  
 XVI, p. 179.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Aspidopora parasitica (Ulrich).**

1886. *Aspidopora* parasitica (in part). Ulrich, Fourteenth Ann. Rep. Geol.  
 Nat. Hist. Surv. Minnesota, p. 90.  
 1893. *Aspidopora* parasitica. Ulrich, Geol. Minnesota, III, p. 255, pl. xvii,  
 26-32.  
 1894. *Aspidopora* parasitica. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI,  
 p. 180.  
 Trenton (Stones River and Black River): Minneapolis, St. Paul, and  
 Fountain, Minnesota.

**Aspidopora parmula (Foerste).**

1887. *Prasopora* parmula. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 170;  
*ibid.*, III, 1888, pl. xv, 14.  
 1895. *Aspidopora* parmula. Foerste, Geol. Surv. Ohio, VII, p. 600, pl. xxviii, 14.  
 Clinton: Dayton and Clinton County, Ohio.

**Aspidopora parmula-fenestelliformis** Foerste.

1895. *Aspidopora parmula* var. *fenestelliformis*. Foerste, Geol. Surv. Ohio, VII, p. 600.

Clinton: Dayton, Ohio.

**Astroporites** Lambe. Genotype: *Astroporites ottawaensis* Lambe.

1896. *Astroporites*. Lambe, Canadian Record of Science, VII, p. 1.

Obs.—This genus is founded upon the basal plate of a Lichenocrinoid.

Mr. Ulrich, who pointed out this fact to us, has specimens which clearly indicate the nature of this fossil.

**Astroporites ottawaensis** Lambe. Not a bryozoan.

1896. *Astroporites Ottawaensis*. Lambe, Canadian Record of Science, VII, p. 1, pl. i, 1-3.

Trenton: Hull, near Ottawa, Canada.

**ATACTOPORA** Ulrich. Genotype: *Atactopora hirsuta* Ulrich.

1879. *Atactopora* (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 119.

1882. *Atactopora* (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.

1883. *Atactopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 245.

1889. *Atactopora*. Miller, North American Geol. Pal., p. 293.

1890. *Atactopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 377.

1896. *Atactopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 278.

1897. *Atactopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 563.

**Atactopora hirsuta** Ulrich.

1879. *Atactopora hirsuta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 120, pl. xii, 3-3b.

1883. *Atactopora hirsuta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 245, pl. xii, 1, 1a.

Cincinnati (Utica and Lorraine): Covington and Newport, Kentucky; Cincinnati, Ohio.

**Atactopora maculata** Ulrich.

1879. *Atactopora maculata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 121, pl. xii, 2-2e.

1883. *Atactopora maculata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 245, pl. xii, 2, 2a.

1896. *Atactopora maculata*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 466 (p. 278).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Atactopora multigranosa** Ulrich. See *Atactoporella multigranosa* (Ulrich).**Atactopora mundula** Ulrich. See *Atactoporella mundula* (Ulrich).**Atactopora septosa** Ulrich. See *Amplexopora septosa* (Ulrich).**Atactopora subramosa** Ulrich. See *Heterotrypa subramosa* (Ulrich).**Atactopora tenella** Ulrich. See *Atactoporella tenella* (Ulrich).**ATACTOPORELLA** Ulrich. Genotype: *Atactoporella typicalis* Ulrich.

1879. *Atactopora* (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 119.

1881. *Peronopora* (in part). Nicholson, Genus *Monticulipora*, p. 215.

1883. *Atactoporella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 247.

1889. *Atactoporella*. Miller, North American Geol. Pal., p. 293.

1890. *Atactoporella*. Ulrich, Geol. Surv. Illinois, VIII, p. 370.

1893. *Atactoporella*. Ulrich, Geol. Minnesota, III, p. 222.

**ATACTOPORELLA** Ulrich—Continued.

1896. *Atactoporella*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 272.

1897. *Atactoporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 585.

***Atactoporella? crassa* Ulrich.**

1893. *Atactoporella crassa*. Ulrich, Geol. Minnesota, III, p. 225, pl. xv, 18-21. Trenton: St. Paul and Cannon Falls, Minnesota.

***Atactoporella insueta* Ulrich.**

1893. *Atactoporella insueta*. Ulrich, Geol. Minnesota, III, p. 224, pl. xv, 13-15, pl. xviii, 5-8.

Trenton (Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

***Atactoporella multigranosa* (Ulrich).**

1879. *Atactopora multigranosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 122, pl. xii, 1, 1a.

1883. *Atactoporella multigranosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 254, pl. xii, 8, 8a.

1895. *Atactoporella multigranosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.

Cincinnati (Lorraine): Hamilton, Morrow, and Cincinnati, Ohio.

***Atactoporella mundula* (Ulrich).**

1879. *Atactopora mundula*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 123, pl. xii, 4, 4a.

1883. *Atactoporella mundula*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 252, pl. xii, 6, 6a.

1895. *Atactoporella mundula*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.

Cincinnati (Lorraine): Covington and Newport, Kentucky; Cincinnati, Ohio.

***Atactoporella newportensis* Ulrich.**

1883. *Atactoporella newportensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 250, pl. xii, 4-4b.

1888. *Monticulipora newportensis*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 183.

1889. *Atactoporella newportensis*. Miller, North American Geol. Pal., fig. 456 (p. 294).

1894. *Monticulipora newportensis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 206.

Cincinnati (Utica): Newport, Kentucky.

***Atactoporella ortonii* (Nicholson).**

1874. *Chaetetes Ortoni*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 513, pl. xxix, 15-15b.

1875. *Chaetetes Ortoni*. Nicholson, Pal. Ohio, II, p. 211, pl. xxii, 3-3b.

1881. *Monticulipora* (Peronopora?) *Ortoni*. Nicholson, Genus *Monticulipora*, p. 228, pl. iii, 4-4d.

1883. *Atactoporella ortonii*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 256, pl. xii, 7, 7a.

1888. *Monticulipora ortonii*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 22.

1895. *Monticulipora ortonii*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 79.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Atactoporella ramosa** Ulrich.

1893. *Atactoporella ramosa*. Ulrich, Geol. Minnesota, III, p. 226, pl. xx, 22-27.  
Trenton (Black River): Cannon Falls, Minnesota.

**Atactoporella schucherti** Ulrich.

1883. *Atactoporella schucherti*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 251, pl. xii, 5-5b.  
1895. *Atactoporella schucherti*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.  
Cincinnati (Richmond): Oxford, Waynesville, and Oregonia, Ohio; Richmond and Versailles, Indiana.

**Atactoporella tenella** (Ulrich).

1879. *Atactopora tenella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 123, pl. xii, 5, 5a.  
1883. *Atactoporella tenella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 246.  
1895. *Atactoporella tenella*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.  
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Atactoporella typicalis** Ulrich.

1883. *Atactoporella typicalis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 248, pl. xii, 3-3d.  
1895. *Atactoporella typicalis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.  
1896. *Atactoporella typicalis*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 450, (p. 272).  
1897. *Atactoporella typicalis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 165-167 (p. 585).  
Cincinnati (Utica): Covington and Newport, Kentucky; Cincinnati, Ohio.

**Atactoporella typicalis-præcepta** Ulrich.

1893. *Atactoporella typicalis* var. *præcepta*. Ulrich, Geol. Minnesota, III, p. 223, pl. xv, 16, 17, pl. xviii, 1-4.  
Trenton (Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

*Aulopora* Goldfuss. Considered at present a genus of corals.

*Aulopora arachnoidea* Hall. See *Stomatopora arachnoidea* (Hall).

*Aulopora* ? *Canadensis* Nicholson. See *Hederella canadensis* (Nicholson).

*Aulopora filiformis* Billings. See *Hederella filiformis* (Billings).

*Aulopora frondosa* James. See *Proboscina frondosa* (Nicholson).

**BACTROPORA** Hall and Simpson. Genotype: *Trematopora* ? *granistriata* Hall.

1887. *Bactropora*. Hall and Simpson, Pal. New York, VI, p. xv.  
1889. *Bactropora*. Miller, North American Geol. Pal., p. 294.  
1890. *Bactropora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 402, 662.  
1896. *Bactropora*. Ulrich, Zittel's Textb. Pal., (Engl. ed.), p. 281.  
1897. *Bactropora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 553.

**Bactropora curvata** Hall and Simpson.

1887. *Bactropora curvata*. Hall and Simpson, Pal. New York, VI, p. 194, pl. xvi, 14-16.  
1897. *Bactropora curvata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 13, 14.  
Hamilton: Canandaigua Lake, New York.

**Bactropora granistriata (Hall).**

1883. Trematopora ? granistriata. Hall, Trans. Albany Institute, X, p. 182 (abstract, 1881, p. 182).  
 1884. Trematopora ? granistriata. Hall, Rep. State Geologist New York for the year 1883, p. 13.  
 1887. Bactropora granistriata. Hall and Simpson, Pal. New York, VI, p. 193, pl. lxvi, 20-22.

Hamilton: Darien Center, New York

**Bactropora simplex Ulrich.**

1890. Bactropora simplex. Ulrich, Geol. Surv. Illinois, VIII, p. 663, pl. lxx, 14-14b, pl. lxxi, 6, 6a.  
 1894. Bactropora simplex. Keyes, Missouri Geol. Surv., V, p. 35.  
 Keokuk: Keokuk, Iowa; Nauvoo and Warsaw, Illinois; Clark County, Missouri.

**BATOSTOMA Ulrich. Genotype: Monticulipora (Heterotrypa) implicata Nicholson.**

1882. Batostoma. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.  
 1883. Batostoma. Foord, Contr. Micro-Pal. Cambro-Sil., p. 17.  
 1889. Batostoma. Miller, North American Geol. Pal., p. 294.  
 1890. Batostoma. Ulrich, Geol. Surv. Illinois, VIII, pp. 379, 459.  
 1893. Batostoma. Ulrich, Geol. Minnesota, III, p. 288.  
 1896. Batostoma. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 275.  
 1897. Batostoma. Simpson, Fourteenth Ann. Rep. State Geologist, New York, for the year 1894, p. 588.

**Batostoma canadense (Foord).**

1883. Amplexopora Canadensis. Foord, Contr. Micro-Pal. Cambro-Sil., p. 17, pl. iv, 2-2d.  
 1893. Batostoma Canadensis. Ulrich, Geol. Minnesota, III, p. 317.  
 Trenton (Black River): St. Joseph Island, Lake Huron.  
 Trenton: Joliette, Quebec.

**Batostoma ? decipiens Ulrich.**

1893. Batostoma ? decipiens. Ulrich, Geol. Minnesota, III, p. 298, pl. xxvii, 16-19.  
 Trenton (Stones River and Black River): Minneapolis, Minnesota.

**Batostoma fertile Ulrich.**

1886. Batostoma fertilis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 92.  
 1893. Batostoma fertile. Ulrich, Geol. Minnesota, III, p. 290, pl. xxv, 1-11.  
 1896. Batostoma fertile. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 459 A (p. 275).  
 Trenton (Stones River): Minneapolis and St. Paul, Minnesota.

**Batostoma fertile-circulare Ulrich.**

1893. Batostoma fertile var. circulare. Ulrich, Geol. Minnesota, III, p. 291, pl. xxv, 8, 9.  
 1896. Batostoma fertile. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 459 B (p. 275).  
 Trenton (Stones River): Minneapolis and St. Paul, Minnesota.

**Batostoma humile Ulrich.**

1893. Batostoma humile. Ulrich, Geol. Minnesota, III, p. 294, pl. xxv, 29-36.  
 Trenton: St. Paul and Cannon Falls, Minnesota; Decorah, Iowa.

*Batostoma imperfectum* Ulrich. See *Hemiphragma imperfectum* (Ulrich).

***Batostoma implicatum* (Nicholson).**

- 1880. *Chaetetes implicata*. Ulrich, Catal. Foss. Cincinnati Group, p. 12. (Not defined.)
- 1881. *Monticulipora* (*Heterotrypa*) *implicata*. Nicholson, Genus *Monticulipora*, p. 147, pl. ii, 7-7e.
- 1882. *Batostoma implicatum*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.
- 1894. *Monticulipora implicatum*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 198.
- 1875. *Alecto nexilis*. James, Intr. Catal. Foss. Cincinnati Group, p. 3.
- 1878. *Ceramopora* ? *irregularis*, James, Paleontologist, No. 1, p. 5.  
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.  
Obs. *Alecto nexilis* James was founded upon specimens of this species showing the large perforated acanthopores which Mr. James mistook for the cell apertures of his species.

*Batostoma irrasa* Ulrich. See *Hemiphragma irrasum* (Ulrich).

***Batostoma jamesi* (Nicholson).**

- 1874. *Chaetetes Jamesi*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 506, pl. xxix, 10-10b.
- 1875. *Chaetetes Jamesi*. Nicholson, Pal. Ohio, II, p. 200, pl. xxi, 11, 11a.
- 1876. *Chaetetes Jamesi*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 89, pl. v, 5.
- 1880. *Monticulipora Jamesi*. Nicholson, Ann. Mag. Nat. Hist., ser. 5, VI, p. 415, fig. 3A, B, fig. 4.
- 1881. *Monticulipora* (*Heterotrypa*) *Jamesi*. Nicholson, Genus *Monticulipora*, p. 143, figs. 25, 26.
- 1882. *Batostoma jamesi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256; *ibid.*, VI, 1883, p. 83.
- 1883. *Monticulipora Jamesi*. (Van Cleve), Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 248, pl. xi, 8.
- 1888. *Monticulipora jamesi*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 176.
- 1889. *Batostoma jamesi*. Miller, North American Geol. Pal., fig. 457 (p. 294).
- 1894. *Monticulipora jamesi*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 197.  
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

***Batostoma magnoporum* Ulrich.**

- 1893. *Batostoma magnopora*. Ulrich, Geol. Minnesota, III, p. 291, pl. xxv, 12-15.  
Trenton (Black River): Minneapolis and St. Paul, Minnesota.

***Batostoma manitobense* Ulrich.**

- 1889. *Batostoma Manitobense*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 33, pl. ix, 3-3c.
- 1895. *Batostoma Manitobense*. Whiteaves, Paleozoic Foss., III, p. 117.  
Cincinnati (Richmond): Stony Mountain, Manitoba.

***Batostoma minnesotense* Ulrich.**

- 1886. *Amplexopora superba* (not of Foord). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 92.
- 1893. *Batostoma minnesotense*. Ulrich, Geol. Minnesota, III, p. 297, pl. xxvi, 38-40, pl. xxvii, 9-15.



**Batostoma minnesotense** Ulrich—Continued.

1897. *Batostoma minnesotense*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 173 (p. 588).

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

**Batostoma montuosum** Ulrich.

1893. *Batostoma montuosum*. Ulrich, Geol. Minnesota, III, p. 293, pl. xxv, 26-28.

Trenton (Black River): Cannon Falls, Minnesota.

**Batostoma Ottawaense** Foord. See *Hemiphragma ottawense* (Foord).**Batostoma ? rugosum** (Whitfield).

1880. *Fistulipora rugosa*. Whitfield, Ann. Rep. Wisconsin Geol. Surv. for the year 1879, p. 60.

1882. *Fistulipora rugosa*. Whitfield, Geol. Surv. Wisconsin, IV, p. 255, pl. xi, 20, 21.

1889. *Batostoma rugosum*. Miller, North American Geol. Pal., p. 294.

Cincinnati (Richmond): Delafield, Wisconsin.

**Batostoma superbum** (Foord).

1883. *Amplexopora superba*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 16, pl. iv, 1-1c.

1893. *Batostoma superbum*. Ulrich, Geol. Minnesota, III, p. 297.

Trenton: Montreal, Canada.

**Batostoma variabile** Ulrich. See *Batostoma varians* (James).**Batostoma varians** (James).

1878. *Chaetetes varians*. James, Paleontologist, No. 1, p. 2.

1881. *Monticulipora* (*Chaetetes*) *variens*. James, Paleontologist, No. 5, p. 36.

1888. *Monticulipora varians*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 177, pl. ii, 4 a, b.

1894. *Monticulipora varians*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 199.

1890. *Batostoma variabile*. Ulrich, Geol. Surv. Illinois, VIII, p. 460, pl. xxxv, 4-4c, 5 (not 5a), pl. xxxvi, 1.

1894. *Batostoma variabile*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 200.

Cincinnati (Richmond): Blanchester, Clarksville, and other localities in Ohio; Richmond and Versailles, Indiana; Savannah, Illinois; Delafield, Wisconsin.

**Batostoma varium** Ulrich.

1893. *Batostoma varium*. Ulrich, Geol. Minnesota, III, p. 292, pl. xxv, 16-25.

1897. *Batostoma varium*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 175 (p. 588) (not fig. 176=*Eridotrypa mutabilis* Ulrich).

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

**Batostoma winchelli** (Ulrich).

1886. *Amplexopora winchelli*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 91.

1893. *Batostoma winchelli*. Ulrich, Geol. Minnesota, III, p. 295, pl. xxvi, 33-37, pl. xxvii, 1-6.

1897. *Batostoma Winchelli*, Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 174 (p. 588).

Trenton (Black River): St. Paul and Minneapolis, Minnesota: Goodhue and Fillmore counties, Minnesota.

**Batostoma winchelli-nodosum** Ulrich.

1893. *Batostoma winchelli* var. *nodosum*. Ulrich, Geol. Minnesota, III, p. 295, pl. xxvi, 35.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

**Batostoma winchelli-spinulosum** Ulrich.

1893. *Batostoma winchelli* var. *spinulosum*. Ulrich, Geol. Minnesota, III, p. 296, pl. xxvii, 7, 8.

1896. *Batostoma winchelli* var. *spinulosum*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 459 C (p. 275).

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

**BATOSTOMELLA** Ulrich. Genotype: *Batostomella spinulosa* Ulrich.

1882. *Batostomella* (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 141, 154.

1889. *Batostomella*. Miller, North American Geol. Pal., p. 294.

1890. *Batostomella* (in part). Ulrich, Geol. Surv. Illinois, VIII, pp. 375, 432.

1895. *Batostomella*. Whidborne, Devon. Fauna England (Pal. Soc. Publ.), II, pt. 4, p. 187.

1896. *Batostomella*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 277.

1886. *Geinitzella*. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 875, 880.

1896. *Geinitzella*. Zittel, Textb. Pal. (Engl. ed.), p. 105.

**Batostomella abrupta** Ulrich.

1890. *Batostomella abrupta*. Ulrich, Geol. Surv. Illinois, VIII, p. 435, pl. lxxv, 2-2e.

Chester: Sloans Valley, Kentucky.

*Batostomella annulata* Ulrich. See *Trematella annulata* (Hall).

*Batostomella annulifera* Ulrich. See *Lioclemella annulifera* (Whitfield).

**Batostomella? aspera** (Hall).

1852. *Trematopora aspera*. Hall, Pal. New York, II, p. 154, pl. xl A, 10a-c.

Niagara: Lockport, New York.

*Batostomella gracilis* Ulrich. See *Bythopora gracilis* (Nicholson).

**Batostomella granulifera** (Hall).

1852. *Trematopora granulifera*. Hall, Pal. New York, II, p. 154, pl. xl A, 9a-e.

- \*1876. *Trematopora granulifera*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xi, 6, 7; *ibid.* (Museum edition, 1879), p. 112, pl. xi, 6, 7.

- \*1882. *Trematopora granulifera*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 233, pl. x, 6, 7.

1890. *Rhombopora granulifera*. Ulrich, Geol. Surv. Illinois, VIII, p. 647.

Niagara: Lockport, New York; Waldron, Indiana.

Obs. The citations preceded by the (\*) refer to the Waldron form, which may be specifically distinct.

*Batostomella granulifera* Ulrich. See *Homotrypella granulifera* (Ulrich).

**Batostomella interstincta** Ulrich.

1890. *Batostomella interstincta*. Ulrich, Geol. Surv. Illinois, V<sup>II</sup>, p. 434, pl. lxxv, 4-4e.

Ste. Genevieve: Pella, Iowa.

**Batostomella nitidula** Ulrich.

1890. *Batostomella nitidula*. Ulrich, Geol. Surv. Illinois, VIII, p. 436, pl. lxxv, 3-3b.

1894. *Batostomella nitidula*. Keyes, Missouri Geol. Surv., V, p. 14.  
Chester: Chester, Illinois; Sloans Valley, Kentucky.

*Batostomella obliqua* Ulrich. See *Eridotrypa* ? *obliqua* (Ulrich).

*Batostomella perspinulata* Ulrich. See *Trematella perspinulata* (Hall).

*Batostomella simulatrix* Ulrich. See *Eridotrypa simulatrix* (Ulrich).

**Batostomella spinulosa** Ulrich.

1890. *Batostomella spinulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 434, pl. lxxv, 1-1f.

1896. *Batostomella spinulosa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 463 (p. 277).

Chester: Sloans Valley, Kentucky; Chester, Illinois.

**BERENICEA** Lamouroux. Genotype: *Berenicea diluviana* Lamouroux.

1821. *Berenicea* (in part). Lamouroux, Expos. Meth. des Genres d. Pol., p. 80.

1852. *Berenicea*. McCoy, Brit. Pal. Foss., p. 44.

1854. *Berenicea*. D'Orbigny, Pal. Franc. Terr. Cret., V, p. 858.

1854. *Berenicea*. Haime, Bry. de la Form. Juras., p. 175.

1882. *Berenicea*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 149.

1889. *Berenicea*. Miller, North American Geol. Pal., p. 294.

1890. *Berenicea*. Ulrich, Geol. Surv. Illinois, VIII, p. 368.

1893. *Berenicea*. Ulrich, Geol. Minnesota, III, p. 120.

1896. *Berenicea*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 261.

1897. *Berenicea*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 594.

1840. *Rosacilla*. F. A. Roemer, Verst. des Norddeutsh. Kreidegeb., p. 19.

*Diastopora* (not of Lamouroux). D'Orbigny, Busk, and other English authors.

*Diastopora* (in part). Hincks, Vine, and other authors.

1852. *Sagenella*. Hall, Pal. New York, II, p. 172.

1889. *Sagenella*. Miller, North American Geol. Pal., p. 321.

1897. *Sagenella*. Simpson, Fourteenth Ann. Rept. State Geologist New York for the year 1894, p. 597.

1883. *Diastoporella*. Vine, Rep. British Ass. Adv. Sci., LII, p. 275.

1887. *Diastoporella*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 190.

**Berenicea elegans** (Hall).

1876. *Sagenella elegans*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. vii, 12, 13; *ibid.* (Museum edition, 1879), p. 118, pl. vii, 12, 13.

1882. *Sagenella elegans*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 242, pl. vi, 12, 13.

1897. *Sagenella elegans*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 4.

Niagara: Waldron, Indiana.

**Berenicea** ? *insueta* Dawson.

1883. *Berenicea insueta*. Dawson, Rep. on Peter Redpath Museum, No. 2, p. 12.  
Subcarboniferous: Windsor, Nova Scotia.

**Berenicea membranacea** (Hall).

1852. *Sagenella membranacea*. Hall, Pal. New York, II, p. 172, pl. x1E, 6 a, b.  
Niagara: Lockport and Rochester, New York.

**Berenicea minnesotensis** Ulrich.

1886. *Berenicea minnesotensis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 58.  
 1893. *Berenicea minnesotensis*. Ulrich, Geol. Minnesota, III, p. 120, pl. i, 25, 27, 29, pl. ii, 1.  
 1897. *Berenicea Minnesotensis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 197, 198 (p. 595).  
 Trenton (Stones River and Black River): Minneapolis and St. Paul, Minnesota.

**Berenicea primitiva** Ulrich.

1882. *Berenicea primitiva*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 157, pl. vi, 4.  
 Cincinnati (Lorraine and Richmond): Cincinnati, Waynesville, Lebanon, Clarksville, and other localities in Ohio; Richmond and Versailles, Indiana.

**Berenicea vesiculosa** Ulrich.

1882. *Berenicea vesiculosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 158, pl. vi, 5.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**BOTRYLLOPORA** Nicholson. Genotype: *Botryllopora socialis* Nicholson.

1874. *Botryllopora*. Nicholson, Canad. Jour., XIV, p. 133.  
 1874. *Botryllopora*. Nicholson, Geol. Mag., new ser., I, p. 159.  
 1874. *Botryllopora*. Nicholson, Pal. Province Ontario, p. 96.  
 1887. *Botryllopora*. Hall and Simpson, Pal. New York, VI, p. xxvi.  
 1889. *Botryllopora*. Miller, North American Geol. Pal., p. 294.  
 1890. *Botryllopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 384.  
 1897. *Botryllopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 592.  
 1899. *Botryllopora*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 177.

**Botryllopora socialis** Nicholson.

1874. *Botryllopora socialis*. Nicholson, Geol. Mag., new ser., I, p. 160, pl. ix, 16.  
 1874. *Botryllopora socialis*. Nicholson, Pal. Province Ontario, p. 96, fig. 32.  
 1884. *Botryllopora socialis*. Hall, Rep. State Geologist New York for the year 1883, p. 61.  
 1887. *Botryllopora socialis*. Hall and Simpson, Pal. New York, VI, p. 282, pl. lxiv, 3, 4.  
 1889. *Botryllopora socialis*. Miller, North American Geol. Pal., fig. 459 (p. 295).  
 1890. *Botryllopora socialis*. Ulrich, Geol. Surv. Illinois, VIII, p. 490, pl. xliii, 9-9 b.  
 1897. *Botryllopora socialis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 16, 17.  
 1899. *Botryllopora socialis*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 177, fig. 75.  
 Hamilton: Arkona and West Williams, Ontario, Canada; Eighteenmile Creek, New York; near Alpena, Michigan; Falls of the Ohio.  
 Obs. See also *Fistulipora helios* Rominger.

**BUSKOPORA** Ulrich. Genotype: *Buskopora dentata* Ulrich.

1886. *Buskopora*. Ulrich, Contr. American Pal., I, p. 22.  
 1889. *Buskopora*. Miller, North American Geol. Pal., p. 295.  
 1890. *Buskopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 383.  
 1896. *Buskopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 270.

**BUSKOPORA** Ulrich—Continued.

1886. *Odontotrypa*. Hall, Rep. State Geologist New York for the year 1885, explanation sheet, pl. xxx.  
 1887. *Odontotrypa*. Hall and Simpson, Pal. New York, VI, pl. xvii.  
 1889. *Odontotrypa*. Miller, North American Geol. Pal., p. 313.  
 1897. *Odontotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 561.  
 Obs. See also remarks under *Glossotrypa* Hall.

**Buskopora bistriata** (Hall).

1883. *Lichenalia bistriata*. Hall, Trans. Albany Institute, X, p. 150 (abstract, 1881, p. 8).  
 1886. *Lichenalia bistriata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxii, 6-14.  
 1887. *Lichenalia bistriata*. Hall and Simpson, Pal. New York, VI, p. 79, pl. xxxii, 6-14.  
 1897. *Pileotrypa bistriata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 14.  
 1883. *Lichenalia alveata*. Hall, Trans. Albany Institute, X, p. 152 (abstract, 1881, p. 10).  
 1886. *Lichenalia* (*Odontotrypa*) *alveata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxx, 24-27.  
 1887. *Lichenalia* (*Odontotrypa*) *alveata*. Hall and Simpson, Pal. New York, VI, p. 85, pl. xxx, 24-27.  
 1897. *Odontotrypa alveata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 1-3.  
 Hamilton: Falls of the Ohio.

**Buskopora dentata** Ulrich.

1886. *Buskopora dentata*. Ulrich, Contr. American Pal., I, p. 22, pl. ii, 5, 5a.  
 1896. *Buskopora dentata*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 446 (p. 270).  
 1883. *Lichenalia lunata* n. sp. (not Rominger's). Hall, Trans. Albany Institute, X, p. 152 (abstract, 1881, p. 10).  
 1886. *Lichenalia lunata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 1-9.  
 1887. *Lichenalia lunata*. Hall and Simpson, Pal. New York, VI, p. 77, pl. xxxi, 1-9.  
 1897. *Lichenalia lunata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 5, 6.  
 1889. *Buskopora lunata*. Miller, North American Geol. Pal., fig. 460 (p. 295).  
 1890. *Buskopora lunata*. Ulrich, Geol. Surv. Illinois, VIII, p. 489, pl. xlviii, 7-7d.  
 1886. *Lichenalia lunata* var. *tubulata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 28, 29.  
 1887. *Lichenalia lunata* var. *tubulata*. Hall and Simpson, Pal. New York, VI, p. 78, pl. xxxi, 28, 29.  
 1889. *Buskopora lunata* var. *tubulata*. Miller, North American Geol. Pal., p. 295.  
 Hamilton: Falls of the Ohio.

Obs. Both Hall and Ulrich (in part) have regarded their species as synonyms for Rominger's *Fistulipora lunata*. It is very doubtful whether these forms are specifically the same as Rominger's; until such relationship is proved, we prefer to keep them distinct. But Hall's *Lichenalia lunata* and Ulrich's *Buskopora dentata* are the same form; as Hall's name is the same as Rominger's, it should be dropped in favor of Ulrich's name.

**Buskopora lunata** (Rominger).

1866. *Fistulipora lunata*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.  
Upper Helderberg: Sandusky and Columbus, Ohio.

*Buskopora lunata* Ulrich. See *Buskopora dentata* Ulrich.

*Buskopora lunata* var. *tubulata* Miller. See *Buskopora dentata* Ulrich.

**Buskopora pyriformis** (Hall).

1883. *Lichenalia pyriformis*. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 12).  
1886. *Lichenalia* (*Pileotrypa*) *pyriformis*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 21-27.  
1887. *Lichenalia* (*Pileotrypa*) *pyriformis*. Hall and Simpson, Pal. New York, VI, p. 82, pl. xxxi, 21-27.  
1897. *Pileotrypa pyriformis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 9-11.  
Hamilton: Falls of the Ohio.

**BYTHOPORA** Miller and Dyer. Genotype: *Bythopora fruticosa* Miller and Dyer = *Helopora dendrina* James.

1878. *Bythopora*. Miller and Dyer, Contr. to Pal., No. 2, p. 6.  
1889. *Bythopora*. Miller, North American Geol. Pal., p. 295.  
1890. *Bythopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 376.  
1893. *Bythopora*. Ulrich, Geol. Minnesota, III, p. 263.  
1896. *Bythopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 277.  
1897. *Bythopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 551.

**Bythopora alcicornis** Ulrich.

1893. *Bythopora alcicornis*. Ulrich, Geol. Minnesota, III, p. 264, pl. xxvi, 7-9.  
1897. *Bythopora alcicornis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 121 (p. 551).  
Trenton (Black River): Cannon Falls, Minnesota.

**Bythopora arcipora** (Nicholson).

1875. *Ptilodictya* ? *arcipora*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 180, pl. xiv, 4-4b.  
1875. *Ptilodictya* ? *arcipora*. Nicholson, Pal. Ohio, II, p. 262, pl. xxv, 9-9b.  
1878. *Bythopora arcipora*. Miller and Dyer, Contr. to Pal., No. 2, p. 6.  
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.  
Obs. See also *Bythopora parvula* (James).

**Bythopora delicatula** (Nicholson).

1874. *Chaetetes delicatulus*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 505, pl. xxix, 8-8b.  
1875. *Chaetetes delicatulus*. Nicholson, Pal. Ohio, II, p. 199, pl. xxi, 9, 9a.  
1875. *Chaetetes delicatulus*. Nicholson, Pal. Province Ontario, p. 30.  
1888. *Monticulipora delicatula*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 173.  
1889. *Bythopora* ? *delicatula*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 36.  
1895. *Bythopora delicatula*. Whiteaves, Pal. Foss., III, p. 116.  
1879. *Chaetetes minutus*. James, Paleontologist, No. 3, p. 20. (See James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 173.)  
Cincinnati (Richmond): Oxford, Waynesville, Lebanon, and other localities in Ohio; Richmond and Versailles, Indiana; Weston and Toronto, Ontario, Canada; Stony Mountain, Manitoba, Canada.

**Bythopora dendrina (James).**

1878. *Helopora dendrina*. James, Paleontologist, No. 1, p. 3, (July 2, 1878); *ibid.*, No. 2, p. 14.  
 1878. *Bythopora fruticosa*. Miller and Dyer, Contr. to Pal., No. 2, p. 6, pl. iv, 6, 6a, (July 22, 1878).  
 1889. *Bythopora fruticosa*. Miller, North American Geol. Pal., fig. 461 (p. 295). Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Bythopora fruticosa* Miller and Dyer. See *Bythopora dendrina* (James).

**Bythopora gracilis (Nicholson).**

1871. *Chætetes gracilis*. James, Catal. Löw. Sil. Foss. Cincinnati Group, p. 3. (Not defined).  
 1874. *Chætetes gracilis*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 504, pl. xxix, 7, 7a.  
 1875. *Chætetes gracilis*. Nicholson, Pal. Ohio, II, p. 198, pl. xxi, 8-8b.  
 1875. *Chætetes gracilis*. Nicholson, Pal. Province Ontario, p. 11. (Same species?)  
 1876. *Chætetes gracilis*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XXVIII, p. 90, pl. v, 13.  
 1881. *Monticulipora (Heterotrypa) gracilis*. Nicholson, Genus Monticulipora, p. 125, pl. ii, 1-1b and fig. 20.  
 1882. *Batostomella gracilis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 141; *ibid.*, VI, 1883, p. 83.  
 1883. *Monticulipora gracilis*. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 248, pl. x, 1-3, pl. xi, 11.  
 1886. *Batostomella gracilis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 103.  
 1888. *Monticulipora gracilis*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 173.  
 1889. *Batostomella gracilis*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 35.  
 1889. *Batostomella gracilis*. Miller, North American Geol. Pal., fig. 458 (p. 294).  
 1890. *Batostomella gracilis*. Ulrich, Geol. Surv. Illinois, VIII, p. 432, pl. xxxv, 2.  
 1893. *Homotrypella gracilis*. Ulrich, Geol. Minnesota, III, p. 228.  
 1894. *Monticulipora gracilis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 191.  
 1895. *Homotrypella gracilis*. Whiteaves, Pal. Foss., III, p. 115.  
 1881. *Chætetes lævramus*. Quenstedt, Roehren- und Sternkorallen, p. 81, pl. cxlvi, 2b.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Bythopora herricki (Ulrich).**

1886. *Bythopora herricki*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 99.  
 1893. *Bythopora herricki*. Ulrich, Geol. Minnesota, III, p. 263, pl. xxvi, 1-6.  
 1897. *Bythopora Herricki*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 120 (p. 551).  
 Trenton (Black River): St. Paul and Minneapolis, Minnesota.

**Bythopora meeki (James).**

1878. *Chætetes meeki*. James, Paleontologist, No. 1, p. 1.  
 1881. *Monticulipora (Chætetes) meeki*. James, Paleontologist, No. 5, p. 35.  
 1881. *Monticulipora gracilis* var. *meeki*. Nicholson, Genus Monticulipora, p. 127.  
 1888. *Monticulipora meeki*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 174.  
 1893. *Homotrypella meeki*. Ulrich, Geol. Minnesota, III, p. 228.

**Bythopora meeki** (James)—Continued.

1894. *Monticulipora meeki*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 192.

Cincinnati (Richmond): Waynesville, Oxford, Lebanon, and other localities in Ohio; Richmond and Versailles, Indiana.

**Bythopora nashvillensis** Miller. See *Rhinidictya nashvillensis* (Miller.)**Bythopora parvula** (James).

1878. *Helopora parvula*. James, Paleontologist, No. 1, p. 3.

1878. *Helopora approximata*. James, Paleontologist, No. 1, p. 3.

Cincinnati (Utica): Obanon Creek, Clermont County, Ohio.

Obs. This form may not be distinct from *Bythopora arctipora* (Nicholson).

**Bythopora spinulosa** (Hall).

1852. *Trematopora spinulosa*. Hall, Pal. New York, II, p. 155, pl. x1A, 11a-c. Niagara: Lockport, New York.

**Bythopora striata** Ulrich.

1889. *Bythopora striata*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 36.

1895. *Bythopora striata*. Whiteaves, Pal. Foss., III, p. 116.

Cincinnati (Richmond): Stony Mountain, Manitoba; Middletown and many other localities in Ohio.

**BYTHOTRYPA** Ulrich. Genotype: *Fistulipora* ? *laxata* Ulrich.

1893. *Bythotrypa*. Ulrich, Geol. Minnesota, III, p. 324.

1896. *Bythotrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 268.

**Bythotrypa epidermata** (Ulrich).

1890. *Crepidopora epidermata*. Ulrich, Geol. Surv. Illinois, VIII, p. 471, pl. xl, 1-1e.

Cincinnati (Richmond): Wilmington and Savannah, Illinois.

**Bythotrypa laxata** (Ulrich).

1889. *Fistulipora* ? *laxata*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 37, pl. viii, 2, 2a.

1893. *Bythotrypa laxata*. Ulrich, Geol. Minnesota, III, p. 325, pl. xxviii, 21-25.

1896. *Bythotrypa laxata*. Ulrich, Zittel's Textb. Pal. (Engl. ed.); fig. 440 (p. 268).

1897. *Bythotrypa laxata*. Whiteaves, Pal. Foss., III, Part III, p. 163.

Trenton (Stones River, Black River, and Trenton): St. Andrews, Manitoba; Minneapolis, St. Paul, Kenyon, Berne, and Cannon Falls, Minnesota; Rockton, Illinois; Decorah, Iowa.

**Callopora Dybowski** (not Hall). See *Diplotrypa* Nicholson.**CALLOPORA** Hall. (Not *Callopora* Gray, 1848.)<sup>1</sup> Genotype: *Callopora elegantula* Hall.

1852. *Callopora*. Hall, Pal. New York, II, p. 144.

1874. *Callopora*. Nicholson, Pal. Province Ontario, p. 61.

1874. *Callopora*. Nicholson, Geol. Mag. new ser., I, p. 13.

1879. *Callopora*. Hall, Twenty-eighth Ann. Rep. New York State Mus., p. 114.

1882. *Callopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 154, 251.

1887. *Callopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 172.

<sup>1</sup>In 1848 Gray (Proc. Zool. Soc., London, Appendix, 1848, and List of British Animals in the collection of the British Museum, 1848, pp. 109, 146) proposed the generic term *Callopora* for a single species, the *Flustra lineata* of Linnæus, but the term failed to gain acceptance, and the species *lineata* is now considered to be a *Membranipora*. As *Callopora* Hall has become deeply engrafted into literature, it seems undesirable under the circumstances to replace it by a new name.



**Callopora** Hall—Continued.

1887. *Callopora*. Hall and Simpson, Pal. New York, VI, p. xv.  
 1889. *Callopora*. Miller, North American Geol. Pal., p. 295.  
 1890. *Callopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 372, 416.  
 1893. *Callopora*. Ulrich, Geol. Minnesota, III, p. 275.  
 1896. *Callopora*. Ulrich, Zittel's Textb. Pal. (Engl. Ed.), p. 275.  
 1897. *Callopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 588.  
 1877. *Monticulipora* (Section 1). Dybowski, Die Chætetiden d. Ostb. Silur-Form., p. 89.

*Callopora aculeolata* Hall. See *Cœlocaulis* ?? *aculeolata* (Hall).

*Callopora* (*Cœlocaulis*) *aculeolata* Hall. See *Cœlocaulis* ?? *aculeolata* (Hall).

**Callopora ampla** Ulrich.

1893. *Callopora ampla*. Ulrich, Geol. Minnesota, III, p. 281, pl. xxiii, 13-15, 18-20, 22, 23, 27, 28.  
 Trenton (Black River and Trenton): Ramsey, Goodhue, and Fillmore counties, Minnesota; Decorah, Iowa; Belleville, Canada.

**Callopora andrewsi** (Nicholson).

1874. *Chætetes pulchellus* (not of Milne-Edwards and Haime). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 503, pl. xxix, 5-5b.  
 1875. *Chætetes pulchellus* (not of Milne-Edwards and Haime). Nicholson, Pal. Ohio, II, p. 195, pl. xxi, 5, 5a.  
 1881. *Monticulipora* (*Heterotrypa*) *Andrewsii*. Nicholson, Genus *Monticulipora*, p. 128, fig. 21, pl. v, 1, 1a.  
 1882. *Callopora andrewsi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.  
 1883. *Monticulipora andrewsii*. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 249, pl. xi, 9.  
 1888. *Monticulipora andrewsii*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 178.  
 1894. *Monticulipora andrewsii*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 200.  
 Cincinnati (Lorraine): Cincinnati, Ohio and vicinity.

**Callopora angularis** Ulrich.

1893. *Callopora angularis*. Ulrich, Geol. Minnesota, III, p. 277, pl. xxii, 37-41.  
 Trenton (Stones River): Minneapolis, Chatfield, and Fountain, Minnesota.

*Callopora aspera* Hall. See *Lioclema asperum* (Hall).

*Callopora bipunctata* Hall. See *Streblotrypa hamiltonensis* (Nicholson).

*Callopora bispinulata* Hall. See *Orthopora bispinulata* (Hall).

*Callopora cellulosa* Hall. See *Lioclema cellulosum* (Hall).

**Callopora** ?? *cervicornis* Hall.

1883. *Callopora cervicornis*. Hall, Trans. Albany Institute, X, p. 59 (abstract, 1879, p. 3).  
 1882. *Callopora cervicornis*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 238.  
 Niagara; Waldron, Ind.  
 Obs. It is doubtful whether this species can be recognized in the absence of figures, from the rather inadequate description.

*Callopora cincinnatiensis* Ulrich. See *Lioclema occidens* (Hall and Whitfield).

**Callopora ? crenulata Ulrich.**

1893. *Callopora crenulata*. Ulrich, Geol. Minnesota, III, p. 284, pl. xxii, 18-23.  
Trenton (Black River and Trenton): St. Paul and Cannon Falls, Minnesota; Decorah, Iowa; Neenah, Wisconsin.

**Callopora dalei (Milne-Edwards and Haime).**

1851. *Chaetetes Dalii*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 266, pl. xix, 6, 6a.  
1854. *Monticulipora Dalii*. Milne-Edwards and Haime, British Foss. Corals, p. 265.  
1860. *Monticulipora Dalii*. Milne-Edwards, Hist. Nat. des Corall., III, p. 277.  
1881. *Monticulipora (Heterotrypa) ramosa* var. *dalei*. Nicholson, Genus Monticulipora, p. 115, fig. 19, C, D, pl. ii, 4.  
1882. *Callopora dalei*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.  
1888. *Monticulipora ramosa* var. *dalei*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 182.  
1894. *Monticulipora ramosa* var. *dalei*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 205.  
1874. *Chaetetes approximatus*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 502, pl. xxix, 3, 3a.  
1875. *Chaetetes approximatus*. Nicholson, Pal. Ohio, II, p. 193, pl. xxi, 3.  
1883. *Monticulipora approximatus*. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 250, pl. xi, 6.  
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Callopora ? ? diversa Hall.**

1883. *Callopora ? diversa*. Hall, Trans. Albany Institute, X, p. 60 (abstract, 1879, p. 4).  
1882. *Callopora ? diversa*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 239.  
Niagara: Waldron, Indiana.  
Obs. It is doubtful whether this species can be recognized in the absence of figures, from the description given.

**Callopora dumalis Ulrich.**

1893. *Callopora dumalis*. Ulrich, Geol. Minnesota, III, p. 282, pl. xxiii, 1-8.  
Trenton (Stones River and Black River): St. Paul and Cannon Falls, Minnesota.

**Callopora elegantula Hall.**

1852. *Callopora elegantula*. Hall, Pal. New York, II, p. 144, pl. xl, 1a-m.  
1879. *Callopora elegantula*. Hall, Twenty-eighth Ann. Rep. New York State Mus., p. 115.  
1882. *Callopora elegantula*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 237.  
1882. *Callopora elegantula*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 250, pl. xi, 6-6b.  
1896. *Callopora elegantula*. Ulrich, Zittel's Textb. Pal. (Engl. Ed.), fig. 456, A, B (p. 274).  
1897. *Callopora elegantula*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xviii, 1-7.  
Niagara: Lockport, New York; Waldron and Osgood, Indiana; Sterling, Illinois.

*Callopora exsul* Hall. See *Lioclema? exsul* (Hall).

*Callopora fistulosa* Hall. See *Lioclema cellulosum* (Hall).

*Callopora florida* Hall. See *Lioclema?* (*Nicholsonella?*) *floridum* (Hall).  
*Callopora geniculata* Hall. See *Callotrypa?* *geniculata* (Hall).

***Callopora goodhuensis* Ulrich.**

1893. *Callopora goodhuensis*. Ulrich, Geol. Minnesota, III, p. 282, pl. xxiii, 9, 10, 21, 29.

Trenton: Cannon Falls and St. Paul, Minnesota.

*Callopora Hamiltonensis* Hall. See *Streblotrypa hamiltonensis* (Nicholson).

*Callopora hemispherica* Hall. See *Fistulipora?* *hemispherica* (Hall).

*Callopora heteropora* Hall. See *Callotrypa heteropora* (Hall).

*Callopora* (*Callotrypa*) *heteropora* Hall. See *Callotrypa heteropora* (Hall).

*Callopora Hyale* Hall. See *Cœlocaulis?? hyale* (Hall).

*Callopora* (*Cœlocaulis*) *Hyale* Hall. See *Cœlocaulis?? hyale* (Hall).

***Callopora incontroversa* Ulrich.**

1886. *Callopora incontroversa*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 96.

1893. *Callopora incontroversa*. Ulrich, Geol. Minnesota, III, p. 278, pl. xxii, 33-36.

Trenton (Stones River): Minneapolis, St. Paul, and Preston, Minnesota.

*Callopora incrassata* Nicholson. See *Fistulipora incrassata* (Nicholson).

*Callopora internodata* Hall. See *Callotrypa internodata* (Hall).

*Callopora* (*Callotrypa*) *internodata* Hall. See *Callotrypa internodata* (Hall.)

*Callopora irregularis* Hall. See *Cœlocaulis?* *irregularis* (Hall).

*Callopora* (*Cœlocaulis*) *irregularis* Hall. See *Cœlocaulis?* *irregularis* (Hall).

*Callopora laminata* Hall. See *Lioclema?* (*Nicholsonella?*) *laminatum* (Hall).

*Callopora macropora* Hall. See *Callotrypa macropora* (Hall) and *Callopora?? oppleta* Hall and Simpson.

*Callopora* (*Callotrypa*) *macropora* Hall. See *Callotrypa macropora* (Hall).

*Callopora macropora* var. *signata* Hall. See *Callotrypa macropora-signata* (Hall).

*Callopora* (*Callotrypa*) *macropora* var. *signata* Hall. See *Callotrypa macropora-signata* (Hall).

*Callopora maculosa* Hall. See *Fistulipora maculosa* (Hall).

***Callopora magnopora* Foerste.**

1887. *Callopora magnopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 173; III, pl. xvi, 5.

1895. *Callopora magnopora*. Foerste, Geol. Surv. Ohio, VII, p. 600, pl. xxix, 5. Clinton: Dayton and Centerville, Ohio.

*Callopora* (*Cœlocaulis*) *mediopora* Hall. See *Cœlocaulis?* *mediopora* (Hall).

*Callopora milfordensis* James. See *Ceramoporella granulosa-milfordensis* (James).

*Callopora minutissima* Nicholson. See *Lioclema minutissimum* (Nicholson).

*Callopora missouriensis* Rominger. See *Lioclema punctatum* (Hall).

*Callopora multiseriata* Hall. See *Callotrypa multiseriata* (Hall).

***Callopora multitabulata* (Ulrich).**

1886. *Monotrypella multitabulata*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 100.

1893. *Callopora multitabulata*. Ulrich, Geol. Minnesota, III, p. 280, pl. xxiii, 11, 12, 16, 17, 24-26, 30, 31.

1896. *Callopora multitabulata*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 456, C, D (p. 274).

Trenton (Black River and Trenton): Burgin and Frankfort, Kentucky; Minneapolis, St. Paul, and Cannon Falls, Minnesota; Nashville, Tennessee; Ottawa, Canada.

***Callopora nodulosa* (Nicholson).**

1874. *Chaetetes? nodulosus*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 506, pl. xxix, 9, 9a.

1875. *Chaetetes nodulosus*. Nicholson, Pal. Ohio, II, p. 200, pl. xxi, 10, 10a.

1876. *Chaetetes nodulosus*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 87, pl. v, 3.

1881. *Monticulipora* (*Heterotrypa*) *nodulosa*. Nicholson, Genus *Monticulipora*, p. 116, pl. i, 4-4d.

1882. *Callopora nodulosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252; *ibid.*, VI, 1883, p. 83.

1888. *Monticulipora nodulosa*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 182.

1894. *Monticulipora nodulosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 206.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

***Callopora ?? nummiformis* Hall.**

1852. *Callopora nummiformis*. Hall, Pal. New York, II, p. 148, pl. xl, 5a, b.

1890. *Callopora? nummiformis*. Ulrich, Geol. Surv. Illinois, VIII, p. 416. Niagara: Lockport, New York.

*Callopora oculifera* Hall. See *Callotrypa oculifera* (Hall).

*Callopora* (*Callotrypa*) *oculifera* Hall. See *Callotrypa oculifera* (Hall).

*Callopora ohioensis* Foerste. See *Lioclemella ohioensis* (Foerste).

***Callopora onealli* (James).**

1875. *Chaetetes? O'Nealli*. James, Introd. Catal. Low. Sil. Foss., p. 2.

1888. *Monticulipora o'nealli*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 174.

1889. *Callopora onealli*. Miller, North American Geol. Pal., p. 296.

1894. *Monticulipora o'nealli*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 194.

Not *Monticulipora* (*Heterotrypa*) *O'Nealli*. Nicholson, Genus *Monticulipora*, p. 118 = *Callopora onealli-sigillarioides* (Nicholson).

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

***Callopora onealli-communis* (James).**

1882. *Monticulipora* (*Heterotrypa*) *o'nealli? var. communis*. James, Paleontologist, No. 6, p. 47; *ibid.*, No. 7, 1888, pl. i, 8.

**Callopora onealli-communis (James)—Continued.**

1888. *Monticulipora communis*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 175, pl. ii, 5 a, b.  
 1894. *Monticulipora communis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 195.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Callopora onealli-sigillarioides (Nicholson).**

1875. *Chaetetes sigillarioides*. Nicholson, Pal. Ohio, II, p. 203, pl. xxii, 9, 9a.  
 1876. *Chaetetes sigillarioides*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 87, pl. v, 2.  
 1882. *Callopora sigillaroidea*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.  
 1889. *Callopora sigillarioides*. Miller, North American Geol. Pal., fig. 464 (p. 296).  
 1881. *Monticulipora (Heterotrypa) O'Nealli* (not of James). Nicholson, Genus *Monticulipora*, p. 118, pl. iii, 3-3f.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Callopora ?? oppleta Hall and Simpson.**

1879. *Callopora macropora* (in part). Hall, Thirty-second Ann. Rep. New York State Mus., p. 152 (reprint, 1880, p. 14).  
 1883. *Callopora macropora* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xi, 23, 24.  
 1887. *Callopora oppleta*. Hall and Simpson, Pal. New York, VI, p. 21, pl. xi, 23, 24 (called *Callopora macropora* on plate).  
 Lower Helderberg; near Clarksville, N. Y.  
 Obs. This is probably a species of *Eridotrypa*.

*Callopora parasitica* Hall. See *Lioclema parasiticum* (Hall) and *Cœlocaulis ? mediopora* (Hall).

*Callopora (Callotrypa) paucipora* Hall. See *Callotrypa paucipora* (Hall).

**Callopora perelegans Hall.**

1874. *Callopora perelegans*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 102.  
 1879. *Callopora perelegans*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 154 (reprint, 1880, p. 16).  
 1883. *Callopora perelegans*. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 10-17.  
 1887. *Callopora perelegans*. Hall and Simpson, Pal. New York, VI, p. 22, pl. xii, 10-17, pl. xxiii A, 14.  
 Lower Helderberg: Clarksville, New York.

*Callopora ponderosa* Hall. See *Lioclema ponderosum* (Hall).

**Callopora pulchella Ulrich.**

1893. *Callopora pulchella*. Ulrich, Geol. Minnesota, III, p. 283, pl. xxii, 1-12.  
 Trenton (Black River): St. Paul and Cannon Falls, Minnesota.

**Callopora pulchella-persimilis Ulrich.**

1893. *Callopora pulchella* var. *persimilis*. Ulrich, Geol. Minnesota, III, p. 284, pl. xxii, 13-17.  
 Trenton (Black River): Cannon Falls, Minnesota.

*Callopora punctata* Hall. See *Lioclema punctatum* (Hall).

*Callopora punctillata* Winchell. See *Lioclema punctillatum* (Winchell).

**Callopora ramosa** (D'Orbigny).

1850. *Monticulipora ramosa*. D'Orbigny, Prodr. de Pal., I, p. 25.  
 1851. *Chaetetes ramosus*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 266, pl. xix, 2, 2a.  
 1854. *Monticulipora ramosa*. Milne-Edwards and Haime, British Foss. Corals, p. 265.  
 1860. *Monticulipora ramosa*. Milne-Edwards, Hist. Nat. des Corall., III, p. 277.  
 1876. *Chaetetes ramosus*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 88.  
 1879. *Monticulipora* (*Heterotrypa*) *ramosa*. Nicholson, Pal. Tab. Corals, p. 296, pl. xiii, 2, 2a.  
 1881. *Chaetetes ramosus*. Quenstedt, Roehren- und Sternkorallen, p. 77, pl. cxlvi, 13-18.  
 1881. *Monticulipora* (*Heterotrypa*) *ramosa*. Nicholson, Genus *Monticulipora*, p. 110, fig. 18, pl. ii, 2, 2a.  
 1882. *Callopora ramosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.  
 1888. *Monticulipora ramosa*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 181.  
 1890. *Callopora ramosa*. Ulrich, Geol. Surv. Illinois, VIII, fig. 5b (p. 315).  
 1894. *Monticulipora ramosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 204.  
 1896. *Monticulipora* (*Heterotrypa*) *ramosa*. Zittel, Textb. Pal. (Engl. ed.), fig. 185 (p. 103), fig. 186 B (p. 103).  
 1874. *Chaetetes Dalei* (not of Milne-Edwards and Haime). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 501, pl. xxix, 1, 1a.  
 1875. *Chaetetes Dalei* (not of Milne-Edwards and Haime). Nicholson, Pal. Ohio, II, p. 192, pl. xxi, 1, 1a.  
 1883. *Monticulipora Dalii*. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 249, pl. xi, 2.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Callopora ramosa* var. *rugosa* Ulrich. See *Callopora rugosa* (Milne-Edwards and Haime).

**Callopora rugosa** (Milne-Edwards and Haime).

1851. *Chaetetes rugosus*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 268, pl. xx, 6, 6a.  
 1854. *Monticulipora rugosa*. Milne-Edwards and Haime, British Foss. Corals, p. 265.  
 1860. *Monticulipora rugosa*. Milne-Edwards, Hist. Nat. des Corall., III, p. 277.  
 1874. *Chaetetes rugosus*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 502, pl. xxix, 2.  
 1875. *Chaetetes rugosus*. Nicholson, Pal. Ohio, II, p. 193, pl. xxi, 2.  
 1876. *Chaetetes rugosus*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 87, pl. v, 4.  
 1877. *Monticulipora rugosa*. Dybowski, Die Chaetetiden d. Ostb. Silur-Form, p. 92, pl. iii, 1.  
 1881. *Monticulipora* (*Heterotrypa*) *ramosa* var. *rugosa*. Nicholson, Genus *Monticulipora*, p. 113, fig. 19, A, B, pl. ii, 3.  
 1881. *Chaetetes rugosus*. Quenstedt, Roehren- und Sternkorallen, p. 78, pl. cxlvi, 19, 20.  
 1882. *Callopora ramosa* var. *rugosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.  
 1888. *Monticulipora ramosa* var. *rugosa*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 182.

**Callopora rugosa** (Milne-Edwards and Haime)—Continued.

1894. *Monticulipora ramosa* var. *rugosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 205.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Callopora sigillaroidea** Ulrich. See *Callopora onealli-sigillarioides* (Nicholson).

**Callopora singularis** Hall. See *Trematopora ? singularis* (Hall).

**Callopora (Callotrypa) striata** Hall. See *Callotrypa striata* (Hall).

**Callopora subnodosa** Ulrich.

1890. *Callopora subnodosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 417, pl. xxxiii, 5, 5c, fig. 3d (p. 308).

1889. *Callopora subnodosa*. (Ulrich in press), Miller, North American Geol. Pal., fig. 465 (p. 296).

Cincinnati (Richmond): Blanchester, Waynesville, Hanover, and other localities in Ohio; Richmond and Versailles, Indiana; Wilmington and Savannah, Illinois; Iron Ridge, Wisconsin.

**Callopora subplana** Ulrich.

1882. *Callopora subplana*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 253, pl. xi, 7, 7b.

1894. *Callopora subplana*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 196.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Callopora undulata** Ulrich.

1886. *Callopora undulata*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 95.

1893. *Callopora undulata*. Ulrich, Geol. Minnesota, III, p. 279, pl. xxii, 24-31. Trenton (Black River): Minneapolis and St. Paul, Minnesota.

**Callopora unispina** Hall. See *Callotrypa unispina* (Hall) and *Callotrypa striata* (Hall).

**Callopora (Callotrypa) unispina** Hall. See *Callotrypa unispina* (Hall).

**Callopora venusta** Hall. See *Cœlocaulis venusta* (Hall).

**Callopora (Cœlocaulis) venusta** Hall. See *Cœlocaulis venusta* (Hall).

**CALLOPORELLA** Ulrich. Genotype: *Calloporella harrisi* Ulrich = *Monticulipora (Heterotrypa) circularis* James.

1882. *Calloporella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.

1889. *Calloporella*. Miller, North American Geol. Pal., p. 296.

1890. *Calloporella*. Ulrich, Geol. Surv. Illinois, VIII, pp. 373, 418.

**Calloporella circularis** (James).

1882. *Monticulipora (Heterotrypa) circularis*. James, Paleontologist, No. 6, p. 46.

1883. *Monticulipora circularis*. James, Paleontologist, No. 7, p. 58, pl. i, 3, 3a.

1883. *Calloporella harrisi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 91, pl. i, 5-5c.

1888. *Monticulipora lens* (not *Nebulipora lens* McCoy). James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 165.

1894. *Monticulipora lens* (not *Nebulipora lens* McCoy). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 181.

Cincinnati (Richmond): Oxford, Waynesville, Blanchester, and other localities in Ohio.

*Calloporrella harrisi* Ulrich. See *Calloporrella circularis* (James).

***Calloporrella ? lens* (Whitfield).**

1878. *Fistulipora lens*. Whitfield, Ann. Rep. Wisconsin Geol. Surv. for 1877, p. 69.

1882. *Fistulipora lens*. Whitfield, Geol. Surv. Wisconsin, IV, p. 256, pl. xi, 5, 6. Cincinnati (Richmond): Delafield, Wisconsin.

***Calloporrella ? nodulosa* Ulrich.**

1890. *Calloporrella ? nodulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 418, pl. xxxiii, 4, 4a.

1895. *Monticulipora verrucosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 85.

Cincinnati (Richmond): Savannah, Illinois.

*Calloporrella ? nummiformis* Ulrich. See *Callopora ?? nummiformis* Hall.

***CALLOTRYPA* Hall and Simpson. Genotype: *Callopora macropora* Hall.**

1887. *Callotrypa*. Hall and Simpson, Pal. New York, VI, pp. xvi, 24.

1889. *Callotrypa*. Miller, North American Geol. Pal., p. 296.

1890. *Callotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 376.

1897. *Callotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 551.

***Callotrypa ? geniculata* (Hall).**

1886. *Callopora geniculata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 1-3.

1887. *Callopora geniculata*. Hall and Simpson, Pal. New York, VI, p. 75, pl. xxv, 1-3.

Upper Helderberg: Ontario.

***Callotrypa heteropora* (Hall).**

1874. *Callopora heteropora*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 102.

1879. *Callopora heteropora*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 153 (reprint, 1880, p. 15).

1883. *Callopora heteropora*. Hall, Rep. State Geologist New York for 1882, pl. xi, 32-34, pl. xiii, 5-8.

1887. *Callopora (Callotrypa) heteropora*. Hall and Simpson, Pal. New York, VI, p. 25, pl. xi, 32-34, pl. xiii, 5-8, pl. xxiii, 3.

Lower Helderberg: Clarksville, New York.

***Callotrypa internodata* (Hall).**

1883. *Callopora internodata*. Hall, Trans. Albany Institute, X, p. 182 (abstract, 1881, p. 182).

1884. *Callopora internodata*. Hall, Rep. State Geologist New York for the year 1883, p. 16.

1887. *Callopora (Callotrypa) internodata*. Hall and Simpson, Pal. New York, VI, p. 189.

Hamilton: Darien Center, New York.

***Callotrypa macropora* (Hall).**

1874. *Callopora macropora*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 101.

1879. *Callopora macropora*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 152 (reprint, 1880, p. 14).



**Callotrypa macropora (Hall)—Continued.**

1883. *Callopora macropora* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xi, 23-29.  
1887. *Callopora* (*Callotrypa*) *macropora*. Hall and Simpson, Pal. New York, VI, p. 24, pl. xi, 25-29, pl. xxiii, 15-19.  
1897. *Callotrypa macropora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xviii, 12-14.  
Lower Helderberg: Catskill, Clarksville, and Schoharie, New York.

**Callotrypa macropora-signata (Hall).**

1874. *Trematopora signata*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 104.  
1879. *Callopora macropora* var. *signata*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 153 (reprint, 1880, p. 15).  
1883. *Callopora macropora* var. *signata*. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 30, 31.  
1887. *Callopora* (*Callotrypa*) *macropora* var. *signata*. Hall and Simpson, Pal. New York, VI, p. 25, pl. xi, 30, 31.  
Lower Helderberg: Clarksville, New York.

**Callotrypa multiseriata (Hall).**

1883. *Callopora multiseriata*. Hall, Trans. Albany Institute, X, p. 149 (abstract, 1881, p. 7).  
1883. *Callopora multiseriata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxiv, 18, 19.  
1886. *Callopora multiseriata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 6, 7.  
1887. *Callopora multiseriata*. Hall and Simpson, Pal. New York, VI, p. 75, pl. xxv, 6, 7, pl. xxvi, 18, 19.  
1889. *Callotrypa multiseriata*. Miller, North American Geol. Pal., p. 296.  
1890. *Callotrypa multiseriata*. Ulrich, Geol. Surv. Illinois, VIII, p. 376.  
Upper Helderberg: Le Roy, New York.

**Callotrypa oculifera (Hall).**

1879. *Callopora oculifera*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 155 (reprint, 1880, p. 17).  
1883. *Callopora oculifera*. Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 10.  
1887. *Callopora* (*Callotrypa*) *oculifera*. Hall and Simpson, Pal. New York, VI, p. 27, pl. xiii, 10, pl. xxiii, 6.  
Lower Helderberg: Clarksville, New York.

**Callotrypa paucipora (Hall and Simpson).**

1887. *Callopora* (*Callotrypa*) *paucipora*. Hall and Simpson, Pal. New York, VI, pl. xxiii, 21. (Not described.)  
Lower Helderberg: Clarksville, New York.

**Callotrypa striata (Hall and Simpson).**

1879. *Callopora unispina* (in part). Hall, Thirty-second Ann. Rep. New York State Mus., p. 153 (reprint, 1880, p. 15).  
1883. *Callopora unispina* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xi, 35-41.  
1887. *Callopora* (*Callotrypa*) *striata*. Hall and Simpson, Pal. New York, VI, p. 26, pl. xi, 38-41, pl. xxiii, 13, 14.  
Lower Helderberg: Catskill Creek and Clarksville, New York.

**Callotrypa unispina (Hall).**

1874. *Callopora unispina*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 102.

**Callotrypa unispina (Hall)—Continued.**

1879. *Callopora unispina*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 153 (reprint, 1880, p. 15).  
 1883. *Callopora unispina*. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 35-39, ? 40-41.  
 1887. *Callopora (Callotrypa) unispina*. Hall and Simpson, Pal. New York, VI, p. 26, pl. xi, 35-37.  
 1897. *Callotrypa unispina*. Simpson, Fourteenth Ann. Rep. New York State Geologist for the year 1894, pl. xviii, 8-11.  
 Lower Helderberg: Catskill Creek and Clarksville, New York.

*Carinopora Nicholson*. See *Semicoscium Prout*.

*Carinopora Hindei Nicholson*. See *Semicoscium hindei* (Nicholson).

*Cavea D'Orbigny*. Not a Paleozoic genus.

*Cavea prisca Gabb and Horn*. See *Streblotrypa prisca* (Gabb and Horn).

**CERAMELLA Hall and Simpson. Genotype: *Ceramella scidacea* Hall and Simpson.**

1887. *Ceramella*. Hall and Simpson, Pal. New York, VI, p. xix.  
 1889. *Ceramella*. Miller, North American Geol. Pal., p. 296.  
 1897. *Ceramella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.

Obs.—This genus is probably a synonym of either *Glyptopora* Ulrich or *Phractopora* Hall. The figures and description are insufficient to decide, the specimens being apparently young.

***Ceramella scidacea* Hall and Simpson.**

1887. *Ceramella scidacea*. Hall and Simpson, Pal. New York, VI, p. 420, pl. lxiv, 5-8.  
 1897. *Ceramella scidacea*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiv, 2-6.  
 Hamilton: Spurgen's Glen, Norton's Landing, Cayuga Lake, and Darien Center, New York.

**CERAMOPHYLLA Ulrich. Genotype: *Ceramophylla frondosa* Ulrich.**

1893. *Ceramophylla*. Ulrich, Geol. Minnesota, III, p. 331.

***Ceramophylla frondosa* Ulrich.**

1893. *Ceramophylla frondosa*. Ulrich, Geol. Minnesota, III, p. 331, pl. xxviii, 3-7.  
 1896. *Ceramophylla frondosa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 438 (p. 268).

Trenton (Black River): St. Paul and Goodhue County, Minnesota.

**CERAMOPORA Hall. Genotype: *Ceramopora imbricata* Hall.**

1852. *Ceramopora*. Hall, Pal. New York, II, p. 168.  
 1860. *Ceramopora*. Eichwald, Lethæa Rossica, I, p. 412.  
 1882. *Ceramopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.  
 1887. *Ceramopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 169.  
 1887. *Ceramopora*. Hall and Simpson, Pal. New York, VI, p. xviii.  
 1888. *Ceramopora*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 36.  
 1889. *Ceramopora*. Miller, North American Geol. Pal., p. 296.  
 1890. *Ceramopora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 380, 462.  
 1896. *Ceramopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 267.

**CERAMOPORA** Hall—Continued.

1897. *Ceramopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 563.

*Ceramopora agellus* Hall. See *Ceramopora* ? *confluens* Hall.

*Ceramopora alternata* James. See *Cœloclema alternatum* (James).

*Ceramopora* ? *beani* James. See *Paleschara beani* (James).

*Ceramopora clypeiformis* Hall. Not recognized.

1883. *Ceramopora* (*Lichenalia*?) *clypeiformis*. Hall, Trans. Albany Institute, X, p. 188 (abstract, 1881, p. 188).

1884. *Lichenalia* (*Ceramopora*) *clypeiformis*. Hall, Rep. State Geologist New York for the year 1883, p. 37.

Hamilton: York, Moscow, New York.

*Ceramopora concentrica* James. See *Cœloclema concentricum* (James).

***Ceramopora* ? *confluens* Hall.**

1876. *Ceramopora confluens*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. vii, 4, 5; *ibid.* (Museum edition, 1879), p. 119, pl. viii, 4, 5.

1882. *Ceramopora confluens*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 243, pl. vii, 4, 5.

1897. *Ceramopora confluens*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 14, 15.

1876. *Ceramopora* ? (*Berenicea*) *labecula*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. viii, 1-3; *ibid.* (Museum edition), 1879, p. 119, pl. viii, 1-3.

1882. *Ceramopora labecula*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 242, pl. vii, 1-3.

1897. *Ceramopora labecula*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 11.

1876. *Ceramopora agellus*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. viii, 6; *ibid.* (Museum edition), 1879, p. 120, pl. viii, 6.

1882. *Ceramopora agellus*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 243, pl. vii, 6.

Niagara: Waldron, Indiana.

Obs. This species is probably a *fistuliporoid*. *C. agellus* and *C. labecula* are apparently young specimens.

***Ceramopora* ? *expansa* (James).**

1879. *Alveolites expansa*. James, Paleontologist, No. 3, p. 19.

1887. *Ceramopora expansa*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 169; *ibid.*, III, 1888, pl. xvii, 13.

Clinton: Clinton County, Ohio.

***Ceramopora* ? *explanata* Hall.**

1883. *Ceramopora* ? (*Lichenalia*?) *explanata*. Hall, Trans. Albany Institute, X, p. 61 (abstract, 1879, p. 5).

1882. *Ceramopora* ? (*Lichenalia*?) *explanata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 245.

Niagara: Waldron, Indiana.

*Ceramopora foliacea* Hall. See *Meekopora foliacea* (Hall).

*Ceramopora* ? (*Lichenalia*) *foliacea* Hall and Simpson. See *Fistulipora foliacea* (Hall).

*Ceramopora Huronensis* Nicholson. See *Fistulipora huronensis* (Nicholson).

***Ceramopora imbricata* Hall.**

1852. *Ceramopora imbricata*. Hall, Pal. New York, II, p. 169, pl. xIE, 1 *a-i*.

1890. *Ceramopora imbricata*. Ulrich, Geol. Surv. Illinois, VIII, p. 463, pl. xxxix, 1-*b*.

Niagara: Lockport, New York; Osgood, Indiana.

***Ceramopora* ?? *imbricella* (Hall).**

1883. *Lichenalia* (*Ceramopora*) *imbricella*. Hall, Trans. Albany Institute, X, p. 188 (abstract 1881, p. 188).

1884. *Lichenalia* (*Ceramopora*) *imbricella*. Hall, Rep. State Geologist New York for the year 1883, p. 37.

1887. *Ceramopora imbricella*. Hall and Simpson, Pal. New York, VI, p. 236.

Hamilton: Near Alden, Erie County, New York.

Obs. It is doubtful whether this form can be recognized from the descriptions given.

***Ceramopora* ?? *incrustans* Hall.**

1852. *Ceramopora incrustans*. Hall, Pal. New York, II, p. 169, pl. xIE, 2 *a-d*.

Niagara: Lockport, New York.

Obs. A reexamination of the type specimens of this species will very probably show it to be a species of *Fistulipora*. In that case it will require renaming, as the name is preoccupied by the genotype of *Fistulipora*.

*Ceramopora* ? *irregularis* James. See *Batostoma impicatum* (Nicholson).

*Ceramopora labecula* Hall. See *Ceramopora* ? *confluens* Hall.

*Ceramopora* ? (*Berenicea*) *labecula* Hall. See *Ceramopora* ? *confluens* Hall.

***Ceramopora* ? *labeculoidea* Hall.**

1879. *Ceramopora labeculoidea*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 158 (reprint 1880, p. 20).

1883. *Ceramopora labeculoidea*. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 1, 2.

1887. *Ceramopora labeculoidea*. Hall and Simpson, Pal. New York, VI, p. 33, pl. xvi, 1, 2.

1897. *Ceramopora labeculoidea*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 10.

Lower Helderberg: Clarksville, New York.

Obs. This species is probably the young of some *fistuliporoid*.

***Ceramopora* ? *maculata* Hall.**

1874. *Ceramopora maculata*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 108.

1879. *Ceramopora maculata*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 159 (reprint, 1880, p. 21).

1883. *Ceramopora maculata*. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 5-11.

1887. *Ceramopora maculata*. Hall and Simpson, Pal. New York, VI, p. 33, pl. xvi, 5-11.

1897. *Ceramopora maculata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 5-9.

Lower Helderberg: Clarksville and Schoharie, New York.

*Ceramopora* (Berenicea) maxima Hall. Abandoned by the author.

1874. *Ceramopora* (Berenicea) maxima. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 109.

1879. *Ceramopora* (Berenicea) maxima. Hall, Thirty-second Ann. Rep. New York State Mus., p. 159 (reprint, 1880, p. 21.)

1883. *Ceramopora* (Berenicea) maxima. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 12.

Lower Helderberg: Schoharie, New York.

Obs. In the Pal. New York, VI, 1887, p. 34, Hall and Simpson say that this name may be dropped from the list of determined species.

*Ceramopora nicholsoni* (James). See *Chiloporella nicholsoni* (James).

*Ceramopora* ? *notha* Hall.

1883. *Ceramopora* (Paleschara ?) *nothus*. Hall, Trans. Albany Institute, X, p. 62 (abstract, 1879, p. 6.)

1882. *Ceramopora* (Paleschara ?) *nothus*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 244.

Niagara: Waldron, Indiana.

*Ceramopora* (Paleschara ?) *nothus* Hall. See *Ceramopora* ? *notha* Hall.

*Ceramopora Ohioensis* (Nicholson). See *Ceramoporella ohioensis* (Nicholson).

*Ceramopora* ? *orbiculata* Ringueberg.

1886. *Ceramopora orbiculata*. Ringueberg, Bull. Buffalo Soc. Nat. Hist., V, p. 19, pl. ii, 13, 13a.

Niagara: Lockport, New York.

*Ceramopora* ? *parvicella* Hall.

1879. *Ceramopora parvicella*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 158 (reprint, 1880, p. 20.)

1883. *Ceramopora parvicella*. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 3, 4.

1887. *Ceramopora* ? *parvicella*. Hall and Simpson, Pal. New York, VI, p. 34, pl. xvi, 3, 4.

1897. *Ceramopora parvicella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 12, 13.

Lower Helderberg: Clarksville, New York.

*Ceramopora radiata* James. Not recognizable.

1878. *Ceramopora radiata*. James, Paleontologist, No. 2, p. 12.

Cincinnati: Cincinnati, Ohio

Obs. An examination of the type specimen can alone decide just what form this is, but it is probably a young example of *Ceramoporella granulosa-milfordensis* (James).

*Ceramopora* ? *rariopora* Hall.

1883. *Ceramopora rariopora*. Hall, Trans. Albany Institute, X, p. 62 (abstract 1879, p. 6.)

1882. *Ceramopora rariopora*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 244.

Niagara: Waldron, Indiana.

*Ceramopora whitei* (James). See *Ceramoporella whitei* (James).

**CERAMOPORELLA** Ulrich. Genotype: *Ceramoporella distincta* Ulrich.

1882. *Ceramoporella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.

1889. *Ceramoporella*. Miller, North American Geol. Pal., p. 297.

**CERAMOPORELLA Ulrich—Continued.**

1890. *Ceramoporella*. Ulrich, Geol. Surv. Illinois, VIII, pp. 380, 464.  
 1893. *Ceramoporella*. Ulrich, Geol. Minnesota, III, p. 328.  
 1896. *Ceramoporella*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 267.  
 1897. *Ceramoporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 564.

***Ceramoporella distincta* Ulrich.**

1890. *Ceramoporella distincta*. Ulrich, Geol. Surv. Illinois, VIII, p. 464, pl. xxxix, 6, 6a.  
 Not *Ceramoporella distincta*. Ulrich, Geol. Minnesota, III, 1893, p. 328, pl. xxviii, 13; Zittel's Textb. Pal. (Engl. ed.), 1896, fig. 435 (p. 267); Simpson, Fourteenth Ann. Rep. State Geol. New York for the year 1894, 1897, fig. 130 (p. 565).  
 Cincinnati (Utica and Lorraine): Cincinnati, Ohio, and vicinity.

***Ceramoporella granulosa* Ulrich.**

1890. *Ceramoporella granulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 466, pl. xli, 2, 2a.  
 Cincinnati (Richmond): Wilmington, Illinois; Iron Ridge, Wisconsin; Richmond and Versailles, Indiana; Oxford, Waynesville, and other localities in Ohio.  
 Obs. Hall and Simpson (Pal. New York, VI, 1887, pl. xiv, 15-17, pl. xxiii, 4) figure the Cincinnati (Utica) form of this as *Fistulipora* sp.? Figure 17 is incorrect, no vesicles or vesicular tissue being found in this species.

***Ceramoporella granulosa-milfordensis* James.**

1878. *Callopora milfordensis*. James, Paleontologist, No. 2, p. 11.  
 1888. *Monticulipora (Fistulipora) milfordensis*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 36, pl. i, 7-7b.  
 1896. *Monticulipora (Fistulipora) milfordensis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 122.  
 Cincinnati (Utica): Milford, Ohio; Cincinnati, Ohio, and vicinity.

***Ceramoporella inclusa* Ulrich.**

1893. *Ceramoporella inclusa*. Ulrich, Geol. Minnesota, III, p. 329, pl. xxviii, 8-11.  
 1897. *Ceramoporella inclusa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 132 (p. 565).  
 Trenton (Stones River, Black River, and Trenton): Minneapolis, St. Paul, Cannon Falls, and several localities in Goodhue and Fillmore counties, Minnesota.

***Ceramoporella interporosa* Ulrich.**

1893. *Ceramoporella interporosa*. Ulrich, Geol. Minnesota, III, p. 330, pl. xxviii, 12.  
 1897. *Ceramoporella interporosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 131 (p. 565).  
 Trenton: Goodhue County, Minnesota.

***Ceramoporella? irregularis* (Whitfield).**

1878. *Alveolites irregularis*. Whitfield, Ann. Rep. Wisconsin Geol. Surv. for 1877, p. 72.  
 1882. *Alveolites irregularis*. Whitfield, Geol. Surv. Wisconsin, IV, p. 251, pl. xi, 1, 2.  
 Cincinnati (Richmond): Iron Ridge, Wisconsin.

**Ceramoporella ohioensis** (Nicholson).

1875. *Ceramopora Ohioensis*. Nicholson, Pal. Ohio, II, p. 265, pl. xxv, 10a, b, e (not 10c, d).

1888. *Ceramopora ohioensis*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 37.

1889. *Ceramopora ohioensis*. Miller, North American Geol. Pal., fig. 466 (p. 297).

1890. *Ceramoporella?* *ohioensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 466, pl. xxxix, 2, 2a.

Cincinnati (Utica, Lorraine, and Richmond): Cincinnati, Ohio, and vicinity. A common species in the Utica, Lorraine, and Richmond groups of Ohio, Indiana, Kentucky, Tennessee, Illinois, and Wisconsin.

**Ceramoporella stellata** Ulrich.

1890. *Ceramoporella stellata*. Ulrich, Geol. Surv. Illinois, VIII, p. 465, pl. xli, 1, 1a.

Cincinnati (Richmond): Sterling, Illinois.

**Ceramoporella whitei** (James).

1878. *Ceramopora Whitei*. James, Paleontologist, No. 2, p. 12.

1888. *Ceramopora?* *whitei*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 38, pl. i, 9, 9a.

Cincinnati (Lorraine and Richmond): Cincinnati, Ohio, and vicinity. Richmond and Versailles, Indiana; Oxford, Waynesville, and other localities in Ohio.

*Ceriopora* Goldfuss. Not a Paleozoic genus.

*Ceriopora constellata* Van Cleve (Mss.). See *Constellaria constellata* (Van Cleve) Dana.

*Ceriopora?* *Hamiltonensis* Nicholson. See *Streblotrypa hamiltonensis* (Nicholson).

*Ceriopora ramosa* D'Orbigny. Not recognizable without material.

1842. *Ceriopora ramosa*. D'Orbigny, Voyage dans l'Amérique Méridionale, III, p. 56, pl. vi, 9, 10.

Carboniferous: Yarbichambi, Bolivia.

**CHÆTETES** Fischer. Genotype *Chætetes radians* Fischer. Not considered a bryozoan.

1837. *Chætetes*. Fischer, Oryct. du Gouv. Moscou, p. 159.

Not *Chætetes* of many authors who have used the name for true bryozoa.

*Chætetes abruptus* Hall. See *Monotrypella?* *abrupta* (Hall).

*Chætetes* (*Monotrypella*) *abruptus* Hall and Simpson. See *Monotrypella?* *abrupta* (Hall).

*Chætetes æquidistans* Hall. Can not be recognized.

1883. *Chætetes æquidistans*. Hall, Trans. Albany Institute, X, p. 146 (abstract, 1881, p. 4).

Upper Helderberg, New York.

*Chætetes approximatus* Nicholson. See *Callopora dalei* (Milne-Edwards and Haime).

*Chætetes* (*Monotrypella*) *arbusculus* Hall. See *Monotrypella?* *arbuscula* (Hall).

*Chætetes attritus* Nicholson. See *Dekayia aspera* (Milne-Edwards and Haime).

*Chætetes Barrandi* Nicholson. See *Heterotrypa ? barrandei* (Nicholson).

*Chætetes briareus* Nicholson. See *Eridotrypa briareus* (Nicholson).

*Chætetes calyculus* James. See *Aspidopora calycula* (James).

*Chætetes ? carbonarius* Worthen. See *Stenopora carbonaria* (Worthen).

*Chætetes cincinnatiensis* James. See *Monticulipora cincinnatiensis* (James).

*Chætetes ? clathratulus* (James) Nicholson. See *Escharopora pavonia* (D'Orbigny).

*Chætetes clavacoideus* James. See *Leptotrypa clavacoidea* (James).

*Chætetes colliculatus* Hall. See *Monotrypa colliculata* (Hall).

*Chætetes columnaris* Hall. Belongs to genus *Tetradium*, now considered a coral.

1847. *Chætetes columnaris*. Hall, Pal. New York, I, p. 68, pl. xxiii, 4, 4a.

*Chætetes compressus* Ulrich. See *Peronopora compressa* (Ulrich).

*Chætetes consimilis* Hall. See *Monotrypella ? consimilis* (Hall).

*Chætetes constellatus* Quenstedt. See *Constellaria constellata* (Van Cleve) Dana.

*Chætetes corticans* Nicholson. See *Spatiopora corticans* (Nicholson).

*Chætetes corticosa* Hall. See *Eridotrypa corticosa* (Hall).

*Chætetes crebriramus* Hall. Not recognized.

1883. *Chætetes crebriramus*. Hall, Trans. Albany Institute, X, p. 146 (abstract, 1881, p. 4).

Hamilton: Falls of the Ohio.

*Chætetes crustulatus* James. Not recognizable.

1878. *Chætetes crustulatus*. James, Paleontologist, No. 1, p. 1; *ibid.*, No. 3, 1879, p. 20.

1888. *Monticulipora crustulata*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 23, pl. i, 2, 2a.

1895. *Monticulipora crustulata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 82.

Cincinnati: Cincinnati, Ohio.

Obs. A variety of forms was included under this name, many of which have since been given other names. The description is so general that it can not be narrowed down to one recognizable form; hence, in the interests of science, the name should be dropped.

*Chætetes dalei* Milne-Edwards and Haime. See *Callopora dalei* (Milne-Edwards and Haime).

*Chætetes dalei* Nicholson (not Milne-Edwards and Haime). See *Callopora ramosa* (D'Orbigny).

*Chætetes decipiens* Rominger. See *Peronopora decipiens* (Rominger).

*Chætetes delicatulus* Nicholson. See *Bythopora delicatula* (Nicholson).

*Chætetes* (*Monotrypella*) *densus* Hall and Simpson. See *Monotrypella ? densa* (Hall).

*Chætetes discoideus* James. See *Amplexopora ? discoidea* (James).



*Chaetetes egenus* Hall. Not recognized.

1883. *Chaetetes egenus*. Hall, Trans. Albany Institute, X, p. 146 (abstract, 1881, p. 4).

Upper Helderberg: Onondaga Valley, New York.

*Chaetetes elegans* Ulrich. See *Discotrypa elegans* (Ulrich).

*Chaetetes ?? expansus* Ringueberg.

1886. *Chaetetes expansus*. Ringueberg, Bull. Buffalo Soc. Nat. Hist., V, p. 20, pl. ii, 17.

Niagara: Lockport, New York.

Obs. Probably a valid species, but requires further study to determine generic position.

*Chaetetes filiasus* Milne-Edwards and Haime. See *Amplexopora filiosa* (D'Orbigny).

*Chaetetes Fletcheri* Nicholson (not Milne-Edwards and Haime). See *Dekayella ulrichi* (Nicholson).

*Chaetetes Fletscheri* Quenstedt (not Milne-Edwards and Haime). See *Dekayella ulrichi* (Nicholson).

*Chaetetes frondosus* Milne-Edwards and Haime. See *Heterotrypa frondosa* (D'Orbigny).

*Chaetetes frondosus* Nicholson (not D'Orbigny). See *Peronopora decipiens* (Rominger).

*Chaetetes frondosus* Quenstedt. See *Peronopora decipiens* (Rominger) and *Heterotrypa frondosa* (D'Orbigny).

*Chaetetes frondosus limatus* Quenstedt. See *Heterotrypa frondosa* (D'Orbigny).

*Chaetetes fruticosus* Hall. (Lower Helderberg.) Name preoccupied. See *Monotrypella? arbuscula* (Hall).

*Chaetetes fruticosus* Hall (Hamilton). Can not be recognized.

1876. *Chaetetes fruticosus*. Hall, Illus. Devonian Foss., pl. xxxviii, 1-5. (Not described.)

1899. *Monotrypa fruticosa*. (Hall's species?) Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 136, fig. 20.

Hamilton: Canandaigua Lake and Eighteenmile Creek, New York.

*Chaetetes furcatus* Hall. Can not be recognized.

1876. *Chaetetes furcatus*. Hall, Illus. Devonian Foss., pl. xxxvii, 1-5, pl. xxxviii, 6-9. (Not described.)

1899. *Monotrypa? furcata*. (Hall's species?) Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 137, fig. 21.

Hamilton: Norton's Landing and Eighteenmile Creek, New York.

*Chaetetes fusiformis* Whitfield. See *Lioclemella fusiformis* (Whitfield).

*Chaetetes gracilis* James. See *Bythopora gracilis* (Nicholson).

*Chaetetes granuliferus* Ulrich. See *Homotrypella granulifera* (Ulrich).

*Chaetetes ?? hamiltonensis* Winchell.

1866. *Chaetetes Hamiltonensis*. Winchell, Rep. Low. Penin. Michigan, p. 89. Hamilton, Petoskey, Michigan.

Obs. A valid species, but requires further investigation to determine its generic position.

*Chaetetes Helderbergiæ* Hall. See *Monotrypa ? helderbergiæ* (Hall).  
*Chaetetes humilis* Hall. Can not be recognized.

1876. *Chaetetes humilis*. Hall, *Illus. Devonian Foss.*, pl. xxxvii, 11-15. (Not described.)

1881. *Chaetetes humilis*. Quenstedt, *Roehren- und Sternkorallen*, p. 69, pl. cxlv, 34.

Upper Helderberg: Western New York.

*Chaetetes implicata* Ulrich. See *Batostoma implicatum* (Nicholson).

*Chaetetes internascens* Hall. Not recognized.

1883. *Chaetetes ? (Trematopora?) internascens*. Hall, *Trans. Albany Institute*, X, p. 147 (abstract, 1881, p. 5).

Hamilton: Falls of the Ohio.

*Chaetetes irregularis* Ulrich. See *Leptotrypa ? irregularis* (Ulrich).

*Chaetetes Jamesi* Nicholson. See *Batostoma jamesi* (Nicholson).

*Chaetetes lævramus* Quenstedt. See *Bythopora gracilis* (Nicholson).

*Chaetetes lycoperdon* (Say) Hall. Not recognizable.

— *Chaetetes lycoperdon*. Say (Mss.).

1847. *Chaetetes lycoperdon*. Hall, *Pal. New York*, I, p. 64, pl. xxiii, 1a-i, pl. xxiv, 1a-o, 2, 2a, 3; *ibid.*, p. 48, pl. xii, 3, 5; *ibid.*, p. 276, pl. lxxv, 2a-f.

1852. *Chaetetes lycoperdon*. Hall, *Pal. New York*, II, p. 40, pl. xvii, 1a-h.

1874. *Chaetetes lycoperdon*. Nicholson and Hinde, *Canadian Jour.*, new ser., XIV, p. 140.

1881. *Chaetetes lycoperdon*. Quenstedt, *Roehren- und Sternkorallen*, p. 71, pl. cxlvi, 1, 2.

Trenton.

Obs. The term *lycoperdon* has deservedly fallen into disuse. As it was never properly defined and limited, the name came to be used by many authors for any and every kind of bryozoan, especially if it had a hemispheric or globose shape.

*Chaetetes lycoperdon* James (not Hall).

1878. *Chaetetes lycoperdon*. James, *Paleontologist*, No. 2, p. 11.

1879. *Chaetetes lycopodites* (not Vanuxem). James, *Paleontologist*, No. 3, p. 20. Cincinnati: Cincinnati, Ohio.

Obs. The form thus referred by James can not be identified.

*Chaetetes lycopodites* James (not Vanuxem). See *Chaetetes lycoperdon* James (not Hall).

*Chaetetes mammulatus* Milne-Edwards and Haime. See *Monticulipora mammulata* (D'Orbigny).

*Chaetetes mammulatus* Nicholson (not D'Orbigny). See *Heterotrypa frondosa* (D'Orbigny).

*Chaetetes mammulatus* Quenstedt (not D'Orbigny).

1881. *Chaetetes mammulatus*. Quenstedt, *Roehren- und Sternkorallen*, p. 75, pl. cxlvi, 10, 11 (not 12).

Cincinnati (Richmond): Richmond, Indiana.

Obs. This is a species that has not yet been described.

*Chaetetes meeki* James. See *Bythopora meeki* (James).

*Chaetetes ?? microscopicus* Winchell.

1866. *Chaetetes microscopicus*. Winchell, *Rep. Low. Penin. Michigan*, p. 90. Hamilton: Petoskey, Michigan.

**Chaetetes ?? microscopicus** Winchell—Continued.

1866. Obs. A valid species, but further investigation is needed to determine generic position.

**Chaetetes minutus** James. See *Bythopora delicatula* (Nicholson).

**Chaetetes moniliformis** Nicholson. See *Heterotrypa ? moniliformis* (Nicholson).

**Chaetetes monticulatus** Hall. See *Monotrypa monticulata* (Hall).

**Chaetetes muscatinensis** White. Not a bryozoan.

1876. *Chaetetes Muscatinensis*. White, Proc. Acad. Nat. Sci. Philadelphia, p. 27. Hamilton: Muscatine, Iowa.

**Chaetetes Newberryi** Nicholson. See *Aspidopora newberryi* (Nicholson).

**Chaetetes nodulosus** Nicholson. See *Callopora nodulosa* (Nicholson).

**Chaetetes ? O'Neilli** James. See *Callopora onealli* (James).

**Chaetetes Ortoni** Nicholson. See *Atactoporella ortonii* (Nicholson).

**Chaetetes papillatus** Nicholson (not McCoy).

1874. *Chaetetes papillatus* Nicholson (not McCoy). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 513, pl. xxix, 12-12b.

1875. *Chaetetes papillatus* (not McCoy). Nicholson, Pal. Ohio, II, p. 210. Cincinnati: Cincinnati, Ohio.

Obs. The form so referred can not be identified with certainty from Nicholson's description and figures, but it was probably a species of *Petigopora*, possibly the *P. asperula* Ulrich.

**Chaetetes pavonia** Milne-Edwards and Haime. See *Escharopora pavonia* (D'Orbigny).

**Chaetetes petechialis** Nicholson. See *Petigopora petechialis* (Nicholson).

**Chaetetes petropolitanus** James (not Pander).

1878. *Chaetetes petropolitanus*. James, Paleontologist, No. 2, p. 11. Cincinnati: Cincinnati, Ohio.

Obs. The form so referred by James is probably *Amplexopora petasiformis* (Nicholson).

**Chaetetes petropolitanus** Meek and Worthen (not Pander).

1868. *Chaetetes petropolitanus* Pander (?). Meek and Worthen, Geol. Surv. Illinois, III, p. 304, pl. ii, 8a, b.

Trenton: Scales Mound, Illinois.

Obs. Further investigation is needed to determine what the form is which Meek and Worthen referred as above.

**Chaetetes petropolitanus** Nicholson (in part). See *Mesotrypa whiteavesi* (Nicholson).

**Chaetetes petropolitanus** of various authors (not Pander).

Obs. A great variety of forms agreeing in having a discoid or hemispheric shape and differing, often greatly, in internal structure, has been confused under this name. Without an examination of the various specimens, no synonymy can be given.

**Chaetetes ?? ponderosus** Rominger.

1892. *Chaetetes ponderosus*. Rominger, American Geologist, X, p. 58, pl. iii, 4-8. Hamilton: Falls of the Ohio.

*Chaetetes pulchellus* Nicholson (not Milne-Edwards and Haime). See *Callopora andrewsi* (Nicholson).

*Chaetetes quadrangularis* Nicholson. See *Leptotrypa* ? *quadrangularis* (Nicholson).

*Chaetetes quadratus* Rominger. See *Monotrypella quadrata* (Rominger).

*Chaetetes ramosus* Milne-Edwards and Haime. See *Callopora ramosa* (D'Orbigny).

*Chaetetes rhombicus* Nicholson. See *Monotrypella quadrata* (Rominger).

***Chaetetes* ?? *rugosus* Hall.**

1847. *Chaetetes rugosus*. Hall., Pal. New York, I, p. 67, pl. xxiv, 2a, b.

Trenton: Middleville, Herkimer County, New York.

Obs. The generic position can not be determined from the description and figures given.

*Chaetetes rugosus* Milne-Edwards and Haime. See *Callopora rugosa* (Milne-Edwards and Haime).

*Chaetetes sigillarioides* Nicholson. See *Callopora onealli-sigillarioides* (Nicholson).

*Chaetetes spherica* Hall. See *Monotrypa spherica* (Hall).

*Chaetetes subglobosa* Ulrich. See *Monotrypa turbinata* (James).

*Chaetetes subpulchellus* Nicholson. See *Heterotrypa subpulchella* (Nicholson).

*Chaetetes subrotundus* James. Not a bryozoan.

1878. *Chaetetes subrotundus*. James, Paleontologist, No. 2, p. 11.

*Chaetetes tabulatus* Hall. See *Monotrypa tabulata* (Hall).

*Chaetetes* (*Ptychonema*) *tabulatus* Hall and Simpson. See *Monotrypa tabulata* (Hall).

***Chaetetes* ?? *tenuis* Hall.**

1876. *Chaetetes tenuis*. Hall, Illus. Devonian Foss., pl. xxxvii, 6-10. (Not described.)

1892. *Monotrypa tennis* (in error for *tenuis*). Rominger, American Geologist, X, p. 60, pl. iii, 1-3.

Upper Helderberg: Genesee County, New York (Hall).

Hamilton: Falls of the Ohio (Rominger).

*Chaetetes tuberculatus* Milne-Edwards and Haime. See *Spatiopora tuberculata* (Milne-Edwards and Haime).

*Chaetetes tuberculatus* Nicholson (not Milne-Edwards and Haime). See *Spatiopora corticans* (Nicholson).

*Chaetetes turbinatum* James. See *Monotrypa turbinata* (James).

*Chaetetes undulatus* Nicholson. See *Monotrypa undulata* (Nicholson).

*Chaetetes varians* James. See *Batostoma varians* (James).

*Chaetetes venustus* Ulrich. See *Crepidopora venusta* (Ulrich).

**CHAINODICTYON Foerste. Genotype: *Chainodictyon laxum* Foerste.**

1887. *Chainodictyon*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 81.

1889. *Chainodictyon*. Miller, North American Geol. Pal., p. 297.

1890. *Chainodictyon*. Ulrich, Geol. Surv. Illinois, VIII, pp. 399, 640.

**Chainodictyon laxum** Foerste.

1887. *Chainodictyon laxum*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 81, pl. vii, 8a-c.

Lower Coal Measures: Flint Ridge, Ohio; Seville, Illinois.

**Chainodictyon laxum-minor** Ulrich.

1890. *Chainodictyon laxum* var. *minor*. Ulrich, Geol. Surv. Illinois, VIII, p. 640, pl. lxii, 3, 3a.

Lower Coal Measures: Seville, Illinois.

*Cheiloporella*. See *Chiloporella*.

*Cheilotrypa*. See *Chilotrypa*.

**CHILOPORELLA** Ulrich. Genotype: *Fistulipora flabellata* Ulrich = *Ceramopora nicholsoni* James.

1882. *Cheiloporella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 157.  
 1889. *Chiloporella*. Miller, North American Geol. Pal., p. 297.  
 1890. *Chiloporella*. Ulrich, Geol. Surv. Illinois, VIII, p. 381.  
 1897. *Chiloporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 565.

*Chiloporella flabellata* Ulrich. See *Chiloporella nicholsoni* (James).

**Chiloporella nicholsoni** (James).

1875. *Ceramopora nicholsoni*. James, Catal. Foss. Cincinnati Group, p. 3.  
 1888. *Monticulipora* (*Fistulipora*) *nicholsoni*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 34, pl. i, 6-6c.  
 1896. *Monticulipora* (*Fistulipora*) *nicholsoni*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 121, fig. 12.  
 1878. *Fistulipora?* *multiplora*. James, Paleontologist, No. 1, p. 2.  
 1879. *Fistulipora siluriana*. James, Paleontologist, No. 3, p. 19.  
 1879. *Fistulipora flabellata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 28, pl. vii, 26-26b.  
 1890. *Chiloporella flabellata*. Ulrich, Geol. Surv. Illinois, VIII, p. 381, pl. xxxix, 5-5b.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**CHILOTRYPA** Ulrich. Genotype: *Chilotrypa hispida* Ulrich.

1884. *Cheilotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 49.  
 1889. *Chilotrypa*. Miller, North American Geol. Pal., p. 297.  
 1890. *Chilotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 382.  
 1896. *Chilotrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 269.  
 1897. *Chilotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 554.

**Chilotrypa camerata** (Hall).

1883. *Trematopora camerata*. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 9, 10.  
 1887. *Diamesopora camerata*. Hall and Simpson, Pal. New York, VI, p. 72, pl. xxvi, 9, 10.  
 1897. *Diamesopora camerata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 3-5.  
 Upper Helderberg: Near Caledonia, New York.

**Chilotrypa ? coalescens** (Hall).

1852. *Trematopora coalescens*. Hall, Pal. New York, II, p. 150, pl. x1A, 2a, b.  
 Niagara: Lockport, New York.

**Chilotrypa constricta (Hall).**

1874. *Trematopora constricta*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 104.  
1879. *Trematopora ? constricta*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 150 (reprint, 1880, p. 12).  
1883. *Trematopora ? constricta*. Hall, Rep. State Geologist New York for the year 1882, pl. x, 14-19.  
1887. *Diamesopora constricta*. Hall and Simpson, Pal. New York, VI, p. 19, pl. x, 14-19, pl. xxiiiA, 7.  
Lower Helderberg: Clarksville, New York.  
Obs. See also *Chilotrypa dispersa* (Hall).

**Chilotrypa dispersa (Hall).**

1879. *Trematopora dispersa*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 150 (reprint, 1880, p. 12).  
1883. *Trematopora dispersa*. Hall, Rep. State Geologist New York for the year 1882, pl. x, 20, 21.  
1887. *Diamesopora dispersa*. Hall and Simpson, Pal. New York, VI, p. 20, pl. x, 20, 21.  
Lower Helderberg: Clarksville, New York.  
Obs. The form is probably a synonym for *Chilotrypa constricta* (Hall).

**Chilotrypa hispida (Ulrich).**

1884. *Chilotrypa hispida*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 50, pl. iii, 6-6d.  
Chester: Sloans Valley, Grayson Springs, and Stephensport, Kentucky;  
Chester and many other localities in Illinois.

**Chilotrypa ostiolata (Hall).**

1852. *Trematopora ostiolata*. Hall, Pal. New York, II, p. 152, pl. xlA, 5a-m.  
1875. *Trematopora ostiolata*. Nicholson, Pal. Province Ontario, p. 60, fig. 26. (Perhaps not the same form.)  
1884. *Chilotrypa ostiolata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, pl. iii, 7, 7a.  
1897. *Chilotrypa ostiolata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 1, 2.  
Niagara: Lockport and Rochester, New York; Hamilton and Niagara River, Ontario.

**Chilotrypa varia (Hall).**

1876. *Trematopora varia*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. x, 15-23; *ibid.* (Museum edition), 1879, p. 111, pl. x, 15-23.  
1882. *Trematopora varia*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 232, pl. ix, 15-23.  
1890. *Diamesopora varia*. Ulrich, Geol. Surv. Illinois, VIII, p. 467.  
Niagara: Waldron, Indiana.

**Chilotrypa variolata (Hall).**

1876. *Trematopora variolata*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xi, 9, 10; *ibid.* (Museum edition, 1879), p. 113, pl. xi, 9, 10.  
1882. *Trematopora variolata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 234, pl. x, 9, 10.  
Niagara: Waldron, Indiana.

**CLATHROPORA** Hall. Genotype: *Clathropora frondosa* Hall.

1852. *Clathropora*. Hall, Pal. New York, II, p. 159.  
 1874. *Clathropora*. Nicholson, Geol. Mag., dec. 2, I, p. 124.  
 1874. *Clathropora*. Nicholson, Pal. Province Ontario, p. 111.  
 1882. *Clathropora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 152.  
 1884. *Clathropora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 39.  
 1887. *Clathropora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 153.  
 1889. *Clathropora*. Miller, North American Geol. Pal., p. 297.  
 1890. *Clathropora*. Ulrich, Geol. Surv. Illinois, VIII, p. 392.  
 1896. *Clathropora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.  
 1897. *Clathropora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 543.

**Clathropora ? alcicornis** Hall.

1852. *Clathropora alcicornis*. Hall, Pal. New York, II, p. 159, pl. xIB, 4a-c.  
 Niagara: Lockport, New York.

**Clathropora carinata** Hall. See *Coscinium cribriforme* (Prout).**Clathropora clintonensis** Hall and Whitfield. See *Clathropora frondosa-clintonensis* Hall and Whitfield.**Clathropora flabellata** Hall. See *Stictoporella flabellata* (Hall).**Clathropora frondosa** Hall.

1852. *Clathropora frondosa*. Hall, Pal. New York, II, p. 160, pl. xIB, 5a-c.  
 1874. *Clathropora frondosa*. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 139.  
 1875. *Clathropora frondosa*. Nicholson, Pal. Province Ontario, p. 59.  
 1882. *Clathropora frondosa*. (Van Cleve) White, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 385, pl. lv, 3.  
 1887. *Clathropora frondosa*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 154; *ibid.*, III, 1888, pl. xv, 3.  
 1889. *Clathropora frondosa*. Miller, North American Geol. Pal., fig. 467 (p. 297).  
 1895. *Clathropora frondosa*. Foerste, Geol. Surv. Ohio, VII, p. 598, pl. xxviii, 3.  
 1897. *Clathropora frondosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 104 (p. 544).  
 Clinton: Dayton and Centerville, Ohio.  
 Niagara: Lockport, New York; Thorold, Ontario.

**Clathropora frondosa-clintonensis** Hall and Whitfield.

1875. *Clathropora clintonensis*. Hall and Whitfield, Pal. Ohio, II, p. 113, pl. v, 7.  
 1887. *Clathropora clintonensis*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 154; *ibid.*, III, 1888, pl. xv, 4.  
 1895. *Clathropora clintonensis*. Foerste, Geol. Surv. Ohio, VII, p. 598, pl. xxviii, 4.  
 Clinton: Dayton and Fair Haven, Ohio.

**Clathropora ? gracilis** Spencer. Not recognizable.

1884. *Clathropora ? gracilis*. Spencer, Trans. St. Louis Acad. Sci., IV, p. 604. pl. vii, 4.  
 1884. *Clathropora ? gracilis*. Spencer, Bull. Mus. State Univ. Missouri, I, p. 54, pl. vii, 4.  
 Niagara: Hamilton, Ontario.

**Clathropora intermedia** Nicholson and Hinde.

1874. *Clathropora intermedia*. Nicholson and Hinde, Canad. Jour., new ser., XIV, p. 140, fig. 5.

**Clathropora intermedia** Nicholson and Hinde—Continued.

1875. *Clathropora intermedia*. Nicholson, Pal. Province Ontario, p. 59, fig. 29a, b.  
Niagara: Thorold, Ontario.

**Clathropora intertexta** Nicholson.

1874. *Clathropora intertexta*. Nicholson, Geol. Mag., new ser., I, p. 125, fig. 15.  
1874. *Clathropora intertexta*. Nicholson, Pal. Province Ontario, p. 112, fig. 49.  
1875. *Clathropora intertexta*. Nicholson, Pal. Province Ontario, p. 60.  
1859. *Coscinium cyclops*. Prout (not Keyserling), Trans. St. Louis Acad. Sci., I, p. 268.

Upper Helderberg (Hamilton?): Port Jarvis, Ontario; Utica, Indiana;  
Columbus, Ohio.

**Clathropora striatura** Hall. See *Coscinium striaturum* (Hall).**CLONOPORA** Hall. Genotype: *Clonopora semireducta* Hall.

1883. *Clonopora*. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 20).  
1887. *Clonopora*. Hall and Simpson, Pal. New York, VI, p. xxv.  
1889. *Clonopora*. Miller, North American Geol. Pal., p. 298.  
1897. *Clonopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 598.

**Clonopora fasciculata** Hall and Simpson.

1887. *Clonopora fasciculata*. Hall and Simpson, Pal. New York, VI, p. 289, pl. lxvi, 1, 2.  
Upper Helderberg: Onondaga Valley, New York.

**Clonopora incurva** Hall.

1883. *Clonopora incurva*. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 20).  
1887. *Clonopora incurva*. Hall and Simpson, Pal. New York, VI, p. 289, pl. lxvi, 5, 6.  
1897. *Clonopora incurva*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 6.  
Upper Helderberg: Manlius, New York.

**Clonopora semireducta** Hall.

1883. *Clonopora semireducta*. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 20).  
1887. *Clonopora semireducta*. Hall and Simpson, Pal. New York, VI, p. 289, pl. lxvi, 3, 4.  
1897. *Clonopora semireductus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 7.  
Hamilton: Falls of the Ohio.

**CÆLOCAULIS** Hall and Simpson. Genotype: *Callopora venusta* Hall.

1887. *Cœlocaulis* (n. s. g.). Hall and Simpson, Pal. New York, VI, pp. xvi, 23.  
1889. *Cœlocaulis*. Miller, North American Geol. Pal., p. 298.  
1897. *Cœlocaulis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 554.

**Cœlocaulis ?? aculeolata** (Hall).

1883. *Callopora aculeolata*. Hall, Trans. Albany Institute, X, p. 149 (abstract, 1881, p. 7).  
1883. *Callopora aculeolata*. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 16, 17.  
1887. *Callopora* (*Cœlocaulis*) *aculeolata*. Hall and Simpson, Pal. New York, VI, p. 76, pl. xxvi, 16, 17.  
Upper Helderberg: New York.



**Cœlocaulis ?? hyale (Hall).**

1874. *Callopora Hyale*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 100.  
 1879. *Callopora Hyale*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 155 (reprint, 1880, p. 17).  
 1883. *Callopora Hyale*. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 18, 19.  
 1887. *Callopora (Cœlocaulis) Hyale*. Hall and Simpson, Pal. New York, VI, p. 76, pl. xii, 18, 19.  
 Upper Helderberg: Central New York.  
 Obs. This is probably a parasitic species of *Fistulipora*.

**Cœlocaulis ? irregularis (Hall).**

1883. *Callopora irregularis*. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 7).  
 1883. *Trematopora (Callopora) irregularis*. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 11-15.  
 1887. *Callopora (Cœlocaulis) irregularis*. Hall and Simpson, Pal. New York, VI, p. 76, pl. xxvi, 11-15.  
 Upper Helderberg: New York.

**Cœlocaulis ? mediopora (Hall).**

1879. *Callopora parasitica* (in part). Hall, Thirty-second Ann. Rep. New York State Mus., p. 157 (reprint, 1880, p. 19).  
 1883. *Callopora parasitica* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xiv, 18.  
 1887. *Callopora (Cœlocaulis) mediopora*. Hall and Simpson, Pal. New York, VI, p. 23, pl. xiv, 18, pl. xxiii A, 11-13.  
 Lower Helderberg: Near Clarksville, New York.

**Cœlocaulis venusta (Hall).**

1874. *Callopora venusta*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 101.  
 1879. *Callopora venusta*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 155 (reprint, 1880, p. 17).  
 1883. *Callopora venusta*. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 20-24.  
 1887. *Callopora (Cœlocaulis) venusta*. Hall and Simpson, Pal. New York, VI, p. 23, pl. xii, 20-24; pl. xxiii A, 1-3, ? 4, 5.  
 1897. *Cœlocaulis venusta*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 3-5.  
 Lower Helderberg: Clarksville, New York.

**CœLOCLEMA Ulrich. Genotype: *Diamesopora vaupeli* Ulrich = *Ceramopora alternata* James.**

1882. *Cœloclema*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 137; *ibid.*, VII, 1884, p. 49. (Not defined.)  
 1890. *Diamesopora* (in part). Ulrich, Geol. Surv. Illinois, VIII, pp. 380, 467.  
 1893. *Diamesopora* (in part). Ulrich, Geol. Minnesota, III, p. 330.  
 1896. *Diamesopora*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 268.  
 Obs. *Cœloclema* Ulrich (not defined) was abandoned in favor of *Diamesopora* Hall, under the mistaken belief that *Diamesopora dichotoma* Hall was congeneric with the *D. vaupeli* Ulrich. As our generic diagnoses show, the two genera are not at all related.

**Cœloclema alternatum (James).**

1878. *Ceramopora alternata*. James, Paleontologist, No. 1, p. 5.

**Cœloclema alternatum (James)—Continued.**

1888. *Monticulipora (Fistulipora) alternata*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 34, pl. i, 5-5b.  
 1890. *Diamesopora vaupeli*. Ulrich, Geol. Surv. Illinois, VIII, p. 468, pl. xxxix, 3, 3b, pl. xli, 4-4c.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Cœloclema concentricum (James).**

1878. *Ceramopora concentrica*. James, Paleontologist, No. 1, p. 5.  
 1888. *Ceramopora concentrica*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 38, pl. i, 8, 8a.  
 1890. *Diamesopora communis*. Ulrich, Geol. Surv. Illinois, VIII, p. 469, pl. xxxix, 3a, pl. xli, 5-5b.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

*Cœloclema imbricata* Ulrich. See *Diamesopora subimbricata* (Hall).

*Cœloclema infrequens* Ulrich. See *Diamesopora infrequens* (Hall).

*Cœloclema osculum* Ulrich. See *Diamesopora osculum* (Hall).

**Cœloclema oweni (James).**

1884. *Fistulipora oweni*. James, Jour. Cincinnati Soc. Nat. Hist., VII, p. 21, fig. 2-2g.  
 1888. *Monticulipora (Fistulipora) oweni*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 34.  
 1890. *Diamesopora oweni*. Ulrich, Geol. Surv. Illinois, VIII, p. 467.  
 1896. *Monticulipora (Fistulipora) oweni*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 119.  
 Cincinnati (Lorraine): Lebanon, Hamilton, and Cincinnati, Ohio.

**Cœloclema trentonense (Ulrich).**

1893. *Diamesopora trentonensis*. Ulrich, Geol. Minnesota, III, p. 330, pl. xxviii, 14.  
 1896. *Diamesopora trentonensis*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 439 (p. 268).  
 Trenton: St. Paul and Cannon Falls, Minnesota; Trenton Falls, New York; Ottawa, Canada.

**CÆLOCONUS Ulrich. Genotype: Cœloconus rhombicus Ulrich.**

1890. *Cœloconus*. Ulrich, Geol. Surv. Illinois, VIII, pp. 402, 664.  
 1889. *Cœloconus*. (Ulrich, in press), Miller, North American Geol. Pal., p. 298.  
 1896. *Cœloconus*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 281.  
 1897. *Cœloconus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 549.

**Cœloconus granosus Ulrich.**

1890. *Cœloconus granosus*. Ulrich, Geol. Surv. Illinois, VIII, p. 665, pl. lxxii, 3-3b.  
 1897. *Cœloconus granosus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 117 (p. 549).  
 Chester: Anna, Chester, and Red Bud, Illinois.

**Cœloconus rhombicus Ulrich.**

1890. *Cœloconus rhombicus*. Ulrich, Geol. Surv. Illinois, VIII, p. 664, pl. lxxii, 4-4c.  
 1897. *Cœloconus rhombicus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 118 (p. 549).  
 Warsaw: Near Waterloo, Illinois.

**CONSTELLARIA** Dana. Genotype: *Ceriopora constellata* (Van Cleve (Mss.)) Dana.

- 1846. *Constellaria*. Dana, Zoophyta, p. 537.
- 1875. *Constellaria*. Nicholson, Pal. Ohio, II, p. 214.
- 1879. *Constellaria*. Nicholson, Pal. Tab. Corals, p. 292.
- 1881. *Constellaria*. Nicholson, Genus Monticulipora, p. 97.
- 1882. *Constellaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.
- 1883. *Constellaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 265.
- 1888. *Constellaria*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 29.
- 1890. *Constellaria*. Ulrich, Geol. Surv. Illinois, VIII, pp. 374, 423.
- 1893. *Constellaria*. Ulrich, Geol. Minnesota, III, p. 311.
- 1896. *Constellaria*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 276.
- 1896. *Constellaria*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 117.
- 1860. *Stellipora*. Milne-Edwards, Hist. Nat. des Corall., III, p. 281.
- 1877. *Stellipora* (in part). Dybowski, Die Chæteiden d. Ostbalt. Silur-Form., p. 42.

*Constellaria antheloidea* of various authors (not Hall). See *Constellaria constellata* (Van Cleve) Dana.

**Constellaria constellata** (Van Cleve) Dana.

- *Ceriopora constellata*. Van Cleve (Mss.), Plates of Fossils.
- 1846. *Constellaria constellata*. Dana, Zoophyta, p. 537, pl. lii, 6a, b.
- 1881. *Chætetes constellatus*. Quenstedt, Roehren- und Sternkorallen, p. 79, pl. cxlvi, 21-25.
- 1850. *Stellipora antheloidea* (not of Hall). D'Orbigny, Prodr. de Pal., I, p. 22.
- 1851. *Constellaria antheloidea* (not of Hall). Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 279, pl. xx, 7, 7b.
- 1860. *Stellipora antheloidea* (not of Hall). Milne-Edwards, Hist. Nat. des Corall., III, p. 281.
- 1866. *Hellipora* (*Constellaria*) *antheloidea* (not of Hall). Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 118.
- 1875. *Constellaria antheloidea* (not of Hall). Nicholson, Pal. Ohio, II, p. 214.
- 1876. *Constellaria antheloidea* (not of Hall). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 92, pl. v, 10.
- 1878. *Constellaria antheloidea* (not of Hall). James, Paleontologist, No. 2, p. 13.
- 1879. *Constellaria antheloidea* (not of Hall). Nicholson, Pal. Tab. Corals, p. 301, pl. xiv, 5, 5b.
- 1882. *Constellaria antheloidea* (not of Hall). (Van Cleve) White, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 379, pl. xlv, 1-3.
- 1882. *Constellaria florida*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 257; *ibid.*, VI, 1883, p. 267, pl. xiv, 2-2f.
- 1896. *Constellaria florida*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 461 (p. 276).
- 1888. *Monticulipora* (*Constellaria*) *polystomella* (not of Nicholson), (in part). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 30.
- 1896. *Monticulipora* (*Constellaria*) *polystomella* (not of Nicholson), (in part). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 118.
- Cincinnati* (Lorraine): Cincinnati, Ohio. A common fossil in the Lorraine beds of Ohio, Indiana, Kentucky, and Tennessee.

**Constellaria constellata-plana** Ulrich.

- 1883. *Constellaria florida* var. *plana*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 269, pl. xiv, 4.
- Cincinnati* (Lorraine): Cincinnati, Ohio, and vicinity.

**Constellaria constellata-prominens Ulrich.**

1883. *Constellaria florida* var. *prominens*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 269, pl. xiv, 3.  
Cincinnati (Utica and Lorraine): Cincinnati, Ohio, and vicinity.

**Constellaria fischeri Ulrich.**

1883. *Constellaria fischeri*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 270, pl. xiv, 6-6c.  
Trenton: Winchester, Kentucky; Nashville, Tennessee. Formation and locality are given erroneously with the description.

*Constellaria florida* Ulrich. See *Constellaria constellata* (Van Cleve) Dana.

*Constellaria florida* var. *plana* Ulrich. See *Constellaria constellata-plana* Ulrich.

*Constellaria florida* var. *prominens* Ulrich. See *Constellaria constellata-prominens* Ulrich.

**Constellaria limitaris (Ulrich).**

1879. *Stellipora limitaris*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 126, pl. xii, 8-8c.  
1883. *Constellaria limitaris*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 269, pl. xiv, 5, 5a.  
Cincinnati (Richmond): Clarksville, Blanchester, Waynesville, and other localities in Ohio; Versailles and Weisburg, Indiana.

**Constellaria parva Ulrich.**

1890. *Constellaria parva*. Ulrich, Geol. Surv. Illinois, VIII, p. 424, pl. xxxiv, 1-1b.  
1896. *Monticulipora* (*Constellaria*) *parva*. J. F. James, Jour. Cincinnati Soc. Nat. Hist. XVIII, p. 119.  
Cincinnati (Richmond): Wilmington, Illinois.

**Constellaria polystomella Nicholson.**

1875. *Constellaria polystomella*. Nicholson, Pal. Ohio, II, p. 215, pl. xxii, 7, 7a.  
1882. *Constellaria polystomella*. Whitfield, Geol. Surv. Wisconsin, IV, p. 257, pl. xii, 3, 4.  
1896. *Monticulipora* (*Constellaria*) *polystomella* (in part). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 118.  
Cincinnati (Richmond): Delafield, Wisconsin; Wilmington, Illinois; Richmond and Versailles, Indiana; Blanchester, Waynesville, and other localities in Ohio.  
Obs. Nicholson erroneously records this characteristic fossil of the Richmond beds as from Cincinnati, Ohio.

**Constellaria punctata (Whitfield).**

1878. *Monticulipora punctata*. Whitfield, Ann. Rep. Wisconsin Geol. Surv. for 1887, p. 71.  
1882. *Monticulipora punctata*. Whitfield, Geol. Surv. Wisconsin, IV, p. 249, pl. xi, 3, 4.  
Cincinnati (Richmond): Delafield and Iron Ridge, Wisconsin.

**Constellaria varia Ulrich.**

1893. *Constellaria varia*. Ulrich, Geol. Minnesota, III, p. 311, pl. xxi, 1-7.  
Trenton: Cannon Falls, Minnesota; Belleville, Canada; Belfast, Tennessee.

**COSCINELLA** Hall and Simpson: Genotype: *Coscinella elegantula* Hall and Simpson.1887. *Coscinella*. Hall and Simpson, Pal. New York, VI, p. xix.1889. *Coscinella*. Miller, North American Geol. Pal., p. 298.1897. *Coscinella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 534.

Obs. Ulrich unites this genus with *Intrapora*. It seems better to hold it for forms agreeing with *Intrapora* in zoecial structure, but differing in the mode of growth by forming a regular network of anastomosing branches with rounded fenestrules.

***Coscinella cosciniformis*** (Nicholson).1875. *Ptilodictya cosciniformis*. Nicholson, Geol. Mag., new ser., II, p. 35, pl. ii, 2-2b.1875. *Ptilodictya cosciniformis*. Nicholson, Pal. Province Ontario, p. 80, pl. ii, 2a, 2b.1887. *Coscinium cosciniforme*. Hall and Simpson, Pal. New York, VI, p. 239. Hamilton: Arkona, Ontario.1889. *Coscinella cosciniformis*. Miller, North American Geol. Pal., p. 298.1890. *Intrapora cosciniformis*. Ulrich, Geol. Surv. Illinois, VIII, p. 532, pl. xliii, 6, 6a.1898. *Intrapora cosciniformis*. Whiteaves, Contr. Canad. Pal., I, p. 376.***Coscinella elegantula*** Hall and Simpson.1887. *Coscinella elegantula*. Hall and Simpson, Pal. New York, VI, p. 239, pl. lxiv, 9-12.1897. *Coscinella elegantula*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiv, 7-12.1898. *Intrapora elegantula*. Whiteaves, Contr. Canad. Pal., I, p. 376. Hamilton: Widder, Ontario.**COSCINIUM** Keyserling. Genotype: *Coscinium cyclops* Keyserling.1846. *Coscinium*. Keyserling, Reise in das Petschora Land, p. 191.1858. *Coscinium*. Prout, Trans. St. Louis Acad. Sci., I, p. 266.1860. *Coscinium*. Eichwald, Lethæa Rossica, I, p. 397.1884. *Coscinium*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 38.1887. *Coscinium*. Hall and Simpson, Pal. New York, VI, p. xix.1889. *Coscinium*. Miller, North American Geol. Pal., p. 298.1890. *Coscinium*. Ulrich, Geol. Surv. Illinois, VIII, pp. 385, 496.1897. *Coscinium*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 537.1887. *Coscinotrypa*. Hall and Simpson, Pal. New York, VI, p. xix.1889. *Coscinotrypa*. Miller, North American Geol. Pal., p. 298.1897. *Coscinotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 537.*Coscinium asterias* Prout. See *Fistulipora asteria* (Prout).*Coscinium cosciniforme* Hall and Simpson. See *Coscinella cosciniformis* (Nicholson).***Coscinium cribriforme*** Prout.1859. *Coscinium cribriformis*. Prout, Trans. St. Louis Acad. Sci., I, p. 269, pl. xvi, 1, 1a.1890. *Coscinium cribriforme*. Ulrich, Geol. Surv. Illinois, VIII, p. 496, pl. xliii, 8.1897. *Coscinotrypa cribriformis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiii, 1-7.

**Coscinium cribriforme** Prout—Continued.

1884. *Coscinium cyclops* (not of Keyserling). Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 38, pl. ii, 6.  
 1883. *Clathropora carinata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 22-25.  
 1886. *Coscinotrypa carinata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 29-35.  
 1887. *Coscinotrypa cribriformis* var. *carinata*. Hall and Simpson, Pal. New York, VI, p. 89, pl. xxix, 29-35, pl. xxxiii, 22-25.  
 Hamilton: Falls of the Ohio; Utica, Indiana.

*Coscinium cyclops* Prout (not Keyserling). See *Clathropora intertexta* Nicholson.

*Coscinium cyclops* Ulrich (not Keyserling). See *Coscinium cribriforme* Prout.

**Coscinium dictyotum** (Meek).

1873. *Ptilodictya* (*Stictopora*?) *dictyota*. Meek, Hayden's Sixth Ann. Rep. U. S. Geol. Surv., p. 465.  
 Carboniferous: Mystic Lake, Montana.

*Coscinium elegans* Prout. See *Glyptopora elegans* (Prout).

*Coscinium escharense* Prout. Not recognizable.

1859. *Coscinium escharense*. Prout, Trans. St. Louis Acad. Sci., I, p. 574.  
 1866. *Coscinium escharense*. Prout, Geol. Surv. Illinois, II, p. 416, pl. xxii, 8, 8a.  
 1884. *Lichenalia escharense*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.  
 Keokuk: Warsaw, Illinois.

*Coscinium keyserlingi* Prout. See *Glyptopora keyserlingi* (Prout).

**Coscinium latum** Ulrich.

1890. *Coscinium latum*. Ulrich, Geol. Surv. Illinois, VIII, p. 497, pl. lxxvi, 7-7b.  
 1894. *Coscinium* ? *latum*. Keyes, Missouri Geol. Surv., V, p. 18.  
 Burlington: Calhoun County and Quincy, Illinois; Burlington, Iowa.

*Coscinium Michelinia* Prout. See *Glyptopora michelinia* (Prout).

*Coscinium plumosum* Prout. See *Glyptopora plumosa* (Prout) and *Glyptopora sagenella-caliculosa* Ulrich.

*Coscinium sagenella* Prout. See *Glyptopora sagenella* (Prout).

**Coscinium striatum** Hall and Simpson.

1887. *Coscinium striatum*. Hall and Simpson, Pal. New York, VI, p. 238, pl. lxiv, 13-16.  
 1897. *Coscinium striatum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiii, 8-12.  
 1898. *Coscinium striatum*. Whiteaves, Contr. Canad. Pal., I, Part V, p. 377.  
 Hamilton: Widder, Ontario.

**Coscinium striaturum** (Hall).

1883. *Clathropora striatura*. Hall, Rep. State Geologist New York for the year 1882, pl. (33) xxvi, 20, 21.  
 1887. *Coscinium striaturum*. Hall and Simpson, Pal. New York, VI, p. 88, pl. xxxiii, 20, 21.  
 1897. *Coscinium striaturum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiv, 1.  
 Upper Helderberg: Stafford, New York.

*Coscinium tuberculatum* Prout. See *Fistulipora* ? *tuberculata* (Prout).

**Coscinium wortheni** Prout.1860. *Coscinium Wortheni*. Prout, Trans. St. Louis Acad. Sci., I, p. 571.1866. *Coscinium Wortheni*. Prout, Geol. Surv. Illinois, II, p. 412, pl. xxii, 1. Keokuk: Near Warsaw, Illinois.Obs. If recognizable at all, probably an abnormal example of *Glyptopora keyserlingi* (Prout).**Coscinotrypa** Hall. See *Coscinium Keyserling*.**Coscinotrypa carinata** Hall. See *Coscinium cribriforme* Prout.**Coscinotrypa cribriformis** Simpson. See *Coscinium cribriforme* Prout.**Coscinotrypa cribriformis** var. *carinata* Hall. See *Coscinium cribriforme* Prout.**Crateripora** Ulrich.1879. *Crateripora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 29.Obs. The forms for which this genus was proposed have been found to be the basal articulating sockets of species of *Escharopora* and *Arthropora*.**Crateripora erecta** Ulrich. See *Arthropora shafferi* (Meek).**Crateripora lineata** Ulrich. See *Escharopora falciformis* (Nicholson).**Crateripora lineata** var. *expansa* Ulrich. See *Escharopora falciformis* (Nicholson).**CREPIPORA** Ulrich. Genotype: *Crepipora simulans* Ulrich.1882. *Crepipora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 157.1889. *Crepipora*. Miller, North American Geol. Pal., p. 299.1890. *Crepipora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 380, 469.1893. *Crepipora*. Ulrich, Geol. Minnesota, III, p. 322.1896. *Crepipora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 268.1897. *Crepipora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 566.**Crepipora epidermata** Ulrich. See *Bythotrypa epidermata* (Ulrich).**Crepipora hemispherica** Ulrich.1890. *Crepipora hemispherica*. Ulrich, Geol. Surv. Illinois, VIII, p. 472, pl. xl, 5-5b.

Cincinnati (Richmond): Wilmington, Illinois; Delafield, Wisconsin.

**Crepipora impolita** Ulrich. See *Anolotichia impolita* (Ulrich).**Crepipora impressa** Ulrich.1890. *Crepipora impressa*. Ulrich, Geol. Surv. Illinois, VIII, p. 471, pl. xl, 2, 2a.1897. *Crepipora impressa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 135, 136 (p. 566).

Cincinnati (Lorraine): Covington, Kentucky.

**Crepipora perampla** Ulrich.1893. *Crepipora perampla*. Ulrich, Geol. Minnesota, III, p. 323, pl. xxviii, 29-32.1896. *Crepipora perampla*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 436A-C (p. 267).

Trenton (Stones River): Chatfield and Spring Valley, Minnesota.

**Crepipora simulans** Ulrich.1890. *Crepipora simulans*. Ulrich, Geol. Surv. Illinois, VIII, p. 470, pl. xxxix, 4, 4a, pl. xl, 3, 3a; fig. 8b (p. 320).1889. *Crepipora simulans*. (Ulrich, in press), Miller, North American Geol. Pal., fig. 468 (p. 299).

**Crepidora simulans** Ulrich—Continued.

1896. *Crepidora simulans*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 436D (p. 267).  
 1897. *Crepidora simulans*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 133, 134 (p. 566).  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity. A rather common species in the Lorraine beds of Ohio, Indiana, Kentucky, and Tennessee. The same species or closely related varieties occur in the Trenton of Kentucky and Tennessee, and in the Richmond of Ohio, Indiana, Illinois, Wisconsin, and Kentucky.

**Crepidora solida** Ulrich.

1890. *Crepidora solida*. Ulrich, Geol. Surv. Illinois, VIII, p. 472, pl. xl, 4-4b.  
 Cincinnati (Utica): Covington, Kentucky.

**Crepidora spatiosa** Ulrich.

1893. *Crepidora spatiosa*. Ulrich, Geol. Minnesota, III, p. 323.  
 Trenton: Harrodsburg and Frankfort, Kentucky.

**Crepidora subæquata** Ulrich.

1893. *Crepidora subæquata*. Ulrich, Geol. Minnesota, III, p. 322, pl. xxviii, 26-28.  
 Trenton (Black River): St. Paul, Minnesota.

**Crepidora venusta** (Ulrich).

1878. *Chætetes venustus*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., I, p. 93, pl. iv, 7, 7a.  
 1882. *Crepidora venusta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 257.  
 1888. *Monticulipora (Fistulipora) venusta*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 33.  
 Trenton and Cincinnati (Utica): Covington and Newport, Kentucky; Cincinnati, Ohio.

**Crisina ? scrobiculata** Hall. See *Crisinella scrobiculata* (Hall).**CRISINELLA** Hall. Genotype: *Crisina ? scrobiculata* Hall.

1883. *Crisinella*. Hall, Rep. State Geologist New York for the year 1882, expl. pl. (33) xxvi.  
 1887. *Crisinella*. Hall and Simpson, Pal. New York, VI, p. xxv.  
 1889. *Crisinella*. Miller, North American Geol. Pal., p. 299.  
 1897. *Crisinella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 526.

**Crisinella scrobiculata** (Hall).

1883. *Crisina ? scrobiculata*. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 20).  
 1883. *Crisinella scrobiculata*. Hall, Rep. State Geologist New York for the year 1882, pl. (33) xxvi, 6-8.  
 1887. *Crisinella scrobiculata*. Hall and Simpson, Pal. New York, VI, p. 103, pl. xxxiii, 6-8.  
 1897. *Crisinella scrobiculata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 1-3.  
 Upper Helderberg: Western New York.

**Cryptopora** Nicholson. See *Semicoscium* Prout.**Cryptopora mirabilis** Nicholson. See *Semicoscium mirabile* (Nicholson).



**CYCLOPORA** Prout. Genotype: *Cyclopora fungia* Prout.

1860. *Cyclopora*. Prout, Trans. St. Louis Acad. Sci., I, p. 574.  
 1866. *Cyclopora*. Prout, Geol. Surv. Illinois, II, p. 417.  
 1889. *Cyclopora*. Miller, North American Geol. Pal., p. 299.  
 1890. *Cyclopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 403, 671.  
 1897. *Cyclopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 601.

*Cyclopora discoidea* Prout. See *Proutella discoidea* (Prout).

**Cycloporella** Ulrich.

1890. *Cycloporella expatiata*. Ulrich, Geol. Surv. Illinois, VIII, p. 673, pl. lxxviii, 4-4d.  
 1894. *Cycloporella expatiata*. Keyes, Missouri Geol. Surv., V, p. 37.  
 Keokuk: Warsaw and Nauvoo, Illinois.

**Cycloporella** Prout.

1860. *Cycloporella fungia*. Prout, Trans. St. Louis Acad. Sci., I, p. 577.  
 1866. *Cycloporella fungia*. Prout, Geol. Surv. Illinois, II, p. 419, pl. xxii, 9-9b.  
 1890. *Cycloporella fungia*. Ulrich, Geol. Surv. Illinois, VIII, p. 671, pl. lxxviii, 3-3g.  
 1894. *Cycloporella fungia*. Keyes, Missouri Geol. Surv., V, p. 36.  
 1897. *Cycloporella fungia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 210-213 (p. 601).  
 Keokuk and Warsaw: St. Francisville, Missouri (Prout); a common species at many localities in Illinois and Iowa.

*Cycloporella Jamesii* Prout. See *Escharopora pavoia* (D'Orbigny).

*Cycloporella polymorpha* Prout. See *Stenopora tuberculata* (Prout).

**CYCLOPORELLA** Ulrich. Genotype: *Cycloporella spinifera* Ulrich.

1890. *Cycloporella*. Ulrich, Geol. Surv. Illinois, VIII, pp. 404, 675.  
 1889. *Cycloporella*. (Ulrich, in press), Miller, North American Geol. Pal., p. 299.

**Cycloporella ? perversa** Ulrich.

1890. *Cycloporella ? perversa*. Ulrich, Geol. Surv. Illinois, VIII, p. 676, pl. lxxix, 3-3b.  
 1894. *Cycloporella perversa*. Keyes, Missouri Geol. Surv., V, p. 37.  
 Keokuk: Warsaw and Greene counties, Illinois; Bentonsport, Iowa.

**Cycloporella spinifera** Ulrich.

1890. *Cycloporella spinifera*. Ulrich, Geol. Surv. Illinois, VIII, p. 675, pl. lxxix, 1-1c.  
 1894. *Cycloporella spinifera*. Keyes, Missouri Geol. Surv., V, p. 37.  
 Keokuk: Warsaw, Illinois.

*Cycloporina* Simpson. See *Semicoscium* Prout.

*Cycloporina hemicycla* Simpson. See *Semicoscium labiatum* (Hall).

*Cycloporina rhomboidea* Simpson. See *Semicoscium semirobundum* (Hall).

*Cycloporina semirobundum* Simpson. See *Semicoscium semirobundum* (Hall).

**CYCLOTRYPA** Ulrich. Genotype: *Fistulipora communis* Ulrich.

1890. Nov. gen. (?). Ulrich, Geol. Surv. Illinois, VIII, p. 382.  
 1896. *Cyclotrypa*. Ulrich, Zittel's Textb. Pal., (Engl. ed.), p. 269.

**Cyclotrypa collina** (Ulrich).

1890. *Fistulipora collina*. Ulrich, Geol. Surv. Illinois, VIII, p. 478, pl. xlvii, 6-6b, pl. xlviii, 5, 5a.  
 1896. *Cyclotrypa collina*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 269.  
 Hamilton: Buffalo, Iowa.

**Cyclotrypa communis** (Ulrich).

1890. *Fistulipora communis*. Ulrich, Geol. Surv. Illinois, VIII, p. 476, pl. xlvii, 1, 1a, pl. xlviii, 1, 1a.  
 1896. *Cyclotrypa communis*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 443 (p. 269).  
 Hamilton: Buffalo, Iowa; Rock Island, Illinois.

**CYSTODICTYA** Ulrich. Genotype: *Cystodictya ocellata* Ulrich.

1882. *Cystodictya*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 152, 170.  
 1884. *Cystodictya*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 35.  
 1887. *Cystodictya*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 74.  
 1889. *Cystodictya*. Miller, North American Geol. Pal., p. 299.  
 1890. *Cystodictya*. Ulrich, Geol. Surv. Illinois, VIII, pp. 385, 491.  
 1896. *Cystodictya*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.  
 1897. *Cystodictya*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 536.  
 1883. *Arcanopora*. Vine, Fifty-third Rep. British Assoc. Adv. Sci., p. 204.  
 1887. *Stictopora* (not of Hall, 1847). Hall and Simpson, Pal. New York, VI, p. xx.  
 1897. *Stictocella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 532.

**Cystodictya americana** Ulrich.

1890. *Cystodictya americana*. Ulrich, Geol. Surv. Illinois, VIII, p. 494, pl. lxxvi, 5, 5a.  
 1894. *Cystodictya americana*. Keyes, Missouri Geol. Surv., V, p. 17.  
 Keokuk: Kings Mountain, Kentucky; Bentonsport, Iowa.

**Cystodictya angularis** (Hall and Simpson).

1887. *Stictopora angularis*. Hall and Simpson, Pal. New York, VI, p. 252, pl. lxi, 23.  
 1891. *Stictopora angularis*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 46; Forty-fourth Ann. Rep. New York State Mus., p. 76.  
 Hamilton: Near Le Roy, New York.  
 Obs. Probably a synonym for *Cystodicta tumulosa* (Hall and Simpson).

**Cystodictya angusta** Ulrich.

1888. *Cystodictya angusta*. Ulrich, Bull. Denison Univ., IV, p. 82, pl. xiv, 20.  
 Waverly: Moot's Run, Ohio.

**Cystodictya bifurcata** (Hall and Simpson).

1887. *Stictopora bifurcata*. Hall and Simpson, Pal. New York, VI, p. 254, pl. lxiii, 17.  
 1891. *Stictopora bifurcata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 47; Forty-fourth Ann. Rep. New York State Mus., p. 77.  
 1889. *Stictopora bristolensis*. Miller, North American Geol. Pal., p. 323.  
 Hamilton: Near Muttonville, Ontario County, New York.

**Cystodictya carbonaria** (Meek).

1871. *Ptilodictya* (*Stictopora*) *carbonaria*. Meek, Proc. Acad. Nat. Sci. Philadelphia, p. 160.

**Cystodictya carbonaria (Meek)—Continued.**

1875. *Ptilodictya* (*Stictopora*) *carbonaria*. Meek, Pal. Ohio, II, p. 328, pl. xx, 3a, b.  
 1882. *Cystodictya carbonaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 171.  
 1887. *Cystodictya carbonaria*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 74, pl. vii, 2a-c.  
 Coal Measures: Newark and Bald Hill, Ohio; Seville, Illinois.

**Cystodictya ? concentrica (Prout).**

1858. *Eschara ? concentrica*. Prout, Trans. St. Louis Acad. Sci., I, p. 234.  
 Carboniferous: Organ Mountains, New Mexico.

**Cystodictya crenulata Ulrich. See Cystodictya subrigida (Hall).****Cystodictya crescens (Hall).**

1886. *Stictopora crescens*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 5-11.  
 1887. *Stictopora crescens*. Hall and Simpson, Pal. New York, VI, p. 91, pl. xxvii, 5-11.  
 1890. *Cystodictya crescens*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.  
 1897. *Stictopora crescens*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 9, 10.  
 Upper Helderberg: Ontario.

**Cystodictya gilberti (Meek).**

1871. *Ptilodictya* (*Stictopora*) *Gilberti*. Meek, Proc. Acad. Nat. Sci. Philadelphia, p. 63.  
 1873. *Ptilodictya* (*Stictopora*) *Gilberti*. Meek, Pal. Ohio, I, p. 194, pl. xviii, 1a-c.  
 1875. *Ptilodictya Gilberti*. Nicholson, Pal. Province Ontario, p. 80.  
 1882. *Cystodictya gilberti*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 168, pl. viii, 2, 2a; *ibid.*, VII, 1884, p. 36, pl. ii, 5-5b.  
 1883. *Stictopora Gilberti*. Hall, Trans. Albany Institute, X, p. 155 (abstract, 1881, p. 13).  
 1883. *Stictopora Gilberti*. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 21, 22.  
 1886. *Stictopora Gilberti*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 20-35.  
 1887. *Stictopora Gilberti*. Hall and Simpson, Pal. New York, VI, p. 90, pl. xxvii, 20-35, pl. xxviii, 21, 22.  
 1890. *Cystodictya gilberti*. Ulrich, Geol. Surv. Illinois, VIII, fig. 8c (p. 320), pl. xliii, 7.  
 1897. *Cystodictya gilberti*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 12-17.  
 1881. *Stictopora crispata*. Quenstedt, Roehren- und Sternkorallen, p. 173, pl. cl, 3a.  
 Upper Helderberg: Sylvania and Marblehead, Ohio (Meek); Jarvis, Ontario, (Nicholson).  
 Hamilton: Falls of the Ohio; Utica, Indiana.

**Cystodictya hamiltonensis Ulrich.**

1890. *Cystodictya hamiltonensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 493, pl. xlii, 4, pl. xliii, 1.  
 1892. *Cystodictya Hamiltonensis*. Whiteaves, Contr. Canadian Pal. I, p. 279, pl. xxxvi, 2-2b.  
 Hamilton: Buffalo, Iowa; Rock Island, Illinois; Milwaukee, Wisconsin; Eighteen-Mile Creek, New York; several localities in Manitoba (Whiteaves).

**Cystodictya incisurata (Hall).**

1883. *Stictopora incisurata*. Hall, Trans. Albany Institute, X, p. 189 (abstract, 1881, p. 189).
1884. *Stictopora incisurata*. Hall, Rep. State Geologist New York for the year 1883, p. 38.
1887. *Stictopora incisurata*. Hall and Simpson, Pal. New York, VI, p. 241, pl. lx, 1-18.
1890. *Cystodictya incisurata*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
1897. *Cystodictya incisurata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 11.
1898. *Cystodictya incisurata*. Whiteaves, Contr. Canadian Pal., I, p. 377.
1899. *Stictopora incisurata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 172, fig. 67.
1883. *Stictopora indenta*. Hall, Trans. Albany Institute, X, p. 189 (abstract, 1881, p. 189).
1884. *Stictopora indenta*. Hall, Rep. State Geologist New York for the year 1883, p. 40.
1883. *Stictopora obliqua*. Hall, Trans. Albany Institute, X, p. 189 (abstract, 1881, p. 189).
1884. *Stictopora obliqua*. Hall, Rep. State Geologist New York for the year 1883, p. 39.
1883. *Stictopora multipora*. Hall, Trans. Albany Institute, X, p. 190 (abstract, 1881, p. 190).
1884. *Stictopora multipora*. Hall, Rep. State Geologist New York for the year 1883, p. 43.

Hamilton: Lodi Landing, Seneca County, Eighteenmile Creek, and many other localities in central and western New York; Thedford, Ontario.

*Cystodictya ? incrassata* Whiteaves. See *Stictopora ?? incrassata* (Hall).

**Cystodictya ? invertis (Hall).**

1883. *Stictopora invertis*. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 15).
1883. *Stictopora invertis*. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 24-26.
1887. *Stictopora invertis*. Hall and Simpson, Pal. New York, VI, p. 94, pl. xxviii, 24-26.
1890. *Cystodictya invertis*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

Upper Helderberg: New York.

**Cystodictya limata (Hall and Simpson).**

1887. *Stictopora limata*. Hall and Simpson, Pal. New York, VI, p. 250, pl. lxi, 14-16.
1890. *Cystodictya limata*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
1891. *Stictopora limata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 44; Forty-fourth Ann. Rep. New York State Mus., p. 74.

Hamilton: Darien Center, New York.

Obs. See also *Cystodictya subrigida* (Hall).

**Cystodictya linearis (Hall).**

1883. *Stictopora linearis*. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 15).
1883. *Stictopora linearis*. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 4, 5.
1887. *Stictopora linearis*. Hall and Simpson, Pal. New York, VI, p. 96, pl. xxvii, 1, pl. xxviii, 4, 5.

**Cystodictya linearis (Hall)—Continued.**

1890. *Cystodictya linearis*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.  
 1886. *Stictopora rectilatera*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 1.  
 Upper Helderberg: Onondaga Valley and Le Roy, New York.

**Cystodictya lineata Ulrich.**

1884. *Cystodictya lineata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 37, pl. ii, 4-4c.  
 Keokuk: Kings Mountain, Kentucky.

**Cystodictya lineata-major Ulrich.**

1890. *Cystodictya lineata* var. *major*. Ulrich, Geol. Surv. Illinois, VIII, p. 495, pl. lxxvi, 3.  
 St. Louis: Alton, Illinois.

**Cystodictya lineata-sancti-ludovici Ulrich.**

1890. *Cystodictya lineata* var. *sancti-ludovici*, Ulrich, Geol. Surv. Illinois, VIII, p. 492.  
 St. Louis: St. Louis, Missouri; Eddyville and Elizabethtown, Kentucky.

**Cystodictya meeki (Nicholson).**

1874. *Ptilodictya Meeki*. Nicholson, Geol. Mag., new ser., I, p. 123, pl. vi, 14.  
 1874. *Ptilodictya Meeki*. Nicholson, Pal. Province Ontario, p. 97, fig. 34.  
 1898. *Cystodictya Meeki*. Whiteaves, Contr. Canadian Pal., I, p. 377.  
 Upper Helderberg: Port Colborne, Ontario.  
 Hamilton: Arkona, Ontario.  
 Obs. This may be a synonym for *Cystodictya sulcata* (Winchell).

**Cystodictya nitida Ulrich.**

1890. *Cystodictya nitida*. Ulrich, Geol. Surv. Illinois, VIII, p. 493, pl. lxxvi, 4-4c.  
 1894. *Cystodictya nitida*. Keyes, Missouri Geol. Surv., V, p. 17.  
 Keokuk: Bentonsport, Iowa.

**Cystodictya ocellata Ulrich.**

1882. *Cystodictya ocellata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 170, pl. viii, 3, 3a.  
 1884. *Cystodictya ocellata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, pl. ii, 3, 3a.  
 1889. *Cystodictya ocellata*. Miller, North American Geol. Pal., figs. 469, 470 (p. 299).  
 1890. *Cystodictya ocellata*. Ulrich, Geol. Surv. Illinois, VIII, fig. 8d (p. 320).  
 Keokuk: Near Somerset, Kentucky.

**Cystodictya ovata (Hall and Simpson).**

1887. *Stictopora ovata*. Hall and Simpson, Pal. New York, VI, p. 248, pl. lxiii, 24.  
 1890. *Cystodictya ovata*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.  
 1891. *Stictopora ovata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 43; Forty-fourth Ann. Rep. New York State Mus., p. 73.  
 Hamilton: Canandaigua Lake, New York.

**Cystodictya ovatipora (Hall).**

1883. *Stictopora ovatipora*. Hall, Trans. Albany Institute, X, p. 156 (abstract, 1881, p. 14).  
 1883. *Stictopora ovatipora*. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 23, 23a.

**Cystodictya ovatipora (Hall)—Continued.**

1886. *Stictopora ovatipora*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 12-19.
1887. *Stictopora ovatipora*. Hall and Simpson, Pal. New York, VI, p. 93, pl. xxvii, 12-19 (not pl. xxviii, 23, 23a).
1890. *Cystodictya ovatipora*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
1897. *Cystodictya ovatipora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 18, 19.
- Not *Stictopora ovatipora*. Miller, North American Geol. Pal., fig. 518 (p. 324), = *Stictotrypa similis* (Hall).
- Hamilton: Falls of the Ohio.

**Cystodictya perarcta (Hall).**

1883. *Stictopora perarcta*. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 15).
1886. *Stictopora perarcta*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 36, 37.
1887. *Stictopora perarcta*. Hall and Simpson, Pal. New York, VI, p. 96, pl. xxix, 36, 37.
1890. *Cystodictya perarcta*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
- Upper Helderberg: Onondaga Valley, New York.

**Cystodictya pustulosa Ulrich.**

1890. *Cystodictya pustulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 495, pl. lxxvi, 2, 2a.
1894. *Cystodictya pustulosa*. Keyes, Missouri Geol. Surv., V, p. 17.
- Keokuk: Kings Mountain, Kentucky; Keokuk, Iowa; Warsaw and Nauvoo, Illinois.

**Cystodictya recta (Hall and Simpson).**

1887. *Stictopora recta*. Hall and Simpson, Pal. New York, VI, p. 253.
1891. *Stictopora recta*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 47; Forty-fourth Ann. Rep. New York State Mus., p. 77.
1899. *Stictopora recta*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 173.
- Hamilton: West Hamburg, New York.

**Cystodictya rectilinea (Hall and Simpson).**

1887. *Stictopora rectilinea*. Hall and Simpson, Pal. New York, VI, p. 245, pl. lxiii, 23.
1890. *Cystodictya rectilinea*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
1891. *Stictopora rectilinea*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 40; Forty-fourth Ann. Rep. New York State Mus., p. 70.
1898. *Cystodictya rectilinea*. Whiteaves, Contr. Canadian Pal., I, p. 377.
- Hamilton: West Williams, Ontario.

**Cystodictya rigida (Hall).**

1883. *Stictopora rigida*. Hall, Trans. Albany Institute, X, p. 156 (abstract, 1881, p. 14).
1883. *Stictopora rigida*. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 15, 16.
1887. *Stictopora rigida*. Hall and Simpson, Pal. New York, VI, p. 91, pl. xxviii, 15, 16.
1890. *Cystodictya rigida*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
- Upper Helderberg: Near Le Roy, New York.

**Cystodictya semistriata (Hall).**

1883. *Stictopora semistriata*. Hall, Trans. Albany Institute, X, p. 156 (abstract, 1881, p. 14).  
 1883. *Stictopora semistriata*. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 17-20.  
 1887. *Stictopora semistriata*. Hall and Simpson, Pal. New York, VI, p. 95, pl. xxviii, 17-20.  
 1890. *Cystodictya semistriata*. Ulrich, Geol. Surv. Illinois, VIII, p. 492. Upper Helderberg: Near Le Roy, New York.

**Cystodictya simulans Ulrich.**

1888. *Cystodictya simulans*. Ulrich, Bull. Denison Univ., IV, p. 81, pl. xiii, 10. Keokuk: Warsaw, Illinois; Keokuk, Iowa.  
 Waverly: Moots Run, Ohio.

**Cystodictya sinuosa (Hall).**

1883. *Stictopora sinuosa*. Hall, Trans. Albany Institute, X, p. 190 (abstract, 1881, p. 190).  
 1884. *Stictopora sinuosa*. Hall, Rep. State Geologist New York for the year 1883, p. 42.  
 1887. *Stictopora sinuosa*. Hall and Simpson, Pal. New York, VI, p. 247, pl. lxi, 17.  
 1890. *Cystodictya sinuosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.  
 1891. *Stictopora sinuosa*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 42; Forty-fourth Ann. Rep. New York State Mus., p. 72.  
 1897. *Stictocella sinuosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 532.  
 1899. *Stictopora sinuosa*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 173, fig. 68. Hamilton: South of Auburn and Eighteen-Mile Creek, New York.

**Cystodictya subrigida (Hall).**

1883. *Stictopora subrigida*. Hall, Trans. Albany Institute, X, p. 190 (abstract, 1881, p. 190).  
 1884. *Stictopora subrigida*. Hall, Rep. State Geologist New York for the year 1883, p. 43.  
 1887. *Stictopora subrigida*. Hall and Simpson, Pal. New York, VI, p. 251, pl. lx, 21.  
 1890. *Cystodictya subrigida*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.  
 1891. *Stictopora subrigida*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 45; Forty-fourth Ann. Rep. New York State Mus., p. 75.  
 1884. *Stictopora crenulata*. Hall, Rep. State Geologist New York for the year 1883, p. 44.  
 1887. *Stictopora crenulata*. Hall and Simpson, Pal. New York, VI, p. 252, pl. lx, 22.  
 1890. *Cystodictya crenulata*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.  
 1891. *Stictopora crenulata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 45; Forty-fourth Ann. Rep. New York State Mus., p. 75.  
 Hamilton: Near Middleburg and near Alden Station, New York.  
 Obs. *Cystodictya limata* (Hall and Simpson) may be a synonym of this species.

**Cystodictya sulcata** (Winchell).

1866. *Stictopora sulcata*. Winchell, Rep. Lower Penin. Michigan, p. 92.

1890. *Cystodictya sulcata*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

Hamilton: Petoskey, Michigan.

Obs. Compare *Cystodictya meeki* (Nicholson) with this species.

**Cystodictya trilineata** (Hall and Simpson).

1887. *Stictopora trilineata*. Hall and Simpson, Pal. New York, VI, p. 243, pl. lxi, 26, 27.

1890. *Cystodictya trilineata*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

Hamilton: Moscow and near Canandaigua Lake, New York.

**Cystodictya tumulosa** (Hall and Simpson).

1887. *Stictopora tumulosa*. Hall and Simpson, Pal. New York, VI, p. 246, pl. lxi, 18-22.

1890. *Cystodictya tumulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

1891. *Stictopora tumulosa*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 41; Forty-fourth Ann. Rep. New York State Mus., p. 71.

Hamilton: Moscow, and south of Le Roy, New York.

**Cystodictya vermicula** (Hall).

1886. *Stictopora vermicula*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 2-4.

1887. *Stictopora vermicula*. Hall and Simpson, Pal. New York, VI, p. 93, pl. xxvii, 2-4.

1890. *Cystodictya vermicula*. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

Hamilton: Falls of the Ohio.

**Cystodictya zigzag** Ulrich.

1888. *Cystodictya zigzag*. Ulrich, Bull. Denison Univ., IV., p. 81, pl. xiii, 11, 11a. Keokuk: Keokuk, Iowa.

Waverly (Cuyahoga shale): Richfield, Ohio.

**CYSTOPORA** Hall. Genotype: *Cystopora geniculata* Hall.

1883. *Cystopora*. Hall, Trans. Albany Institute, X, p. 161 (abstract, 1881, p. 19).

1887. *Cystopora*. Hall and Simpson, Pal. New York, VI, p. xxv.

1889. *Cystopora*. Miller, North American Geol. Pal., p. 300.

1897. *Cystopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 598.

**Cystopora geniculata** Hall.

1883. *Cystopora geniculata*. Hall, Trans. Albany Institute, X, p. 161 (abstract, 1881, p. 20).

1887. *Cystopora geniculata*. Hall and Simpson, Pal. New York, VI, p. 103, pl. lxvi, 7-10.

1897. *Cystopora geniculata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 3-5.

Hamilton: Falls of the Ohio.

**DEKAYELLA** Ulrich. Genotype: *Dekayella obscura* Ulrich.

1882. *Dekayella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; *ibid.*, VI, 1883, p. 90.

1889. *Dekayella*. Miller, North American Geol. Pal., p. 184.

1890. *Dekayella*. Ulrich, Geol. Surv. Illinois, VIII, p. 372.

1893. *Dekayella*. Ulrich, Geol. Minnesota, III, p. 269.

1896. *Dekayella*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 273.



**DEKAYELLA** Ulrich—Continued.

1897. *Dekayella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 589.

***Dekayella obscura* Ulrich.**

1883. *Dekayella obscura*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 89, pl. i, 4-4b.  
1896. *Dekayella obscura*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 454 (p. 274).  
1897. *Dekayella obscura*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 180-182 (p. 589).  
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

***Dekayella prænuntia* Ulrich.**

1893. *Dekayella prænuntia*. Ulrich, Geol. Minnesota, III, p. 270, pl. xxiii, 32-47.  
1897. *Dekayella prænuntia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 177-179 (p. 589).  
Trenton (Black River): Minneapolis, St. Paul, and Goodhue and Fillmore counties, Minnesota.

***Dekayella prænuntia-echinata* Ulrich.**

1893. *Dekayella prænuntia* var. *echinata*. Ulrich, Geol. Minnesota, III, p. 271, pl. xxiii, 32-38.  
Trenton (Black River): Fountain, Minneapolis and St. Paul, Minnesota.

***Dekayella prænuntia-multipora* Ulrich.**

1893. *Dekayella prænuntia* var. *multipora*. Ulrich, Geol. Minnesota, III, p. 272, pl. xxiii, 44-47.  
Trenton (Black River): Minneapolis, St. Paul, and Goodhue and Fillmore counties, Minnesota.

***Dekayella prænuntia-nævigera* Ulrich.**

1893. *Dekayella prænuntia* var. *nævigera*. Ulrich, Geol. Minnesota, III, p. 271.  
Trenton (Black River): Fillmore County, Minnesota.

***Dekayella prænuntia-simplex* Ulrich.**

1893. *Dekayella prænuntia* var. *simplex*. Ulrich, Geol. Minnesota, III, p. 271, pl. xxiii, 39-42.  
Trenton (Stones River and Black River): Minneapolis and St. Paul, Minnesota.

***Dekayella trentonensis* (Ulrich).**

1883. *Dekayia trentonensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 151, pl. vi, 6, 6a.  
1893. *Dekayia trentonensis*. Ulrich, Geol. Minnesota, III, p. 274.  
Trenton: Burgin and Frankfort, Kentucky; St. Paul and Cannon Falls, Minnesota.

***Dekayella ulrichi* (Nicholson).**

1874. *Chaetetes Fletcheri* (not of Milne-Edwards and Haime). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 504, pl. xxix, 6, 6a.  
1875. *Chaetetes Fletcheri* (not of Milne-Edwards and Haime). Nicholson, Pal. Ohio, II, p. 197, pl. xxi, 7, 7a.  
1876. *Chaetetes Fletcheri* (not of Milne-Edwards and Haime). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 90, pl. v, 14.  
1881. *Chaetetes Fletscheri* (not of Milne-Edwards and Haime). Quenstedt, Roehren- und Sternkorallen, p. 83, pl. cxlvi, 27.

**Dekayella ulrichi** (Nicholson)—Continued.

1881. *Monticulipora* (*Heterotrypa*) *Ulrichii*. Nicholson, Genus *Monticulipora*, p. 131, fig. 22.
1883. *Monticulipora ulrichii*. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 249, pl. xi, 10.
1883. *Dekayella ulrichi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, pp. 91, 153.
1888. *Monticulipora ulrichii*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 179.
1894. *Monticulipora ulrichii*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 201.
- Cincinnati (*Utica*): Cincinnati, Ohio, and vicinity.

**Dekayella ulrichi-robusta** Foord.

1884. *Dekayella robusta*. Foord, Ann. Mag. Nat. Hist., ser. 5, XIII, p. 341, pl. xii, 2-2d.
1884. *Monticulipora ohioensis*. James, Jour. Cincinnati Soc. Nat. Hist., VII, p. 137, pl. vii, 1, 1a.
1888. *Monticulipora ohioensis*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 183.
1894. *Monticulipora ohioensis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 207.
- Cincinnati (*Utica*): Cincinnati, Ohio, and vicinity.

**DEKAYIA** Milne-Edwards and Haime. Genotype: *Dekayia aspera* Milne-Edwards and Haime.

1851. *Dekayia*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 277.
1860. *Dekayia*. Milne-Edwards, Hist. Nat. des Corall., III, p. 283.
1879. *Dekayia*. Nicholson, Pal. Tabulate Corals, p. 291.
1881. *Dekayia*. Nicholson, Genus *Monticulipora*, p. 98.
1882. *Dekayia*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; *ibid.*, VI, 1883, p. 148.
1886. *Dekayia*. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.
1888. *Dekayia*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 28.
1889. *Dekayia*. Miller, North American Geol. Pal., p. 184.
1890. *Dekayia*. Ulrich, Geol. Surv. Illinois, VIII, pp. 371, 415.
1893. *Dekayia*. Ulrich, Geol. Minnesota, III, p. 274.
1896. *Dekayia*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 273.
1896. *Dekayia*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 115.
1897. *Dekayia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 578.

**Dekayia appressa** Ulrich.

1883. *Dekayia appressa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 152, pl. vi, 7-7b.
- Cincinnati (*Lorraine*): Cincinnati, Ohio, and vicinity.

**Dekayia aspera** Milne-Edwards and Haime.

1851. *Dekayia aspera*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 278, pl. xvi, 2, 2a.
1860. *Dekayia aspera*. Milne-Edwards, Hist. Nat. des Corall., III, p. 283.
1883. *Dekayia aspera*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 148, pl. vi, 5.
1888. *Monticulipora* (*Dekayia*) *aspera*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 28.
1896. *Monticulipora* (*Dekayia*) *aspera*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 116.

**Dekayia aspera** Milne-Edwards and Haime—Continued.

1896. *Dekayia aspera*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 455 (p. 274).  
 1874. *Chætetes attritus*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 503, pl. xxix, 4, 4a.  
 1875. *Chætetes attritus*. Nicholson, Pal. Ohio, II, p. 194, pl. xxi, 4.  
 1876. *Dekayia attrita*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 93, pl. v, 12, 12a.  
 1879. *Dekayia attrita*. Nicholson, Pal. Tabulate Corals, p. 298, pl. xv, 1-1c.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Dekayia attrita* Nicholson. See *Dekayia aspera* Milne-Edwards and Haime.

**Dekayia? devonica** Ulrich.

1890. *Dekayia devonica*. Ulrich, Geol. Surv. Illinois, VIII, p. 416, pl. xlv, 5-5d.  
 1897. *Dekayia devonica*. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, figs. 141-144 (p. 578).  
 Hamilton: Falls of the Ohio; Eighteen-Mile Creek, New York.

**Dekayia maculata** James.

1881. *Dekayia maculata*. James, Paleontologist, No. 5, p. 37.  
 1896. *Monticulipora (Dekayia) maculata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 116, fig. 11.  
 Cincinnati (Utica): Loveland and Cincinnati, Ohio, and vicinity.

**Dekayia multispinosa** Ulrich.

1883. *Dekayia multispinosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 154, pl. vi, 8, 8a.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Dekayia paupera* Ulrich. See *Heterotrypa paupera* (Ulrich).

**Dekayia pelliculata** Ulrich.

1883. *Dekayia pelliculata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 150, pl. vi, 9, 9a.  
 1896. *Monticulipora (Dekayia) pelliculata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 117.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Dekayia trentonensis* Ulrich. See *Dekayella trentonensis* (Ulrich).

*Dendricopora* De Koninck. See *Ptilopora* McCoy.

**DIAMESOPORA** Hall. Genotype: *Diamesopora dichotoma* Hall.

1852. *Diamesopora*. Hall, Pal. New York, II, p. 158. (Not defined.)  
 1887. *Diamesopora*. Hall and Simpson, Pal. New York, VI, pp. xv, 19.  
 1889. *Diamesopora*. Miller, North American Geol. Pal., p. 300.  
 1897. *Diamesopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, p. 566.  
 Not *Diamesopora* (= *Celoclema*). Ulrich, Geol. Surv. Illinois, VIII, 1890, pp. 380, 467; Geol. Minnesota, III, 1893, p. 330; Zittel's Textb. Pal. (Engl. ed.), 1896, p. 268.

*Diamesopora camerata* Hall and Simpson. See *Chilotrypa camerata* (Hall).

*Diamesopora communis* Ulrich. See *Celoclema concentricum* (James).

*Diamesopora constricta* Hall and Simpson. See *Chilotrypa constricta* (Hall).

**Diamesopora dichotoma** Hall.

1852. *Diamesopora dichotoma*. Hall, Pal. New York, II, p. 158, pl. xl B, 3a-d.  
Niagara: Lockport, New York.

*Diamesopora dispersa* Hall. See *Chilotrypa dispersa* (Hall).

**Diamesopora infrequens** (Hall).

1876. *Trematopora infrequens*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. x, 13, 14 (in error for 3, 4); *ibid.*, (Museum edition, 1879), p. 111, pl. x, 3 (in part), 4.  
1882. *Trematopora infrequens*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 232, pl. ix, 3 (in part), 4.  
1883. *Cœloclema infrequens*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 258.  
1890. *Diamesopora infrequens*. Ulrich, Geol. Surv. Illinois, VIII, p. 467.  
Niagara: Waldron, Indiana.

**Diamesopora osculum** (Hall).

1876. *Trematopora osculum*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. x, 3-12 (3 and 4 in error); *ibid.*, (Museum edition, 1879), p. 110, pl. x, 5-8, 11-14.  
1882. *Trematopora osculum*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 231, pl. ix, 5-8, 11-14.  
1883. *Cœloclema osculum*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 258.  
1890. *Diamesopora osculum*. Ulrich, Geol. Surv. Illinois, VIII, p. 467.  
Niagara: Waldron, Indiana.

*Diamesopora oweni* Ulrich. See *Cœloclema oweni* (James).

**Diamesopora subimbricata** (Hall).

1879. *Trematopora subimbricata*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (Museum edition), pl. x, 9, 10.  
1883. *Trematopora subimbricata*. Hall, Trans. Albany Institute, X, p. 60 (abstract, 1879, p. 4).  
1882. *Trematopora subimbricata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 234, pl. ix, 9, 10.  
1882. *Cœloclema imbricata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 258.  
1890. *Diamesopora subimbricata*. Ulrich, Geol. Surv. Illinois, VIII, p. 467.  
Niagara: Waldron, Indiana.

*Diamesopora trentonensis* Ulrich. See *Cœloclema trentonensis* (Ulrich).

**Diamesopora ? tubulosa** (Hall).

1852. *Trematopora tubulosa*. Hall, Pal. New York, II, p. 151, pl. xl A, 3a-c.  
1866. *Diamesopora tubulosa*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 119.  
1890. *Diamesopora tubulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 467.  
Clinton: Wayne County, New York.

*Diamesopora varia* Ulrich. See *Chilotrypa varia* (Hall).

*Diamesopora vaupeli* Ulrich. See *Cœloclema alternatum* (James).

**DIANULITES** Eichwald.

1829. *Dianulites*. Eichwald, Zool. Spec., I, p. 180.  
1860. *Dianulites*. Eichwald, Lethæa Rossica, I, p. 487.  
1877. *Dianulites*. Dybowski, Die Chaetetiden der Ostbaltischen Silur-form., p. 14.  
1881. *Dianulites*. Nicholson, Genus Monticulipora, pp. 20, 155.  
1886. *Dianulites*. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.  
1897. *Dianulites*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 587.

**DIANULITES** Eichwald—Continued.

Obs. This genus as defined by Eichwald is wholly unintelligible and was, until 1877 when Dybowski resurrected and redefined it, not recognized by paleontologists. Dybowski has not helped the matter by his effort, for his arrangement of the species is quite arbitrary, no two forms perhaps being strictly congeneric.

*Diastoporella* Vine. See *Berenicea* Lamouroux.

**DIASTOPORINA** Ulrich. Genotype: *Diastoporina flabellata* Ulrich.

- 1890. *Diastoporina*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 177.
- 1892. *Diastoporina*. Miller, North American Geol. Pal., First Appendix, p. 684.
- 1893. *Diastoporina*. Ulrich, Geol. Minnesota, III, p. 121.
- 1897. *Diastoporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 595.

**Diastoporina flabellata** Ulrich.

- 1890. *Diastoporina flabellata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 178, fig. 5.
  - 1893. *Diastoporina flabellata*. Ulrich, Geol. Minnesota, III, p. 122, pl. ii, 2, 3.
  - 1897. *Diastoporina flabellata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 199, 200 (p. 595).
- Trenton: Cannon Falls and St. Paul, Minnesota.

**DICHOTRYPA** Ulrich. Genotype: *Dichotrypa foliata* Ulrich.

- 1890. *Dichotrypa*. Ulrich, Geol. Surv. Illinois, VIII, pp. 386, 498.
- 1889. *Dichotrypa*. (Ulrich, in press) Miller, North American Geol. Pal., p. 300.

**Dichotrypa elegans** Ulrich.

- 1890. *Dichotrypa elegans*. Ulrich, Geol. Surv. Illinois, VIII, p. 500, pl. lxxvi, 8-8d.
- St. Louis: Elizabethtown, Kentucky; Jersey and Monroe counties, Illinois.
- Obs. See *Dichotrypa grandis* Ulrich for a probable synonym.

**Dichotrypa expatiata** Ulrich.

- 1890. *Dichotrypa expatiata*. Ulrich, Geol. Surv. Illinois, VIII, p. 501.
- St. Louis: Alton, Illinois.

**Dichotrypa flabellum** (Rominger).

- 1866. *Fistulipora flabellum*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 122.
  - 1890. *Dichotrypa flabellum*. Ulrich, Geol. Surv. Illinois, VIII, p. 501, pl. lxxvii, 1-1b.
- Warsaw: Spergen Hill, Indiana.
- St. Louis: Elizabethtown and Eddyville, Kentucky; Clarksville, Tennessee.

**Dichotrypa foliata** Ulrich.

- 1890. *Dichotrypa foliata*. Ulrich, Geol. Surv. Illinois, VIII, p. 499, pl. xlii, 2-2g.
- Hamilton: Buffalo, Iowa.

**Dichotrypa grandis** Ulrich.

- 1890. *Dichotrypa grandis*. Ulrich, Geol. Surv. Illinois, VIII, p. 498, pl. xlii, 1-1e.
- Niagara (?): Will County, near Wilmington, Illinois (?).
- Obs. This form is probably from the St. Louis group of Illinois and may be the same as *Dichotrypa elegans* Ulrich.

**Dichotrypa intermedia** Ulrich.

- 1890. *Dichotrypa intermedia*. Ulrich, Geol. Surv. Illinois, VIII, p. 500, pl. lxxvi, 9-9c.

**Dichotrypa intermedia** Ulrich—Continued.

1894. *Dichotrypa intermedia*. Keyes, Missouri Geol. Surv., V, p. 18.  
St. Louis: Alton and Columbia, Illinois; St. Louis, Missouri.

**Dichotrypa lyroides** Ulrich.

1890. *Dichotrypa lyroides*. Ulrich, Geol. Surv. Illinois, VIII, p. 502, pl. lxxvii, 2-2b.  
St. Louis: Southern Kentucky.

**DICRANOPORA** Ulrich. Genotype: *Ptilodictya internodia* Miller and Dyer.

1882. *Dicranopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 152, 166.  
1889. *Dicranopora*. Miller, North American Geol. Pal., p. 300.  
1890. *Dicranopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 389.  
1897. *Dicranopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 545.

**Dicranopora emacerata** (Nicholson).

1875. *Ptilodictya emacerata*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 179, pl. xiv, 3-3b.  
1875. *Ptilodictya emacerata*. Nicholson, Pal. Ohio, II, p. 261, pl. xxv, 5-5b.  
1889. *Dicranopora emacerata*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 40.  
1895. *Dicranopora emacerata*. Whiteaves, Pal. Foss., III, p. 118.  
Cincinnati (Lorraine and Richmond): Cincinnati, Ohio, and vicinity;  
Stony Mountain, Manitoba.

**Dicranopora fragilis** (Billings).

1866. *Ptilodictya fragilis*. Billings, Catal. Sil. Foss. Anticosti, p. 9.  
1882. *Stictopora fragilis*. Whitfield, Geol. Surv. Wisconsin, IV, p. 253, pl. xi, 24.  
1889. *Dicranopora fragilis*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 40.  
1895. *Dicranopora fragilis*. Whiteaves, Pal. Foss., III, p. 118.  
Anticosti: Anticosti Island.  
Cincinnati (Richmond): Iron Ridge, Wisconsin; Stony Mountain, Manitoba.

**Dicranopora granulosa** (Hall and Simpson).

1883. *Escharopora* (*Ptilodictya*) *lirata* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xvii, 5, 6.  
1887. *Rhinidictya* ? *granulosa*. Hall and Simpson, Pal. New York, VI, p. 40, pl. xvii, 5, 6, pl. xxiii A, 18, 19.  
1897. *Rhinidictya granulosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 3-5.  
Lower Helderberg: Clarksville, New York.

**Dicranopora internodia** (Miller and Dyer).

1878. *Ptilodictya internodia*. Miller and Dyer, Contr. to Pal., No. 2, p. 7, pl. iv, 7, 7a.  
1882. *Dicranopora internodia*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 166, pl. vii, 9, 9a.  
1889. *Dicranopora internodia*. Miller, North American Geol. Pal., fig. 471 (p. 300).  
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.  
Obs. See also *Helopora* ?? *meeki* James.

**Dicranopora lata** Ulrich. See *Rhinidictya lata* (Ulrich).

**Dicranopora nitidula** (Billings).

1866. *Ptilodictya nitidula*. Billings, Catal. Sil. Foss. Anticosti, p. 9.  
 1889. *Dicranopora nitidula*. Miller, North American Geol. Pal., p. 300.  
 Cincinnati (Richmond): Anticosti Island.

**Dicranopora parva** Ami. Not recognizable.

1892. *Dicranopora parva*. Ami, Canadian Record of Science, V, p. 99.  
 Trenton: Gagnon's Beach, Quebec.

**Dicranopora trentonensis** Ulrich. See *Rhinidictya trentonensis* (Ulrich).**Didymopora** Ulrich. See *Fistulipora* McCoy.**DIPLOCLEMA** Ulrich. Genotype: *Diploclema trentonense* Ulrich.

1890. *Diploclema*. Ulrich, Geol. Surv. Illinois, VIII, p. 368.  
 1889. *Diploclema*. (Ulrich, in press), Miller, North American Geol. Pal., p. 300.  
 1896. *Diploclema*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 262.

**Diploclema sparsum** (Hall).

1852. *Trematopora sparsa*. Hall, Pal. New York, II, p. 155, pl. xl A, 12a-d.  
 1890. *Diploclema sparsum*. Ulrich, Geol. Surv. Illinois, VIII, p. 369, pl. liii, 10.  
 Niagara: Lockport, New York.

**Diploclema trentonense** Ulrich.

1890. *Diploclema trentonense*. Ulrich, Geol. Surv. Illinois, VIII, p. 369, pl. liii, 9-9c.  
 Trenton: Trenton Falls, New York.

**Diplopore** Young and Young. See *Diploporaria*.**DIPLOPORARIA**.<sup>1</sup> Genotype: *Glaucanome* (*Diplopore*) *marginalis* Young and Young.

1875. *Diplopore*. Young and Young, Proc. Nat. Hist. Soc. Glasgow, II, p. 326.  
 1889. *Diplopore*. Miller, North American Geol. Pal., p. 300.  
 1890. *Diplopore*. Ulrich, Geol. Surv. Illinois, VIII, pp. 398, 636.  
 1895. *Diplopore*. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, pt. 4, p. 182.  
 1896. *Diplopore*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.  
 1897. *Diplopore*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 525.  
 1886. Nov. gen. Ulrich, Contr. American Pal., I, p. 5.

**Diploporaria bifurcata** (Ulrich).

1890. *Diplopore bifurcata*. Ulrich, Geol. Surv. Illinois, VIII, p. 637, pl. lxii, 12, 12a.  
 1894. *Diplopore bifurcata*. Keyes, Missouri Geol. Surv., V, p. 33.  
 1897. *Diplopore bifurcata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 76, 77 (p. 526).  
 Chester: Chester, Illinois.

**Diploporaria biserialis** (Ulrich).

1890. *Diplopore biserialis*. Ulrich, Geol. Surv. Illinois, VIII, p. 637, pl. lxii, 11-11c.  
 Lower Coal Measures: Seville, Illinois.

**DIPLOTRYPA** Nicholson. Genotype: *Favosites petropolitanus* Pander.

1879. *Diplotrypa*. Nicholson, Pal. Tabulate Corals, p. 292.  
 1881. *Diplotrypa*. Nicholson, Genus Monticulipora, pp. 101, 155.

<sup>1</sup> Proposed for *Diplopore*, preoccupied by Schafhäütl (see Neues Jahrbuch für Mineralogie, 1866, p. 565). We have been unable to refer to Schafhäütl's work, Lethæa geognostica von Südbayern, Leipzig, 1863.

**DIPLOTRYPA** Nicholson—Continued.

1882. *Diplotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V., p. 153.  
 1883. *Diplotrypa*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 13.  
 1889. *Diplotrypa*. Miller, North American Geol. Pal., p. 187.  
 1890. *Diplotrypa*. Ulrich, Geol. Surv. Illinois, VIII, pp. 378, 457.  
 1893. *Diplotrypa*. Ulrich, Geol. Minnesota, III, p. 285.  
 1896. *Diplotrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 275; also (not Ulrich) p. 104 (in part).  
 1877. *Callopora* (not Hall). Dybowski, Die Chætetiden d. Ostb. Silur-Form., p. 106.

***Diplotrypa ? dubia* Ulrich.**

1890. *Diplotrypa ? dubia*. Ulrich, Geol. Surv. Illinois, VIII, p. 459, pl. xxxiii 3-3b.  
 1894. *Monticulipora dubia*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 182.  
 Cincinnati (Richmond): Wilmington, Illinois.

***Diplotrypa infida* Ulrich. See *Mesotrypa infida* (Ulrich).*****Diplotrypa limitaris* Ulrich.**

1893. *Diplotrypa limitaris*. Ulrich, Geol. Minnesota, III, p. 286, fig. 18.  
 Trenton: Goodhue County, Minnesota.

***Diplotrypa milleri* Ulrich. See *Mesotrypa milleri* (Ulrich).*****Diplotrypa neglecta* Ulrich.**

1893. *Diplotrypa neglecta*. Ulrich, Geol. Minnesota, III, p. 287, fig. 19.  
 Trenton: Hader, Minnesota.

***Diplotrypa patella* Ulrich. See *Mesotrypa patella* (Ulrich).*****Diplotrypa Quebecensis* Ami. See *Mesotrypa quebecensis* (Ami).*****Diplotrypa regularis* Foord. See *Mesotrypa regularis* (Foord).*****Diplotrypa westoni* Ulrich.**

1889. *Diplotrypa Westoni*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 30, pl. viii, 4-4b.  
 1896. *Diplotrypa Westoni*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 457 (p. 274).  
 1897. *Diplotrypa Westoni*. Whiteaves, Pal. Foss., III, part III, p. 163.  
 Trenton: Big Island, Lake Winnipeg, Manitoba.

**DISCOTRYPA** Ulrich. Genotype: *Chætetes elegans* Ulrich.

1882. *Discotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155.  
 1889. *Discotrypa*. Miller, North American Geol. Pal., p. 300.  
 1890. *Discotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 378.

***Discotrypa ? devonica* Ulrich.**

1886. *Discotrypa devonica*. Ulrich, Contr. American Pal., I, p. 25, pl. ii, 8, 8a.  
 Hamilton: Falls of the Ohio.

***Discotrypa elegans* (Ulrich).**

1879. *Chætetes elegans*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 130, pl. xii, 12, 12a.  
 1883. *Discotrypa elegans*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 163, pl. vii, 1-1b.  
 1888. *Monticulipora elegans*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 165.



**Discotrypa elegans** (Ulrich)—Continued.

1894. *Monticulipora elegans*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 180.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**DITTOPORA** Dybowski. Genotype: *Dittopora clavæformis* Dybowski.

1877. *Dittopora*. Dybowski, Die Chætetiden der Ostbaltischen Silur-form., p. 84.

1881. *Dittopora*. Nicholson, Genus *Monticulipora*, p. 234.

Obs. This genus was established for a group of monticuliporoids occurring in the Silurian of Russia. The name has not become current in American literature.

**DRYMOTRYPA** Ulrich. Genotype: *Retepora diffusa* Hall.

1890. *Drymotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 399.

1892. *Drymotrypa*. Miller, North American Geol. Pal., First Appendix, p. 684.

1897. *Thamnocella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 525.

**Drymotrypa cisseis** (Hall).

1879. *Thamniscus* ? *Cisseis*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 176 (reprint 1880, p. 38).

1883. *Thamniscus* ? *Cisseis*. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 23-30.

1887. *Thamniscus* ? *Cisseis*. Hall and Simpson, Pal. New York, VI, p. 42, pl. xxii, 23-30.

1890. *Drymotrypa cisseis*. Ulrich, Geol. Surv. Illinois, VIII, p. 399.

1897. *Thamnocella Cisseis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 9-13.

Lower Helderberg: Clarksville, New York.

**Drymotrypa dichotoma** (Ulrich).

1890. *Drymotrypa dichotoma*. Ulrich, Geol. Surv. Illinois, VIII, p. 399, pl. liii, 6.

Trenton: Montreal, Canada.

**Drymotrypa diffusa** (Hall).

1852. *Retepora diffusa*. Hall, Pal. New York, II, p. 160, pl. xl C, 1a-f.

1890. *Drymotrypa diffusa*. Ulrich, Geol. Surv. Illinois, VIII, pl. liii, 7-7b. Niagara: Lockport, New York.

**Drymotrypa niagarensis** (Hall).

1876. *Thamniscus* ? *Niagarensis*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xi, 22-25; *ibid.*, (Museum edition, 1879), p. 126, pl. xi, 22-25.

1882. *Thamniscus niagarensis*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 254, pl. x, 22-25.

1890. *Drymotrypa niagarensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 399.

1897. *Thamniscus Niagarensis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 15-17.

Niagara: Waldron, Indiana.

**Dybowskia** Waagen and Pichl. See *Fistulipora* McCoy.**Dybowskiella** Waagen and Wentzel. See *Fistulipora* McCoy.**Enallopora** D'Orbigny. Genotype: *Gorgonia perantiqua* Hall.

1850. *Enallopora*. D'Orbigny, Prod. de Pal., I, p. 22.

1889. *Enallopora*. Miller, North American Geol. Pal., p. 300.

Obs. For objections to the use of this name, see Geol. Surv. Illinois, VIII, p. 683.

*Enallopora cinctosa* Miller. See *Mitoclema cinctosum* Ulrich.

*Enallopora perantiqua* D'Orbigny. See *Gorgonia* ? *perantiqua* Hall.

**ERIDOPORA** Ulrich. Genotype: *Eridopora macrostoma* Ulrich.

1882. *Eridopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 137, 157.

1889. *Eridopora*. Miller, North American Geol. Pal., p. 301.

1890. *Eridopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 382.

1896. *Eridopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 269.

1897. *Eridopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 561.

1886. *Pileotrypa*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, expl. pl. xxx. (Not defined.)

1887. *Pileotrypa*. Hall and Simpson, Pal. New York, VI, p. xvi.

1889. *Pileotrypa*. Miller, North American Geol. Pal., p. 315.

1897. *Pileotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 562.

***Eridopora* ? *clivulata* (Hall).**

1883. *Lichenalia clivulata*. Hall, Trans. Albany Institute, X, p. 151 (abstract, 1881, p. 9).

1886. *Lichenalia* (*Pileotrypa*) *clivulata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 30-33.

1887. *Lichenalia* (*Pileotrypa*) *clivulata*. Hall and Simpson, Pal. New York, VI, p. 83, pl. xxxi, 30-33.

1897. *Pileotrypa clivulata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 8.

Hamilton: Falls of the Ohio.

***Eridopora denticulata* (Hall).**

1883. *Lichenalia denticulata*. Hall, Trans. Albany Institute, X, p. 149 (abstract, 1881, p. 8).

1883. *Lichenalia denticulata*. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 21, 22, 27.

1886. *Lichenalia* (*Pileotrypa*) *denticulata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxx, 12-20.

1887. *Lichenalia* (*Pileotrypa*) *denticulata*. Hall and Simpson, Pal. New York, VI, p. 84, pl. xxvi, 21, 22, 27, pl. xxx, 12-20.

1897. *Pileotrypa denticulata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 12.

1886. *Eridopora minima*. Ulrich, Contr. American Pal., I, p. 21, pl. ii, 6, 6a.  
Hamilton: Falls of the Ohio.

***Eridopora macrostoma* Ulrich.**

1882. *Eridopora macrostoma*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 137, pl. vi, 2, 2a.

1884. *Eridopora macrostoma*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, pl. iii, 8.

1897. *Eridopora macrostoma*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 128 (p. 561).

Chester: Sloans Valley, Smithland, and Grayson Springs, Kentucky.

*Eridopora minima* Ulrich. See *Eridopora denticulata* (Hall).

***Eridopora punctifera* Ulrich.**

1882. *Eridopora punctifera*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 138, pl. vi, 3.

Chester: Sloans Valley, Kentucky.

**ERIDOTRYPA** Ulrich. Genotype: *Eridotrypa mutabilis* Ulrich.1890. *Batostomella* (in part). Ulrich, Geol. Surv. Illinois, VIII, pp. 375, 432.1893. *Eridotrypa*. Ulrich, Geol. Minnesota, III, p. 264.***Eridotrypa appressa*** (Ulrich).1890. *Monotrypella appressa*. Ulrich, Geol. Surv. Illinois, VIII, p. 453, pl. xlv, 1-1e (on plate called *Monotrypella simplex* in error).

Hamilton: Rock Island, Illinois; Davenport, Iowa.

***Eridotrypa briareus*** (Nicholson).1875. *Chaetetes briareus*. Nicholson, Pal. Ohio, II, p. 202, pl. xxi, 13-13b.1881. *Monticulipora* (*Monotrypa*) *briareus*. Nicholson, Genus *Monticulipora*, p. 198, pl. ii, 5-5c.1882. *Monotrypella briarea*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 248, 256.1888. *Monticulipora briarea*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 172.1894. *Monticulipora briarea*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 191.

Trenton: Covington, Kentucky; Maury County, Tennessee.

***Eridotrypa corticosa*** (Hall).1874. *Trematopora corticosa*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 105.1879. *Chaetetes corticosus*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 149 (reprint, 1880, p. 11).1883. *Trematopora* (*Chaetetes*) *corticosa*. Hall, Rep. State Geologist New York for the year 1882, pl. x, 1-10, pl. xiii, 4.1887. *Trematopora* ? (*Trematella* ?) *corticosa*. Hall and Simpson, Pal. New York, VI, p. 15, pl. x, 1-10, pl. xiii, 4, pl. xxiii, 20.1893. *Eridotrypa corticosa*. Ulrich, Geol. Minnesota, III, p. 265.

Lower Helderberg: Clarksville, New York.

***Eridotrypa echinata*** (Hall).1876. *Trematopora echinata*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xi, 1-5; *ibid.* (Museum edition, 1879), p. 112, pl. xi, 1-5.1882. *Trematopora echinata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 233, pl. x, 1-5.1893. *Eridotrypa echinata*. Ulrich, Geol. Minnesota, III, p. 265.

Niagara: Waldron, Indiana.

***Eridotrypa exigua*** Ulrich.1893. *Eridotrypa exigua*. Ulrich, Geol. Minnesota, III, p. 266, pl. xxvi, 17-19.

Trenton: Cannon Falls, Minnesota.

***Eridotrypa mutabilis*** Ulrich.1893. *Eridotrypa mutabilis*. Ulrich, Geol. Minnesota, III, p. 265, pl. xxvi, 20-32.

Trenton: Goodhue, Ramsey, and Dakota counties, Minnesota; Decorah, Iowa; Neenah and Oshkosh, Wisconsin; central and northern Kentucky; Nashville and other localities in Tennessee; Ottawa, Canada.

***Eridotrypa mutabilis-minor*** Ulrich.1893. *Eridotrypa mutabilis* var. *minor*. Ulrich, Geol. Minnesota, III, p. 266, pl. xxvi, 20, 21, 29, 30.

Trenton: Cannon Falls and St. Paul, Minnesota.

**Eridotrypa ? obliqua (Ulrich).**

1890. *Batostomella obliqua*. Ulrich, Geol. Surv. Illinois, VIII, p. 433, pl. xlv, 2-2c.  
 1893. *Eridotrypa obliqua*. Ulrich, Geol. Minnesota, III, p. 265.  
 Hamilton: Alpena, Michigan.

**Eridotrypa simulatrix (Ulrich).**

1890. *Batostomella simulatrix*. Ulrich, Geol. Surv. Illinois, VIII, p. 432, pl. xxxv, 1-1g.  
 1893. *Eridotrypa simulatrix*. Ulrich, Geol. Minnesota, III, p. 265.  
 1894. *Monticulipora simulatrix*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 194.  
 Cincinnati (Richmond): Clarksville, Waynesville, and other localities in Ohio; Weisberg and Versailles, Indiana; Savannah, Illinois.

**Eridotrypa trentonensis (Nicholson).**

1863. *Stenopora fibrosa* (not of Goldfuss). Billings, Geol. Canada, p. 156, fig. 116 [Foord].  
 1881. *Monticulipora (Heterotrypa) Trentonensis*. Nicholson, Genus *Monticulipora*, p. 149, fig. 28.  
 1883. *Monotrypella Trentonensis*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 15.  
 1883. *Monotrypella trentonensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 83.  
 Trenton: Peterboro, Ontario.

**Eschara Lamarck. Not Paleozoic.**

*Eschara bifurcata* Van Cleve (Mss.). See *Pachydictya bifurcata* (Hall).

*Eschara ? concentrica* Prout. See *Cystodictya ? concentrica* (Prout).

*Eschara ovatopora* Troost. Not recognizable.

1840. *Escharia ovatopora*. Troost, Fifth Geol. Rep. Tennessee, p. 75.  
 Lower Silurian: Tennessee.

*Eschara ramosa* Van Cleve (Mss.). See *Phænopora fimbriata* (James).

*Eschara reticulata* Troost. Not recognizable.

1840. *Escharia reticulata*. Troost, Fifth Geol. Rep. Tennessee, p. 75.  
 Lower Silurian: Tennessee.

*Eschara ? tuberculata* Prout. Not recognizable.

1858. *Eschara ? tuberculata*. Prout, Trans. St. Louis Acad. Sci., I, p. 234.  
 Carboniferous: Organ Mountains, New Mexico.

*Escharina ? distorta* James. See *Rhinopora verrucosa* Hall.

**ESCHAROPORA Hall. Genotype: Escharopora recta Hall.**

1847. *Escharopora*. Hall, Pal. New York, I, p. 72.  
 1860. *Escharopora*. Eichwald, Lethæa Rossica, I, p. 435.  
 1899. *Escharopora*. Miller, North American Geol. Pal., p. 301.  
 1893. *Escharopora*. Ulrich, Geol. Minnesota, III, p. 167.  
 1896. *Escharopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.  
 1886. *Nicholsonia*. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.  
*Ptilodictya* (in part). Various authors.

**Escharopora acuminata (James).**

1875. *Ptilodictya acuminata*. James, Catal. Foss. Cincinnati Group, p. 3.  
 1893. *Escharopora acuminata*. Ulrich, Geol. Minnesota, III, p. 167.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Escharopora angularis** Ulrich.

1893. *Escharopora angularis*: Ulrich, Geol. Minnesota, III, p. 168, pl. xii, 1-4, 30, 31.

Trenton (Stones River): Minneapolis, Minnesota; High Bridge, Kentucky.

*Escharopora* (*Ptilodictya*) *angusta* Hall. See *Ptilodictya angusta* (Hall).

*Escharopora* (? *Paleschara*) *bifoliata* Hall. See *Ptilodictya nebulosa* (Hall).

**Escharopora briareus** (Ulrich).

1882. *Ptilodictya briareus*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 165, pl. vii, 6-6b.

1893. *Escharopora briareus*. Ulrich, Geol. Minnesota, III, p. 167.

Trenton (Stones River): Lebanon, Shelbyville, and Columbia, Tennessee.

Obs. The form called by Safford *Ptilodictya multiramis* (not defined) is probably referable to this species.

**Escharopora confluens** Ulrich.

1893. *Escharopora confluens*. Ulrich, Geol. Minnesota, III, p. 171, pl. xiii, 1-11.

Trenton (Black River): Minneapolis, Minnesota.

**Escharopora falciformis** (Nicholson).

1849. *Ptilodictya cruciformis*. D'Orbigny, Prodr. de Pal., I, p. 21. (Not defined.)

1875. *Ptilodictya falciformis*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 177, pl. xiv, 1-1b.

1875. *Ptilodictya falciformis*. Nicholson, Pal. Ohio, II, p. 259, pl. xxv, 7, 7b.

1875. *Ptilodictya falciformis*. Nicholson, Pal. Province Ontario, p. 13, fig. 2.

1883. *Ptilodictya falciformis*. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 265, pl. xii, 1.

1893. *Escharopora falciformis*. Ulrich, Geol. Minnesota, III, p. 167.

1881. *Escharopora recta* (not of Hall). Quenstedt, Roehren- und Sternkorallen, p. 94, pl. cxlvi, 69, 70.

1879. *Crateripora lineata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 30, pl. vii, 28, 28a.

1879. *Crateripora lineata* var. *expansa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 30.

Trenton: Peterboro and Ottawa, Ontario (Nicholson).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Obs. *Crateripora lineata* and var. *expansa* were applied to the articulating basal socket of this species before its true nature was known.

**Escharopora hilli** (James).

1878. *Ptilodictya Hilli*. James, Paleontologist, No. 1, p. 4.

1882. *Ptilodictya hilli*. Ulrich, Jour. Cincinnati Nat. Hist., V, pl. vii, 7, 7a.

1885. *Ptilodictya hilli*. Nettleroth, Kentucky Fossil Shells, p. 30, pl. xxxv, 1, 2, 4, 5.

1893. *Escharopora hilli*. Ulrich, Geol. Minnesota, III, p. 167.

Cincinnati (Lorraine): Bank of the Ohio River at Cincinnati, Ohio (James); Boyle and Lincoln counties, Kentucky.

**Escharopora libana** (Safford).

1869. *Ptilodictya* ? *libana*. Safford, Geol. Tennessee, p. 286.

1893. *Escharopora libana*. Ulrich, Geol. Minnesota, III, p. 167.

Trenton (Stones River): Lebanon, Tennessee.

Obs. At present this is not a valid species, but we recognize it because Mr. Ulrich has the types and will figure and describe them under the above name.

**Escharopora ? limitaris Ulrich.**

1893. *Escharopora ? limitaris*. Ulrich, Geol. Minnesota, III, p. 172, figs. 9a-b, pl. xiii, 12, 13.

Trenton (Stones River and Black River): Minneapolis and Preston, Minnesota.

*Escharopora lirata* Hall. See *Phænopora lirata* (Hall) and *Dicranopora granulosa* (Hall).

*Escharopora* (*Ptilodictya*) *lirata* Hall. See *Phænopora lirata* (Hall) and *Dicranopora granulosa* (Hall).

**Escharopora maculata (Ulrich).**

1882. *Ptilodictya maculata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 163, pl. vi, 17, pl. vii, 4, 4a.

1890. *Ptilodictya maculata*. Ulrich, Geol. Surv. Illinois, VIII, fig. 6b (p. 317).

1893. *Escharopora maculata*. Ulrich, Geol. Minnesota, III, p. 167.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Escharopora nebulosa* Hall. See *Ptilodictya nebulosa* (Hall).

*Escharopora* (*Ptilodictya*) *nebulosa* Hall. See *Ptilodictya nebulosa* (Hall).

**Escharopora pavonia (D'Orbigny).**

1849. *Ptilodictya pavonia*. D'Orbigny, Prodr. de Pal., I, p. 22.

1851. *Chaetetes pavonia*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 267, pl. xix, 4, 4a.

1860. *Monticulipora pavonia*. Milne-Edwards, Hist. Nat. des Corall., III, p. 276.

1866. *Chaetetes pavonia*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 116.

1880. *Heterodictya pavonia*. Ulrich, Catal. Foss. Cincinnati Group, p. 10.

1881. *Chaetetes pavonia*. Quenstedt, Roehren- und Sternkorallen, p. 79, pl. cxlvi, 21-25.

1881. *Monticulipora* (*Monotrypa*) *pavonia*. Nicholson, Genus *Monticulipora*, p. 195, fig. 41, pl. vi, 3, 3a.

1882. *Ptilodictya pavonia*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 163, pl. vii, 3-3d.

1888. *Monticulipora pavonia*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 18.

1893. *Escharopora pavonia*. Ulrich, Geol. Minnesota, III, p. 167.

1895. *Monticulipora pavonia*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 70.

1859. *Cyclopora Jamesii*. Prout, Trans. St. Louis Acad. Sci., I, p. 578.

1871. *Stictopora clathratula*. James, Catal. Foss. Cincinnati Group. (Not defined).

1874. *Chaetetes ? clathratulus*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 509, pl. xxx, 1-1b.

1875. *Chaetetes ? clathratulus*. Nicholson, Pal. Ohio, II, p. 209, pl. xxii, 2-2b.

1876. *Chaetetes ? clathratulus*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 9f, pl. v, 9, 9a.

1886. *Nicholsonia pavonica*. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874. Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Escharopora ramosa (Ulrich).**

1882. *Ptilodictya ramosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 164, pl. vii, 5, 5a.

1893. *Escharopora ramosa*. Ulrich, Geol. Minnesota, III, p. 167.

**Escharopora ramosa (Ulrich)**—Continued.

Trenton (Stones River): Lebanon, Tennessee; High Bridge, Kentucky.

A variety, or perhaps new species, occurs in the Trenton of Deer Island, Lake Winnipeg, Canada.

*Escharopora recta* Quenstedt (not Hall). See *Escharopora falciformis* (Nicholson).

**Escharopora recta Hall.**

1847. *Escharopora recta*. Hall, Pal. New York, I, p. 73, pl. xxvi, 1a-g.

Trenton: Middleville and Jacksonburg, New York.

**Escharopora recta-nodosa Hall.**

1847. *Escharopora recta* var. *nodosa*. Hall, Pal. New York, I, p. 73, pl. xxvi, 2.

Trenton: Middleville and Jacksonburg, New York.

**Escharopora subrecta (Ulrich).**

1886. *Ptilodictya subrecta*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 63.

1893. *Escharopora subrecta*. Ulrich, Geol. Minnesota, III, p. 168, pl. xii, 5-29.  
Trenton (Black River): Minneapolis and other localities in Minnesota;  
Decorah, Iowa; Beloit, Wisconsin.

*Escharopora tenuis* Hall. See *Phænopora tenuis* (Hall).

*Escharopora* (*Ptilodictya*) *tenuis* Hall. See *Phænopora tenuis* (Hall).

**EURYDICTYA Ulrich.** Genotype: *Eurydictya montifera* Ulrich.

1890. *Eurydictya*. Ulrich, Geol. Surv. Illinois, VIII, pp. 389, 520.

1889. *Eurydictya*. (Ulrich in press), Miller, North American Geol. Pal., p. 301.

1893. *Eurydictya*. Ulrich, Geol. Minnesota, III, p. 138.

1897. *Eurydictya*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.

**Eurydictya calhounensis Ulrich.**

1890. *Eurydictya calhounensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 520, pl. xxx, 4-4c.

Trenton: Port au Gres, Calhoun County, Illinois.

**Eurydictya montifera Ulrich.**

1890. *Eurydictya montifera*. Ulrich, Geol. Surv. Illinois, VIII, p. 521, pl. xxx, 3-3d.

1897. *Eurydictya montifera*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 80-82 (p. 528).

Cincinnati (Richmond); Wilmington, Illinois.

**Eurydictya multipora (Hall).**

1851. *Phænopora multipora*. Hall, Foster and Whitney's Rep. Geol. Lake Superior Land District, Part 2, p. 206, pl. xxiv, 1a, b.

1882. *Phænopora* ? *multipora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 171, pl. viii, 7-7b.

1890. *Eurydictya multipora*. Ulrich, Geol. Surv. Illinois, VIII, p. 520.

1893. *Eurydictya multipora* (in part). Ulrich, Geol. Minnesota, III, p. 139, pl. vi, 9-11, pl. xiv, 9-11 (not pl. vii, 24, 29-31=*Rhinidictya fidelis* Ulrich).

1881. *Ptilodictya antiqua*. James, Paleontologist, No. 5, p. 37.

Trenton (Black River and Trenton): Escanaba River, Michigan (Hall);  
Burgin, Kentucky; Nashville, Tennessee; St. Paul, Minnesota.

**Eurydictya sterlingensis** Ulrich.

1890. *Eurydictya sterlingensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 522, pl. xxx, 2, 2a.

Cincinnati (Richmond): Sterling and South Elgin, Illinois.

**EUSPILOPORA** Ulrich. Genotype: *Euspilopora serrata* Ulrich.

1890. *Euspilopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 389.

1889. *Euspilopora*. (Ulrich in press), Miller, North American Geol. Pal., p. 301.

1896. *Euspilopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.

1897. *Euspilopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 528.

**Euspilopora ? barrisi** Ulrich.

1890. *Euspilopora ? barrisi*. Ulrich, Geol. Surv. Illinois, VIII, p. 527, pl. xliii, 5-5d.

1897. *Euspilopora barrisi*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 85, 86 (p. 529).

Hamilton: Buffalo, Iowa.

**Euspilopora lobata** (Hall and Simpson).

1887. *Stictopora lobata*. Hall and Simpson, Pal. New York, VI, p. 256.

Hamilton: Reeds Corners, near Canandaigua Lake, New York.

**Euspilopora palmipes** (Hall).

1883. *Stictopora palmipes*. Hall, Trans. Albany Institute, X, p. 189 (abstract, 1881, p. 189).

1884. *Stictopora palmipes*. Hall, Rep. State Geologist New York for the year 1883, p. 41.

1887. *Stictopora palmipes*. Hall and Simpson, Pal. New York, VI, p. 255, pl. lx, 19, 20.

1890. *Euspilopora palmipes*. Ulrich, Geol. Surv. Illinois, VIII, p. 527.

1891. *Stictopora palmipes*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 48; Forty-fourth Ann. Rep. New York State Mus., p. 78.

1897. *Stictopora palmipes*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 20.

1899. *Stictopora palmipes*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 174, fig. 69.

Hamilton: West Hamburg, Pavilion, and near Canandaigua Lake, New York.

**Euspilopora serrata** Ulrich.

1890. *Euspilopora serrata*. Ulrich, Geol. Surv. Illinois, VIII, p. 526, pl. xliii, 4-4h.

1897. *Euspilopora serrata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 83, 84 (p. 529).

Hamilton: Buffalo, Iowa; near Alpena, Michigan.

**EVACTINOPORA** Meek and Worthen. Genotype: *Evactinopora radiata* Meek and Worthen.

1865. *Evactinopora*. Meek and Worthen, Proc. Acad. Nat. Sci. Philadelphia, p. 165.

1868. *Evactinopora*. Meek and Worthen, Geol. Surv. Illinois, III, p. 501.

1884. *Evactinopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 42.

1889. *Evactinopora*. Miller, North American Geol. Pal., p. 301.

1890. *Evactinopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 387, 508.

1896. *Evactinopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.



**EVACTINOPORA** Meek and Worthen—Continued.

1897. *Evactinopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 529.

***Evactinopora grandis*** Meek and Worthen.

1868. *Evactinopora grandis*. Meek and Worthen, Geol. Surv. Illinois, III, p. 503, pl. xv, 2a, b.  
 1890. *Evactinopora grandis*. Ulrich, Geol. Surv. Illinois, VIII, p. 511, pl. lxxiii, 4.  
 1894. *Evactinopora grandis*. Keyes, Missouri Geol. Surv., V, p. 19.  
 Burlington: Burlington, Iowa; Montezuma, Illinois.

***Evactinopora quinquerradiata*** Ulrich.

1868. *Evactinopora sexradiata* (in part). Meek and Worthen, Geol. Surv. Illinois, III, pl. xvii, 3.  
 1890. *Evactinopora quinquerradiata*. Ulrich, Geol. Surv. Illinois, VIII, p. 510, pl. lxxiii, 1.  
 Burlington: Burlington, Iowa; Montezuma, Illinois.

***Evactinopora radiata*** Meek and Worthen.

1865. *Evactinopora radiata*. Meek and Worthen, Proc. Acad. Nat. Sci. Philadelphia, p. 165.  
 1868. *Evactinopora radiata*. Meek and Worthen, Geol. Surv. Illinois, III, p. 502, pl. xvii, 2a, b.  
 1884. *Evactinopora radiata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 42, pl. ii, 1-1c.  
 1890. *Evactinopora radiata*. Ulrich, Geol. Surv. Illinois, VIII, p. 509, pl. lxxiii, 3, 3a.  
 1894. *Evactinopora radiata*. Keyes, Missouri Geol. Surv., V, p. 19.  
 Keokuk: Missouri (Meek and Worthen); Kings Mountain, Kentucky (Ulrich).

***Evactinopora sexradiata*** Meek and Worthen.

1868. *Evactinopora sexradiata*. Meek and Worthen, Geol. Surv. Illinois, III, p. 502, pl. xvii, 3.  
 1890. *Evactinopora sexradiata*. Ulrich, Geol. Surv. Illinois, VIII, p. 510, pl. lxxiii, 2-2b.  
 1894. *Evactinopora sexradiata*. Keyes, Missouri Geol. Surv., V, p. 18.  
 Burlington: Burlington, Iowa.

**FAVICELLA** Hall and Simpson. Genotype: *Thallostigma inclusa* Hall.

1887. *Favicella*. Hall and Simpson, Pal. New York, VI, p. xviii.  
 1889. *Favicella*. Miller, North American Geol. Pal., p. 301.  
 1897. *Favicella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 556.  
 1897. *Fistuliporidra*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 606.  
 Obs. This genus may be a synonym for *Selenopora*.

***Favicella inclusa*** (Hall).

1883. *Thallostigma inclusa*. Hall, Trans. Albany Institute, X, p. 188 (abstract, 1881, p. 188).  
 1884. *Thallostigma inclusapora* (in error). Hall, Rep. State Geologist New York for the year 1883, p. 33.  
 1887. *Favicella inclusa*. Hall and Simpson, Pal. New York, VI, p. 234, pl. lviii, 21-23.  
 1897. *Favicella inclusa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 15-17.  
 Hamilton: York, New York.

**Favicella tessellata** (Hall and Simpson).

1887. *Lichenalia tessellata*. Hall and Simpson, Pal. New York, VI, p. 207.  
 1888. *Lichenalia tessellata*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 8-10; Forty-first Ann. Rep. New York State Mus., pl. xv, 8-10.  
 1897. *Fistuliporidra tessellata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 1-3.  
 Hamilton: Genesee Valley, New York.

**Favosites Lamarck.** At present considered a coral by most authors.

**Favosites inexpectans** Hall. See *Monotrypa? helderbergiae* (Hall).

**Favosites lycopodites** Vanuxem. Not recognizable.

1842. *Favosites lycopodites*. Vanuxem, Geol. Rep. Third District New York, p. 46, fig. 3.  
 Trenton: New York.

**Favosites minimus** Hall (Thirty-second Ann. Rep. New York State Mus.). See *Monotrypa spherica* (Hall).

**Favosites proximus** Hall. See *Monotrypa proxima* (Hall).

**Favosites sphericus** Hall. See *Monotrypa spherica* (Hall).

**FENESTELLA** Lonsdale. (Not *Fenestella* Bolten 1798.) Genotype: *Gorgonia antiqua* Goldfuss. Accepted genotype: *Fenestella plebeia* McCoy.

1839. *Fenestella*. Lonsdale, Murchison's Silurian System, p. 677.  
 1841. *Fenestella*. Phillips, Pal. Foss., p. 22.  
 1844. *Fenestella*. McCoy, Synopsis Carb. Foss. Ireland, p. 200.  
 1845. *Fenestella*. Lonsdale, Russia and the Ural Mountains, I, Appendix A, p. 629.  
 1850. *Fenestella*. King, Mon. Perm. Foss., p. 34.  
 1854. *Fenestella*. McCoy, British Pal. Foss., p. 49.  
 1860. *Fenestella*. Eichwald, Lethæa Rossica, I, p. 356.  
 1874. *Fenestella*. Nicholson, Pal. Province Ontario, p. 104.  
 1881. *Fenestella*. Shrubsole, Quar. Jour. Geol. Soc. London, XXXVII, p. 179.  
 1882. *Fenestella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.  
 1883. *Fenestella*. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 31.  
 1885. *Fenestella*. Hall, Rep. State Geologist New York for the year 1884, p. 35.  
 1885. *Fenestella*. Waagen and Pichl, Pal. Indica, ser. XIII, pp. 773, 776.  
 1886. *Fenestella*. Ulrich, Contr. American Pal., I, p. 4.  
 1887. *Fenestella*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 83.  
 1887. *Fenestella*. Hall and Simpson, Pal. New York, VI, p. xxii.  
 1889. *Fenestella*. Miller, North American Geol. Pal., p. 302.  
 1890. *Fenestella*. Ulrich, Geol. Surv. Illinois, VIII, pp. 395, 534.  
 1894. *Fenestella*. Počta, Syst. Sil. Bohême, VIII, t. 1, p. 40.  
 1895. *Fenestella*. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, pt. 4, p. 165.  
 1895. *Fenestella*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 687, 724; Forty-seventh Ann. Rep. New York State Mus., pp. 881, 918.  
 1896. *Fenestella*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 281.  
 1897. *Fenestella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 500.  
 1899. *Fenestella*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 159.  
 1850. *Fenestrella* (in error for *Fenestella*). D'Orbigny, Prodr. de Pal., I, p. 44.

**FENESTELLA** Lonsdale—Continued.

1874. *Actinostoma*. Young and Young, Quar. Jour. Geol. Soc. London, XXX, p. 681.

1885. *Actinostoma*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 84.

1895. *Flabelliporina*. Simpson, Thirteenth Ann. Rep. State Geol. New York for the year 1893, pp. 703, 724; Forty-seventh Ann. Rep. New York State Mus., pp. 897, 918.

1897. *Flabelliporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 521.

Obs. See also remark on *Palæocoryne* Duncan and Jenkins.

*Fenestella* (*Hemitrypa*) *acaulis* Hall. See *Unitrypa acaulis* (Hall).

*Fenestella* (*Unitrypa*) *acaulis* Hall. See *Unitrypa acaulis* (Hall).

*Fenestella* (*Unitrypa*) *acaulis* var. *inclinis* Hall. See *Unitrypa acaulis-inclinis* (Hall).

*Fenestella* (*Unitrypa*) *acclivis* Hall and Simpson. See *Unitrypa acclivis* (Hall and Simpson).

*Fenestella acmea* Hall. See *Semicoscinium acmeum* (Hall).

*Fenestella aculeata* Hall. See *Polypora aculeata* (Hall).

*Fenestella* (*Polypora*) *aculeata* Hall. See *Polypora aculeata* (Hall).

***Fenestella acuticosta* Roemer.**

1860. *Fenestella acuticosta*. Roemer, Sil. Fauna West. Tennessee, p. 30, pl. ii; 15, 15a.

Niagara: Perry County, Tennessee.

*Fenestella adnata* Hall. See *Reteporidra adnata* (Hall).

*Fenestella* (*Polypora*) *adnata* Hall. See *Reteporidra adnata* (Hall).

***Fenestella adornata* Hall and Simpson.**

1883. *Fenestella* sp. (?). Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 7, 8.

1887. *Fenestella adornata*. Hall and Simpson, Pal. New York, VI, p. 66, pl. xxii, 7, 8.

Lower Helderberg: Clarksville, New York.

***Fenestella adraste* Hall.**

1879. *Fenestella Adraste*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 169 (reprint, 1880, p. 31).

1883. *Fenestella Adraste*. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 20-22, 19 sp. (?).

1887. *Fenestella Adraste*. Hall and Simpson, Pal. New York, VI, p. 48, pl. xx, 19-22.

Lower Helderberg: Clarksville, New York.

***Fenestella æqualis* Hall.**

1883. *Fenestella æqualis*. Hall, Trans. Albany Institute, X, p. 173 (abstract, 1881, p. 31).

1887. *Fenestella æqualis*. Hall and Simpson, Pal. New York, VI, p. 112, pl. xlv, 27-31.

Hamilton: Falls of the Ohio. (In the Trans. Albany Institute, X, p. 173, the locality is given Clarence Hollow, New York.)

***Fenestella æsyle* Hall.**

1879. *Fenestella Æsyle*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 166 (reprint, 1880, p. 28).

**Fenestella æsyle Hall—Continued.**

1883. *Fenestella* *Æsyle*. Hall, Rep. State Geologist New York for the year 1882, pl. xix, 11-13.

1887. *Fenestella* *Æsyle*. Hall and Simpson, Pal. New York, VI, p. 46, pl. xix, 11-13.

Lower Helderberg: Clarksville, New York.

**Fenestella albida Hall.**

1887. *Fenestella* *albida*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 48, pl. vii, 1-7.

1888. *Fenestella* *albida*. Ulrich, Bull. Denison Univ., IV, p. 65.  
Waverly: Richfield, Ohio.

*Fenestella albida* var. *richfieldensis* Ulrich. See *Fenestella richfieldensis* Ulrich.

**Fenestella althæa Hall.**

1879. *Fenestella* *Althæa*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 166 (reprint, 1880, p. 28).

1883. *Fenestella* *althæa*. Hall, Rep. State Geologist New York for the year 1882, pl. xix, 17-19.

1887. *Fenestella* *althæa*. Hall and Simpson, Pal. New York, VI, p. 48, pl. xix, 17-19.

Lower Helderberg: Albany County, New York.

*Fenestella ambigua* Hall. See *Loculipora ambigua* (Hall).

*Fenestella angulata* Hall. Not recognized.

1883. *Fenestella* *angulata*. Hall, Trans. Albany Institute, X, p. 170 (abstract, 1881, p. 28).

Upper Helderberg: New York.

**Fenestella angustata Hall.**

1884. *Fenestella* *angustata*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 60.

1887. *Fenestella* *angustata*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 54.

1888. *Fenestella* *angustata*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. viii, 1-8; Forty-first Ann. Rep. New York State Mus., pl. viii, 1-8.

Hamilton: Alden, New York.

*Fenestella* (*Hemitrypa*) *anonyma* Hall. See *Unitrypa anonyma* (Hall).

**Fenestella aperta Hall.**

1887. *Fenestella* *aperta*. Hall, Sixth Ann. Rep. New York State Geologist for the year 1886, p. 58, pl. iv, 1-5.

1888. *Fenestella* *aperta*. Ulrich, Bull. Denison Univ., IV, p. 66.  
Waverly: Richfield, Ohio.

**Fenestella arkonensis Whiteaves.**

1874. *Fenestella* *tenuiceps* (not of Hall). Nicholson, Pal. Province Ontario, p. 106, fig. 44.

1898. *Fenestella* *Arkonensis*. Whiteaves, Contr. Canad. Pal., I, p. 379.  
Hamilton: Near Arkona, Ontario.

*Fenestella Arta* Hall. See *Polypora arta* (Hall).

*Fenestella* (*Polypora*) *Arta* Hall. See *Polypora arta* (Hall).

*Fenestella* (*Polypora*) *aspectans* Hall. See *Polypora aspectans* (Hall).

*Fenestella aspectus* (in error for *aspectans*) Hall. See *Polypora aspectans* (Hall).

***Fenestella assita* Hall.**

1884. *Fenestella assita*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 64.

1887. *Fenestella assita*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 56, pl. vii, 8-11.

Hamilton: York, New York.

***Fenestella banyana* Prout.**

1859. *Fenestella banyana*. Prout, Trans. St. Louis Acad. Sci., I, p. 450, pl. xviii, 4-4b.

1894. *Fenestella banyana*. Keyes, Missouri Geol. Surv., V, p. 23.

Warsaw: Barretts Station, Missouri.

***Fenestella bellistriata* Hall.**

1883. *Fenestella bellastriata*. Hall, Trans. Albany Institute, X, p. 63 (abstract, 1879, p. 7).

1882. *Fenestella bellastriata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 252.

1890. *Fenestella bellistriata* (?). Ulrich, Geol. Surv. Illinois, VIII, pl. liv, 2.

Niagara: Waldron, Indiana.

***Fenestella bicornis* Spencer. Not recognizable.**

1884. *Fenestella bicornis*. Spencer, Trans. St. Louis Acad. Sci., IV, p. 604, pl. vii, 2.

1884. *Fenestella bicornis*. Spencer, Bull. Mus. Univ. State Missouri, I, p. 55, pl. vii, 2.

Clinton: Hamilton, Ontario.

***Fenestella bifurca* Ulrich. See *Ptiloporella ? bifurca* (Ulrich).**

***Fenestella bifurcata* Prout. Not recognizable; name also preoccupied by Roemer.**

1866. *Fenestella bifurcata*. Prout, Trans. St. Louis Acad. Sci., II, p. 411.

Geological horizon and locality not given.

***Fenestella bigeneris* Ulrich. See *Fenestella perplexa* Hall.**

***Fenestella biimbricata* Hall. See *Semicoscinium biimbricatum* (Hall).**

***Fenestella* (*Hemitrypa*) *biordo* Hall and Simpson. See *Hemitrypa biordo* (Hall).**

***Fenestella* (*Hemitrypa*) *biserialis* Hall. See *Hemitrypa biserialis* (Hall).**

***Fenestella* (*Hemitrypa*) *biserialis* var. *exilis* Hall. See *Hemitrypa biserialis-exilis* (Hall).**

***Fenestella biseriata* Hall.**

1883. *Fenestella biseriata*. Hall, Trans. Albany Institute, X, p. 166 (abstract, 1881, p. 25).

1887. *Fenestella biseriata*. Hall and Simpson, Pal. New York, VI, p. 113, pl. xlii, 16-18.

Upper Helderberg: Cherry Valley, New York.

***Fenestella biserrulata* Hall. See *Semicoscinium biserrulatum* (Hall).**

***Fenestella brevilinea* Hall. See *Semicoscinium exornatum* (Hall).**

***Fenestella brevisulcata* Hall. See *Polypora brevisulcata* (Hall).**

*Fenestella* (Polypora) *brevisulcata* Hall. See *Polypora brevisulcata* (Hall).

***Fenestella burlingtonensis* Ulrich.**

1888. *Fenestella burlingtonensis*. Ulrich, Bull. Denison Univ., IV, p. 71.

1890. *Fenestella burlingtonensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 536. pl. xlix, 1, 1a.

Burlington: Burlington, Iowa.

Waverly: Lodi, Ohio.

*Fenestella* (Polypora) *carinella* Hall. See *Polypora carinella* (Hall and Simpson).

***Fenestella cavernosa* Ulrich.**

1888. *Fenestella cavernosa*. Ulrich, Bull. Denison Univ., IV, p. 69, pl. xiii, 7-7b.  
Waverly: Sciotoville, Ohio.

*Fenestella celsipora* Hall. See *Polypora celsipora* (Hall).

*Fenestella* (Polypora) *celsipora* Hall. See *Polypora celsipora* (Hall).

*Fenestella celsipora* var. *minima* Hall. See *Polypora celsipora-minima* (Hall).

*Fenestella* (Polypora) *celsipora* var. *minima* Hall. See *Polypora celsipora-minima* (Hall).

*Fenestella celsipora* var. *minor* Hall. See *Polypora celsipora-minor* (Hall).

*Fenestella* (Polypora) *celsipora* var. *minor* Hall. See *Polypora celsipora-minor* (Hall).

***Fenestella cestriensis* Ulrich.**

1890. *Fenestella cestriensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 547, pl. li, 5-5b.

1894. *Fenestella cestriensis*. Keyes, Missouri Geol. Surv., V, p. 24.

Chester: Chester, Kaskaskia, Anna, and other localities in Illinois; Sloans Valley and Litchfield, Kentucky.

*Fenestella cinctuta* Hall. See *Reteporidra cinctuta* (Hall).

*Fenestella* (Lyropora) *cinctuta* Hall. See *Reteporidra cinctuta* (Hall).

***Fenestella cingulata* Ulrich.**

1890. *Fenestella cingulata*. Ulrich, Geol. Surv. Illinois, VIII, p. 543, pl. lii, 1-1d.

1894. *Fenestella cingulata*. Keyes, Missouri Geol. Surv., V, p. 23.

Keokuk: Nauvoo, Illinois; Keokuk, Iowa.

*Fenestella* (Loculipora) *circumstata* Hall and Simpson. See *Loculipora circumstata* (Hall and Simpson).

***Fenestella clathrata* Hall and Simpson.**

1887. *Fenestella clathrata*. Hall and Simpson, Pal. New York, VI, p. 117.

Upper Helderberg: Ontario, Canada.

***Fenestella cleia* Hall.**

1879. *Fenestella Cleia*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 169 (reprint, 1880, p. 31).

1883. *Fenestella Cleia*. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 14, 15.

1887. *Fenestella Cleia*. Hall and Simpson, Pal. New York, VI, p. 45, pl. xx, 14, 15.  
Lower Helderberg: Clarksville, New York.

*Fenestella Cleis* Hall. See *Semicoscium* ? *cleis* (Hall).

*Fenestella* (Reteporina) *coalescens* Hall and Simpson. See *Reteporina coalescens* (Hall and Simpson).

*Fenestella* (Hemitrypa) *columellata* Hall. See *Hemitrypa columellata* (Hall).

*Fenestella compacta* Hall. See *Polypora compacta* (Hall).

*Fenestella* (Polypora) *compacta* Hall and Simpson. See *Polypora compacta* (Hall).

*Fenestella compressa* Hall. See *Polypora compressa* (Hall).

*Fenestella* (Polypora) *compressa* Hall and Simpson. See *Polypora compressa* (Hall).

***Fenestella compressa* Ulrich.**

1890. *Fenestella compressa*. Ulrich, Geol. Surv. Illinois, VIII, p. 539, pl. 1, 2a. Keokuk: Kings Mountain, Kentucky.

*Fenestella compressa* var. *nododorsalis* Ulrich. See *Fenestella nododorsalis* Ulrich.

*Fenestella conferta* Hall. See *Polypora conferta* (Hall).

*Fenestella confertipora* Hall and Simpson. See *Ptiloporella ? bifurca* (Ulrich).

*Fenestella* (Ptiloporina) *conica* Hall and Simpson. See *Ptiloporina conica* (Hall and Simpson).

*Fenestella* (Isotrypa) *conjunctiva* Hall and Simpson. See *Isotrypa conjunctiva* (Hall).

*Fenestella* (Hemitrypa) *conjunctiva* Hall. See *Isotrypa conjunctiva* (Hall).

***Fenestella conradi* Ulrich.**

1890. *Fenestella conradi*. Ulrich, Geol. Surv. Illinois, VIII, p. 553, pl. lii, 8, 8a. Upper Coal Measures: Near Red Oak, Iowa.

*Fenestella* (Unitrypa?) *consimilis* Hall and Simpson. See *Isotrypa consimilis* (Hall and Simpson).

*Fenestella Coronis* Hall. See *Semicoscinium coronis* (Hall).

***Fenestella corticata* Prout.**

1859. *Fenestella corticata*. Prout, Trans. St. Louis Acad. Sci., I, p. 230. Carboniferous: Organ Mountains, New Mexico.

*Fenestella crebescens* Hall. See *Polypora crebescens* (Hall).

*Fenestella* (Polypora) *crebescens* Hall and Simpson. See *Polypora crebescens* (Hall).

***Fenestella crebripora* Hall.**

1874. *Fenestella crebripora*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 95.

1879. *Fenestella crebripora*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 167 (reprint, 1880, p. 29).

1883. *Fenestella crebripora*. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 1-3.

1887. *Fenestella crebripora*. Hall and Simpson, Pal. New York, VI, p. 43, pl. xx, 1-3.

Lower Helderberg: Clarksville, New York.

*Fenestella cribrosa* Nicholson (not Hall). Name preoccupied by Hall.  
See *Fenestella nicholsoni* Whiteaves.

*Fenestella* (*Hemitrypa*) *cribrosa* Hall. See *Hemitrypa cribrosa* (Hall.)

***Fenestella?* *cribrosa* Hall.**

1852. *Fenestella cribrosa*. Hall, Pal. New York, II, p. 166, pl. xID, 3a, b.  
Niagara: Lockport, New York.

*Fenestella cultellata* Hall. See *Polypora shumardi* Prout.

*Fenestella* (*Polypora*) *cultellata* Hall. See *Polypora shumardi* Prout.

***Fenestella cultrata* Hall.**

1883. *Fenestella cultrata*. Hall, Trans. Albany Institute, X, p. 171 (abstract, 1881, p. 29).  
1886. *Fenestella cultrata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. 1, 1-5.  
1887. *Fenestella cultrata*. Hall and Simpson, Pal. New York, VI, p. 119, pl. 1, 1-5.  
Hamilton: Falls of the Ohio.

***Fenestella curvata* Hall.**

1884. *Fenestella curvata*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 69.  
1887. *Fenestella curvata*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 50, pl. vi, 1-9.  
Hamilton: Moscow, New York.

***Fenestella curvijunctura* Hall.**

1883. *Fenestella curvijunctura*. Hall, Trans. Albany Institute, X, p. 171 (abstract, 1881, p. 29).  
1887. *Fenestella curvijunctura*. Hall and Simpson, Pal. New York, VI, p. 107, pl. xlv, 1-5.  
Hamilton: Falls of the Ohio.

*Fenestella cylindracea* Hall. See *Polypora cylindracea* (Hall).

*Fenestella Davidsoni* Nicholson. See *Semicoscinium davidsoni* (Nicholson.)

***Fenestella delicata* Meek.**

1871. *Fenestella delicata*. Meek, Proc. Acad. Nat. Sci. Philadelphia, p. 159.  
1875. *Fenestella delicata*. Meek, Pal. Ohio, II, p. 273, pl. x, 2a-d.  
Waverly: Lodi, Ohio.

***Fenestella delicatula* Ulrich.**

1890. *Fenestella delicatula*. Ulrich, Geol. Surv. Illinois, VIII, p. 549, pl. lii, 2.  
Base of Coal Measures: Seville, Illinois.

***Fenestella depressa* Hall.**

1883. *Fenestella depressa*. Hall, Trans. Albany Institute, X, p. 172 (abstract, 1881, p. 30).  
1886. *Fenestella depressa*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 16, 17.  
1887. *Fenestella depressa*. Hall and Simpson, Pal. New York, VI, p. 111, pl. xlv, 16, 17.  
Hamilton: Falls of the Ohio.

***Fenestella dilata* Prout.**

1866. *Fenestella dilata*. Prout, Trans. St. Louis Acad. Sci., II, p. 411.  
Hamilton: Locality not given (Buffalo, Iowa?).



**Fenestella dispanda** Hall.

1886. *Fenestella dispanda*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1883, pl. xlv, 1-4.

1887. *Fenestella dispanda*. Hall and Simpson, Pal. New York, VI, p. 114, pl. xlv, 1-4.

Upper Helderberg: Western New York.

*Fenestella* (*Ptiloporina*) *disparilis* Hall and Simpson. See *Ptiloporina disparilis* (Hall and Simpson).

*Fenestella distans* Hall. See *Polypora distans* (Hall).

*Fenestella* (*Polypora*) *distans* Hall. See *Polypora distans* (Hall).

**Fenestella elegans** Hall.

1852. *Fenestella elegans*. Hall, Pal. New York, II, p. 164, pl. xld, 1a-g.

Niagara: Lockport and Rochester, New York.

*Fenestella* (*Hemitrypa*) *elegantissima* Hall. See *Unitrypa* ? *elegantissima* (Hall).

*Fenestella* (*Unitrypa*) *elegantissima* Hall. See *Unitrypa* ? *elegantissima* (Hall).

**Fenestella elevatipora** Ulrich.

1890. *Fenestella elevatipora*. Ulrich, Geol. Surv. Illinois, VIII, p. 549, pl. li, 3, 3a.

1894. *Fenestella elevatipora*. Keyes, Missouri Geol. Surv., V, p. 25.

Chester: Chester, Illinois; Crittenden County, Kentucky.

*Fenestella elongata* Hall. See *Polypora elongata* (Hall).

*Fenestella* (*Polypora*) *elongata* Hall. See *Polypora elongata* (Hall).

**Fenestella emaciata** Hall.

1884. *Fenestella emaciata*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 68.

1887. *Fenestella emaciata*. Hall, Sixth Ann. Rep. State Geologist New York, for the year 1886, p. 57.

1888. *Fenestella emaciata*. Hall, Seventh Ann. Rep. State Geologist New York, for the year 1887, pl. viii, 9-13; Forty-first Ann. Rep. New York State Mus., pl. viii, 9-13.

1899. *Fenestella emaciata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 159, fig. 47. Hamilton: Shore of Seneca Lake, New York.

**Fenestella ? erectipora** Hall.

1883. *Fenestella erectipora*. Hall, Trans. Albany Institute, X, p. 174 (abstract, 1881, p. 33).

1886. *Fenestella erectipora*. Hall, Fifth Ann. Rep. State Geologist New York, for the year 1885, pl. l, 15, 17.

1887. *Fenestella erectipora*. Hall and Simpson, Pal. New York, VI, p. 118, pl. l, 15, 17.

Upper Helderberg: Near Buffalo, New York.

*Fenestella Eudora* Hall. See *Polypora eudora* (Hall).

*Fenestella* (*Polypora*) *Eudora* Hall and Simpson. See *Polypora eudora* (Hall).

*Fenestella Eudora*? Hall (1883). See *Polypora* ? *stricta* (Hall and Simpson).

**Fenestella exigua** Ulrich.

1890. *Fenestella exigua*. Ulrich, Geol. Surv. Illinois, VIII, p. 545, pl. li, 1, 1a  
 Warsaw: Monroe County, Illinois.

**Fenestella eximia** Winchell.

1866. *Fenestella eximia*. Winchell, Rep. Lower Penin. Michigan, p. 92.  
 Hamilton: Petoskey, Michigan.

*Fenestella exornata* Hall. See *Semicoscinium exornatum* (Hall).

*Fenestella* (*Hemitrypa*) *fastigata* Hall. See *Unitrypa fastigata* (Hall).

*Fenestella* (*Unitrypa*) *fastigata* Hall and Simpson. See *Unitrypa fastigata* (Hall).

*Fenestella* (*Hemitrypa*) *favosa* Hall. See *Hemitrypa favosa* (Hall).

*Fenestella* (*Unitrypa*) *ficticius* Hall and Simpson. See *Unitrypa ficticia* (Hall and Simpson).

**Fenestella filiformis** Nicholson. Not recognizable.

1874. *Fenestella filiformis*. Nicholson, Geol. Mag., new ser., I, p. 199, pl. ix, 24.

1874. *Fenestella filiformis*. Nicholson, Pal. Province Ontario, p. 107, fig. 45.

Upper Helderberg: Wainfleet, Ontario.

Obs. This form was founded upon the outer covering of some species of *Unitrypa*, which has probably since been described under another name.

**Fenestella filistriata** Ulrich.

1890. *Fenestella filistriata*. Ulrich, Geol. Surv. Illinois, VIII, p. 535, pl. xlix, 2, 2a.

1894. *Fenestella filistriata*. Keyes, Missouri Geol. Surv., V, p. 22.

Burlington: Burlington, Iowa; Montezuma, Pike County, Illinois.

**Fenestella flitexta** Winchell.

1866. *Fenestella flitexta*. Winchell, Rep. Lower Penin. Michigan, p. 92.

Hamilton: Petoskey, Michigan.

*Fenestella fistulata* Hall. See *Polypora fistulata* (Hall).

*Fenestella* (*Polypora*) *fistulata* Hall. See *Polypora fistulata* (Hall).

*Fenestella flabelliformis* Hall. See *Polypora flabelliformis* (Hall).

*Fenestella* (*Polypora*) *flabelliformis* Hall. See *Polypora flabelliformis* (Hall).

*Fenestella flexuosa* Ulrich. - See *Reteporina flexuosa* (Ulrich).

**Fenestella foliata** Ulrich.

1888. *Fenestella foliata*. Ulrich, Bull. Denison Univ., IV, p. 67, pl. xiii, 4-4c.

Waverly: Cuyahoga Valley, Ohio.

**Fenestella ? frequens** Hall.

1888. *Fenestella frequens*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. ix, 12-15; Forty-first Ann. Rep. New York State Mus., pl. ix, 12-15.

Lower Helderberg: Clarksville, New York.

**Fenestella funicula** Ulrich.

1890. *Fenestella funicula*. Ulrich, Geol. Surv. Illinois, VIII, p. 542, pl. li, 6.

1894. *Fenestella funicula*. Keyes, Missouri Geol. Surv., V, p. 23.

Keokuk: Keokuk, Iowa.

*Fenestella granifera* Hall. See *Semicoscinium graniferum* (Hall).

*Fenestella* (Hemitrypa) *granifera* Hall. See *Semicoscinium graniferum* (Hall).

*Fenestella granilinea* Hall. See *Polypora granilinea* (Hall).

*Fenestella* (Polypora) *granilinea* Hall. See *Polypora granilinea* (Hall).

***Fenestella granulosa* Whitfield.**

1878. *Fenestella granulosa*. Whitfield, Ann. Rep. Geol. Surv. Wisconsin for the year 1877, p. 68.

1882. *Fenestella granulosa*. Whitfield, Geol. Surv. Wisconsin, IV, p. 252, pl. xii, 1, 2.

1882. *Fenestella oxfordensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 159, pl. vi, 13.

Cincinnati (Richmond): Delafield, Wisconsin; Oxford and Oregonia, Ohio.

*Fenestella hemicycla* Hall. See *Semicoscinium labiatum* (Hall).

*Fenestella hemitrypa* Prout. See *Hemitrypa proutana* Ulrich.

***Fenestella herrickana* Ulrich.**

1888. *Fenestella herrickana*. Ulrich, Bull. Denison Univ., IV, p. 63, pl. xiii, 2-2d. Waverly: Moot's Run and Richfield, Ohio.

***Fenestella hestia* Hall.**

1879. *Fenestella Hestia*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 168 (reprint, 1880, p. 30).

1883. *Fenestella Hestia*. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 12, 13.

1887. *Fenestella Hestia*. Hall and Simpson, Pal. New York, VI, p. 45, pl. xx, 12, 13.

Lower Helderberg: Schoharie, New York.

*Fenestella hexagonalis* Hall. See *Polypora hexagonalis* (Hall).

*Fenestella* (Polypora) *hexagonalis* Hall. See *Polypora hexagonalis* (Hall).

*Fenestella hexagonalis* var. *foraminulosa* Hall. See *Polypora hexagonalis-foraminulosa* (Hall).

*Fenestella* (Polypora) *hexagonalis* var. *foraminulosa* Hall. See *Polypora hexagonalis-foraminulosa* (Hall).

***Fenestella* ? *idalia* Hall.**

1874. *Fenestella Idalia*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 95.

1879. *Fenestella Idalia*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 170 (reprint, 1880, p. 32).

1883. *Fenestella Idalia*. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 6-9.

1887. *Fenestella Idalia*. Hall and Simpson, Pal. New York, VI, p. 52, pl. xxi, 6-9.

Lower Helderberg: Clarksville, New York.

*Fenestella Idothea* Hall. See *Polypora idothea* (Hall).

*Fenestella* (Polypora) *Idothea* Hall and Simpson. See *Polypora idothea* (Hall).

***Fenestella inaequalis* Ulrich.**

1890. *Fenestella inaequalis*. Ulrich, Geol. Surv. Illinois, VIII, p. 554, pl. lii, 9, 9a, pl. liv, 4, 4a.

Upper Coal Measures: Ball's Mill, Sangamon County, Illinois.

*Fenestella* (*Ptiloporella*) *inæqualis* Hall and Simpson. See *Ptiloporella inæqualis* (Hall and Simpson).

*Fenestella incongruens* Quenstedt. Not recognizable.

1881. *Fenestella incongruens*. Quenstedt, Roehren- und Sternkorallen, p. 173, pl. cl, 3.

Upper Helderberg: Sandusky, Ohio.

*Fenestella inflexa* Hall. See *Semicoscium inflexum* (Hall).

*Fenestella intermedia* Prout.

1858. *Fenestella intermedia*. Prout, Trans. St. Louis Acad. Sci., I, p. 231.

Carboniferous: Organ Mountains, New Mexico.

*Fenestella interrupta* Hall. See *Semicoscium interruptum* (Hall).

*Fenestella juncea* Hall.

1879. *Fenestella junceus*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 168 (reprint, 1880, p. 30).

1883. *Fenestella junceus*. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 16-18.

1887. *Fenestella junceus*. Hall and Simpson, Pal. New York, VI, p. 44, pl. xx, 16-18.

Lower Helderberg: Clarksville, New York.

*Fenestella labiata* Hall. See *Semicoscium labiatum* (Hall).

*Fenestella* (*Polypora*) *lævistriata* Hall. See *Polypora lævistriata* (Hall).

*Fenestella largissima* Hall. See *Polypora largissima* (Hall).

*Fenestella* (*Polypora*) *largissima* Hall. See *Polypora largissima* (Hall).

*Fenestella* (*Hemitrypa*) *lata* Hall. See *Unitrypa lata* (Hall).

*Fenestella* (*Unitrypa*) *lata* Hall and Simpson. See *Unitrypa lata* (Hall).

*Fenestella laticarina* Simpson. Not recognizable.

1897. *Fenestella laticarina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 12.

Obs. Simpson nowhere else alludes to this species, nor does he state the authorship. Geological horizon and locality are not given.

*Fenestella* (*Ptiloporella*) *laticrescens* Hall and Simpson. See *Ptiloporella laticrescens* (Hall and Simpson).

*Fenestella latijunctura* Hall. See *Semicoscium latijuncturum* (Hall).

*Fenestella latitruncata* Hall. See *Polypora latitruncata* (Hall).

*Fenestella* (*Polypora*) *latitruncata* Hall. See *Polypora latitruncata* (Hall).

*Fenestella* (*Archimedes*) *laxa* Hall. See *Archimedes laxus* (Hall).

*Fenestella levinodata* Hall. See *Polypora levinodata* (Hall).

*Fenestella* (*Polypora*) *levinodata* Hall. See *Polypora levinodata* (Hall).

*Fenestella* (*Polypora*) *Lilæa* Hall. See *Polypora lilæa* (Hall).

*Fenestella limbata* Foerste.

1887. *Fenestella limbatus*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 83, pl. vii, 10a-d.

Coal Measures: Flint Ridge, Ohio.

*Fenestella limbatus* var. *remotus* Foerste. See *Fenestella remota* Foerste.

***Fenestella limitaris* Ulrich.**

1890. *Fenestella limitaris*. Ulrich, Geol. Surv. Illinois, VIII, p. 538, pl. xlix, 4, 4a.

1894. *Fenestella limitaris*. Keyes, Missouri Geol. Surv., V, p. 23.  
Keokuk: Keokuk and Bentonsport, Iowa.

*Fenestella lineanoda* Hall. Not recognized.

1883. *Fenestella lineanoda*. Hall, Trans. Albany Institute, X, p. 163 (abstract, 1881, p. 22).

Upper Helderberg: Locality not given.

*Fenestella* (*Tectulipora*) *loculata* Hall. See *Loculipora loculata* (Hall).

***Fenestella lodiensis* Meek.**

1875. *Fenestella multiporata* (McCoy) var. *lodiensis*. Meek, Pal. Ohio, II, p. 274, pl. x, 1a-c.

Waverly: Lodi, Ohio.

*Fenestella lunulata* Hall. See *Semicoscium lunulatum* (Hall).

***Fenestella lyelli* Dawson.**

1878. *Fenestella lyelli*. Dawson, Acadian Geol., ed. 3, p. 288, fig. 86.

Carboniferous: Windsor and Stewiacke, Nova Scotia.

*Fenestella* (*Lyropora*) *lyra* Hall. See *Lyropora subquadrans-lyra* (Hall).

***Fenestella magnifica* Nicholson.**

1874. *Fenestella magnifica*. Nicholson, Geol. Mag., new ser., I, p. 197, pl. ix, 22.

1874. *Fenestella magnifica*. Nicholson, Pal. Province Ontario, p. 104, fig. 41a, b.  
Upper Helderberg: Port Colborne, Ontario.

***Fenestella marcida* Hall.**

1884. *Fenestella marcida*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 61.

1887. *Fenestella marcida*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 51, pl. vi, 10-15.

Hamilton: Darien and Moscow, New York.

***Fenestella marginalis* Nicholson.**

1874. *Fenestella marginalis*. Nicholson, Geol. Mag., new ser., I, p. 197, pl. ix, 23.

1874. *Fenestella marginalis*. Nicholson, Pal. Province Ontario, p. 105, fig. 42.

Upper Helderberg: Port Colborne, Ontario.

***Fenestella meekana* Ulrich.**

1888. *Fenestella meekana*. Ulrich, Bull. Denison Univ., IV, p. 64, pl. xiii, 1-1b.

Waverly: Richfield and Lodi, Ohio.

*Fenestella* (*Archimedes*) *meekana* Hall. See *Archimedes meekanus* (Hall).

*Fenestella microtrema* D'Orbigny. Not recognizable.

1850. *Fenestella microtrema*. D'Orbigny, Prodr. de Pal., I, p. 45.

"Etats-Unis, Kentucky, failles de l'Ohio."

***Fenestella mimica* Ulrich.**

1890. *Fenestella mimica*. Ulrich, Geol. Surv. Illinois, VIII, p. 552, pl. lii, 7, 7a.

Coal Measures: Seville, Illinois.

**Fenestella modesta** Ulrich.

1890. *Fenestella modesta*. Ulrich, Geol. Surv. Illinois, VIII, p. 550, pl. lii, 3-3b.  
Coal Measures: Knox County and Seville, Illinois.

*Fenestella multiplex* Hall. See *Polypora multiplex* (Hall).

*Fenestella* (Polypora) *multiplex* Hall. See *Polypora multiplex* (Hall).

*Fenestella multiporata* (McCoy), var. *lodiensis* Meek. See *Fenestella lodiensis* Meek.

**Fenestella multispinosa** Ulrich.

1890. *Fenestella multispinosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 540, pl. 1, 3-3d.

1894. *Fenestella multispinosa*. Keyes, Missouri Geol. Surv., V, p. 23.  
Keokuk: Bentonsport and Keokuk, Iowa; Kings Mountain, Kentucky.

*Fenestella mutabilis* Hall. See *Polypora mutabilis* (Hall).

*Fenestella* (Polypora) *mutabilis* Hall. See *Polypora mutabilis* (Hall).

*Fenestella* (Unitrypa) *nana* Hall and Simpson. See *Unitrypa nana* Hall and Simpson.

*Fenestella nervata* Nicholson. See *Ptiloporella nervata* (Nicholson).

*Fenestella Nervia* Hall. See *Unitrypa nervia* (Hall).

*Fenestella* (Hemitrypa) *Nervia* Hall. See *Unitrypa nervia* (Hall).

*Fenestella* (Unitrypa) *Nervia* Hall and Simpson. See *Unitrypa nervia* (Hall).

*Fenestella* (Hemitrypa) *Nervia* var. *constricta* Hall. See *Unitrypa nervia-constricta* (Hall).

*Fenestella* (Unitrypa) *Nervia* var. *constricta* Hall and Simpson. See *Unitrypa nervia-constricta* (Hall).

*Fenestella nexa* Hall. See *Polypora nexa* (Hall).

*Fenestella* (Polypora) *nexa* Hall. See *Polypora nexa* (Hall).

**Fenestella ? nexilis** Hall.

1888. *Fenestella nexilis*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. x, 14, 15; Forty-first Ann. Rep. New York State Mus., pl. x, 14, 15.

Upper Helderberg: Locality not given.

**Fenestella nicholsoni** Whiteaves.

1874. *Fenestella cribrosa* (not of Hall). Nicholson, Pal. Province Ontario, p. 106, fig. 43.

1898. *Fenestella Nicholsoni*. Whiteaves, Contr. Canad. Pal., I, p. 378.  
Hamilton: Widder and near Arkona, Ontario.

**Fenestella nododorsalis** Ulrich.

1890. *Fenestella compressa* var. *nododorsalis*. Ulrich, Geol. Surv. Illinois, VIII, p. 540, pl. 1, 2.

Keokuk: Kings Mountain, Kentucky.

**Fenestella nodosa** Prout.

1866. *Fenestella nodosa*. Prout, Trans. St. Louis Acad. Sci., II, p. 410.  
Hamilton: Locality not given; (Buffalo, Iowa?).

**Fenestella noe** Hall and Simpson.

1883. *Fenestella* sp. Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 19-22.

**Fenestella noe** Hall and Simpson—Continued.

1887. *Fenestella* Noe. Hall and Simpson, Pal. New York, VI, p. 47, pl. xiii, 19–22.  
Lower Helderberg: Clarksville, New York.

**Fenestella normalis** Hall. Not recognizable.

1885. *Fenestella normalis*. Hall, Rep. State Geologist New York for the year 1884, pl. i, 8.  
Geological horizon and locality not given.

**Fenestella norwoodiana** Prout.

1858. *Fenestella* Norwoodiana. Prout, Trans. St. Louis Acad. Sci., I, p. 233.  
Carboniferous: Organ Mountains, New Mexico.

**Fenestella obliqua** Hall. See *Polypora obliqua* (Hall and Simpson).**Fenestella** (*Polypora*) *obliqua* Hall and Simpson. See *Polypora obliqua* (Hall and Simpson).**Fenestella** (*Archimedes*) *Owenana* Hall. See *Archimedes owenanus* (Hall).**Fenestella oxfordensis** Ulrich. See *Fenestella granulosa* Whitfield.**Fenestella papillata** Hall. See *Polypora paxillata* (Hall).**Fenestella parallela** Hall (1881). Not recognized.

1883. *Fenestella parallela*. Hall, Trans. Albany Institute, X, p. 168 (abstract, 1881, p. 26).  
Upper Helderberg: New York.

**Fenestella parallela** Hall (1888). See *Loculipora loculata* (Hall).**Fenestella parallela** Hall.

1885. *Fenestella parallela*. Hall, Rep. State Geologist New York for the year 1884, pl. i, 7.  
1886. *Fenestella parallela*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 8–18.  
1887. *Fenestella parallela*. Hall and Simpson, Pal. New York, VI, p. 107, pl. xlv, 8–18.  
Upper Helderberg: Near Buffalo, New York.

**Fenestella parvulipora** Hall.

1876. *Fenestella parvulipora*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xii, 1–9; *ibid.* (Museum edition), 1879, p. 123, pl. xii, 1–9.  
1882. *Fenestella parvulipora*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 249, pl. xi, 1–9.  
Niagara: Waldron, Indiana.

**Fenestella patellifera** Ulrich. See *Fenestella variapora* Hall.**Fenestella paxillata** Hall. See *Polypora paxillata* (Hall).**Fenestella** (*Polypora*) *paxillata* Hall and Simpson. See *Polypora paxillata* (Hall).**Fenestella peculiaris** Hall.

1883. *Fenestella peculiaris*. Hall, Rep. State Geologist New York for the year 1882, pl. (42) xxxiii, 19–21.  
1887. *Fenestella peculiaris*. Hall and Simpson, Pal. New York, VI, p. 113, pl. xlii, 19–21.  
Upper Helderberg: Near Caledonia, New York.

**Fenestella perangulata** Hall. See *Polypora perangulata* (Hall).

*Fenestella* (Polypora) *perangulata* Hall. See *Polypora perangulata* (Hall).

***Fenestella perelegans* Meek.**

1872. *Fenestella perelegans*. Meek, Pal. Eastern Nebraska, p. 153, pl. vii, 3-3d. (Proposed under *F. Shumardii* Meek (not Prout).)

1885. *Fenestella perelegans*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 777, pl. lxxxvii, 1-3.

1894. *Fenestella shumardi* (not of Prout). Keyes, Missouri Geol. Surv., V, p. 24, pl. xxxiv, 2a, b.

1896. *Fenestella shumardi* (not of Prout). Smith, Proc. American Phil. Soc., xxxv, p. 237.

Coal Measures: Nebraska City, Nebraska; Poteau Mountain, Indian Territory (Smith).

*Fenestella perforata* Hall. See *Loculipora perforata* (Hall).

*Fenestella* (Loculipora) *perforata* Hall. See *Loculipora perforata* (Hall).

*Fenestella permarginata* Hall. See *Semicoscinium permarginatum* (Hall).

***Fenestella perminuta* Ulrich.**

1890. *Fenestella perminuta*. Ulrich, Geol. Surv. Illinois, VIII, p. 551, pl. lii, 4-4b.

Coal Measures: Seville, Illinois.

*Fenestella* (Hemitrypa) *pernodosa* Hall. See *Unitrypa pernodosa* (Hall).

*Fenestella* (Unitrypa) *pernodosa* Hall. See *Unitrypa pernodosa* (Hall).

***Fenestella perplexa* Hall.**

1883. *Fenestella* (Hemitrypa) *perplexa*. Hall, Trans. Albany Institute, X, p. 175 (abstract, 1881, p. 33).

1887. *Fenestella perplexa*. Hall and Simpson, Pal. New York, VI, p. 130.

1888. *Fenestella perplexa*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 5; Forty-first Ann. Rep. New York State Mus., pl. xiv, 5.

1886. *Fenestella bigeneris*. Ulrich, Contr. American Pal., I, p. 11, pl. ii, 1, 1a. Hamilton: Falls of the Ohio.

*Fenestella* (Hemitrypa) *perplexa* Hall. See *Fenestella perplexa* Hall.

*Fenestella pertenuis* Hall (1881). See *Fenestella proutana* Miller.

***Fenestella pertenuis* Hall.**

1883. *Fenestella pertenuis*. Hall, Trans. Albany Institute, X, p. 62 (abstract, 1879, p. 6).

1882. *Fenestella pertenuis*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 251.

Niagara: Waldron, Indiana.

*Fenestella perundata* Hall. See *Reteporidra perundata* (Hall).

*Fenestella* (Polypora) *perundata* Hall and Simpson. See *Reteporidra perundata* (Hall).

*Fenestella perundulata* Hall. See *Reteporidra perundulata* (Hall).



**Fenestella philia** Hall.

1879. *Fenestella Philia*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 168 (reprint, 1880, p. 30).

1883. *Fenestella Philia*. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 9-11.

1887. *Fenestella Philia*. Hall and Simpson, Pal. New York, VI, p. 50, pl. xx, 9-11.

Lower Helderberg: Clarksville, New York.

*Fenestella* (*Ptiloporina*) *pinnata* Hall and Simpson. See *Ptiloporina pinnata* Hall and Simpson.

*Fenestella planiramosa* Hall (Lower Helderberg). See *Polypora compressa* (Hall).

**Fenestella planiramosa** Hall.

1884. *Fenestella planiramosa*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 62.

1887. *Fenestella planiramosa*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 44, pl. i, 1-13.

1899. *Fenestella planiramosa*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 159, fig. 48.

Hamilton: Bellona and Eighteenmile Creek, New York.

*Fenestella plumosa* Prout. See *Hemitrypa plumosa* (Prout).

**Fenestella popeana** Prout.

1858. *Fenestella Popeana*. Prout, Trans. St. Louis Acad. Sci., I, p. 229; *ibid.*, p. 388.

Permian: Guadalupe Mountains, New Mexico.

*Fenestella porosa* Hall. See *Polypora porosa* (Hall.)

*Fenestella* (*Polypora*) *porosa* Hall. See *Polypora porosa* (Hall).

*Fenestella præcursor* Hall. See *Unitrypa præcursor* (Hall).

*Fenestella* (*Unitrypa*) *præcursor* Hall. See *Unitrypa præcursor* (Hall).

*Fenestella prisca?* Hall (not Lonsdale nor Goldfuss). See *Semio-scinium tenuiceps* (Hall).

**Fenestella proceritas** Hall and Simpson.

1887. *Fenestella proceritas*. Hall and Simpson, Pal. New York, VI, p. 115, pl. xlv, 32, 35, 36.

Upper Helderberg: Walpole, Ontario.

*Fenestella* (*Unitrypa*) *projecta* Hall and Simpson. See *Unitrypa acaulis* (Hall).

**Fenestella proluxa** Hall.

1883. *Fenestella proluxa*. Hall, Trans. Albany Institute, X, p. 64 (abstract, 1879, p. 8).

1882. *Fenestella proluxa*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 253.

Niagara: Waldron, Indiana.

*Fenestella propria* Hall. See *Polypora propria* (Hall).

*Fenestella* (*Polypora*) *propria* Hall and Simpson. See *Polypora propria* (Hall).

**Fenestella proutana** Miller.

1883. *Fenestella pertenuis*. Hall, Trans. Albany Institute, X, p. 171 (abstract, 1881, p. 29).  
1886. *Fenestella pertenuis*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 22, 23.  
1887. *Fenestella pertenuis*. Hall and Simpson, Pal. New York, VI, p. 106, pl. xlv, 22, 23.  
1883. *Fenestella proutana*. Miller, American Pal. Foss., ed. 2, p. 291. (Name proposed for *F. pertenuis*, preoccupied by Hall for a species from the Niagara at Waldron, Indiana).  
Hamilton: Falls of the Ohio.

**Fenestella pulchella** Ulrich.

1886. *Fenestella pulchella*. Ulrich, Contr. American Pal., I, p. 9, pl. i, 4, 4a.  
Hamilton: Falls of the Ohio.

*Fenestella punctostriata* Hall. See *Polypora punctostriata* (Hall).

**Fenestella quadrangula** Hall.

1884. *Fenestella quadrangula*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 68.  
1887. *Fenestella quadrangula*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 47, pl. iii, 7-12.  
Hamilton: Darien, New York.

*Fenestella quadrangularis* Hall. See *Polypora quadrangularis* (Hall).

*Fenestella* (*Polypora*) *quadrangularis* Hall. See *Polypora quadrangularis* (Hall).

*Fenestella quadrula* Hall. See *Unitrypa quadrula* (Hall).

*Fenestella* (*Lyropora*) *quincuncialis* Hall. See *Lyropora quincuncialis* (Hall).

**Fenestella regalis** Ulrich.

1890. *Fenestella regalis*. Ulrich, Geol. Surv. Illinois, VIII, p. 538, pl. 1, 1, 1a, pl. liv, 5.  
Keokuk: Kings Mountain, Kentucky.

**Fenestella regalis-macra** Ulrich.

1888. *Fenestella regalis* var. *macra*. Ulrich, Bull. Denison Univ., IV, p. 70, pl. xiii, 5, 5a.  
Waverly: Richfield, Ohio.

**Fenestella remota** Foerste.

1887. *Fenestella limbatus* var. *remotus*. Foerste, Bul. Sci. Lab. Denison Univ., II, p. 84, pl. vii, 11.  
1887. *Fenestella remota*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 87.  
Coal Measures: Flint Ridge, Ohio.

*Fenestella* (*Lyropora*) *retrorsa* Meek and Worthen. See *Lyropora retrorsa* (Meek and Worthen).

*Fenestella rhombifera* Hall. See *Reteporina rhombifera* (Hall).

*Fenestella* (*Reteporina*) *rhombifera* Hall and Simpson. See *Reteporina rhombifera* (Hall).

**Fenestella richfieldensis** Ulrich.

1888. *Fenestella albida* var. *richfieldensis*. Ulrich, Bull. Denison Univ., IV, p. 66, pl. xiii, 3-3c.  
Waverly: Richfield, Ohio.

*Fenestella rigida* Hall. See *Polypora rigida* (Hall).

*Fenestella* (Polypora) *rigida* Hall. See *Polypora rigida* (Hall).

*Fenestella robusta* Hall. See *Polypora robusta* (Hall).

*Fenestella* (Polypora) *robusta* Hall. See *Polypora robusta* (Hall).

***Fenestella rudis* Ulrich.**

1890. *Fenestella rudis*. Ulrich, Geol. Surv. Illinois, VIII, p. 537, pl. xlix, 3-3d.

1894. *Fenestella rudis*. Keyes, Missouri Geol. Surv., V, p. 23, pl. xxxiv, 5.

Keokuk: Keokuk and Bentonsport, Iowa.

Warsaw: Warsaw and Nauvoo, Illinois.

*Fenestella* (Polypora) *rustica* Hall and Simpson. See *Polypora rustica* (Hall and Simpson).

*Fenestella scalaris* Hall. See *Unitrypa scalaris* (Hall).

*Fenestella* (Unitrypa) *scalaris* Hall. See *Unitrypa scalaris* (Hall).

*Fenestella sculptilis* Ulrich. See *Fenestella stellata* Hall.

*Fenestella semirotunda* Hall. See *Semicoscinium semirotundum* (Hall).

*Fenestella* (Polypora) *separata* Hall. See *Polypora separata* (Hall).

***Fenestella serrata* Hall.**

1883. *Fenestella serrata*. Hall, Trans. Albany Institute, X, p. 170 (abstract, 1881, p. 28).

1887. *Fenestella serrata*. Hall and Simpson, Pal. New York, VI, p. 110, pl. xlvii, 11-19.

Hamilton: Falls of the Ohio.

***Fenestella serratula* Ulrich.**

1890. *Fenestella serratula*. Ulrich, Geol. Surv. Illinois, VIII, p. 544, pl. 1, 5-5c.

1894. *Fenestella serratula*. Keyes, Missouri Geol. Surv., V, p. 23.

Keokuk: Nauvoo, Illinois.

Warsaw: Warsaw and Monroe County, Illinois.

St. Louis: Caldwell, Lyon, and Crittenden counties, Kentucky.

Chester: Sloans Valley, Kentucky.

***Fenestella sevilensis* Ulrich.**

1890. *Fenestella sevilensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 552, pl. lii, 6, 6a.

Base of Coal Measures: Seville, Illinois.

***Fenestella shumardi* Prout.**

1858. *Fenestella Shumardii*. Prout, Trans. St. Louis Acad. Sci., I, p. 232.

Carboniferous: Organ Mountains, New Mexico.

*Fenestella Shumardii* Meek and other authors (not Prout). See *Fenestella perelegans* Meek.

*Fenestella singularis* Hall. See *Fenestella singularitas* Hall.

***Fenestella singularitas* Hall.**

1883. *Fenestella singularis*. Hall, Trans. Albany Institute, X, p. 171 (*Fenestella singularitas*, abstract, 1881, p. 29).

1887. *Fenestella singularitas*. Hall and Simpson, Pal. New York, VI, p. 114, pl. xlvii, 12-16.

Hamilton: Falls of the Ohio.

*Fenestella* (Ptiloporina) *sinistralis* Hall and Simpson. See *Ptiloporina sinistralis* (Hall and Simpson).

**Fenestella sinuosa** Hall.

1886. *Fenestella sinuosa*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 5, 6.  
1887. *Fenestella sinuosa*. Hall and Simpson, Pal. New York, VI, p. 116, pl. xlv, 5, 6.  
Upper Helderberg: Near Caledonia, New York.

**Fenestella spio** Hall and Simpson.

1883. *Fenestella* sp. (?). Hall, Rep. State Geologist New York for the year 1882, pl. xix, 16.  
1887. *Fenestella Spio*. Hall and Simpson, Pal. New York, VI, p. 47, pl. xix, 16.  
Lower Helderberg: Clarksville, New York.

**Fenestella spissa** Hall.

1887. *Fenestella spissa*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 59.  
Hamilton: West Bloomfield, New York.

**Fenestella stellata** Hall.

1883. *Fenestella stellata*. Hall, Trans. Albany Institute, X, p. 170 (abstract, 1881, p. 29).  
1886. *Fenestella stellata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 14, 15.  
1887. *Fenestella stellata*. Hall and Simpson, Pal. New York, VI, p. 109, pl. xlv, 14, 15, pl. xlvii, 20-36.  
1897. *Fenestella stellata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 5.  
1886. *Fenestella sculptilis*. Ulrich, Contr. American Pal., I, p. 10, pl. i, 3.  
Hamilton: Falls of the Ohio.

*Fenestella* (*Hemitrypa*) *stipata* Hall. See *Unitrypa tegulata* (Hall).

*Fenestella* (*Unitrypa*) *stipata* Hall. See *Unitrypa tegulata* (Hall).

*Fenestella strata* Hall. See *Reteporina striata* (Hall).

*Fenestella* (*Reteporina*) *striata* Hall. See *Reteporina striata* (Hall).

*Fenestella striatopora* Hall. See *Polypora striatopora* (Hall).

*Fenestella* (*Polypora*) *striatopora* Hall. See *Polypora striatopora* (Hall).

*Fenestella* (*Polypora*) *stricta* Hall and Simpson. See *Polypora? stricta* (Hall and Simpson).

**Fenestella subflexuosa** Ulrich.

1888. *Fenestella subflexuosa*. Ulrich, Bull. Denison Univ., IV, p. 68, pl. xiii, 6.  
Waverly: Cuyahoga Falls, Ohio.

*Fenestella submutans* Hall. See *Polypora submutans* (Hall).

*Fenestella* (*Polypora*) *submutans* Hall. See *Polypora submutans* (Hall).

*Fenestella* (*Lyropora*) *subquadrans* Hall. See *Lyropora subquadrans* (Hall).

**Fenestella subretiformis** Prout.

1858. *Fenestella subretiformis*. Prout, Trans. St. Louis Acad. Sci., I, p. 233.  
Carboniferous: Organ Mountains, New Mexico.

*Fenestella* (*Hemitrypa*) *substriata* Hall. See *Unitrypa substriata* (Hall).

*Fenestella subtortilis* Hall. See *Semicoscium subtortile* (Hall).

*Fenestella* (*Archimedes*) *swallowana* Hall. See *Archimedes swallowanus* (Hall).

**Fenestella sylvia Hall.**

1874. *Fenestella Sylvia*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 96.  
1879. *Fenestella Sylvia*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 167 (reprint, 1880, p. 29).  
1883. *Fenestella Sylvia*. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 4-7.  
1887. *Fenestella Sylvia*. Hall and Simpson, Pal. New York, VI, p. 49, pl. xx, 4-7. Lower Helderberg: Clarksville, New York.

*Fenestella tantulus* Hall. See *Polypora tantula* (Hall).

*Fenestella* (*Hemitrypa*) *tegulata* Hall. See *Unitrypa tegulata* (Hall).

*Fenestella* (*Unitrypa*) *tegulata* Hall. See *Unitrypa tegulata* (Hall).

**Fenestella tenax Ulrich.**

1888. *Fenestella tenax*. Ulrich, Bull. Denison Univ., IV, p. 71.  
1890. *Fenestella tenax*. Ulrich, Geol. Surv. Illinois, VIII, p. 546, pl. li, 2-2c.  
1894. *Fenestella tenax*. Keyes, Missouri Geol. Surv., V, p. 24.  
Warsaw: Warsaw, and Monroe County, Illinois.  
Chester: Chester and Kaskaskia, Illinois; Sloans Valley, Kentucky.  
Waverly: Cuyahoga County, Ohio.

**Fenestella tenella Hall.**

1886. *Fenestella tenella*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 18, 19.  
1887. *Fenestella tenella*. Hall and Simpson, Pal. New York, VI, p. 105, pl. xlv, 18, 19.  
Hamilton: Falls of the Ohio.

*Fenestella tenuiceps* Hall. See *Semicoscinium tenuiceps* (Hall).

*Fenestella tenuiceps* Nicholson (not Hall). See *Fenestella arkonensis* Whiteaves.

**Fenestella tenuis Hall.**

1852. *Fenestella tenuis*. Hall, Pal. New York, II, p. 51, pl. xix, 5a-c.  
Clinton: Wolcott Furnace, Whiting's Mill, Wayne County, New York.

*Fenestella Thyene* Hall. See *Semicoscinium thyene* (Hall).

*Fenestella torta* Hall. See *Semicoscinium tortum* (Hall).

*Fenestella* (*Unitrypa*) *transversa* Hall and Simpson. See *Unitrypa tegulata* (Hall).

**Fenestella triserialis Ulrich.**

1890. *Fenestella triserialis*. Ulrich, Geol. Surv. Illinois, VIII, p. 541, pl. l, 4, 4a.  
Keokuk: Kings Mountain, Kentucky.

**Fenestella trituberculata Prout.**

1858. *Fenestella trituberculata*. Prout, Trans. St. Louis Acad. Sci., I, p. 228.  
Carboniferous: Organ Mountains, New Mexico.

**Fenestella tuberculata Hall and Simpson.**

1887. *Fenestella tuberculata*. Hall and Simpson, Pal. New York, VI, p. 116, pl. xlv, 25, 26, 33, 34.  
Upper Helderberg: Ontario.

*Fenestella varia* Hall. See *Polypora varia* (Hall).

**Fenestella variabilis Prout.**

1858. *Fenestella variabilis*. Prout, Trans. St. Louis Acad. Sci., I, p. 231.  
Carboniferous: Organ Mountains, New Mexico.

**Fenestella variapora Hall.**

1883. *Fenestella variapora*. Hall, Trans. Albany Institute, X, p. 170 (abstract, 1881, p. 28).  
 1886. *Fenestella variapora*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 1-13.  
 1887. *Fenestella variapora*. Hall and Simpson, Pal. New York, VI, p. 104, pl. xxxv, 17, pl. xlv, 1-13.  
 1897. *Fenestella variapora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 18.  
 1886. *Fenestella patellifera*. Ulrich, Contr. American Pal., I, p. 8, pl. i, 1, 1a. Hamilton: Falls of the Ohio.

**Fenestella vera Ulrich.**

1890. *Fenestella vera*. Ulrich, Geol. Surv. Illinois, VIII, p. 535, pl. xlv, 1, 1a, pl. liv, 3.  
 1892. *Fenestella vera*. Whiteaves, Contr. Canadian Pal., I, p. 279, pl. xxxvi, 3, 3a.  
 Hamilton: Buffalo, Iowa; Lake Winnipegosis, Canada (Whiteaves).

**Fenestella verrucosa Hall.**

1883. *Fenestella* (Polypora) *verrucosa*. Hall, Rep. State Geologist New York for the year 1882, pl. (42) xxxiii, 11.  
 1887. *Fenestella verrucosa*. Hall and Simpson, Pal. New York, VI, p. 110, pl. xlii, 11, pl. xlvi, 22-24.  
 Hamilton: Falls of the Ohio.

*Fenestella* (Polypora) *verrucosa* Hall. See *Fenestella verrucosa* Hall.

**Fenestella wortheni Ulrich.**

1890. *Fenestella wortheni*. Ulrich, Geol. Surv. Illinois, VIII, p. 551, pl. lii, 5, 5a.  
 Base of Coal Measures: Seville, Illinois.

*Fenestella* (Archimedes) *Wortheni* Hall. See *Archimedes wortheni* (Hall).

**FENESTRALIA Prout. Genotype: Fenestralia sancti-ludovici Prout.**

1858. *Fenestralia*. Prout, Trans. St. Louis Acad. Sci., I, p. 235.  
 1882. *Fenestralia*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.  
 1885. *Fenestralia*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 773.  
 1885. *Fenestralia*. Hall, Rep. State Geologist New York for the year 1884, p. 37.  
 1886. *Fenestralia*. Ulrich, Contr. American Pal., I, p. 5.  
 1889. *Fenestralia*. Miller, North American Geol. Pal., p. 305.  
 1890. *Fenestralia*. Ulrich, Geol. Surv. Illinois, VIII, pp. 396, 604.  
 1895. *Fenestralia*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 717, 724; Forty-seventh Ann. Rep. New York State Mus., pp. 911, 918.  
 1896. *Fenestralia*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 282.  
 1897. *Fenestralia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 502, 520.

**Fenestralia compacta Ulrich.**

1890. *Fenestralia sancti-ludovici* var. *compacta*. Ulrich, Geol. Surv. Illinois, VIII, p. 605, pl. lix, 1.  
 St. Louis: Elizabethtown, Kentucky.

**Fenestralia sancti-ludovici Prout.**

1858. *Fenestralia* St. *Ludovici*. Prout, Trans. St. Louis Acad. Sci., I, p. 235, pl. xv, 1, 1a.

**Fenestralia sancti-ludovici** Prout—Continued.

1890. *Fenestralia sancti-ludovici*. Ulrich, Geol. Surv. Illinois, VIII, p. 604, pl. lv, 5.  
 1894. *Fenestralia sancti-ludovici*. Keyes, Missouri Geol. Surv., V, p. 30.  
 1895. *Fenestralia St. Ludovici*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, fig. 62 (p. 717).  
 1897. *Fenestralia St. Ludovici*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 42, 43 (p. 503).  
 Warsaw: Barrett's Station, Missouri; Warsaw and Columbia, Illinois.  
 St. Louis: St. Louis, Missouri; Alton, Illinois.

*Fenestralia sancti-ludovici* var. *compacta* Ulrich. See *Fenestralia compacta* Ulrich.

**FENESTRAPORA** Hall. Genotype: *Fenestrapora biperforata* Hall.

1885. *Fenestrapora*. Hall, Rep. State Geologist New York for the year 1884, p. 36.  
 1887. *Fenestrapora*. Hall and Simpson, Pal. New York, VI, p. xxii.  
 1889. *Fenestrapora*. Miller, North American Geol. Pal., p. 305.  
 1890. *Fenestrapora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 395, 557.  
 1895. *Fenestrapora*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 701, 725; Forty-seventh Ann. Rep. New York State Mus., pp. 884, 895, 919.  
 1896. *Fenestrapora*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 282.  
 1897. *Fenestrapora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 506, 520.

**Fenestrapora biperforata** Hall.

1885. *Fenestrapora biperforata*. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 17.  
 1887. *Fenestrapora biperforata*. Hall and Simpson, Pal. New York, VI, p. 286, pl. lxvi, 34-39.  
 1897. *Fenestrapora biperforata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iii, 7-12.  
 Hamilton: Moscow, Livingston County, and other localities in central and western New York.

**Fenestrapora infraporosa** (Ulrich).

1886. *Semicoscinium infraporosa*. Ulrich, Contr. American Pal., I, p. 14, pl. i, 6-6b.  
 1889. *Fenestrapora infraporosa*. Miller, North American Geol. Pal., p. 305.  
 Hamilton: Falls of the Ohio.

**Fenestrapora largior** (Hall) Simpson.

1897. *Fenestrapora largior* Hall. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iii, 6. (Not described.)  
 Geological horizon and locality not given.  
 Obs. Simpson ascribes this species to Hall, but we have been unable to find it described in any of Hall's works.

**Fenestrapora occidentalis** Ulrich.

1890. *Fenestrapora occidentalis*. Ulrich, Geol. Surv. Illinois, VIII, p. 558, pl. xlv, 2, 2a, pl. liv, 7-7c.  
 Hamilton: Buffalo, Iowa.

*Fenestrella* D'Orbigny. In error for *Fenestella*.

*Fenestrellina* D'Orbigny. Not recognized.

1850. *Fenestrellina*. D'Orbigny, Prod. de Pal., I, p. 153.

1885. *Fenestrellina*. Hall, Rep. State Geologist New York for the year 1884 p. 36.

Obs. Hall's *Fenestrellina* (D'Orbigny's?) = *Fenestella*.

*Fistulicella* Simpson. See *Pinacotrypa* Ulrich.

*Fistulicella plana* Simpson. See *Pinacotrypa plana* (Hall).

**FISTULIPORA** McCoy. Genotype: *Fistulipora minor* McCoy = *Calamopora incrustans* Phillips.

1850. *Fistulipora*. McCoy, Ann. Mag. Nat. Hist., ser. 2, III, p. 131.

1851. *Fistulipora*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 219.

1854. *Fistulipora*. McCoy, Brit. Pal. Foss., p. 11.

1854. *Fistulipora*. McCoy, Contr. Brit. Pal., p. 99.

1860. *Fistulipora*. Milne-Edwards, Hist. Nat. des Corall., III, p. 238.

1874. *Fistulipora*. Nicholson, Pal. Province Ontario, p. 63.

1876. *Fistulipora*. Dybowski, Verh. Mineral. Gesellschaft St. Petersburg, (2) X, p. 180.

1879. *Fistulipora*. Nicholson, Pal. Tabulate Corals, p. 292.

1881. *Fistulipora*. Nicholson, Genus Monticulipora, p. 91.

1882. *Fistulipora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.

1884. *Fistulipora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 43.

1885. *Fistulipora*. Nicholson and Foord, Ann. Mag. Nat. Hist., ser. 5, XVI, p. 500.

1886. *Fistulipora*. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 909, 922.

1887. *Fistulipora*. Hall and Simpson, Pal. New York, VI, p. xviii.

1888. *Fistulipora* (in part). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 32.

1889. *Fistulipora*. Miller, North American Geol. Pal., p. 305.

1890. *Fistulipora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 382, 474.

1896. *Fistulipora*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 119.

1896. *Fistulipora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 269; p. 105 (not Ulrich).

1897. *Fistulipora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 559.

1882. *Didymopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.

1885. *Dybowskia*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 717.

1886. *Dybowskiella*. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 910, 916.

1887. *Lichenalia* (not Hall, 1852). Hall and Simpson, Pal. New York, VI, p. xvi.

1887. *Lichenalia* (not Hall, 1852). Foerste, Bull. Sci. Lab. Denison Univ., II, p. 168.

1889. *Lichenalia* (not Hall, 1852). Miller, North American Geol. Pal., p. 311.

1897. *Lichenalia* (not Hall, 1852). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 559.

1899. *Lichenalia* (not Hall, 1852). Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 171.

1897. *Fistuliporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 560.

**Fistulipora acervulosa** Rominger.

1866. *Fistulipora acervulosa*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.

Hamilton: Alpena, Michigan.



**Fistulipora alternata (Hall).**

1883. *Lichenalia alternata*. Hall, Trans. Albany Institute, X, p. 150 (abstract, 1881, p. 8).  
 1886. *Lichenalia alternata*. Hall, Rep. State Geologist New York for the year 1885, pl. xxxi, 39-41.  
 1887. *Lichenalia alternata*. Hall and Simpson, Pal. New York, VI, p. 80, pl. xxxi, 39-41.  
 Hamilton: Falls of the Ohio.

**Fistulipora asteria (Prout).**

1859. *Coscinium asterias*. Prout, Trans. St. Louis Acad. Sci., I, p. 574.  
 1866. *Coscinium asterias*. Prout, Geol. Surv. Illinois, II, p. 416, pl. xxii, 7, 7a.  
 Keokuk: Near Warsaw, Illinois.

**Fistulipora astrica Ulrich.**

1890. *Fistulipora astrica*. Ulrich, Geol. Surv. Illinois, VIII, p. 477, fig. 8a (p. 320), pl. xlvii, 5-5b, pl. xlviii, 3.  
 1889. *Fistulipora astricta* (in error for *astrica*), Ulrich (in press). Miller, North American Geol. Pal., fig. 476 (p. 305).  
 1896. *Fistulipora astrica*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 442 (p. 269).  
 Hamilton: Buffalo, Iowa.

*Fistulipora astricta* (Ulrich) Miller. See *Fistulipora astrica* Ulrich.

**Fistulipora ? bullata (Hall and Simpson).**

1887. *Lichenalia bullata*. Hall and Simpson, Pal. New York, VI, p. 205, pl. lvii, 12, 13.  
 Hamilton: Near Le Roy, New York.  
 Obs. This form may be a *Pinacotrypa*.

*Fistulipora Canadensis* Billings. Coral belonging to the genus *Favosites*.

**Fistulipora carbonaria Ulrich.**

1884. *Fistulipora carbonaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 45, pl. iii, 1, 1a.  
 1894. *Fistulipora carbonaria*. Keyes, Missouri Geol. Surv., V, p. 16.  
 Upper Coal Measures: Kansas City, Missouri; Manhattan, Kansas.

*Fistulipora? clausa* Ulrich. See *Meekopora clausa* (Ulrich).

**Fistulipora colliculata (Hall).**

1883. *Lichenalia colliculata*. Hall, Trans. Albany Institute, X, p. 184 (abstract, 1881, p. 184).  
 1884. *Lichenalia colliculata*. Hall, Rep. State Geologist New York for the year 1883, p. 36.  
 1887. *Lichenalia colliculata*. Hall and Simpson, Pal. New York, VI, p. 200.  
 1897. *Lichenalia colliculata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 8, 9.  
 Hamilton: York, New York.

*Fistulipora collina* Ulrich. See *Cyclotrypa collina* (Ulrich).

*Fistulipora communis* Ulrich. See *Cyclotrypa communis* (Ulrich).

**Fistulipora compressa Rominger.**

1866. *Fistulipora compressa*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 123.  
 1894. *Fistulipora compressa*. Keyes, Missouri Geol. Surv., V, p. 16.  
 Keokuk: Lagrange, Missouri.

*Fistulipora confertipora* Hall and Simpson. See *Lioclema confertiporum* (Hall).

***Fistulipora ? confusa* (Hall and Simpson).**

1887. *Lichenalia confusa*. Hall and Simpson, Pal. New York, VI, p. 204.  
Hamilton: Near Le Roy, New York.

***Fistulipora ? constricta* (Hall).**

1883. *Lichenalia constricta*. Hall, Trans. Albany Institute, X, p. 183 (abstract, 1881, p. 183).  
1884. *Lichenalia constricta*. Hall, Rep. State Geologist New York for the year 1883, p. 36.  
1887. *Fistulipora constricta*. Hall and Simpson, Pal. New York, VI, p. 227.  
1888. *Fistulipora constricta*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 11, 12; Forty-first Ann. Rep. New York State Mus., pl. xv, 11, 12.  
1897. *Fistuliporella constricta*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 5-7.  
Hamilton: Near Le Roy and York, New York.

Obs.—This species is the type of Simpson's *Fistuliporella*. This genus, in the present state of our knowledge, is a synonym of *Fistulipora*. However, when this species is better known, the genus *Fistuliporella* may stand.

***Fistulipora conulata* (Hall).**

1883. *Lichenalia conulata*. Hall, Trans. Albany Institute, X, p. 151 (abstract, 1881, p. 9).  
1886. *Lichenalia conulata*. Hall, Rep. State Geologist New York for the year 1885, pl. xxxi, 10-14.  
1887. *Lichenalia conulata*. Hall and Simpson, Pal. New York, VI, p. 81, pl. xxxi, 10-14.  
Hamilton: Falls of the Ohio.

***Fistulipora cornuta* (Hall and Simpson).**

1887. *Lichenalia cornuta*. Hall and Simpson, Pal. New York, VI, p. 203.  
1888. *Lichenalia cornuta*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 6; Forty-first Ann. Rep. New York State Mus., pl. xv, 6.  
Hamilton: Near York and near Le Roy, New York.

***Fistulipora* (? *Dichotrypa*) *corrugata* Ulrich.**

1890. *Fistulipora* (? *Dichotrypa*) *corrugata*. Ulrich, Geol. Surv. Illinois, VIII, p. 480, pl. xlvii, 8, 8a, pl. xlviii, 6-6b.  
Hamilton: Thunder Bay, Michigan.

***Fistulipora ? crassa* (Hall).**

1879. *Trematopora crassa*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 152 (reprint, 1880, p. 14).  
1883. *Trematopora crassa*. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 21, 22.  
1887. *Lichenalia crassa*. Hall and Simpson, Pal. New York, VI, p. 30, pl. xi, 21, 22.  
Lower Helderberg: Schoharie, New York.

*Fistulipora crassa* Rominger (not Hall nor Lonsdale). See *Fistulipora romingeri* Nicholson and Foord.

*Fistulipora confertipora* Hall and Simpson. See *Lioclema confertiporum* (Hall).

**Fistulipora cultellata (Hall).**

1884. *Lichenalia cultellata*. Hall, Rep. State Geologist New York for the year 1883, p. 35.

1887. *Lichenalia cultellata*. Hall and Simpson, Pal. New York, VI, p. 202, pl. lxiv, 1, 2.

Hamilton: Fall Brook and York, New York.

**Fistulipora decipiens Hall and Simpson.** See *Lioclema decipiens* (Hall).

**Fistulipora densa Hall and Simpson.** See *Lioclema densum* (Hall).

**Fistulipora digitata Hall and Simpson.** See *Lioclema digitatum* (Hall).

**Fistulipora distans (Hall).**

1879. *Lichenalia distans*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 157 (reprint, 1880, p. 19).

1883. *Lichenalia distans*. Hall, Rep. State Geologist New York for the year 1882, pl. xv, 8, 9.

1887. *Lichenalia distans*. Hall and Simpson, Pal. New York, VI, p. 32, pl. xv, 8, 9.

Lower Helderberg: Schoharie, New York.

**Fistulipora distensa (Hall).**

1887. *Lichenalia distans*. Hall and Simpson, Pal. New York, VI, p. 197.

1888. *Lichenalia distensa*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 5; Forty-first Ann. Rep. New York State Mus., pl. xv, 5.

Hamilton: Western New York.

**Fistulipora elegans Rominger.** See *Pinacotrypa elegans* (Rominger).

**Fistulipora eriensis Rominger.**

1866. *Fistulipora Eriensis*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 121.

1885. *Fistulipora eriensis*. Nicholson and Foord, Ann. Mag. Nat. Hist., ser. 5, XVI, p. 511, pl. xvii, 4, 4a.

Hamilton: Hamburg, New York.

**Fistulipora excellens Ulrich.**

1884. *Fistulipora excelens*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 46, pl. iii, 3-3b.

Chester: Sloans Valley and Litchfield, Kentucky.

**Fistulipora flabellata Ulrich.** See *Chiloporella nicholsoni* (James).

**Fistulipora flabellum Rominger.** See *Dichotrypa flabellum* (Rominger).

**Fistulipora foliacea (Hall).**

1883. *Lichenalia foliacea*. Hall, Trans. Albany Institute, X, p. 183 (abstract, 1881, p. 183).

1884. *Lichenalia foliacea*. Hall, Rep. State Geologist New York for the year 1883, p. 35.

1887. *Ceramopora*? (*Lichenalia*) *foliacea*. Hall and Simpson, Pal. New York, VI, p. 235, pl. lviii, 6, 7.

Hamilton: West Bloomfield, New York.

**Fistulipora foordi Ulrich.**

1890. *Fistulipora foordi*. Ulrich, Geol. Surv. Illinois, VIII, p. 479, fig. 5f (p. 315), pl. xlvii, 7, 7a, pl. xlviii, 4, 4a.

1889. *Fistulipora foordi*. (Ulrich in press), Miller, North American Geol. Pal., fig. 477 (p. 305).

Hamilton: Rockford, Iowa.

**Fistulipora geometrica (Hall).**

1886. *Lichenalia geometrica*. Hall, Rep. State Geologist New York for the year 1885, pl. xxxii, 21-23.  
 1887. *Lichenalia geometrica*. Hall and Simpson, Pal. New York, VI, p. 79, pl. xxxii, 21-23.  
 1897. *Pileotrypa geometrica*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 15.  
 Hamilton: Falls of the Ohio.  
 Obs. This form may be the young of *Fistulipora normalis* (Hall).

**Fistulipora granifera (Hall).**

1883. *Lichenalia granifera*. Hall, Trans. Albany Institute, X, p. 153 (abstract, 1881, p. 11).  
 1886. *Lichenalia (Pileotrypa) granifera*. Hall, Rep. State Geologist New York for the year 1885, pl. xxx, 28-31.  
 1887. *Lichenalia (Pileotrypa) granifera*. Hall and Simpson, Pal. New York, VI, p. 84, pl. xxx, 28-31.  
 1897. *Pileotrypa granifera*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 13.  
 Hamilton: Falls of the Ohio.

**Fistulipora halli Rominger.**

1866. *Fistulipora Halli*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 119.  
 1876. *Lichenalia concentrica* var. *parvula*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. vii, 1, 2; *ibid.* (Museum edition, 1879), p. 117, pl. vii, 1, 2.  
 1882. *Lichenalia concentrica* var. *parvula*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 241, pl. vi. 1, 2.  
 Niagara: Waldron, Indiana.

**Fistulipora ?? helios Rominger.**

1866. *Fistulipora helios*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.  
 Upper Helderberg: From the drift of Michigan.  
 Obs. Compare with *Botryllopora socialis* Nicholson, with which this form is perhaps identical.

**Fistulipora hemispherica (Roemer).**

1860. *Thecostegites hemisphericus*. Roemer, Sil. Fauna West. Tennessee, p. 25, pl. ii, 3, 3a.  
 1889. *Thecostegites hemisphericus*. Miller, North American Geol. Pal., fig. 228 (p. 207).  
 Niagara: Perry and Wayne counties, Tennessee.

**Fistulipora ? hemispherica (Hall).**

1883. *Callopora hemispherica*. Hall, Trans. Albany Institute, X, p. 183 (abstract, 1881, p. 183).  
 1884. *Callopora hemispherica*. Hall, Rep. State Geologist New York for the year 1883, p. 17.  
 1887. *Fistulipora hemispherica*. Hall and Simpson, Pal. New York, VI, p. 226, pl. lvii, 8-11.  
 Hamilton: York, New York.  
 Obs. This species will probably be found to belong to another genus (*Pinacotrypa*?), and hence will not need renaming.

**Fistulipora huronensis (Nicholson).**

1875. *Ceramopora Huronensis*. Nicholson, Geol. Mag., new ser., II, p. 37, pl. ii, 5, 5a.

**Fistulipora huronensis** (Nicholson)—Continued.

1875. *Ceramopora Huronensis*. Nicholson, Pal. Province Ontario, p. 78, pl. ii, 5, 5a.  
1891. *Ceramopora Huronensis*. Whiteaves, Contr. Canadian Pal., I, p. 214. Hamilton: Arkona, Ontario; Hay River, Canada (Whiteaves).  
Obs. *Lichenalia* (*Ceramopora*) *clypeiformis* Hall may be a synonym of this species.

**Fistulipora incrassata** (Nicholson).

1874. *Callopora incrassata*. Nicholson, Geol. Mag., new ser., I, p. 13, pl. ii, 1.  
1874. *Callopora incrassata*. Nicholson, Pal. Province Ontario, p. 61, fig. 19a-d.  
1879. *Fistulipora incrassata*. Nicholson, Pal. Tabulate Corals, p. 308, fig. 40, pl. xv, 3-3b.  
Hamilton: Widder and Arkona, Ontario.

**Fistulipora interaspera** Hall and Simpson.

1887. *Fistulipora interaspera*. Hall and Simpson, Pal. New York, VI, p. 218.  
1897. *Lichenalia interaspera*. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, pl. xxii, 10.  
Hamilton: Lake Canandaigua, New York.

*Fistulipora intercellata* Hall and Simpson. See *Lioclema intercellatum* (Hall).

*Fistulipora involvens* Hall and Simpson. See *Lioclema involvens* (Hall and Simpson).

**Fistulipora labiosa** Winchell.

1866. *Fistulipora labiosa*. Winchell, Rep. Lower Penin. Michigan, p. 88.  
Hamilton: Petoskey, Michigan.

**Fistulipora ? lamellata** (Hall).

1883. *Thallostigma lamellata*. Hall, Trans. Albany Institute, X, p. 155 (abstract, 1881, p. 13).  
1886. *Fistulipora lamellata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxx, 21-23.  
1887. *Fistulipora lamellata*. Hall and Simpson, Pal. New York, VI, p. 87, pl. xxx, 21-23.  
Upper Helderberg: Onondaga Valley, New York.

*Fistulipora ? laxata* Ulrich. See *Bythotrypa laxata* (Ulrich).

*Fistulipora lens* Whitfield. See *Calloporella ? lens* (Whitfield).

**Fistulipora longimacula** (Hall).

1883. *Thallostigma longimacula*. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).  
1884. *Thallostigma longimacula*. Hall, Rep. State Geologist New York for the year 1883, p. 23.  
1887. *Fistulipora longimacula*. Hall and Simpson, Pal. New York, VI, p. 209. Hamilton: York, New York.  
Obs. This may be the same as *Fistulipora sulcata* Rominger.

*Fistulipora lunata* Rominger. See *Buskopora lunata* (Rominger).

**Fistulipora maculosa** (Hall).

1874. *Trematopora maculosa*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 106.  
1879. *Callopora maculosa*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 156 (reprint, 1880, p. 18).

**Fistulipora maculosa (Hall)—Continued.**

1883. *Callopora maculosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xiv, 1-8.  
1887. *Lichenalia maculosa*. Hall and Simpson, Pal. New York, VI, p. 30, pl. xiv, 1-8.  
1874. *Trematopora ponderosa*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 106.  
Lower Helderberg: Catskill Creek and Clarksville, New York.

**Fistulipora micropora** Hall and Simpson. See *Lioclema microporum* (Hall).

**Fistulipora minuta** Rominger. See *Lioclema minutum* (Rominger).

**Fistulipora monticulata** Ulrich.

1890. *Fistulipora monticulata*. Ulrich, Geol. Surv. Illinois, VIII, p. 477, pl. xlvii, 3-3*b*, pl. xlviii, 2, 2*a*.  
Hamilton: Buffalo, Iowa.

**Fistulipora multaculeata** Hall and Simpson. See *Lioclema multaculeatum* (Hall).

**Fistulipora ? multipora** James. See *Chiloporella nicholsoni* (James).

**Fistulipora neglecta** Rominger.

1866. *Fistulipora neglecta*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 119.  
1876. *Lichenalia concentrica*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. v, 9-16, pl. vi, 1, 2, 4, 7-10, pl. vii, 3-11; *ibid.* (Museum edition, 1879), p. 116, pl. v, 9-16, pl. vi, 1, 2, 4, 7-10, pl. vii, 3-11.  
1881. *Lichenalia concentrica*. Quenstedt, Roehren- und Sternkorallen, p. 95, pl. cxlvi, 71, 72.  
1882. *Lichenalia concentrica*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 240, pl. iv, 9-16, pl. v, 1, 2, 4, 7-10, pl. vi, 3-11.  
1884. *Lichenalia concentrica*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, pl. iii, 5.  
1887. *Lichenalia concentrica*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 168, pl. xvii, 10.  
Niagara: Waldron, Indiana.

**Fistulipora neglecta-maculata** (Hall).

1876. *Lichenalia concentrica* var. *maculata*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. vi, 3, 5, 6; *ibid.* (Museum edition, 1879), p. 117, pl. vi, 3, 5, 6.  
1882. *Lichenalia concentrica* var. *maculata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 241, pl. v, 3, 5, 6.  
Niagara: Waldron, Indiana.

**Fistulipora nodulifera** Meek.

1872. *Fistulipora nodulifera*. Meek, Pal. Eastern Nebraska, p. 143, pl. v, 5*a-d*.  
1894. *Fistulipora nodulifera*. Keyes, Missouri Geol. Surv., V, pl. xxxiv, 3.  
1896. *Fistulipora nodulifera*. Smith, Proc. American Phil. Soc., XXXV, p. 235.  
Coal Measures: Nebraska City and other localities in Nebraska; Poteau Mountain, Indian Territory (Smith).

**Fistulipora normalis** Ulrich.

1886. *Fistulipora normalis*. Ulrich, Contr. American Pal., I, p. 20, pl. ii, 4-4*b*.  
Hamilton: Falls of the Ohio.  
Obs. See also *Fistulipora geometrica* (Hall) and *Fistulipora substellata* (Hall).

*Fistulipora occidens* Hall and Whitfield. See *Lioclema occidens* (Hall and Whitfield).

*Fistulipora operculata* Simpson. See *Pinacotrypa operculata* (Hall and Simpson).

***Fistulipora ovata* (Hall).**

1886. *Lichenalia ovata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxii, 1-5.

1887. *Lichenalia ovata*. Hall and Simpson, Pal. New York, VI, p. 80, pl. xxxii, 1-5.

1897. *Lichenalia ovata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 2.

Hamilton: Falls of the Ohio.

Obs. See also *Fistulipora substellata* (Hall).

*Fistulipora oweni* James. See *Celoclema oweni* (James).

*Fistulipora parasitica* Hall and Simpson. See *Lioclema parasiticum* (Hall).

*Fistulipora peculiaris* Rominger. See *Actinotrypa peculiaris* (Rominger).

***Fistulipora ? permarginata* (Hall).**

1883. *Lichenalia permarginata*. Hall, Trans. Albany Institute, X, p. 151 (abstract, 1881, p. 10).

1883. *Lichenalia permarginata*. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 20.

1887. *Lichenalia permarginata*. Hall and Simpson, Pal. New York, VI, p. 82, pl. xxvi, 20.

Upper Helderberg: Onondaga Valley, New York.

*Fistulipora plana* Hall and Simpson. See *Pinacotrypa plana* (Hall).

*Fistulipora ponderosa* Hall and Simpson. See *Lioclema ponderosum* (Hall).

***Fistulipora prolifica* Ulrich.**

1884. *Fistulipora prolifica*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 45, pl. iii, 2, 2a.

St. Louis: Colesburg, Kentucky.

*Fistulipora proporooides* Nicholson. See *Pinacotrypa elegans* (Rominger).

***Fistulipora ? pustulosa* (Hall and Simpson).**

1887. *Lichenalia pustulosa*. Hall and Simpson, Pal. New York, VI, p. 206.

1897. *Fistulipora pustulosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 12.

Hamilton: York, New York.

Obs. This form may be a *Pinacotrypa*.

***Fistulipora ramosa* (Hall and Simpson).**

1887. *Lichenalia ramosa*. Hall and Simpson, Pal. New York, VI, p. 199.

1898. *Lichenalia ramosa*. Whiteaves, Contr. Canadian Pal., I, p. 381.

Hamilton: West Williams, Ontario.

***Fistulipora romingeri* Nicholson and Foord.**

1886. *Fistulipora crassa*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 121.

Bull. 173—18

**Fistulipora romingeri** Nicholson and Foord—Continued.

1885. *Fistulipora Romingeri*. Nicholson and Foord, Ann. Mag. Nat. Hist., ser. 5, XVI, p. 506. (Proposed for *F. crassa* Rominger, the name *crassa* having been previously used by Lonsdale for a species of this genus.)  
1898. *Fistulipora Romingeri*. Whiteaves, Contr. Canadian Pal., I, p. 380.  
Hamilton: Widder, Ontario; Buffalo, Iowa.

*Fistulipora rugosa* Whitfield. See *Batostoma? rugosum* (Whitfield).

**Fistulipora saffordi** Winchell.

1866. *Fistulipora Saffordi*. Winchell, Rep. Lower Penin. Michigan, p. 88.  
Hamilton: Petoskey, Michigan.

**Fistulipora ? scrobiculata** (Hall).

1883. *Thallostigma scrobiculata*. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).  
1884. *Thallostigma scrobiculata*. Hall, Rep. State Geologist New York for the year 1883, p. 20.  
1887. *Fistulipora scrobiculata*. Hall and Simpson, Pal. New York, VI, p. 212, pl. lviii, 17, 18.  
1899. *Fistuliporina scrobiculata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 168, fig. 61.  
Hamilton: Eighteen-Mile Creek, Erie County and Bellona, Yates County, New York.  
Obs. This form may be a *Pinacotrypa*.

*Fistulipora segregata* Hall and Simpson. See *Lioclema segregatum* (Hall).

**Fistulipora serialis** (Hall and Simpson).

1879. *Lichenalia torta* (in part). Hall, Thirty-second Ann. Rep. New York State Mus., p. 157 (reprint, 1880, p. 19).  
1883. *Lichenalia torta*. Hall, Rep. State Geologist New York for the year 1882, pl. xv, 6.  
1883. *Lichenalia tortuosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 17, 18.  
1887. *Lichenalia serialis*. Hall and Simpson, Pal. New York, VI, p. 32, pl. xiii, 17, 18, pl. xv, 6.  
Lower Helderberg: Clarksville, New York.

*Fistulipora serrulata* Hall and Simpson. See *Pinacotrypa serrulata* (Hall).

*Fistulipora siluriana* James. See *Chiloporella nicholsoni* (James).

*Fistulipora solidissima* Whitfield. See *Lioclemella solidissima* (Whitfield).

**Fistulipora spergenensis** Rominger.

1866. *Fistulipora Spergenensis*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 122.  
Warsaw: Spergen Hill, Indiana.

*Fistulipora spheroides* Hall and Simpson. See *Lioclema spheroides* (Hall).

**Fistulipora spinulifera** Rominger.

1866. *Fistulipora spinulifera*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 121.  
1890. *Fistulipora spinulifera*. Ulrich, Geol. Surv. Illinois, VIII, p. 480, pl. xlvi, 3-3d.  
Hamilton: Alpena, Michigan.



*Fistulipora stellifera* Rominger. See *Meekopora stellifera* (Rominger).

***Fistulipora subcava* (Hall).**

1883. *Lichenalia subcava*. Hall, Trans. Albany Institute, X, p. 150 (abstract, 1881, p. 8).  
 1883. *Lichenalia subcava*. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 23-25.  
 1887. *Lichenalia subcava*. Hall and Simpson, Pal. New York, VI, p. 81, pl. xxvi, 23-25.  
 Hamilton: Falls of the Ohio.

***Fistulipora substellata* (Hall).**

1883. *Lichenalia substellata*. Hall, Trans. Albany Institute, X, p. 149 (abstract, 1881, p. 7).  
 1883. *Lichenalia substellata*. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 26.  
 1886. *Lichenalia substellata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxx, 1-11.  
 1887. *Lichenalia substellata*. Hall and Simpson, Pal. New York, VI, p. 78, pl. xxvi, 26, pl. xxx, 1-11.  
 1897. *Lichenalia substellata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 1.  
 Hamilton: Falls of the Ohio.  
 Obs. *Fistulipora normalis* Ulrich and *Fistulipora ovata* (Hall) may be synonyms of this species.

*Fistulipora* ? *subtilis* Hall and Simpson. See *Lioclema subtile* (Hall).

***Fistulipora subtrigona* (Hall and Simpson).**

1887. *Lichenalia subtrigona*. Hall and Simpson, Pal. New York, VI, p. 196.  
 1888. *Lichenalia subtrigona*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 3, 4; Forty-first Ann. Rep. New York State Mus., pl. xv, 3, 4.  
 1897. *Lichenalia subtrigona*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 4.  
 1898. *Lichenalia subtrigona*. Whiteaves, Contr. Canadian Pal., I, p. 381.  
 Hamilton: West Williams, Ontario.

***Fistulipora sulcata* Rominger.**

1866. *Fistulipora sulcatus*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.  
 Hamilton: Near Alpena, Michigan.  
 Obs. See also *Fistulipora longimacula* (Hall).

***Fistulipora torta* (Hall).**

1879. *Lichenalia torta*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 157 (reprint, 1880, p. 19).  
 1883. *Lichenalia torta*. Hall, Rep. State Geologist New York for the year 1882, pl. xv, 1-5, 7.  
 1887. *Lichenalia torta*. Hall and Simpson, Pal. New York, VI, p. 31, pl. xv, 1-5, 7.  
 Lower Helderberg: Clarksville and Schoharie, New York.

***Fistulipora* ? *triangularis* (Hall).**

1883. *Thallostigma triangularis*. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).  
 1884. *Thallostigma triangularis*. Hall, Rep. State Geologist New York for the year 1883, p. 32.

**Fistulipora ? triangularis (Hall)—Continued.**

1887. *Fistulipora triangularis*. Hall and Simpson, Pal. New York, VI, p. 222.  
Hamilton: Western New York.

**Fistulipora ? trifaria Hall and Simpson.**

1887. *Fistulipora trifaria*. Hall and Simpson, Pal. New York, VI, p. 222.  
Hamilton: Fall brook, New York.

**Fistulipora trifolia Rominger. See Phractopora trifolia (Rominger).****Fistulipora ? triloba Hall and Simpson.**

1887. *Fistulipora triloba*. Hall and Simpson, Pal. New York, VI, p. 29.  
1888. *Fistulipora triloba*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 1, 2; Forty-first Ann. Rep. New York State Mus., pl. xv, 1, 2.  
1897. *Fistulipora triloba*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 11.  
Lower Helderberg: Near Schoharie, New York.

**Fistulipora ? tuberculata (Prout).**

1859. *Coscinium tuberculatum*. Prout, Trans. St. Louis Acad. Sci., I, p. 573.  
1866. *Coscinium tuberculatum*. Prout, Geol. Surv. Illinois, II, p. 415, pl. xxii, 6.  
Keokuk: Near Warsaw, Illinois.

**Fistulipora ? umbilicata (Hall).**

1883. *Thallostigma umbilicata*. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).  
1884. *Thallostigma umbilicata*. Hall, Rep. State Geologist New York for the year 1883, p. 22.  
1887. *Fistulipora umbilicata*. Hall and Simpson, Pal. New York, VI, p. 213.  
Hamilton: York, New York.  
Obs. This may prove to be a species of *Pinacotrypa*.

**Fistulipora ? unilinea Hall and Simpson.**

1887. *Fistulipora unilinea*. Hall and Simpson, Pal. New York, VI, p. 217, pl. lvii, 1, 2, 5.  
Hamilton: York, New York.  
Obs. This may prove to be a species of *Pinacotrypa*.

**Fistulipora utriculus Rominger.**

1866. *Fistulipora utriculus*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 121.  
1885. *Fistulipora utriculus*. Nicholson and Foord, Ann. Mag. Nat. Hist., ser. 5, XVI, p. 508, pl. xvi, 1-1e, pl. xvii, 1, 1a.  
1898. *Fistulipora utriculus*. Whiteaves, Contr. Canadian Pal., I, p. 380.  
Hamilton: Widder and Arkona, Ontario.

**Fistulipora variapora Hall. See Pinacotrypa variapora (Hall).****Fistulipora vesiculata (Hall and Simpson).**

1887. *Lichenalia vesiculata*. Hall and Simpson, Pal. New York, VI, p. 198, pl. lvii, 14-19, pl. lix, 1, 14.  
1897. *Lichenalia vesiculata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 3.  
Hamilton: Canandaigua Lake, York and near Le Roy, New York.

**Fistuliporella Simpson. See Fistulipora McCoy, and observation on *Fistulipora ? constricta* (Hall).**

*Fistuliporella constricta* Simpson. See *Fistulipora* ? *constricta* (Hall).

*Fistuliporidra* Simpson. See *Favicella* Hall and Simpson.

*Fistuliporidra tessellata* Simpson. See *Favicella tessellata* (Hall and Simpson).

*Fistuliporina* Simpson. See *Pinacotrypa* Ulrich.

*Fistuliporina confertipora* Simpson. See *Lioclema confertiporum* (Hall).

*Fistuliporina digitata* Simpson. See *Lioclema digitatum* (Hall).

*Fistuliporina micropora* Simpson. See *Lioclema microporum* (Hall).

*Fistuliporina minuta* Grabau. See *Lioclema minutum* (Rominger).

*Fistuliporina multiculeata* Simpson. See *Lioclema multaculeatum* (Hall).

*Fistuliporina ponderosa* Simpson. See *Lioclema ponderosum* (Hall).

*Fistuliporina scrobiculata* Grabau. See *Fistulipora* ? *scrobiculata* (Hall).

*Fistuliporina segregata* Grabau. See *Lioclema segregatum* (Hall).

*Fistuliporina serrulata* Simpson. See *Pinacotrypa serrulata* (Hall).

*Fistuliporina stellata* Simpson. See *Pinacotrypa stellata* (Hall).

*Fistuliporina variopora* Simpson. See *Pinacotrypa variopora* (Hall).

*Flabelliporella* Simpson. See *Polypora* McCoy.

*Flabelliporina* Simpson. See *Fenestella* Lonsdale.

*Flustra* Linnaeus. Not Paleozoic.

*Flustra carbaseoides* Eaton. Not recognized.

1832. *Flustra carbaseoides*. Eaton, Geol. Textb., ed. 2, p. 44.

Devonian: Glens Falls.

*Flustra spatulata* Prout. See *Worthenopora spatulata* (Prout).

*Flustra tuberculata* Prout. See *Stenopora tuberculata* (Prout).

*Geinitzella* Waagen and Wentzel. See *Batostomella* Ulrich.

*Glaucanome* of authors. See *Pinnatopora* Vine.

*Glaucanome carinata* Hall. See *Pinnatopora carinata* (Hall).

*Glaucanome nereidis* White. See *Pinnatopora nereidis* (White).

*Glaucanome nodata* Hall. See *Pinnatopora nodata* (Hall).

*Glaucanome sinuosa* Hall. See *Pinnatopora sinuosa* (Hall).

*Glaucanome tenuistriata* Hall. See *Pinnatopora tenuistriata* (Hall).

*Glaucanome trilineata* Meek. See *Pinnatopora trilineata* (Meek).

*Glaucanome whitii* Foerste. See *Pinnatopora whitii* (Foerste).

**GLOSSOTRYPA** Hall. Genotype: *Lichenalia paliformis* Hall.

1886. *Glossotrypa*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, expl. pl. xxxi, 15-18.

1887. *Glossotrypa*. Hall and Simpson, Pal. New York, VI, p. xvii.

1889. *Glossotrypa*. Miller, North American Geol. Pal., p. 307.

1897. *Glossotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 562.

Obs. If the lunarium is frequently repeated (interrupted) as a diaphragm, as described, the genus is distinct. This character is so extraordinary that we think it is due to faulty observation or peculiar preservation. If so, the name is a synonym for *Buskopora* Ulrich.

**Glossotrypa paliformis (Hall).**

1883. *Lichenalia paliformis*. Hall, Trans. Albany Institute, X, p. 152 (abstract, 1881, p. 11).  
 1886. *Lichenalia (Glossotrypa) paliformis*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 15-18.  
 1887. *Lichenalia (Glossotrypa) paliformis*. Hall and Simpson, Pal. New York, VI, p. 85, pl. xxxi, 15-18.  
 1897. *Glossotrypa paliformis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 8-10.  
 Hamilton: Falls of the Ohio.

**GLYPTOPORA Ulrich. Genotype: *Coscinium plumosum* Prout.**

1884. *Glyptopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 39.  
 1890. *Glyptopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 387, 511.  
 1896. *Glyptopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.

***Glyptopora elegans* (Prout).**

1860. *Coscinium elegans*. Prout, Trans. St. Louis Acad. Sci., I, p. 572.  
 1866. *Coscinium elegans*. Prout, Geol. Surv. Illinois, II, p. 413, pl. xxii, 2, 2a.  
 1884. *Glyptopora elegans*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.  
 1890. *Glyptopora elegans*. Geol. Surv. Illinois, VIII, p. 518, pl. lxxviii, 10-10e.  
 1894. *Glyptopora elegans*. Keyes, Missouri Geol. Surv., V, p. 21.  
 Warsaw: Warsaw and Nauvoo, Illinois; Curryville, Missouri.

***Glyptopora keyserlingi* (Prout).**

1858. *Coscinium Keyserlingi*. Prout, Trans. St. Louis Acad. Sci., I, p. 269, pl. xv, 4, 4a.  
 1884. *Glyptopora keyserlingi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.  
 1890. *Glyptopora keyserlingi*. Ulrich, Geol. Surv. Illinois, VIII, p. 517, pl. lxxviii, 4-4b.  
 1894. *Glyptopora keyserlingi*. Keyes, Missouri Geol. Surv., V, p. 22.  
 1860. *Coscinium wortheni*. Prout, Trans. St. Louis Acad. Sci., I, p. 571.  
 1866. *Coscinium wortheni*. Prout, Geol. Surv. Illinois, II, p. 412, pl. xxii, 1, 1a.

Keokuk: Warsaw, Illinois.

***Glyptopora megastoma* Ulrich. See *Phractopora megastoma* (Ulrich).*****Glyptopora michelinia* (Prout).**

1860. *Coscinium Michelinia*. Prout, Trans. St. Louis Acad. Sci., I, p. 573.  
 1866. *Coscinium Michelinia*. Prout, Geol. Surv. Illinois, II, p. 414, pl. xxii, 4, 4a.  
 1884. *Glyptopora michelinia*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.  
 1890. *Glyptopora michelinia*. Ulrich, Geol. Surv. Illinois, VIII, p. 515, pl. lxxviii, 8-8b.  
 1894. *Glyptopora michelinia*. Keyes, Missouri Geol. Surv., V, p. 22.  
 1897. *Phractopora sagenella* (not of Prout). Simpson, Fourteenth Ann. Rep. State Geologist, New York, for the year 1894, fig. 95 (p. 539).  
 Warsaw: Warsaw, Illinois; Barretts Station, Missouri.

***Glyptopora pinnata* Ulrich. See *Phractopora pinnata* (Ulrich).*****Glyptopora plumosa* (Prout).**

1860. *Coscinium plumosum*. Prout, Trans. St. Louis Acad. Sci., I, p. 572.  
 1866. *Coscinium plumosum*. Prout, Geol. Surv. Illinois, II, p. 414, pl. xxii, 3, 3b.  
 1884. *Glyptopora plumosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.

**Glyptopora plumosa** (Prout)—Continued.

1890. *Glyptopora plumosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 512, pl. lxxviii, 3-3c.  
 1894. *Glyptopora plumosa*. Keyes, Missouri Geol. Surv., V, p. 20, pl. xxxiii, 5.  
 Warsaw: Warsaw, Illinois; Barretts Station, Missouri.

**Glyptopora punctipora** Ulrich.

1890. *Glyptopora punctipora*. Ulrich, Geol. Surv. Illinois, VIII, p. 519, pl. lxxviii, 9, 9a.  
 Chester: Monroe County, Illinois; Livingston and Meade counties, Kentucky.

**Glyptopora sagenella** (Prout).

1860. *Coscinium sagenella*. Prout, Trans. St. Louis Acad. Sci., I, p. 573.  
 1866. *Coscinium sagenella*. Prout, Geol. Surv. Illinois, II, p. 415, pl. xxii, 5, 5a.  
 1884. *Glyptopora sagenella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.  
 1890. *Glyptopora sagenella*. Ulrich, Geol. Surv. Illinois, VIII, p. 513, pl. lxxviii, 6, 6a.  
 1894. *Glyptopora sagenella*. Keyes, Missouri Geol. Surv., V, p. 21.  
 Keokuk: Bentonsport, Iowa.  
 Warsaw: Warsaw, Illinois.

**Glyptopora sagenella-caliculosa** Ulrich.

1866. *Coscinium plumosum* (in part). Prout, Geol. Surv. Illinois, II, p. 415, pl. xxii, 3a.  
 1890. *Glyptopora sagenella* var. *caliculosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 514.  
 Warsaw: Warsaw, Illinois.

**Glyptopora sagenella-lata** Ulrich.

1890. *Glyptopora sagenella* var. *lata*. Ulrich, Geol. Surv. Illinois, VIII, p. 515, pl. lxxviii, 7.  
 1897. *Phractopora michelini*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 96 (p. 539).  
 Warsaw: Warsaw, Illinois.

**Glyptotrypa** Miller, Simpson. Written in error for *Glyptopora* Ulrich.**GONIOCLADIA** Etheridge, Jun. Genotype: *Carinella cellulifera* Etheridge, Jun.

1873. *Carinella*. Etheridge, Jun., Geol. Mag., X, p. 433.  
 1876. *Goniocladia*. Etheridge, Jun., Geol. Mag., Dec. 2, III, p. 522.  
 1885. *Goniocladia*. Waagen and Pichl, Pal. Indica, Ser. XIII, pp. 775, 804.  
 1886. *Goniocladia*. Ulrich, Contr. American Pal., I, p. 5.  
 Obs.—No American species referable to this genus has been published.

**GONIOTRYPA** Ulrich. Genotype: *Goniotrypa bilateralis* Ulrich.

1889. *Goniotrypa*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 40.  
 1889. *Goniotrypa*. Miller, North American Geol. Pal., p. 307.  
 1890. *Goniotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 389.  
 1897. *Goniotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 545.

**Goniotrypa bilateralis** Ulrich.

1889. *Goniotrypa bilateralis*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 41, figs. 1-3, pl. ix, 1.  
 1889. *Goniotrypa bilateralis*. Miller, North American Geol. Pal., fig. 481 (p. 307).

**Goniotrypa bilateralis** Ulrich—Continued.

1895. *Goniotrypa bilateralis*. Whiteaves, Pal. Foss. III, p. 118.

Cincinnati (Richmond): Stony Mountain, Manitoba.

**Gorgonia** Linnæus. Not Paleozoic.**Gorgonia anticorum**. Castelnau. Not recognized.

1843. *Gorgonia anticorum*. Castelnau, Syst. Sil., p. 50, pl. xxiv, 1.

Lake Huron.

**Gorgonia? aspera** Hall. See *Phylloporina aspera* (Hall).**Gorgonia infundibuliformis** Eaton. Not recognized.

1832. *Gorgonia infundibuliformis*. Eaton, Geol. Text-book, ed. 2, p. 43.

**Gorgonia perantiqua** Hall. Not recognizable.

1847. *Gorgonia perantiqua*. Hall, Pal. New York, I, p. 76, pl. xxvi, 5a, b.

1850. *Enallopora perantiqua*. D'Orbigny, Prodr. de Pal., I, p. 22.

1889. *Enallopora perantiqua*. Miller, North American Geol. Pal., p. 301.

Trenton: Middleville, Herkimer County, New York.

**Gorgonia retiformis** Hall. Not a bryozoan. See Pal. New York, II, 1852, p. 174.

1843. *Gorgonia? retiformis*. Hall, Geol. Rep. Fourth District New York, p. 115, fig. 1.

**Gorgonia siluriana** Castelnau. Not recognized.

1843. *Gorgonia siluriana*. Castelnau, Syst. Sil., p. 50.

**GRAPTODICTYA** Ulrich. Genotype: *Ptilodictya perelegans* Ulrich.

1882. *Graptodictya*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 151, 165.

1889. *Graptodictya*. Miller, North American Geol. Pal., p. 307.

1890. *Graptodictya*. Ulrich, Geol. Surv. Illinois, VIII, p. 393.

1897. *Graptodictya*. Simpson, Fourteenth Ann. Rep. New York State Geologist for the year 1894, p. 541.

**Graptodictya nitida** Ulrich. See *Graptodictya perelegans* (Ulrich).**Graptodictya perelegans** (Ulrich).

1878. *Ptilodictya perelegans*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., I, p. 94, pl. iv, 16, 16a.

1882. *Graptodictya perelegans*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 165.

1882. *Graptodictya nitida*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 166, pl. vii, 8, 8a.

Cincinnati (Richmond): Clarksville and other localities in Ohio.

**HEDERELLA** Hall. Genotype: *Alecto? Canadensis* Nicholson.

1883. *Hederella*. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).

1887. *Hederella*. Hall and Simpson, Pal. New York, VI, p. xxvi.

1889. *Hederella*. Miller, North American Geol. Pal., p. 308.

1897. *Hederella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 599.

1899. *Hederella*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 178.

1885. *Nicholsonia*. Davis, Kentucky Foss. Corals, part 2. (Name proposed but not defined.)

**Hederella adnata** (Davis).

1885. *Nicholsonia adnata*. Davis, Kentucky Foss. Corals, part 2, pl. lxxviii, 19. (Not described.)

Hamilton: Falls of the Ohio.

Obs.—Compare this form with *Hederella filiformis* (Billings).

**Hederella alternata** (Hall and Whitfield).

1873. *Stomatopora* ? *alternata*. Hall and Whitfield, Twenty-third Ann. Rep. New York State Museum, p. 235, pl. x, 7, 8.  
Hamilton: Rockford and Hackberry, Iowa.  
Obs.—Whiteaves (Contr. Canadian Pal., I, p. 210) makes this a synonym for *Hederella Canadensis* (Nicholson).

**Hederella canadensis** (Nicholson)..

1874. *Alecto* ? *Canadensis*. Nicholson, Canadian Naturalist, ser. 2, VII, p. 146.  
1874. *Aulopora* ? *Canadensis*. Nicholson, Pal. Province Ontario, p. 124, fig. 57a-e.  
1883. *Hederella Canadensis*. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).  
1884. *Hederella Canadensis*. Hall, Rep. State Geologist New York for the year 1883, p. 53.  
1885. *Nicholsonia canadensis*. Davis, Kentucky Foss. Corals, part 2, pl. li, 6, pl. lxxiii, 10, 11, pl. lxxviii, 18, pl. lxxx, 15.  
1887. *Hederella Canadensis*. Hall and Simpson, Pal. New York, VI, p. 277, pl. lxxv, 1-8, 14, ? 16.  
1889. *Hederella canadensis*. Miller, North American Geol. Pal., fig. 483 (p.308).  
1891. *Hederella Canadensis*. Whiteaves, Contr. Canadian Pal., I, p. 210, pl. xxviii, 8, 8a.  
1897. *Hederella canadensis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 12, 13.  
1899. *Hederella canadensis*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 178, fig. 77.  
Upper Helderberg: Port Colborne, Ontario.  
Hamilton: Near Arkona, Ontario; Livingston and Erie counties, and Eighteenmile Creek, New York, Falls of the Ohio; Hay River and Athabasca River, Canada.

**Hederella cirrhosa** Hall.

1883. *Hederella cirrhosa*. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).  
1884. *Hederella cirrhosa*. Hall, Rep. State Geologist New York for the year 1883, p. 53.  
1887. *Hederella cirrhosa*. Hall and Simpson, Pal. New York, VI, p. 277, pl. lxxv, 12, 13.  
1897. *Hederella cirrhosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 10, 11.  
1898. *Hederella cirrhosa*. Whiteaves, Contr. Canad. Pal., I, Part V, p. 381.  
Hamilton: York and Erie counties, New York; Falls of the Ohio.

**Hederella conferta** (Hall).

1883. *Ptilionella conferta*. Hall, Trans. Albany Institute, X, p. 195 (abstract, 1881, p. 195).  
1884. *Ptilionella conferta*. Hall, Rep. State Geologist New York for the year 1883, p. 56.  
1887. *Hederella conferta*. Hall and Simpson, Pal. New York, VI, p. 279.  
1891. *Hederella conferta*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 56; Forty-fourth Ann. Rep. New York State Museum, p. 86.  
Hamilton: Darien Center, New York.

**Hederella filiformis** (Billings).

1859. *Aulopora filiformis*. Billings, Canadian Jour., new ser., IV, p. 119.  
1874. *Aulopora filiformis*. Nicholson, Pal. Province Ontario, p. 42, fig. 11a, b.

**Hederella filiformis** (Billings)—Continued.

1883. *Hederella filiformis*. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).  
 1884. *Hederella filiformis*. Hall, Rep. State Geologist New York for the year 1883, p. 54.  
 1887. *Hederella filiformis*. Hall and Simpson, Pal. New York, VI, p. 278, pl. lxxv, 9-11.  
 1897. *Hederella filiformis*. Whiteaves, Contr. Canadian Pal., I, p. 211, pl. xxix, 1.  
 1899. *Hederella filiformis*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 179, fig. 77A.  
 Hamilton: Arkona, Ontario; Livingston, Ontario, and Erie counties, New York.

**Hederella magna** Hall.

1883. *Hederella magna*. Hall, Trans. Albany Institute, X, p. 195 (abstract, 1881, p. 195).  
 1884. *Hederella magna*. Hall, Rep. State Geologist New York for the year 1883, p. 55.  
 1887. *Hederella magna*. Hall and Simpson, Pal. New York, VI, p. 280, pl. lxxv, 15.  
 1898. *Hederella magna*. Whiteaves, Contr. Canadian Pal., I, Part V, p. 382.  
 Hamilton: York, and Erie County, New York.

**HELICOPORA** Clappole. Genotype: *Helicopora latispiralis* Clappole.

1881. *Helicopora*. Clappole, Proc. American Assoc. Adv. Sci., XXX, p. 191.  
 1883. *Helicopora*. Clappole, Quar. Jour. Geol. Soc. London, XXXIX, p. 32.  
 1885. *Helicopora*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 774.  
 1886. *Helicopora*. Ulrich, Contr. American Pal., I, p. 5.  
 1889. *Helicopora*. Miller, North American Geol. Pal., p. 308.  
 1890. *Helicopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 396.  
 1895. *Helicopora*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 722, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 916, 920.  
 1896. *Helicopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.  
 1897. *Helicopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 517, 522.

*Helicopora archimedisformis* Clappole. See *Archimedes laxus* (Hall).

**Helicopora latispiralis** Clappole.

1881. *Helicopora latispiralis*. Clappole, Proc. American Assoc. Adv. Sci., XXX, p. 191.  
 1883. *Helicopora latispiralis*. Clappole, Quar. Jour. Geol. Soc. London, XXXIX, p. 32, pl. iv, 1, 1a.  
 1895 1897. *Helicopora latispiralis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 70, 1 (p. 518).  
 Niagara: Cedarville, Greene County, Ohio.

**Helicopora ulrichi** Clappole.

1883. *Helicopora ulrichi*. Clappole, Quar. Jour. Geol. Soc. London, XXXIX, p. 33, pl. iv, 2.  
 1897. *Helicopora ulrichi*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 70, 2, 2a (p. 518).  
 Hamilton: Falls of the Ohio.

**HELIOTRYPA** Ulrich. Genotype: *Heliotrypa bifolia* Ulrich.

1883. *Heliotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 277.  
 1889. *Heliotrypa*. Miller, North American Geol. Pal., p. 308.  
 1890. *Heliotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 404.



**Heliotrypa bifolia** Ulrich.

1883. *Heliotrypa bifolia*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 278, pl. xiii, 6-6c.  
 1889. *Heliotrypa bifolia*. Miller, North American Geol. Pal., fig. 484 (p. 308).  
 1890. *Heliotrypa bifolia*. Ulrich, Geol. Surv., Illinois, VIII, fig. 3f (p. 308).  
 Chester: Sloans Valley, Kentucky.

**Hellipora antheloidea** Rominger. In error for *Stellipora antheloidea*.

See *Constellaria constellata* (Van Cleve) Dana.

**HELOPORA** Hall. Genotype: *Helopora fragilis* Hall.

1852. *Helopora*. Hall, Pal. New York, II, p. 44.  
 1866. *Helopora*. Billings, Catal. Sil. Foss. Anticosti, p. 36.  
 1888. *Helopora*. Ulrich, American Geologist, I, p. 231.  
 1889. *Helopora*. Miller, North American Geol. Pal., p. 308.  
 1890. *Helopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 401, 642.  
 1890. *Helopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 191.  
 1893. *Helopora*. Ulrich, Geol. Minnesota, III, p. 189.  
 1896. *Helopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.  
 1897. *Helopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 548.

**Helopora alternata** Ulrich.

1890. *Helopora alternata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 192, fig. 16f.  
 1893. *Helopora alternata*. Ulrich, Geol. Minnesota, III, p. 192, pl. iii, 9.  
 Trenton (Black River): Minneapolis, Minnesota.

**Helopora approximata** James. See *Bythopora parvula* (James).**Helopora armata** Billings.

1866. *Helopora armata*. Billings, Catal. Sil. Foss. Anticosti, p. 38.  
 Anticosti: Anticosti Island.

**Helopora bellula** Billings.

1866. *Helopora bellula*. Billings, Catal. Sil. Foss. Anticosti, p. 38.  
 Anticosti: Anticosti Island.  
 Obs. Compare *Helopora fragilis* Hall, of which this species may be a synonym.

**Helopora ?? circe** Billings.

1866. *Helopora Circe*. Billings, Catal. Sil. Foss. Anticosti, p. 39.  
 Anticosti: Anticosti Island.

**Helopora ?? concava** Billings.

1866. *Helopora concava*. Billings, Catal. Sil. Foss. Anticosti, p. 37.  
 Anticosti: Anticosti Island.  
 Obs. This form may be only a condition of *Nematopora formosa* (Billings).

**Helopora dendrina** James. See *Bythopora dendrina* (James).**Helopora divaricata** Ulrich.

1886. *Helopora divaricata*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 59.  
 1893. *Helopora divaricata*. Ulrich, Geol. Minnesota, III, p. 191, pl. iii, 1-3.  
 Trenton (Stones River): Minneapolis, Minnesota.

**Helopora elegans** Ulrich.

1893. *Helopora elegans*. Ulrich, Geol. Minnesota, III, p. 194, fig. 11.  
 Cincinnati (Richmond): Blanchester, Oxford, and other localities in Ohio;  
 Richmond and Versailles, Indiana.

*Helopora formosa* Billings. See *Nematopora formosa* (Billings).

***Helopora fragilis* Hall.**

1852. *Helopora fragilis*. Hall, Pal. New York, II, p. 44, pl. xviii, 3a-f.  
 1874. *Helopora fragilis*. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 141.  
 1875. *Helopora fragilis*. Nicholson, Pal. Province Ontario, p. 44, fig. 19, 3, 3a.  
 1888. *Helopora fragilis*. Ulrich, American Geologist, I, p. 233, fig. 2a-e.  
 1889. *Helopora fragilis*. Miller, North American Geol. Pal., figs. 485a-e, 486 (p. 308).  
 1890. *Helopora fragilis*. Ulrich, Geol. Sur. Illinois, VIII, p. 642, figs. 18a-e (p. 643), pl. xxix, 5a.  
 Clinton: Rochester, New York.  
 Niagara: Lockport, New York; Flamborough Head, Ontario.  
 Obs. See also *Helopora bellula* Billings.

***Helopora fragilis-acadiensis* Hall. Not defined.**

1860. *Helopora fragilis* var. *acadiensis*. Hall, Canadian Nat. Geol., V, p. 159.  
 Silurian: Nova Scotia.

***Helopora harrisi* James.**

1883. *Helopora harrisi*. James, Paleontologist, No. 7, p. 58, pl. ii, 2-2b.  
 1889. *Helopora harrisi*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 45.  
 1893. *Helopora harrisi*. Ulrich, Geol. Minnesota, III, p. 195, pl. iii, 11b, c, 12.  
 1895. *Helopora Harrisii*. Whiteaves, Pal. Foss., III, Part II, p. 117.  
 1897. *Helopora Harrisii*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 113-115 (p. 548).  
 Cincinnati (Richmond): Waynesville, Blanchester, and other localities in Ohio; Stony Mountain, Manitoba.

***Helopora imbricata* Ulrich.**

1890. *Helopora imbricata*. Ulrich, Geol. Sur. Illinois, VIII, p. 644, pl. xxix, 5.  
 Cincinnati (Richmond): Wilmington, Illinois.  
 Obs. This form may be the tertiary segments of *Arthroclema angulare* Ulrich.

***Helopora* ?? *irregularis* Billings.**

1866. *Helopora irregularis*. Billings, Catal. Sil. Foss. Anticosti, p. 39.  
 Anticosti: Anticosti Island.

*Helopora lineata* Billings. See *Nematopora lineata* (Billings).

*Helopora lineopora* Billings. See *Nematopora* ? *lineopora* (Billings).

***Helopora* ?? *meeki* James.**

1878. *Helopora meeki*. James, Paleontologist, No. 1, p. 3.  
 Cincinnati: Warren County, Ohio.  
 Obs. This is in all probability the same as *Dicranopora internodia* (Miller and Dyer), but the description given is too meager to determine the question.

***Helopora mucronata* Ulrich.**

1890. *Helopora mucronata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 192, fig. 16e.  
 1893. *Helopora mucronata*. Ulrich, Geol. Minnesota, III, p. 193, pl. iii, 10.  
 Trenton: Cannon Falls and St. Paul, Minnesota.

***Helopora nodosa* Billings.**

1866. *Helopora nodosa*. Billings, Catal. Sil. Foss. Anticosti, p. 38.  
 Anticosti: Anticosti Island.

*Helopora parvula* James. See *Bythopora parvula* (James).

**Helopora quadrata** Ulrich.

1893. *Helopora quadrata*. Ulrich, Geol. Minnesota, III, p. 193, fig. 10.  
Trenton: Cannon Falls, Minnesota.

**Helopora spiniformis** (Ulrich).

1882. *Arthroclema spiniformis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 161, pl. vi, 10, 10a.  
1893. *Helopora spiniformis*. Ulrich, Geol. Minnesota, III, pl. iii, 4, 5, 6.  
1896. *Helopora spiniformis*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 469 (p. 283).  
Trenton (Stones River): Lebanon and Laverne, Tennessee; Dixon, Illinois.

*Helopora striatopora* Billings. See *Nematopora striatopora* (Billings).

*Helopora strigosa* Billings. See *Nematopora strigosa* (Billings).

*Helopora tenuis* James. See *Arthrostylus tenuis* (James).

**Helopora ?? varipora** Billings.

1866. *Helopora varipora*. Billings, Catal. Sil. Foss. Anticosti, p. 40.  
Anticosti: Anticosti Island.

**HEMIPHHRAGMA** Ulrich. Genotype: *Batostoma irrasum* Ulrich.

1890. *Batostoma* (in part). Ulrich, Geol. Sur. Illinois, VIII, p. 379.  
1893. *Hemiphragma*. Ulrich, Geol. Minnesota, III, p. 299.  
1896. *Hemiphragma*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 275.  
1897. *Hemiphragma*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 592.

**Hemiphragma imperfectum** (Ulrich).

1890. *Batostoma imperfectum*. Ulrich, Geol. Sur. Illinois, VIII, p. 460, pl. xxxv, 3-3d.  
1893. *Hemiphragma imperfectum*. Ulrich, Geol. Minnesota, III, p. 301.  
1894. *Monticulipora imperfectum*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 196.  
Cincinnati (Richmond): Wilmington, Illinois.

**Hemiphragma irrasum** (Ulrich).

1886. *Batostoma irrasa*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 94.  
1893. *Hemiphragma irrasum*. Ulrich, Geol. Minnesota, III, p. 299, pl. xxiv, 5-19.  
1896. *Hemiphragma irrasum*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 460 (p. 275).  
1897. *Hemiphragma irrasum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 190-193 (p. 592).  
Trenton (Stones River, Black River, and Trenton): Minneapolis, St. Paul, Cannon Falls, and Preston, Minnesota; Decorah, Iowa.

**Hemiphragma ottawense** (Foord).

1883. *Batostoma Ottawaense*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 18, pl. ii, 1-1f.  
1893. *Hemiphragma ottawaense*. Ulrich, Geol. Minnesota, III, p. 300, pl. xxiv, 1-4.  
Trenton (Black River and Trenton): Ottawa and Paquettes Rapids, Ottawa River, Canada; Kenyon, Berne, and Mantorville, Minnesota.

**Hemiphragma tenuimurale** Ulrich.

1893. *Hemiphragma tenuimurale*. Ulrich, Geol. Minnesota, III, p. 301, pl. xxiv, 20-23.  
Trenton: Goodhue County, Minnesota.

**Hemiphragma whitfieldi** (James).

1881. *Monticulipora* (Chaetetes) whitfieldi. James, Paleontologist, No. 5, p. 34.  
 1888. *Monticulipora whitfieldi*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 178.  
 1894. *Monticulipora whitfieldi*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 200.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**HEMITRYPA** Phillips. Genotype: *Hemitrypa oculata* Phillips.

1841. *Hemitrypa*. Phillips, Pal. Foss., p. 27.  
 1844. *Hemitrypa*. McCoy, Synop. Carb. Foss. Ireland, p. 204.  
 1874. *Hemitrypa*. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 97.  
 1885. *Hemitrypa*. Hall, Rep. State Geologist New York for the year 1884, p. 36.  
 1886. *Hemitrypa*. Ulrich, Contr. American Pal., I, p. 4.  
 1887. *Hemitrypa*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 152.  
 1887. *Hemitrypa*. Hall and Simpson, Pal. New York, VI, p. xxiii.  
 1889. *Hemitrypa*. Miller, North American Geol. Pal., p. 309.  
 1890. *Hemitrypa*. Ulrich, Geol. Sur. Illinois, VIII, pp. 396, 559.  
 1893. *Hemitrypa*. Cole, Sci. Proc. Roy. Dublin Soc. (n. s.), VIII, p. 132.  
 1894. *Hemitrypa*. Počta, Syst. Sil. Bohême, VIII, t. 1, p. 92.  
 1895. *Hemitrypa*. Whidborne, Devon. Fauna England (Pal. Soc. Publ.), II, pt. 4, p. 177.  
 1895. *Hemitrypa*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 710, 726; Forty-seventh Ann. Rep. New York State Mus., pp. 904, 920.  
 1896. *Hemitrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.  
 1897. *Hemitrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 507, 520.

**Hemitrypa aspera** Ulrich.

1890. *Hemitrypa aspera*. Ulrich, Geol. Sur. Illinois, VIII, p. 563, pl. lvii, 4-4f, 3a.  
 1894. *Hemitrypa aspera*. Keyes, Missouri Geol. Sur., V, p. 25.  
 Keokuk: Keokuk and Bentonsport, Iowa; Nauvoo, Illinois.

**Hemitrypa biordo** Hall.

1885. *Hemitrypa biordo*. Hall, Rep. State Geologist New York for the year 1884, p. 36, pl. ii, 11.  
 1887. *Fenestella* (*Hemitrypa*) *biordo*. Hall and Simpson, Pal. New York, VI, p. 149.  
 1889. *Hemitrypa biordo*. Miller, North American Geol. Pal., fig. 487 (p. 309).  
 Upper Helderberg: Walpole, Ontario.

**Hemitrypa biserialis** (Hall).

1879. *Fenestella* (*Hemitrypa*) *biserialis*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 174 (reprint, 1880, p. 36).  
 1883. *Fenestella* (*Hemitrypa*) *biserialis* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 13-18.  
 1887. *Fenestella* (*Hemitrypa*) *biserialis*. Hall and Simpson, Pal. New York, VI, p. 57, pl. xxii, 13, 16-18.  
 Lower Helderberg: Clarksville, New York.

**Hemitrypa biserialis-exilis** (Hall and Simpson).

1883. *Fenestella* (*Hemitrypa*) *biserialis* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 13-18.  
 1887. *Fenestella* (*Hemitrypa*) *biserialis* var. *exilis*. Hall and Simpson, Pal. New York, VI, p. 57, pl. xxii, 14, 15.  
 Lower Helderberg: Clarksville, New York.

**Hemitrypa columellata** (Hall and Simpson).

1887. *Fenestella* (*Hemitrypa*) *columellata*. Hall and Simpson, Pal. New York, VI, p. 146.  
 1897. *Hemitrypa columellata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 51-53 (p. 508), pl. v, 3-11.  
 Upper Helderberg: Walpole, Ontario.

**Hemitrypa cribrosa** (Hall).

1883. *Fenestella* (*Hemitrypa*) *cribrosa*. Hall, Trans. Albany Institute, X, p. 177 (abstract, 1881, p. 35).  
 1887. *Fenestella* (*Hemitrypa*) *cribrosa*. Hall and Simpson, Pal. New York, VI, p. 145.  
 1897. *Hemitrypa cribrosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. v, 1, 2.  
 Hamilton: Falls of the Ohio.

*Hemitrypa dubia* Hall. See *Loculipora ambigua* (Hall).

**Hemitrypa favosa** (Hall).

1883. *Fenestella* (*Hemitrypa*) *favosa*. Hall, Trans. Albany Institute, X, p. 177 (abstract, 1881, p. 35).  
 1887. *Fenestella* (*Hemitrypa*) *favosa*. Hall and Simpson, Pal. New York, VI, p. 148.  
 Upper Helderberg: Walpole, Ontario.

*Hemitrypa hemitrypa* (Prout) Keyes. See *Hemitrypa proutana* Ulrich.

**Hemitrypa nodosa** Ulrich.

1890. *Hemitrypa nodosa*. Ulrich Geol. Sur. Illinois, VIII, p. 562, pl. lvii, 3.  
 1894. *Hemitrypa nodosa*. Keyes, Missouri Geol. Sur., V, p. 25.  
 Keokuk: Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.

**Hemitrypa pateriformis** Ulrich.

1890. *Hemitrypa pateriformis*. Ulrich, Geol. Sur. Illinois, VIII, p. 564, pl. lvii, 7-7c.  
 1894. *Hemitrypa pateriformis*. Keyes, Missouri Geol. Sur., V, p. 26.  
 Keokuk: Keokuk, Iowa.

**Hemitrypa perstriata** Ulrich.

1890. *Hemitrypa perstriata*. Ulrich, Geol. Sur. Illinois, VIII, p. 564, pl. lvii, 6, 6a.  
 1894. *Hemitrypa perstriata*. Keyes, Missouri Geol. Sur., V, p. 25.  
 Keokuk: Keokuk and Bentonsport, Iowa.

**Hemitrypa plumosa** (Prout).

1858. *Fenestella plumosa*. Prout, Trans. St. Louis Acad. Sci., I, p. 236, pl. xv, 2, 2a.  
 1889. *Hemitrypa plumosa*. Miller, North American Geol. Pal., p. 309.  
 Warsaw: Warsaw, Illinois; Barretts Station, Missouri.

*Hemitrypa prima* Hall. See *Unitrypa nervia* (Hall).

**Hemitrypa proutana** Ulrich.

1859. *Fenestella hemitrypa*. Prout, Trans. St. Louis Acad. Sci., I, p. 444, pl. xvii, 4, 4a.  
 1890. *Hemitrypa proutana*. Ulrich, Geol. Sur. Illinois, VIII, p. 560, pl. lvii, 1-1c.  
 1894. *Hemitrypa hemitrypa*. Keyes, Missouri Geol. Sur., V, p. 25.  
 Keokuk: Warsaw, Illinois; Keokuk, Iowa.  
 Warsaw: Warsaw and Monroe County, Illinois; Barretts Station, Missouri.  
 St. Louis: Caldwell County, Kentucky.

**Hemitrypa proutana-nodulosa** Ulrich.

1890. *Hemitrypa proutana* var. *nodulosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 562, pl. lvii, 2-2c.

Keokuk: Bentonsport and Keokuk, Iowa; Nauvoo, Illinois.

**Hemitrypa proutana-vermifera** Ulrich.

1890. *Hemitrypa proutana* var. *vermifera*. Ulrich, Geol. Sur. Illinois, VIII, p. 561, pl. lvii, 5, 5a.

Warsaw: Warsaw, Illinois.

**Hemitrypa tenera** Ulrich.

1890. *Hemitrypa tenera*. Ulrich, Geol. Sur. Illinois, VIII, p. 559, pl. xlv, 7, 7a, pl. liv, 10-10c.

Hamilton: Davenport and Buffalo, Iowa; Rock Island, Illinois.

**Hemitrypa ulrichi** Foerste.

1887. *Hemitrypa ulrichi*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 152; *ibid.*, III, 1888, pl. xv, 2.

1895. *Hemitrypa ulrichi*. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 2. Clinton: Near New Carlisle, Ohio.

**HERNODIA** Hall. Genotype: *Hernodia humifusa* Hall.

1883. *Hernodia* Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).

1884. *Hernodia*. Hall, Rep. State Geologist New York for the year 1883, p. 58.

1887. *Hernodia*. Hall and Simpson, Pal. New York, VI, p. xxvi.

1889. *Hernodia*. Miller, North American Geol. Pal., p. 309.

1897. *Hernodia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 596.

**Hernodia humifusa** Hall.

1883. *Hernodia humifusa*. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).

1884. *Hernodia humifusa*. Hall, Rep. State Geologist New York for the year 1883, p. 58.

1887. *Hernodia humifusa*. Hall and Simpson, Pal. New York, VI, p. 281, pl. lxxv, 20, 21.

1897. *Hernodia humifusa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 1, 2.

Hamilton: Cazenovia, Madison County, New York; Falls of the Ohio.

**Heterodictya** Nicholson. See *Ptilodictya* Lonsdale.**Heterodictya gigantea** Nicholson. See *Ptilodictya gigantea* (Nicholson).**Heterodictya pavonia** Ulrich. See *Escharopora pavonia* (D'Orbigny).**HETEROTRYPA** Nicholson. Genotype: *Monticulipora frondosa* D'Orbigny (not Nicholson).

1879. *Heterotrypa* (in part). Nicholson, Pal. Tabulate Corals, p. 291.

1881. *Heterotrypa*. Nicholson, Genus *Monticulipora*, pp. 101, 103.

1882. *Heterotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; *ibid.*, VI, 1883, p. 83.

1883. *Heterotrypa*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 20.

1890. *Heterotrypa*. Ulrich, Geol. Sur. Illinois, VIII, pp. 371, 413.

1893. *Heterotrypa*. Ulrich, Geol. Minnesota, III, p. 267.

1896. *Heterotrypa* (in part). Zittel's Textb. Pal. (Engl. ed.), p. 104.

1896. *Heterotrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 273.

1897. *Heterotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 578.

**Heterotrypa affinis (Ulrich).**

1890. *Amplexopora affinis*. Ulrich, Geol. Sur. Illinois, VIII, p. 450, pl. xxxvi, 2, 2a.

Cincinnati (Richmond): Wilmington, Illinois; Richmond, Indiana.

**Heterotrypa ? barrandei (Nicholson).**

1874. *Chaetetes Barrandi*. Nicholson, Geol. Mag., new ser., I, p. 57, pl. iv. 7c.

1874. *Chaetetes Barrandi*. Nicholson, Pal. Province Ontario, p. 60, fig. 17c.

1881. *Monticulipora (Heterotrypa) Barrandi*. Nicholson, Genus *Monticulipora*, p. 139, pl. i, 2-2d.

1882. *Amplexopora barrandi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 255.

Hamilton: Widder, Ontario.

**Heterotrypa frondosa (D'Orbigny).**

1850. *Monticulipora frondosa*. D'Orbigny, Prodr. de Pal., I, p. 25.

1851. *Chaetetes frondosus*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 267, pl. xix, 5, 5a.

1854. *Monticulipora frondosa*. Milne-Edwards and Haime, Brit. Foss. Corals, p. 265.

1860. *Monticulipora frondosa*. Milne-Edwards, Hist. Nat. des Corall., III, p. 276.

1882. *Monticulipora frondosa*. White, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 380, pl. xlviii, 2, 3.

1882. *Heterotrypa frondosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 235.

1881. *Chaetetes frondosus*. Quenstedt, Roehren- und Sternkorallen, p. 73, pl. cxlvi, 8 (not 3-5).

1881. *Chaetetes frondosus limatus*. Quenstedt, Roehren- und Sternkorallen, p. 74, pl. cxlvi, 9.

1874. *Chaetetes mammulatus* (not of D'Orbigny). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 508, pl. xxx, 2-2b.

1875. *Chaetetes mammulatus* (not of D'Orbigny). Nicholson, Pal. Ohio, II, p. 207.

1879. *Monticulipora (Heterotrypa) mammulata* (not of D'Orbigny). Nicholson, Pal. Tabulate Corals, p. 294, pl. xiii, 1-1b.

1881. *Monticulipora (Heterotrypa) mammulata* (not of D'Orbigny). Nicholson, Genus *Monticulipora*, p. 104, pl. vi, 1-1g.

1888. *Monticulipora mammulata* (not of D'Orbigny). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 16.

1895. *Monticulipora mammulata* (not of D'Orbigny). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 69.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Heterotrypa infecta Ulrich.**

1890. *Heterotrypa infecta*. Ulrich, Geol. Sur. Illinois, VIII, p. 414, pl. xxxvii, 2-2d.

1895. *Monticulipora infecta*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 77.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Heterotrypa ? moniliformis (Nicholson).**

1874. *Chaetetes moniliformis*. Nicholson, Geol. Mag., new ser., I, p. 57, pl. iv, 7a, 7b.

1874. *Chaetetes moniliformis*. Nicholson, Pal. Province Ontario, p. 60, fig. 17a, b.

1881. *Monticulipora (Heterotrypa) moniliformis*. Nicholson, Genus *Monticulipora*, p. 137, pl. i, 1-1c.

**Heterotrypa ? moniliformis (Nicholson)—Continued.**

1882. *Amplexopora moniliformis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 255.  
Hamilton: Widder, Ontario.

**Heterotrypa paupera (Ulrich).**

1883. *Dekayia paupera*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 153, pl. vi, 10, 10a.  
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Heterotrypa prolifica Ulrich. See Heterotrypa subramosa-prolifera Ulrich.****Heterotrypa singularis Ulrich.**

1890. *Heterotrypa singularis*. Ulrich, Geol. Sur. Illinois, VIII, p. 415, pl. xxxvii, 3-3e.  
1893. *Heterotrypa singularis*. Ulrich, Geol. Minnesota, III, p. 268.  
1895. *Monticulipora singularis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 77.  
1897. *Heterotrypa singularis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 147 (p. 579).  
Cincinnati (Richmond): Wilmington, Illinois; Iron Ridge, Wisconsin.

**Heterotrypa solitaria Ulrich.**

1883. *Heterotrypa solitaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 88, pl. i, 3-3b.  
Cincinnati (Lorraine): Covington, Kentucky; Maury County, Tennessee.

**Heterotrypa subpulchella (Nicholson).**

1875. *Chaetetes subpulchellus*. Nicholson, Pal. Ohio, II, p. 196, pl. xxi, 6, 6a.  
1881. *Monticulipora (Heterotrypa) subpulchella*. Nicholson, Genus Monticulipora, p. 134, fig. 23, pl. v, 2, 2a.  
1883. *Heterotrypa subpulchella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 83.  
1888. *Monticulipora subpulchella*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 181.  
1894. *Monticulipora subpulchella*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 204.  
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Heterotrypa subramosa (Ulrich).**

1879. *Atactopora subramosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 124, pl. xii, 6-6c.  
Cincinnati (Richmond): Jacksonburg and Hanover, Ohio.  
Obs. See also *Monticulipora ?? clintonensis* James.

**Heterotrypa subramosa-prolifera Ulrich.**

1890. *Heterotrypa prolifica*. Ulrich, Geol. Sur. Illinois, VIII, p. 413, pl. xxxvii, 1-1d.  
1893. *Heterotrypa prolifica*. Ulrich, Geol. Minnesota, III, p. 268.  
1895. *Monticulipora prolifica*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 75.  
1897. *Heterotrypa prolifica*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 145, 146 (p. 579).  
Cincinnati (Richmond): Blanchester, Waynesville, and other localities in Ohio; Richmond and Versailles, Indiana; Wilmington, Illinois; Iron Ridge, Wisconsin.

**Heterotrypa vaupeli Ulrich. See Nicholsonella vaupeli (Ulrich).**



**HEXAGONELLA** Waagen and Wentzel. Genotype: *Hexagonella ramosa* Waagen and Wentzel.

1886. *Hexagonella*. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 909, 911.  
 Obs.—This genus is known in America by two undescribed species, one from the Hamilton at the Falls of the Ohio, the other from the Warsaw at Clarksville, Tennessee.

**Hippothoa** Lamouroux. Not a Paleozoic genus.

*Hippothoa delicatula* James. See *Stomatopora delicatula* (James).

*Hippothoa inflata* Nicholson. See *Stomatopora inflata* (Hall).

**HOMOTRYPA** Ulrich. Genotype: *Homotrypa curvata* Ulrich.

1882. *Homotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 240.  
 1883. *Homotrypa*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 9.  
 1889. *Homotrypa*. Miller, North American Geol. Pal., p. 309.  
 1890. *Homotrypa*. Ulrich, Geol. Sur. Illinois, VIII, pp. 370, 409.  
 1893. *Homotrypa*. Ulrich, Geol. Minnesota, III, p. 235.  
 1896. *Homotrypa*. Ulrich, Zittel's Textb. Pal., (Engl. ed.), p. 273.  
 1897. *Homotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 575.

**Homotrypa ? arbuscula** Ulrich.

1890. *Homotrypa arbuscula*. Ulrich, Geol. Sur. Illinois, VIII, p. 409, pl. xxxviii, 3-3c.  
 1894. *Homotrypa arbuscula*. Keyes, Missouri Geol. Sur., V, p. 13.  
 Trenton (Stones River): High Bridge, Kentucky; Calhoun County and Dixon, Illinois.

**Homotrypa callosa** Ulrich.

1893. *Homotrypa callosa*. Ulrich, Geol. Minnesota, III, p. 243, pl. xx, 15-21.  
 1897. *Homotrypa callosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 139, 140 (p. 576).  
 Trenton: Burgin, Frankfort, and Garrard County, Kentucky; Cannon Falls, Minnesota.

**Homotrypa ? confluens** (Foerste).

1887. *Monotrypella confluens*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 172; ibid., III, 1888, pl. xvi, 4.  
 1895. *Homotrypa confluens*. Foerste, Geol. Sur. Ohio, VII, p. 600.  
 Clinton: Dayton, Ohio.

**Homotrypa curvata** Ulrich.

1882. *Homotrypa curvata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 242, pl. x, 7-7d.  
 1895. *Monticulipora curvata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 71.  
 1897. *Homotrypa curvata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 137, 138 (p. 576).  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Homotrypa dawsoni** (Nicholson).

1881. *Monticulipora* (Heterotrypa) *Dawsoni*. Nicholson, Genus *Monticulipora*, p. 141, pl. v, 3-3f.  
 1882. *Monticulipora dawsoni*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 241.  
 1888. *Monticulipora dawsoni*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 15.

**Homotrypa dawsoni** (Nicholson)—Continued.

1895. *Monticulipora dawsoni*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 68.  
Cincinnati (Lorraine and Richmond): Cincinnati, Waynesville, Clarksville, and Oregonia, Ohio; Versailles, Indiana..

**Homotrypa exilis** Ulrich.

1886. *Homotrypa exilis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 80.  
1893. *Homotrypa exilis*. Ulrich, Geol. Minnesota, III, p. 236, pl. xix, 10-16.  
Trenton (Stones River): Minneapolis, Minnesota.

**Homotrypa flabellaris** Ulrich.

1890. *Homotrypa flabellaris*. Ulrich, Geol. Sur. Illinois, VIII, p. 411, pl. xxxii, 3-3c.  
1895. *Monticulipora flabellaris*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 75.  
Cincinnati (Lorraine and Richmond): Wilmington, Illinois; a common form in the Lorraine and Richmond groups of Ohio, Indiana, Kentucky, and Tennessee.

**Homotrypa gelasinosa** Ulrich.

1890. *Homotrypa gelasinosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 410, pl. xxxii, 2-2d.  
1894. *Monticulipora gelasinosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 202.  
Cincinnati (Richmond): Wilmington, Illinois.

*Homotrypa insignis* Ulrich. See *Homotrypa subramosa-insignis* Ulrich.

**Homotrypa ? intercalaris** Ulrich.

1893. *Homotrypa ? intercalaris*. Ulrich, Geol. Minnesota, III, p. 238, fig. 13.  
Trenton (Black River): St. Paul and Minneapolis, Minnesota.

**Homotrypa minnesotensis** Ulrich.

1886. *Homotrypa minnesotensis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 79.  
1893. *Homotrypa minnesotensis*. Ulrich, Geol. Minnesota, III, p. 235, pl. xix, 1-9.  
Trenton (Stones River and Black River): Minneapolis, St. Paul, Lanesboro, Cannon Falls, Preston, and Fountain, Minnesota; Decorah, Iowa; Curds-ville, Kentucky; Hartsville, Tennessee.

**Homotrypa minnesotensis-montifera** Ulrich.

1893. *Homotrypa minnesotensis* var. *montifera*. Ulrich, Geol. Minnesota, III, p. 236, pl. xix, 3a.  
Trenton (Black River): St. Paul, Minnesota.

**Homotrypa obliqua** Ulrich.

1882. *Homotrypa obliqua*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 243, pl. x, 6, 6b.  
1889. *Homotrypa obliqua*. Miller, North American Geol. Pal., fig. 489 (p. 310).  
1896. *Homotrypa obliqua*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 124.  
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Homotrypa separata** Ulrich.

1893. *Homotrypa separata*. Ulrich, Geol. Minnesota, III, p. 237, pl. xix, 17-20.  
Trenton (Stones River): Minneapolis, Chatfield, and Preston, Minnesota.

**Homotrypa ? similis** Foord.

1883. *Homotrypa similis*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 10, pl. ii, 2-2d.  
1893. *Homotrypa similis*. Ulrich, Geol. Minnesota, III, p. 242, pl. xx, 28-33.  
Trenton: Ottawa City, Ottawa; St. Paul, Cannon Falls, and Kenyon, Minnesota.

**Homotrypa ? solida** (Hall).

1852. *Trematopora solida*. Hall, Pal. New York, II, p. 153, pl. xlA, 6a-c.  
Niagara: Lockport, New York.

**Homotrypa subramosa** Ulrich.

1886. *Homotrypa subramosa*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 81.  
1893. *Homotrypa subramosa*. Ulrich, Geol. Minnesota, III, p. 239, pl. xix, 21-28.  
1896. *Homotrypa subramosa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 451 A-C (not D = *Homotrypa separata* Ulrich) (p. 273).  
Trenton (Black River): St. Paul, Minneapolis, and Goodhue County, Minnesota.

**Homotrypa subramosa-insignis** Ulrich.

1886. *Homotrypa insignis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 82.  
1893. *Homotrypa subramosa* var. *insignis*. Ulrich, Geol. Minnesota, III, p. 239.  
Trenton: St. Paul and Goodhue and Fillmore counties, Minnesota; Decora, Iowa.

**Homotrypa tuberculata** Ulrich.

1893. *Homotrypa tuberculata*. Ulrich, Geol. Minnesota, III, p. 240, fig. 14.  
Trenton (Black River): Cannon Falls, Minnesota.

**HOMOTRYPELLA** Ulrich. Genotype: *Homotrypella instabilis* Ulrich.

1886. *Homotrypella*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 83.  
1889. *Homotrypella*. Miller, North American Geol. Pal., p. 310.  
1890. *Homotrypella*. Ulrich, Geol. Sur. Illinois, VIII, pp. 370, 412.  
1893. *Homotrypella*. Ulrich, Geol. Minnesota, III, p. 228.  
1897. *Homotrypella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 586.

**Homotrypella contexta** Ulrich.

1890. *Homotrypella contexta*. Ulrich, Geol. Sur. Illinois, VIII, p. 412, pl. xxxii, 5-5b.  
1895. *Monticulipora contexta*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 74.  
Cincinnati (Richmond): Wilmington, Illinois.

**Homotrypella gracilis** Ulrich. See *Bythopora gracilis* (Nicholson)**Homotrypella granulifera** (Ulrich.)

1879. *Chaetetes granuliferus*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 128, pl. xii, 9-9b.  
1882. *Batostomella granulifera*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 141.  
1889. *Homotrypella granulifera*. Miller, North American Geol. Pal., p. 310.  
1896. *Monticulipora* (*Fistulipora*) *granulifera*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 120.  
Trenton: Burgin and Frankfort, Kentucky.

**Homotrypella instabilis** Ulrich.

1886. *Homotrypella instabilis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 83.  
 1893. *Homotrypella instabilis*. Ulrich, Geol. Minnesota, III, p. 229, pl. xviii, 9-20.  
 1897. *Homotrypella instabilis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 168, 169 (p. 586).  
 Trenton (Black River): Minneapolis, St. Paul, Cannon Falls, and Fountain, Minnesota.

*Homotrypella meeki* Ulrich. See *Bythopora meeki* (James).

**Homotrypella multiporata** Ulrich.

1893. *Homotrypella multiporata*. Ulrich, Geol. Minnesota, III, p. 230, pl. xviii, 21, 22.  
 Trenton (Black River): St. Paul and Minneapolis, Minnesota.

**Homotrypella mundula** Ulrich.

1893. *Homotrypella mundula*. Ulrich, Geol. Minnesota, III, p. 232, fig. 12a-c.  
 Trenton: Decorah, Iowa; Cannon Falls, Minnesota; Frankfort, Kentucky.

**Homotrypella ? ovata** Ulrich.

1893. *Homotrypella ? ovata*. Ulrich, Geol. Minnesota, III, p. 231, pl. xviii, 23-30.  
 Trenton (Black River and Trenton): Cannon Falls and Minneapolis, Minnesota.

**Homotrypella rustica** Ulrich.

1893. *Homotrypella rustica*. Ulrich, Geol. Minnesota, III, p. 234, pl. xviii, 31-33.  
 1896. *Monticulipora (Fistulipora) rustica*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 120.  
 Cincinnati (Richmond): Spring Valley, Minnesota.

**Homotrypella ? subgracilis** Ulrich.

1893. *Homotrypella ? subgracilis*. Ulrich, Geol. Minnesota, III, p. 230, pl. xxvi, 10-16.  
 Trenton (Black River): Minneapolis and St. Paul, Minnesota.  
 Obs. This species may be a *Bythopora*.

*Hornera* Lamouroux. Not a Paleozoic genus.

*Hornera ? dichotoma* Hall. See *Thamniscus dichotomus* (Hall).

**HYPHASMOPORA** Etheridge, Jun. Genotype: *Hyphasmopora buskii* Etheridge, Jun., from the Carboniferous shales of Scotland.

1875. *Hyphasmopora*. Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XV, p. 43.  
 1889. *Hyphasmopora*. Vine, Proc. Yorkshire Geol. Polyt. Soc., XI, p. 188.  
 Obs. No American species have yet been referred to this genus.

**ICHTHYORACHIS** McCoy. Genotype: *Ichthyorachis newenhami* McCoy.

1844. *Ichthyorachis*. McCoy, Syn. Carb. Foss. Ireland, p. 205.  
 1887. *Ichthyorachis*. Hall and Simpson, Pal. New York, VI, p. xxv.  
 1889. *Ichthyorachis*. Miller, North American Geol. Pal., p. 310.  
 1897. *Ichthyorachis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 524.

**Ichthyorachis nereis** Hall.

1874. *Ichthyorachis nereis*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 98.

**Ichthyorachis nereis** Hall—Continued.

1879. *Ichthyorachis Nereis*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 174 (reprint, 1880, p. 36).  
 1883. *Ichthyorachis Nereis*. Hall, Rep. State Geologist New York, for the year 1882, pl. xxii, 19–21.  
 1887. *Ichthyorachis Nereis*. Hall and Simpson, Pal. New York, VI, p. 66, pl. xxii, 19–21.  
 1897. *Ichthyorachis Nereis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 19–21.  
 Lower Helderberg: Schoharie, New York.

**IDIOTRYPA** Ulrich. Genotype: *Idiotrypa parasitica* Ulrich.

1883. *Idiotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 272.  
 1889. *Idiotrypa*. Miller, North American Geol. Pal., p. 310.  
 1890. *Idiotrypa*. Ulrich, Geol. Sur. Illinois, VIII, p. 375.  
 1897. *Idiotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 591.

**Idiotrypa parasitica** Ulrich.

1883. *Idiotrypa parasitica*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 273, pl. xiii, 1–1c.  
 1897. *Idiotrypa parasitica*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 187–189 (p. 591).  
 Niagara: Osgood, Indiana.

**INTRAPORA** Hall. Genotype: *Intrapora puteolata* Hall.

1883. *Intrapora*. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 16).  
 1887. *Intrapora*. Hall and Simpson, Pal. New York, VI, p. xxii.  
 1889. *Intrapora*. Miller, North American Geol. Pal., p. 310.  
 1890. *Intrapora*. Ulrich, Geol. Sur. Illinois, VIII, p. 394.  
 1897. *Intrapora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 535.  
 Obs. See also *Coscinella* Hall and Simpson.

**Intrapora basalis** Ulrich.

1890. *Stictoporella basalis*. Ulrich, Geol. Sur. Illinois, VIII, p. 532, pl. lxxv, 5–5c, pl. lxviii, 5, 5a, pl. lxix, 2, 2a.  
 1894. *Stictoporella basalis*. Keyes, Missouri Geol. Sur., V, p. 22.  
 1897. *Stictoporella basalis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year ending 1894, figs. 91, 92 (p. 536).  
 Warsaw: Warsaw, Illinois.

*Intrapora cosciniformis* Ulrich. See *Coscinella cosciniformis* (Nicholson).

*Intrapora elegantula* Whiteaves. See *Coscinella elegantula* Hall and Simpson.

**Intrapora puteolata** Hall.

1883. *Intrapora puteolata*. Hall, Trans. Albany Institute, X, p. 158 (abstract, 1881, p. 16).  
 1886. *Intrapora puteolata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 18–26.  
 1887. *Intrapora puteolata*. Hall and Simpson, Pal. New York, VI, p. 97, pl. xxix, 18–26.  
 1897. *Intrapora puteolata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xi, 1–9.  
 Hamilton: Falls of the Ohio.

**Intrapora undulata** (Ulrich).

1890. *Stictoporella* ? *undulata*. Ulrich, Geol. Sur. Illinois, VIII, p. 533, pl. lxix, 6-66.

Chester: Litchfield, Kentucky.

*Intricaria* DeFrance. Not a Paleozoic genus.

*Intricaria clathrata* Miller and Dyer. See *Phylloporina clathrata* (Miller and Dyer).

*Intricaria* ? *reticulata* Hall. See *Phylloporina reticulata* (Hall.)

**ISOTRYPA** Hall. Genotype: *Fenestella* (*Isotrypa*) *conjunctiva* Hall.

1885. *Isotrypa*. Hall, Rep. State Geologist New York for the year 1884, p. 37.

1887. *Isotrypa*. Hall and Simpson, Pal. New York, VI, p. xxiii.

1889. *Isotrypa*. Miller, North American Geol. Pal., p. 310.

1890. *Isotrypa* (emend.). Ulrich, Geol. Sur. Illinois, VIII, p. 395.

1895. *Isotrypa*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 689, 714, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 883, 908, 920.

1895. *Isotrypa*. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, Part 4, p. 180.

1897. *Isotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 510, 520.

1895. *Tectuliporella*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 715, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 909, 920.

1897. *Tectuliporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 510, 520.

Obs. Specimens of the type species of *Tectuliporella* show that the pore on the reverse side is frequently wanting and generally not uniformly developed. Hence there is no ground for *Tectuliporella*.

*Isotrypa ambigua* Ulrich. See *Loculipora ambigua* (Hall).

*Isotrypa bifaria* Hall. See *Isotrypa conjunctiva* (Hall).

***Isotrypa conjunctiva* (Hall).**

1883. *Fenestella* (*Hemitrypa*) *conjunctiva*. Hall, Trans. Albany Institute, X, p. 178 (abstract, 1881, p. 36).

1887. *Fenestella* (*Isotrypa*) *conjunctiva*. Hall and Simpson, Pal. New York, VI, p. 143, pl. liv, 10-21.

1889. *Isotrypa conjunctiva*. Miller, North American Geol. Pal., fig. 490 (p. 310).

1897. *Isotrypa conjunctiva*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 59 (p. 310), pl. vi, 7-12.

1885. *Isotrypa bifaria* (in error). Hall, Rep. State Geologist New York for the year 1884, pl. ii, 13, 16.

Upper Helderberg: Walpole, Ontario.

***Isotrypa consimilis* Hall.**

1885. *Isotrypa consimilis*. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 14.

1887. *Fenestella* (*Unitrypa*?) *consimilis*. Hall and Simpson, Pal. New York, VI, p. 142, pl. liv, 7-9.

1897. *Tectuliporella consimilis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. vi, 13-15.

Upper Helderberg: Walpole, Ontario.

*Leioclema*. See *Lioclema*.

*Leioclema singulare* Ulrich. See *Trematopora* ? *singularis* (Hall).

**LEPTOTRYPA** Ulrich. Genotype: *Leptotrypa minima* Ulrich.

- 1883. *Leptotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 158.
- 1889. *Leptotrypa*. Miller, North American Geol. Pal., p. 311.
- 1890. *Leptotrypa*. Ulrich, Geol. Sur. Illinois, VIII, pp. 377, 455.
- 1893. *Leptotrypa*. Ulrich, Geol. Minnesota, III, p. 316.
- 1897. *Leptotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 580.

***Leptotrypa* ? *acervulosa* Ulrich.**

- 1893. *Leptotrypa acervulosa*. Ulrich, Geol. Minnesota, III, p. 318, pl. xxvii, 24, 25.
- Trenton: Decorah, Iowa; Goodhue County, Minnesota; Burgin and Frankfort, Kentucky.

***Leptotrypa calceola* (Miller and Dyer).**

- 1878. *Monticulipora calceola*. Miller and Dyer, Jour. Cincinnati Soc. Nat. Hist., I, p. 26, pl. i, 11, 11a.
  - 1881. *Monticulipora* (*Monotrypa*) *calceola*. Nicholson, Genus *Monticulipora*, p. 185, pl. i, 3-3e.
  - 1883. *Leptotrypa calceola*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 159.
  - 1888. *Monticulipora calceola*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 27.
  - 1895. *Monticulipora calceola*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 87.
- Cincinnati (Lorraine): Cincinnati, Ohio.

***Leptotrypa clavacoidea* (James).**

- 1871. *Chætetes clavacoideus*. James, Catal. Lower Sil. Foss., p. 1. (Only named.)
  - 1875. *Chætetes clavacoideus*. James, Catal. Foss. Cincinnati Group, p. 1.
  - 1881. *Monticulipora* (*Monotrypa*) *clavacoidea*. Nicholson, Genus *Monticulipora*, p. 182, fig. 37.
  - 1883. *Leptotrypa clavacoidea*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 159.
  - 1888. *Monticulipora clavacoidea*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 25.
  - 1895. *Monticulipora clavacoidea*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 84.
- Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

***Leptotrypa* ? *claviformis* Ulrich.**

- 1893. *Leptotrypa claviformis*. Ulrich, Geol. Minnesota, III, p. 319, pl. xxvii, 20, 21.
- Trenton (Black River): Minneapolis and St. Paul, Minnesota.

***Leptotrypa* ? *clavis* Ulrich.**

- 1883. *Leptotrypa clavis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 161, pl. vi, 3, 3a.
- Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

***Leptotrypa* ? *cortex* Ulrich.**

- 1883. *Leptotrypa cortex*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 162.
- Cincinnati (Utica): Covington and Newport, Kentucky.

***Leptotrypa discoidea* Ulrich. See *Amplexopora* ? *discoidea* (James).**

**Leptotrypa ? dychei (James).**

1882. Monticulipora (Monotrypa) dychei. James, Paleontologist, No. 6, p. 52.  
 1883. Monticulipora dychei. James, Jour. Cincinnati Soc. Nat. Hist., VI, p. 235, pl. x, 2-2e.  
 1888. Monticulipora dychei. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 25.  
 1895. Monticulipora dychei. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 83.  
 Cincinnati (Lorraine): Lebanon, Ohio.

**Leptotrypa filiosa Ulrich. See Amplexopora filiosa (D'Orbigny).****Leptotrypa ? hexagonalis Ulrich.**

1890. Leptotrypa hexagonalis. Ulrich, Geol. Sur. Illinois, VIII, p. 455, pl. xxxvi, 6, 6a.  
 1893. Leptotrypa hexagonalis. Ulrich, Geol. Minnesota, III, p. 317.  
 Trenton (Stones River): Mineral Point, Janesville, and Beloit, Wisconsin;  
 Calhoun County, Illinois; Minneapolis, Minnesota.

**Leptotrypa informis Ulrich.**

1893. Leptotrypa informis. Ulrich, Geol. Minnesota, III, p. 317, pl. xxvii, 22, 23.  
 Trenton (Stones River): Minneapolis and St. Paul, Minnesota.

**Leptotrypa ? irregularis (Ulrich).**

1879. Chaetetes irregularis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 129, pl. xii, 10-10b.  
 1881. Monticulipora (Monotrypa) irregularis. Nicholson, Genus Monticulipora, p. 177, fig. 35.  
 1882. Monotrypa irregularis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.  
 1888. Monticulipora irregularis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 163.  
 1893. Monticulipora irregularis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 159.  
 Cincinnati (Lorraine): Hamilton, Morrow, Mason, and Cincinnati, Ohio.

**Leptotrypa maculata Ulrich. See Paleschara ? maculata Hall.****Leptotrypa minima Ulrich.**

1883. Leptotrypa minima. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 159, pl. vi, 2-2b.  
 Cincinnati (Lorraine): Hamilton, Ohio.

**Leptotrypa offula Ulrich. See Paleschara ? offula Hall.****Leptotrypa ornata Ulrich.**

1883. Leptotrypa ornata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 160, pl. vi, 4, 4a.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Leptotrypa ? quadrangularis (Nicholson).**

1874. Chaetetes quadrangularis. Nicholson, Geol. Mag., new ser., I, p. 58, pl. iv, 8.  
 1874. Chaetetes quadrangularis. Nicholson, Pal. Province Ontario, p. 61, fig. 18, a, b.  
 1889. Paleschara quadrangularis. Miller, North American Geol. Pal., p. 177.  
 1890. Leptotrypa quadrangularis. Ulrich, Geol. Sur. Illinois, VIII, p. 455.  
 1891. Paleschara quadrangularis. Whiteaves, Contr. Canadian Pal., I, p. 213.  
 1892. Leptotrypa quadrangularis. Whiteaves, Contr. Canadian Pal., I, p. 277.  
 1883. Paleschara amplexens. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).



**Leptotrypa ? quadrangularis** (Nicholson)—Continued.

1884. *Paleschara amplexens*. Hall, Rep. State Geologist New York for the year 1883, p. 7.
1887. *Paleschara amplexens*. Hall and Simpson, Pal. New York, VI, p. 237.
1891. *Paleschara amplexens*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 40; Forty-fourth Ann. Rep. New York State Museum, p. 70.
1899. *Paleschara amplexens*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 171. Hamilton: Arkona, Ontario; Seneca Lake, New York (Hall); Hay River, Red Deer River, and near Dawson Bay, Canada (Whiteaves).

**Leptotrypa ? semipilaris** Ulrich.

1890. *Leptotrypa semipilaris*. Ulrich, Geol. Sur. Illinois, VIII, p. 457, pl. xxxvi, 5-5d.
1894. *Leptotrypa semipilaris*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 181.
1897. *Leptotrypa semipilaris*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 148 (not 149, 150=*Leptotrypa acervulosa*), p. 580.

Cincinnati (Lorraine): Covington, Kentucky; Cincinnati, Ohio.

**Leptotrypa ? sphæron** (Hall).

1876. *Paleschara ? sphæron*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. viii, 14, 15.
1879. *Paleschara ? (Chaetetes?) sphæron*. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 121, pl. viii, 14, 15.
1882. *Paleschara ? (Chaetetes ?) sphæron*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 247, pl. vii, 14, 15.

Niagara: Waldron, Indiana.

**Leptotrypa stidhami** Ulrich.

1890. *Leptotrypa stidhami*. Ulrich, Geol. Sur. Illinois, VIII, p. 456, pl. xxxvi, 4-4b.
1895. *Monticulipora stidhami*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 76.

Cincinnati (Richmond): Brown County and near Eaton, Ohio; Madison, Indiana.

*Lichenalia* (not of Hall, 1852), Hall and Simpson, and other authors.

See *Fistulipora* McCoy.

**LICHENALIA** Hall. Genotype: *Lichenalia concentrica* Hall.

1852. *Lichenalia*. Hall, Pal. New York, II, p. 171.

Obs. With the *Lichenalia concentrica* from Lockport, New York, Hall identified a form bearing a superficial resemblance, occurring at Waldron, Indiana; the latter is a species of *Fistulipora* and entirely different in structure from the Lockport *Lichenalia concentrica*. In his later work, and in this he has been followed by other authors, Hall used the Waldron form as the type of the genus. Consult the synonymy given under *Fistulipora*.

*Lichenalia alternata* Hall. See *Fistulipora alternata* (Hall).

*Lichenalia alveata* Hall. See *Buskopora bistriata* (Hall).

*Lichenalia (Odontotrypa) alveata* Hall. See *Buskopora bistriata* (Hall).

*Lichenalia bistriata* Hall. See *Buskopora bistriata* (Hall).

*Lichenalia bullata* Hall. See *Fistulipora ? bullata* (Hall and Simpson).

*Lichenalia* ? *calycula* James. See *Aspidopora calycula* (James).

*Lichenalia carinata* Hall. Not recognized.

1883. *Lichenalia carinata*. Hall, Trans. Albany Institute, X, p. 151 (abstract, 1881, p. 9).

Hamilton: Falls of the Ohio.

*Lichenalia circincta* Hall. See *Selenopora circincta* (Hall).

*Lichenalia* (*Selenopora*) *circincta* Hall and Simpson. See *Selenopora circincta* (Hall).

*Lichenalia clivulata* Hall. See *Eridopora* ? *clivulata* (Hall).

*Lichenalia* (*Pileotrypa*) *clivulata* Hall. See *Eridopora* ? *clivulata* (Hall).

*Lichenalia colliculata* Hall. See *Fistulipora colliculata* (Hall).

*Lichenalia* (*Selenopora*) *complexa* Hall and Simpson. See *Selenopora complexa* (Hall).

*Lichenalia complexata* Hall. See *Selenopora complexa* (Hall).

*Lichenalia concentrica* Hall (in part) and other authors. See *Fistulipora neglecta* Rominger.

***Lichenalia concentrica* Hall.**

1852. *Lichenalia concentrica*. Hall, Pal. New York, II, p. 171, pl. xi E, 5a-g.

Niagara: Lockport, New York.

Obs. See remarks under the genus *Lichenalia*.

*Lichenalia concentrica* var. *maculata* Hall. See *Fistulipora neglecta-maculata* (Hall).

*Lichenalia concentrica* var. *parvula* Hall. See *Fistulipora halli* Rominger.

*Lichenalia confusa* Hall. See *Fistulipora* ? *confusa* (Hall).

*Lichenalia constricta* Hall. See *Fistulipora* ? *constricta* (Hall).

*Lichenalia conulata* Hall. See *Fistulipora* ? *conulata* (Hall).

*Lichenalia cornuta* Hall. See *Fistulipora cornuta* (Hall and Simpson).

*Lichenalia crassa* Hall. See *Fistulipora* ? *crassa* (Hall).

*Lichenalia* (*Phractopora*) *cristata* var. *lineata* Hall. See *Phractopora cristata* Hall.

*Lichenalia crustacea* Hall. Not recognized.

1883. *Lichenalia crustacea*. Hall, Trans. Albany Institute, X, p. 150 (abstract, 1881, p. 8).

Hamilton: Falls of the Ohio.

*Lichenalia cultellata* Hall. See *Fistulipora cultellata* (Hall).

*Lichenalia denticulata* Hall. See *Eridopora denticulata* (Hall).

*Lichenalia* (*Pileotrypa*) *denticulata* Hall. See *Eridopora denticulata* (Hall).

*Lichenalia dissimilis* Hall. See *Paleschara* ? *dissimilis* (Hall).

*Lichenalia distans* Hall. See *Fistulipora distans* (Hall).

*Lichenalia distans* Hall and Simpson (in error). See *Fistulipora distensa* (Hall).

*Lichenalia distensa* Hall. See *Fistulipora distensa* (Hall).

*Lichenalia foliacea* Hall. See *Fistulipora foliacea* (Hall).

- Lichenalia geometrica* Hall. See *Fistulipora geometrica* (Hall).  
*Lichenalia granifera* Hall. See *Fistulipora* ? *granifera* (Hall).  
*Lichenalia* (*Pileotrypa*) *granifera* Hall. See *Fistulipora* ? *granifera* (Hall).  
*Lichenalia* (*Ceramopora*) *imbricella* Hall. See *Ceramopora* ? *imbricella* Hall.  
*Lichenalia interaspera* Simpson. See *Fistulipora interaspera* Hall and Simpson.  
*Lichenalia longispina* Hall. See *Lichenotrypa longispina* (Hall).  
*Lichenalia* (*Lichenotrypa*) *longispina* Hall and Simpson. See *Lichenotrypa longispina* (Hall).  
*Lichenalia lunata* Hall. See *Buskopora dentata* Ulrich.  
*Lichenalia lunata* var. *tubulata* Hall. See *Buskopora dentata* (Ulrich).  
*Lichenalia maculosa* Hall and Simpson. See *Fistulipora maculosa* (Hall).  
*Lichenalia operculata* Hall and Simpson. See *Pinacotrypa operculata* (Hall and Simpson).  
*Lichenalia ovata* Hall. See *Fistulipora ovata* (Hall).  
*Lichenalia paliformis* Hall. See *Glossotrypa paliformis* (Hall).  
*Lichenalia* (*Glossotrypa*) *paliformis* Hall. See *Glossotrypa paliformis* (Hall).  
*Lichenalia permarginata* Hall. See *Fistulipora* ? *permarginata* (Hall).  
*Lichenalia pustulosa* Hall and Simpson. See *Fistulipora* ? *pustulosa* (Hall and Simpson).  
*Lichenalia pyriformis* Hall. See *Buskopora pyriformis* (Hall).  
*Lichenalia radiata* Hall. Not recognized.

1883. *Lichenalia radiata*. Hall, Trans. Albany Institute, X, p. 152 (abstract, 1881, p. 10).

Upper Helderberg: Onondaga Valley, New York.

- Lichenalia ramosa* Hall. See *Fistulipora ramosa* (Hall).  
*Lichenalia serialis* Hall. See *Fistulipora serialis* (Hall and Simpson).  
*Lichenalia stellata* Hall. See *Pinacotrypa stellata* (Hall).  
*Lichenalia subcava* Hall. See *Fistulipora subcava* (Hall).  
*Lichenalia substellata* Hall. See *Fistulipora substellata* (Hall).  
*Lichenalia subtrigona* Hall. See *Fistulipora subtrigona* (Hall).  
*Lichenalia tessellata* Hall and Simpson. See *Favicella tessellata* (Hall and Simpson).  
*Lichenalia torta* Hall. See *Fistulipora torta* (Hall) and *Fistulipora serialis* (Hall).  
*Lichenalia tortuosa* (in error for *torta*) Hall. See *Fistulipora serialis* (Hall).  
*Lichenalia vesiculata* Hall and Simpson. See *Fistulipora vesiculata* (Hall).

**LICHENOTRYPA** Ulrich. Genotype: *Lichenotrypa cavernosa* Ulrich = *Lichenotrypa longispina* (Hall).

1886. *Lichenotrypa*. Ulrich, Contr. American Pal., I, p. 23.

**LICHENOTRYPA** Ulrich—Continued.

1887. *Lichenotrypa*. Hall and Simpson, Pal. New York, VI, p. xvii.  
 1889. *Lichenotrypa*. Miller, North American Geol. Pal., p. 312.  
 1890. *Lichenotrypa*. Ulrich, Geol. Sur. Illinois, VIII, p. 383.  
 1896. *Lichenotrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 270.  
 1897. *Lichenotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 556.

*Lichenotrypa aspera* (in error for *cavernosa*) Ulrich. See *Lichenotrypa longispina* (Hall).

*Lichenotrypa cavernosa* Ulrich. See *Lichenotrypa longispina* (Hall).

**Lichenotrypa longispina** (Hall).

1883. *Lichenalia longispina*. Hall, Trans. Albany Institute, X, p. 153 (abstract, 1881, p. 11).  
 1886. *Lichenotrypa longispina*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 11, 12.  
 1887. *Lichenalia* (*Lichenotrypa*) *longispina*. Hall and Simpson, Pal. New York, VI, p. 287, pl. xxv, 11, 12.  
 1897. *Lichenotrypa longispina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 7.  
 1886. *Lichenotrypa cavernosa*. Ulrich, Contr. American Pal., I, p. 24, pl. ii, 7. (In explanation of plate ii called *Lichenotrypa aspera* in error.)  
 Hamilton: Falls of the Ohio.

*Limaria Steininger*. Not a bryozoan genus.

*Limaria falcata* Prout. Probably a bryozoan, but not recognizable.

1859. *Limaria falcata*. Prout, Trans. St. Louis Acad. Sci., I, p. 446, pl. xviii, 1-1c.  
 Devonian: Falls of the Ohio.

**LIOCLEMA** Ulrich. Genotype: *Callopora punctata* Hall.

1882. *Leioclema*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 141, 154.  
 1889. *Leioclema*. Miller, North American Geol. Pal., p. 310.  
 1890. *Leioclema*. Ulrich, Geol. Sur. Illinois, VIII, pp. 376, 425.

**Lioclema ? araneum** Ulrich.

1890. *Leioclema ? araneum*. Ulrich, Geol. Sur. Illinois, VIII, p. 431, pl. lxxv, 9-9c.  
 1894. *Leioclema araneum*. Keyes, Missouri Geol. Sur., V, p. 14.  
 Chester: Chester, and Monroe County, Illinois; Pulaski and Jackson counties, Kentucky.

**Lioclema asperum** (Hall).

1852. *Callopora aspera*. Hall, Pal. New York, II, p. 147, pl. xl, 4a-i.  
 1890. *Leioclema asperum*. Ulrich, Geol. Sur. Illinois, VIII, pp. 416, 425.  
 Niagara: Lockport, New York.

**Lioclema cellulosum** (Hall).

1879. *Callopora cellulosa*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 154 (reprint, 1880, p. 16).  
 1883. *Callopora cellulosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 7-9, pl. xiii, 9.  
 1887. *Callopora cellulosa*. Hall and Simpson, Pal. New York, VI, p. 21, pl. xii, 1-9, pl. xiii, 9, pl. xxiii A, 6.  
 1890. *Leioclema cellulosum*. Ulrich, Geol. Sur. Illinois, VIII, p. 425.  
 1879. *Callopora fistulosa*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 154 (reprint, 1880, p. 16).

**Lioclema celluloseum (Hall)—Continued.**

1883. *Callopora fistulosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 1-6.  
Lower Helderberg: Clarksville, New York.

**Lioclema confertiporum (Hall).**

1883. *Thallostigma confertipora*. Hall, Trans. Albany Institute, X, p. 184 (abstract, 1881, p. 184).  
1884. *Thallostigma confertipora*. Hall, Rep. State Geologist New York for the year 1883, p. 19.  
1887. *Fistulipora confertipora*. Hall and Simpson, Pal. New York, VI, p. 211, pl. lviii, 1-5.  
1897. *Fistuliporina confertipora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 13.  
Hamilton: Moscow, New York.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema decipiens (Hall).**

1883. *Thallostigma decipiens*. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).  
1884. *Thallostigma decipiens*. Hall, Rep. State Geologist New York for the year 1883, p. 29.  
1887. *Fistulipora decipiens*. Hall and Simpson, Pal. New York, VI, p. 232, pl. lix, 9.  
Hamilton: York, New York.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema densum (Hall).**

1883. *Thallostigma densa*. Hall, Trans. Albany Institute, X, p. 186 (abstract, 1881, p. 186).  
1884. *Thallostigma densa*. Hall, Rep. State Geologist New York for the year 1883, p. 25.  
1887. *Fistulipora densa*. Hall and Simpson, Pal. New York, VI, p. 231.  
Hamilton: York, New York.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema digitatum (Hall).**

1883. *Thallostigma digitata*. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).  
1884. *Thallostigma digitata*. Hall, Rep. State Geologist New York for the year 1883, p. 24.  
1887. *Fistulipora digitata*. Hall and Simpson, Pal. New York, VI, p. 229, pl. lix, 12, 13.  
1897. *Fistuliporina digitata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 11.  
1899. *Fistuliporina digitata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 170, fig. 65.  
Hamilton: Hamburg, Erie County, New York.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema ? exsul (Hall).**

1876. *Alveolites exsul*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. ix, 3, 4.  
1879. *Callopora exsul*. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 115, pl. ix, 3, 4.  
1882. *Callopora exsul*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 238, pl. viii, 3, 4.  
1889. *Callopora ? exsul*. Miller, North American Geol. Pal., fig. 463 (p. 295).  
Niagara: Waldron, Indiana.

**Lioclema (? Nicholsonella) floridum (Hall).**

1852. *Callopora florida*. Hall, Pal. New York, II, p. 146, pl. xl, 2a-f.  
1890. *Leioclema florida*. Ulrich, Geol. Sur. Illinois, VIII, pp. 416, 425.  
Niagara: Lockport, New York.

**Lioclema foliatum Ulrich.**

1889. *Leioclema foliatum*. (Ulrich, in press), Miller, North American Geol. Pal., fig. 491 (p. 311).  
1890. *Leioclema foliatum*. Ulrich, Geol. Sur. Illinois, VIII, p. 431, fig. 1.  
1894. *Leioclema foliatum*. Keyes, Missouri Geol. Sur., V, p. 14.  
1896. *Lioclema foliata*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 465 (p. 277).  
Warsaw: Warsaw, Illinois.

**Lioclema gracillimum Ulrich.**

1888. *Leioclema gracillimum*. Ulrich, Bull. Denison Univ., IV, p. 92. (Not described.)  
1890. *Leioclema gracillimum*. Ulrich, Geol. Sur. Illinois, VIII, p. 429, pl. lxxv, 6-6b.  
1894. *Leioclema gracillimum*. Keyes, Missouri Geol. Sur., V, p. 13.  
Kinderhook: Marshalltown, Iowa.  
Burlington: Burlington, Iowa.  
Keokuk: Keokuk, Iowa, and other localities.  
Warsaw: Warsaw, Illinois.  
Waverly: Lodi, Ohio.

**Lioclema intercellatum (Hall).**

1883. *Thallostigma intercellata*. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 13).  
1886. *Fistulipora intercellata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxii, 15-20.  
1887. *Fistulipora intercellata*. Hall and Simpson, Pal. New York, VI, p. 87, pl. xxxii, 15-20.  
Hamilton: Falls of the Ohio.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema involvens (Hall and Simpson).**

1887. *Fistulipora involvens*. Hall and Simpson, Pal. New York, VI, p. 221, pl. lix, 2.  
Hamilton: Near Alden Station, New York.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema (? Nicholsonella) laminatum (Hall).**

1852. *Callopora laminata*. Hall, Pal. New York, II, p. 146, pl. xl, 3a-e.  
1890. *Leioclema ? laminatum*. Ulrich, Geol. Sur. Illinois, VIII, pp. 416, 425.  
Niagara: Lockport, New York.

**Lioclema microporum (Hall).**

1883. *Thallostigma micropora*. Hall, Trans. Albany Institute, X, p. 186 (abstract, 1881, p. 186).  
1884. *Thallostigma micropora*. Hall, Rep. State Geologist New York for the year 1883, p. 26.  
1887. *Fistulipora micropora*. Hall and Simpson, Pal. New York, VI, p. 220, pl. lvii, 20, pl. lix, 3.  
1897. *Fistuliporina micropora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 6-8.  
1899. *Fistuliporina micropora*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 169, fig. 63.  
Hamilton: Eighteenmile Creek, Erie County, New York.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema minutissimum (Nicholson).**

1875. *Callopora minutissima*. Nicholson, Pal. Province Ontario, p. 77, fig. 43.

1898. *Leioclema minutissimum*. Whiteaves, Contr. Canadian Pal., I, p. 380.

Hamilton: Arkona, Ontario.

Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema minutum (Rominger).**

1866. *Fistulipora minuta*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.

1887. *Fistulipora minuta* (?). Hall and Simpson, Pal. New York, VI, p. 223, pl. lix, 5-8.

1890. *Leioclema minutum*. Ulrich, Geol. Sur. Illinois, VIII, p. 427.

1899. *Fistuliporina minuta*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 169, fig. 64.

1883. *Thallostigma striata*. Hall, Trans. Albany Institute, X, p. 186 (abstract, 1881, p. 186).

1884. *Thallostigma striata*. Hall, Rep. State Geologist New York for the year 1884, p. 28.

Hamilton: Near Alpena, Michigan; Buffalo and Davenport, Iowa; Andalusia and Rock Island, Illinois; Erie County, Delphi, and West Hamburg, New York.

Obs. We believe the following species to be closely related to, if not identical with, this species: *Lioclema confertiporum*, *decipiens*, *digitatum*, *intercellatum*, *invovens*, *microporum*, *minutissimum*, *multaculeatum*, *punctillatum*, *segregatum*, and *subtile*. However, before they are placed as actual synonyms, the types, if accessible, or specimens from the typical localities, must be studied.

**Lioclema multaculeatum (Hall).**

1884. *Thallostigma multaculeata*. Hall, Rep. State Geologist New York for the year 1883, p. 23.

1887. *Fistulipora multaculeata*. Hall and Simpson, Pal. New York, VI, p. 228, pl. lix, 10, 11.

1897. *Fistuliporina multaculeata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 12.

Hamilton: Darien Center, New York.

Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema occidens (Hall and Whitfield).**

1873. *Fistulipora occidens*. Hall and Whitfield, Twenty-third Ann. Rep. New York State Museum, p. 228, pl. x, 9, 10.

1890. *Leioclema occidens*. Ulrich, Geol. Sur. Illinois, VIII, p. 426.

1878. *Callopora cincinnatiensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., I, p. 93, pl. iv, 8, 8a.

1882. *Callopora cincinnatiensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 142, pl. vi, 18, 18a.

Hamilton: Hackberry, Rockford, Independence, and Buffalo, Iowa; Rock Island, Illinois; Calloway County, Missouri.

**Lioclema parasiticum (Hall).**

1879. *Callopora parasitica* (in part). Hall, Thirty-second Ann. Rep. New York State Museum, p. 157 (reprint, 1880, p. 19).

1883. *Callopora parasitica*. Hall, Rep. State Geologist New York for the year 1882, pl. xiv, 13-18.

1887. *Fistulipora parasitica*. Hall and Simpson, Pal. New York, VI, p. 28, pl. xiv, 13, 14, pl. xxiii, 4.

**Lioclema parasiticum (Hall)—Continued.**

1890. *Lioclema parasiticum*. Ulrich, Geol. Sur. Illinois, VIII, p. 425.  
Lower Helderberg: Clarksville, New York.

**Lioclema ponderosum (Hall).**

1874. *Callopora ponderosa*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 103.  
1879. *Callopora ponderosa*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 156 (reprint, 1880, p. 18).  
1883. *Callopora ponderosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xiv, 9-12.  
1887. *Fistulipora ponderosa*. Hall and Simpson, Pal. New York, VI, p. 27, pl. xiv, 9-12, pl. xxiiiA, 8-10.  
1890. *Lioclema ponderosum*. Ulrich, Geol. Sur. Illinois, VIII, p. 425.  
1897. *Fistuliporina ponderosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 14.  
Lower Helderberg: Schoharie, New York.

**Lioclema punctatum (Hall).**

1858. *Callopora punctata*. Hall, Geol. Iowa, I, Part 2, p. 653.  
1882. *Lioclema punctata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 141, pl. vi, 1, 1a.  
1888. *Lioclema punctatum*. Ulrich, Bull. Denison Univ., IV, p. 91.  
1890. *Lioclema punctatum*. Ulrich, Geol. Sur. Illinois, VIII, p. 430.  
1894. *Lioclema punctatum*. Keyes, Missouri Geol. Sur., V, p. 13.  
1866. *Callopora missouriensis*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 117.  
Keokuk: Keokuk, Iowa; Kings Mountain, Kentucky; Lagrange, Missouri.  
Warsaw: Warsaw and Columbia, Illinois.  
Waverly: Cuyahoga Valley, Ohio.

**Lioclema punctillatum (Winchell).**

1866. *Callopora punctillata*. Winchell, Rep. Lower Peninsula Michigan, p. 88.  
Hamilton: Petoskey, Michigan.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema segregatum (Hall).**

1883. *Thallostigma segregata*. Hall, Trans. Albany Institute, X, p. 186 (abstract, 1881, p. 186).  
1884. *Thallostigma segregata*. Hall, Rep. State Geologist New York for the year 1883, p. 27.  
1887. *Fistulipora segregata*. Hall and Simpson, Pal. New York, VI, p. 219, pl. lix, 4.  
1899. *Fistuliporina segregata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 168, fig. 62.  
Hamilton: Eighteenmile Creek, New York.  
Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema spherioideum (Hall).**

1883. *Thallostigma spherioidea*. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).  
1884. *Thallostigma spherioidea*. Hall, Rep. State Geologist New York for the year 1883, p. 31.  
1887. *Fistulipora spherioidea*. Hall and Simpson, Pal. New York, VI, p. 225, pl. lvii, 3, 4.  
Hamilton: York, New York.



**Lioclema subglobosum** Ulrich.

1890. *Leioclema subglobosum*. Ulrich, Geol. Sur. Illinois, VIII, p. 428, pl. lxxv, 8-8b.

Kinderhook: Marshalltown, Iowa.

**Lioclema subtile** (Hall).

1883. *Thallostigma subtilis*. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).  
1884. *Thallostigma subtilis*. Hall, Rep. State Geologist New York for the year 1883, p. 30.  
1887. *Fistulipora* ? *subtilis*. Hall and Simpson, Pal. New York, VI, p. 233.  
1898. *Fistulipora* ? *subtilis*. Whiteaves, Contr. Canadian Pal., I, p. 380.

Hamilton: West Williams, Ontario.

Obs. See note on *Lioclema minutum* (Rominger).

**Lioclema wachsmuthi** Ulrich.

1890. *Leioclema wachsmuthi* Ulrich. Geol. Sur. Illinois, VIII, p. 428, pl. lxxv, 7-7b.

Kinderhook: Marshalltown, Iowa.

**Lioclema ? wilmingtontense** Ulrich.

1890. *Leioclema wilmingtontense*. Ulrich, Geol. Sur. Illinois, VIII, p. 426, pl. xxxiv, 4-4b.

1895. *Monticulipora wilmingtontense*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 76.

Cincinnati (Richmond): Wilmington, Illinois.

**LIOCLEMELLA** Foerste. Genotype: *Callopora ohioensis* Foerste.

1895. *Lioclemella*. Foerste, Geol. Sur. Ohio, VII, p. 600.

**Lioclemella annulifera** (Whitfield).

1878. *Trematopora annulifer*. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 67.

1882. *Trematopora annulifer*. Whitfield, Geol. Sur. Wisconsin, IV, p. 254, pl. xi, 15-17.

1882. *Batostomella annulifera*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 141.

1895. *Lioclemella annulifera*. (Ulrich) Foerste, Geol. Sur. Ohio, VII, p. 600.  
Cincinnati (Richmond): Delafield and Iron Ridge, Wisconsin; Eaton, Ohio.

**Lioclemella fusiformis** (Whitfield).

1878. *Chaetetes fusiformis*. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 70.

1882. *Chaetetes fusiformis*. Whitfield, Geol. Sur. Wisconsin, IV, p. 248, pl. xi, 13, 14.

1895. *Lioclemella fusiformis*. (Ulrich) Foerste, Geol. Sur. Ohio, VII, p. 600.  
Cincinnati (Richmond): Iron Ridge, Wisconsin.

**Lioclemella nitida** (Ulrich).

1890. *Trematopora* ? *nitida*. Ulrich, Geol. Sur. Illinois, VIII, p. 419, pl. xxxiv, 2-2f.

1895. *Lioclemella nitida*. (Ulrich) Foerste, Geol. Sur. Ohio, VII, p. 600.  
Cincinnati (Richmond): Savannah, Illinois.

**Lioclemella ohioensis** (Foerste).

1887. *Callopora ohioensis*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 174; *ibid.*, III, 1888, pl. xvi, 6.

1895. *Lioclemella ohioensis*. Foerste, Geol. Sur. Ohio VII, p. 600, pl. xxix, 6.  
Clinton: Dayton and Centerville, Ohio.

**Lioclemella solidissima (Whitfield).**

1878. *Fistulipora solidissima*. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 69.  
 1882. *Fistulipora solidissima*. Whitfield, Geol. Sur. Wisconsin, IV, p. 255, pl. xi, 18, 19.  
 Cincinnati (Richmond): Delafield and Iron Ridge, Wisconsin; Savannah, Illinois.

**Lioclemella subfusiformis (James).**

1882. *Monticulipora* (? *Monotrypa*) *subfusiformis*. James, Paleontologist, No. 6, p. 52; *ibid.*, No. 7, 1883, pl. i, 1.  
 1888. *Monticulipora fusiformis* (not of Whitfield). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 26.  
 1895. *Monticulipora fusiformis*, (not of Whitfield). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 83.  
 Cincinnati (Richmond): Warren and Clinton counties, Ohio.

**LOCULIPORA Hall. Genotype: Fenestella perforata Hall.**

1885. *Loculipora*. Hall, Rep. State Geologist New York for the year 1884, p. 37.  
 1887. *Loculipora*. Hall and Simpson, Pal. New York, VI, p. xxiii.  
 1889. *Loculipora*. Miller, North American Geol. Pal., p. 312.  
 1895. *Loculipora*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 716, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 884, 910, 920.  
 1897. *Loculipora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 511, 520.  
 1899. *Loculipora*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 160.  
 1888. *Tectulipora*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, [p. 395]; Forty-first Ann. Rep. New York State Museum, [p. 395]. (Not defined).  
 1895. *Tectulipora*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 715, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 884, 909, 920.  
 1897. *Tectulipora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 511, 520.

Obs. Sections of *Loculipora perforata* show that the nonporiferous dissepiments are reduced to a minimum, the branches coming close together (anastomosing); but it is not correct to say that the dissepiments are celluliferous. The structure is in all essential respects precisely as in the species *loculata*, the type of *Tectulipora*.

**Loculipora ambigua (Hall).**

1876. *Hemitrypa dubia*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xi, 17-21.  
 1879. *Fenestella ambigua*. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 123, pl. xi, 17-21.  
 1882. *Fenestella ambigua*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 248, pl. xi, 17-21.  
 1889. *Loculipora ambigua*. Miller, North American Geol. Pal., p. 312.  
 1890. *Isotrypa ambigua*. Ulrich, Geol. Sur. Illinois, VIII, p. 534.  
 Niagara: Waldron, Indiana.

**Loculipora circumstata (Hall and Simpson).**

1887. *Fenestella (Loculipora) circumstata*. Hall and Simpson, Pal. New York, VI, p. 144, pl. liv, 22-25.  
 Upper Helderberg: Walpole, Ontario.

**Loculipora circumstata** (Hall and Simpson)—Continued.

Obs. This form and that described as *Loculipora perforata* may prove to be the same species.

**Loculipora loculata** (Hall).

- 1888. *Fenestella* (*Tectulipora*) *loculata*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887 [p. 395]; Forty-first Ann. Rep. New York State Museum [p. 395].
- 1897. *Tectulipora loculata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 60, 61 (p. 511), pl. vii, 1-5 (called *Tectulipora biperforata* on the explanation sheet).
- 1888. *Fenestella parallela*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. ix, 6-11; Forty-first Ann. Rep. New York State Museum, pl. ix, 6-11.

Lower Helderberg: Clarksville, New York.

**Loculipora perforata** (Hall).

- 1884. *Fenestella perforata*. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 65.
- 1885. *Loculipora perforata*. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 15.
- 1887. *Fenestella* (*Loculipora*) *perforata*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 62.
- 1888. *Fenestella* (*Loculipora*) *perforata*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. x, 1-13; Forty-first Ann. Rep. New York State Museum, pl. x, 1-13.
- 1897. *Loculipora perforata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. vii, 6-12.
- 1899. *Loculipora perforata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 160, fig. 49.

Hamilton: Darien and near Canandaigua Lake, New York.

**LYROPORA** Hall. Genotype: *Fenestella* (*Lyropora*) *subquadrans* Hall.

- 1857. *Lyropora*. Hall, Proc. American Assoc. Adv. Sci., X, p. 179.
- 1882. *Lyropora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.
- 1883. *Lyropora*. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 32.
- 1885. *Lyropora*. Hall, Rep. State Geologist New York for the year 1884, p. 37.
- 1885. *Lyropora*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 773.
- 1886. *Lyropora*. Ulrich, Contr. American Pal., I, p. 5.
- 1889. *Lyropora*. Miller, North American Geol. Pal., p. 312.
- 1890. *Lyropora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 396, 580.
- 1895. *Lyropora*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 689, 723, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 883, 917, 920.
- 1896. *Lyropora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.
- 1897. *Lyropora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 515, 522.
- 1895. *Lyroporella*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 701, 724, 727; Forty-seventh Ann. Rep. New York State Museum, pp. 895, 918, 921.
- 1897. *Lyroporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 516, 522.
- 1895. *Lyroporina*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 723, 727; Forty-seventh Ann. Rep. New York State Museum, pp. 917, 921.

**LYROPORA Hall—Continued.**

1897. *Lyroporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 522.

1897. *Lyroporidra*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 517, 522.

Obs. On page 701 of the Thirteenth Ann. Rep. State Geologist New York for the year 1893 Simpson proposes the name *Lyroporella* for species of *Lyropora* having but two ranges of cells on a branch throughout. On page 723 of the same work the name *Lyroporina* is proposed for the same group. No genotype is mentioned, nor do we know of any species having but two ranges of cells. This group is therefore apparently imaginary, and should strictly not have been placed above as a synonym of *Lyropora*. On page 724 a new genus *Lyroporella* is made for forms having two ranges of cells on the narrower portion of the branches and three or more on the wider portion.

In the Fourteenth Annual Report of the State Geologist of New York for the year 1894 *Lyroporella* is held for the two and three ranged forms, *Lyroporina* for the two ranged, and a new genus *Lyroporidra* is added. Six species and one variety of *Lyropora* have been described, and we know of no new forms. These species show that the only constant generic character is the thickened V or U shaped calcareous support. This at once shows the utter uselessness of Simpson's proposed names. The same carelessness and artificiality are exhibited in other cases. See synonymy under *Ptiloporella*, *Ptiloporina*, *Fenestella*, *Polypora*, etc.

*Lyropora cinctura* Hall. See *Reteporidra cinctuta* (Hall).

***Lyropora divergens* Ulrich.**

1890. *Lyropora divergens*. Ulrich, Geol. Sur. Illinois, VIII, p. 584, pl. lviii, 4-4b, 4d.

1894. *Lyropora divergens*. Keyes, Missouri Geol. Sur., V, p. 28.  
Chester: Chester, Illinois; Sloans Valley, Kentucky.

***Lyropora ovalis* Ulrich.**

1890. *Lyropora ovalis*. Ulrich, Geol. Sur. Illinois, VIII, p. 585, pl. lviii, 5-5b; pl. lv, 8.

Chester: Grayson Springs and Litchfield, Kentucky.

***Lyropora quincuncialis* (Hall).**

1857. *Fenestella* (*Lyropora*) *quincuncialis*. Hall, Proc. American Assoc. Adv. Sci., X, p. 180.

1890. *Lyropora quincuncialis*. Ulrich, Geol. Sur. Illinois, VIII, p. 583, pl. lviii, 3-3d, pl. lv, 7-7c.

1894. *Lyropora quincuncialis*. Keyes, Missouri Geol. Sur., V, p. 27.

1897. *Lyroporella quincuncialis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 69 (p. 516).

Chester: Chester, Illinois; Sloans Valley, Kentucky.

***Lyropora ranosculum* Ulrich.**

1890. *Lyropora ranosculum*. Ulrich, Geol. Sur. Illinois, VIII, p. 581, pl. lviii, 1-1c.

1897. *Lyropora ranosculum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 66-68 (p. 515).

Chester: Chester and Kaskaskia, Illinois; Sloans Valley, Kentucky.

***Lyropora retrorsa* (Meek and Worthen).**

1868. *Fenestella* (*Lyropora*) *retrorsa*. Meek and Worthen, Geol. Sur. Illinois, III, p. 504, pl. xv, 1.

**Lyropora retrorsa** (Meek and Worthen)—Continued.

1894. *Lyropora retrorsa*. Keyes, Missouri Geol. Sur., V, p. 27, pl. xxxiv, 4.  
Burlington: Burlington, Iowa.

**Lyropora subquadrans** (Hall).

1857. *Fenestella* (*Lyropora*) *subquadrans*. Hall, Proc. American Assoc. Adv. Sci., X, p. 180.  
1890. *Lyropora subquadrans*. Ulrich, Geol. Sur. Illinois, VIII, p. 582, pl. lviii, 2-2e.  
1894. *Lyropora subquadrans*. Keyes, Missouri Geol. Sur., V, p. 27.  
1897. *Lyroporidra subquadrans*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 19.  
Chester: Chester, Illinois; Sloans Valley, Kentucky.

**Lyropora subquadrans-lyra** (Hall).

1857. *Fenestella* (*Lyropora*) *lyra*. Hall, Proc. American Assoc. Adv. Sci., X, p. 179.  
1890. *Lyropora subquadrans* var. *lyra*. Ulrich, Geol. Sur. Illinois, VIII, p. 583.  
Chester: Kaskaskia and Chester, Illinois.

*Lyroporella* Simpson. See *Lyropora* Hall.

*Lyroporella quincuncialis* Simpson. See *Lyropora quincuncialis* (Hall).

*Lyroporidra* Simpson. See *Lyropora* Hall.

*Lyroporidra subquadrans* Simpson. See *Lyropora subquadrans* (Hall).

*Lyroporina* Simpson. See *Lyropora* Hall.

**MEEKOPORA** Ulrich. Genotype: *Meekopora eximia* Ulrich.

1890. *Meekopora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 383, 482.  
1889. *Meekopora*. (Ulrich, in press), Miller, North American Geol. Pal., p. 312.  
1896. *Meekopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 270.  
1897. *Meekopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 538.

**Meekopora ? aperta** Ulrich.

1890. *Meekopora ? aperta*. Ulrich, Geol. Sur. Illinois, VIII, p. 485, pl. lxxvi, 1, 1a.  
Keokuk: Kings Mountain, Kentucky.

**Meekopora approximata** Ulrich.

1890. *Meekopora approximata*. Ulrich, Geol. Sur. Illinois, VIII, p. 484, pl. lxxvii, 5.  
1894. *Meekopora approximata*. Keyes, Missouri Geol. Sur., V, p. 16.  
Chester: Chester, Illinois; Sloans Valley, Kentucky.

**Meekopora clausa** (Ulrich).

1884. *Fistulipora ? clausa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 47, pl. iii, 4-4b.  
1889. *Meekopora clausa*. Miller, North American Geol. Pal., fig. 494 (p. 313).  
1890. *Meekopora clausa*. Ulrich, Geol. Sur. Illinois, VIII, p. 485, pl. lxxvi, 6, pl. lxxvii, 7-7b, fig. 5e (p. 315).  
1894. *Meekopora clausa*. Keyes, Missouri Geol. Sur., V, p. 17.  
1897. *Meekopora clausa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 94 (in part) (p. 538).  
Chester: Sloans Valley and Grayson Springs, Kentucky; Chester, Illinois.

**Meekopora eximia** Ulrich.

1890. *Meekopora eximia*. Ulrich, Geol. Sur. Illinois, VIII, p. 483, pl. lxxvii, 6-6d.

**Meekopora eximia** Ulrich—Continued.

1896. *Meekopora eximia*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 444 (p. 270).  
 1897. *Meekopora eximia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 94 (in part) (p. 538).  
 Ste. Genevieve: Pella, Iowa.  
 Chester: Monroe County, Illinois; Caldwell County, Kentucky.

**Meekopora foliacea** (Hall).

1852. *Ceramopora foliacea*. Hall, Pal. New York, II, p. 170, pl. xlE, 3a-c.  
 Niagara: Lockport, New York.

**Meekopora stellifera** (Rominger).

1866. *Fistulipora stellifera*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.  
 1890. *Fistulipora stellifera*. Ulrich, Geol. Sur. Illinois, VIII, p. 481, pl. xlvii, 2, 2a.  
 Hamilton: Near Alpena, Michigan.

**MESOTRYPA** Ulrich. Genotype: *Diplotrypa infida* Ulrich.

1879. *Diplotrypa* (in part). Nicholson, Paleozoic Tabulate Corals, p. 312.  
 1881. *Diplotrypa* (in part). Nicholson, Genus Monticulipora, pp. 101, 155.  
 1882. *Diplotrypa* (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.  
 1883. *Diplotrypa* (in part). Foord, Contr. Micro-Pal. Cambro-Sil., p. 13.  
 1890. *Diplotrypa* (in part). Ulrich, Geol. Sur. Illinois, VIII, p. 378.  
 1893. *Mesotrypa*. Ulrich, Geol. Minnesota, III, p. 257.

**Mesotrypa discoidea** Ulrich.

1893. *Mesotrypa discoidea*. Ulrich, Geol. Minnesota, III, p. 260, fig. 16.  
 Trenton: Goodhue County, Minnesota.

**Mesotrypa infida** (Ulrich).

1886. *Diplotrypa infida*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 88.  
 1893. *Mesotrypa infida*. Ulrich, Geol. Minnesota, III, p. 258, pl. xvii, 1-8.  
 1896. *Mesotrypa infida*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 453 (p. 273).  
 Trenton (Black River): Minneapolis, St. Paul, and Goodhue and Fillmore counties, Minnesota.

**Mesotrypa milleri** (Ulrich).

1882. *Diplotrypa milleri*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 245, pl. xi, 2-2c.  
 Niagara: Osgood, Indiana.

**Mesotrypa patella** (Ulrich).

1890. *Diplotrypa patella*. Ulrich, Geol. Surv. Illinois, VIII, p. 458, pl. xxxiii, 2-2c.  
 1893. *Mesotrypa patella*. Ulrich, Geol. Minnesota, III, p. 257.  
 1894. *Diplotrypa patella*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 184.  
 Cincinnati (Richmond): Oxford, Ohio; Richmond, Indiana.

**Mesotrypa quebecensis** (Ami).

1892. *Diplotrypa Quebecensis*. Ami, Canadian Record of Science, V, p. 101.  
 1893. *Mesotrypa quebecensis*. Ulrich, Geol. Minnesota, III, p. 259, fig. 15e, f.  
 Trenton: Quebec City, Quebec; Bridport, Vermont; Trenton Falls and Little Falls, New York; Frankfort, Burgin, and Danville, Kentucky; Decorah, Iowa.

**Mesotrypa regularis** (Foord).

1883. *Diplotrypa regularis*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 13, pl. i, 3-3c.  
 1893. *Mesotrypa regularis*. Ulrich, Geol. Minnesota, III, p. 257.  
 Trenton: Ottawa City, Canada.

**Mesotrypa ? rotunda** Ulrich.

1893. *Mesotrypa ? rotunda*. Ulrich, Geol. Minnesota, III, p. 262, fig. 17.  
 Trenton: Hader, Minnesota.

**Mesotrypa selkirkensis** Whiteaves.

1897. *Mesotrypa Selkirkensis*. Whiteaves, Pal. Foss., III, p. 162, pl. xix, 1, 1a.  
 Trenton: East Selkirk, Canada.

**Mesotrypa ? spinosa** Ulrich.

1893. *Mesotrypa ? spinosa*. Ulrich, Geol. Minnesota, III, p. 259, pl. xvii, 9-12.  
 Trenton (Black River): Minneapolis and St. Paul, Minnesota.

**Mesotrypa whiteavesi** (Nicholson).

1875. *Chaetetes petropolitanus* (in part). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 510, pl. xxx, 5, 5c.  
 1875. *Chaetetes petropolitanus* (in part). Nicholson, Pal. Ohio, II, p. 204, pl. xxi, 14-14b.  
 1875. *Chaetetes petropolitanus* (in part). Nicholson, Geol. Mag., new ser., II, p. 175.  
 1876. *Chaetetes petropolitanus* (in part). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 88, pl. v, 6a (not 6).  
 1879. *Monticulipora* (*Diplotrypa*) *Whiteavesii*. Nicholson, Paleozoic Tabulate Corals, p. 316, pl. xiii, 4-4b (not pl. xiv, 1).  
 1881. *Monticulipora* (*Diplotrypa*) *Whiteavesii*. Nicholson, Genus *Monticulipora*, p. 160, fig. 31.  
 1888. *Monticulipora whiteavesii*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 169.  
 1893. *Mesotrypa whiteavesii*. Ulrich, Geol. Minnesota, III, fig. 15g, h.  
 1894. *Monticulipora whiteavesii*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 187.  
 Trenton: Peterboro', Ontario.

**MITOCLEMA** Ulrich. Genotype: *Mitoclema cinctosum* Ulrich.

1882. *Mitoclema*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.  
 1890. *Mitoclema*. Ulrich, Geol. Surv. Illinois, VIII, pp. 336, 369.  
 1893. *Mitoclema*. Ulrich, Geol. Minnesota, III, p. 122.  
 1897. *Mitoclema*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 598.

**Mitoclema cinctosum** Ulrich.

1882. *Mitoclema cinctosum*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 159, pl. vi, 7, 7a.  
 1889. *Enallopora cinctosa*. Miller, North American Geol. Pal., p. 301.  
 1890. *Mitoclema cinctosum*. Ulrich, Geol. Sur. Illinois, VIII, pl. liii, 8-8b.  
 1897. *Mitoclema cinctosum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 205, 206 (p. 599).  
 Trenton (Stones River): High Bridge, Kentucky; Murfreesboro, Tennessee.

**Mitoclema ? mundulum** Ulrich.

1890. *Mitoclema ? mundulum*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 177, fig. 4a-c.  
 1893. *Mitoclema ? mundulum*. Ulrich, Geol. Minnesota, III, p. 123, pl. ii, 4-6.  
 Trenton: Cannon Falls, Minnesota.

**MONOTRYPA** Nicholson. Genotype: *Chætetes undulatus* Nicholson.

1879. *Monotrypa*. Nicholson, Paleozoic Tabulate Corals, p. 293.  
 1881. *Monotrypa*. Nicholson, Genus *Monticulipora*, pp. 102, 168.  
 1882. *Monotrypa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.  
 1883. *Monotrypa*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 14.  
 1886. *Monotrypa*. Waagen and Wentzel, Pal. Indica, Ser. XIII, 875, 876.  
 1887. *Monotrypa*. Hall and Simpson, Pal. New York, VI, p. xiii.  
 1889. *Monotrypa*. Miller, North American Geol. Pal., p. 196.  
 1890. *Monotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 379.  
 1893. *Monotrypa*. Ulrich, Geol. Minnesota, III, p. 303.  
 1896. *Monotrypa* (in part). Zittel's Textb. Pal. (Engl. ed.), p. 104.  
 1897. *Monotrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 275.  
 1897. *Monotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 581.  
 1899. *Monotrypa*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 136.  
 1887. *Ptychonema*. Hall and Simpson, Pal. New York, VI, pp. xiv, 14.  
 1889. *Ptychonema*. Miller, North American Geol. Pal., p. 201.  
 1897. *Ptychonema*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 583.

**Monotrypa ? amplexens** Grabau.

1899. *Monotrypa amplexens*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 137, fig. 22.  
 Hamilton: Averys Creek, Erie County, New York.

**Monotrypa colliculata** (Hall).

1879. *Chætetes colliculatus*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 148 (reprint, 1880, p. 10).  
 1883. *Chætetes colliculatus*. Hall, Rep. State Geologist New York for the year 1882, pl. viii, 1-4.  
 1887. *Chætetes colliculatus*. Hall and Simpson, Pal. New York, VI, p. 11, pl. viii, 1-4.  
 1893. *Monotrypa colliculata*. Ulrich, Geol. Minnesota, III, p. 304.  
 Lower Helderberg: Schoharie, New York.

**Monotrypa (Chætetes?) cumulata** Ulrich.

1893. *Monotrypa (Chætetes?) cumulata*. Ulrich, Geol. Minnesota, III, p. 307, pl. xxvii, 26, 27.  
 Trenton: Goodhue County, Minnesota; Ottawa, Canada.

**Monotrypa ? filiosa** Ulrich. See *Amplexopora filiosa* (D'Orbigny).**Monotrypa fruticosa** Grabau. See *Chætetes fruticosus* Hall (Hamilton).**Monotrypa ? furcata** Grabau. See *Chætetes furcatus* Hall.**Monotrypa ? helderbergiæ** (Hall).

1874. *Chætetes Helderbergiæ*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 110.  
 1883. *Chætetes Helderbergiæ*. Hall, Rep. State Geologist New York for the year 1882, pl. ix 16, 17.  
 1887. *Ptychonema Helderbergiæ*. Hall and Simpson, Pal. New York, VI, p. 15, pl. ix, 16, 17.  
 1879. *Favosites inexpectans*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 146 (reprint, 1880, p. 8).  
 Lower Helderberg: Clarksville and Schoharie, New York.



**Monotrypa incerta.** Ami. Not recognizable.1892. *Monotrypa incerta.* Ami, Canadian Record of Science, V, p. 101.

Trenton: Quebec City, Quebec.

**Monotrypa intabulata** Ulrich.1893. *Monotrypa intabulata.* Ulrich, Geol. Minnesota, III, p. 305, fig. 20.

Trenton: Goodhue and Fillmore counties, Minnesota.

**Monotrypa irregularis** Ulrich. See *Leptotrypa ? irregularis* (Ulrich).**Monotrypa magna** Ulrich.1893. *Monotrypa magna.* Ulrich, Geol. Minnesota, III, pl. 304, p. xxvii, 28, 29.

Trenton (Stones River): Dixon, Illinois; Mineral Point and Beloit, Wisconsin.

**Monotrypa monticulata** (Hall).1879. *Chaetetes monticulatus.* Hall, Thirty-second Ann. Rep. New York State Museum, p. 148 (reprint, 1880, p. 10).1882. *Monotrypa monticulata.* Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.1883. *Chaetetes monticulatus.* Hall, Rep. State Geologist New York for the year 1882, pl. viii, 5-7.1887. *Chaetetes monticulatus.* Hall and Simpson, Pal. New York, VI, p. 12, pl. viii, 5-7.

Lower Helderberg: Schoharie, New York.

**Monotrypa nodosa** Ulrich.1882. *Monticulipora ? Ortoni* (not of Nicholson). Whitfield, Geol. Sur. Wisconsin, IV, p. 251, pl. xi, 7, 8.1893. *Monotrypa nodosa.* Ulrich, Geol. Minnesota, III, p. 306.

Cincinnati (Richmond): Iron Ridge and Delafield, Wisconsin; Savannah, Illinois.

**Monotrypa petasiformis** Ulrich. See *Amplexopora petasiformis* (Nicholson).**Monotrypa ? proxima** (Hall).1879. *Favosites proximus.* Hall, Thirty-second Ann. Rep. New York State Museum, p. 147 (reprint, 1880, p. 9).1883. *Favosites proximus.* Hall, Rep. State Geologist New York for the year 1882, pl. vii, 13-15.1887. *Favosites proximus.* Hall and Simpson, Pal. New York, VI, p. 10, pl. vii, 13-15.

Lower Helderberg: Schoharie, New York.

**Monotrypa rectimuralis** Ulrich.1890. *Monotrypa rectimuralis.* Ulrich, Geol. Sur. Illinois, VIII, p. 462, fig. 3a (p. 308), fig. 4d (p. 309), pl. xxxviii, 1-1b.1896. *Monotrypa rectimuralis.* J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 124.1897. *Monotrypa rectimuralis.* Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 151-153 (p. 581).

Trenton: Alexander County, Illinois.

**Monotrypa sphærica** (Hall).1874. *Chaetetes spherica.* Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 111.1883. *Favosites sphericus.* Hall, Rep. State Geologist New York for the year 1882, pl. vii, 1-12.

**Monotrypa sphaerica** (Hall)—Continued.

1887. *Favosites sphaericus*. Hall and Simpson, Pal. New York, VI, p. 9, pl. vii, 1-12, pl. viii, 8.  
 1879. *Favosites minimus*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 147 (reprint, 1880, p. 9).  
 Lower Helderberg: Clarksville, New York.

*Monotrypa ? spinosula* Hall and Simpson. See *Monotrypa ?? spinulosa* Hall and Simpson.

**Monotrypa ?? spinulosa** Hall and Simpson.

1883. Species undetermined. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 25.  
 1887. *Monotrypa ? spinosula* (in error for *spinulosa*). Hall and Simpson, Pal. New York, VI, p. 67, pl. xvi, 25.  
 Lower Helderberg: Schoharie, New York.

*Monotrypa subglobosa* Ulrich. See *Monotrypa turbinata* (James).

**Monotrypa tabulata** (Hall).

1876. *Chaetetes tabulatus*. Hall, Illus. Devonian Foss., pl. xxxvii, 16, 19.  
 1879. *Chaetetes tabulatus*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 149 (reprint, 1880, p. 11).  
 1883. *Chaetetes ? tabulatus*. Hall, Rep. State Geologist New York for the year 1882, pl. ix, 12-15.  
 1887. *Chaetetes* (*Ptychonema*) *tabulatus*. Hall and Simpson, Pal. New York, VI, p. 14, pl. ix, 12-15.  
 1889. *Ptychonema tabulatum*. Miller, North American Geol. Pal., p. 201.  
 1893. *Monotrypa tabulata*. Ulrich, Geol. Minnesota, III, p. 304.  
 1897. *Ptychonema tabulatum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvii, 9.  
 Lower Helderberg: Schoharie, New York.

**Monotrypa turbinata** (James).

1878. *Chaetetes turbinatum*. James, Paleontologist, No. 2, p. 11.  
 1888. *Monticulipora turbinata*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 161, pl. ii, 1a-c.  
 1893. *Monticulipora turbinata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 158.  
 1879. *Chaetetes subglobosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 129, pl. xii, 11-11b.  
 1882. *Monotrypa subglobosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Monotrypa undulata** (Nicholson).

1875. *Chaetetes undulatus*. Nicholson, Geol. Mag., new ser., II, p. 176.  
 1875. *Chaetetes undulatus*. Nicholson, Pal. Province Ontario, pp. 10, 33, pl. iv, 1.  
 1879. *Monticulipora* (*Monotrypa*) *undulata*. Nicholson, Paleozoic Tabulate Corals, p. 321, pl. xiv, 3-3b, 4, 4a.  
 1881. *Monticulipora* (*Monotrypa*) *undulata*. Nicholson, Genus *Monticulipora*, p. 170, fig. 32 (not fig. 33 = *M. undulata-hemispherica* (J. F. James)).  
 1882. *Monotrypa undulata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.  
 1888. *Monticulipora undulata*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 161.  
 1893. *Monticulipora undulata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 157.  
 Trenton: Belleville and Peterboro, Ontario.

**Monotrypa undulata-hemispherica** (J. F. James).

1881. *Monticulipora* (*Monotrypa*) *undulata* (in part). Nicholson, Genus *Monticulipora*, p. 170, fig. 33, A-C.  
 1893. *Monticulipora undulata* var. *hemispherica*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 157, fig. 10a-c.  
 Cincinnati (Richmond?): Toronto and Weston, Ontario.

**MONOTRYPELLA** Ulrich. Genotype: *Monotrypella æqualis* Ulrich.

1882. *Monotrypella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.  
 1883. *Monotrypella*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 15.  
 1887. *Monotrypella*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 171.  
 1887. *Monotrypella*. Hall and Simpson, Pal. New York, VI, p. xiii.  
 1889. *Monotrypella*. Miller, North American Geol. Pal., p. 196.  
 1890. *Monotrypella*. Ulrich, Geol. Sur. Illinois, VIII, pp. 377, 451.  
 1896. *Monotrypella*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 278.  
 1897. *Monotrypella*. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, p. 581.

**Monotrypella ? abrupta** (Hall).

1879. *Chaetetes abruptus*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 148 (reprint, 1880, p. 10).  
 1883. *Chaetetes abruptus*. Hall, Rep. State Geologist New York, for the year 1882, pl. ix, 9-11.  
 1887. *Chaetetes* (*Monotrypella*) *abruptus*. Hall and Simpson, Pal. New York, VI, p. 13, pl. ix, 9-11.  
 Lower Helderberg: Schoharie, New York.

**Monotrypella æqualis** Ulrich.

1882. *Monotrypella æqualis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 247, pl. xi, 3-3b.  
 1890. *Monotrypella æqualis*. Ulrich, Geol. Sur. Illinois, VIII, fig. 3b (p. 308), fig. 4a (p. 309).  
 1894. *Monticulipora æqualis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 201.  
 1897. *Monotrypella æqualis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 154-156 (p. 582).  
 Cincinnati (Utica): Covington, Kentucky.

**Monotrypella appressa** Ulrich. See *Eridotrypa appressa* (Ulrich).**Monotrypella ? arbuscula** (Hall).

1879. *Chaetetes fruticosus*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 148 (reprint, 1880, p. 10).  
 1883. *Chaetetes fruticosus*. Hall, Rep. State Geologist New York, for the year 1882, pl. ix, 1-8.  
 1887. *Chaetetes* (*Monotrypella*) *arbusculus*. Hall and Simpson, Pal. New York, VI, p. 12, pl. ix, 1-3 (? 4, 5), 6-8.  
 Lower Helderberg: Schoharie, New York.

**Monotrypella briarea** Ulrich. See *Eridotrypa briareus* (Nicholson).**Monotrypella confluens** Foerste. See *Homotrypa confluens* (Foerste).**Monotrypella ? consimilis** (Hall).

1876. *Chaetetes ? consimilis*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. ix, 7-14.  
 1879. *Chaetetes consimilis*. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 110, pl. ix, 7-14.

**Monotrypella ? consimilis (Hall)—Continued.**

1882. *Chaetetes consimilis*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 230, pl. viii, 7-14.  
 1882. *Monotrypella consimilis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 248. Niagara: Waldron, Indiana.

**Monotrypella crassimuralis Ulrich.**

1890. *Monotrypella crassimuralis*. Ulrich, Geol. Sur. Illinois, VIII, p. 452, pl. xxxviii, 2-2f.  
 1894. *Monticulipora crassimuralis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 208.  
 Cincinnati (Richmond): Wilmington, Illinois.

**Monotrypella ? densa (Hall).**

1874. *Trematopora densa*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 105.  
 1879. *Trematopora (Chaetetes) densa*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 150 (reprint, 1880, p. 12).  
 1883. *Trematopora (Chaetetes) densa*. Hall, Rep. State Geologist New York, for the year 1882, pl. x, 11-13.  
 1887. *Chaetetes (Monotrypella) densus*. Hall and Simpson, Pal. New York, VI, p. 14, pl. x, 11-13.  
 Lower Helderberg: Catskill Creek and Schoharie, New York.  
 Obs. This species may belong to the genus *Eridotrypa*.

*Monotrypella multitabulata* Ulrich. See *Callopora multitabulata* (Ulrich).

**Monotrypella quadrata (Rominger).**

1866. *Chaetetes quadratus*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 116.  
 1881. *Monticulipora (Monotrypa) quadrata*. Nicholson, Genus *Monticulipora*, p. 179, fig. 36.  
 1882. *Monotrypella quadrata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 248.  
 1888. *Monticulipora quadrata*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 176.  
 1889. *Monotrypella quadrata*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 36.  
 1894. *Monticulipora quadrata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 198.  
 1895. *Monotrypella quadrata*. Whiteaves, Pal. Foss., III, p. 116.  
 1874. *Chaetetes rhombicus*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 507, pl. xxix, 11-11b.  
 1875. *Chaetetes rhombicus*. Nicholson, Pal. Ohio, II, p. 201, pl. xxi, 12, 12a.  
 1876. *Chaetetes rhombicus*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 86, pl. v, 1-1b.  
 1878. *Monticulipora rectangularis*. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 70.  
 1882. *Monticulipora rectangularis*. Whitfield, Geol. Sur. Wisconsin, IV, p. 249, pl. xi, 11, 12.  
 1878. *Monticulipora multituberculata*. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 71.  
 1882. *Monticulipora multituberculata*. Whitfield, Geol. Sur. Wisconsin, IV, p. 250, pl. xi, 9, 10.  
 Cincinnati (Richmond): A common and characteristic species of the Richmond group in Ohio, Indiana, Illinois, Wisconsin, and Manitoba.

*Monotrypella simplex* Ulrich. See *Eridotrypa appressa* (Ulrich).

**Monotrypella subquadrata** Ulrich.

1882. *Monotrypella subquadrata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 249, pl. xi, 4-4b.  
 1894. *Monticulipora quadrata* var. *subquadrata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 199.  
 Cincinnati (Richmond): Osgood, Indiana; Blanchester, Hanover, and Oregonia, Ohio.

*Monotrypella Trentonensis* Foord. See *Eridotrypa trentonensis* (Nicholson).

**Monotrypella ? unjiga** Whiteaves.

1891. *Monotrypella Unjiga*. Whiteaves, Contr. Canadian Pal., I, p. 214, pl. xxx, 1-1d.  
 Devonian: Peace River, Vermilion Falls, Canada.  
 Obs. This species is probably an *Eridotrypa*.

**MONTICULIPORA** D'Orbigny. Genotype: *Monticulipora mammulata* D'Orbigny.

1850. *Monticulipora*. D'Orbigny, Prodr. de Pal., I, p. 25.  
 1860. *Monticulipora*. Milne-Edwards, Hist. Nat. des Corall., III., p. 272.  
 1860. *Monticulipora*. Eichwald, Lethæa Rossica, I, p. 492.  
 1872. *Monticulipora*. De Koninck, Nouv. Rech. Anim. Foss. Terr. Carb. Belgique, p. 141.  
 1879. *Monticulipora*. Nicholson, Paleozoic Tabulate Corals, p. 269.  
 1881. *Monticulipora*. Nicholson, Genus *Monticulipora*, p. 99.  
 1882. *Monticulipora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 153, 232.  
 1883. *Monticulipora*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 7.  
 1886. *Monticulipora*. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.  
 1888. *Monticulipora*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 158.  
 1889. *Monticulipora*. Miller, North American Geol. Pal., p. 197.  
 1890. *Monticulipora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 370, 407.  
 1893. *Monticulipora*. Ulrich, Geol. Minnesota, III, p. 217.  
 1893. *Monticulipora*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 155.  
 1896. *Monticulipora*. Zittel's Textb. Pal. (Engl. ed.), p. 103.  
 1896. *Monticulipora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 272.  
 1897. *Monticulipora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 577.  
 1881. *Peronopora* (in part). Nicholson, Genus *Monticulipora*, p. 215.  
 Obs. By most writers the genus *Monticulipora* has been given a very wide acceptance. We have employed the term in its restricted sense as defined by Mr. Ulrich in his latest works, but most of the above citations refer to *Monticulipora* in a much wider sense.

*Monticulipora æqualis* J. F. James. See *Monotrypella æqualis* Ulrich.

*Monticulipora affinis* J. F. James. See *Heterotrypa affinis* (Ulrich).

*Monticulipora* (*Fistulipora*) *alternata* James and James. See *Cœlolema alternatum* (James).

*Monticulipora andrewsii* James and James. See *Callopora andrewsi* (Nicholson).

*Monticulipora* (*Heterotrypa*) *Andrewsii* Nicholson. See *Callopora andrewsi* (Nicholson).

*Monticulipora* (*Constellaria*) *antheloidea* James and James. See *Stellipora antheloidea* Hall.

*Monticulipora approximatus* Hall. See *Callopora dalei* (Milne-Edwards and Haime).

***Monticulipora arborea* Ulrich.**

1893. *Monticulipora arborea*. Ulrich, Geol. Minnesota, III, p. 220, pl. xx, 1-9, 13, 14.

1896. *Monticulipora arborea*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 449 (p. 272).

Trenton: Cannon Falls and St. Paul, Minnesota; Decorah, Iowa; Burgin and Frankfort, Kentucky.

*Monticulipora arcolata* J. F. James. See *Aspidopora areolata* Ulrich.

*Monticulipora aspera* J. F. James. See *Spatiopora aspera* Ulrich.

*Monticulipora* (*Dekayia*) *aspera* James and James. See *Dekayia aspera* Milne-Edwards and Haime.

*Monticulipora asperula* J. F. James. See *Petigopora asperula* Ulrich.

*Monticulipora* (*Heterotrypa*) *barrandi* Nicholson. See *Heterotrypa* ? *barrandi* (Nicholson).

***Monticulipora billingsi* Foord.**

1883. *Monticulipora Billingsi*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 8, pl. i, 2-2c.

Trenton: Near Ottawa City, Canada.

*Monticulipora briarea* James and James. See *Eridotrypa briareus* (Nicholson).

*Monticulipora* (*Monotrypa*) *briareus* Nicholson. See *Eridotrypa briareus* (Nicholson).

*Monticulipora calceola* Miller and Dyer. See *Leptotrypa calceola* (Miller and Dyer).

*Monticulipora* (*Monotrypa*) *calceola* Nicholson. See *Leptotrypa calceola* (Miller and Dyer).

*Monticulipora calycula* James and James. See *Aspidopora calycula* (James).

*Monticulipora* (*Diplotrypa*) *calycula* Nicholson. See *Aspidopora calycula* (James).

***Monticulipora* ? *cannonensis* Ulrich.**

1893. *Monticulipora* ? *cannonensis*. Ulrich, Geol. Minnesota, III, p. 221, pl. xx, 10-12.

Trenton (Black River and Trenton): Cannon Falls, Minnesota.

***Monticulipora cincinnatiensis* (James).**

1875. *Chaetetes cincinnatiensis*. James, Catal. Sil. Foss. Cincinnati Group, p. 2.

1881. *Monticulipora* (*Peronopora*) *Cincinnatiensis*. Nicholson, Genus *Monticulipora*, p. 226, pl. ii, 6-6c.

1882. *Monticulipora cincinnatiensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 239.

1888. *Monticulipora cincinnatiensis*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 170.

1894. *Monticulipora cincinnatiensis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 188.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Monticulipora* (*Peronopora*) *Cincinnatiensis* Nicholson. See *Monticulipora cincinnatiensis* (James).

*Monticulipora circularis* James. See *Calloporella circularis* (James).  
*Monticulipora* (*Heterotrypa*) *circularis* James. See *Calloporella circularis* (James).

*Monticulipora clavacoidea* James and James. See *Leptotrypa clavacoidea* (James).

*Monticulipora* (*Monotrypa*) *clavacoidea* Nicholson. See *Leptotrypa clavacoidea* (James).

***Monticulipora* ?? *cleavelandi* James.**

1882. *Monticulipora* (*Heterotrypa* ?) *cleavelandi*. James, *Paleontologist*, No. 6, p. 49, pl. i, 7.

1888. *Monticulipora cleavelandi*. James and James, *Jour. Cincinnati Soc. Nat. Hist.*, XI, p. 15, pl. i, 4.

1895. *Monticulipora cleavelandi*. J. F. James, *Jour. Cincinnati Soc. Nat. Hist.*, XVIII, p. 68.

Cincinnati (Richmond): Lynchburg, Ohio.

Obs. This species may belong to the genus *Homotrypa*, but the description given is not full enough to determine the genus with any degree of certainty.

***Monticulipora* ?? *clintonensis* James.**

1882. *Monticulipora* (*Heterotrypa*) *clintonensis*. James, *Paleontologist*, No. 6, p. 45, pl. i, 9.

1888. *Monticulipora clintonensis*. James and James, *Jour. Cincinnati Soc. Nat. Hist.*, XI, p. 20, pl. i, 1, 1a.

1895. *Monticulipora clintonensis*. J. F. James, *Jour. Cincinnati Soc. Nat. Hist.*, XVIII, p. 73.

Cincinnati (Richmond): Clinton County, Ohio.

Obs. This is almost certainly a synonym for *Heterotrypa subramosa* (Ulrich).

*Monticulipora communis* James and James. See *Callopora oneallii-communis* (James).

*Monticulipora compressa* J. F. James. See *Peronopora compressa* (Ulrich).

*Monticulipora consimilis* Ulrich. See *Monticulipora lævis-consimilis* Ulrich.

*Monticulipora contexta* J. F. James. See *Homotrypella contexta* Ulrich.

*Monticulipora crassimuralis* J. F. James. See *Monotrypella crassimuralis* Ulrich.

*Monticulipora crustulata* James and James. See *Chætetes crustulatus* James.

*Monticulipora cumulata* J. F. James. See *Nicholsonella cumulata* Ulrich.

*Monticulipora curvata* J. F. James. See *Homotrypa curvata* Ulrich.

*Monticulipora dalei* Milne-Edwards and Haime. See *Callopora dalei* (Milne-Edwards and Haime).

*Monticulipora Dalii* Hall (not Milne-Edwards and Haime). See *Callopora ramosa* (D'Orbigny).

*Monticulipora Dalii* White (not Milne-Edwards and Haime).

1875. *Monticulipora Dalii*. White, Wheeler's Geogr. Geol. Explor. Sur., IV, p. 66, pl. iv, 5.

Trenton: Silver Canyon, Pahrangat Range, Nevada.

Obs.—Further study of the original type specimens is needed to determine what they are, but it can be safely said that they do not belong where they were referred.

*Monticulipora dawsoni* James and James. See *Homotrypa dawsoni* (Nicholson).

*Monticulipora* (*Heterotrypa*) *dawsoni* Nicholson. See *Homotrypa dawsoni* (Nicholson).

*Monticulipora delicatula* James and James. See *Bythopora delicatula* (Nicholson).

*Monticulipora discoidea* James and James. See *Amplexopora?* *discoidea* (James).

*Monticulipora* (*Monotrypa*) *discoidea* Nicholson. See *Amplexopora?* *discoidea* (James).

*Monticulipora dubia* J. F. James. See *Diplotrypa?* *dubia* Ulrich.

*Monticulipora dychei* James. See *Leptotrypa?* *dychei* (James).

*Monticulipora* (*Monotrypa*) *dychei* James. See *Leptotrypa?* *dychei* (James).

*Monticulipora eccentrica* James and James. See *Aspidopora eccentrica* (James).

*Monticulipora* (*Heterotrypa?*) *eccentrica* James. See *Aspidopora eccentrica* (James).

*Monticulipora elegans* James and James. See *Discotrypa elegans* (Ulrich).

*Monticulipora falesi* James.

1884. *Monticulipora falesi*. James, Jour. Cincinnati Soc. Nat. Hist., VII, p. 138, pl. vii, 2-2d.

1888. *Monticulipora falesi*. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 168.

1894. *Monticulipora falesi*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 185.

Trenton: Danville, Kentucky.

Obs.—The characters relied upon for making this a species are trivial; an investigation of the types may prove it a valid species.

*Monticulipora filiasa* D'Orbigny. See *Amplexopora filiosa* (D'Orbigny).

*Monticulipora flabellaris* J. F. James. See *Homotrypa flabellaris* Ulrich.

*Monticulipora frondosa* D'Orbigny. See *Heterotrypa frondosa* (D'Orbigny).

*Monticulipora frondosa* James and James (not D'Orbigny). See *Peronopora decipiens* (Rominger).

*Monticulipora* (*Peronopora*) *frondosa* Nicholson (not D'Orbigny). See *Peronopora decipiens* (Rominger).



*Monticulipora fusiformis* James and James (not Whitfield). See *Lio-  
clemella subfusiformis* (James).

*Monticulipora gelasinosa* J. F. James. See *Homotrypa gelasinosa*  
Ulrich.

*Monticulipora gracilis* James and James. See *Bythopora gracilis*  
(Nicholson).

*Monticulipora* (*Heterotrypa*) *gracilis* Nicholson. See *Bythopora gra-  
cilis* (Nicholson).

*Monticulipora grandis* Ulrich. See *Prasopora grandis* (Ulrich).

*Monticulipora* (*Fistulipora*) *granulifera* J. F. James. See *Homotry-  
pella granulifera* (Ulrich).

*Monticulipora hamiltonense* J. F. James. See *Monticulipora* ? *win-  
chelli* Ulrich.

*Monticulipora hospitalis* James and James. See *Prasopora* ? *hospi-  
talis* (Nicholson).

*Monticulipora hospitalis* var. *laevis* James and James. See *Monticu-  
lipora laevis* Ulrich.

*Monticulipora hospitalis* var. *neglecta* James and James. See *Praso-  
pora* ? *hospitalis* (Nicholson).

*Monticulipora imperfectum* J. F. James. See *Hemiphragma imper-  
fectum* (Ulrich).

*Monticulipora implicatum* J. F. James. See *Batostoma implicatum*  
(Nicholson).

*Monticulipora* (*Heterotrypa*) *implicata* Nicholson. See *Batostoma*  
*implicatum* (Nicholson).

***Monticulipora incompta* Ulrich.**

1893. *Monticulipora incompta*. Ulrich, Geol. Minnesota, III, p. 219, pl. xv, 9-12.  
Trenton (Black River): Minneapolis, Minnesota.

*Monticulipora inflecta* J. F. James. See *Heterotrypa inflecta* Ulrich.

*Monticulipora irregularis* James and James. See *Leptotrypa* ? *irreg-  
ularis* (Ulrich).

*Monticulipora* (*Monotrypa*) *irregularis* Nicholson. See *Leptotrypa* ?  
*irregularis* (Ulrich).

*Monticulipora Jamesi* Nicholson. See *Batostoma jamesi* (Nicholson).

*Monticulipora* (*Heterotrypa*) *Jamesi* Nicholson. See *Batostoma jamesi*  
(Nicholson).

***Monticulipora* ?? *kentuckyensis* James.**

1883. *Monticulipora kentuckensis*. James, Paleontologist, No. 7, p. 57, pl. ii,  
1-1b.

1888. *Monticulipora kentuckensis*. James and James, Jour. Cincinnati Soc. Nat.  
Hist., X, p. 180, pl. ii, 6a-d.

1894. *Monticulipora kentuckensis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist.,  
XVI, p. 203.

Cincinnati (?): Paris, Kentucky.

Obs.—The genus to which this species belongs can not be determined  
from the descriptions given.

**Monticulipora lævis Ulrich.**

1882. *Monticulipora lævis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 236, pl. x, 1-1b.  
 1888. *Monticulipora hospitalis* var. *lævis*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 27.  
 1895. *Monticulipora lævis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 85.  
 Cincinnati (Richmond): Oxford, Ohio.

**Monticulipora lævis-consimilis Ulrich.**

1882. *Monticulipora consimilis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 238, pl. x, 2.  
 1894. *Monticulipora consimilis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 189.  
 Cincinnati (Richmond): Oxford, Ohio.

**Monticulipora lamellosa Ulrich.**

1890. *Monticulipora lamellosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 408, pl. xxxii, 4-4b.  
 1895. *Monticulipora lamellosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 83.  
 Cincinnati (Richmond): Wilmington, Illinois.

*Monticulipora lens* James and James (not *Nebulipora lens* McCoy).  
 See *Calloporrella circularis* (James).

*Monticulipora* (Dekayia) *maculata* J. F. James. See *Dekayia maculata* James.

*Monticulipora mammillosa* Simpson. See *Monticulipora molesta* Nicholson.

*Monticulipora mammulata* James and James (not D'Orbigny). See *Heterotrypa frondosa* (D'Orbigny).

*Monticulipora* (Heterotrypa) *mammulata* Nicholson (not D'Orbigny).  
 See *Heterotrypa frondosa* (D'Orbigny).

**Monticulipora mammulata D'Orbigny.**

1850. *Monticulipora mammulata*. D'Orbigny, Prodr. de Pal., I, p. 25.  
 1851. *Chætetes mammulatus*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 267, pl. xix, 1, 1a.  
 1854. *Monticulipora mammulata*. Milne-Edwards and Haime, British Foss. Corals, p. 265.  
 1860. *Monticulipora mammulata*. Milne-Edwards, Hist. Nat. des Corall., III, p. 276.  
 1882. *Monticulipora mammulata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 234.  
 1883. *Monticulipora mammulata*. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 250, pl. xi, 1.  
 Not *Monticulipora mammulata*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 16; J. F. James, *ibid.*, XVIII, p. 69 (= *Heterotrypa frondosa* (D'Orbigny)).  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity; Maury County, Tennessee.

*Monticulipora mammulata* var. *molesta* Ulrich. See *Monticulipora molesta* Nicholson.

*Monticulipora meeki* James and James. See *Bythopora meeki* (James).  
*Monticulipora* (Chætetes) *meeki* James. See *Bythopora meeki* (James).  
*Monticulipora* (Fistulipora) *milfordensis* James and James. See *Ceramoporella granulosa-milfordensis* (James).

***Monticulipora molesta* Nicholson.**

1881. *Monticulipora* (Peronopora) *molesta*. Nicholson, Genus *Monticulipora*, p. 224, pl. vi, 2-2d.  
 1882. *Monticulipora mammulata* var. *molesta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 236.  
 1889. *Monticulipora mammulata*. Nicholson, Manual Pal., p. 355.  
 1895. *Monticulipora molesta*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 68.  
 1897. *Monticulipora mammillosa* (in error). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 577, pl. xvii, 1-3.  
 Cincinnati (Lorraine); Cincinnati, Ohio, and vicinity; Maury County, Tennessee.

*Monticulipora* (Heterotrypa) *moniliformis* Nicholson. See *Heterotrypa* ? *moniliformis* (Nicholson).

***Monticulipora* ? *monticula* White.**

1876. *Monticulipora monticula*. White, Proc. Acad. Nat. Sci. Philadelphia, p. 27.  
 Hamilton: Iowa City and Buffalo, Iowa.

*Monticulipora multituberculata* Whitfield. See *Monotrypella quadrata* (Rominger).

*Monticulipora newberryi* James and James. See *Aspidopora newberryi* (Nicholson).

*Monticulipora* (Prasopora) *Newberryi* Nicholson. See *Aspidopora newberryi* (Nicholson).

*Monticulipora newportensis* James and James. See *Atactoporella newportensis* Ulrich.

*Monticulipora* (Fistulipora) *nicholsoni* James and James. See *Chiloporella nicholsoni* (James).

*Monticulipora nodulosa* James and James. See *Callopora nodulosa* (Nicholson).

*Monticulipora* (Heterotrypa) *nodulosa* Nicholson. See *Callopora nodulosa* (Nicholson).

*Monticulipora ohioensis* James. See *Dekayella ulrichi-robusta* Foord.

*Monticulipora o'nealli* James and James. See *Callopora onealli* (James).

*Monticulipora* (Heterotrypa) *O'Nealli* Nicholson (not of James). See *Callopora onealli-sigillarioides* (Nicholson).

*Monticulipora* (Heterotrypa) *o'nealli* ? var. *communis* James. See *Callopora onealli-communis* (James).

*Monticulipora ortonii* James and James. See *Atactoporella ortonii* (Nicholson).

*Monticulipora* (Peronopora ?) *Ortonii* Nicholson. See *Atactoporella ortonii* (Nicholson).

*Monticulipora* ? *Ortoni* Whitfield (not of Nicholson). See *Monotrypa nodosa* Ulrich.

*Monticulipora* (*Fistulipora*) *oweni* James and James. See *Cœloclema oweni* (James).

*Monticulipora papillata* Milne-Edwards, James and James (not *Nebulipora papillata* McCoy).

1860. *Monticulipora papillata*. Milne-Edwards, Hist. Nat. des Corall., III, p. 275.

1888. *Monticulipora papillata*. James & James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 23.

1895. *Monticulipora papillata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 81.

Obs. The form referred as above can not be identified from the description; probably a variety of forms was included.

***Monticulipora parasitica* Ulrich.**

1882. *Monticulipora parasitica*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 238, pl. x, 3, 3a.

1895. *Monticulipora parasitica*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 81.

Cincinnati (Richmond): Oxford and Hanover, Ohio; Richmond, Indiana; Wilmington and Savannah, Illinois.

***Monticulipora parasitica-plana* Ulrich.**

1889. *Monticulipora parasitica* var. *plana*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 29, pl. viii, 3-3d.

1895. *Monticulipora parasitica* var. *plana*. Whiteaves, Pal. Foss., III, p. 115.  
Cincinnati (Richmond): Stony Mountain, Manitoba.

*Monticulipora* (*Constellaria*) *parva* J. F. James. See *Constellaria parva* (Ulrich).

*Monticulipora pavonia* Milne-Edwards. See *Escharopora pavonia* (D'Orbigny).

*Monticulipora* (*Monotrypa*) *pavonia* Nicholson. See *Escharopora pavonia* (D'Orbigny).

*Monticulipora* (*Dekayia*) *pelliculata* J. F. James. See *Dekayia pelliculata* Ulrich.

*Monticulipora petasiformis* James and James. See *Amplexopora petasiformis* (Nicholson).

*Monticulipora* (*Monotrypa*) *petasiformis* Nicholson. See *Amplexopora petasiformis* (Nicholson).

*Monticulipora petasiformis* var. *welchi* James and James. See *Amplexopora petasiformis-welchi* (James).

*Monticulipora petechialis* James and James. See *Petigopora petechialis* (Nicholson).

*Monticulipora* (*Constellaria*) *polystomella* James and James (not Nicholson). See (in part) *Constellaria constellata* (Van Cleve) Dana and (in part) *Constellaria polystomella* Nicholson.

*Monticulipora prolifica* J. F. James. See *Heterotrypa subramosa-prolifera* Ulrich.

*Monticulipora punctata* Whitfield. See *Constellaria punctata* (Whitfield).

- Monticulipora pustulosa* J. F. James. See *Amplexopora pustulosa* Ulrich.
- Monticulipora quadrata* James and James. See *Monotrypella quadrata* (Rominger).
- Monticulipora* (*Monotrypa*) *quadrata* Nicholson. See *Monotrypella quadrata* (Rominger).
- Monticulipora quadrata* var. *subquadrata* J. F. James. See *Monotrypella subquadrata* Ulrich.
- Monticulipora ramosa* D'Orbigny. See *Callopora ramosa* (D'Orbigny).
- Monticulipora* (*Heterotrypa*) *ramosa* Nicholson. See *Callopora ramosa* (D'Orbigny).
- Monticulipora ramosa* var. *dalei* James and James. See *Callopora dalei* (Milne-Edwards and Haime).
- Monticulipora* (*Heterotrypa*) *ramosa* var. *dalei* Nicholson. See *Callopora dalei* (Milne-Edwards and Haime).
- Monticulipora ramosa* var. *rugosa* James and James. See *Callopora rugosa* (Milne-Edwards and Haime).
- Monticulipora* (*Heterotrypa*) *ramosa* var. *rugosa* Nicholson. See *Callopora rugosa* (Milne-Edwards and Haime).
- Monticulipora rectangularis* Whitfield. See *Monotrypella quadrata* (Rominger).
- Monticulipora rugosa* Milne-Edwards and Haime. See *Callopora rugosa* (Milne-Edwards and Haime).
- Monticulipora* (*Fistulipora*) *rustica* J. F. James. See *Homotrypella rustica* Ulrich.
- Monticulipora selwynii* J. F. James (not Nicholson). See *Prasopora simulatrix* Ulrich.
- Monticulipora* (*Prasopora*) *Selwynii* Nicholson. See *Prasopora selwyni* (Nicholson).
- Monticulipora* (*Prasopora*) *Selwynii* var. *hospitalis* Nicholson. See *Prasopora* ? *hospitalis* (Nicholson).
- Monticulipora septosa* James and James. See *Amplexopora septosa* (Ulrich).
- Monticulipora simulatrix* J. F. James. See *Eridotrypa simulatrix* (Ulrich).
- Monticulipora singularis* J. F. James. See *Heterotrypa singularis* (Ulrich).
- Monticulipora stidhami* J. F. James. See *Leptotrypa stidhami* Ulrich.
- Monticulipora subcylindrica* James. See *Amplexopora filiosa* (D'Orbigny).
- Monticulipora* (? *Monotrypa*) *subfusiformis* James. See *Lioclemella subfusiformis* (James).
- Monticulipora subpulchella* James and James. See *Heterotrypa subpulchella* (Nicholson).

*Monticulipora* (*Heterotrypa*) *subpulchella* Nicholson. See *Heterotrypa subpulchella* (Nicholson).

*Monticulipora* (*Heterotrypa*) *Trentonensis* Nicholson. See *Eridotrypa trentonensis* (Nicholson).

*Monticulipora tuberculata* James and James. See *Spatiopora tuberculata* (Milne-Edwards and Haime).

*Monticulipora* (*Monotrypa*) *tuberculata* Nicholson (not Milne-Edwards and Haime). See *Spatiopora corticans* (Nicholson).

*Monticulipora turbinata* James and James. See *Monotrypa turbinata* (James).

*Monticulipora ulrichi* James and James. See *Dekayella ulrichi* (Nicholson).

*Monticulipora* (*Heterotrypa*) *Ulrichii* Nicholson. See *Dekayella ulrichi* (Nicholson).

*Monticulipora undulata* James and James. See *Monotrypa undulata* (Nicholson).

*Monticulipora* (*Monotrypa*) *undulata* Nicholson. See *Monotrypa undulata* (Nicholson).

*Monticulipora undulata* var. *hemispherica* J. F. James. See *Monotrypa undulata-hemispherica* (J. F. James).

*Monticulipora uniformis* J. F. James. See *Peronopora compressa* Ulrich.

*Monticulipora varians* James and James. See *Batostoma varians* (James).

*Monticulipora* (*Chætetes*) *varians* James. See *Batostoma varians* (James).

*Monticulipora vaupeli* James and James. See *Nicholsonella vaupeli* (Ulrich).

*Monticulipora* (*Fistulipora*) *venusta* James and James. See *Crepidopora venusta* (Ulrich).

*Monticulipora verrucosa* J. F. James. See *Calloporella* ? *nodulosa* (Ulrich).

*Monticulipora* (*Monotrypa*) *welchi* James. See *Amplexopora petasiformis-welchi* (James).

***Monticulipora westoni* Foord.**

1883. *Monticulipora Westoni*. Foord, Contributions Micro-Pal. Cambro-Sil., p. 7, pl. i, 1-1b.

Trenton: Ottawa City, Canada.

***Monticulipora wetherbyi* Ulrich.**

1882 *Monticulipora wetherbyi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 239, pl. x, 4-4b.

1886. *Monticulipora wetherbyi*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 129.

1888. *Monticulipora wetherbyi*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 24.

1889. *Monticulipora wetherbyi*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 30.

**Monticulipora wetherbyi** Ulrich—Continued.

1893. *Monticulipora wetherbyi*. Ulrich, Geol. Minnesota, III, p. 218, pl. xv, 7, 8.

1897. *Monticulipora Wetherbyi*. Whiteaves, Pal. Foss., III, p. 162.

Trenton (Stones River): High Bridge, Kentucky; Minneapolis, Minnesota; St. Andrews, Manitoba.

*Monticulipora wetherbyi* var. *asperula* James and James. See *Petigopora asperula* Ulrich.

*Monticulipora whiteavesii* James and James. See *Mesotrypa whiteavesi* (Nicholson).

*Monticulipora* (*Diplotrypa*) *Whiteavesii* Nicholson. See (in part) *Prasopora selwyni* (Nicholson), (in part) *Prasopora simulatrix-orientalis* Ulrich, (in part) *Mesotrypa whiteavesi* (Nicholson).

*Monticulipora whitfieldi* James and James. See *Hemiphragma whitfieldi* (James).

*Monticulipora* (*Chætetes*) *whitfieldi* James. See *Hemiphragma whitfieldi* (James).

*Monticulipora wilmingtontense* J. F. James. See *Lioclema? wilmingtontense* Ulrich.

**Monticulipora ? winchelli** Ulrich.

1890. *Monticulipora winchelli*. Ulrich, Geol. Sur. Illinois, VIII, p. 408, pl. xlv, 6, 6a.

1895. *Monticulipora hamiltonense*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 87.

Hamilton: Near Alpena, Michigan.

**Monticulipora ?? winchelli** James.

1882. *Monticulipora* (*Heterotrypa*) *winchelli*. James, Paleontologist, No. 6, p. 48.

1883. *Monticulipora winchelli*. James, Paleontologist, No. 7, pl. i, 5.

1895. *Monticulipora winchelli*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 87.

Cincinnati (Richmond): Near Lynchburg, Highland County, Ohio.

Obs. Species probably valid, but generic position has not yet been determined.

*Monticulipora* (*Heterotrypa*) *winchelli* James. See *Monticulipora ?? winchelli* James.

**Monticulipora ?? wortheni** James.

1882. *Monticulipora* (*Monotrypa*) *wortheni*. James, Paleontologist, No. 6, p. 50, pl. i, 2.

1894. *Monticulipora wortheni*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 207.

Cincinnati (Richmond): Lynchburg, Highland County, Ohio.

Obs. The description given is insufficient to decide the generic position.

**Nebulipora** McCoy. Genotype: *Nebulipora papillata* McCoy.

1850. *Nebulipora*. McCoy, Ann. Mag. Nat. Hist., ser. 2, VI, p. 282.

1852. *Nebulipora*. McCoy, British Pal. Foss., p. 22.

1882. *Nebulipora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155.

Obs. Nothing has been added to McCoy's original descriptions. The genus, apparently monticuliporoid in its structure, not having been characterized with the precision necessary for modern purposes, has not been used by recent writers.

**NEMATAXIS** Hall. Genotype: *Nemataxis fibrosus* Hall.

1886. *Nemataxis*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.  
1887. *Nemataxis*. Hall and Simpson, Pal. New York, VI, p. xv.  
1889. *Nemataxis*. Miller, North American Geol. Pal., p. 313.  
1897. *Nemataxis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 552.

**Nemataxis fibrosus** Hall.

1886. *Nemataxis fibrosus*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 30-36.  
1887. *Nemataxis fibrosus*. Hall and Simpson, Pal. New York, VI, p. 74, pl. xxv, 30-36.  
1897. *Nemataxis fibrosus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 15-18.  
Upper Helderberg: Ontario, Canada.

**Nemataxis ? simplex** Hall and Simpson.

1887. *Nemataxis simplex*. Hall and Simpson, Pal. New York, VI, p. 193, pl. lxvi, 17-19.  
Hamilton: Darien Center, New York.

**NEMATOPORA** Ulrich. Genotype: *Nematopora ovalis* Ulrich.

1888. *Nematopora*. Ulrich, American Geologist, I, p. 234.  
1889. *Nematopora*. Miller, North American Geol. Pal., p. 313.  
1890. *Nematopora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 401, 644.  
1893. *Nematopora*. Ulrich, Geol. Minnesota, III, p. 204.  
1896. *Nematopora*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 281.  
1897. *Nematopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 553.

**Nematopora alternata** Ulrich.

1890. *Nematopora alternata*. Ulrich, Geol. Sur. Illinois, VIII, p. 646, pl. xxix, 8, 8a.  
Trenton: Alexander County, Illinois.

**Nematopora conferta** Ulrich.

1890. *Nematopora conferta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 198, fig. 22.  
1893. *Nematopora conferta*. Ulrich, Geol. Minnesota, III, p. 206, pl. iii, 21-23.  
Trenton: Cannon Falls, Minnesota.

**Nematopora delicatula** Ulrich.

1890. *Nematopora delicatula*. Ulrich, Geol. Sur. Illinois, VIII, p. 646, pl. xxix, 11-11b.  
1893. *Nematopora delicatula*. Ulrich, Geol. Minnesota, III, p. 206, pl. iii, 26, 27.  
1897. *Nematopora delicatula*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 124, 125 (p. 553).  
Trenton: Alexander County, Illinois; Cannon Falls, Minnesota.

**Nematopora formosa** (Billings).

1866. *Helopora formosa*. Billings, Catal. Sil. Foss. Anticosti, p. 37.  
1890. *Nematopora formosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 645.  
Anticosti: Anticosti Island.  
Obs. See also *Helopora ? concava* Billings.

**Nematopora fragilis** Ulrich.

1890. *Nematopora fragilis*. Ulrich, Geol. Sur. Illinois, VIII, p. 646, pl. xxix, 10-10c.  
Trenton: Alexander County, Illinois.



**Nematopora granosa** Ulrich.

1890. *Nematopora granosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 196, fig. 20.  
1893. *Nematopora granosa*. Ulrich, Geol. Minnesota, III, p. 205, pl. iii, 17-20. Trenton: Cannon Falls, Minnesota.

**Nematopora lineata** (Billings).

1866. *Helopora lineata*. Billings, Catal. Sil. Foss. Anticosti, p. 36.  
1890. *Nematopora lineata*. Ulrich, Geol. Sur. Illinois, VIII, p. 646, pl. xxix, 7-7e. Anticosti: Anticosti Island.

**Nematopora ? lineopora** (Billings).

1866. *Helopora lineopora*. Billings, Catal. Sil. Foss. Anticosti, p. 38.  
1890. *Nematopora ? lineopora*. Ulrich, Geol. Sur. Illinois, VIII, p. 645. Anticosti: Anticosti Island.

**Nematopora macropora** (Hall).

1883. *Trematopora ? (Trachypora ?) macropora*. Hall, Trans. Albany Institute, X, p. 60 (abstract, 1879, p. 4).  
1882. *Trematopora ? (Trachypora ?) macropora*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 236. Niagara: Waldron, Indiana.

**Nematopora minuta** (Hall).

1876. *Trematopora ? (Trachypora ?) minuta*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xi, 8.  
1879. *Trematopora minuta*. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 113, pl. xi, 8.  
1882. *Trematopora minuta*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 234, pl. x, 8.  
1890. *Nematopora minuta*. Ulrich, Geol. Sur. Illinois, VIII, p. 645. Niagara: Waldron, Indiana.

**Nematopora ovalis** Ulrich.

1890. *Nematopora ovalis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 197, fig. 21.  
1893. *Nematopora ovalis*. Ulrich, Geol. Minnesota, III, p. 204, pl. iii, 24, 25.  
1890. *Nematopora quadrata*. Ulrich, Geol. Sur. Illinois, VIII, p. 644, pl. xxix, 12-12c.  
1897. *Nematopora quadrata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 124, 125 (p. 553). Trenton; Cannon Falls, Minnesota; Montreal, Canada; Trenton Falls, New York.

*Nematopora quadrata* Ulrich. See *Nematopora ovalis* Ulrich.

**Nematopora raripora** (Hall).

1852. *Stictopora raripora*. Hall, Pal. New York, II, p. 46, pl. xviii, 5a-c.  
1874. *Ptilodictya ? raripora*. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 142.  
1875. *Ptilodictya ? raripora*. Nicholson, Pal. Province Ontario, p. 45, figs. 19, 4, 4a.  
Clinton: Flamorough Head, Ontario.  
Niagara: Lockport, New York.

**Nematopora retrorsa** Ulrich.

1890. *Nematopora retrorsa*. Ulrich, Geol. Sur. Illinois, VIII, p. 645, pl. xxix, 9-9b.  
Trenton: Alexander county, Illinois.

**Nematopora striatopora** (Billings).

1866. *Helopora striatopora*. Billings, Catal. Sil. Foss. Anticosti, p. 39.  
 1890. *Nematopora striatopora*. Ulrich, Geol. Sur. Illinois, VIII, p. 645.  
 Anticosti: Anticosti Island.

**Nematopora strigosa** (Billings).

1866. *Helopora strigosa*. Billings, Catal. Sil. Foss. Anticosti, p. 37.  
 1890. *Nematopora strigosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 645.  
 Anticosti: Anticosti Island.

**NICHOLSONELLA** Ulrich. Genotype: *Nicholsonella ponderosa* Ulrich.

1890. *Nicholsonella*. Ulrich, Geol. Sur. Illinois, VIII, pp. 374, 421.  
 1889. *Nicholsonella*. (Ulrich, in press), Miller, North American Geol. Pal., p. 313.  
 1893. *Nicholsonella*. Ulrich, Geol. Minnesota, III, p. 313.  
 1896. *Nicholsonella*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 276.  
 1897. *Nicholsonella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 590.

**Nicholsonella cumulata** Ulrich.

1890. *Nicholsonella cumulata*. Ulrich, Geol. Sur. Illinois, VIII, p. 423, pl. xxxiii, 6-6c.  
 1895. *Monticulipora cumulata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 74.  
 1897. *Nicholsonella cumulata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 183-186 (p. 590).  
 Cincinnati (Richmond): Wilmington, Illinois.

**Nicholsonella laminata** Ulrich.

1893. *Nicholsonella laminata*. Ulrich, Geol. Minnesota, III, p. 315, pl. xxi, 15-19, 21.  
 Trenton (Black River): Minneapolis and St. Paul, Minnesota.

**Nicholsonella ponderosa** Ulrich.

1890. *Nicholsonella ponderosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 422, pl. xxxiv, 5-5d.  
 1893. *Nicholsonella ponderosa* (?). Ulrich, Geol. Minnesota, III, p. 316, pl. xxi, 13, 14, 20, 22.  
 Trenton (Stones River): Dixon, Illinois; Minneapolis, Minnesota.

**Nicholsonella pulchra** Ulrich.

1893. *Nicholsonella pulchra*. Ulrich, Geol. Minnesota, III, p. 314, pl. xxi, 8-12.  
 1896. *Nicholsonella pulchra*. Ulrich, Zittel's Textb., Pal. (Eng. ed.), fig. 462 (p. 276).  
 Trenton (Stones River): Murfreesboro, Tennessee.

**Nicholsonella vaupeli** (Ulrich).

1883. *Heterotrypa vaupeli*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 85, pl. i, 2-2b.  
 1888. *Monticulipora vaupeli*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 19.  
 1890. *Nicholsonella vaupeli*. Ulrich, Geol. Sur. Illinois, VIII, p. 421.  
 1895. *Monticulipora vaupeli*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 71.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Nicholsonia* Waagen and Wentzel. See *Escharopora* Hall.

*Nicholsonia* Davis (not Waagen and Wentzel). See *Hederella* Hall.

*Nicholsonia adnata* Davis. See *Hederella adnata* (Davis).

*Nicholsonia angulata* Davis. Not a fossil.

1885. *Nicholsonia angulata*. Davis, Kentucky Foss. Corals, Part II, pl. lxxx, 16.  
Hamilton: Falls of the Ohio.

*Nicholsonia canadensis* Davis. See *Hederella canadensis* (Nicholson).  
*Nicholsonia pavonica* Waagen and Wentzel. See *Escharopora pavonia* (D'Orbigny).

*Odontotrypa* Hall. See *Buskopora* Ulrich.

*Odontotrypa alveata* Simpson. See *Buskopora bistriata* (Hall).

*Omniretepora* D'Orbigny. Not recognized. (See Geol. Sur. Illinois, VIII, p. 687).

1850. *Omniretepora* D'Orbigny, Prodr. de Pal., I, p. 45.

*Omniretepora anastomosa* D'Orbigny. Not recognizable.

1850. *Omniretepora anastomosa*. D'Orbigny, Prodr. de Pal., I, p. 45.

"Etats-Unis, failles de l'Ohio."

**ORBIPORA** Eichwald. Genotype: *Orbitulites distinctus* Eichwald.

1829. *Orbitulites*. Eichwald, Zool. Spec., I, p. 179. (Name was preoccupied.)

1860. *Orbitulites*. Milne-Edwards, Hist. Nat. des Corall., III, p. 271.

1856. *Orbipora*. Eichwald, Bull. de la Soc. des Natural. de Moscou, XXIX, p. 92.

1860. *Orbipora*. Eichwald, Lethæa Rossica, I, p. 484.

1877. *Orbipora*. Dybowski, Die Chætetiden der Ostbaltischen Silur-Form., p. 57.

1881. *Orbipora*. Nicholson, Genus *Monticulipora*, p. 24.

1886. *Orbipora*. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 874, 876.

Obs. The validity and systematic position of this genus are still in question. Of Eichwald's original species, as identified by Dybowski, the *Orbipora distincta* is closely related to *Chætetes discoideus* Nicholson, which we have doubtfully referred to *Amplexopora*, as it has certain characters which may require its removal to the *Heterotrypidae*; the *Orbipora panderi* is very different, being an unequivocal *Hemiphragma*.

**ORTHOPORA** Hall. Genotype: *Trematopora regularis* Hall.

1886. *Orthopora*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.

1887. *Orthopora*. Hall and Simpson, Pal. New York, VI, pp. xiv, 16.

1889. *Orthopora*. Miller, North American Geol. Pal., p. 313.

Obs. Simpson appears to give up *Orthopora* by referring the genotype to *Rhombopora* (Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix, 10, 11); but until the type species is better known the genus had best be allowed to stand.

**Orthopora bispinulata** (Hall).

1883. *Callopora bispinulata*. Hall, Trans. Albany Institute, X, p. 182 (abstract, 1881, p. 182).

1884. *Callopora bispinulata*. Hall, Rep. State Geologist New York for the year 1883, p. 14.

1887. *Trematopora* (*Orthopora*) *bispinulata*. Hall and Simpson, Pal. New York, VI, p. 182, pl. lv, 27-30, pl. lvi, 16-18.

1889. *Acanthoclema bispinulatum*. Miller, North American Geol. Pal., p. 291.

1889. *Orthopora bispinulata*. Miller, North American Geol. Pal., p. 313.

Hamilton: Moscow, New York.

**Orthopora canaliculata** (Hall).

1879. *Trematopora canaliculata*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 151 (reprint, 1880, p. 13).

**Orthopora canaliculata** (Hall)—Continued.

1883. Trematopora ? canaliculata. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 12.  
1887. Trematopora (Orthopora) canaliculata. Hall and Simpson, Pal. New York, VI, p. 17, pl. xi, 12, pl. xxiii, 9.  
Lower Helderberg: Clarksville, New York.

**Orthopora carinata** (Hall and Simpson).

1887. Trematopora (Orthopora) carinata. Hall and Simpson, Pal. New York, VI, p. 179, pl. lv, 2, pl. lvi, 3.  
1898. Trematopora carinata. Whiteaves, Contr. Canadian Pal., 1, p. 379.  
Hamilton: West Williams, Ontario.

**Orthopora elongata** (Hall and Simpson).

1887. Trematopora (Orthopora) elongata. Hall and Simpson, Pal. New York, VI, p. 183, pl. lv, 11, pl. lvi, 15.  
Hamilton: Near Lake Canandaigua and Lake Owasco, New York.  
Obs. Orthopora transversa and Orthopora interplana appear to be synonyms of this species.

**Orthopora granifera** (Hall and Simpson).

1887. Trematopora (Orthopora) granifera. Hall and Simpson, Pal. New York, VI, p. 186.  
Hamilton: Owasco Lake, New York.

**Orthopora granilinea** (Hall and Simpson).

1887. Trematopora (Orthopora) granilinea. Hall and Simpson, Pal. New York, VI, pl. xxiii, 2.  
Lower Helderberg: Clarksville, New York.

**Orthopora hexagona** (Hall and Simpson).

1887. Trematopora (Orthopora) hexagona. Hall and Simpson, Pal. New York, VI, p. 178, pl. lv, 8, pl. lvi, 2.  
1899. Rhombopora hexagona. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 164, fig. 53.  
1897. Rhombopora transversa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix, 12, 13.  
Hamilton: Eighteen-Mile Creek, shore of Lake Erie, New York.

**Orthopora immersa** (Hall and Simpson.)

1887. Trematopora (Orthopora) immersa. Hall and Simpson, Pal. New York, VI, p. 185, pl. lvi, 11.  
1899. Rhombopora immersa. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 166, fig. 57.  
Hamilton: Darien Center and West Hamburg, New York.

**Orthopora interplana** (Hall and Simpson).

1887. Trematopora (Orthopora) interplana. Hall and Simpson, Pal. New York, VI, p. 186, pl. lvi, 12.  
Hamilton: Near Lake Canandaigua, New York.  
Obs. See remark on Orthopora elongata.

**Orthopora lineata** (Hall and Simpson).

1887. Trematopora (Orthopora) lineata. Hall and Simpson, Pal. New York, VI, p. 181, pl. lv, 3-6, pl. lvi, 10.  
1899. Rhombopora lineata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 165, fig. 56.  
Hamilton: Darien Center and West Hamburg, New York.

**Orthopora nodosa** (Hall and Simpson).

1887. *Trematopora* (*Orthopora*) *nodosa*. Hall and Simpson, Pal. New York, VI, pl. xxiii, 10.

Lower Helderberg: Clarksville, New York.

**Orthopora orbipora** (Hall).

1883. *Trematopora orbipora*. Hall, Trans. Albany Institute, X, p. 181 (abstract, 1881, p. 181).

1884. *Trematopora orbipora*. Hall, Rep. State Geologist New York for the year 1883, p. 12.

1887. *Trematopora* (*Orthopora* ?) *orbipora*. Hall and Simpson, Pal. New York, VI, p. 188, pl. lv, 13, 14, pl. lvi, 8.

Hamilton: Fallbrook, near Lake Canandaigua, New York.

**Orthopora ornata** (Hall and Simpson).

1887. *Trematopora* (*Orthopora*) *ornata*. Hall and Simpson, Pal. New York, VI, p. 184, pl. lv, 1, pl. lvi, 4.

Hamilton: Near Geneseo, New York.

**Orthopora ovatipora** (Hall).

1879. *Trematopora ovatipora*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 151 (reprint, 1880, p. 13).

1883. *Trematopora* ? *ovatipora*. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 9-11.

1887. *Trematopora* (*Orthopora*) *ovatipora*. Hall and Simpson, Pal. New York, VI, p. 17, pl. xi, 9-11, pl. xxiii, 5.

Lower Helderberg: Clarksville, New York.

**Orthopora parallela** (Hall).

1879. *Trematopora parallela*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 152 (reprint, 1880, p. 14).

1883. *Trematopora* ? *parallela*. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 13, 14.

1887. *Trematopora* (*Orthopora*) *parallela*. Hall and Simpson, Pal. New York, VI, p. 19, pl. xi, 13, 14, pl. xxiii, 7, 8.

Lower Helderberg: Clarksville, New York.

**Orthopora polygona** (Hall).

1883. *Trematopora polygona*. Hall, Trans. Albany Institute, X, p. 180 (abstract, 1881, p. 180).

1884. *Trematopora polygona*. Hall, Rep. State Geologist New York for the year 1883, p. 9.

1887. *Trematopora* (*Orthopora*) *polygona*. Hall and Simpson, Pal. New York, VI, p. 176.

1899. *Rhombopora polygona*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 164. Hamilton: West Hamburg, New York.

**Orthopora regularis** (Hall).

1874. *Trematopora regularis*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 106.

1879. *Trematopora regularis*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 151 (reprint, 1880, p. 13).

1883. *Trematopora regularis*. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 1-8, pl. xiii, 1-3 (in part).

1887. *Trematopora* (*Orthopora*) *regularis*. Hall and Simpson, Pal. New York, VI, p. 16, pl. xi, 1-8, pl. xxiii, 1.

Lower Helderberg: Clarksville, New York.

**Orthopora regularis (Hall)—Continued.**

1883. *Trematopora regularis*. Hall, Rep. State Geologist New York for the year 1882, pl. xxiv, 5, 6.  
1886. *Orthopora regularis*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 27, 28.  
1887. *Trematopora (Orthopora) regularis*. Hall and Simpson, Pal. New York, VI, p. 71, pl. xxv, 27, 28, pl. xxvi, 5, 6.  
1897. *Rhombopora regularis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix, 10, 11.  
Hamilton: Falls of the Ohio.  
Obs. The above arrangement has been given because the two forms are undoubtedly distinct. The Hamilton species should be compared with *Rhombopora lineinodis* Ulrich.

**Orthopora reticulata (Hall and Simpson).**

1887. *Trematopora (Orthopora) reticulata*. Hall and Simpson, Pal. New York, VI, p. 179, pl. lv, 9, pl. lvi, 5.  
1899. *Rhombopora reticulata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 165, fig. 54.  
Hamilton: West Hamburg, Erie County, New York.  
Obs. Probably the same as *Orthopora subquadrata*.

**Orthopora rhombifera (Hall).**

1874. *Trematopora rhombifera*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 103.  
1879. *Trematopora rhombifera*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 152 (reprint, 1880, p. 14).  
1883. *Trematopora rhombifera*. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 15-20.  
1887. *Trematopora (Orthopora) rhombifera*. Hall and Simpson, Pal. New York, VI, p. 18, pl. xi, 15, 17-20, pl. xxiii, 11, 12.  
Lower Helderberg: Clarksville and Schoharie, New York.  
1883. *Trematopora rhombifera*. Hall, Rep. State Geologist New York for the year 1882, pl. xxiv, 3, 4.  
1886. *Orthopora rhombifera*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 29.  
1887. *Trematopora (Orthopora) rhombifera*. Hall and Simpson, Pal. New York, VI, p. 71, pl. xxv, 29, pl. xxvi, 3, 4.  
Hamilton: Falls of the Ohio.  
Obs. The above arrangement has been given because the two forms, though considered identical by Hall, are undoubtedly distinct.

**Orthopora scutulata (Hall).**

1883. *Trematopora scutulata*. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 6).  
1883. *Trematopora (Orthopora) scutulata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxiv, 7, 8.  
1887. *Trematopora (Orthopora) scutulata*. Hall and Simpson, Pal. New York, VI, p. 70, pl. xxvi, 7, 8.  
Upper Helderberg: Waterville and Onondaga Valley, New York.

**Orthopora subquadrata (Hall).**

1883. *Trematopora subquadrata*. Hall, Trans. Albany Institute, X, p. 181 (abstract, 1881, p. 181).  
1884. *Trematopora subquadrata*. Hall, Rep. State Geologist New York for the year 1883, p. 11.

**Orthopora subquadrata (Hall)—Continued.**

1887. *Trematopora (Orthopora) subquadrata*. Hall and Simpson, Pal. New York, VI, p. 177, pl. lv, 10, pl. lvi, 1, 6.  
 Hamilton: Darien Center, New York.  
 Obs. See remark under *Orthopora reticulata*.

**Orthopora tortalinaea (Hall).**

1883. *Trematopora tortalinaea*. Hall, Trans. Albany Institute, X, p. 180 (abstract, 1881, p. 180).  
 1884. *Trematopora tortalinaea*. Hall, Rep. State Geologist New York for the year 1883, p. 10.  
 1887. *Trematopora (Orthopora) tortalinaea*. Hall and Simpson, Pal. New York, VI, p. 180, pl. lvi, 9.  
 1899. *Rhombopora tortalinaea*. Grabau, Bull. Buffalo Soc. Nat. Hist., VI, p. 165, fig. 55.  
 Hamilton: Hamburg, New York.

**Orthopora transversa (Hall).**

1883. *Trematopora transversa*. Hall, Trans. Albany Institute, X, p. 180 (abstract, 1881, p. 180).  
 1884. *Trematopora transversa*. Hall, Rep. State Geologist New York for the year 1883, p. 8.  
 1887. *Trematopora (Orthopora?) transversa*. Hall and Simpson, Pal. New York, VI, p. 187, pl. lv, 12, pl. lvi, 13, 14.  
 1889. *Rhombopora? transversa*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 164, fig. 52.  
 Hamilton: Hamburg, Erie County, New York.  
 Obs. See remark under *Orthopora elongata*.

**PACHYDICTYA Ulrich. Genotype: Pachydictya robusta Ulrich.**

1882. *Pachydictya*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 152.  
 1887. *Pachydictya*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 162.  
 1889. *Pachydictya*. Miller, North American Geol. Pal., p. 313.  
 1890. *Pachydictya*. Ulrich, Geol. Sur. Illinois, VIII, pp. 390, 522.  
 1893. *Pachydictya*. Ulrich, Geol. Minnesota, III, p. 145.  
 1897. *Pachydictya*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 530.

**Pachydictya acuta (Hall).**

1847. *Stictopora? acuta*. Hall, Pal. New York, I, p. 74, pl. xxvi, 3a-b.  
 1875. *Ptilodictya acuta*. Nicholson, Pal. Province Ontario, p. 12, fig. 3.  
 1882. *Stictopora acuta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 168, pl. viii, 1-1b.  
 1886. *Pachydictya acuta*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, pp. 75, 76.  
 1889. *Pachydictya acuta*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 44.  
 1893. *Pachydictya acuta*. Ulrich, Geol. Minnesota, III, p. 155, pl. viii, 11-17, pl. ix, 7.  
 1897. *Pachydictya acuta*. Whiteaves, Pal. Foss, III, p. 161.  
*Stictopora* or *Pachydictya acuta* (in part), of various authors.  
 Trenton: Trenton Falls and other localities in New York; Burgin, Kentucky; Decorah, Iowa; various localities in Minnesota; St. Andrews, Manitoba.

**Pachydictya alcyone (Billings).**

1866. *Ptilodictya alcyone*. Billings, Catal. Sil. Foss. Anticosti, p. 36.

**Pachydietya alcyone** (Billings)—Continued.

1893. *Pachydietya alcyone*. Ulrich, Geol. Minnesota, III, p. 146.

Anticosti: Anticosti Island.

Obs. This may prove a synonym for *Pachydietya crassa* (Hall).

**Pachydietya arguta** Ulrich. See *Pachydietya crassa* (Hall).**Pachydietya bifurcata** (Hall).

1853. *Eschara bifurcata*. Van Cleve (Mss.).

1883. *Stictopora bifurcata*. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 267, pl. xiii, 3, 4.

1887. *Pachydietya bifurcata*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 163; *ibid.*, III, 1888, pl. xv, 9.

1895. *Pachydietya bifurcata*. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 9. Clinton: Dayton and Fair Haven, Ohio.

**Pachydietya bifurcata-instabilis** Foerste.

1887. *Pachydietya bifurcata* var. *instabilis*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 164; *ibid.*, III, 1888, pl. xv, 10.

1895. *Pachydietya bifurcata* var. *instabilis*. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 10.

Clinton: Near New Carlisle, Ohio.

**Pachydietya conciliatrix** Ulrich. See *Trigonodictya conciliatrix* (Ulrich).**Pachydietya crassa** (Hall).

1852. *Stictopora crassa*. Hall, Pal. New York, II, p. 45, pl. xviii, 4a-c.

1874. *Ptilodictya crassa*. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 142.

1875. *Ptilodictya crassa*. Nicholson, Pal. Province Ontario, p. 45.

1893. *Pachydietya crassa*. Ulrich, Geol. Minnesota, III, p. 147.

1866. *Ptilodictya rustica*. Billings, Catal. Sil. Foss. Anticosti, p. 36.

1893. *Pachydietya rustica*. Ulrich, Geol. Minnesota, III, p. 146.

1866. *Ptilodictya arguta*. Billings, Catal. Sil. Foss. Anticosti, p. 36.

1893. *Pachydietya arguta*. Ulrich, Geol. Minnesota, III, p. 146.

1887. *Stictopora scitula*. Hall and Simpson, Pal. New York, VI, pl. lxi, 24, 25.

1893. *Pachydietya scitula*. Ulrich, Geol. Minnesota, III, p. 147.

1889. *Ptilodictya faretus*. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 328, pl. vi, 31.

1895. *Pachydietya faretus*. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxxi, 31.

1889. *Ptilodictya rudis*. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 329, pl. vi, 33.

1895. *Pachydietya* (*Rhinidictya*) *rudis*. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxxi, 32, 33.

Clinton: Wayne County, New York; Eaton, Ohio; Flamborough and Dundas, Ontario.

Anticosti: Anticosti Island.

Niagara: Lockport, New York.

Obs. Though rather meager in details and varying as to the number of rows of apertures on the frond, there is substantial agreement in all the descriptions cited above. Evidently we have in this species a cosmopolitan form.

**Pachydietya elegans** Ulrich.

1893. *Pachydietya elegans*. Ulrich, Geol. Minnesota, III, p. 154, pl. viii, 18, 19, pl. ix, 8, 9.

Trenton: St. Paul, Minnesota; Decorah, Iowa.



**Pachydietya emaciata** Foerste.

1887. *Pachydietya emaciata*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 62; *ibid.*, III, 1888, pl. xv, 8.

1895. *Pachydietya emaciata*. Foerste Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 8. Clinton: Dayton, Ohio.

**Pachydietya emarcescens** Foerste. See *Ptilodictya expansa-emarcescens* (Foerste).**Pachydietya everetti** Ulrich.

1890. *Pachydietya everetti*. Ulrich, Geol. Sur. Illinois, VIII, p. 523, pl. xxxiii, 1-1f.

Trenton (Stones River): Dixon, Illinois.

**Pachydietya ? famelica** (Foerste).

1889. *Ptilodictya famelicus*. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 329, pl. vi, 32.

Clinton: Eaton and Belfast, Ohio.

**Pachydietya farctus** Foerste. See *Pachydietya crassa* (Hall).**Pachydietya fenestelliformis** (Nicholson).

1875. *Ptilodictya fenestelliformis*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 181, pl. xiv, 5-5b.

1875. *Ptilodictya fenestelliformis*. Nicholson, Pal. Ohio, II, p. 263, pl. xxv, 8-8b.

1875. *Ptilodictya fenestelliformis*. Nicholson, Pal. Province Ontario, p. 14.

1882. *Phænopora ? fenestelliformis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pl. viii, 8.

1890. *Pachydietya fenestelliformis*. Ulrich, Geol. Sur. Illinois, VIII, p. 256.

Cincinnati (Richmond): Blanchester and other localities in Ohio; Wilmington, Illinois; ? Peterborough, Canada (Nicholson).

**Pachydietya fenestelliformis-corticula** Ulrich.

1890. *Pachydietya fenestelliformis* var. *corticula*. Ulrich, Geol. Sur. Illinois, VIII, p. 526, pl. xxxi, 1.

Cincinnati (Richmond): Wilmington, Illinois.

**Pachydietya fimbriata** Ulrich.

1886. *Pachydietya fimbriata*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 75.

1893. *Pachydietya fimbriata*. Ulrich, Geol. Minnesota, III, p. 152, pl. viii, 28-34, pl. ix, 13, 14.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

**Pachydietya ? firma** Ulrich.

1890. *Pachydietya firma*. Ulrich, Geol. Sur. Illinois, VIII, p. 525, pl. xxxi, 2-2f.

Cincinnati (Richmond): Wilmington, Illinois.

**Pachydietya foliata** Ulrich.

1886. *Pachydietya foliata*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 73.

1893. *Pachydietya foliata*. Ulrich, Geol. Minnesota, III, p. 149, pl. ix, 1-5, pl. x, 5-10.

1896. *Pachydietya foliata*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 470 (p. 283). Trenton (Stones River): Minneapolis, St. Paul, Cannon Falls, Preston, and Fountain, Minnesota.

**Pachydietya gigantea** Ulrich.

1890. *Pachydietya gigantea*. Ulrich, Geol. Sur. Illinois, VIII, p. 524, pl. xxxi, 3-3e.

Cincinnati (Richmond): Wilmington, Illinois.

**Pachydictya hexagonalis** Ulrich.

1889. *Pachydictya hexagonalis*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 42, pl. ix, 2-2c.  
1895. *Pachydictya hexagonalis*. Whiteaves, Pal. Foss., III, p. 118.  
Cincinnati (Richmond): Stony Mountain, Manitoba.

**Pachydictya magnipora** Ulrich.

1889. *Pachydictya magnipora*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 43.  
1897. *Pachydictya magnipora*. Whiteaves, Pal. Foss., III, p. 161.  
Trenton: St. Andrews, Manitoba; Kenyon, Minnesota.

**Pachydictya obesa** Foerste.

1887. *Pachydictya obesa*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 165; *ibid.*, III, 1888, pl. xv, 12.  
1895. *Pachydictya obesa*. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 12.  
Clinton: Dayton, Ohio.

**Pachydictya occidentalis** Ulrich.

1886. *Pachydictya occidentalis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 75.  
1893. *Pachydictya occidentalis*. Ulrich, Geol. Minnesota, III, p. 151, pl. viii, 20-27, pl. ix, 6-10.  
Trenton (Black River): St. Paul and Goodhue County, Minnesota.

**Pachydictya pumila** Ulrich.

1890. *Pachydictya pumila*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 186, fig. 11.  
1893. *Pachydictya pumila*. Ulrich, Geol. Minnesota, III, p. 157, pl. x, 1-4, pl. viii, 4, 5.  
1890. *Rhinidictya humilis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 185, fig. 10.  
Trenton: Cannon Falls, Minnesota; Trenton Falls, New York.

**Pachydictya pumila-sublata** Ulrich.

1893. *Pachydictya pumila* var. *sublata*. Ulrich, Geol. Minnesota, III, p. 158.  
Trenton: Cannon Falls, Minnesota.

**Pachydictya robusta** Ulrich.

1882. *Pachydictya robusta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 173, pl. viii, 10a-c.  
Trenton (Stones River): Knoxville, Tennessee.

*Pachydictya* (*Rhinidictya*) *rudis* Foerste. See *Pachydictya crassa* (Hall).

*Pachydictya rustica* Ulrich. See *Pachydictya crassa* (Hall).

*Pachydictya scitula* Ulrich. See *Pachydictya crassa* (Hall).

**Pachydictya ? splendens** Ulrich.

1890. *Pachydictya splendens*. Ulrich, Geol. Sur. Illinois, VIII, p. 523, pl. xxxi, 2g, pl. xxxii, 1-1b.  
Cincinnati (Richmond): Wilmington, Illinois.

**Pachydictya triserialis** Ulrich.

1890. *Pachydictya triserialis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 187, fig. 12.  
1893. *Pachydictya triserialis*. Ulrich, Geol. Minnesota, III, p. 159, pl. x, 11-14.  
Trenton: Montreal, Canada.

**Pachydictya turgida** Foerste.

1887. *Pachydictya turgida*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 164; *ibid.*, III, 1888, pl. xv, 11.  
 1895. *Pachydictya turgida*. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 11.  
 Clinton: Dayton and Fair Haven, Ohio.

**Palæocoryne** Duncan and Jenkins. Genotype: *Palæocoryne scoticum* Duncan and Jenkins.

1869. *Palæocoryne*. Duncan and Jenkins, Phil. Trans. Royal Soc. London, vol. 159, p. 693.  
 1873. *Palæocoryne*. Duncan, Quar. Jour. Geol. Soc. London, XXIX, p. 412.  
 1873. *Palæocoryne*. Etheridge, Jun., Mem. Geol. Sur. Scotland, explanation sheet 23, p. 96.  
 1874. *Palæocoryne*. Young and Young, Geol. Mag., Dec. 2, I, p. 422.  
 1879. *Palæocoryne*. Vine, Hardwicke's Science Gossip, XV, pp. 225, 247.

Obs. The authors of this genus considered it hydrozoal in its affinities, but there can be no doubt but that Young and Young were correct in considering the fossils to which the name was given (derived from the Carboniferous shales of Scotland) appendages or processes forming an integral part of the zoarium of *Fenestella*.

**PALESCHARA** Hall. Genotype: *Paleschara incrustans* Hall.

1874. *Paleschara*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 107.  
 1882. *Paleschara*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 157.  
 1887. *Paleschara*. Hall and Simpson, Pal. New York, VI, p. xviii.  
 1889. *Paleschara*. Miller, North American Geol. Pal., p. 313.  
 1899. *Paleschara*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 170.

**Paleschara amplexans** Hall. See *Leptotrypa* ? *quadrangularis* (Nicholson).**Paleschara** ? *aspera* Hall. See *Paleschara maculata* (Hall).**Paleschara beani** (James).

1878. *Ceramopora* ? *beani*. James, Paleontologist, No. 1, p. 5.  
 1884. *Ceramopora* ? *beani*. James, Jour. Cincinnati Soc. Nat. Hist., VII, p. 23, fig. 3-3b.  
 1888. *Ceramopora* ? *beani*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 37.  
 1888. *Paleschara beani*. Ulrich, American Geologist, I, p. 186.  
 Cincinnati (Utica and Richmond): Warren County, Ohio; Covington, Kentucky (Utica).

**Paleschara bifoliata** Hall. See *Ptilodictya nebulosa* (Hall).**Paleschara** ?? *bilateralis* Hall.

1879. *Paleschara* ? *bilateralis*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 160 (reprint, 1880, p. 22).  
 1883. *Paleschara* ? *bilateralis*. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 22, 23.  
 1887. *Paleschara* ? (*Lichenalia* ?) *bilateralis*. Hall and Simpson, Pal. New York, VI, p. 36, pl. xvi, 22, 23.  
 Lower Helderberg: Clarksville, New York.

**Paleschara concentrica** Hall and Simpson.

1883. Species undetermined. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 24.

**Paleschara concentrica** Hall and Simpson—Continued.

1887. *Paleschara concentrica*. Hall and Simpson, Pal. New York, VI, p. 67, pl. xvi, 24.

Lower Helderberg: Clarksville, New York.

**Paleschara ? dissimilis** (Hall).

1879. *Lichenalia dissimilis*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 158 (reprint, 1880, p. 80).  
1883. *Lichenalia dissimilis*. Hall, Rep. State Geologist New York for the year 1882, pl. xv, 10-13.  
1887. *Paleschara ? dissimilis*. Hall and Simpson, Pal. New York, VI, p. 35, pl. xv, 10-13.

Lower Helderberg: Schoharie, New York.

**Paleschara ? foliata** Hall. See *Ptilodictya nebulosa* (Hall).**Paleschara ? incrassata** Hall.

1879. *Paleschara incrassata*. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 121.  
1882. *Paleschara incrassata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 246.  
Niagara: Waldron, Indiana.

**Paleschara incrustans** Hall.

1874. *Paleschara incrustans*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 107.  
1879. *Paleschara incrustans*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 160 (reprint, 1880, p. 22).  
1883. *Paleschara incrustans*. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 15-21, ? 24.  
1887. *Paleschara incrustans*. Hall and Simpson, Pal. New York, VI, p. 35, pl. xvi, 15-21.  
1897. *Paleschara incrustans*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 1, 2.  
Lower Helderberg: Clarksville, New York.

**Paleschara ? intercella** (Hall).

1883. *Paleschara intercella*. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).  
1884. *Paleschara intercella*. Hall, Rep. State Geologist New York for the year 1883, p. 5.  
1891. *Paleschara intercella*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 37; Forty-fourth Ann. Rep. New York State Museum, p. 67.  
1899. *Paleschara intercella*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 170.  
Hamilton: York and Eighteen-Mile Creek, New York.

**Paleschara ? maculata** Hall.

1876. *Paleschara maculata*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. viii, 9, 10; *ibid.* (Museum edition, 1879), p. 121, pl. viii, 9-13.  
1882. *Paleschara maculata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 246, pl. vii, 9-13.  
1883. *Leptotrypa maculata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 158.  
1876. *Paleschara ? aspera*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. viii, 11-13.  
Niagara: Waldron, Indiana.

**Paleschara ? offula Hall.**

1876. *Paleschara offula*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. viii, 7, 8; *ibid.* (Museum edition, 1879), p. 120, pl. viii, 7, 8.
1882. *Paleschara offula*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 245, pl. vii, 7, 8.
1883. *Leptotrypa offula*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 158. Niagara: Waldron, Indiana.

**Paleschara ? pertenuis Hall.**

1883. *Paleschara* ? (*Lichenalia* ?) *pertenuis*. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).
1884. *Paleschara* ?? (*Lichenalia* ?) *pertenuis*. Hall, Rep. State Geologist New York for the year 1883, p. 7.
1891. *Paleschara pertenuis*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 37; Forty-fourth Ann. Rep. New York State Museum, p. 67.

Hamilton: Lodi Landing and Darien Center, New York.

**Paleschara quadrangularis Whiteaves. See *Leptotrypa* ? quadrangularis (Nicholson).****Paleschara ? radiata Hall.**

1879. *Paleschara* ? *radiata*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 160 (reprint, 1880, p. 22).
1883. *Paleschara* ? *radiata*. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 13, 14.
1887. *Paleschara radiata*. Hall and Simpson, Pal. New York, VI, p. 35, pl. xvi, 13, 14.
1897. *Paleschara radiata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 3.
- Lower Helderberg: Clarksville, New York.

**Paleschara ? reticulata Hall.**

1883. *Paleschara reticulata*. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).
1884. *Paleschara reticulata*. Hall, Rep. State Geologist New York for the year 1883, p. 6.
1891. *Paleschara reticulata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 38; Forty-fourth Ann. Rep. New York State Museum, p. 68.
1899. *Paleschara reticulata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 171, fig. 66.

Hamilton: York and Eighteen-Mile Creek, New York.

**Paleschara ? sphæron Hall. See *Leptotrypa* ? sphæron (Hall).****Paleschara ? (*Chætetes* ?) sphæron Hall. See *Leptotrypa* ? sphæron (Hall).****Paleschara ? tenuis Hall and Simpson.**

1887. *Paleschara* ? *tenuis*. Hall and Simpson, Pal. New York, VI, p. 36.
- Lower Helderberg: Clarksville, New York.

**Paleschara ? variacella Hall.**

1883. *Paleschara variacella*. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).
1884. *Paleschara variacella*. Hall, Rep. State Geologist New York for the year 1883, p. 6.

**Paleschara ? variacella** Hall—Continued.

1891. *Paleschara variacella*. Hall, Rep. State Geologist New York for the year 1890, p. 39; Forty-fourth Ann. Rep. New York State Museum, p. 69. Hamilton: York, New York.

**PATELLIPORA** Rominger. Genotype: *Patellipora stellata* Rominger.

1887. *Patellipora*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 11.  
Obs. This genus can not be considered fully established, as no details have been made known concerning the internal structure of the type and only known species.

**Patellipora stellata** Rominger.

1887. *Patellipora stellata*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 11.  
Obs. This species is founded upon three specimens discovered "in drift boulders at Ann Arbor, associated with characteristic Corniferous limestone fossils in silicified conditions."

**Penniretepora** D'Orbigny.

1850. *Penniretepora*. D'Orbigny, Prodr. de Pal., I, p. 45.  
1895. *Penniretepora*. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, pt. 4, p. 185.  
Obs. This genus was never properly established.

**PERONOPORA** Nicholson. Genotype: *Monticulipora frondosa* Nicholson (not D'Orbigny) = *Chaetetes decipiens* Rominger.

1881. *Peronopora*. Nicholson, Genus *Monticulipora*, pp. 102, 215.  
1882. *Peronopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.  
1886. *Peronopora*. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 875.  
1890. *Peronopora*. Ulrich, Geol. Sur. Illinois, VIII, p. 370.  
1896. *Peronopora* (in part). Zittel's Textb. Pal. (Engl. ed.), p. 104.  
1896. *Peronopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 272.

**Peronopora compressa** (Ulrich).

1879. *Chaetetes compressus*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 27, pl. vii, 25-25b.  
1882. *Peronopora compressa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 244.  
1894. *Monticulipora compressa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 75.  
1882. *Peronopora uniformis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 244, pl. x, 8, 8a.  
1895. *Monticulipora uniformis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 76.  
*Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.*  
Obs. *Peronopora uniformis* Ulrich is not a valid species, having been founded upon a phase of *Peronopora compressa* Ulrich in which the mesopores are reduced to a minimum. Other species of *Peronopora* exhibit this same characteristic.

**Peronopora decipiens** (Rominger).

1866. *Chaetetes decipiens*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 116.  
1882. *Peronopora decipiens*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 244.  
1874. *Chaetetes frondosus* (not of D'Orbigny). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 508, pl. xxx, 2-2b.  
1875. *Chaetetes frondosus* (not of D'Orbigny). Nicholson, Pal. Ohio, II, p. 208, pl. xxii, 1-1b.  
1876. *Chaetetes frondosus* (not of D'Orbigny). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 91, pl. v, 11, 11a.

**Peronopora decipiens (Rominger)**—Continued.

1881. *Chaetetes frondosus*. Quenstedt, *Roehren- und Sternkorallen*, p. 73, pl. cxlvi, 3-5 (not 8).
1881. *Monticulipora (Peronopora) frondosa* (not of D'Orbigny). Nicholson, *Genus Monticulipora*, p. 216, figs. 46, 47, pl. v, 4, 4a, 5, 5a.
1888. *Monticulipora frondosa* (not of D'Orbigny). James and James, *Jour. Cincinnati Soc. Nat. Hist.*, XI, p. 17.
1895. *Monticulipora frondosa* (not of D'Orbigny). J. F. James, *Jour. Cincinnati Soc. Nat. Hist.*, XVIII, p. 72.
- Cincinnati (Lorraine and Richmond):* Madison and other localities in Indiana; various localities in Ohio, Kentucky, and Tennessee.

**Peronopora vera Ulrich.**

1888. *Peronopora vera*. Ulrich, *American Geologist*, II, p. 40.
- Cincinnati (Utica):* Cincinnati, Ohio, and vicinity.
- Obs. This is a good species, but requires further description before the name can be considered valid.

**PETALOTRYPA Ulrich.** Genotype: *Petalotrypa compressa* Ulrich.

1890. *Petalotrypa*. Ulrich, *Geol. Sur. Illinois*, VIII, pp. 377, 453.
1889. *Petalotrypa*. (Ulrich, in press), Miller, *North American Geol. Pal.*, p. 314.
1897. *Petalotrypa*. Simpson, *Fourteenth Ann. Rep. State Geologist New York* for the year 1894, p. 582.

**Petalotrypa compressa Ulrich.**

1890. *Petalotrypa compressa*. Ulrich, *Geol. Sur. Illinois*, VIII, p. 454, pl. xlvi, 4-4f.
1897. *Petalotrypa compressa*. Simpson, *Fourteenth Ann. Rep. State Geologist New York* for the year 1894, figs. 157-159 (p. 582).
- Hamilton: Davenport, Iowa; Rock Island, Illinois.*

**Petalotrypa delicata Ulrich.**

1890. *Petalotrypa delicata*. Ulrich, *Geol. Sur. Illinois*, VIII, p. 454, pl. xlvi, 5-5b.
- Hamilton: Buffalo, Iowa; Rock Island, Illinois.*

**PETIGOPORA Ulrich.** Genotype: *Petigopora gregaria* Ulrich.

1882. *Petigopora*. Ulrich, *Jour. Cincinnati Soc. Nat. Hist.*, V, p. 155.
1889. *Petigopora*. Ulrich, *Contr. Micro-Pal. Cambro-Sil.*, Part II, p. 34.
1889. *Petigopora*. Miller, *North American Geol. Pal.*, p. 314.
1890. *Petigopora*. Ulrich, *Geol. Sur. Illinois*, VIII, p. 372.
1896. *Petigopora*. Ulrich, *Zittel's Textb. Pal. (Engl. ed.)*, p. 274.
1897. *Petigopora*. Simpson, *Fourteenth Ann. Rep. State Geologist New York* for the year 1894, p. 563.

**Petigopora asperula Ulrich.**

1883. *Petigopora asperula*. Ulrich, *Jour. Cincinnati Soc. Nat. Hist.*, VI, p. 157, pl. vi, 4-4c.
1886. *Petigopora asperula*. Ulrich, *Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota*, p. 130.
1888. *Monticulipora wetherbyi* var. *asperula*. James and James, *Jour. Cincinnati Soc. Nat. Hist.*, XI, p. 24.
1895. *Monticulipora asperula*. J. F. James, *Jour. Cincinnati Soc. Nat. Hist.*, XVIII, p. 81.
1897. *Petigopora gregaria* (in part). Simpson, *Fourteenth Ann. Rep. State Geologist New York* for the year 1894, fig. 129 (in part) (p. 564).
- Cincinnati (Lorraine):* Cincinnati, Ohio, and vicinity.

**Petigopora gregaria** Ulrich.

1883. *Petigopora gregaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 155, pl. vii, 3-3c.  
 1896. *Petigopora gregaria*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 124.  
 1897. *Petigopora gregaria*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 129 (in part) (p. 564).  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Petigopora petechialis** (Nicholson).

1875. *Chaetetes petechialis*. Nicholson, Pal. Ohio, II, p. 213, pl. xxii, 5, 5a.  
 1883. *Petigopora petechialis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 156.  
 1886. *Petigopora petechialis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 103.  
 1888. *Monticulipora petechialis*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 24.  
 1889. *Petigopora petechialis*. Miller, North American Geol. Pal., fig. 496 (p. 314).  
 1895. *Monticulipora petechialis*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 85.  
 Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Petigopora scabiosa** Ulrich.

1889. *Petigopora scabiosa*. Ulrich, Contr. Micro-Pal. Cambro Sil., Part II, p. 34.  
 1897. *Petigopora scabiosa*. Whiteaves, Pal. Foss., III, p. 116.  
 Cincinnati (Richmond): Stony Mountain, Manitoba.

**PHACELOPORA** Ulrich. Genotype: *Phacelopora pertenuis* Ulrich.

1890. *Phacelopora*. Ulrich, Geol. Sur. Illinois, VIII, p. 368.  
 1889. *Phacelopora*. (Ulrich, in press), Miller, North American Geol. Pal., p. 314.  
 1897. *Phacelopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 600.

**Phacelopora constricta** Ulrich.

1890. *Phacelopora constricta*. Ulrich, Geol. Sur. Illinois, VIII, p. 406, pl. xxix, 2.  
 1897. *Phacelopora constricta*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 209 (p. 600).  
 Trenton: Burgin, Kentucky.  
 Obs. Mr. Ulrich now regards this as the interior cast of some undetermined species of *Helopora* or *Arthroclema*.

**Phacelopora pertenuis** Ulrich.

1890. *Phacelopora pertenuis*. Ulrich, Geol. Sur. Illinois, VIII, p. 406, pl. xxix, 1-1c.  
 1894. *Phacelopora pertenuis*. Keyes, Missouri Geol. Sur., V, p. 13, pl. xxxiii, 3.  
 1897. *Phacelopora pertenuis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 207, 208 (p. 600).  
 Trenton: Thebes, Illinois.

**PHÆNOPORA** Hall. Genotype: *Phænopora explanata* Hall.

1852. *Phænopora*. Hall, Pal. New York, II, p. 46.  
 1882. *Phænopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 152.  
 1887. *Phænopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 157.  
 1889. *Phænopora*. Miller, North American Geol. Pal., p. 314.  
 1890. *Phænopora*. Ulrich, Geol. Sur. Illinois, VIII, p. 392.



**PHÆNOPORA Hall—Continued.**

1893. *Phænopora*. Ulrich, Geol. Minnesota, III, p. 173.  
 1896. *Phænopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.  
 1897. *Phænopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 541.

***Phænopora constellata* Hall.**

1852. *Phænopora constellata*. Hall, Pal. New York, II, p. 47, pl. xviii, 7*a-e*.  
 1889. *Phænopora constellata*. Miller, North American Geol. Pal., fig. 497 (p. 314).  
 1890. *Phænopora constellata*. Ulrich, Geol. Sur. Illinois, VIII, fig. 12*a, b* (p. 392).

Clinton: Wayne County, New York; Hamilton, Ontario.

***Phænopora ensiformis* Hall.**

1852. *Phænopora ensiformis*. Hall, Pal. New York, II, p. 48, pl. xviii, 8*a-c*.  
 1874. *Phænopora ensiformis*. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 142.  
 1875. *Phænopora ensiformis*. Nicholson, Pal. Province Ontario, p. 45, fig. 19, 2, 2*a*.  
 1882. *Ptilodictya ensiformis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 172.  
 1895. *Phænopora ensiformis*. Foerste, Geol. Sur. Ohio, VII, p. 598.  
 Clinton: Flamborough, Dundas, and Hamilton, Ontario.

***Phænopora excellens* (Billings).**

1866. *Ptilodictya excellens*. Billings, Catal. Sil. Foss. Anticosti, p. 34.  
 1882. *Stictoporella ? excellens*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 169.  
 1889. *Phænopora excellens*. Miller, North American Geol. Pal., p. 314.  
 Anticosti: Anticosti Island.  
 Obs. Compare *Phænopora explanata* Hall.

***Phænopora expansa* Hall and Whitfield.**

1853. *Eschara bipunctata*. Van Cleve (MSS.).  
 1875. *Phænopora (Ptilodictya) expansa*. Hall and Whitfield, Pal. Ohio, II, p. 114, pl. v, 1.  
 1883. *Ptilodictya expansa* (in part). Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 266. (Gives the original description, but pl. xii, 1, 2 is the *Ptilodictya expansa*, which see).  
 1890. *Phænopora expansa*. Ulrich, Geol. Sur. Illinois, VIII, fig. 12*c* (p. 392).  
 1895. *Phænopora expansa*. Foerste, Geol. Sur. Ohio, VII, p. 598, pl. xxix, 1.  
 1879. *Ptilodictya platyphylla*. James, Paleontologist, No. 3, p. 21.  
 1887. *Phænopora platyphylla*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 157; *ibid.*, III, 1888, pl. xvi, 1.  
 1883. *Ptilodictya bipunctata*. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 266, pl. xiii, 5.  
 Not *Ptilodictya expansa*. Foerste, Bull. Sci. Lab. Denison Univ., II, 1887, p. 155; *ibid.*, III, 1888, pl. xv, 5; Proc. Boston Soc. Nat. Hist., XXIV, 1889, p. 327.

Clinton: Dayton and Clinton County, Ohio.

*Phænopora (Ptilodictya) expansa* Hall and Whitfield. See *Phænopora expansa* Hall and Whitfield.

***Phænopora explanata* Hall.**

1852. *Phænopora explanata*. Hall, Pal. New York, II, p. 46, pl. xviii, 6*a-e*.  
 Clinton: Flamborough Head and Hamilton, Ontario.  
 Obs. See also *Phænopora excellens* (Billings).

*Phænopora* ? *fenestelliformis* Ulrich. See *Pachydictya fenestelliformis* (Nicholson).

***Phænopora fimbriata* (James).**

- 1853. *Eschara ramosa*. Van Cleve (MSS.).
- 1878. *Ptilodictya fimbriata*. James, *Paleontologist*, No. 1, p. 8.
- 1887. *Phænopora fimbriata*. Foerste, *Bull. Sci. Lab. Denison Univ.*, II, p. 161; *ibid.*, III, 1888, pl. xv, 7.
- 1889. *Phænopora fimbriata*. Foerste, *Proc. Boston Soc. Nat. Hist.*, XXIV, p. 330.
- 1895. *Phænopora fimbriata*. Foerste, *Geol. Sur. Ohio*, VII, p. 599, pl. xxviii, 7.
- 1883. *Stictopora vanclevii*. Hall, *Twelfth Ann. Rep. Indiana Geol. Nat. Hist.*, p. 268, pl. xiii, 1, 2.

Clinton: Clinton County, Belfast, and Dayton, Ohio.

***Phænopora incipiens* Ulrich.**

- 1893. *Phænopora incipiens*. Ulrich, *Geol. Minnesota*, III, p. 174, pl. xiii, 14-17.
- Trenton: Montreal, Canada; Chimney Point, Vermont; St. Paul, Minnesota.

***Phænopora lirata* (Hall).**

- 1874. *Escharopora lirata*. Hall, *Twenty-sixth Ann. Rep. New York State Museum*, p. 100.
  - 1879. *Escharopora lirata*. Hall, *Thirty-second Ann. Rep. New York State Museum*, p. 161 (reprint, 1880, p. 23).
  - 1883. *Escharopora* (*Ptilodictya*) *lirata* (in part). Hall, *Rep. State Geologist New York for the year 1882*, pl. xvii, 1-6.
  - 1887. *Ptilodictya lirata*. Hall and Simpson, *Pal. New York*, VI, p. 38, pl. xvii, 1-4, pl. xxiiiA, 20.
  - 1897. *Phænopora lirata*. Simpson, *Fourteenth Ann. Rep. State Geologist New York for the year 1894*, pl. xv, 8.
- Lower Helderberg: Clarksville, New York.

***Phænopora magna* (Hall and Whitfield).**

- 1853. *Eschara compressa*. Van Cleve (MSS.).
  - 1875. *Stictopora magna*. Hall and Whitfield, *Pal. Ohio*, II, p. 112, pl. v, 5, 6.
  - 1887. *Phænopora magna*. Foerste, *Bull. Sci. Lab. Denison Univ.*, II, p. 159; *ibid.*, III, 1888, pl. xv, 6, pl. xvi, 2.
  - 1889. *Phænopora magna*. Foerste, *Proc. Boston Soc. Nat. Hist.*, XXIV, p. 331.
  - 1895. *Phænopora magna*. Foerste, *Geol. Sur. Ohio*, VII, p. 599, pl. xxviii, 6, pl. xxix, 2a-c.
  - 1883. *Stictopora compressa*. Hall, *Twelfth Ann. Rep. Indiana Geol. Nat. Hist.*, p. 267, pl. xiv, 3.
- Clinton: Dayton and Belfast, Ohio.

***Phænopora multifida* (Hall).**

- 1853. *Eschara multifida*. Van Cleve (MSS.).
  - 1878. *Ptilodictya* sp. (?). James, *Paleontologist*, No. 1, p. 8. (Name *P. Welshi* suggested.)
  - 1883. *Stictopora multifida*. Hall, *Twelfth Ann. Rep. Indiana Geol. Nat. Hist.*, p. 268, pl. xiv, 4.
  - 1887. *Phænopora multifida*. Foerste, *Bull. Sci. Lab. Denison Univ.*, II, p. 160; *ibid.*, III, 1888, pl. xvi, 3.
  - 1895. *Phænopora multifida*. Foerste, *Geol. Sur. Ohio*, VII, p. 599, pl. xxix, 3.
- Clinton: Dayton, Ohio; Hanover, Ohio, Indiana.

*Phænopora multipora* Hall. See *Eurydictya multipora* (Hall).

*Phænopora platyphylla* Foerste. See *Phænopora expansa* Hall and Whitfield.

***Phænopora punctata* (Nicholson and Hinde).**

1874. *Ptilodictya* ? *punctata*. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 143, fig. 1a-b.

1874. *Ptilodictya* ? *punctata*. Nicholson, Pal. Province Ontario, p. 46, fig. 20.

1893. *Phænopora punctata*. Ulrich, Geol. Minnesota, III, p. 174.  
Clinton: Dundas, Ontario.

***Phænopora superba* (Billings).**

1866. *Ptilodictya superba*. Billings, Catal. Sil. Foss. Anticosti, p. 35.

1893. *Phænopora superba*. Ulrich, Geol. Minnesota, III, p. 174.  
Anticosti: Anticosti Island.

***Phænopora tenuis* (Hall).**

1874. *Escharopora tenuis*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 99.

1879. *Escharopora tenuis*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 161 (reprint, 1880, p. 23).

1883. *Escharopora* (*Ptilodictya*) *tenuis* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 14; pl. xvii, 7-13.

1887. *Ptilodictya tenuis*. Hall and Simpson, Pal. New York, VI, p. 39, pl. xiii, 14; pl. xvii, 7-12; pl. xxiii A, 15.

1889. *Phænopora tenuis*. Miller, North American Geol. Pal., p. 315.

1897. *Phænopora tenuis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 9, 10.

Lower Helderberg: Albany and Schoharie counties, New York.

***Phænopora wilmingtensis* Ulrich.**

1893. *Phænopora wilmingtensis*. Ulrich, Geol. Minnesota, III, p. 175, pl. xiii, 22-26.

Cincinnati (Richmond): Wilmington, Illinois.

**PHRACTOPORA Hall. Genotype: *Phractopora cristata* Hall.**

1883. *Phractopora*. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 12).

1887. *Phractopora*. Hall and Simpson, Pal. New York, VI, p. xvii.

1889. *Phractopora*. Miller, North American Geol. Pal., p. 315.

1897. *Phractopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 539.

***Phractopora cristata* Hall.**

1883. *Phractopora cristata*. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 12).

1886. *Phractopora cristata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 36-38.

1887. *Phractopora cristata*. Hall and Simpson, Pal. New York, VI, p. 99, pl. xxxi, 36-38.

1897. *Phractopora cristata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 11-13.

1886. *Lichenalia* (*Phractopora*) *cristata* var. *lineata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 34, 35.

1887. *Phractopora cristata* var. *lineata*. Hall and Simpson, Pal. New York, VI, p. 99, pl. xxxi, 34, 35.

1897. *Phractopora lineata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 14.

Hamilton: Falls of the Ohio.

*Phractopora cristata* var. *lineata* Hall. See *Phractopora cristata* Hall.  
*Phractopora lineata* Simpson. See *Phractopora cristata* Hall.

***Phractopora megastoma* (Ulrich).**

1890. *Glyptopora megastoma*. Ulrich, Geol. Sur. Illinois, VIII, p. 518, pl. lxxviii, 5, 5a.  
1888. *Glyptopora megastoma*. Ulrich, Bull. Denison Univ., IV, p. 83. (Not defined.)  
1894. *Glyptopora megastoma*. Keyes, Missouri Geol. Sur., V, p. 21.  
Keokuk: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.  
Waverly: Sciotoville, Ohio.

*Phractopora michelinia* Simpson. See *Glyptopora sagenella-lata* Ulrich.

***Phractopora pinnata* (Ulrich).**

1890. *Glyptopora pinnata*. Ulrich, Geol. Sur. Illinois, VIII, p. 156, pl. lxxviii, 2.  
Burlington: Sagetown, Henderson County, Illinois.

*Phractopora sagenella* Simpson (not Prout). See *Glyptopora michelinia* (Prout).

***Phractopora trifolia* (Rominger).**

1866. *Fistulipora trifolia*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 122.  
1890. *Prismopora trifolia*. Ulrich, Geol. Sur. Illinois, VIII, p. 505, pl. lxxvii, 4-4b.  
1894. *Prismopora trifolia*. Keyes, Missouri Geol. Surv., V, p. 18.  
Keokuk: Lagrange, Missouri; Keokuk, Iowa; Warsaw, Illinois.

**PHYLLODICTYA Ulrich. Genotype: *Phyllodictya frondosa* Ulrich.**

1882. *Phyllodictya*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.  
1889. *Phyllodictya*. Miller, North American Geol. Pal., p. 315.  
1890. *Phyllodictya*. Ulrich, Geol. Sur. Illinois, VIII, p. 390.  
1893. *Phyllodictya*. Ulrich, Geol. Minnesota, III, p. 141.  
1896. *Phyllodictya*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.  
1897. *Phyllodictya*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 531.

***Phyllodictya frondosa* Ulrich.**

1882. *Phyllodictya frondosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 174, pl. viii, 11-11b.  
1893. *Phyllodictya frondosa* (?). Ulrich, Geol. Minnesota, III, p. 142.  
1897. *Phyllodictya frondosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 88 (p. 531).  
Trenton (Stones River): High Bridge and Frankfort, Kentucky; ? Minneapolis, Minnesota.

***Phyllodictya varia* Ulrich.**

1893. *Phyllodictya varia*. Ulrich, Geol. Minnesota, III, p. 144, pl. xiv, 1-8.  
Trenton (Black River): Minneapolis and Cannon Falls, Minnesota.

**PHYLLOPORA King. Genotype: *Gorgonia ehrenbergi* Geinitz.**

1849. *Phyllopora*. King, Ann. Mag. Nat. Hist., ser. 2, II, p. 389.  
1850. *Phyllopora*. King, Mon. Permian Foss. England, p. 40.  
1882. *Phyllopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.  
1885. *Phyllopora*. Waagen and Pichl, Pal. Indica, Ser. XIII, pp. 774, 796.  
1886. *Phyllopora*. Ulrich, Contr. American Pal., I, p. 5.  
1889. *Phyllopora*. Miller, North American Geol. Pal., p. 315.

**PHYLLOPORA** King—Continued.

1885. *Phyllopora*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 718, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 912, 920.
1896. *Phyllopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.
1897. *Phyllopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 512, 520.

**Phyllopora aspera** Ulrich.

1890. *Phyllopora aspera*. Ulrich, Geol. Sur. Illinois, VIII, p. 613, pl. xlv, 5-5b. Hamilton: Falls of the Ohio.

**Phyllopora ? corticosa** Ulrich. See *Phylloporina corticosa* (Ulrich).**Phyllopora ehrenbergi** Swallow (not Geinitz).

1858. *Phyllopora ehrenbergi*. Swallow, Trans. St. Louis Acad. Sci., I, p. 180. Lower Permian: Kansas.

Obs.—As no description was given, the form so identified can not be recognized.

**Phyllopora superba** Ulrich. See *Reteporidra perundata* (Hall).**Phyllopora variolata** Ulrich. See *Phylloporina variolata* (Ulrich).**PHYLLOPORINA** Ulrich. Genotype: *Retepora Trentonensis* Nicholson.

*Retepora*, as applied by various authors to Ordovician and Silurian anastomosing bryozoa (not Lamarck, 1801).

1847. *Gorgonia* (?). Hall, Pal. New York, I, pp. 16, 76 (not Linnæus, 1745).
1847. *Intricaria*. Hall, Pal. New York, I, p. 77.
1878. *Intricaria*. Miller and Dyer, Contr. Pal., No. 2, p. 7.
1850. *Subretepora*. D'Orbigny, Prodr. de Pal., I, p. 22.
1889. *Subretepora*. Miller, North American Geol. Pal., p. 326. (See Geol. Sur. Illinois, VIII, pp. 683, 687.)
1882. *Phyllopora* (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.
1886. Nov. Gen. (not named). Ulrich, Contr. American Pal., I, p. 5.
1887. *Phylloporina*. (Ulrich), Foerste, Bull. Sci. Lab. Denison Univ., II, p. 150.
1890. *Phylloporina*. Ulrich, Geol. Sur. Illinois, VIII, pp. 399, 639.
1893. *Phylloporina*. Ulrich, Geol. Minnesota, III, p. 208.
1896. *Phylloporina*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.

**Phylloporina angulata** (Hall).

1852. *Retepora angulata*. Hall, Pal. New York, II, p. 49, pl. xix, 3a-h.
1875. *Retepora angulata* (?). Hall and Whitfield, Pal. Ohio, II, p. 111, pl. v. 2-4.
1882. *Retepora angulata*. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 269, pl. xiv, 1, 2.
1887. *Phylloporina angulata*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 151; *ibid.*, III, 1888, pl. xv, 1.
1889. *Subretepora angulata*. Miller, North American Geol. Pal., fig. 523 (p. 326).
1895. *Phylloporina angulata*. Foerste, Geol. Sur. Ohio, VII, p. 600, pl. xxviii, 1. Clinton: Rochester and Sodus, New York; Flamborough, Canada; Dayton, Todds Fork, Fair Haven, and Centerville, Ohio.

**Phylloporina aspera** (Hall).

1847. *Gorgonia ? aspera*. Hall, Pal. New York, I, p. 16, pl. iv, 3a, b.
1889. *Subretepora aspera*. Miller, North American Geol. Pal., p. 326.
1890. *Phylloporina aspera*. Ulrich, Geol. Sur. Illinois, VIII, p. 332, pl. liii, 4-4c. Chazy: Chazy, New York; Mangan, Canada.

**Phylloporina asperato-striata (Hall).**

1852. *Retepora asperato-striata*. Hall, Pal. New York, II, p. 161, pl. xlC, 2a-h.

1889. *Subretepora asperato-striata*. Miller, North American Geol. Pal., p. 326.

1890. *Phylloporina asperato-striata*. Ulrich, Geol. Sur. Illinois, VIII, p. 332, pl. liii, 5-5b.

Niagara: Lockport, New York.

**Phylloporina clathrata (Miller and Dyer).**

1878. *Intricaria clathrata*. Miller and Dyer, Contr. Pal., No. 2, p. 7, pl. iii, 5, 5a.

1889. *Subretepora clathrata*. Miller, North American Geol. Pal., p. 326.

1890. *Phylloporina clathrata*. Ulrich, Geol. Sur. Illinois, VIII, p. 639.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

**Phylloporina corticosa (Ulrich).**

1886. *Phyllopora ? corticosa*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 61.

1889. *Subretepora corticosa*. Miller, North American Geol. Pal., p. 326.

1890. *Phylloporina corticosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 639, pl. liii, 3, 3a.

1893. *Phylloporina corticosa*. Ulrich, Geol. Minnesota, III, p. 212, pl. v, 1-10.

Trenton (Black River): Cannon Falls and St. Paul, Minnesota.

**Phylloporina dawsoni Ulrich.**

1890. *Phylloporina dawsoni*. Ulrich, Geol. Sur. Illinois, VIII, p. 331, pl. liv, 1-1i.

1889. *Subretepora dawsoni*. (Ulrich, in press), Miller, North American Geol. Pal., p. 326.

Trenton: Montreal, Canada; Chimney Point, Vermont.

**Phylloporina fenestrata (Hall).**

1850. *Retepora fenestrata*. Hall, Third Ann. Rep. State Cabinet Nat. Hist., p. 178, pl. ii, 1a-c.

1889. *Subretepora fenestrata*. Miller, North American Geol. Pal., p. 326.

Trenton: Lowville, Lewis County, New York.

**Phylloporina gracilis (Hall).**

1847. *Retepora gracilis*. Hall, Pal. New York, I, p. 15, pl. iv, 2, 2a.

1889. *Subretepora gracilis*. Miller, North American Geol. Pal., p. 326.

Chazy: Chazy, New York.

**Phylloporina granistriata Ulrich.**

1890. *Phylloporina granistriata*. Ulrich, Geol. Sur. Illinois, VIII, p. 639, pl. xxix, 3, 3a.

Trenton: Alexander County, Illinois; Lexington, Kentucky.

**Phylloporina halli Ulrich.**

1890. *Phylloporina halli*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 181, fig. 7.

1893. *Phylloporina halli*. Geol. Minnesota, III, p. 211, pl. iv, 16-21.

Trenton (Black River): St. Paul, Minnesota.

**Phylloporina incepta (Hall).**

1847. *Retepora incepta*. Hall, Pal. New York, I, p. 15, pl. iv, 1a, b.

1889. *Subretepora incepta*. Miller, North American Geol. Pal., p. 326.

Chazy: Galway, Saratoga County, New York.

**Phylloporina reticulata (Hall).**

1847. *Intricaria ? reticulata*. Hall, Pal. New York, I, p. 77, pl. xxvi, 8a-c.

1889. *Subretepora reticulata*. Miller, North American Geol. Pal., p. 326, fig. 524.

1890. *Phylloporina reticulata*. Geol. Sur. Illinois, VIII, pp. 332, 639, pl. liii, 2, 2a.

**Phylloporina reticulata** (Hall)—Continued.

1893. *Phylloporina reticulata*. Geol. Minnesota, III, p. 210, pl. iv, 8-15.  
Trenton (Black River and Trenton): Watertown, New York; various localities in New York, Vermont, Minnesota and Canada.

**Phylloporina subluxa** Ulrich.

1890. *Phylloporina subluxa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 179, fig. 6.  
1893. *Phylloporina subluxa*. Ulrich, Geol. Minnesota, III, p. 209, pl. iv, 1-7.  
Trenton (Stones River): Minneapolis, Minnesota; Lebanon, Laverge and Murfreesboro, Tennessee.

**Phylloporina trentonensis** (Nicholson).

1875. *Retepora Trentonensis*. Nicholson, Geol. Mag., new ser., II, p. 37, pl. ii, 4-4b.  
1875. *Retepora Trentonensis*. Nicholson, Pal. Province Ontario, p. 15, pl. ii, 4-4b.  
1889. *Phylloporina trentonensis*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 47.  
1889. *Subretepora trentonensis*. Miller, North American Geol. Pal., p. 326.  
1890. *Phylloporina trentonensis*. Ulrich, Geol. Sur. Illinois, VIII, p. 640, pl. liii, 1-1c.  
1897. *Phylloporina trentonensis*. Whiteaves, Pal. Foss., III, p. 162.  
Trenton: Peterborough, Ontario; St. Andrews, Manitoba.

**Phylloporina variolata** (Ulrich).

1882. *Phyllopora variolata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 160, pl. vi, 14.  
1889. *Subretepora variolata*. Miller, North American Geol. Pal., p. 326.  
1890. *Phylloporina variolata*. Ulrich, Geol. Sur. Illinois, VIII, p. 639.  
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Pileotrypa** Hall. See *Eridopora* Ulrich.

*Pileotrypa bistrata* Simpson. See *Buskopora bistrata* (Hall).

*Pileotrypa clivulata* Simpson. See *Eridopora* ? *clivulata* (Hall).

*Pileotrypa denticulata* Simpson. See *Eridopora denticulata* (Hall).

*Pileotrypa geometrica* Simpson. See *Fistulipora geometrica* (Hall).

*Pileotrypa granifera* Simpson. See *Fistulipora granifera* (Hall).

*Pileotrypa pyriformis* Simpson. See *Buskopora pyriformis* (Hall).

**PINACOTRYPA** Ulrich. Genotype: *Fistulipora elegans* Rominger.

1890. *Pinacotrypa*. Ulrich, Geol. Sur. Illinois, VIII, p. 384.  
1889. *Pinacotrypa*. (Ulrich, in press), Miller, North American Geol. Pal., p. 315.  
1897. *Pinacotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 555.  
1897. *Fistuliporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 555.  
1899. *Fistuliporina*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 168.  
1897. *Fistulicella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 606.  
1899. *Fistulicella*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 167.

**Pinacotrypa elegans** (Rominger).

1866. *Fistulipora elegans*. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 122.  
1890. *Pinacotrypa elegans*. Ulrich, Geol. Sur. Illinois, VIII, p. 385.

**Pinacotrypa elegans (Rominger)—Continued.**

1898. *Pinacotrypa elegans*. Whiteaves, Contr. Canadian Pal., I, p. 381.  
1879. *Fistulipora proporoides*. Nicholson, Pal. Tabulate Corals, p. 310, fig. 41, pl. xv, 2, 2a.  
Hamilton: Hamburg and Canandaigua, New York.  
Obs. Some of the Hamilton forms described by Hall will undoubtedly prove to be synonyms of this species.

**Pinacotrypa marginata Whiteaves.**

1892. *Pinacotrypa marginata*. Whiteaves, Contr. Canadian Pal., I, p. 278, pl. xxxvi, 1-1b.  
Devonian [Hamilton?]: Lake Winnepegosis, Manitoba.

**Pinacotrypa operculata (Hall and Simpson).**

1887. *Lichenalia operculata*. Hall and Simpson, Pal. New York, VI, p. 205.  
1888. *Lichenalia operculata*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 7; Forty-first Ann. Rep. New York State Museum, pl. xv, 7.  
1897. *Fistulipora operculata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 13.  
Hamilton: York and near Le Roy, New York.

**Pinacotrypa plana (Hall).**

1883. *Thallostigma plana*. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).  
1884. *Thallostigma plana*. Hall, Rep. State Geologist New York for the year 1883, p. 30.  
1887. *Fistulipora plana*. Hall and Simpson, Pal. New York, VI, p. 215, pl. lviii, 19, 20.  
1897. *Fistulicella plana*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 4.  
1899. *Fistulicella plana*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 167, fig. 60.  
Hamilton: Darien Center and Eighteen-Mile Creek, New York.

**Pinacotrypa serrulata (Hall).**

1883. *Thallostigma serrulata*. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).  
1884. *Thallostigma serrulata*. Hall, Rep. State Geologist New York for the year 1883, p. 20.  
1887. *Fistulipora serrulata*. Hall and Simpson, Pal. New York, VI, p. 214, pl. lviii, 6-8.  
1897. *Fistuliporina serrulata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 15.  
Hamilton: West Bloomfield, New York.

**Pinacotrypa stellata (Hall).**

1883. *Lichenalia stellata*. Hall, Trans. Albany Institute, X, p. 183 (abstract, 1881, p. 183).  
1884. *Lichenalia stellata*. Hall, Rep. State Geologist New York for the year 1883, p. 33.  
1887. *Lichenalia stellata*. Hall and Simpson, Pal. New York, VI, p. 195, pl. lviii, 15, 16.  
1897. *Fistuliporina stellata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 9.  
1898. *Lichenalia stellata*. Whiteaves, Contr. Canadian Pal., I, p. 380.  
1899. *Lichenalia stellata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 171, fig. 66 A.  
Hamilton: West Bloomfield and Eighteen-Mile Creek, New York.



**Pinacotrypa variapora (Hall).**

1883. *Thallostigma variapora*. Hall, Trans. Albany Institute, X, p. 184 (abstract, 1881, p. 184).  
 1884. *Thallostigma variapora*. Hall, Rep. State Geologist New York for the year 1883, p. 18.  
 1887. *Fistulipora variapora*. Hall and Simpson, Pal. New York, VI, p. 210, pl. lviii, 9-14.  
 1897. *Fistuliporina variapora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 10.  
 1898. *Fistulipora variapora*. Whiteaves, Contr. Canadian Pal., I, p. 380. Hamilton: West Williams, Ontario; York and shore of Lake Canandaigua, New York.

*Pinnaporella* Simpson (1895). See *Ptiloporina* Hall.

*Pinnaporella* Simpson (1897). See *Ptiloporella* Hall.

*Pinnaporina* Simpson. See *Ptiloporina* Hall.

*Pinnaporina pinnata* Simpson. See *Ptiloporina pinnata* (Hall).

**PINNATOPORA** Vine. Genotype: *Glaucanome elegans* Young and Young.

1883. *Pinnatopora*. Vine, Rep. Brit. Assoc. Adv. Sci., LIII, p. 191.  
 1884. *Pinnatopora*. Vine, Quar. Jour. Geol. Soc. London, XL, p. 330.  
 1884. *Pinnatopora*. Shrubsole, Proc. Chester Soc. Nat. Hist., p. 100.  
 1885. *Pinnatopora*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 78.  
 1886. *Pinnatopora*. Ulrich, Contr. American Pal., I, p. 6.  
 1890. *Pinnatopora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 397, 614.  
 1896. *Pinnatopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.  
*Glaucanome* of various authors.  
 1887. *Glaucanome* (not of Goldfuss or Lonsdale). Hall and Simpson, Pal. New York, VI, p. xxiv.  
 1887. *Glaucanome* (not of Goldfuss or Lonsdale). Foerste, Bull. Sci. Lab. Denison Univ., II, p. 78.  
 1897. *Glaucanome* (not of Goldfuss or Lonsdale). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 524.  
 1899. *Glaucanome* (not of Goldfuss or Lonsdale). Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 176.

**Pinnatopora bellula** Ulrich.

1890. *Pinnatopora bellula*. Ulrich, Geol. Sur. Illinois, VIII, p. 619, pl. lxvi, 8-8b.  
 Base of Coal Measures: Seville, Illinois.

**Pinnatopora carinata** (Hall).

1883. *Glaucanome carinata*. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).  
 1884. *Glaucanome carinata*. Hall, Rep. State Geologist New York for the year 1883, p. 60.  
 1887. *Glaucanome carinata*. Hall and Simpson, Pal. New York, VI, p. 273, pl. lxvi, 23, 24.  
 1897. *Glaucanome carinata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 14, 15.  
 1899. *Glaucanome carinata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 177, fig. 74.  
 Hamilton: Eighteen-Mile Creek, Erie and Ontario counties, New York.

***Pinnatopora conferta* Ulrich.**

1890. *Pinnatopora conferta*. Ulrich, Geol. Sur. Illinois, VIII, p. 618, pl. lvi, 5, pl. lxvi, 6.

1894. *Pinnatopora conferta*. - Keyes, Missouri Geol. Sur., V, p. 31.

Keokuk: Keokuk and Bentonsport, Iowa; Jersey County, Illinois.

***Pinnatopora curvata* Ulrich.**

1888. *Pinnatopora curvata*. Ulrich, Bull. Denison Univ., IV, p. 76, pl. xiv, 4. Waverly: Richfield, Ohio.

***Pinnatopora flexuosa* Ulrich.**

1890. *Pinnatopora flexuosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 617, pl. lxvi, 4-4c.

Keokuk: Kings Mountain, Kentucky.

***Pinnatopora intermedia* Ulrich.**

1888. *Pinnatopora intermedia*. Ulrich, Bull. Denison Univ., IV, p. 74, pl. xiv, 1.

Waverly: Richfield, Ohio.

***Pinnatopora minor* Ulrich.**

1888. *Pinnatopora minor*. Ulrich, Bull. Denison Univ., IV, p. 77, pl. xiv, 7, 7a. Waverly: Richfield, Ohio.

***Pinnatopora nereidis* (White).**

1874. *Glaucanome nereidis*. White, Prel. Rep. Invert. Foss., p. 18.

1877. *Glaucanome nereidis*. White, Wheeler's U. S. Geol. Sur., IV, p. 105, pl. vii, 5a-e.

Carboniferous: Confluence White Mountain and Black rivers, Arizona.

***Pinnatopora nodata* (Hall).**

1883. *Glaucanome nodata*. Hall, Trans. Albany Institute, X, p. 160 (abstract, 1881, p. 18).

1883. *Glaucanome nodata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 13, 14.

1887. *Glaucanome nodata*. Hall and Simpson, Pal. New York, VI, p. 102, pl. xxxiii, 13, 14.

Upper Helderberg: Near Le Roy, New York.

***Pinnatopora simulatrix* Ulrich.**

1888. *Pinnatopora simulatrix*. Ulrich, Bull. Denison Univ., IV, p. 75, pl. xiv, 3. Waverly: Richfield, Ohio.

***Pinnatopora sinuosa* (Hall).**

1883. *Glaucanome sinuosa*. Hall, Trans. Albany Institute, X, p. 160 (abstract, 1881, p. 18).

1883. *Glaucanome sinuosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 11, 12.

1887. *Glaucanome sinuosa*. Hall and Simpson, Pal. New York, VI, p. 101, pl. xxxiii, 11, 12.

1897. *Glaucanome sinuosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 8-10.

Upper Helderberg: Near Buffalo, New York.

***Pinnatopora striata* Ulrich.**

1890. *Pinnatopora striata* Ulrich. Geol. Sur. Illinois, VIII, p. 617, pl. lxvi, 4d.

Keokuk: Bentonsport, Iowa.

***Pinnatopora subangulata* Ulrich.**

1888. *Pinnatopora subangulata*. Ulrich, Bull. Denison Univ., IV, p. 76, pl. xiv, 2. Waverly: Cuyahoga Falls, Ohio.

**Pinnatopora tenuiramosa** Ulrich.

1888. *Pinnatopora tenuiramosa*. Ulrich, Bull. Denison Univ., IV, p. 79.  
1890. *Pinnatopora tenuiramosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 619, pl. lxvi, 7.  
Waverly: Richfield, Ohio.

**Pinnatopora tenuistriata** (Hall).

1883. *Glaucanome tenuistriatus*. Hall, Trans. Albany Institute, X, p. 160 (abstract, 1881, p. 19).  
1883. *Glaucanome tenuistriatus*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 15-19.  
1887. *Glaucanome tenuistriatus*. Hall and Simpson, Pal. New York, VI, p. 102, pl. xxxiii, 15-19.  
1897. *Glaucanome tenuistriatus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 11-13.  
Upper Helderberg: Near Buffalo, New York.

**Pinnatopora trilineata** (Meek).

1872. *Glaucanome trilineata*. Meek, Pal. Eastern Nebraska, p. 157, pl. vii, 4a-d.  
1890. *Pinnatopora trilineata*. Ulrich, Geol. Sur. Illinois, VIII, p. 620, pl. lvi, 6.  
1894. *Pinnatopora trilineata*. Keyes, Missouri Geol. Sur., V, p. 31.  
Upper Coal Measures: Nebraska City, Nebraska; Sangamon County, Illinois; Kansas City, Missouri.

**Pinnatopora vinei** Ulrich.

1888. *Pinnatopora vinei*. Ulrich, Bull. Denison Univ., IV, p. 77, pl. xiv, 5.  
1890. *Pinnatopora vinei*. Ulrich, Geol. Sur. Illinois, VIII, p. 616, pl. lxvi, 5-5b.  
1894. *Pinnatopora vinei*. Keyes, Missouri Geol. Sur., V, p. 31.  
Waverly: Richfield, Ohio.  
Keokuk: Keokuk, Iowa; Kings Mountain, Kentucky.

**Pinnatopora whitei** Foerste.

1887. *Glaucanome whitii*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 78.  
1887. *Pinnatopora whitii*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 87, pl. vii, 4a-c.  
Coal Measures: Flint Ridge, Ohio.

**Pinnatopora youngi** Ulrich.

1888. *Pinnatopora youngi*. Ulrich, Bull. Denison Univ., IV, p. 78, pl. xiv, 6, 6a.  
1890. *Pinnatopora youngi*. Ulrich, Geol. Sur. Illinois, VIII, p. 615, pl. lxvi, 3.  
1894. *Pinnatopora youngi*. Keyes, Missouri Geol. Sur., V, p. 31.  
Waverly: Richfield and Lodi, Ohio.  
Keokuk: Keokuk, Iowa; King's Mountain, Kentucky.

**POLYPORA** McCoy. Genotype: *Polypora dendroides* McCoy.

1845. *Polypora*. McCoy, Synopsis Carbon. Foss. Ireland, p. 206.  
1850. *Polypora*. D'Orbigny, Prodr. de Paleontologie, I, p. 45.  
1852. *Polypora*. Hall, Pal. New York, II, p. 167.  
1854. *Polypora*. McCoy, Brit. Pal. Foss., p. 115.  
1860. *Polypora*. Eichwald, Lethæa Rossica, I, p. 372.  
1874. *Polypora*. Nicholson, Pal. Province, Ontario, p. 98.  
1875. *Polypora*. Etheridge, Jun., Proc. Geol. Assoc., IV, p. 120.  
1881. *Polypora*. Vine, Rep. British Assoc. Adv. Sci., p. 170.  
1882. *Polypora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.  
1883. *Polypora*. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 31.  
1885. *Polypora*. Hall, Rep. State Geologist New York for the year 1884, p. 35.  
1885. *Polypora*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 86.  
1885. *Polypora*. Waagen and Pichl, Pal. Indica, Ser. XIII, pp. 774, 781.

**POLYPORA** McCoy—Continued.

- 1886. *Polypora*. Ulrich, Contr. American Pal., I, p. 5.
- 1887. *Polypora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 82.
- 1887. *Polypora*. Hall and Simpson, Pal. New York, VI, p. xxiv.
- 1889. *Polypora*. Miller, North American Geol. Pal., p. 315.
- 1890. *Polypora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 396, 585.
- 1894. *Polypora*. Počta, Syst. Sil. Bohême, VIII, t. I, p. 84.
- 1895. *Polypora*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 699, 724; Forty-seventh Ann. Rep. New York State Museum, pp. 893, 918.
- 1895. *Polypora*. Whidborne, Devon. Fauna England, (Pal. Soc. Pub., XLIX), II, Part 4, p. 174.
- 1896. *Polypora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.
- 1897. *Polypora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 502, 520.
- 1899. *Polypora*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 162.
- 1895. *Polyporella*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 700, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 894, 919.
- 1897. *Polyporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 502, 520.
- 1895. *Flabelliporella*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 703, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 897, 919.
- 1897. *Flabelliporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 502, 521.
- 1876. *Protoretepora*. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 176; 1898, Engl. translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 136.

**Polypora aculeata** (Hall).

- 1883. *Fenestella aculeata*. Hall, Trans. Albany Institute, X, p. 163 (abstract, 1881, p. 21).
  - 1883. *Fenestella (Polypora) aculeata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxviii, 5-7.
  - 1886. *Fenestella (Polypora) aculeata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 6-11.
  - 1887. *Fenestella (Polypora) aculeata*. Hall and Simpson, Pal. New York, VI, p. 157, pl. xxxv, 5-7, pl. xl, 6-11.
- Hamilton: Falls of the Ohio.

**Polypora albionensis** Spencer. Recognizable?

- 1884. *Polypora (Fenestella?) albionensis*. Spencer, Trans. St. Louis Acad. Sci. IV, p. 605, pl. vii, 5, 5a.
  - 1884. *Polypora (Fenestella?) albionensis*. Spencer, Bull. Museum Univ. State Missouri, I, p. 55, pl. vii, 5, 5a.
- Niagara: Six miles east of Hamilton, Ontario.

**Polypora approximata** Ulrich.

- 1859. *Polypora biarmica* (not of Keyserling). Prout, Trans. St. Louis Acad. Sci., I, p. 450.
  - 1890. *Polypora approximata*. Ulrich, Geol. Sur. Illinois, VIII, p. 599, pl. lxi, 5, 5a.
- Chester: Chester, Illinois; Sloans Valley and Litchfield, Kentucky.

**Polypora arkonensis** Miller.

1874. *Polypora tuberculata* (not of Prout). Nicholson, Geol. Mag., new ser., I, p. 162, pl. ix, 20.  
1874. *Polypora tuberculata* (not of Prout). Nicholson, Pal. Province Ontario, p. 100, fig. 37a-c.  
1883. *Polypora arkonensis*. Miller, American Pal. Foss., edition 2, p. 292.  
1898. *Polypora Arkonensis*. Whiteaves, Contr. Canadian Pal., I, p. 379.  
Hamilton: Arkona, Ontario.

**Polypora arta** (Hall).

1879. *Fenestella Arta*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 163 (reprint, 1880, p. 25).  
1883. *Fenestella Arta*. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 4-9 (in part).  
1887. *Fenestella (Polypora) Arta*. Hall and Simpson, Pal. New York, VI, p. 63, pl. xviii, 4-7.  
1888. *Fenestella (Polypora) Arta*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 1-3; Forty-first Ann. Rep. New York State Museum, pl. xiv, 1-3.  
Lower Helderberg: Catskill Creek, New York.

**Polypora aspectans** (Hall).

1884. *Fenestella aspectus*. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 59.  
1885. *Polypora aspectans*. Hall, Rep. State Geologist New York for the year 1884, pl. i, 4.  
1887. *Fenestella (Polypora) aspectans*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 65.  
1888. *Fenestella (Polypora) aspectans*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiii, 10-14; Forty-first Ann. Rep. New York State Museum, pl. xiii, 10-14.  
1897. *Polypora aspectans*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 12, 13.  
Hamilton: Bellona, New York.

*Polypora biarmica* Prout (not of Keyserling). See *Polypora approximata* Ulrich.

**Polypora biseriata** Ulrich.

1890. *Polypora biseriata*. Ulrich, Geol. Sur. Illinois, VIII, p. 592, fig. 5d (p. 315), pl. lx, 4-4b.  
1894. *Polypora biseriata* (?). Keyes, Missouri Geol. Sur., V, p. 29.  
Warsaw: Warsaw and Monroe County, Illinois; Barrett Station, Missouri (Keyes).

**Polypora blandida** Ulrich.

1886. *Polypora blandida*. Ulrich, Contr. American Pal., I, p. 18, pl. ii, 3, 3a.  
Hamilton: Falls of the Ohio.

**Polypora brevisulcata** (Hall).

1883. *Fenestella brevisulcata*. Hall, Trans. Albany Institute, X, p. 168 (abstract, 1881, p. 26).  
1886. *Fenestella (Polypora) brevisulcata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 12-15.  
1887. *Fenestella (Polypora) brevisulcata*. Hall and Simpson, Pal. New York, VI, p. 168, pl. xl, 12-15.  
Upper Helderberg: Walpole, Ontario.

**Polypora burlingtonensis** Ulrich.

1890. *Polypora burlingtonensis*. Ulrich, Geol. Sur. Illinois, VIII, p. 587, pl. lix, 2, 2a.

Burlington: Burlington, Iowa; Henderson County, Illinois.

**Polypora carinella** (Hall and Simpson).

1883. *Fenestella* (*Polypora*) n. sp. (?). Hall, Rep. State Geologist New York for the year 1882, pl. xxxiii, 1, 2.

1887. *Fenestella* (*Polypora*) *carinella*. Hall and Simpson, Pal. New York, VI, p. 153, pl. xlii, 1, 2.

Upper Helderberg: Near Buffalo, New York.

**Polypora celsipora** (Hall).

1883. *Fenestella celsipora*. Hall, Trans. Albany Institute, X, p. 165 (abstract, 1881, p. 24).

1883. *Fenestella* (*Polypora*) *celsipora*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxiii, 5-8, ? 9, 10.

1886. *Fenestella* (*Polypora*) *celsipora*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 16-22, pl. xlii, 5-10.

1887. *Fenestella* (*Polypora*) *celsipora*. Hall and Simpson, Pal. New York, VI, p. 150, pl. xli, 16-22, pl. lii, 5-10.

Upper Helderberg: Walpole, Ontario.

**Polypora celsipora-minima** (Hall).

1883. *Fenestella celsipora* var. *minima*. Hall, Trans. Albany Institute, X, p. 166 (abstract, 1881, p. 24).

1883. *Fenestella* (*Polypora*) *celsipora*. Hall, Rep. State Geologist New York for the year 1882, pl. xxviii, 1-4.

1886. *Fenestella* (*Polypora*) *celsipora* var. *minima*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 11-13.

1887. *Fenestella* (*Polypora*) *celsipora* var. *minima*. Hall and Simpson, Pal. New York, VI, p. 151, pl. xxxv, 1-4, pl. xli, 11-13.

Hamilton: Falls of the Ohio.

**Polypora celsipora-minor** (Hall).

1883. *Fenestella celsipora* var. *minor*. Hall, Trans. Albany Institute, X, p. 166 (abstract, 1881, p. 24).

1886. *Fenestella* (*Polypora*) *celsipora* var. *minor*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 14, 15.

1887. *Fenestella* (*Polypora*) *celsipora* var. *minor*. Hall and Simpson, Pal. New York, VI, p. 151, pl. xli, 14, 15.

Upper Helderberg: Walpole, Ontario.

**Polypora cestriensis** Ulrich.

1890. *Polypora cestriensis*. Ulrich, Geol. Sur. Illinois, VIII, p. 594, pl. lv, 4-4b, pl. lx, 7-7c.

1894. *Polypora cestriensis*. Keyes, Missouri Geol. Sur., V, p. 29.

Chester: Chester, Kaskaskia, and near Anna, Illinois; Litchfield and Sloans Valley, Kentucky.

**Polypora compacta** (Hall).

1879. *Fenestella compacta*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 163 (reprint, 1880, p. 25).

1883. *Fenestella compacta*. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 1-3.

1887. *Fenestella* (*Polypora*) *compacta*. Hall and Simpson, Pal. New York, VI, p. 63, pl. xviii, 1-3, pl. xxii, 4, 5.

**Polypora compacta (Hall)—Continued.**

1883. *Fenestella (Hemitrypa) Nervia* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 1-3.  
Lower Helderberg: Clarksville, New York.

**Polypora complanata Ulrich.**

1890. *Polypora complanata*. Ulrich, Geol. Sur. Illinois, VIII, p. 597, pl. lx, 6-6c.  
Chester: Chester, Illinois.

**Polypora compressa (Hall).**

1879. *Fenestella compressa*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 164 (reprint, 1880, p. 26).  
1887. *Fenestella (Polypora) compressa*. Hall and Simpson, Pal. New York, VI, p. 61, pl. xviii, 14-18.  
1883. *Fenestella planiramosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 14-18.  
Lower Helderberg: Clarksville, New York.

**Polypora conferta (Hall).**

1883. *Fenestella conferta*. Hall, Trans. Albany Institute, X, p. 63 (abstract, 1879, p. 7).  
1882. *Fenestella conferta*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 252.  
Niagara: Waldron, Indiana.

**Polypora corticosa Ulrich.**

1890. *Polypora corticosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 596, pl. lx, 5-5c, pl. lxi, 1.  
1894. *Polypora corticosa*. Keyes, Missouri Geol. Sur., V, p. 30.  
Chester: Chester, Illinois.

**Polypora crassa Ulrich.**

1890. *Polypora crassa*. Ulrich, Geol. Sur. Illinois, VIII, p. 603, pl. lxi, 8, 8a.  
Upper Coal Measures: Sugar Creek, Sangamon County, Illinois.

**Polypora crebescens (Hall).**

1886. *Fenestella crebescens*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 20, 21.  
1887. *Fenestella (Polypora) crebescens*. Hall and Simpson, Pal. New York, VI, p. 170, pl. xlv, 20, 21.  
Upper Helderberg: Western New York.

*Polypora cultellata* Hall. See *Polypora shumardi* Prout.

**Polypora cylindracea (Hall).**

1883. *Fenestella cylindracea*. Hall, Trans. Albany Institute, X, p. 166 (abstract, 1881, p. 24).  
Upper Helderberg: Near Buffalo, New York.

**Polypora distans (Hall).**

1883. *Fenestella distans*. Hall, Trans. Albany Institute, X, p. 165 (abstract, 1881, p. 23).  
1883. *Fenestella (Polypora) distans*. Hall, Rep. State Geologist New York for the year 1882, pl. xxx, 2-5, ? 6-10, 15, 16.  
1886. *Fenestella distans*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 7.  
1887. *Fenestella (Polypora) distans*. Hall and Simpson, Pal. New York, VI, p. 161, pl. xxxvii, 2-10, 15, 16, pl. xlv, 7.  
Upper Helderberg: Near Buffalo, New York.

**Polypora distincta** Ulrich.

1890. *Polypora distincta*. Ulrich, Geol. Sur. Illinois, VIII, p. 603, pl. lxi, 7, 7a.  
Upper Coal Measures: Springfield, Illinois.

**Polypora elegans** ? Hall. See *Polypora idothea* Hall.**Polypora elongata** (Hall).

1883. *Fenestella* (*Polypora*) *elongata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxiii, 3, 4.  
1887. *Fenestella* (*Polypora*) *elongata*. Hall and Simpson, Pal. New York, VI, p. 153, pl. xlii, 3, 4.  
Upper Helderberg: Onondaga Valley, New York.

**Polypora eudora** (Hall).

1879. *Fenestella Eudora*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 165 (reprint, 1880, p. 27).  
1883. *Fenestella Eudora*. Hall, Rep. State Geologist New York for the year 1882, pl. xix, 3-10, ? 12.  
1887. *Fenestella* (*Polypora*) *Eudora*. Hall and Simpson, Pal. New York, VI, p. 58, pl. xix, 3, 4, ? 5, 6-10.  
Lower Helderberg: Clarksville, New York.

**Polypora fastuosa** Foerste (De Koninck?).

1887. *Polypora fastuosa* De Koninck. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 82, pl. vii, 9a-d.  
Coal Measures: Flint Ridge and Bald Hill, Ohio.  
Obs. It is very unlikely that Foerste's form is the species which De Koninck described under the name *P. fastuosa*.

**Polypora fistulata** (Hall).

1884. *Fenestella fistulata*. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 59.  
1885. *Fenestella fistulata*. Hall, Rep. State Geologist New York for the year 1884, pl. i, 6.  
1887. *Fenestella* (*Polypora*) *fistulata*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 64.  
1888. *Fenestella* (*Polypora*) *fistulata*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xii, 1-16; Forty-first Ann. Rep. New York State Museum, pl. xii, 1-16.  
1895. *Polyporella fistulata*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 700; Forty-seventh Ann. Rep. New York State Museum, p. 894.  
1897. *Polyporella fistulata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 9, 10.  
Hamilton: Genesee and Erie counties, New York; West Williams, Ontario.

**Polypora flabelliformis** (Hall).

1883. *Fenestella flabelliformis*. Hall, Trans. Albany Institute, X, p. 165 (abstract 1881, p. 23).  
1883. *Fenestella* (*Polypora*) *flabelliformis*. Hall, Rep. State Geologist New York for the year 1882, pl. xxx, 11, 12.  
1887. *Fenestella* (*Polypora*) *flabelliformis*. Hall and Simpson, Pal. New York, VI, p. 161, pl. xxxvii, 11, 12.  
Upper Helderberg: Onondaga Valley, New York. In the Trans. Albany Institute, X, p. 165, the locality is given as Shortsville, near Manchester, New York.



**Polypora ? gracilis Prout.**

1860. *Polypora gracilis*. Prout, Trans. St. Louis Acad. Sci., I, p. 580.  
 1866. *Polypora gracilis*. Prout, Geol. Sur. Illinois, II, p. 422, pl. xxi, 1, 1a.  
 1888. *Polypora gracilis*. Ulrich, Bull. Denison Univ., IV, p. 73.  
 1890. *Polypora ? gracilis*. Ulrich, Geol. Sur. Illinois, VIII, p. 590, pl. lxi, 10, 10a.  
 1894. *Polypora gracilis*. Keyes, Missouri Geol. Sur., V, p. 28.  
 Keokuk: Warsaw and Nauvoo, Illinois; Keokuk, Iowa; Kings Mountain, Kentucky.  
 Waverly: Richfield and Sciotoville, Ohio.

**Polypora granilinea (Hall).**

1883. *Fenestella granilinea*. Hall, Trans. Albany Institute, X, p. 168 (abstract, 1881, p. 27).  
 1886. *Fenestella (Polypora) granilinea*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 20-23.  
 1887. *Fenestella (Polypora) granilinea*. Hall and Simpson, Pal. New York, VI, p. 154, pl. xl, 20-23.  
 Upper Helderberg: Walpole, Ontario.

**Polypora halliana Prout.**

1860. *Polypora Halliana*. Prout, Trans. St. Louis Acad. Sci., I, p. 580.  
 1866. *Polypora Halliana*. Prout, Geol. Sur. Illinois, II, p. 421, pl. xxi, 4-4b.  
 1876-7. *Protoretepora (Polypora) Halliana*. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 179; 1898, English translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 137.  
 1890. *Polypora halliana*. Ulrich, Geol. Sur. Illinois, VIII, p. 587, pl. lix, 5-5c.  
 1894. *Polypora halliana*. Keyes, Missouri Geol. Sur., V, p. 28.  
 Keokuk and Warsaw: Warsaw, Illinois, and Keokuk, Iowa.

**Polypora Halliana Nicholson (not Prout) = ?**

1874. *Polypora Halliana*. Nicholson, Pal. Province Ontario, p. 99.  
 Upper Helderberg: Wainfleet, Ontario.

**Polypora Hamiltonensis Prout. See Reteporina hamiltonensis (Prout).****Polypora hexagonalis (Hall).**

1883. *Fenestella hexagonalis*. Hall, Trans. Albany Institute, X, p. 169 (abstract, 1881, p. 27).  
 1883. *Fenestella (Polypora) hexagonalis*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxi, 14-20.  
 1887. *Fenestella (Polypora) hexagonalis*. Hall and Simpson, Pal. New York, VI, p. 164, pl. xxxiii, 14-20.  
 Upper Helderberg: Walpole, Ontario.

**Polypora hexagonalis-foraminulosa (Hall).**

1883. *Fenestella hexagonalis* var. *foraminulosa*. Hall, Trans. Albany Institute, X, p. 169 (abstract, 1881, p. 27).  
 1883. *Fenestella (Polypora) hexagonalis* var. *foraminulosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxii, 16-20.  
 1887. *Fenestella (Polypora) hexagonalis* var. *foraminulosa*. Hall and Simpson, Pal. New York, VI, p. 165, pl. xxxix, 16-20.  
 Upper Helderberg: Walpole, Ontario.

**Polypora idothea (Hall).**

1874. *Polypora elegans* (?). Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 97.  
 1879. *Fenestella Idothea*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 166 (reprint, 1880, p. 28).

**Polypora idothea (Hall)—Continued.**

1883. *Fenestella Idothea*. Hall, Rep. State Geologist New York for the year 1882, pl. xix, 14, 15.  
1887. *Fenestella (Polypora) Idothea*. Hall and Simpson, Pal. New York, VI, p. 60, pl. xix, 14, 15.  
Lower Helderberg: Clarksville, New York.

**Polypora imbricata Prout. Not recognizable.**

1866. *Polypora imbricata*. Prout, Trans. St. Louis Acad. Sci., II, p. 412.  
"Mountain Limestone:" Indiana.

**Polypora impressa Ulrich.**

1888. *Polypora impressa*. Ulrich, Bull. Denison Univ., IV, p. 72, pl. xiii, 8, 8a.  
Waverly: Richfield, Ohio.

**Polypora incepta Hall.**

1852. *Polypora incepta*. Hall, Pal. New York, II, p. 167, pl. xld, 5a-f.  
1890. *Polypora incepta (Hall?)*. Ulrich, Geol. Sur. Illinois, VIII, p. 358, pl. lv, 1.  
Niagara: Lockport and Rochester, New York; Waldron, Indiana.

**Polypora intermedia Prout.**

1858. *Polypora intermedia*. Prout, Trans. St. Louis Acad. Sci., I, p. 272, pl. xv, 5, 5a.  
Hamilton: Falls of the Ohio.

**Polypora lævistriata (Hall).**

1883. *Fenestella (Polypora) lævistriata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxviii, 14-16.  
1887. *Fenestella (Polypora) lævistriata*. Hall and Simpson, Pal. New York, VI, p. 159, pl. xxxv, 14-16.  
Hamilton: Falls of the Ohio.

**Polypora largissima (Hall).**

1883. *Fenestella largissima*. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 22).  
1883. *Fenestella (Polypora) largissima*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvii, 8, 9.  
1887. *Fenestella (Polypora) largissima*. Hall and Simpson, Pal. New York, VI, p. 156, pl. xxxiv, 8, 9.  
Upper Helderberg: Central New York.

**Polypora latitruncata (Hall).**

1884. *Fenestella latitruncata*. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 58.  
1887. *Fenestella (Polypora) latitruncata*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 68.  
1888. *Fenestella (Polypora) latitruncata*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiii, 1-9; Forty-first Ann. Rep. New York State Museum, pl. xiii, 1-9.  
Hamilton: Darien, New York; West Williams, Ontario.

**Polypora levinodata (Hall).**

1883. *Fenestella levinodata*. Hall, Trans. Albany Institute, X, p. 169 (abstract, 1881, p. 28).  
1883. *Fenestella (Polypora) levinodata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxiii, 12-15.  
1886. *Fenestella (Polypora) levinodata*. Hall and Simpson, Pal. New York, VI, p. 169, pl. xlii, 12-15.  
Hamilton: Falls of the Ohio.

**Polypora lilæa Hall.**

1874. *Polypora Lilia*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 96.
1879. *Fenestella (Polypora) Lilæa*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 165 (reprint, 1880, p. 27).
1883. *Fenestella (Polypora) Lilæa*. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 19, 20.
1887. *Fenestella (Polypora) Lilæa*. Hall and Simpson, Pal. New York, VI, p. 62, pl. xviii, 19-22.
1883. *Retepora n. sp.* Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 21, 22.
- Lower Helderberg: Schoharie and Clarksville, New York.

**Polypora maccoyana Ulrich.**

1890. *Polypora maccoyana*. Ulrich, Geol. Sur. Illinois, VIII, p. 588, pl. lix, 3-3d.
1894. *Polypora maccoyana*. Keyes, Missouri Geol. Sur., V, p. 28.
- Keokuk: Nauvoo and near Plymouth, Illinois; Keokuk and Bentonsport, Iowa.

**Polypora manitobensis Whiteaves.**

1892. *Polypora (porosa ? var.) Manitobensis*. Whiteaves, Contr. Canadian Pal., 1, p. 280, pl. xxxvi, 5.
- Devonian (Hamilton?): Lake Manitoba, Manitoba.

**Polypora marginata Geinitz (not McCoy). See *Polypora submarginata* Meek.****Polypora mexicana Prout.**

1858. *Polypora Mexicana*. Prout, Trans. St. Louis Acad. Sci., I, p. 270, pl. xvi, 2-2b.
- 1876-7. *Protoretepora (Polypora) mexicana*. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 179; 1898, Engl. translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 137.
- Permian: Jornada de Muerto, New Mexico.

**Polypora multiplex (Hall).**

1884. *Fenestella multiplex*. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 57.
1887. *Fenestella (Polypora) multiplex*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 66.
1888. *Fenestella (Polypora) multiplex*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xi, 12-16; Forty-first Ann. Rep. New York State Museum, pl. xi, 12-16.
1899. *Polypora multiplex*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 162, fig. 51A.
- Hamilton: Moscow, Alden, and Eighteenmile Creek, New York.

**Polypora mutabilis (Hall).**

1883. *Fenestella mutabilis*. Hall, Trans. Albany Institute, X, p. 167 (abstract, 1881, p. 25).
1883. *Fenestella (Polypora) mutabilis*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxii, 12-15.
1887. *Fenestella (Polypora) mutabilis*. Hall and Simpson, Pal. New York, VI, p. 166, pl. xxxix, 12-15.
- Upper Helderberg: Walpole, Ontario.

**Polypora nexa (Hall).**

1883. *Fenestella nexa*. Hall, Trans. Albany Institute, X, p. 167 (abstract, 1881, p. 25).  
1883. *Fenestella (Polypora) nexa*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxii, 4-9.  
1887. *Fenestella (Polypora) nexa*. Hall and Simpson, Pal. New York, VI, p. 165, pl. xxxix, 4-9.  
Upper Helderberg: Walpole, Ontario.

**Polypora nodocarinata Ulrich.**

1890. *Polypora nodocarinata*. Ulrich, Geol. Sur. Illinois, VIII, p. 601, pl. lxi, 9, 9a.  
Upper Coal Measures: Crooked Creek, near Centralia, and Macoupin County, Illinois.

**Polypora obliqua (Hall and Simpson).**

1879. *Fenestella Arta* (in part). Hall, Thirty-second Ann. Rep. New York State Museum, p. 163 (reprint, 1880, p. 25).  
1883. *Fenestella arta* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 8, 9.  
1887. *Fenestella (Polypora) obliqua*. Hall and Simpson, Pal. New York, VI, p. 64, pl. xviii, 8, 9.  
1888. *Fenestella obliqua*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 4; Forty-first Ann. Rep. New York State Museum, pl. xiv, 4.  
Lower Helderberg: Catskill, Greene County, New York.

**Polypora paxillata (Hall).**

1879. *Fenestella paxillata*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 164 (reprint, 1880, p. 26).  
1883. *Fenestella papillata* (in error). Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 10-12.  
1887. *Fenestella (Polypora) paxillata*. Hall and Simpson, Pal. New York, VI, p. 65, pl. xviii, 10-12.  
Lower Helderberg: Clarksville, New York.

**Polypora perangulata (Hall).**

1883. *Fenestella perangulata*. Hall, Trans. Albany Institute, X, p. 165 (abstract, 1881, p. 23).  
1883. *Fenestella (Polypora) perangulata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxx, 13, 14.  
1887. *Fenestella (Polypora) perangulata*. Hall and Simpson, Pal. New York, VI, p. 162, pl. xxxvii, 13, 14.  
Upper Helderberg: Western New York.

**Polypora perundata Hall. See Reteporidra perundata (Hall).****Polypora porosa (Hall).**

1883. *Fenestella porosa*. Hall, Trans. Albany Institute, X, p. 167 (abstract, 1881, p. 26).  
1883. *Fenestella (Polypora) porosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxi, 1-6.  
1887. *Fenestella (Polypora) porosa*. Hall and Simpson, Pal. New York, VI, p. 163, pl. xxxviii, 1-6.  
Upper Helderberg: Walpole, Ontario.

**Polypora propria (Hall).**

1883. *Fenestella propria*. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 22).  
1883. *Fenestella (Polypora) propria*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvii, 10-13.  
1887. *Fenestella (Polypora) propria*. Hall and Simpson, Pal. New York, VI, p. 157, pl. xxxiv, 10-13.  
Upper Helderberg: Near Buffalo, New York.

**Polypora ? psyche Billings.**

1874. *Polypora Psyche*. Billings, Pal. Foss., II, p. 11, figs. 1, 2.  
Oriskany (Gaspé Limestone): Indian Cove, Gaspé Bay, Canada.

**Polypora pulchella Nicholson.**

1874. *Polypora pulchella*. Nicholson, Geol. Mag., new ser., I, p. 161, pl. ix, 18.  
1874. *Polypora pulchella*. Nicholson, Pal. Province Ontario, p. 99, fig. 35.  
Upper Helderberg: Port Colborne, Ontario.

**Polypora punctostriata (Hall).**

1876. *Fenestella punctostriata*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xii, 15, 16; *ibid.* (Museum edition, 1879), p. 125, pl. xii, 15, 16.  
1882. *Fenestella punctostriata*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 251, pl. xi, 15, 16.  
Niagara: Waldron, Indiana.

**Polypora quadrangularis (Hall).**

1883. *Fenestella quadrangularis*. Hall, Trans. Albany Institute, X, p. 163 (abstract, 1881, p. 21).  
1883. *Fenestella (Polypora) quadrangularis*. Hall, Rep. State Geologist New York for the year 1882, pl. xxviii, 8-13, pl. xxix, 23, 24.  
1886. *Fenestella (Polypora) quadrangularis*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 1, 2.  
1887. *Fenestella (Polypora) quadrangularis*. Hall and Simpson, Pal. New York, VI, p. 158, pl. xxxv, 8-13, pl. xxxvi, 23, 24, pl. xl, 1, 2.  
Hamilton: Falls of the Ohio.

**Polypora radialis Ulrich.**

1888. *Polypora radialis*. Ulrich, Bull. Denison Univ., IV, p. 74.  
1890. *Polypora radialis*. Ulrich, Geol. Sur. Illinois, VIII, p. 591, pl. lx, 1-1d.  
1894. *Polypora radialis*. Keyes, Missouri Geol. Sur., V, p. 29.  
Waverly: Near Newark, and Richfield, Ohio.  
Keokuk: Keokuk, Iowa.

**Polypora retrorsa Ulrich.**

1890. *Polypora retrorsa*. Ulrich, Geol. Sur. Illinois, VIII, p. 591, pl. lix, 6-6d.  
1894. *Polypora retrorsa*. Keyes, Missouri Geol. Sur., V, p. 29.  
Keokuk: Keokuk, Iowa.

**Polypora rigida (Hall).**

1883. *Fenestella rigida*. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 22).  
1883. *Fenestella (Polypora) rigida*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvii, 1-3.  
1887. *Fenestella (Polypora) rigida*. Hall and Simpson, Pal. New York, VI, p. 155, pl. xxxiv, 1-3.  
Upper Helderberg: Thompson's Lake, Albany County, New York.

**Polypora rigida** Prout. Not recognizable.

1866. *Polypora rigida*. Prout, Trans. St. Louis Acad. Sci., II, p. 412.  
Geological horizon and locality not given.

**Polypora robusta** (Hall).

1883. *Fenestella robusta*. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 22).  
1883. *Fenestella* (*Polypora*) *robusta*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvii, 4-7, pl. xxx, 1, pl. xxxii, 1-3.  
1887. *Fenestella* (*Polypora*) *robusta*. Hall and Simpson, Pal. New York, VI, p. 156, pl. xxxiv, 4-7, pl. xxvii, 1-3, pl. xliii, 1, pl. xlvi, 6.  
Upper Helderberg: Walpole, Ontario.

**Polypora rustica** (Hall and Simpson).

1887. *Fenestella* (*Polypora*) *rustica*. Hall and Simpson, Pal. New York, VI, p. 169, pl. xliii, 10-13.  
Upper Helderberg: Walpole, Ontario.

**Polypora separata** (Hall).

1883. *Fenestella* (*Polypora*) *separata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxii, 10, 11.  
1887. *Fenestella* (*Polypora*) *separata*. Hall and Simpson, Pal. New York, VI, p. 166, pl. xxxix, 10, 11.  
Upper Helderberg: Walpole, Ontario.

**Polypora shumardi** Prout.

1858. *Polypora Shumardii*. Prout, Trans. St. Louis Acad. Sci., I, p. 271, pl. xvi, 3-3b.  
1876-77. *Protoretepora* (*Polypora*) *Shumardii*. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 179; 1898, Engl. translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 137.  
1885. *Polypora shumardi*. Hall, Rep. State Geologist New York for the year 1884, p. 35, pl. i, 5.  
1890. *Polypora shumardi*. Ulrich, Geol. Sur. Illinois, VIII, p. 586, pl. lv, 2-2d.  
1883. *Fenestella cultellata*. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 21).  
1883. *Fenestella* (*Polypora*) *cultellata*. Hall, Rep. State Geologist New York for the year 1882, pl. (36) xxix, 3-22.  
1886. *Fenestella* (*Polypora*) *cultellata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 9.  
1887. *Fenestella* (*Polypora*) *cultellata*. Hall and Simpson, Pal. New York, VI, p. 160, pl. xxxvi, 3-22, pl. xli, 9.  
Hamilton: Falls of the Ohio.

**Polypora simulatrix** Ulrich.

1890. *Polypora simulatrix*. Ulrich, Geol. Sur. Illinois, VIII, p. 589, pl. lix, 4-4b.  
1894. *Polypora simulatrix*. Keyes, Missouri Geol. Sur., V, p. 28.  
Keokuk: Nauvoo, Warsaw, and Henderson County, Illinois; Keokuk and Bentonsport, Iowa.

**Polypora spininodata** Ulrich.

1890. *Polypora spininodata*. Ulrich, Geol. Sur. Illinois, VIII, p. 594, pl. lx, 3.  
1894. *Polypora spininodata*. Keyes, Missouri Geol. Sur., V, p. 29.  
Warsaw: Warsaw, Illinois.

**Polypora spinulifera** Ulrich.

1890. *Polypora spinulifera*. Ulrich, Geol. Sur. Illinois, VIII, p. 598, pl. lxi, 2, 2a, 3, 3a, 4, 4a.

**Polypora spinulifera** Ulrich—Continued.

1894. *Polypora spinulifera*. Keyes, Missouri Geol. Sur., V, p. 30.  
 Chester: Chester and Monroe County, Illinois.  
 Coal Measures: Montgomery County, Illinois; near Red Oak, Iowa.

**Polypora stragula** White.

1866. *Polypora biarmica* (not of Keyserling). Geinitz, Carb. und Dyas in Nebraska, p. 28.  
 1872. *Polypora* sp. undet. Meek, Pal. Eastern Nebraska, p. 155.  
 1874. *Polypora stragula*. White, Prelim. Rep. Invert. Foss., p. 19.  
 1877. *Polypora stragula*. White, Wheeler's U. S. Geol. Sur., IV, p. 108, pl. vii, 4a, b.  
 Carboniferous: White Mountains, Arizona (White); Nebraska (Meek).

**Polypora striatopora** (Hall).

1883. *Fenestella striatopora*. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 23).  
 1886. *Fenestella* (*Polypora*) *striatopora*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 16-19.  
 1887. *Fenestella* (*Polypora*) *striatopora*. Hall and Simpson, Pal. New York, VI, p. 168, pl. xl, 16-19.  
 1897. *Polypora striatopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 11, 14, 15.  
 Hamilton: Falls of the Ohio.

**Polypora ? stricta** (Hall and Simpson).

1883. *Fenestella Eudora* (?). Hall, Rep. State Geologist New York for the year 1882, pl. xix, 1, 2.  
 1887. *Fenestella* (*Polypora*) *stricta*. Hall and Simpson, Pal. New York, VI, p. 59, pl. xix, 1, 2.  
 Lower Helderberg: Clarksville, New York.

**Polypora submarginata** Meek.

1866. *Polypora marginata* (not of McCoy). Geinitz, Carb. und Dyas in Nebraska, p. 69, pl. v, 11a, b, 12a, b.  
 1872. *Polypora submarginata*. Meek, Pal. Eastern Nebraska, p. 154, pl. vii, 7a, b.  
 1890. *Polypora submarginata*. Ulrich, Geol. Sur. Illinois, VIII, p. 602, pl. lxi, 6-6b.  
 1894. *Polypora submarginata*. Keyes, Missouri Geol. Sur., V, p. 30.  
 Upper Coal Measures: Nebraska City, Nebraska; Macoupin County, La Salle, and Springfield, Illinois; near Red Oak, Iowa.

**Polypora submutans** (Hall).

1883. *Fenestella submutans*. Hall, Trans. Albany Institute, X, p. 163 (abstract, 1881, p. 21).  
 1886. *Fenestella* (*Polypora*) *submutans*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 3-5.  
 1887. *Fenestella* (*Polypora*) *submutans*. Hall and Simpson, Pal. New York, VI, p. 167, pl. xl, 3-5.  
 Hamilton: Falls of the Ohio.

**Polypora tantula** (Hall).

1883. *Fenestella tantulus*. Hall, Trans. Albany Institute, X, p. 64 (abstract, 1879, p. 8).  
 1882. *Fenestella tantulus*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 253.  
 Niagara: Waldron, Indiana.

**Polypora tenella** Nicholson.

1874. *Polypora tenella*. Nicholson, Geol. Mag., new ser., I, p. 162, pl. ix, 19b.

1874. *Polypora tenella*. Nicholson, Pal. Province Ontario, p. 100, fig. 36.

Upper Helderberg: Wainfleet; Ontario.

**Polypora transversa** Ulrich.

1886. *Polypora transversa*. Ulrich, Contr. American Pal., I, p. 18, pl. ii, 2, 2a.

Hamilton: Falls of the Ohio.

**Polypora tuberculata** Prout.

1858. *Polypora tuberculata*. Prout, Trans. St. Louis Acad. Sci., I, p. 449, pl. xviii, 3.

1885. *Polypora tuberculata*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 87.

1890. *Polypora tuberculata*. Ulrich, Geol. Sur. Illinois, VIII, p. 595, pl. lx, 8.

1894. *Polypora tuberculata*. Keyes, Missouri Geol. Sur., V, p. 30.

Chester: Chester, Illinois; Litchfield, Kentucky.

*Polypora tuberculata* Nicholson (not Prout). See *Polypora arkonensis* Miller.

**Polypora varia** (Hall).

1888. *Fenestella varia* (Hall). Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 10-12; Forty-first Ann. Rep. New York State Museum, pl. xiv, 10-12.

Lower Helderberg: Clarksville, New York.

**Polypora varsoviensis** Prout.

1858. *Polypora varsoviensis*. Prout, Trans. St. Louis Acad. Sci., I, p. 237, pl. xv, 3-3b.

1890. *Polypora varsoviensis*. Ulrich, Geol. Sur. Illinois, VIII, p. 593, pl. lx, 2-2b.

1891. *Polypora Varsouviensis* (?). Whitfield, Annals New York Acad. Sci., V, p. 578.

1894. *Polypora varsoviensis*. Keyes, Missouri Geol. Sur., V, p. 29.

Warsaw: Barretts Station, Missouri; Warsaw, and Monroe County, Illinois.

St. Louis or Chester (Maxville Limestone): Newtonville, Ohio (Whitfield).

**Polypora whitei** Ulrich.

1890. *Polypora whitei*. Ulrich, Geol. Sur. Illinois, VIII, p. 600, pl. lxii, 2.

Base of Coal Measures: Seville, Illinois.

**Polypora whitei-insculpta** Ulrich.

1890. *Polypora whitei* var. *insculpta*. Ulrich, Geol. Sur. Illinois, VIII, p. 600, pl. lxii, 1.

1889. *Polypora whitei* var. *eximia* (in error for *insculpta*). (Ulrich, in press), Miller, North American Geol. Pal., p. 317.

Upper Coal Measures: Springfield, Illinois.

*Polypora whitei* var. *eximia* Ulrich. See *Polypora whitei-insculpta* Ulrich.

*Polyporella Simpson*. See *Polypora McCoy*.

*Polyporella fistulata* Simpson. See *Polypora fistulata* (Hall).

**PRASOPORA** Nicholson and Etheridge, Jun. Genotype: *Prasopora grayæ* Nicholson and Etheridge, Jun.

1877. *Prasopora*. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XX, p. 38.



**PRASOPORA** Nicholson and Etheridge, Jun.—Continued.

1879. *Prasopora*. Nicholson, Pal. Tabulate Corals, p. 324.  
 1881. *Prasopora*. Nicholson, Genus Monticulipora, pp. 102, 202.  
 1882. *Prasopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.  
 1883. *Prasopora*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 10.  
 1887. *Prasopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 170.  
 1889. *Prasopora*. Miller, North American Geol. Pal., p. 201.  
 1890. *Prasopora*. Ulrich, Geol. Sur. Illinois, VIII, p. 371.  
 1893. *Prasopora*. Ulrich, Geol. Minnesota, III, p. 244.  
 1896. *Prasopora* (in part). Zittel's Textb. Pal. (Engl. ed.), p. 104.  
 1896. *Prasopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 273.  
 1897. *Prasopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 586.

***Prasopora affinis* Foord.**

1883. *Prasopora affinis*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 12, pl. iii, 2-2c.  
 1890. *Prasopora affinis*. Ulrich, Geol. Sur. Illinois, VIII, fig. 7c (p. 318).  
 Trenton: Ottawa City, Canada; Cannon Falls and Berne, Minnesota.

***Prasopora calycula* Ulrich. See *Aspidopora calycula* (James).*****Prasopora conoidea* Ulrich.**

1886. *Prasopora conoidea*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 87.  
 1893. *Prasopora conoidea*. Ulrich, Geol. Minnesota, III, p. 249, pl. xvi, 11-15.  
 1897. *Prasopora conica* (in error for *conoidea*). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 170 (p. 587).  
 Trenton (Black River): Cannon Falls and St. Paul, Minnesota.

***Prasopora contigua* Ulrich.**

1886. *Prasopora contigua*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 87.  
 1893. *Prasopora contigua*. Ulrich, Geol. Minnesota, III, p. 249, pl. xvi, 24-26.  
 1894. *Prasopora contigua*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 180.  
 Trenton (Black River and Trenton): Goodhue and Dakota counties, Minnesota; Covington, Kentucky; Mount Pleasant, Tennessee.

***Prasopora grandis* (Ulrich).**

1886. *Monticulipora grandis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 78.  
 1893. *Monticulipora grandis*. Ulrich, Geol. Minnesota, III, p. 219, pl. xv, 1-6.  
 Trenton (Stones River and Trenton): Minneapolis, St. Paul, and Cannon Falls, Minnesota.

***Prasopora ? hospitalis* (Nicholson).**

1881. *Monticulipora* (*Prasopora*) *Selwynii* var. *hospitalis*. Nicholson, Genus *Monticulipora*, p. 209, fig. 45.  
 1882. *Prasopora hospitalis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 237.  
 1888. *Monticulipora hospitalis*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 26.  
 1888. *Monticulipora hospitalis* var. *neglecta*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 27, pl. i, 3.  
 1896. *Monticulipora hospitalis* var. *neglecta*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 124.  
 Cincinnati (Richmond): A common form of the Richmond in Ohio, Indiana, and Illinois.

**Prasopora insularis** Ulrich.

1893. *Prasopora insularis*. Ulrich, Geol. Minnesota, III, p. 251, pl. xvi, 18-23.  
Trenton: Cannon Falls, St. Paul, Berne, and Kenyon, Minnesota; Neenah, Wisconsin; Decorah, Iowa.

**Prasopora insularis-filmorensis** Ulrich.

1893. *Prasopora insularis* var. *filmorensis*. Ulrich, Geol. Minnesota, III, p. 252, pl. xvi, 18, 19.  
Trenton: Fountain and Preston, Minnesota.

**Prasopora lenticularis** Ulrich.

1893. *Prasopora lenticularis*. Ulrich, Geol. Minnesota, III, p. 253, pl. xvii, 22-25.  
Trenton (Black River): St. Paul and Cannon Falls, Minnesota.

**Prasopora lycoperdon** Ulrich. See *Prasopora simulatrix* Ulrich.**Prasopora lycoperdon Vanuxem**, var. *Selwyni* Ami. Not recognizable.

1892. *Prasopora lycoperdon* Vanuxem, var. *Selwyni*. Ami, Canadian Record of Science, V, p. 99.  
Trenton: Quebec City, Quebec.

**Prasopora ? newberryi** Ulrich. See *Aspidopora newberryi* (Nicholson).**Prasopora nodosa** Ulrich.

1882. *Prasopora nodosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 245, pl. xi, 1-1b.  
1894. *Prasopora nodosa*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 189.  
Trenton: Nashville, Tennessee; Burgin and Frankfort, Kentucky.

**Prasopora oculata** Foord.

1883. *Prasopora oculata*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 11, pl. iii, 1-1g.  
1893. *Prasopora oculata*. Ulrich, Geol. Minnesota, III, p. 252, fig. 15c, d.  
Trenton: Ottawa City, Canada; Goodhue County, Minnesota.

**Prasopora parmula** Foerste. See *Aspidopora parmula* (Foerste).**Prasopora selwyni** (Nicholson).

1879. *Monticulipora* (*Diplotrypa*) *Whiteavesii* (in part). Nicholson, Pal. Tabulate Corals, p. 316.  
1881. *Monticulipora* (*Prasopora*) *Selwynii*. Nicholson, Genus *Monticulipora*, p. 206, fig. 44.  
1893. *Prasopora selwyni*. Ulrich, Geol. Minnesota, III, p. 250, pl. xvi, 16, 17, fig. 15a, b (p. 248).  
1896. *Prasopora Selwynii*. Zittel's Textb. Pal. (Engl. ed.), fig. 188A (not B = *Peronopora decipiens* (Rominger)) (p. 104).  
Trenton: Peterborough and Ottawa, Ontario; Cannon Falls, Minnesota.

**Prasopora simulatrix** Ulrich.

1886. *Prasopora simulatrix*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 85.  
1893. *Prasopora simulatrix*. Ulrich, Geol. Minnesota, III, p. 245, pl. xvi, 1-10.  
1896. *Prasopora simulatrix*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 452 (p. 273).  
1897. *Prasopora simulatrix*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 171, 172 (p. 587).  
1890. *Prasopora lycoperdon*. Ulrich, Geol. Sur. Illinois, VIII, fig. 7a-b (p. 318).  
1895. *Monticulipora selwynii* (not of Nicholson). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 86.

**Prasopora simulatrix** Ulrich—Continued.

1895. Trenton (Black River and Trenton): A rather common form in the Trenton of Kentucky, Tennessee, and Wisconsin, and in the Black River and Trenton of Minnesota.

**Prasopora simulatrix-orientalis** Ulrich.

1879. Monticulipora (Diplotrypa) Whiteavesii (in part). Nicholson, Pal. Tabulate Corals, p. 316, fig. 42c, pl. xiv, 1.  
 1893. Prasopora simulatrix var. orientalis. Ulrich, Geol. Minnesota, III, p. 246, pl. xvi, 1, 2, 6, 7.  
 Trenton: Ottawa and Peterborough, Canada; Trenton Falls, New York.

**PRISMOPORA** Hall. Genotype: *Prismopora triquetra* Hall.

1883. Prismopora. Hall, Trans. Albany Institute, X, pp. 158, 193 (abstract, 1881, p. 17).  
 1884. Prismopora. Hall, Rep. State Geologist New York for the year 1883, p. 50.  
 1884. Prismopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.  
 1887. Prismopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 75.  
 1887. Prismopora. Hall and Simpson, Pal. New York, VI, p. xxi.  
 1889. Prismopora. Miller, North American Geol. Pal., p. 317.  
 1890. Prismopora. Ulrich, Geol. Sur. Illinois, VIII, p. 386.  
 1897. Prismopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 531.

*Prismopora dilata* Hall. See *Prismopora dilatata* Hall.**Prismopora dilatata** Hall.

1883. Prismopora dilata. Hall, Trans. Albany Institute, X, p. 193 (abstract, 1881, p. 193).  
 1884. Prismopora dilatata. Hall, Rep. State Geologist New York for the year 1883, p. 50.  
 1887. Prismopora dilatata. Hall and Simpson, Pal. New York, VI, p. 265, pl. lxii, 13, 14.  
 1891. Prismopora dilatata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 53; Forty-fourth Ann. Rep. New York State Museum, p. 83.  
 Hamilton: Near Leonardsville, New York.

**Prismopora lata** Hall and Simpson.

1887. Prismopora lata. Hall and Simpson, Pal. New York, VI, p. 266.  
 1891. Prismopora lata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 53; Forty-fourth Ann. Rep. New York State Museum, p. 83.  
 Hamilton: Near Le Roy, New York.

**Prismopora minima** Ulrich.

1890. Prismopora minima. Ulrich, Geol. Sur. Illinois, VIII, p. 506, pl. lxxviii, 1-1c.  
 Lower Coal Measures: Sparta, Illinois.

**Prismopora paucirama** Hall.

1883. Prismopora paucirama. Hall, Trans. Albany Institute, X, p. 159 (abstract, 1881, p. 17).  
 1883. Prismopora paucirama. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 11.  
 1886. Prismopora paucirama. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 16, 17.  
 1887. Prismopora paucirama. Hall and Simpson, Pal. New York, VI, p. 98, pl. xxviii, 11, pl. xxix, 16, 17.  
 Upper Helderberg: Thompsons Lake, Albany County, New York.

**Prismopora ? serrata (Meek).**

1875. *Ptilodictya* (*Stictopora*) *serrata*. Meek, Pal. Ohio, II, p. 327, pl. xx, 4.

1887. *Prismopora serrata*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 75, pl. vii, 6a-c.

Lower Coal Measures: Flint Ridge, Ohio.

Obs. This may prove the same as *Cystodictya carbonaria* (Meek).

**Prismopora serrulata Ulrich.**

1884. *Prismopora serrulata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 41, pl. ii, 2-2f.

Chester: Sloans Valley and Grayson Springs, Kentucky.

**Prismopora sparsipora (Hall).**

1883. *Thallostigma sparsipora*. Hall, Trans. Albany Institute, X, p. 155 (abstract, 1881, p. 13).

1886. *Prismopora sparsipora*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxii, 25-28.

1887. *Prismopora sparsipora*. Hall and Simpson, Pal. New York, VI, p. 288, pl. xxxii, 24-27.

Hamilton: Falls of the Ohio. In the Trans. Albany Institute, X, p. 155, the locality is given as Onondaga Valley, New York.

**Prismopora subtriquetra Simpson. See Prismopora triquetra Hall.****Prismopora triangulata (White).**

1878. *Ptilodictya triangulata*. White, Proc. Acad. Nat. Sci. Philadelphia, p. 35.

1879. *Ptilodictya triangulata*. White, Bull. U. S. Geol. Sur. Territories, V, p. 214.

1881. *Ptilodictya triangulata*. White, Wheeler's U. S. Geol. Sur., III, Appendix, p. xxiv, pl. iv, 2a-e.

1881. *Ptilodictya triangulata*. White, Twelfth Ann. Rep. U. S. Geol. Geogr. Sur. Territories, p. 131, pl. xxxiii, 3a-e.

1884. *Prismopora triangulata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 41. Coal Measures: Danville, Illinois.

**Prismopora trifolia Ulrich. See Phractopora trifolia (Rominger).****Prismopora triquetra Hall.**

1883. *Prismopora triquetra*. Hall, Trans. Albany Institute, X, p. 159 (abstract, 1881, p. 17).

1883. *Prismopora triquetra*. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 8-10.

1886. *Prismopora triquetra*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 9-15.

1887. *Prismopora triquetra*. Hall and Simpson, Pal. New York, VI, p. 97, pl. xxviii, 8-10, pl. xxix, 9-15.

1897. *Prismopora triquetra*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 9-14.

1897. *Prismopora subtriquetra*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 15.

Hamilton: Falls of the Ohio.

**PROBOSCINA Audouin. Genotype: Proboscina boryi Audouin.**

1826. *Proboscina*. Audouin, Savigny's Descr. del Egypte, Pol., p. 236.

1854. *Proboscina*. D'Orbigny, Pal. Francais, Terr. Cret., V, p. 844.

1854. *Proboscina*. Haime, Bry. Foss. Form. Juras., p. 166 (extra edition, p. 10).

1882. *Proboscina*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 149.

1890. *Proboscina*. Ulrich, Geol. Sur. Illinois, VIII, p. 368.

1893. *Proboscina*. Ulrich, Geol. Minnesota, III, p. 119.

**PROBOSCINA** Audouin—Continued.

1897. *Proboscina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 596.

***Proboscina auloporoides*** (Nicholson).

1875. *Alecto auloporoides*. Nicholson, Pal. Ohio, II, p. 267, pl. xxv, 2-2b.  
 1889. *Proboscina auloporoides*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 28.  
 1889. *Stomatopora auloporoides*. Miller, North American Geol. Pal., p. 325.  
 1895. *Proboscina auloporoides*. Whiteaves, Pal. Foss., III, p. 115.  
 Cincinnati (Lorraine and Richmond): Cincinnati, Ohio, and vicinity;  
 Stony Mountain, Manitoba.

***Proboscina confusa*** (Nicholson).

1875. *Alecto confusa*. Nicholson, Pal. Ohio, II, p. 267, pl. xxv, 6.  
 1889. *Stomatopora confusa*. Miller, North American Geol. Pal., p. 325.  
 Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

***Proboscina frondosa*** (Nicholson).

1873. *Aulopora frondosa*. James, Additions to Catal. Sil. Foss. Cincinnati group, p. 15. (Not defined.)  
 1875. *Alecto frondosa*. Nicholson, Pal. Ohio, II, p. 266, pl. xxv, 3-3b.  
 1889. *Stomatopora frondosa*. Miller, North American Geol. Pal., p. 325.  
 1889. *Proboscina frondosa*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 28.  
 1893. *Proboscina frondosa*. Ulrich, Geol. Minnesota, III, p. 119, pl. i, 28.  
 1895. *Proboscina frondosa*. Whiteaves, Pal. Foss., III, p. 115.  
 1896. *Stomatopora (Proboscina) frondosa*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 412c (p. 261).  
 1897. *Proboscina frondosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 201 (in part) (p. 596).  
 Cincinnati (Lorraine and Richmond): Cincinnati, Ohio, and vicinity (Lorraine); in the Richmond beds of Ohio, Indiana, Kentucky, Illinois, and at Stony Mountain, Manitoba.

***Proboscina ? laxa*** Whiteaves.

1891. *Proboscina laxa*. Whiteaves, Contr. Canadian Pal., I, p. 212, pl. xxviii, 9, 9a.  
 Devonian (Hamilton?): Hay River, Canada.

***Proboscina tumulosa*** Ulrich.

1893. *Proboscina tumulosa*. Ulrich, Geol. Minnesota, III, p. 119, pl. i, 24.  
 1897. *Proboscina tumulosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 201 (in part) (p. 596).  
 Trenton (Black River): St. Paul and Cannon Falls, Minnesota.

**PROTOCRISINA** Ulrich. Genotype: *Protocrisina exigua* Ulrich.

1890. *Protocrisina*. Ulrich, Geol. Sur. Illinois, VIII, p. 369.  
 1889. *Protocrisina*. (Ulrich, in press), Miller, North American Geol. Pal., p. 317.  
 1896. *Protocrisina*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 262.

***Protocrisina exigua*** Ulrich.

1890. *Protocrisina exigua*. Ulrich, Geol. Sur. Illinois, VIII, p. 405, pl. xxix, 4-4c, pl. liii, 11-11e.  
 1896. *Protocrisina exigua*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 417 (p. 262).  
 Trenton: Montreal, Canada; Trenton Falls, New York.  
 Cincinnati (Richmond): Wilmington, Illinois.

***Protoretepora*** De Koninck. See *Polypora* McCoy.

*Protoretepora* (*Polypora*) *Halliana* De Koninck. See *Polypora halliana* Prout.

*Protoretepora* (*Polypora*) *mexicana* De Koninck. See *Polypora mexicana* Prout.

*Protoretepora* (*Polypora*) *Shumardii* De Koninck. See *Polypora shumardi* Prout.

*Protoretepora* (*Polypora*) *hamiltoniana* De Koninck. See *Reteporina hamiltonensis* (Prout).

**PROUTELLA** Ulrich. Genotype: *Cyclopora discoidea* Prout.

1890. *Proutella*. Ulrich, Geol. Sur. Illinois, VIII, pp. 403, 674.

1889. *Proutella*. (Ulrich, in press), Miller, North American Geol. Pal., p. 318.

1897. *Proutella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 601.

**Proutella discoidea** (Prout).

1860. *Cyclopora discoidea*. Prout, Trans. St. Louis Acad. Sci., I, p. 578.

1866. *Cyclopora discoidea*. Prout, Geol. Sur. Illinois, II, p. 420, pl. xxi, 2, 2a, pl. xxii, 10, 10a.

1890. *Proutella discoidea*. Ulrich, Geol. Sur. Illinois, VIII, p. 674, pl. lxix, 4-4d.

1894. *Proutella discoidea*. Keyes, Missouri Geol. Sur., V, p. 37.

1897. *Proutella discoidea*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 214-216 (p. 602).

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

*Pteropora* Hall. See *Tæniopora* Nicholson.

*Pteropora duogeneris* Hall. See *Tæniopora exigua* Nicholson.

*Ptilionella* Hall. See *Reptaria* Rolle.

*Ptilionella conferta* Hall. See *Hederella conferta* (Hall).

*Ptilionella nodata* Hall. See *Reptaria nodata* (Hall).

*Ptilionella penniformis* Hall. See *Reptaria stolonifera* Rolle.

**PTILOCELLA** Simpson. Genotype: *Ptilodictya parallela* Hall.

1897. *Ptilocella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 605.

**Ptilocella parallela** (Hall and Simpson).

1887. *Ptilodictya parallela*. Hall and Simpson, Pal. New York, VI, p. 270, pl. lxi, 7, 8.

1891. *Ptilodictya parallela*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 54; Forty-fourth Ann. Rep. New York State Museum, p. 84.

1897. *Ptilocella parallela*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 1-3.

Hamilton: Darien Center and near the head of Lake Canandaigua, New York.

**PTILODICTYA** Lonsdale. Genotype: *Flustra lanceolata* Lonsdale (Goldfuss?).

1839. *Ptilodictya*. Lonsdale, Murchison's Silurian System, p. 676.

1852. *Ptilodictya*. McCoy, Brit. Pal. Foss., p. 45.

1860. *Ptilodictya*. Eichwald, Lethæa Rossica, I, p. 387.

1874. *Ptilodictya*. Nicholson, Geol. Mag., new ser., I, p. 123.

1874. *Ptilodictya*. Nicholson, Pal. Province Ontario, p. 97.

1881. *Ptilodictya*. Vine, Rep. Brit. Assoc. Adv. Sci., p. 164.

**Ptilodictya** Lonsdale—Continued.

1882. *Ptilodictya*. Vine, Quar. Jour. Geol. Soc. London, XXXVIII, p. 63.  
 1882. *Ptilodictya*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 151, 162.  
 1883. *Ptilodictya*. Vine, Rep. British Assoc. Adv. Sci., p. 203.  
 1887. *Ptilodictya*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 155.  
 1887. *Ptilodictya*. Hall and Simpson, Pal. New York, VI, p. xix.  
 1889. *Ptilodictya*. Miller, North American Geol. Pal., p. 318.  
 1889. *Ptilodictya*. Nettleroth, Kentucky Fossil Shells, p. 30.  
 1890. *Ptilodictya*. Ulrich, Geol. Sur. Illinois, VIII, p. 390.  
 1893. *Ptilodictya*. Ulrich, Geol. Minnesota, III, p. 163.  
 1896. *Ptilodictya*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.  
 1897. *Ptilodictya*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 541.  
 1899. *Ptilodictya*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 176.  
 1874. *Escharopora* (not of Hall, 1847, Pal. New York, I, p. 72). Hall, Twenty-sixth Ann. Rep. New York State Mus., [p. 99]; Thirty-second Ann. Rep. New York State Museum, 1879, p. 161.  
 1875. *Heterodictya*. Nicholson, Geol. Mag., new ser., II, p. 33.  
 1875. *Heterodictya*. Nicholson, Pal. Province Ontario, p. 79.  
 1889. *Heterodictya*. Miller, North American Geol. Pal., p. 309.

*Ptilodictya acuminata* James. See *Escharopora acuminata* (James).

*Ptilodictya acuta* Nicholson. See *Pachydictya acuta* (Hall).

*Ptilodictya alcyone* Billings. See *Pachydictya alcyone* (Billings).

***Ptilodictya angusta*** (Hall).

1883. *Escharopora* (*Ptilodictya*) *angusta*. Hall, Trans. Albany Institute, X, p. 62 (abstract, 1879, p. 6).  
 1882. *Escharopora* (*Ptilodictya*) *angusta*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. His., p. 245.  
 Niagara: Waldron, Indiana.

*Ptilodictya antiqua* James. See *Eurydictya multipora* (Hall).

*Ptilodictya* ? *arctipora* Nicholson. See *Bythopora arctipora* (Nicholson.)

*Ptilodictya arguta* Billings. See *Pachydictya crassa* (Hall).

*Ptilodictya bipunctata* (Van Cleve) Hall. See *Phænopora expansa* Hall and Whitfield.

*Ptilodictya briareus* Ulrich. See *Escharopora briareus* (Ulrich).

***Ptilodictya canadensis*** Billings.

1866. *Ptilodictya canadensis*. Billings, Catal. Sil. Foss. Anticosti, p. 9.  
 Cincinnati (Richmond): Anticosti Island.

*Ptilodictya* (*Stictopora*) *carbonaria* Meek. See *Cystodictya carbonaria* (Meek).

*Ptilodictya* ? *cincinnatiensis* James. See *Arthropora shafferi-cleavelandi* (James).

*Ptilodictya cleavelandi* James. See *Arthropora shafferi-cleavelandi* (James).

*Ptilodictya clintonensis* James. See *Ptilodictya nodosa* James.

*Ptilodictya cosciniformis* Nicholson. See *Coscinella cosciniformis* (Nicholson).

*Ptilodictya crassa* Nicholson and Hinde. See *Pachydictya crassa* (Hall).

*Ptilodictya cruciformis* d'Orbigny (not defined). See *Escharopora falciformis* (Nicholson).

*Ptilodictya* (*Stictopora*?) *dictyota* Meek. See *Coscinium dictyotum* (Meek).

*Ptilodictya dubia* James. See *Arthropora shafferi-cleavelandi* (James).

*Ptilodictya emacerata* Nicholson. See *Dicranopora emacerata* (Nicholson).

*Ptilodictya ensiformis* Ulrich. See *Phænopora* ? *ensiformis* Hall.

*Ptilodictya excellens* Billings. See *Phænopora excellens* (Billings).

*Ptilodictya expansa* Hall (in part). See *Phænopora expansa* Hall and Whitfield.

***Ptilodictya expansa* Hall.**

1883. *Ptilodictya expansa* (in part). Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., pl. xii, 2, 3 (but not description on p. 266=*Phænopora expansa* Hall and Whitfield).

1887. *Ptilodictya expansa*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 155; *ibid.*, III, 1888, pl. xv, 5.

1889. *Ptilodictya expansa*. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 327.

1890. *Ptilodictya expansa*. Ulrich, Geol. Sur. Illinois, VIII, fig. 11e (p. 391).

1895. *Ptilodictya lanceolata* var. *Americana*. Foerste, Geol. Sur. Ohio, VII, p. 598, pl. xxxvi, 3a-b.

Clinton: Dayton and Todds Fork, Ohio; Cumberland Gap, Tennessee. (Foerste).

***Ptilodictya expansa-emarcescens* Foerste.**

1889. *Ptilodictya expansa* var. *emarcescens*. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 328, pl. vi, 30.

1895. *Pachydictya emarcescens*. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxxi, 30. Clinton: Eaton, Ohio.

Obs. This form may prove to be young examples of *Ptilodictya expansa* Hall.

*Ptilodictya explicans* Safford. Not recognized.

1869. *Ptilodictya explicans*. Safford, Geol. Tennessee, p. 286.

*Ptilodictya falciformis* Nicholson. See *Escharopora falciformis* (Nicholson).

*Ptilodictya famelicus* Foerste. See *Pachydictya* ? *famelica* (Foerste).

*Ptilodictya farctus* Foerste. See *Pachydictya crassa* (Hall).

*Ptilodictya fenestelliformis* Nicholson. See *Pachydictya fenestelliformis* (Nicholson).

*Ptilodictya fimbriata* James. See *Phænopora fimbriata* (James).

***Ptilodictya flagellum* Nicholson.**

1875. *Ptilodictya flagellum*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 179, pl. xiv, 3-3b.

1875. *Ptilodictya flagellum*. Nicholson, Pal. Ohio, II, p. 262, pl. xxv, 4-4b. Cincinnati (Richmond): Near Lebanon, Ohio.

Obs. *Ptilodictya nodosa* James may be a synonym of this species.

*Ptilodictya flexuosa* James. See *Stictoporella flexuosa* (James).



*Ptilodictya fragilis* Billings. See *Dicranopora fragilis* (Billings).

***Ptilodictya gigantea* (Nicholson).**

1875. *Heterodictya gigantea*. Nicholson, Geol. Mag., new ser., II, p. 34, pl. ii, 1a-e.

1875. *Heterodictya gigantea*. Nicholson, Pal. Province Ontario, p. 79, pl. ii, 1a-e.

1882. *Ptilodictya* (*Heterodictya*) *gigantea*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 140.

1889. *Heterodictya gigantea*. Miller, North American Geol. Pal., fig. 488 (p. 309). Upper Helderberg: Jarvis, Ontario.

*Ptilodictya gilberti* Nicholson. See *Cystodictya gilberti* (Meek).

*Ptilodictya* (*Stictopora*) *gilberti* Meek. See *Cystodictya gilberti* (Meek).

***Ptilodictya gladiola* Billings.**

1866. *Ptilodictya gladiola*. Billings, Catal. Sil. Foss. Anticosti, p. 10.

Anticosti: Anticosti Island.

*Ptilodictya grahami* James. See *Arthropora shafferi-cleavelandi* (James).

*Ptilodictya granulosa* James. See *Rhinidictya parallela* (James).

*Ptilodictya hilli* James. See *Escharopora hilli* (James).

*Ptilodictya internodia* Miller and Dyer. See *Dicranopora internodia* (Miller and Dyer).

***Ptilodictya kentuckyensis* James.**

1881. *Ptilodictya kentuckyensis*. James, Paleontologist, No. 5, p. 38.

Cincinnati: Cincinnati, Ohio.

Obs. Description given is not sufficient to identify the species. The form may perhaps be a synonym of *Arthropora shafferi-cleavelandi* (James).

*Ptilodictya lanceolata* var. *Americana* Foerste. See *Ptilodictya expansa* Hall.

*Ptilodictya libana* Safford. See *Escharopora libana* (Safford).

*Ptilodictya* (*Stictopora*) *lichenoides* Meek. Not recognizable.

1873. *Ptilodictya* (*Stictopora*) *lichenoides*. Meek, Pal. Ohio, I, p. 195, pl. xviii, 2. Corniferous: Whitehouse, Lucas County, Ohio.

*Ptilodictya lirata* Hall and Simpson. See *Phænopora lirata* (Hall).

*Ptilodictya maculata* Ulrich. See *Escharopora maculata* (Ulrich).

***Ptilodictya magnifica* Miller.**

1878. *Ptilodictya magnifica*. Miller, Jour. Cincinnati Soc. Nat. Hist., I, p. 100, pl. iii, 1, 1a.

1889. *Ptilodictya magnifica*. Miller, North American Geol. Pal., fig. 503, (p. 318).

1890. *Ptilodictya magnifica*. Ulrich, Geol. Sur. Illinois, VIII, fig. 11a-c (p. 391). Cincinnati (Richmond): Richmond, Indiana; Oxford and Waynesville, Ohio; Wilmington, Illinois; Leipers Creek, Maury County, Tennessee.

*Ptilodictya meeki* Nicholson. See *Cystodictya meeki* (Nicholson).

*Ptilodictya multiramis* Safford. Not recognized.

1869. *Ptilodictya multiramis*. Safford, Geol. Tennessee, p. 286.

Obs. See note on *Escharopora briareus* Ulrich.

**Ptilodictya nebulosa (Hall).**

1874. *Escharopora nebulosa*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 99.
1879. *Escharopora nebulosa*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 162 (reprint, 1880, p. 24).
1883. *Escharopora (Ptilodictya) nebulosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xvii, 14-16.
1887. *Ptilodictya nebulosa*. Hall and Simpson, Pal. New York, VI, p. 40, pl. xvii, 13-18.
1874. *Paleschara bifoliata*. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 107.
1879. *Escharopora (? Paleschara) bifoliata*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 162 (reprint, 1880, p. 24).
1883. *Paleschara ? foliata*. Hall, Rep. State Geologist New York for the year 1882, pl. xvii, 17, 18.
- Lower Helderberg: Catskill, Clarksville, and Schoharie, New York.

**Ptilodictya nitidula Billings.** See *Dicranopora nitidula* (Billings).

**Ptilodictya nodosa James.**

1879. *Ptilodictya nodosa*. James, Paleontologist, No. 3, p. 20.
1882. *Ptilodictya nodosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., IV, pl. vii, 2, 2a.
1881. *Ptilodictya clintonensis*. James, Paleontologist, No. 5, p. 38.
1881. *Ptilodictya teres*. James, Paleontologist, No. 5, p. 40.
1890. *Ptilodictya variabilis*. Ulrich, Geol. Sur. Illinois, VIII, p. 304, fig. 2a, and fig. 6a (p. 317).
1889. *Ptilodictya variabilis*. Miller, North American Geol. Pal., figs. 505, 506 (p. 319).
- Cincinnati (Richmond): Clinton and Warren counties, Ohio.
- Obs. See also *Ptilodictya flagellum* Nicholson.

**Ptilodictya obliqua (Ringueberg).**

1884. *Stictopora obliqua*. Ringueberg, Proc. Acad. Nat. Sci. Philadelphia, p. 146, pl. ii, 2, 2a.
1889. *Ptilodictya obliqua*. Miller, North American Geol. Pal., p. 319.
- Clinton: Lockport, New York.
- Obs. This species was defined and figured in such a manner that it is questionable whether it can be recognized.

**Ptilodictya parallela Hall and Simpson.** See *Ptilocella parallela* (Hall and Simpson).

**Ptilodictya parallela James.** See *Rhinidictya parallela* (James).

**Ptilodictya pavonia D'Orbigny.** See *Escharopora pavonia* (D'Orbigny).

**Ptilodictya perelegans Ulrich.** See *Graptodictya perelegans* (Ulrich).

**Ptilodictya platyphylla James.** See *Phænopora expansa* Hall and Whitfield.

**Ptilodictya plumaria James.**

1878. *Ptilodictya plumaria*. James, Paleontologist, No. 1, p. 4.
1882. *Ptilodictya plumaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pl. vii, 1, 1a.
- Cincinnati (Richmond): Waynesville and Oxford, Ohio.

*Ptilodictya plumea* Hall and Simpson. See *Stictoporina plumea* (Hall and Simpson).

*Ptilodictya ponderosa* Ulrich.

1888. *Ptilodictya ponderosa*. Ulrich, American Geologist, I, p. 308.

Trenton: Covington, Kentucky.

Obs. This is a good species belonging to the genus *Escharopora*, but requires further description before the name can be considered valid.

*Ptilodictya ? punctata* Nicholson and Hinde. See *Phænopora punctata* (Nicholson and Hinde).

*Ptilodictya ramosa* Ulrich. See *Escharopora ramosa* (Ulrich).

*Ptilodictya ? raripora* Nicholson and Hinde. See *Nematopora raripora* (Hall).

*Ptilodictya retiformis* Hall and Simpson. See *Stictoporina plumea* (Hall and Simpson).

*Ptilodictya rudis* Foerste. See *Pachydictya crassa* (Hall).

*Ptilodictya rustica* Billings. See *Pachydictya crassa* (Hall).

*Ptilodictya scutulata* Hall and Simpson. See *Stictoporina scutulata* (Hall).

*Ptilodictya* (*Stictopora*) *sereata* Meek. See *Prismopora ? serrata* (Meek).

*Ptilodictya Shafferi* Nicholson. See *Arthropora shafferi* (Meek).

*Ptilodictya* (*Stictopora*) *Shafferi* Meek. See *Arthropora shafferi* (Meek).

*Ptilodictya subrecta* Ulrich. See *Escharopora subrecta* (Ulrich).

*Ptilodictya sulcata* Billings.

1866. *Ptilodictya sulcata*. Billings, Catal. Sil. Fos. Anticosti, p. 35.

Anticosti: Anticosti Island.

*Ptilodictya superba* Billings. See *Phænopora superba* (Billings).

*Ptilodictya symmetra* Safford. Not recognized.

1869. *Ptilodictya symmetra*. Safford, Geol. Tennessee, p. 286.

*Ptilodictya ?? tarda* Billings.

1874. *Ptilodictya tarda*. Billings, Pal. Foss., II, p. 13.

Oriskany (Gaspé Limestone): Grand Creve, Canada.

*Ptilodictya ? tenera* Billings.

1866. *Ptilodictya tenera*. Billings, Catal. Sil. Foss. Anticosti, p. 33.

Anticosti: Anticosti Island.

*Ptilodictya tenuis* Hall and Simpson. See *Phænopora tenuis* (Hall).

*Ptilodictya teres* James. See *Ptilodictya nodosa* James.

*Ptilodictya triangulata* White. See *Prismopora triangulata* (White).

*Ptilodictya variabilis* Ulrich. See *Ptilodictya nodosa* James.

*Ptilodictya* (*Stictopora*) *variabilis* Prout. Not recognized; probably *Cystodictya gilberti* (Meek).

1866. *Ptilodictya* (*Stictopora*) *variabilis*. Prout, Trans. St. Louis Acad. Sci., II, p. 412.

Devonian: Columbus, Ohio.

*Ptilodictya welshi* James. See *Phænopora multifida* (Hall).

**Ptilodictya whiteavesi** Ulrich.

1889. *Ptilodictya Whiteavesii*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 44, pl. viii, 1-1c.  
 1895. *Ptilodictya Whiteavesii*. Whiteaves, Pal. Foss., III, p. 118.  
 Cincinnati (Richmond): Stony Mountain, Manitoba.

**Ptilodictya whitfieldi** Foerste.

1895. *Ptilodictya Whitfieldi*. Foerste, Geol. Sur. Ohio, VII, p. 598, pl. xxxvi, 4, pl. xxviii, 5.  
 Clinton: Todds Fork, Ohio.

**PTILOPORA** McCoy. Genotype: *Ptilopora pluma* McCoy.

1845. *Ptilopora*. McCoy, Synop. Carbon. Foss. Ireland, p. 200.  
 1858. *Ptilopora*. Hall, Pal. Iowa, p. 652.  
 1860. *Ptilopora*. Eichwald, Lethæa Rossica, I, p. 381.  
 1883. *Ptilopora*. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).  
 1883. *Ptilopora*. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 31.  
 1885. *Ptilopora*. Hall, Rep. State Geologist, New York, for the year 1884, p. 36.  
 1885. *Ptilopora*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 774.  
 1886. *Ptilopora*. Ulrich, Contr. American Pal., I, p. 4.  
 1887. *Ptilopora*. Hall and Simpson, Pal. New York, VI, p. xxiv.  
 1889. *Ptilopora*. Miller, North American Geol. Pal., p. 318.  
 1890. *Ptilopora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 398, 621.  
 1895. *Ptilopora*. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, part 4, p. 184.  
 1896. *Ptilopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.) p. 283.  
 1897. *Ptilopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 519, 521.  
 1876-77. *Dendricopora*. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 169; 1898, Engl. translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 129.  
 1885. *Dendricopora*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 774.

**Ptilopora acuta** Ulrich.

1890. *Ptilopora acuta*. Ulrich, Geol. Sur. Illinois, VIII, p. 622, pl. lxxv, 4, 4a.  
 1894. *Ptilopora acuta*. Keyes, Missouri Geol. Sur., V, p. 31.  
 Keokuk: Keokuk and Bentonsport, Iowa.  
 Burlington: Burlington, Iowa.

**Ptilopora cylindracea** Ulrich.

1890. *Ptilopora cylindracea*. Ulrich, Geol. Sur. Illinois, VIII, p. 623, pl. lxxvi, 2-2b.  
 1894. *Ptilopora cylindracea*. Keyes, Missouri Geol. Sur., V, p. 32.  
 Keokuk: Kings Mountain, Kentucky; Bentonsport, Iowa.

**Ptilopora infrequens** Hall and Simpson.

1887. *Ptilopora infrequens*. Hall and Simpson, Pal. New York, VI, p. 284, pl. lxxvi, 26-29.  
 1897. *Ptilopora infrequens*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 4, 6, 7.  
 Hamilton: Western New York.

**Ptilopora nodosa** Hall.

1883. *Ptilopora nodosa*. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).  
 1884. *Ptilopora nodosa*. Hall, Rep. State Geologist New York for the year 1883, p. 59.

**Ptilopora nodosa** Hall—Continued.

1887. *Ptilopora nodosa*. Hall and Simpson, Pal. New York, VI, p. 285, pl. lxvi, 25.  
 1891. *Ptilopora nodosa*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 57; Forty-fourth Ann. Rep. New York State Museum, p. 87.  
 1897. *Ptilopora nodosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 5.  
 Hamilton: Near Alden, New York.

**Ptilopora paupera** Ulrich.

1888. *Ptilopora paupera*. Ulrich, Bull. Denison Univ., IV, p. 74.  
 1890. *Ptilopora paupera*. Ulrich, Geol. Sur. Illinois, VII, p. 624, pl. lxvi, 10.  
 Waverly: Lodi, Ohio.  
 Keokuk: Kings Mountain, Kentucky.

**Ptilopora prouti** Hall.

1858. *Ptilopora prouti*. Hall, Pal. Iowa, p. 653, pl. xxii, 6a-c, 7.  
 1890. *Ptilopora prouti*. Ulrich, Geol. Sur. Illinois, VIII, p. 625, pl. lxv, 3-3c.  
 1894. *Ptilopora prouti*. Keyes, Missouri Geol. Sur., V, p. 32.  
 Warsaw: Barretts Station, Missouri; Warsaw, near New Providence, and Monroe County, Illinois.

**Ptilopora striata** Hall.

1883. *Ptilopora striata*. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).  
 1884. *Ptilopora striata*. Hall, Rep. State Geologist New York for the year 1883, p. 58.  
 1887. *Ptilopora striata*. Hall and Simpson, Pal. New York, VI, p. 283, pl. lxvi, 30-33.  
 1891. *Ptilopora striata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 56; Forty-fourth Ann. Rep. New York State Museum, p. 86.  
 1897. *Ptilopora striata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 2, 3.  
 1898. *Ptilopora striata*. Whiteaves, Contr. Canadian Pal., I, p. 379.  
 Hamilton: Moscow and other localities in central and western New York; West Williams, Ontario.

**Ptilopora valida** Ulrich.

1890. *Ptilopora valida*. Ulrich, Geol. Sur. Illinois, VIII, p. 623, pl. lxv, 5-5b, pl. lxvi, 1-1b.  
 1894. *Ptilopora valida*. Keyes, Missouri Geol. Sur., V, p. 32.  
 Keokuk: Bentonsport and Keokuk, Iowa; Jersey County, Illinois.

**PTILOPORELLA** Hall. Genotype: *Fenestella* (*Ptiloporella*) *laticrescens* Hall.

1885. *Ptyloporella*. Hall, Rep. State Geologist New York for the year 1884, p. 36.  
 1887. *Ptiloporella*. Hall and Simpson, Pal. New York, VI, p. xxiv.  
 1889. *Ptiloporella*. Miller, North American Geol. Pal., p. 319.  
 1895. *Ptiloporella*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 704, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 884, 898, 919. (On p. 704 (p. 898 of Museum Report) Simpson has inadvertently interchanged the terms *Ptiloporella* and *Ptiloporina*.)

**PTILOPORELLA** Hall—Continued.

1897. *Ptiloporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 506, 521.
1895. *Pinnaporina*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 705 (not p. 725 = *Ptiloporina*); Forty-seventh Ann. Rep. New York State Museum, p. 899 (not p. 919).
1897. *Pinnaporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 507, 521.

**Ptiloporella ? bifurca** (Ulrich).

1886. *Fenestella bifurca*. Ulrich, Contr. American Pal., I, p. 6, pl. i, 2, 2a.
1887. *Fenestella confertipora*. Hall and Simpson, Pal. New York, VI, p. 108, pl. xlv, 7-11, 17-21.
- Hamilton: Falls of the Ohio.

**Ptiloporella inæqualis** (Hall and Simpson).

1887. *Fenestella* (*Ptiloporella*) *inæqualis*. Hall and Simpson, Pal. New York, VI, p. 171.
1897. *Ptiloporella inæqualis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 1, 2.
- Upper Helderberg: Walpole, Ontario.

**Ptiloporella laticrescens** (Hall and Simpson).

1887. *Fenestella* (*Ptiloporella*) *laticrescens*. Hall and Simpson, Pal. New York, VI, p. 171.
1897. *Ptiloporella laticrescens*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 3-6.
- Upper Helderberg: Walpole, Ontario.

**Ptiloporella nervata** (Nicholson).

1875. *Fenestella nervata*. Nicholson, Pal. Ohio, II, p. 264, pl. xxv, 11, 11a.
1889. *Ptiloporella nervata*. Miller, North American Geol. Pal., p. 319.
- Niagara: Cedarville, Ohio.

**PTILOPORINA** Hall. Genotype: *Fenestella* (*Ptyloporina*) *conica* Hall.

1885. *Ptyloporina*. Hall, Rep. State Geologist New York for the year 1884, p. 36.
1887. *Ptiloporina*. Hall and Simpson, Pal. New York, VI, p. xxiv.
1889. *Ptiloporina*. Miller, North American Geol. Pal., p. 319.
1895. *Ptiloporina*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 884, 919.
1897. *Ptiloporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 507, 521. (Makes genotype *Ptiloporina sinistralis*.)
1895. *Pinnaporella*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 704, 725.
1895. *Pinnaporina*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 725 (not p. 705 = *Ptiloporella*); Forty-seventh Ann. Rep. New York State Museum, p. 919, (not p. 899).
1897. *Pinnaporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 507.

**Ptiloporina conica** (Hall and Simpson).

1887. *Fenestella* (*Ptiloporina*) *conica*. Hall and Simpson, Pal. New York, VI, p. 172, pl. xliii, 2-4.
1897. *Ptiloporina conica*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 8.
- Upper Helderberg: Schoharie, New York.

**Ptiloporina disparilis** (Hall and Simpson).

1887. *Fenestella* (*Ptiloporina*) *disparilis*. Hall and Simpson, Pal. New York, VI, p. 173, pl. xliii, 7, 8.  
 1897. *Ptiloporina disparilis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 11, 12.  
 Upper Helderberg: Walpole, Ontario.

**Ptiloporina pinnata** (Hall and Simpson).

1887. *Fenestella* (*Ptiloporina*) *pinnata*. Hall and Simpson, Pal. New York, VI, p. 172, pl. xliii, 5, 6.  
 1897. *Pinnaporina pinnata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 7.  
 1897. *Ptiloporina pinnata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 1.  
 Upper Helderberg: Schoharie, New York.

**Ptiloporina sinistralis** (Hall and Simpson).

1887. *Fenestella* (*Ptiloporina*) *sinistralis*. Hall and Simpson, Pal. New York, VI, p. 174, pl. xliii, 9.  
 1897. *Ptiloporina sinistralis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 9, 10.  
 Upper Helderberg: Schoharie, New York.

**PTILOTRYPA** Ulrich. Genotype: *Ptilotrypa obliquata* Ulrich.

1890. *Ptilotrypa*. Ulrich, Geol. Sur. Illinois, VIII, p. 393.  
 1889. *Ptilotrypa*. (Ulrich, in press), Miller, North American Geol. Pal., p. 320.  
 1897. *Ptilotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 542.

**Ptilotrypa obliquata** Ulrich.

1890. *Ptilotrypa obliquata*. Ulrich, Geol. Sur. Illinois, VIII, p. 531, pl. xxx, 1-1e.  
 1897. *Ptilotrypa obliquata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 100-103 (p. 542).  
 Cincinnati (Richmond): Wilmington, Illinois.

*Ptychonema* Hall. See *Monotrypa* Nicholson.

*Ptychonema Helderbergiae* Hall. See *Monotrypa* ? *helderbergiae* (Hall).

*Ptychonema tabulatum* Miller. See *Monotrypa tabulata* (Hall).

**RAMIPORA** Toulal. Genotype: *Ramipora hochstetteri* Toulal (from the Carboniferous of Spitzbergen).

1875. *Ramipora*. Toulal, Neues Jahrbuch für Mineral., p. 230.  
 1878. *Ramipora*. Etheridge, Jun., Quar. Jour. Geol. Soc. London, XXXIV, p. 625.  
 1885. *Ramipora*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 775.  
 1889. *Ramipora*. Miller, North American Geol. Pal., p. 320.  
 1895. *Ramipora*. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, part 4, p. 186.

Obs. No species from the continent of North America has yet been described properly referable to this genus.

**REPTARIA** Rolle. Genotype: *Reptaria stolonifera* Rolle.

1851. *Reptaria*. Rolle, Leonhard und Bronn's Neues Jahrbuch, p. 810.  
 1887. *Reptaria*. Hall and Simpson, Pal. New York, VI, p. xxv.  
 1889. *Reptaria*. Miller, North American Geol. Pal., p. 320.

**REPTARIA** Rolle—Continued.

1897. *Reptaria*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 599.  
1899. *Reptaria*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 178.  
1883. *Ptilionella*. Hall, Trans. Albany Institute, X, p. 599 (abstract, 1881, p. 195).

**Reptaria nodata** (Hall).

1883. *Ptilionella nodata*. Hall, Trans. Albany Institute, X, p. 195 (abstract, 1881, p. 195).  
1884. *Ptilionella nodata*. Hall, Rep. State Geologist New York for the year 1883, p. 57.  
1887. *Reptaria nodata*. Hall and Simpson, Pal. New York, VI, p. 276.  
Hamilton: Hopeton, Yates County, and Genesee Valley, Livingston County, New York.

**Reptaria stolonifera** Rolle.

1851. *Reptaria stolonifera*. Rolle, Leonhard und Bronn's Neues Jahrbuch, p. 810, pl. ix, 5, 6.  
1887. *Reptaria stolonifera*. Hall and Simpson, Pal. New York, VI, p. 274, pl. lxxv, 17-19.  
1897. *Reptaria stolonifera*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 8, 9.  
1899. *Reptaria stolonifera*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 178, fig. 76.  
1883. *Ptilionella penniformis*. Hall, Trans. Albany Institute, X, p. 195 (abstract, 1881, p. 195).  
1884. *Ptilionella penniformis*. Hall, Rep. State Geologist New York for the year 1883, p. 56.  
Hamilton: Cazenovia and Eighteenmile Creek, New York.

**Retepora** Lamarck. Not Paleozoic.

1874. *Retepora* (not Lamarck). Nicholson, Pal. Province Ontario, p. 101.  
1885. *Retepora* (not Lamarck). Hall, Rep. State Geologist New York for the year 1884, p. 35.  
Obs. The *Retepora* of most American authors is the genus *Phylloporina*.

**Retepora angulata** Hall. See *Phylloporina angulata* (Hall).**Retepora archimedes** Owen. See *Archimedes wortheni* Hall.**Retepora asperato-striata** Hall. See *Phylloporina asperato-striata* (Hall).**Retepora clintonii** Vanuxem. Not defined.

1842. *Retepora clintonii*. Vanuxem, Geol. Rep. Third District New York, p. 87.  
Clinton: No locality given.

**Retepora diffusa** Hall. See *Drymotrypa diffusa* (Hall).**Retepora fenestrata** Hall. See *Phylloporina fenestrata* (Hall).**Retepora foliacea** Hall. Abandoned by the author; fragment of some fossil not a bryozoan.

1847. *Retepora foliacea*. Hall, Pal. New York, I, p. 78, pl. xxvi, 9a, b.  
Trenton: Lowville, Lewis County, New York.

**Retepora flexuosa** D'Orbigny. Not recognizable without material.

1842. *Retepora flexuosa*. D'Orbigny, Voyage dans l'Amérique Méridionale, III, p. 57, pl. vi, 6-8.  
Carboniferous: Yarbichambi, Bolivia.



*Retepora gracilis* Hall. See *Phylloporina gracilis* (Hall).

*Retepora hamiltonensis* Prout. See *Reteporina hamiltonensis* (Prout).

*Retepora incepta* Hall. See *Phylloporina incepta* (Hall).

*Retepora Phillipsi* Nicholson. See *Reteporina phillipsi* (Nicholson).

*Retepora prisca* (Goldfuss?) Nicholson. See *Reteporina prisca* (Goldfuss?) (Nicholson).

*Retepora Trentonensis* Nicholson. See *Phylloporina trentonensis* (Nicholson).

*Reteporella* Simpson. See *Reteporidra*.

*Reteporella adnata* Simpson. See *Reteporidra adnata* (Hall).

*Reteporella undulata* Simpson. See *Reteporidra perundata* (Hall).

**RETEPORIDRA.**<sup>1</sup> Genotype: *Reteporella undulata* Simpson = *Fenestella perundata* Hall.

1895. *Reteporella*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 702, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 896, 919.

1897. *Reteporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 503, 521.

1897. *Anastomopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 517, 522.

Obs. *Anastomopora* was made for species resembling *Reteporella*, but differing in having thickened margins. This is a variable character in this group of species and is of no importance, either specifically or generically. Some specimens of *Reteporidra* show thickened margins.

***Reteporidra adnata* (Hall).**

1883. *Fenestella adnata*. Hall, Trans. Albany Institute, X, p. 167 (abstract, 1881, p. 25).

1886. *Fenestella* (*Polypora*) *adnata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 1-8, 10.

1887. *Fenestella* (*Polypora*) *adnata*. Hall and Simpson, Pal. New York, VI, p. 152, pl. xli, 1-8, 10.

1897. *Reteporella adnata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 4, 5.

Hamilton: Falls of the Ohio.

***Reteporidra cinctuta* (Hall).**

1884. *Fenestella cinctuta*. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 62.

1885. *Lyropora cinctura*. Hall, Rep. State Geologist New York for the year 1884, pl. i, 2.

1887. *Fenestella* (*Lyropora*) *cinctuta*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 69.

1888. *Fenestella* (*Lyropora*) *cinctuta*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. ix, 16; Forty-first Ann. Rep. New York State Museum, pl. ix, 16.

1897. *Anastomopora cinctuta*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 20-23.

1890. *Phyllopora* ? sp. undet. Ulrich, Geol. Sur. Illinois, VIII, pl. lv, 10.

Hamilton: Geneseo, New York; West Williams and Widder, Ontario.

<sup>1</sup> Proposed for *Reteporella*, preoccupied by Busk. See Challenger Report X, 1884, p. 126.

**Reteporidra perundata (Hall).**

1883. *Fenestella perundata*. Hall, Trans. Albany Institute, X, p. 169 (abstract, 1881, p. 27).  
1883. *Fenestella (Polypora) perundata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxxi, 7-13.  
1885. *Polypora perundata*. Hall, Rep. State Geologist New York for the year 1884, pl. i, 3.  
1887. *Fenestella (Polypora) perundata*. Hall and Simpson, Pal. New York, VI, p. 163, pl. xxxviii, 7-13.  
1890. *Phyllopora superba*. Ulrich, Geol. Sur. Illinois, VIII, p. 613, pl. xliv, 6-6c, pl. lv, 9, 9a.  
1897. *Reteporella undulata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 1-3.  
Hamilton: Erie County, New York.  
Obs. Hall and Simpson give this as occurring in the Upper Helderberg at Walpole, Ontario, but this is very probably an error.

**RETEPORINA D'Orbigny. Genotype: Retepora prisca Goldfuss.**

1850. *Reteporina*. D'Orbigny, Prodr. de Pal., I, p. 101.  
1885. *Reteporina*. Hall, Rep. State Geologist New York for the year 1884, p. 35.  
1889. *Reteporina*. Miller, North American Geol. Pal., p. 320.  
1894. *Reteporina*. Pošta, Syst. Sil. Bohême, VIII, t. 1, p. 80.  
1895. *Reteporina*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 725; Forty-seventh Ann. Rep. New York State Mus., p. 919.  
1897. *Reteporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 504, 521.  
1899. *Reteporina*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 161.

**Reteporina coalescens (Hall and Simpson).**

1887. *Fenestella (Reteporina) coalescens*. Hall and Simpson, Pal. New York, VI, p. 120.  
Upper Helderberg: Walpole, Ontario.

**Reteporina flexuosa (Ulrich).**

1890. *Fenestella flexuosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 548, pl. li, 4-4c.  
1894. *Fenestella flexuosa*. Keyes, Missouri Geol. Surv., V, p. 24.  
Chester: Sloans Valley, Kentucky.

**Reteporina hamiltonensis (Prout).**

1866. *Retepora hamiltonensis*. Prout, Trans. St. Louis Acad. Sci., II, p. 412.  
1866. *Polypora Hamiltonensis*. Prout, Geol. Surv. Illinois, II, p. 423, pl. xxi, 6, 6a.  
1876-7. *Protoretepora (Polypora) hamiltoniana*. De Koninck, Rech. sur les Foss. Paleoz. de la Nouv. Galles des Sud, III, p. 179; 1898, Engl. transl., Mem. Geol. Surv. New South Wales, Pal., No. 6, p. 137.  
1889. *Reteporina hamiltonensis*. Miller, North American Geol. Pal., p. 320.  
Hamilton: Buffalo, Iowa: Rock Island, Illinois.

**Reteporina pertollata Hall (not defined).**

1885. *Reteporina pertollata*. Hall, Rep. State Geologist New York for the year 1884, pl. i, 1.

**Reteporina perundulata (Hall).**

1884. *Fenestella perundulata*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 63.  
1887. *Fenestella perundulata*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 43, pl. ii, 1-14.  
1889. *Reteporina perundulata*. Miller, North American Geol. Pal., p. 320.

**Reteporina perundulata (Hall)—Continued.**

1897. *Reteporina perundulata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 8.  
Hamilton: Moscow, New York.

**Reteporina phillipsi (Nicholson).**

1874. *Retepora Phillipsi*. Nicholson, Geol. Mag., new ser., I, p. 163, pl. ix, 21.  
1874. *Retepora Phillipsi*. Nicholson, Pal. Province Ontario, p. 102, fig. 39.  
1889. *Reteporina phillipsi*. Miller, North American Geol. Pal., p. 320.  
Upper Helderberg: Port Colborne, Ontario.

**Reteporina prisca (Goldfuss ?) (Nicholson).**

1826. *Retepora prisca*. Goldfuss, Petref. Germaniæ, p. 103, pl. xxxvi, 19.  
1874. *Retepora prisca* Goldfuss. Nicholson, Pal. Province Ontario, p. 101, fig. 38.  
1889. *Reteporina prisca*. Miller, North American Geol. Pal., p. 320.  
1898. *Retepora prisca* (Goldfuss) Nicholson. Whiteaves, Contr. Canadian Pal., I, part V, p. 379.  
Upper Helderberg: Ridgeway and Port Colborne, Ontario.  
Hamilton: Arkona, Ontario.  
Obs. It is scarcely probable that Nicholson's specimens are conspecific with Goldfuss's.

**Reteporina rhombifera (Hall).**

1883. *Fenestella rhombifera*. Hall, Trans. Albany Institute, X, p. 174 (abstract, 1881, p. 32).  
1886. *Fenestella rhombifera*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. i, 18, 19.  
1887. *Fenestella (Reteporina) rhombifera*. Hall and Simpson, Pal. New York, VI, p. 120, pl. i, 18, 19.  
Upper Helderberg: Ontario, Canada. (In the Trans. Albany Institute, X, p. 174, the locality is given as Le Roy, New York.)

**Reteporina striata (Hall).**

1884. *Fenestella strata*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 72.  
1887. *Fenestella (Reteporina) striata*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 45, pl. iii, 1-6.  
1897. *Reteporina striata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 6, 7.  
1899. *Reteporina striata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 161, fig. 50.  
Hamilton: Moscow, New York.

**RHABDOMESON Young and Young. Genotype: *Millepora gracilis* Phillips.**

1874. *Rhabdomeson*. Young and Young, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 337.  
1875. *Rhabdomeson*. Young and Young, Ann. Mag. Nat. Hist., ser. 4, XV, p. 334.  
1885. *Rhabdomeson*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 91.  
1890. *Rhabdomeson*. Ulrich, Geol. Surv. Illinois, VIII, p. 402.  
Obs. No American species has yet been referred to this genus.

**RHINIDICTYA Ulrich. Genotype: *Rhinidictya nicholsoni* Ulrich.**

1847. *Stictopora* (in part). Hall, Pal. New York, I, p. 73.  
1882. *Rhinidictya*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 152.  
1887. *Rhinidictya*. Hall and Simpson, Pal. New York, VI, p. xx.  
1889. *Rhinidictya*. Miller, North American Geol. Pal., p. 320.  
1893. *Rhinidictya*. Ulrich, Geol. Minnesota, III, p. 124.

**RHINIDICTYA** Ulrich—Continued.

1896. *Rhinidictya*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.  
1897. *Rhinidictya*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 605.  
1890. *Stictopora* (not of Hall): Ulrich, Geol. Sur. Illinois, VIII, p. 388.

***Rhinidictya basalis* (Ulrich).**

1882. *Stictopora basalis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 169, pl. viii, 4, 4a.  
1893. *Rhinidictya basalis*. Ulrich, Geol. Minnesota, III, p. 128.  
Trenton (Stones River): Shelbyville, Tennessee.

***Rhinidictya exigua* Ulrich.**

1890. *Rhinidictya exigua*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 184, fig. 9.  
1893. *Rhinidictya exigua*. Ulrich, Geol. Minnesota, III, p. 131, pl. viii, 6-10.  
Trenton (Stones River and Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

***Rhinidictya fenestrata* (Hall).**

1847. *Stictopora fenestrata*. Hall, Pal. New York, I, p. 16, pl. iv, 4a-c.  
1850. *Sulcopora fenestrata*. D'Orbigny, Prodr. de Pal., I, 22.  
1890. *Rhinidictya fenestrata*. Ulrich, Geol. Sur. Illinois, VIII, p. 492.  
Chazy: Chazy and Galway, New York.

***Rhinidictya fidelis* (Ulrich).**

1886. *Stictopora fidelis* (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 68.  
1893. *Rhinidictya fidelis*. Ulrich, Geol. Minnesota, III, p. 134, pl. vi, 7-7b, 8.  
1893. *Eurydictya multipora* (in part). Ulrich, Geol. Minnesota, III, p. 139, pl. vii, 24, 29-31.  
Trenton (Stones River): Minneapolis, Minnesota.

***Rhinidictya grandis* Ulrich.**

1893. *Rhinidictya grandis*. Ulrich, Geol. Minnesota, III, p. 136, pl. v, 11, 12, pl. vi, 19, 20.  
Trenton (Stones River): Dixon, Illinois; Beloit, Mineral Point, and Janesville, Wisconsin.

*Rhinidictya* ? *granulosa* Hall and Simpson. See *Dicranopora granulosa* (Hall).

*Rhinidictya granulosa* Simpson. See *Dicranopora granulosa* (Hall).

*Rhinidictya humilis* Ulrich. See *Pachydictya pumila* Ulrich.

***Rhinidictya lata* (Ulrich).**

1882. *Dicranopora lata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 166, pl. vi, i6, 16a.  
Cincinnati (Richmond): Oxford and Clarksville, Ohio.

***Rhinidictya minima* Ulrich.**

1890. *Rhinidictya minima*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 183, fig. 8.  
1893. *Rhinidictya minima*. Ulrich, Geol. Minnesota, III, p. 132, pl. v, 13-18.  
Trenton: Cannon Falls, Minnesota.

***Rhinidictya minima-modesta* Ulrich.**

1893. *Rhinidictya minima* var. *modesta*. Ulrich, Geol. Minnesota, III, p. 133, pl. v, 17.  
Trenton: Cannon Falls, Minnesota.

**Rhinidictya mutabilis (Ulrich).**

1886. *Stictopora mutabilis* (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 66.  
1889. *Stictopora mutabilis*. Miller, North American Geol. Pal., fig. 517 (p. 324).  
1890. *Stictopora mutabilis*. Ulrich, Geol. Sur. Illinois, VIII, figs. 2*c-h* (p. 304).  
1893. *Rhinidictya mutabilis*. Ulrich, Geol. Minnesota, III, p. 125, pl. vi, 1-6, 12, 13, pl. vii, 10-23, 25-28, pl. viii, 1-3.  
1897. *Rhinidictya mutabilis*. Whiteaves, Pal. Foss, III, p. 240.  
1886. *Stictopora mutabilis* var. *minor*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 67.  
Trenton (Stones River, Black River, and Trenton): Minneapolis, St. Paul, Cannon Falls, and other localities in Minnesota; Decorah, Iowa.

**Rhinidictya mutabilis-major (Ulrich).**

1886. *Stictopora mutabilis* var. *major*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 66.  
1893. *Rhinidictya mutabilis* var. *major*. Ulrich, Geol. Minnesota, III, p. 127, pl. vii, 22, 23, 25-28, 32.  
Trenton (Black River): St. Paul, Minneapolis, and Cannon Falls, Minnesota.

**Rhinidictya mutabilis-senilis Ulrich.**

1893. *Rhinidictya mutabilis* var. *senilis*. Ulrich, Geol. Minnesota, III, p. 127, pl. vi, 2, 3, pl. vii, 16, 17.  
Trenton (Black River): St. Paul, Minnesota.

**Rhinidictya nashvillensis (Miller).**

1880. *Bythopora nashvillensis*. Miller, Jour. Cincinnati Soc. Nat. Hist., III, p. 143, pl. iv, 4, 4*a*.  
1889. *Bythopora nashvillensis*. Miller, North American Geol. Pal., fig. 462 (p. 295).  
1890. *Rhinidictya nashvillensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 185.  
Trenton: Near Nashville, Tennessee (?).  
Obs. The locality given above is probably incorrect. The species occurs in the Pierce limestone (Stones River) at Murfreesboro, Tennessee.

**Rhinidictya neglecta Ulrich.**

1886. *Stictopora paupera* (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 69.  
1893. *Rhinidictya neglecta*. Ulrich, Geol. Minnesota, III, p. 130, pl. v., 22-25.  
Trenton: Frankfort, Boyle, and Mercer counties, Kentucky; Nashville, Tennessee; St. Paul, Minnesota.

**Rhinidictya neglecta-canadensis Ulrich.**

1893. *Rhinidictya neglecta* var. *canadensis*. Ulrich, Geol. Minnesota, III, p. 130.  
Trenton: Ottawa, Canada.

**Rhinidictya nicholsoni Ulrich.**

1882. *Rhinidictya nicholsoni*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 170, pl. viii, 6-6*b*.  
1889. *Rhinidictya nicholsoni*. Miller, North American Geol. Pal., fig. 507 (p. 320).  
Trenton (Stones River): High Bridge, Kentucky.

**Rhinidictya obliqua (Ulrich) Whiteaves.**

1897. *Rhinidictya obliqua* Ulrich. Whiteaves, Pal. Foss., III, p. 240.

Trenton: Deer Island, Lake Winnipeg, Canada.

Obs. Though unquestionably distinct, this species requires further work before it can be regarded as valid.

**Rhinidictya parallela (James).**

1878. *Ptilodictya parallela*. James, Paleontologist, No. 1, p. 5.

1882. *Rhinidictya parallela*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 170.

1878. *Ptilodictya granulosa*. James, Paleontologist, No. 1, p. 4.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Obs. Although the description of *P. granulosa* precedes that of *P. parallela*, the latter name much better defines the usual appearance of the species, and therefore deserves to be the one retained.

**Rhinidictya paupera Ulrich.**

1886. *Stictopora paupera* (in part). Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 69.

1893. *Rhinidictya paupera*. Ulrich, Geol. Minnesota, III, p. 129, pl. v, 19-21.

Trenton (Black River): St. Paul and Cannon Falls, Minnesota; Decorah, Iowa.

**Rhinidictya pediculata Ulrich.**

1893. *Rhinidictya pediculata*. Ulrich, Geol. Minnesota, III, p. 137, pl. vii, 1-5.

Trenton (Stones River): Minneapolis, Minnesota.

**Rhinidictya trentonensis (Ulrich).**

1882. *Dicranopora trentonensis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 167, pl. vi, 15, 15a.

1893. *Rhinidictya trentonensis*. Ulrich, Geol. Minnesota, III, p. 135, pl. vi, 14-18, pl. vii, 6-9.

1886. *Stictopora fidelis* (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 68.

Trenton (Stones River): Lebanon, Tennessee; Minneapolis, Minnesota; Janesville, Wisconsin; Rockton, Illinois.

**RHINOPORA Hall. Genotype: *Rhinopora verrucosa* Hall.**

1852. *Rhinopora*. Hall, Pal. New York, II, p. 48.

1887. *Rhinopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 166.

1889. *Rhinopora*. Miller, North American Geol. Pal., p. 321.

1890. *Rhinopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 388.

1896. *Rhinopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.

1897. *Rhinopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 540.

*Rhinopora curvata* Ringueberg. See *Rhinopora verrucosa* Hall.

*Rhinopora frondosa* Hall and Whitfield. See *Rhinopora verrucosa* Hall.

***Rhinopora prima* Whitfield.**

1897. *Rhinopora prima*. Whitfield, Bull. American Mus. Nat. Hist., IX, p. 177, pl. iv, 5, 6.

Calciferous: Fort Cassin, Vermont.

Obs. This is probably not a bryozoan.

***Rhinopora ? tuberculosa* Hall.**

1852. *Rhinopora tuberculosa*. Hall, Pal. New York, II, p. 170, pl. xIE, 4a-c.

Niagara: Lockport, New York.

**Rhinopora ? tubulosa Hall.**

1852. *Rhinopora tubulosa*. Hall, Pal. New York, II, p. 49, pl. xix, 2a-c.  
Clinton: Sodus, Wayne County, and Reynales Basin, New York.

**Rhinopora venosa Spencer. See *Rhinopora verrucosa* Hall.****Rhinopora verrucosa Hall.**

1852. *Rhinopora verrucosa*. Hall, Pal. New York, II, p. 48, pl. xix, 1a-c.  
1874. *Rhinopora verrucosa*. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 141.  
1875. *Rhinopora verrucosa*. Nicholson, Pal. Province Ontario, p. 44, fig. 19, 1, 1a.  
1887. *Rhinopora verrucosa*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 166; *ibid.*, III, 1888, pl. xv, 13.  
1889. *Rhinopora verrucosa*. Foerste, Proc. Boston Soc. Nat. Hist., xxiv, p. 332.  
1895. *Rhinopora verrucosa*. Foerste, Geol. Surv. Ohio, VII, p. 599, pl. xxviii, 13a-c.  
1875. *Escharina ? distorta*. James, Paleontologist, No. 3, p. 21.  
\*1884. *Rhinopora venosa*. Spencer, Trans. St. Louis Acad. Sci., IV, p. 604, pl. vii, 3.  
\*1884. *Rhinopora venosa*. Spencer, Bull. Mus. Univ. State Missouri, I, p. 54, pl. vii, 3.  
\*1886. *Rhinopora curvata*. Ringueberg, Bull. Buffalo Soc. Nat. Hist., V, p. 19, pl. ii, 14.  
Clinton: Flamboro Head and Dundas, Canada; Cumberland Gap, Tennessee; Collinsville, Alabama; Hanover, Indiana (Foerste); Dayton, Fair Haven, Todds Fork, and Yellow Springs, Ohio.

Obs. The citations preceded by the (\*) refer to very poor descriptions of poorly preserved fossils, but there is scarcely any doubt but that the names are synonyms.

**RHOMBOPORA Meek. Genotype: *Rhombopora lepidodendroides* Meek.**

1872. *Rhombopora*. Meek, Pal. Eastern Nebraska, p. 141.  
1877. *Rhombopora*. Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XX, p. 36.  
1883. *Rhombopora*. Vine, Proc. Yorkshire Geol. Polyt. Soc., VIII, p. 105.  
1884. *Rhombopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 26.  
1885. *Rhombopora*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 93.  
1887. *Rhombopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 71.  
1889. *Rhombopora*. Miller, North American Geol. Pal., p. 321.  
1890. *Rhombopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 402, 647.  
1896. *Rhombopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 281.  
1897. *Rhombopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 550.  
1899. *Rhombopora*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 164.  
Vincularia of some foreign authors.

**Rhombopora angustata Ulrich.**

1890. *Rhombopora angustata*. Ulrich, Geol. Surv. Illinois, VIII, p. 652, pl. lxx, 6, 6a.  
Keokuk: Kings Mountain, Kentucky.

**Rhombopora armata Ulrich.**

1884. *Rhombopora armata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 31, pl. i, 5, 5a.  
Chester: Sloans Valley, Kentucky.

**Rhombopora ? asperima (Ulrich, in press) Miller. See *Rhombopora ? asperula* Ulrich.**

**Rhombopora ? asperula** Ulrich.

1890. *Rhombopora ? asperula*. Ulrich, Geol. Surv. Illinois, VIII, p. 656, pl. lxx, 9-9e.  
1889. *Rhombopora ? asperrima* (in error for *asperula*). (Ulrich, in press), Miller, North American Geol. Pal., p. 321.  
Keokuk: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.

**Rhombopora attenuata** Ulrich.

1890. *Rhombopora attenuata*. Ulrich, Geol. Surv. Illinois, VIII, p. 655, pl. lxx, 7.  
1894. *Rhombopora attenuata*. Keyes, Missouri Geol. Surv., V, p. 34.  
Keokuk: Warsaw, Illinois.

**Rhombopora confluens** Ulrich. See *Acanthoclema confluens* (Ulrich).**Rhombopora crassa** Ulrich.

1884. *Rhombopora crassa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 28, pl. i, 2-2b.  
1894. *Rhombopora crassa*. Keyes, Missouri Geol. Surv., V, p. 34.  
Coal Measures: Kansas City, Missouri.

**Rhombopora decipiens** Ulrich.

1890. *Rhombopora decipiens*. Ulrich, Geol. Surv. Illinois, VIII, p. 657, pl. lxxi, 3-3d.  
St. Louis: Monroe County, Illinois.

**Rhombopora dichotoma** Ulrich.

1890. *Rhombopora dichotoma*. Ulrich, Geol. Surv. Illinois, VIII, p. 650, pl. lxx, 13-13b.  
1894. *Rhombopora dichotoma*. Keyes, Missouri Geol. Surv., V, p. 33.  
Burlington: Burlington, Iowa.  
Keokuk: Warsaw, Illinois.

**Rhombopora elegantula** Ulrich.

1884. *Rhombopora elegantula*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 33, pl. i, 3-3b.  
1890. *Anisotrypa elegantula*. Ulrich, Geol. Surv. Illinois, VIII, p. 447.  
Keokuk: Kings Mountain, Kentucky.

**Rhombopora exigua** Ulrich.

1890. *Rhombopora exigua*. Ulrich, Geol. Surv. Illinois, VIII, p. 651, pl. lxx, 10, 10a.  
Burlington: Burlington, Iowa.

**Rhombopora exilis** (Dawson).

1868. *Stenopora exilis*. Dawson, Acadian Geology, p. 287.  
1878. *Stenopora exilis*. Dawson, Acadian Geology, ed. 3, p. 287, fig. 85a.  
1889. *Stenopora exilis*. Miller, North American Geol. Pal., fig. 218 (p. 203).  
Carboniferous: Windsor and Stewiacke, Nova Scotia.

**Rhombopora gracilis** Ulrich.

1890. *Rhombopora gracilis*. Ulrich, Geol. Surv. Illinois, VIII, p. 651, pl. lxx, 11-11b.  
Burlington: Burlington, Iowa.

**Rhombopora granulifera** Ulrich. See *Batostomella granulifera* (Hall).**Rhombopora Hamiltonensis** Nicholson and Lyddeker. See *Streblotrypa hamiltonensis* (Nicholson).**Rhombopora hexagona** Grabau. See *Orthopora hexagona* (Hall and Simpson).



*Rhombopora immersa* Grabau. See *Orthopora immersa* (Hall and Simpson).

***Rhombopora incrassata* Ulrich.**

1888. *Rhombopora incrassata*. Ulrich, Bull. Denison Univ., IV, p. 89, pl. xiv, 16, ? 16a.  
1890. *Rhombopora incrassata*. Ulrich, Geol. Surv. Illinois, VIII, p. 652, pl. lxx, 12-12d.  
Waverly: Lodi, Ohio.  
Keokuk: Kings Mountain and Button Mole Knob, near Louisville, Kentucky.

***Rhombopora lepidodendroides* Meek.**

1866. *Stenopora columnaris* (not of Schlotheim, 1813) (in part). Geinitz, Carb. und Dyas in Nebraska, p. 66.  
1872. *Rhombopora lepidodendroides*. Meek, Pal. Eastern Nebraska, p. 141, pl. vii, 2a-f.  
1877. *Rhombopora lepidodendroides* (?). White, Wheeler's United States Geol. Surv., IV, Pal., p. 99, pl. vi, 5a-d.  
1884. *Rhombopora lepidodendroides*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 27, pl. i, 1-1b.  
1887. *Rhombopora lepidodendroides*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 73, pl. vii, 3a, b.  
1888. *Rhombopora lepidodendroides*. Keyes, Proc. Acad. Nat. Sci. Philadelphia, p. 225.  
1894. *Rhombopora lepidodendroides*. Keyes, Missouri Geol. Surv., V, p. 35, pl. xxxiii, 4a, b.  
1896. *Rhombopora lepidodendroides*. Smith, Proc. American Phil. Soc., XXXV, p. 237.  
Coal Measures: Nebraska City and Wyoming, Nebraska. A rather common species at various localities in Nebraska, Kansas, Missouri, Iowa, Illinois, and Ohio.

*Rhombopora lineata* Grabau. See *Orthopora lineata* (Hall).

***Rhombopora lineinodis* Ulrich.**

1890. *Rhombopora lineinodis*. Ulrich, Geol. Surv. Illinois, VIII, p. 649, pl. xlv, 3-3b.  
Hamilton: Falls of the Ohio.

***Rhombopora lineinodis-humilis* Ulrich.**

1890. *Rhombopora lineinodis* var. *humilis*. Ulrich, Geol. Surv. Illinois, VIII, p. 649, pl. xlv, 4, 4a.  
Hamilton: Falls of the Ohio.

***Rhombopora minor* Ulrich.**

1890. *Rhombopora minor*. Ulrich, Geol. Surv. Illinois, VIII, p. 659, pl. lxx, 4, 4a.  
Chester: Sloans Valley and Litchfield, Kentucky.

***Rhombopora multipora* Foerste.**

1887. *Rhombopora multipora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 72, pl. vii, 1a-c.  
Coal Measures: Flint Ridge, Ohio; Seville, Illinois.

***Rhombopora nicklesi* Ulrich.**

1890. *Rhombopora nicklesi*. Ulrich, Geol. Surv. Illinois, VIII, p. 661, pl. lxx, 1-1c.  
Lower Coal Measures: Sparta, Illinois.

**Rhombopora ohioensis** Ulrich.

1888. *Rhombopora ohioensis*. Ulrich, Bull. Denison Univ., IV, p. 90, pl. xiv, 15, 15a.

1895. *Rhombopora ohioensis*. Herrick, Geol. Surv. Ohio, VII, pl. xix, 9.  
Waverly: Richfield, Lodi, and Moots Run, Ohio.

**Rhombopora persimilis** Ulrich.

1884. *Rhombopora persimilis*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 30, pl. i, 7-7d.

1890. *Rhombopora persimilis*. Ulrich, Geol. Surv. Illinois, VIII, p. 659, pl. lxx, 3.

Chester: Chester, Illinois, and Sloans Valley, Kentucky.

*Rhombopora polygona* Grabau. See *Orthopora polygona* (Hall).

**Rhombopora pulchella** Ulrich.

1884. *Rhombopora pulchella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 31, pl. i, 6, 6a.

Chester: Sloans Valley, Kentucky.

*Rhombopora regularis* Simpson. See *Orthopora regularis* (Hall).

*Rhombopora reticulata* Grabau. See *Orthopora reticulata* (Hall and Simpson).

**Rhombopora simulatrix** Ulrich.

1890. *Rhombopora simulatrix*. Ulrich, Geol. Surv. Illinois, VIII, p. 657, pl. lxxi, 2-2e.

St. Louis: Columbia and other localities in Monroe County, Illinois.

**Rhombopora ? spiralis** Ulrich.

1890. *Rhombopora ? spiralis*. Ulrich, Geol. Surv. Illinois, VIII, p. 656, pl. lxxi, 5-5d.

Keokuk: Kings Mountain, Kentucky.

**Rhombopora subannulata** Ulrich.

1890. *Rhombopora subannulata*. Ulrich, Geol. Surv. Illinois, VIII, p. 648, pl. xlv, 1-1i.

Hamilton: Buffalo, Iowa.

**Rhombopora sulcifera** Ulrich.

1890. *Rhombopora sulcifera*. Ulrich, Geol. Surv. Illinois, VIII, p. 649, pl. xlv, 2-2b.

Hamilton: Davenport, Iowa.

**Rhombopora tabulata** Ulrich.

1890. *Rhombopora tabulata*. Ulrich, Geol. Surv. Illinois, VIII, p. 658, pl. lxx, 2-2c.

1894. *Rhombopora tabulata*. Keyes, Missouri Geol. Surv., V, p. 34.

Chester: Chester and Kaskaskia, Illinois; Sloans Valley, Kentucky.

**Rhombopora tenuirama** Ulrich.

1890. *Rhombopora tenuirama*. Ulrich, Geol. Surv. Illinois, VIII, p. 660, pl. lxx, 8-8b.

1894. *Rhombopora tenuirama*. Keyes, Missouri Geol. Surv., V, p. 34.

Chester: Kaskaskia, Illinois; Sloans Valley, Kentucky.

*Rhombopora tortalina* Grabau. See *Orthopora tortalina* (Hall).

*Rhombopora transversa* Grabau. See *Orthopora transversa* (Hall).

*Rhombopora transversa* Simpson. See *Orthopora hexagona* (Hall and Simpson).

**Rhombopora transversalis** Ulrich.

1890. *Rhombopora transversalis*. Ulrich, Geol. Surv. Illinois, VIII, p. 654, pl. lxxi, 4-4b.

1894. *Rhombopora transversalis*. Keyes, Missouri Geol. Surv., V, p. 34.  
Keokuk: Plymouth, Nauvoo, and Warsaw, Illinois.

*Rhombopora varia* (Ulrich, in press) Miller. See *Rhombopora varians* Ulrich.

**Rhombopora varians** Ulrich.

1890. *Rhombopora varians*. Ulrich, Geol. Surv. Illinois, VIII, p. 653, pl. lxxi, 1-1f.

1889. *Rhombopora varia* (in error for *varians*). (Ulrich, in press), Miller North American Geol. Pal., p. 321.

1894. *Rhombopora varians*. Keyes, Missouri Geol. Surv., V, p. 33.  
Keokuk: Near Plymouth, near Whitehall, Warsaw, and Nauvoo, Illinois.

**Rhombopora wortheni** Ulrich.

1884. *Rhombopora wortheni*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 32, pl. i, 4-4b.

St. Louis: Somerset, Kentucky.

**RHOPALONARIA** Ulrich. Genotype: *Rhopalonaria venosa* Ulrich.

1879. *Rhopalonaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 26.

1882. *Rhopalonaria*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 149.

1884. *Rhopalonaria*. Vine, Ann. Mag. Nat. Hist., ser. 5, XIV, p. 84, fig. iv.

1889. *Rhopalonaria*. Miller, North American Geol. Pal., p. 321.

1890. *Rhopalonaria*. Ulrich, Geol. Surv. Illinois, VIII, p. 367.

1897. *Rhopalonaria*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 603.

*Rhopalonaria pertenuis* Ulrich. See *Stomatopora delicatula* James.

**Rhopalonaria venosa** Ulrich.

1879. *Rhopalonaria venosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 26, pl. vii, 24, 24a.

1889. *Rhopalonaria venosa*. Miller, North American Geol. Pal., fig. 511 (p. 321).

1893. *Rhopalonaria venosa*. Ulrich, Geol. Minnesota, III, p. 114, fig. 8c.

1897. *Rhopalonaria venosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 221 (p. 603).

Cincinnati (Lorraine and Richmond): Clarksville, Waynesville, Oregonia and Hanover, Ohio; Versailles, Indiana.

*Rhopalonaria*. See *Rhopalonaria*.

*Rosacilla* F. A. Roemer. See *Berenicea Lamouroux*.

*Sagenella* Hall. See *Berenicea Lamouroux*.

*Sagenella ambigua* Walcott. Not recognizable.

1883. *Sagenella ambigua*. Walcott, Trans. Albany Institute, X, p. 22, pl. i, 3, 3a.

Utica Slate: Trenton, New York.

*Sagenella elegans* Hall. See *Berenicea elegans* (Hall).

*Sagenella membranacea* Hall. See *Berenicea membranacea* (Hall).

*Sagenella striata* James. See *Escharopora falciformis* (Nicholson).

**SCALARIPORA** Hall. Genotype: *Scalaripora scalariformis* Hall.

1883. *Scalaripora*. Hall, Trans. Albany Institute, X, p. 159 (abstract, 1881, p. 17).  
1887. *Scalaripora*. Hall and Simpson, Pal. New York, VI, p. xxi.  
1889. *Scalaripora*. Miller, North American Geol. Pal., p. 321.  
1890. *Scalaripora*. Ulrich, Geol. Surv. Illinois, VIII, p. 387.  
1897. *Scalaripora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 532.

***Scalaripora approximata*** Ulrich.

1890. *Scalaripora approximata*. Ulrich, Geol. Surv. Illinois, VIII, p. 508, pl. xliii, 3.  
Hamilton; Near Alpena, Michigan.

***Scalaripora canadensis*** Whiteaves.

1898. *Scalaripora Canadensis*. Whiteaves, Contr. Canadian Pal., I, p. 378, pl. xlviii, 10-10b.  
Hamilton: Thedford, Ontario.

***Scalaripora scalariformis*** Hall.

1883. *Scalaripora scalariformis*. Hall, Trans. Albany Institute, X, p. 159 (abstract, 1881, p. 18).  
1886. *Scalaripora scalariformis*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 4-8.  
1887. *Scalaripora scalariformis*. Hall and Simpson, Pal. New York, VI, p. 100, pl. xxix, 4-8.  
1897. *Scalaripora scalariformis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 16-20.  
Hamilton: Falls of the Ohio.

***Scalaripora separata*** Ulrich.

1890. *Scalaripora separata*. Ulrich, Geol. Surv. Illinois, VIII, p. 507, pl. xliii, 2.  
Hamilton: Thunder Bay, Michigan.

***Scalaripora subconcava*** Hall.

1883. *Scalaripora subconcava*. Hall, Trans. Albany Institute, X, p. 160 (abstract, 1881, p. 18).  
1886. *Scalaripora subconcava*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 1-3.  
1887. *Scalaripora subconcava*. Hall and Simpson, Pal. New York, VI, p. 100, pl. xxix, 1-3.  
1897. *Scalaripora subconcava*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 21, 22.  
Hamilton: Falls of the Ohio.

**SCENELLOPORA** Ulrich. Genotype: *Scenellopora radiata* Ulrich.

1882. *Scenellopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.  
1889. *Scenellopora*. Miller, North American Geol. Pal., p. 322.  
1890. *Scenellopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 368.  
1896. *Scenellopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 268.  
1897. *Scenellopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 593.

***Scenellopora radiata*** Ulrich.

1882. *Scenellopora radiata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 158, pl. vi, 6-6b.  
1897. *Scenellopora radiata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 194, 195 (p. 593).  
Trenton (Stones River): Knoxville, Tennessee.

**SCEPTROPORA** Ulrich. Genotype: *Sceptropora facula* Ulrich.

- 1888. *Sceptropora*. Ulrich, American Geologist, I, p. 228.
- 1889. *Sceptropora*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 46.
- 1889. *Sceptropora*. Miller, North American Geol. Pal., p. 322.
- 1890. *Sceptropora*. Ulrich, Geol. Sur. Illinois, VIII, p. 400.
- 1896. *Sceptropora*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 281.
- 1897. *Sceptropora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 548.

**Sceptropora facula** Ulrich.

- 1888. *Sceptropora facula*. Ulrich, American Geologist, I, p. 229, fig. 1.
  - 1889. *Sceptropora facula*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 46, fig. 2.
  - 1890. *Sceptropora facula*. Ulrich, Geol. Sur. Illinois, VIII, p. 401, fig. 15.
  - 1895. *Sceptropora facula*. Whiteaves, Pal. Foss., III, Part II, p. 117.
  - 1897. *Sceptropora facula*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 116 (p. 549).
- Cincinnati (Richmond): Stony Mountain, Manitoba; Wilmington and Savannah, Illinois.

**Sceptropora fustiformis** Ulrich.

- 1889. *Sceptropora fustiformis*. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 46.
- Clinton: Hamilton, Ontario.

**SELENOPORA** Hall. Genotype: *Lichenalia circincta* Hall.

- 1886. *Selenopora*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.
- 1887. *Selenopora*. Hall and Simpson, Pal. New York, VI, p. xvii.
- 1889. *Selenopora*. Miller, North American Geol. Pal., p. 322.
- 1890. *Selenopora*. Ulrich, Geol. Sur. Illinois, VIII, p. 384.
- 1896. *Selenopora*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 270.
- 1897. *Selenopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 557.

**Selenopora circincta** (Hall).

- 1883. *Lichenalia circincta*. Hall, Trans. Albany Institute, X, p. 153 (abstract, 1881, p. 11).
  - 1886. *Selenopora circincta*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 13-15.
  - 1887. *Lichenalia (Selenopora) circincta*. Hall and Simpson, Pal. New York, VI, p. 86, pl. xxv, 13-15.
  - 1897. *Selenopora circincta*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 4-6.
- Hamilton: Falls of the Ohio.

**Selenopora complexa** (Hall).

- 1883. *Lichenalia complexa*. Hall, Trans. Albany Institute, X, p. 153 (abstract, 1881, p. 11).
  - 1886. *Lichenalia complexa*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 19, 20.
  - 1887. *Lichenalia (Selenopora) complexa*. Hall and Simpson, Pal. New York, VI, p. 87, pl. xxxi, 19, 20.
  - 1897. *Selenopora complexata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 7.
- Hamilton: Falls of the Ohio. (In the Trans. Albany Institute, X, p. 153, the locality is given as Onondaga Valley, New York.)

*Selenopora complexata* Simpson. See *Selenopora complexa* (Hall).

**SEMICOSCINIUM** Prout. Genotype: *Semicoscinium rhomboideum* Prout.

- 1859. *Semicoscinium*. Prout, Trans. St. Louis Acad. Sci., I, p. 443.
- 1886. *Semicoscinium*. Ulrich, Contr. American Pal., I, p. 4.
- 1889. *Semicoscinium*. Miller, North American Geol. Pal., p. 322.
- 1890. *Semicoscinium*. Ulrich, Geol. Sur. Illinois, VIII, pp. 395, 555.
- 1895. *Semicoscinium*. Simpson, Thirteenth Ann. Rep. New York State Geologist for the year 1893, p. 705; Forty-seventh Ann. Rep. New York State Mus., p. 899.
- 1896. *Semicoscinium*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 281.
- 1897. *Semicoscinium*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 509.
- 1874. *Cryptopora*. Nicholson, Canadian Jour., new ser., XIV, p. 131.
- 1874. *Cryptopora*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 77.
- 1874. *Cryptopora*. Nicholson, Pal. Province Ontario, p. 102.
- 1885. *Cryptopora*. Hall, Rep. State Geologist New York for the year 1884, p. 40.
- 1886. *Cryptopora*. Ulrich, Contr. American Pal., I, p. 6.
- 1874. *Carinopora*. Nicholson, Canadian Jour., new ser., XIV, p. 132.
- 1874. *Carinopora*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 81.
- 1874. *Carinopora*. Nicholson, Pal. Province Ontario, p. 109.
- 1885. *Carinopora*. Hall, Rep. State Geologist New York for the year 1884, p. 38.
- 1886. *Carinopora*. Ulrich, Contr. American Pal., I, p. 4.
- 1895. *Cycloporina*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 711, 725; Forty-seventh Ann. Rep. New York State Mus., pp. 905, 919.
- 1897. *Cycloporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 504, 520.

***Semicoscinium acmeum* (Hall).**

- 1876. *Fenestella acmea*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xii, 10-13, 14 (sp.?); *ibid.* (Museum edition, 1879), p. 124, pl. xii, 10-14.
- 1882. *Fenestella acmea*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist. p. 250, pl. xi, 10-14.
- 1890. *Semicoscinium acmea*. Ulrich, Geol. Sur. Illinois, VIII, p. 355. Niagara: Waldron, Indiana.

***Semicoscinium biimbricatum* (Hall).**

- 1883. *Fenestella biimbricata*. Hall, Trans. Albany Institute, X, p. 173 (abstract, 1881, p. 31).
- 1886. *Fenestella biimbricata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlviii, 6-11.
- 1887. *Fenestella biimbricata*. Hall and Simpson, Pal. New York, VI, p. 122, pl. xlviii, 6-11.
- 1897. *Fenestella biimbricata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 11. Hamilton: Falls of the Ohio.

***Semicoscinium biserrulatum* (Hall).**

- 1883. *Fenestella biserrulata*. Hall, Trans. Albany Institute, X, p. 172 (abstract, 1881, p. 30).
- 1886. *Fenestella biserrulata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. i, 6-11.

**Semicoscinium biserrulatum** (Hall)—Continued.

1887. *Fenestella biserrulata*. Hall and Simpson, Pal. New York, VI, p. 128, pl. 1, 6-11.

Hamilton: Falls of the Ohio.

**Semicoscinium ? cleis** (Hall).

1879. *Fenestella Cleis*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 173 (reprint, 1880, p. 35).

Lower Helderberg: Clarksville, New York.

**Semicoscinium coronis** (Hall).

1879. *Fenestella Coronis*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 171 (reprint, 1880, p. 33).

1883. *Fenestella Coronis*. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 10-13.

1887. *Fenestella Coronis*. Hall and Simpson, Pal. New York, VI, p. 51, pl. xxi, 10-13.

Lower Helderberg: Clarksville, New York.

**Semicoscinium davidsoni** (Nicholson).

1875. *Fenestella Davidsoni*. Nicholson. Geol. Mag., new ser., II, p. 36; pl. ii, 3-36.

1875. *Fenestella Davidsoni*. Nicholson, Pal. Province of Ontario, p. 81, pl. iii, 3a-c.

Hamilton: Arkona and Widder, Ontario.

**Semicoscinium erienze** Prout.

1860. *Semicoscinium Eriense*. Prout, Trans. St. Louis Acad. Sci., I, p. 579.

Devonian (?): Cunningham Island, Lake Erie.

**Semicoscinium exornatum** (Hall).

1884. *Fenestella exornata*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 67.

1887. *Fenestella exornata*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 49, pl. iv, 6-13, pl. v, 1-13.

1897. *Fenestella exornata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 7.

1884. *Fenestella brevilinea*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 70.

Hamilton: Alden and Moscow, New York.

**Semicoscinium graniferum** (Hall).

1883. *Fenestella (Hemitrypa) granifera*. Hall, Trans. Albany Institute, X, p. 175 (abstract, 1881, p. 33).

1886. *Fenestella (Hemitrypa) granifera*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. 1, 12-14, 16.

1887. *Fenestella granifera*. Hall and Simpson, Pal. New York, VI, p. 125, pl. 1, 12-14, 16.

Upper Helderberg: Near Le Roy, New York.

**Semicoscinium hindei** (Nicholson).

1874. *Carinopora Hindei*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 84, fig. 2.

1874. *Carinopora Hindei*. Nicholson, Pal. Province Ontario, p. 111, fig. 48.

Upper Helderberg: Jarvis, Ontario.

**Semicoscium inflexum (Hall).**

1884. *Fenestella inflexa*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 64.

Hamilton: West Bloomfield, New York.

*Semicoscium infraporosa* Ulrich. See *Fenestrapora infraporosa* (Ulrich).

**Semicoscium interruptum (Hall).**

1883. *Fenestella interrupta*. Hall, Trans. Albany Institute, X, p. 174 (abstract, 1881, p. 32).

1886. *Fenestella interrupta*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlviii, 12-17.

1887. *Fenestella interrupta*. Hall and Simpson, Pal. New York, VI, p. 123, pl. xlviii, 12-17.

Hamilton: Falls of the Ohio.

**Semicoscium labiatum (Hall).**

1885. *Fenestella labiata*. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 18.

1887. *Fenestella hemicycla*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 55, pl. vii, 12, 15, 16 (not 13, 14).

1895. *Cycloporina hemicycla*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 711; Forty-seventh Ann. Rep. New York State Mus., p. 905.

1897. *Cycloporina hemicycla*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 504, pl. iii, 1, 2, 5.

Hamilton: Darien, New York; West Williams, Ontario.

**Semicoscium latijunctum (Hall).**

1883. *Fenestella latijunctura*. Hall, Trans. Albany Institute, X, p. 173 (abstract, 1881, p. 31).

1886. *Fenestella latijunctura*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlviii, 1-5.

1887. *Fenestella latijunctura*. Hall and Simpson, Pal. New York, VI, p. 128, pl. xlviii, 1-5.

1897. *Fenestella latijunctura*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 9-10.

Hamilton: Falls of the Ohio.

**Semicoscium lunulatum (Hall).**

1883. *Fenestella lunulata*. Hall, Trans. Albany Institute, X, p. 173 (abstract, 1881, p. 31).

1887. *Fenestella lunulata*. Hall and Simpson, Pal. New York, VI, p. 121, pl. xlvii, 1-10.

1886. *Semicoscium obliquatum*. Ulrich, Contr. American Pal., I, p. 13, pl. i, 5, 5a.

Hamilton: Falls of the Ohio.

**Semicoscium mirabile (Nicholson).**

1874. *Cryptopora mirabile*. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 79, fig. 1.

1874. *Cryptopora mirabile*. Nicholson, Pal. Province Ontario, p. 103, fig. 40.

Upper Helderberg: Port Colborne and Wainfleet, Ontario.

*Semicoscium obliquatum* Ulrich. See *Semicoscium lunulatum* (Hall.)



**Semicoscinium permarginatum (Hall).**

1883. *Fenestella permarginata*. Hall, Trans. Albany Institute, X, p. 172 (abstract, 1881, p. 30).

1887. *Fenestella permarginata*. Hall and Simpson, Pal. New York, VI, p. 127, pl. xlix, 1-10.

Hamilton: Falls of the Ohio.

**Semicoscinium planodorsatum Ulrich.**

1890. *Semicoscinium planodorsatum*. Ulrich, Geol. Surv. Illinois, VIII, p. 555, pl. xlv, 3-3b.

Hamilton: Falls of the Ohio.

**Semicoscinium rhombicum Ulrich.**

1890. *Semicoscinium rhombicum*. Ulrich, Geol. Surv. Illinois, VIII, p. 556, pl. xlv, 4, 4a, pl. liv, 8.

Hamilton: Buffalo, Iowa.

**Semicoscinium rhomboideum Prout.**

1859. *Semicoscinium rhomboideum*. Prout, Trans. St. Louis Acad. Sci., I, p. 443, pl. xvii, 1-1f.

1897. *Semicoscinium rhomboideum*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 58 (p. 509).

Hamilton: Falls of the Ohio.

**Semicoscinium semirotundum (Hall).**

1883. *Fenestella semirotunda*. Hall, Trans. Albany Institute, X, p. 174 (abstract, 1881, p. 32).

1887. *Fenestella semirotunda*. Hall and Simpson, Pal. New York, VI, p. 125, pl. xlix, 11-22.

1897. *Cycloporina semirotunda*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iii, 3, 4.

1895. *Cycloporina rhomboidea*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 711; Forty-seventh Ann. Rep. New York State Mus., p. 905.

Hamilton: Falls of the Ohio.

**Semicoscinium subtortile (Hall).**

1884. *Fenestella subtortilis*. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 71.

1887. *Fenestella subtortilis*. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 52.

1888. *Fenestella subtortilis*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. ix, 1-5.

Hamilton: Moscow, New York.

**Semicoscinium tenuiceps (Hall).**

1852. *Fenestella prisca* (?) (not of Lonsdale nor of Goldfuss). Hall, Pal. New York, II, p. 50, pl. xix, 4a-m.

1852. *Fenestella tenuiceps*. Hall, Pal. New York, II, p. 165, pl. xld, 2a-b.

1890. *Semicoscinium tenuiceps*. Ulrich, Geol. Surv. Illinois, VIII, p. 355.

Niagara: Lockport, New York.

**Semicoscinium thyene (Hall).**

1879. *Fenestella Thyene*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 170 (reprint, 1880, p. 32).

1883. *Fenestella Thyene*. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 1-5.

**Semicoscium thyene (Hall)—Continued.**

1887. *Fenestella Thyene*. Hall and Simpson, Pal. New York, VI, p. 50, pl. xxi, 1-5.  
1890. *Semicoscium thyene*. Ulrich, Geol. Surv. Illinois, VIII, p. 534.  
Lower Helderberg: Clarksville, New York.

**Semicoscium tortum (Hall).**

1883. *Fenestella torta*. Hall, Trans. Albany Institute, X, p. 172 (abstract, 1881, p. 30).  
Hamilton: Falls of the Ohio.

**Semicoscium tuberculatum Prout.**

1859. *Semicoscium tuberculatum*. Prout, Trans. St. Louis Acad. Sci., I, p. 579.  
Hamilton: Falls of the Ohio.

**SEMIOPORA Hall. Genotype: Semiopora bistigmata Hall.**

1883. *Semiopora*. Hall, Trans. Albany Institute, X, p. 193 (abstract, 1881, p. 193).  
1884. *Semiopora*. Hall, Rep. State Geologist New York for the year 1883, p. 51.  
1887. *Semiopora*. Hall and Simpson, Pal. New York, VI, p. xxii.  
1889. *Semiopora*. Miller, North American Geol. Pal., p. 322.  
1897. *Semiopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 535.

**Semiopora bistigmata Hall.**

1883. *Semiopora bistigmata*. Hall, Trans. Albany Institute, X, p. 193 (abstract, 1881, p. 193).  
1884. *Semiopora bistigmata*. Hall, Rep. State Geologist New York for the year 1883, p. 51.  
1887. *Semiopora bistigmata*. Hall and Simpson, Pal. New York, VI, p. 262, pl. xlii, 27-29.  
1891. *Semiopora bistigmata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 52; Forty-fourth Ann. Rep. New York State Mus., p. 82.  
1897. *Semiopora bistigmata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xi, 10, 11.  
1898. *Semiopora bistigmata*. Whiteaves, Contr. Canadian Pal., I, Part V, p. 377.  
Hamilton: West Williams, Ontario.

**SEPTOPORA Prout. Genotype: Septopora Cestriensis Prout.**

1859. *Septopora*. Prout, Trans. St. Louis Acad. Sci., I, p. 448.  
1882. *Septopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.  
1885. *Septopora*. Waagen and Pichl., Pal. Indica, Ser. XIII, p. 773.  
1886. *Septopora*. Ulrich, Contr. American Pal., I, p. 6.  
1887. *Septopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 79.  
1889. *Septopora*. Miller, North American Geol. Pal., p. 322.  
1890. *Septopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 397, 626.  
1895. *Septopora*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 721, 726; Forty-seventh Ann. Rep. New York State Mus., pp. 915, 920.  
1895. *Septopora*. Whidborne, Devon. Fauna England (Pal. Soc. Publ.), II, part 4, p. 183.  
1896. *Septopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.  
1897. *Septopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 514, 521.

**Septopora biserialis (Swallow).**

1858. *Synocladia virgulacea* Phillips (?). Swallow, Trans. St. Louis Acad. Sci., I, p. 179.  
1858. *Synocladia biserialis*. Swallow, Trans. St. Louis Acad. Sci., I, p. 179.  
1860. *Synocladia biserialis*. Meek and Hayden, Proc. Acad. Nat. Sci. Philadelphia, p. 24.  
1866. *Synocladia virgulacea* (not of Phillips). Geinitz, Carb. und Dyas in Nebraska, p. 70, pl. v, 14.  
1870. *Synocladia virgulacea* var. *biserialis*. Meek and Worthen, Geol. Surv. Illinois, V, pl. xxiv, 15a-c.  
1872. *Synocladia biserialis*. Meek, Pal. Eastern Nebraska, p. 156, pl. vii, 5a-e.  
1874. *Synocladia biserialis*. Meek, American Jour. Sci. Arts., ser. 3, VII, p. 486.  
1877. *Synocladia biserialis*. White, Wheeler's United States Geol. Surv., IV, p. 107, pl. vii, 3a-c.  
1884. *Synocladia biserialis*. White, Thirteenth Ann. Rep. Indiana Geol. Nat. Hist., Part 2, p. 138, pl. xxv, 11-13.  
1887. *Septopora biserialis*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 87; *ibid.*, III, 1888, pl. vii, 16a-c.  
1888. *Synocladia biserialis*. Keyes, Proc. Acad. Nat. Sci. Philadelphia, p. 225.  
1890. *Septopora biserialis*. Ulrich, Geol. Surv. Illinois, VIII, p. 631, pl. lvi, 11.  
1894. *Septopora biserialis*. Keyes, Missouri Geol. Surv., V, p. 32, pl. xxxiv, 1a-d.  
1896. *Septopora biserialis*. Smith, Proc. American Phil. Soc., XXXV, p. 237.  
Coal Measures: Various localities in Kansas, Nebraska, Missouri, Indian Territory, Iowa, Illinois, Ohio, and Kentucky.

**Septopora biserialis-gracilis (Meek).**

1875. *Synocladia biserialis* var. *gracilis*. Meek, Pal. Ohio, II, p. 326, pl. xx, 5-5b.  
1887. *Septopora biserialis* var. *gracilis*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 80; *ibid.*, III, 1888, pl. vii, 7a-c.  
Coal Measures: Flint Ridge, Ohio.

**Septopora biserialis-nervata Ulrich.**

1890. *Septopora biserialis* var. *nervata*. Ulrich, Geol. Surv. Illinois, VIII, p. 632, pl. lxiv, 6.  
Chester: Kentucky.  
Coal Measures: Illinois and near Red Oak, Iowa.

*Septopora cestriensis* Meek and Worthen (not Prout). See *Septopora subquadrans* Ulrich.

**Septopora cestriensis Prout.**

1859. *Septopora Cestriensis*. Prout, Trans. St. Louis Acad. Sci., I, p. 448, pl. xviii, 2-2b.  
1890. *Septopora cestriensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 628, pl. lxiv, 1-1b.  
1894. *Septopora cestriensis*. Keyes, Missouri Geol. Surv., V, p. 32.  
1897. *Septopora cestriensis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 65 (p. 515).  
Chester: Chester, Illinois; Sloans Valley and several localities in western Kentucky.

**Septopora decipiens Ulrich.**

1890. *Septopora decipiens*. Ulrich, Geol. Sur. Illinois, VIII, p. 630, pl. lxvi, 9.  
Chester: Sloans Valley, Kentucky.

**Septopora delicatula** Ulrich.

1890. *Septopora delicatula*. Ulrich, Geol. Surv. Illinois, VIII, p. 634, pl. lxiv, 5, 5a.

Lower Coal Measures: Seville, Illinois.

**Septopora pinnata** Ulrich.

1890. *Septopora pinnata*. Ulrich, Geol. Surv. Illinois, VIII, p. 633, pl. lxiv, 7, pl. lxx, 1, 1a.

Upper Coal Measures: Jasper County, Illinois.

**Septopora rectistyla** (Whitfield).

1882. *Synocladia rectistyla*. Whitfield, Annals New York Acad. Sci., II, p. 220.

1891. *Septopora rectistyla*. Whitfield, Annals New York Acad. Sci., V, p. 579, pl. xiii, 9, 10.

1895. *Synocladia rectistyla*. Whitfield, Geol. Sur. Ohio, VII, p. 467, pl. ix, 9, 10.  
Chester: Newtonville, Ohio.

**Septopora robusta** Ulrich.

1890. *Septopora robusta*. Ulrich, Geol. Sur. Illinois, VIII, p. 633, pl. lvi, 9-9c, pl. lxiv, 3, 3a.

Upper Coal Measures: Fayette County, Illinois.

**Septopora robusta-intermedia** Ulrich.

1890. *Septopora robusta* var. *intermedia*. Ulrich, Geol. Sur. Illinois, VIII, p. 634, pl. lvi, 10, pl. lxiv, 4, 4a.

Chester: Litchfield and Sloans Valley, Kentucky.

**Septopora subquadrans** Ulrich.

1870. *Septopora cestriensis* (not of Prout). Meek and Worthen, Proc. Acad. Nat. Sci. Philadelphia, p. 15.

1870. *Septopora cestriensis* (not of Prout). Meek and Worthen, Geol. Sur. Illinois, V, pl. xxiv, 14 a-c.

1874. *Septopora cestriensis* (not of Prout). Meek, American Jour. Sci. Arts, ser. 3, VII, p. 486.

1890. *Septopora subquadrans*. Ulrich, Geol. Sur. Illinois, VIII, p. 629, pl. lvi, 7, 8, pl. lxiv, 2-2b.

Chester: Chester, Illinois; Sloans Valley, and other localities in Kentucky.

**SPATIOPORA** Ulrich. Genotype: *Spatiopora aspera* Ulrich.

1882. *Spatiopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; *ibid*, VI, 1883, p. 166.

1883. *Spatiopora*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 20.

1889. *Spatiopora*. Miller, North American Geol. Pal., p. 323.

1890. *Spatiopora*. Ulrich, Geol. Sur. Illinois, VIII, p. 381.

1893. *Spatiopora*. Ulrich, Geol. Minnesota, III, p. 319.

1896. *Spatiopora*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 269.

**Spatiopora ? areolata** Foord.

1883. *Spatiopora areolata*. Foord, Contr. Micro-Pal. Cambro-Sil., p. 21, pl. v, 1-1i.

Trenton: Hull, Quebec.

**Spatiopora aspera** Ulrich.

1883. *Spatiopora aspera*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 166, pl. vii, 5-5b.

1895. *Monticulipora aspera*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 82.

1896. *Spatiopora aspera*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 441 (p. 269).

Cincinnati (Lorraine): Hamilton and Cincinnati, Ohio.

**Spatiopora corticans** (Nicholson).

1874. *Chaetetes corticans*. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 512, pl. xix, 13, 14.

1875. *Chaetetes corticans*. Nicholson, Pal. Ohio, II, p. 210, pl. xxii, 6, 6a.

1876. *Chaetetes tuberculatus* (not of Milne-Edwards and Haime). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 91.

1881. *Monticulipora* (Monotrypa) *tuberculata* (not of Milne-Edwards and Haime). Nicholson, Genus *Monticulipora*, p. 200, pl. iv, 2-2d.

Cincinnati (Lorraine and Richmond): Cincinnati, Warren, and Clinton counties, Ohio; Richmond and Versailles, Indiana.

Obs. This species has been considered synonymous with *Spatiopora tuberculata* (Milne-Edwards and Haime), but investigations show that it can be distinguished by several important and reliable characters.

**Spatiopora iowensis** Ulrich.

1893. *Spatiopora iowensis*. Ulrich, Geol. Minnesota, III, p. 321.

Cincinnati (Utica): Graf and Lantnerville, Iowa.

**Spatiopora labeculosa** Ulrich.

1893. *Spatiopora labeculosa*. Ulrich, Geol. Minnesota, III, p. 320, pl. xxviii, 1, 2.

Trenton (Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

**Spatiopora lineata** Ulrich.

1883. *Spatiopora lineata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 167, pl. vii, 7.

Cincinnati (Lorraine): Hamilton and Cincinnati, Ohio.

**Spatiopora lineata-incepta** Ulrich.

1893. *Spatiopora maculosa* var. *incepta*. Ulrich, Geol. Minnesota, III, p. 320.

Trenton (Black River): Chatfield, Minnesota.

**Spatiopora maculosa** Ulrich.

1883. *Spatiopora maculosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 167, pl. vii, 6.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

*Spatiopora maculosa* var. *incepta* Ulrich. See *Spatiopora lineata-incepta* Ulrich.

**Spatiopora montifera** Ulrich.

1883. *Spatiopora montifera*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 168, pl. vi, 1, 1a, pl. vii, 8.

Cincinnati (Richmond): Waynesville, Clarksville, and Oxford, Ohio.

**Spatiopora tuberculata** (Milne-Edwards and Haime).

1851. *Chaetetes tuberculatus*. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 268, pl. xix, 3, 3a.

1883. *Monticulipora tuberculata*. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 251, pl. x, 6.

1883. *Spatiopora tuberculata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 166.

1888. *Monticulipora tuberculata*. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 21.

1895. *Monticulipora tuberculata*. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 78.

Cincinnati (Lorraine and Richmond): Cincinnati, Waynesville, and other localities in Ohio.

**SPHRAGIOPORA** Ulrich. Genotype: *Sphragiopora parasitica* Ulrich.

1890. *Sphragiopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 398, 638.  
 1889. *Sphragiopora*. (Ulrich, in press), Miller, North American Geol. Pal., p. 323.  
 1897. *Sphragiopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 594.

**Sphragiopora parasitica** Ulrich.

1890. *Sphragiopora parasitica*. Ulrich, Geol. Sur. Illinois, VIII, p. 638, pl. lxxv, 6, 6a.  
 1894. *Sphragiopora parasitica*. Keyes, Missouri Geol. Sur., V, p. 33.  
 1897. *Sphragiopora parasitica*. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, fig. 196 (p. 594).  
 Chester: Chester, Illinois.

**Stellipora** Milne-Edwards and Dybowski (not Hall). See *Constellaria* Dana.**STELLIPORA** Hall. Genotype: *Stellipora antheloidea* Hall.

1847. *Stellipora*. Hall, Pal. New York, I, p. 79.  
 1850. *Stellipora*. D'Orbigny, Prodr. de Pal., I, p. 22.  
 1877. *Stellipora* (in part). Dybowski, Die Chaetetiden d. Ostbaltischen Silur-Form., p. 42.  
 1882. *Stellipora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; *ibid.*, VI, 1883, p. 263.  
 1889. *Stellipora* (in part). Miller, North American Geol. Pal., p. 203.  
 1890. *Stellipora*. Ulrich, Geol. Surv. Illinois, VIII, p. 374.  
 1896. *Stellipora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 276.

**Stellipora antheloidea** Hall.

1847. *Stellipora antheloidea*. Hall, Pal. New York, I, p. 79, pl. xxvi, 10a-c.  
 1883. *Stellipora antheloidea*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 263, pl. xiv, 1, 1a.  
 1888. *Monticulipora* (*Constellaria*) *antheloidea* (in part). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 31.  
 Trenton: Lowville, New York; Ottawa, Canada.

**Stellipora antheloidea** D'Orbigny (not Hall). See *Constellaria constellata* (Van Cleve) Dana.**Stellipora** (*Constellaria*) *antheloidea* Rominger. See *Constellaria constellata* (Van Cleve) Dana.**Stellipora limitaris** Ulrich. See *Constellaria limitaris* (Ulrich).**STENOPORA** Lonsdale. Genotype: *Stenopora tasmaniensis* Lonsdale.

1844. *Stenopora*. Lonsdale, Darwin's Volcanic Islands, Appendix, p. 161.  
 1845. *Stenopora*. Lonsdale, Strzelecki's Physical Description New South Wales, p. 262.  
 1845. *Stenopora*. Lonsdale, Geol. Russia and Ural Mountains, I, p. 631.  
 1850. *Stenopora*. King, Monograph Perm. Foss. England, p. 28.  
 1852. *Stenopora*. McCoy, Brit. Pal. Foss., p. 24.  
 1860. *Stenopora*. Eichwald, Lethæa Rossica, I, p. 414.  
 1874. *Stenopora*. Miller, Cincinnati Quar. Jour. Sci., I, p. 368.  
 1876. *Stenopora*. Dybowski, Verh. d. k. Min. Ges. St. Petersburg, ser. 2, X, p. 180.  
 1879. *Stenopora*. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 5, IV, p. 265.  
 1879. *Stenopora*. Nicholson, Pal. Tabulate Corals, p. 168.  
 1882. *Stenopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.

**STENOPORA** Lonsdale—Continued.

1886. *Stenopora*. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 5, XVII, pp. 173-187.  
 1886. *Stenopora*. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 875, 885.  
 1887. *Stenopora*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 85.  
 1889. *Stenopora*. Miller, North American Geol. Pal., p. 203.  
 1890. *Stenopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 375, 436.  
 1896. *Stenopora*. Zittel's Textb. Pal. (Engl. Ed.), p. 105.  
 1896. *Stenopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 277.  
 1897. *Stenopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 583.  
 1883. *Tabulipora*. Young, Ann. Mag. Nat. Hist., ser. 5, XII, p. 154.  
 1844. *Tubuliclidia*. Lonsdale, Bull. Soc. Geol. France, ser. 2, I, p. 497.  
 1845. *Tubuliclidia*. Lonsdale, Murchison's Geol. Russia, pp. 221, 631.

***Stenopora adherens* Billings.** Not recognizable.

1859. *Stenopora adherens*. Billings, Canadian Nat. Geol., IV, p. 427.  
 Chazy: Mingan Islands, Canada.

***Stenopora americana* Ulrich.**

1890. *Stenopora americana*. Ulrich, Geol. Surv. Illinois, VIII, p. 437, pl. lxxiv, 1, 1a, fig. 4b (p. 309).  
 1894. *Stenopora americana*. Keyes, Missouri Geol. Surv., V, p. 14.  
 1896. *Stenopora americana*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 464, (p. 277).  
 Keokuk: Warsaw, and Jersey County, Illinois.

***Stenopora americana-varsoviensis* Ulrich.**

1890. *Stenopora americana* var. *varsoviensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 437, pl. lxxiv, 3, 3a.  
 Warsaw: Warsaw, Illinois.

***Stenopora angularis* Ulrich.**

1890. *Stenopora angularis*. Ulrich, Geol. Surv. Illinois, VIII, p. 439, pl. lxxiv, 6-6b.  
 1894. *Stenopora angularis*. Keyes, Missouri Geol. Surv., V, p. 15.  
 Keokuk: Lagrange, Missouri.

***Stenopora bulbosa* Billings.** Not recognizable.

1865. *Stenopora bulbosa*. Billings, Canadian Nat. Geol., ser. 2, II, p. 429.  
 1866. *Stenopora bulbosa*. Billings, Catal. Sil. Foss. Anticosti, p. 32.  
 Anticosti: Anticosti Island.

***Stenopora carbonaria* (Worthen).**

1875. *Chetetes* ? *carbonaria*. Worthen, Geol. Surv. Illinois, VI, p. 526, pl. xxxii, 5.  
 1887. *Stenopora carbonaria*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 85; *ibid.*, III, 1888, pl. viii, 13a-c.  
 1890. *Stenopora carbonaria*. Ulrich, Geol. Surv. Illinois, VIII, p. 445, pl. lxxiii, 8, 8a.  
 Coal Measures: Caseyville and Peoria, Illinois; Lawrence, Kansas; Licking County, Ohio.

***Stenopora carbonaria-conferta* Ulrich.**

1890. *Stenopora carbonaria* var. *conferta*. Ulrich, Geol. Surv. Illinois, VIII, p. 446, pl. lxxiii, 9, 9a.  
 Coal Measures: Caseyville, Illinois.

**Stenopora carbonaria-maculosa** Ulrich.

1890. *Stenopora carbonaria* var. *maculosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 445, pl. lxxiii, 10, 10a.  
Coal Measures: Caseyville, Illinois.

**Stenopora cestriensis** Ulrich.

1890. *Stenopora cestriensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 442, pl. lxxiv, 7, 7a.  
1894. *Stenopora cestriensis*. Keyes, Missouri Geol. Surv., V, p. 16.  
Chester: Chester, Illinois; Smithland, Sloans Valley, and Caldwell County, Kentucky.

**Stenopora emaciata** Ulrich.

1890. *Stenopora emaciata*. Ulrich, Geol. Surv. Illinois, VIII, p. 438, pl. lxxiv, 2, 2a.  
1894. *Stenopora emaciata*. Keyes, Missouri Geol. Surv., V, p. 15.  
Keokuk: Warsaw, Illinois; Keokuk, Iowa.

**Stenopora exilis** Dawson. See *Rhombopora exilis* (Dawson).**Stenopora fibrosa** Billings (not Goldfuss?).

1863. *Stenopora fibrosa*. Billings, Geol. Canada, p. 156, fig. 116.  
1866. *Stenopora fibrosa*. Billings, Catal. Sil. Foss. Anticosti, p. 32.  
Trenton: Canada.  
Obs. A. H. Foord (Contr. Micro-Pal. Cambro-Sil., p. 15) says this is probably *Monotrypella* (now *Eridotrypa*) *trentonensis* (Nicholson).

**Stenopora huronensis** Billings. Not a bryozoan.

1865. *Stenopora huronensis*. Billings, Pal. Foss., I, p. 185.  
Obs. This is a species of *Tetradium* according to A. H. Foord.

**Stenopora intercalaris** Ulrich.

1890. *Stenopora intercalaris*. Ulrich, Geol. Surv. Illinois, VIII, p. 439, pl. lxxiv, 5, 5a.  
1894. *Stenopora intercalaris*. Keyes, Missouri Geol. Surv., V, p. 15.  
1897. *Stenopora intercalaris*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 160, 161 (p. 584).  
Keokuk: Warsaw, Illinois.

**Stenopora intermittens** Ulrich.

1890. *Stenopora intermittens*. Ulrich, Geol. Surv. Illinois, VIII, p. 440, fig. 16.  
1894. *Stenopora intermittens*. Keyes, Missouri Geol. Surv., V, p. 15.  
Keokuk: Warsaw, Illinois.

**Stenopora libana** Safford. Not recognized.

1869. *Stenopora libana*. Safford, Geol. Tennessee, p. 285.

**Stenopora meekana** Ulrich.

1890. *Stenopora meekana*. Ulrich, Geol. Surv. Illinois, VIII, p. 443, pl. lxxiii, 7, 7a.  
1894. *Stenopora meekana*. Keyes, Missouri Geol. Surv., V, p. 16.  
Chester: Chester, Illinois; Sloans Valley, Kentucky.

**Stenopora montifera** Ulrich.

1890. *Stenopora montifera*. Ulrich, Geol. Surv. Illinois, VIII, p. 438, pl. lxxiv, 4-4b.  
1894. *Stenopora montifera*. Keyes, Missouri Geol. Surv., V, p. 14.  
Keokuk: Otter Creek, Jersey County, Illinois; Bentonsport, Iowa.



**Stenopora ohioensis** Foerste.

1887. *Stenopora ohioensis*. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 85; *ibid.*, III, 1888, pl. viii, 12*a-c*.  
Coal Measures: Flint Ridge, Ohio.

**Stenopora patula** Billings. Not recognizable.

1859. *Stenopora patula*. Billings, Canadian Nat. Geol., IV, p. 427  
Chazy: Island of Montreal and Mingan Islands, Canada.

**Stenopora ramosa** Ulrich.

1890. *Stenopora ramosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 442, pl. lxxiii, 6-6c.  
Chester: Sloans Valley and Grayson Springs, Kentucky; Chester, Illinois.

**Stenopora rudis** Ulrich.

1890. *Stenopora rudis*. Ulrich, Geol. Surv. Illinois, VIII, p. 444, pl. lxxii, 8-8b.  
Chester: Sloans Valley, Kentucky.

**Stenopora ? signata** Ulrich.

1890. *Stenopora ? signata*. Ulrich, Geol. Surv. Illinois, VIII, p. 446, pl. lxxiii, 5-5b.  
Coal Measures: Caseyville, Illinois.

**Stenopora tuberculata** (Prout).

1859. *Flustra tuberculata*. Prout, Trans. St. Louis Acad. Sci., I, p. 447, pl. xvii, 3-3f.  
1890. *Stenopora tuberculata*. Ulrich, Geol. Surv. Illinois, VIII, p. 441, fig. 17, fig. 5c (p. 315).  
1894. *Stenopora tuberculata*. Keyes, Missouri Geol. Surv., V, p. 15.  
1860. *Cyclopora polymorpha*. Prout, Trans. St. Louis Acad. Sci., I, p. 578.  
1866. *Cyclopora polymorpha*. Prout, Geol. Surv. Illinois, II, p. 421, pl. xxi, 5-5b.  
Warsaw: Barretts Station, Missouri (Prout), and elsewhere.  
St. Louis: Several localities.  
Chester: Pope County (Prout) and Chester, Illinois; Grayson Springs and Sloans Valley, Kentucky, and many other localities.

**Stictocella** Simpson. See *Cystodictya* Ulrich.**Stictocella interstriata** Simpson. See *Stictopora* ?? *interstriata* Hall.**Stictocella sinuosa** Simpson. See *Cystodictya sinuosa* (Hall).**STICTOPORA** Hall. Genotype: *Stictopora elegantula* Hall.

1847. *Stictopora*. Hall, Pal. New York, I, p. 73.  
1879. *Stictopora* (in part). Hall, Twenty-eighth Ann. Rep. New York State Mus., p. 122.  
1882. *Stictopora* (in part). Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 247.  
1889. *Stictopora* (in part). Miller, North American Geol. Pal., p. 323.  
1897. *Stictopora* (in part). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 605.  
Not *Stictopora*. Eichwald, Lethaea Rossica, I, p. 390.  
Not *Stictopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 152, 168 (= *Rhinidictya*).  
Not *Stictopora*. Hall and Simpson, Pal. New York, VI, 1887, p. xx (= *Cystodictya*).  
Not *Stictopora*. Ulrich, Geol. Surv. Illinois, VIII, 1890, p. 388 (= *Rhinidictya*).

**STICTOPORA** Hall—Continued.

1897. Not *Stictopora*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, 1899, p. 172 (= *Cystodictya*).

Obs. This name has been applied to a number of unrelated forms. A description and figures of the internal structure of the genotype have never been published. Thin sections of *S. elegantula* show that the genus is related to both *Stictoporella* and *Tæniodictya*. It resembles the former in the long primitive portion of the zooecial tubes, but is distinguished by the well-marked peristomes and absence of mesopores. From the latter it differs in the absence of hemisepta, the presence of peristomes, and the long primitive portion of the zooecial tubes.

*Stictopora?* *acuta* Hall. See *Pachydictya acuta* (Hall).

*Stictopora acuta* Ulrich. See *Pachydictya acuta* (Hall).

*Stictopora alternata* Hall and Simpson. Not recognizable.

1887. *Stictopora alternata*. Hall and Simpson, Pal. New York, VI, pl. xxiii A, 21. (Not described.)

Lower Helderberg: Clarksville, New York.

*Stictopora angularis* Hall. See *Cystodictya tumulosa* (Hall).

*Stictopora basalis* Ulrich. See *Rhinidictya basalis* (Ulrich).

*Stictopora bifurcata* Hall. See *Cystodictya bifurcata* (Hall).

*Stictopora bifurcata* (Van Cleve) Hall. See *Pachydictya bifurcata* (Hall).

*Stictopora bristolensis* Miller. See *Cystodictya bifurcata* (Hall).

Obs. The name *bristolensis* was proposed by S. A. Miller (North American Geol. Pal., p. 323) for *Stictopora bifurcata* Hall, which he considered preoccupied.

*Stictopora clathratula* James. See *Escharopora pavonia* (D'Orbigny).

*Stictopora* (*Stictoporina*) *claviformis* Hall and Simpson. See *Stictoporina claviformis* (Hall).

*Stictopora compressa* (Van Cleve) Hall. See *Phænopora magna* Hall and Whitfield.

*Stictopora crassa* Hall. See *Pachydictya crassa* (Hall).

*Stictopora crenulata* Hall. See *Cystodictya subrigida* (Hall).

*Stictopora crescens* Hall. See *Cystodictya crescens* (Hall).

*Stictopora crispata* Quenstedt. See *Cystodictya gilberti* (Meek).

*Stictopora dichotoma* Hall. See *Tæniopora subcarinata* (Hall).

***Stictopora* ?? *divergens*** Hall and Simpson.

1887. *Stictopora divergens*. Hall and Simpson, Pal. New York, VI, p. 257, pl. lxiii, 18, 19.

1891. *Stictopora divergens*. Hall. Tenth Ann. Rep. State Geologist New York for the year 1890, p. 49; Forty-fourth Ann. Rep. New York State Mus., p. 79. Hamilton: Darien Center, New York.

***Stictopora elegantula*** Hall.

1847. *Stictopora elegantula*. Hall, Pal. New York, I, p. 75, pl. xxvi, 4a-g.

Trenton: Middleville, Trenton Falls, and other localities in New York.  
Obs. See remarks under *Stictopora*.

*Stictopora fenestrata* Hall. See *Rhinidictya fenestrata* (Hall).

*Stictopora fidelis* Ulrich. See *Rhinidictya fidelis* (Ulrich).

*Stictopora fidelis* Ulrich, 1886 (in part). See *Rhinidictya trentonensis* (Ulrich).

*Stictopora fragilis* Whitfield. See *Dicranopora fragilis* (Billings).

***Stictopora* ?? *fruticosa* Hall.**

1883. *Stictopora fruticosa*. Hall, Trans. Albany Institute, X, p. 56 (abstract, 1881, p. 14).

1883. *Stictopora fruticosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 12-14.

1887. *Stictopora fruticosa*. Hall and Simpson, Pal. New York, VI, p. 92, pl. xxviii, 12-14.

Upper Helderberg: New York.

*Stictopora Gilberti* Hall. See *Cystodictya gilberti* (Meek).

***Stictopora* ? *glomerata* Hall.**

1847. *Stictopora glomerata*. Hall, Pal. New York, I, p. 17, pl. iv, 5.

Chazy: Granville, Vermont.

*Stictopora graminifolia* Ringueberg. Recognizable ?

1884. *Stictopora graminifolia*. Ringueberg, Proc. Acad. Nat. Sci. Philadelphia, p. 147, pl. iii, 4.

Niagara (Transitional): Gasport, New York.

***Stictopora* ?? *granatula* Hall.**

1883. *Trematopora rhombifera* (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xi, 16.

1887. *Stictopora granatula*. Hall and Simpson, Pal. New York, VI, p. 38, pl. xi, 16; pl. xxiii A, 17.

Lower Helderberg: Catskill Creek and Clarksville, New York.

***Stictopora* ?? *granifera* Hall.**

1883. *Stictopora granifera*. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).

1884. *Stictopora granifera*. Hall, Rep. State Geologist New York for the year 1883, p. 45.

1887. *Stictopora granifera*. Hall and Simpson, Pal. New York, VI, p. 257, pl. lxi, 1-6.

1891. *Stictopora granifera*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 49; Forty-fourth Ann. Rep. New York State Mus., p. 79.

Hamilton: Pavilion and Muttonville, New York.

*Stictopora incisurata* Hall. See *Cystodictya incisurata* (Hall).

***Stictopora* ?? *incrassata* Hall.**

1883. *Stictopora incrassata*. Hall, Trans. Albany Institute, X, p. 190 (abstract, 1881, p. 190).

1884. *Stictopora incrassata*. Hall, Rep. State Geologist New York for the year 1883, p. 47.

1887. *Stictopora incrassata*. Hall and Simpson, Pal. New York, VI, p. 249, pl. lxii, 1-6.

1891. *Stictopora incrassata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 43; Forty-fourth Ann. Rep. New York State Mus., p. 73.

1898. *Cystodictya ? incrassata*. Whiteaves, Contr. Canadian Pal., I, p. 377.  
Hamilton: West Williams, Ontario.

*Stictopora indenta* Hall. See *Cystodictya incisurata* (Hall).

**Stictopora ?? interstriata Hall.**

1883. *Stictopora interstriata*. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).  
 1884. *Stictopora interstriata*. Hall, Rep. State Geologist New York for the year 1883, p. 45.  
 1887. *Stictopora interstriata*. Hall and Simpson, Pal. New York, VI, p. 259, pl. lxii, 7-12.  
 1891. *Stictopora interstriata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 51; Forty-fourth Ann. Rep. New York State Mus., p. 81.  
 1897. *Stictocella interstriata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 6, 7. [Note: Figure 6 is given in Pal. New York, VI, pl. lxi, 2, as *Stictopora granifera*.]  
 Hamilton: Fallbrook, New York.

*Stictopora invertis* Hall. See *Cystodictya ? invertis* (Hall).

**Stictopora ? labyrinthica Hall.**

1847. *Stictopora labyrinthica*. Hall, Pal. New York, I, p. 50, pl. xii, 8a, b, and woodcut on p. 50.  
 Trenton (Stones River): Chazy and Watertown, New York.  
 Obs. This form may prove to be a *Phyllodictya*.

*Stictopora limata* Hall. See *Cystodictya limata* (Hall).

*Stictopora linearis* Hall. See *Cystodictya linearis* (Hall).

*Stictopora lobata* Hall. See *Euspilopora lobata* (Hall).

*Stictopora magna* Hall and Whitfield. See *Phænopora magna* (Hall and Whitfield).

*Stictopora multifida* (Van Cleve) Hall. See *Phænopora multifida* (Hall).

*Stictopora multipora* Hall. See *Cystodictya incisurata* (Hall).

*Stictopora mutabilis* Ulrich. See *Rhinidictya mutabilis* (Ulrich).

*Stictopora mutabilis* var. *major* Ulrich. See *Rhinidictya mutabilis-major* (Ulrich).

*Stictopora mutabilis* var. *minor* Ulrich. See *Rhinidictya mutabilis* (Ulrich).

*Stictopora obliqua* Hall. See *Cystodictya incisurata* (Hall).

*Stictopora obliqua* Ringueberg. See *Ptilodictya obliqua* (Ringueberg).

**Stictopora ?? obsoleta Hall and Simpson.**

1887. *Stictopora obsoleta*. Hall and Simpson, Pal. New York, VI, p. 37, pl. xxiiiA, 22.  
 Lower Helderberg: Clarksville, New York.  
 Obs. Probably a synonym for *Stictopora ?? papillosa* Hall.

*Stictopora orbipora* Hall. See *Stictotrypa orbipora* (Hall.)

*Stictopora ovata* Hall. See *Cystodictya ovata* (Hall).

*Stictopora ovatipora* Hall. See *Cystodictya ? ovatipora* (Hall).

*Stictopora ovatipora* Miller (not Hall). See *Stictotrypa similis* (Hall).

*Stictopora palmipes* Hall. See *Euspilopora palmipes* (Hall).

**Stictopora ?? papillosa Hall.**

1879. *Stictopora papillosa*. Hall, Thirty-second Ann. Rep. New York State Mus., p. 161 (reprint, 1880, p. 23).  
 1883. *Stictopora papillosa*. Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 12, 13.

**Stictopora ?? papillosa Hall—Continued.**

1887. *Stictopora papillosa*. Hall and Simpson, Pal. New York, VI, p. 37, pl. xiii, 12, 13, pl. xxxiiiA, 16.

Lower Helderberg: Clarksville, New York.

*Stictopora paupera* Ulrich. See *Rhinidictya paupera* (Ulrich) and *Rhinidictya neglecta* (Ulrich).

*Stictopora perarcta* Hall. See *Cystodictya perarcta* (Hall).

**Stictopora ?? permarginata Hall.**

1883. *Stictopora permarginata*. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).

1884. *Stictopora permarginata*. Hall, Rep. State Geologist New York for the year 1883, p. 46.

1887. *Stictopora permarginata*. Hall and Simpson, Pal. New York, VI, p. 258, pl. lxiii, 16.

1891. *Stictopora permarginata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 50; Forty-fourth Ann. Rep. New York State Mus., p. 80.

1899. *Stictopora permarginata*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 174, fig. 70.

Hamilton: Hamburg, New York.

*Stictopora punctipora* Hall. See *Stictotrypa punctipora* (Hall).

**Stictopora ? ramosa Hall.**

1847. *Stictopora ramosa*. Hall, Pal. New York, I, p. 51, pl. xii, 6, 7, 7a, and wood-cut on p. 51.

Trenton (Stones River): ? Watertown, New York.

*Stictopora raripora* Hall. See *Nematopora raripora* (Hall).

*Stictopora recta* Hall. See *Cystodictya ? recta* Hall.

*Stictopora rectilinea* Hall. See *Cystodictya rectilinea* (Hall.)

*Stictopora rectilatera* Hall. See *Cystodictya linearis* (Hall).

*Stictopora recubans* Hall and Simpson. See *Tæniopora recubans* (Hall and Simpson).

*Stictopora rhomboidea* Hall. See *Tænidictya ? rhomboidea* (Hall).

*Stictopora rigida* Hall. See *Cystodictya rigida* (Hall).

*Stictopora scitula* Hall and Simpson. See *Pachydictya crassa* (Hall).

*Stictopora ? scutulata* Hall. See *Stictoporina scutulata* (Hall).

*Stictopora semistriata* Hall. See *Cystodictya semistriata* (Hall).

*Stictopora similis* Hall. See *Stictotrypa similis* (Hall).

*Stictopora sinuosa* Hall. See *Cystodictya sinuosa* (Hall).

**Stictopora ?? striata Hall and Simpson.**

1887. *Stictopora striata*. Hall and Simpson, Pal. New York, VI, p. 246, pl. lxiii, 22.

1888. *Stictopora striata*. Herrick, Bull. Sci. Lab. Denison Univ., III, pl. xii, 40, 40a.

1891. *Stictopora striata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 42; Forty-fourth Ann. Rep. New York State Mus., p. 72.

Hamilton: Ontario County, New York. A form from the Waverly at Moots Run, Ohio, has been identified by Herrick as this species, but the identification is certainly incorrect.

*Stictopora ? subcarinata* Hall. See *Tæniopora subcarinata* (Hall).

- Stictopora subrigida* Hall. See *Cystodictya subrigida* (Hall).  
*Stictopora sulcata* Winchell. See *Cystodictya sulcata* (Winchell).  
*Stictopora trilineata* Hall. See *Cystodictya trilineata* (Hall).  
*Stictopora* ? *triserialis* Hall. See *Acanthoclema triseriale* (Hall).  
*Stictopora tumulosa* Hall. See *Cystodictya tumulosa* (Hall).  
*Stictopora Vanclevii* Hall. See *Phænopora fimbriata* (James).  
*Stictopora vermicula* Hall. See *Cystodictya vermicula* (Hall).

**STICTOPORELLA** Ulrich. Genotype: *Stictoporella interstincta* Ulrich  
 = *Ptilodictya flexuosa* James.

1882. *Stictoporella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 152, 169.  
 1889. *Stictoporella*. Miller, North American Geol. Pal., p. 325.  
 1890. *Stictoporella*. Ulrich, Geol. Sur. Illinois, VIII, p. 394.  
 1893. *Stictoporella*. Ulrich, Geol. Minnesota, III, p. 179.  
 1896. *Stictoporella*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.  
 1897. *Stictoporella*. Simpson, Fourteenth Ann. Rep. State Geologist New York  
 for the year 1894, p. 535.

***Stictoporella angularis* Ulrich.**

1886. *Stictoporella angularis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist.  
 Sur. Minnesota, p. 71.  
 1893. *Stictoporella angularis*. Ulrich, Geol. Minnesota, III, p. 182, pl. xi, 1-3,  
 6, 8-11.  
 Trenton (Stones River): Minneapolis, St. Paul, Goodhue, and Fillmore  
 counties, Minnesota.

***Stictoporella angularis-intermedia* Ulrich.**

1893. *Stictoporella angularis* var. *intermedia*. Ulrich, Geol. Minnesota, III, p.  
 183, pl. xi, 4, 5, 7.  
 Trenton (Stones River): Minneapolis, Fountain, Lanesboro, and Preston,  
 Minnesota; Decorah, Iowa.

***Stictoporella basalis* Ulrich.** See *Intrapora basalis* (Ulrich).

***Stictoporella cribrosa* Ulrich.**

1886. *Stictoporella* ? *cribrosa*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist.  
 Sur. Minnesota, p. 69.  
 1893. *Stictoporella cribrosa*. Ulrich, Geol. Minnesota, III, p. 184, pl. x, 21-25,  
 pl. xi, 22, 23.  
 1897. *Stictoporella cribrosa*. Simpson, Fourteenth Ann. Rep. State Geologist  
 New York for the year 1894, fig. 93 (p. 536).  
 Trenton (Stones River and Black River): Minneapolis and St. Paul, Min-  
 nesota.

***Stictoporella dumosa* Ulrich.**

1893. *Stictoporella dumosa*. Ulrich, Geol. Minnesota, III, p. 181.  
 Trenton (Black River): St. Paul, Minnesota.

***Stictoporella* ? *excellens* Ulrich.** See *Phænopora excellens* (Billings).

***Stictoporella exigua* Ulrich.**

1893. *Stictoporella exigua*. Ulrich, Geol. Minnesota, III, pl. xiii, 18-21.  
 Trenton: Montreal, Canada.

***Stictoporella flabellata* (Hall).**

1851. *Clathropora flabellata*. Hall, Foster and Whitney's Rep. Geol. Lake Super-  
 ior Land District, Part II, p. 207, pl. xxiv, 2a, b.  
 Trenton: Escanaba River, below Indian Creek, Upper Peninsula, Michigan.

**Stictoporella flexuosa** (James).

1878. *Ptilodictya flexuosa*. James, Paleontologist, No. 1, p. 4.  
 1882. *Stictoporella flexuosa*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 169.  
 1882. *Stictoporella interstincta*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 169, pl. viii, 9, 9a.  
 1889. *Stictoporella interstincta*. Miller, North American Geol. Pal., figs. 520, 521 (p. 325).  
 1890. *Stictoporella interstincta*. Ulrich, Geol. Surv. Illinois, VIII, fig. 14a, b (p. 394).

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

**Stictoporella frondifera** Ulrich.

1886. *Stictoporella frondifera*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 72.  
 1893. *Stictoporella frondifera*. Ulrich, Geol. Minnesota, III, p. 183, pl. xi, 12-19. Trenton (Stones River): Minneapolis, Minnesota.

*Stictoporella interstincta* Ulrich. See *Stictoporella flexuosa* (James).

**Stictoporella rigida** Ulrich.

1890. *Stictoporella rigida*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 188, fig. 13.  
 1893. *Stictoporella rigida*. Ulrich, Geol. Minnesota, III, p. 180, pl. xi, 20, 21. Trenton (Black River): Fountain, St. Paul, and Cannon Falls, Minnesota.

*Stictoporella* ? *undulata* Ulrich. See *Intrapora undulata* (Ulrich).

*Stictoporidra* Simpson. See *Tæniopora* Nicholson.

*Stictoporina* Simpson (in part). See *Tæniopora* Nicholson.

**STICTOPORINA** Hall and Simpson. Genotype: *Trematopora claviformis* Hall.

1887. *Stictoporina*. Hall and Simpson, Pal. New York, VI, p. xx.  
 1889. *Stictoporina*. Miller, North American Geol. Pal., p. 325.  
 1897. *Stictoporina*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 543 (not p. 532, which is probably in error for *Stictoporidra*).

**Stictoporina claviformis** (Hall).

1883. *Trematopora claviformis*. Hall, Trans. Albany Institute, X, p. 181 (abstract 1881, p. 181).  
 1884. *Trematopora claviformis*. Hall, Rep. State Geologist New York for the year 1883, p. 12.  
 1887. *Stictopora* (*Stictoporina*) *claviformis*. Hall and Simpson, Pal. New York, VI, p. 269.  
 1897. *Stictoporina claviformis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 1, 2. Hamilton: Bellona, New York.

**Stictoporina plumea** (Hall and Simpson).

1887. *Ptilodictya plumea*. Hall and Simpson, Pal. New York, VI, p. 271, pl. lxi, 9-12.  
 1891. *Ptilodictya plumea*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 55; Forty-fourth Ann. Rep. New York State Mus., p. 85.  
 1897. *Ptilodictya plumea*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 4-6.  
 1899. *Ptilodictya plumea*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 176, fig. 73.

**Stictoporina plumea** (Hall and Simpson)—Continued.

1887. *Ptilodictya retiformis*. Hall and Simpson, Pal. New York, VI, p. 272, pl. lxi, 13.  
 1897. *Ptilodictya retiformis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 7.  
 Hamilton: Hamburg, New York.  
 Obs. See also note under *Stictoporina scutulata* (Hall).

**Stictoporina scutulata** (Hall).

1883. *Stictopora* ? *scutulata*. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).  
 1884. *Stictopora* ? *scutulata*. Hall, Rep. State Geologist New York for the year 1883, p. 47.  
 1887. *Ptilodictya scutulata*. Hall and Simpson, Pal. New York, VI, p. 272.  
 Hamilton: Canandaigua Lake, New York.  
 Obs. Probably a synonym for *Stictoporina plumea* (Hall and Simpson).

**Stictoporina subcarinata** Simpson. See *Tæniopora subcarinata* (Hall).**STICTOTRYPA** Ulrich. Genotype: *Stictopora similis* Hall.

1890. *Stictotrypa*. Ulrich, Geol. Surv. Illinois, VIII, p. 393.  
 1896. *Stictotrypa*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.

**Stictotrypa orbipora** (Hall).

1883. *Stictopora orbipora*. Hall, Trans. Albany Institute, X, p. 61 (abstract, 1879, p. 5).  
 1882. *Stictopora orbipora*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 248.  
 Niagara: Waldron, Indiana

**Stictotrypa punctipora** (Hall).

1852. *Stictopora punctipora*. Hall, Pal. New York, II, p. 157, pl. xl B, 2a-c.  
 1889. *Stictopora punctipora*. Miller, North American Geol. Pal., fig. 519 (p. 324).  
 1890. *Stictotrypa punctipora*. Ulrich, Geol. Surv. Illinois, VIII, fig. 13a (p. 394).  
 Niagara: Lockport, New York.

**Stictotrypa similis** (Hall).

1876. *Stictopora similis*. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xi, 13-16; *ibid.* (Museum edition, 1879), p. 122, pl. xi, 13-16.  
 1882. *Stictopora similis*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 247, pl. x, 13-16.  
 1890. *Stictotrypa similis*. Ulrich, Geol. Surv. Illinois, VIII, fig. 13b, c (p. 394).  
 1889. *Stictopora ovatipora* (not of Hall). Miller, North American Geol. Pal., fig. 518 (p. 324).  
 Niagara: Waldron, Indiana.  
 Clinton: Belfast, Ohio (Foerste).

**STOMATOPORA** Bronn. Genotype: *Alecto dichotoma* Lamouroux.

- Alecto*, Lamouroux, 1821, Blainville, Johnston, Milne-Edwards, Busk, and others. (Not *Alecto*, Leach, 1814, a genus of Echinodermata.)  
*Aulopora* (in part). Goldfuss, Reuss, Hall, Nicholson.  
 1825. *Stomatopora*. Bronn, Pflanzenz., p. 27.  
 1854. *Stomatopora*. D'Orbigny, Pal. Francais, Terr. Cret., V, p. 833.  
 1854. *Stomatopora*. Haime, Bry. Foss. Form. Juras., p. 159. [Extra ed., p. 3.]  
 1880. *Stomatopora* (in part). Hincks, British Marine Polyzoa, p. 424.  
 1882. *Stomatopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 149.  
 1889. *Stomatopora*. Miller, North American Geol. Pal., p. 325.



**STOMATOPORA** Bronn—Continued.

- 1890. *Stomatopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 367.
- 1893. *Stomatopora*. Ulrich, Geol. Minnesota, III, p. 115.
- 1896. *Stomatopora*. Ulrich, Zittel's Textb. Pal., (Eng. ed.), p. 260.
- 1897. *Stomatopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 597.

*Stomatopora* ? *alternata* Hall and Whitfield. See *Hederella alternata* (Hall and Whitfield).

***Stomatopora arachnoidea* (Hall).**

- 1847. *Aulopora arachnoidea*. Hall, Pal. New York, I, p. 76, pl. xxvi, 6a-c, and woodcut on p. 76.
- 1875. *Aulopora arachnoidea*. Nicholson, Pal. Ohio, II, p. 216, pl. xxiii, 1, 1b.  
Trenton and Cincinnati (Utica, Lorraine, and Richmond): Various localities in New York, Ohio, Indiana, and Kentucky.

*Stomatopora auloporoides* Miller. See *Proboscina auloporoides* (Nicholson).

***Stomatopora canadensis* Whiteaves.**

- 1897. *Stomatopora Canadensis*. Whiteaves, Pal. Foss., III, p. 161, pl. xviii, 4, 4a.  
Trenton: Little Black Island, Lake Winnipeg, Canada.

*Stomatopora confusa* Miller. See *Proboscina confusa* (Nicholson).

***Stomatopora delicatula* (James).**

- 1878. *Hippothoa delicatula*. James, Paleontologist, No. 1, p. 6.
- 1882. *Stomatopora proutana*. Miller, Jour. Cincinnati Soc. Nat. Hist., V, p. 39, pl. i, 4-4b.
- 1890. *Stomatopora proutana*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, fig. 2c (p. 175).
- 1893. *Stomatopora proutana*. Ulrich, Geol. Minnesota, III, p. 117, pl. i, 8-12.
- 1886. *Rhopalonaria pertenuis*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 59.  
Trenton (Stones River, Black River, and Trenton) and Cincinnati (Utica, Lorraine, and Richmond): Various localities in Ohio, Indiana, Kentucky, Tennessee, Illinois, Iowa, and Minnesota.

***Stomatopora delicatula-tenuissima* Ulrich.**

- 1890. *Stomatopora tenuissima*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 175, fig. 2.
- 1893. *Stomatopora tenuissima*. Ulrich, Geol. Minnesota, III, p. 116, pl. i, 6, 7.
- 1896. *Stomatopora tenuissima*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 412A (p. 261).  
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

*Stomatopora frondosa* Miller. See *Proboscina frondosa* (Nicholson).

*Stomatopora* (*Proboscina*) *frondosa* Ulrich. See *Proboscina frondosa* (Nicholson).

***Stomatopora inflata* (Hall).**

- 1847. *Alecto inflata*. Hall, Pal. New York, I, p. 77, pl. xxvi, 7a, b.
- 1875. *Hippothoa inflata*. Nicholson, Pal. Ohio, II, p. 268, pl. xxv, 1-1b.
- 1881. *Stomatopora inflata*. Vine, Quar. Jour. Geol. Soc. London, XXXVII, p. 615.
- 1890. *Stomatopora inflata*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 176, fig. 3c.

***Stomatopora inflata* (Hall)—Continued.**

1893. *Stomatopora inflata*. Ulrich, Geol. Minnesota, III, p. 117, pl. i, 13-21.  
1896. *Stomatopora inflata*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 412B (p. 261).  
1897. *Stomatopora inflata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 202-204 (p. 597).  
Trenton and Cincinnati: At various localities in the Black River of Minnesota; in the Trenton of New York, Kentucky, Minnesota, and Canada; in the Lorraine of Ohio, and in the Richmond of Ohio, Indiana, Kentucky, and Illinois.

***Stomatopora* ?? *moniliformis* Whiteaves.**

1891. *Stomatopora moniliformis*. Whiteaves, Contr. Canadian Pal., I, p. 212, pl. xxviii, 10.  
Devonian (Hamilton?): Hay River, Canada.

***Stomatopora parva* Ringueberg.**

1886. *Stomatopora parva*. Ringueberg, Bull. Buffalo Soc. Nat. Hist., V, p. 20, pl. ii, 16.  
Niagara: Lockport, New York.

***Stomatopora proutana* Miller. See *Stomatopora delicatula* (James).*****Stomatopora recta* Ringueberg.**

1886. *Stomatopora recta*. Ringueberg, Bull. Buffalo Soc. Nat. Sci., V, p. 20, pl. ii, 15, 15a.  
Niagara: Lockport, New York.

***Stomatopora tenuissima* Ulrich. See *Stomatopora delicatula-tenuissima* Ulrich.*****Stomatopora turgida* Ulrich.**

1890. *Stomatopora turgida*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 176, fig. 3.  
1893. *Stomatopora turgida*. Ulrich, Geol. Minnesota, III, p. 118, pl. i, 22, 23.  
Cincinnati (Richmond): Wilmington, Illinois.

***STREBLOTRYPA* Ulrich. Genotype: *Streblotrypa nicklesi* Ulrich.**

1890. *Streblotrypa*. Ulrich, Geol. Surv. Illinois, VIII, pp. 403, 665.  
1889. *Streblotrypa*. (Ulrich, in press), Miller, North American Geol. Pal., p. 325.  
1897. *Streblotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 551.  
1899. *Streblotrypa*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 167.  
1887. *Acanthoclema* (in part). Hall and Simpson, Pal. New York, VI, p. xv.

***Streblotrypa amplexa* Ulrich.**

1888. *Streblotrypa amplexa*. Ulrich, Bull. Denison Univ., IV, p. 86, pl. xiv, 13.  
Waverly: Sciotoville, Ohio.

***Streblotrypa* (? *Lioclema*) *denticulata* Ulrich.**

1888. *Streblotrypa* (? *Lioclema*) *denticulata*. Ulrich, Bull. Denison Univ., IV, p. 88, pl. xiv, 18, 19.  
Waverly: Richfield and Lodi, Ohio.

***Streblotrypa distincta* Ulrich.**

1890. *Streblotrypa distincta*. Ulrich, Geol. Surv. Illinois, VIII, p. 669, pl. lxxi, 10-10b.  
1894. *Streblotrypa distincta*. Keyes, Missouri Geol. Sur., V, p. 36.  
Chester: Chester, Illinois.

**Streblotrypa hamiltonensis** (Nicholson).

1874. *Ceriopora* ? *Hamiltonensis*. Nicholson, Geol. Mag., new ser., I, p. 161, pl. ix, 17.  
1874. *Ceriopora* ? *Hamiltonensis*. Nicholson, Pal. Ontario, p. 97, fig. 33.  
1883. *Callopora Hamiltonensis*. Hall, Trans. Albany Institute, X, p. 182 (abstract, 1881, p. 182).  
1887. *Acanthoclema Hamiltonense*. Hall and Simpson, Pal. New York, VI, p. 191, pl. lv, 18-26.  
1889. *Streblotrypa hamiltonensis*. Miller, North American Geol. Pal., p. 326.  
1889. *Rhombopora Hamiltonensis*. Nicholson and Lyddeker, Manual Paleontology, I, fig. 455 B (p. 610), fig. 478 (p. 632).  
1890. *Streblotrypa hamiltonensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 648.  
1897. *Streblotrypa Hamiltonense*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. xix, 14, 15.  
1898. *Streblotrypa Hamiltonensis*. Whiteaves, Contr. Canadian Pal., I, Part V, p. 378.  
1899. *Streblotrypa hamiltonense*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 167, fig. 59.  
1884. *Callopora bipunctata*. Hall, Rep. State Geologist New York for the year 1883, p. 15.  
Hamilton: Arkona and Widder, Ontario; Hamburg and New Berlin, New York.

**Streblotrypa hertzeri** Ulrich.

1888. *Streblotrypa hertzeri*. Ulrich, Bull. Denison Univ., IV, p. 85, pl. xiv, 8.  
Waverly: Richfield and Lodi, Ohio.  
Keokuk: Keokuk, Iowa.

**Streblotrypa major** Ulrich.

1888. *Streblotrypa major*. Ulrich, Bull. Denison Univ., IV, p. 84, pl. xiv, 10.  
1890. *Streblotrypa major*. Ulrich, Geol. Surv. Illinois, VIII, p. 666, pl. lxxi, 8-8d, pl. lxxii, 1, 1a.  
1894. *Streblotrypa major*. Keyes, Missouri Geol. Surv., V, p. 35.  
Waverly: Richfield, Ohio.  
Keokuk: Kings Mountain, Kentucky; Keokuk, Iowa; Nauvoo, Illinois.

**Streblotrypa multiporata** Ulrich.

1888. *Streblotrypa multiporata*. Ulrich, Bull. Denison Univ., IV, p. 87, pl. xiv, 11.  
Waverly: Moots Run, Ohio.

**Streblotrypa nicklesi** Ulrich.

1884. *Streblotrypa nicklesi*. Ulrich (Mss.).  
1884. *Streblotrypa Nicklesi*. Vine, Proc. Yorkshire Geol. Polyt. Soc., VIII, p. 107, pl. xxi, 4, 5.  
1885. *Streblotrypa Nicklesi*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 96.  
1890. *Streblotrypa nicklesi*. Ulrich, Geol. Surv. Illinois, VIII, p. 667, pl. lxxi, 9-9c.  
1894. *Streblotrypa nicklesi*. Keyes, Missouri Geol. Surv., V, p. 36.  
Chester: Kaskaskia, Chester, Red Bud, Anna, and other localities, Illinois;  
Sloans Valley, Kentucky.  
Carboniferous: England (Vine).  
Obs. See also *Streblotrypa prisca* (Gabb and Horn).

**Streblotrypa obliqua** Ulrich.

1888. *Streblotrypa obliqua*. Ulrich, Bull. Denison Univ., IV, p. 85, pl. xiv, 9.  
Waverly: Lodi, Ohio.

**Streblotrypa prisca** (Gabb and Horn).

1862. *Cavea prisca*. Gabb and Horn, Jour. Acad. Nat. Sci. Philadelphia, ser. 2, V, p. 175, pl. xxi, 67.

Carboniferous: Fort Belknap, Texas.

Obs. This species resembles *Streblotrypa nicklesi* Ulrich, but has much larger cells.

**Streblotrypa radialis** Ulrich.

1890. *Streblotrypa radialis*. Ulrich, Geol. Surv. Illinois, VIII, p. 667, pl. lxxii, 2-2c.

1894. *Streblotrypa radialis*. Keyes, Missouri Geol. Surv., V, p. 35.

Keokuk: Near Nauvoo, Illinois; Bentonport, Iowa.

**Streblotrypa regularis** Ulrich.

1888. *Streblotrypa regularis*. Ulrich, Bull. Denison Univ., IV, p. 88, pl. xiv, 14. Waverly: Burbank and Cuyahoga County, Ohio.

**Streblotrypa scutulata** (Hall).

1883. *Trematopora scutulata*. Hall, Trans. Albany Institute, X, p. 180 (abstract, 1881, p. 180).

1884. *Trematopora scutulata*. Hall, Rep. State Geologist New York for the year 1883, p. 7.

1887. *Acanthoclema scutulatum*. Hall and Simpson, Pal. New York, VI, p. 190, pl. lv, 15, 16, ? 17; pl. lvi, 19, ? 20.

1890. *Streblotrypa scutulata*. Ulrich, Geol. Surv. Illinois, VIII, p. 648.

1899. *Acanthoclema scutulatum*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 166, fig. 58.

Hamilton: York and Hamburg, New York.

**Streblotrypa striata** Ulrich.

1888. *Streblotrypa striata*. Ulrich, Bull. Denison Univ., IV, p. 87, pl. xiv, 12, 12a.

Waverly: Richfield and Cuyahoga County, Ohio.

**Streblotrypa subspinosa** Ulrich.

1890. *Streblotrypa subspinosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 668, pl. lxxi, 7, 7a.

Chester: Chester, Illinois; Sloans Valley, Kentucky.

*Stromatopora lichenoides* James. See *Arthropora shafferi* (Meek).

**STROMATOTRYPA** Ulrich. Genotype: *Stromatotrypa ovata* Ulrich.

1893. *Stromatotrypa*. Ulrich, Geol. Minnesota, III, p. 301.

**Stromatotrypa ovata** Ulrich.

1893. *Stromatotrypa ovata*. Ulrich, Geol. Minnesota, III, p. 302, pl. xxiv, 24-31.

Trenton (Stones River and Black River): Minneapolis and St. Paul, Minnesota; Beloit, Wisconsin.

**STROTOPORA** Ulrich. Genotype: *Strotopora foveolata* Ulrich.

1890. *Strotopora*. Ulrich, Geol. Surv. Illinois, VIII, pp. 383, 486.

1889. *Strotopora*. (Ulrich, in press), Miller, North American Geol. Pal., p. 326.

1896. *Strotopora*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 270.

1897. *Strotopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 560.

**Strotopora dermatata** Ulrich.

1890. *Strotopora dermatata*. Ulrich, Geol. Surv. Illinois, VIII, p. 488, pl. lxxvii, 8, 8a.

1894. *Strotopora dermatata*. Keyes, Missouri Geol. Surv., V, p. 17.

**Strotopora dermatata** Ulrich—Continued.

1897. *Strotopora dermatata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 127 (p. 560).  
Keokuk: Keokuk, Iowa; Warsaw, Illinois.

**Strotopora foveolata** Ulrich.

1890. *Strotopora foveolata*. Ulrich, Geol. Surv. Illinois, VIII, p. 487, pl. lxxvii, 9, 9a.  
1894. *Strotopora foveolata*. Keyes, Missouri Geol. Surv., V, p. 17.  
1896. *Strotopora foveolata*. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 445 (p. 270).  
1897. *Strotopora foveolata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 126 (p. 560).  
Keokuk: Bentonsport, Iowa; Warsaw, Illinois.

**Strotopora perminuta** Ulrich.

1890. *Strotopora perminuta*. Ulrich, Geol. Surv. Illinois, VIII, p. 487, pl. xlvii, 4-4b.  
Hamilton: Falls of the Ohio.

*Subretepora* D'Orbigny. Not recognized (see Geol. Surv. Illinois, VIII, p. 687).

1850. *Subretepora*. D'Orbigny, Prodr. de Pal., I, p. 22.

*Subretepora angulata* Miller. See *Phylloporina angulata* (Hall).

*Subretepora aspera* Miller. See *Phylloporina aspera* (Hall).

*Subretepora asperato-striata* Miller. See *Phylloporina asperato-striata* (Hall).

*Subretepora clathrata* Miller. See *Phylloporina clathrata* (Miller and Dyer).

*Subretepora corticosa* Miller. See *Phylloporina corticosa* (Ulrich).

*Subretepora dawsoni* Miller. See *Phylloporina dawsoni* Ulrich.

*Subretepora dichotoma* Miller. See *Thamniscus dichotomus* (Hall).

*Subretepora fenestrata* Miller. See *Phylloporina fenestrata* (Hall).

*Subretepora gracilis* Miller. See *Phylloporina gracilis* (Hall).

*Subretepora incepta* Miller. See *Phylloporina incepta* (Hall).

*Subretepora reticulata* Miller. See *Phylloporina reticulata* (Hall).

*Subretepora trentonensis* Miller. See *Phylloporina trentonensis* (Nicholson).

*Subretepora variolata* Miller. See *Phylloporina variolata* (Ulrich).

*Sulcopora* D'Orbigny. Not recognized (see Geol. Surv. Illinois, VIII, p. 687).

1850. *Sulcopora*. D'Orbigny, Prodr. de Pal., I, p. 22.

*Sulcopora fenestrata* D'Orbigny. See *Rhinidictya fenestrata* (Hall).

**SYNOCLADIA** King. Genotype: *Retepora virgulacea* Phillips.

1849. *Synocladia*. King, Ann. Mag. Nat. Hist., ser. 2, II, p. 388.  
1850. *Synocladia*. King, Mon. Permian Foss., p. 38.  
1854. *Synocladia*. McCoy, Brit. Pal. Foss., p. 114.  
1875. *Synocladia*. Etheridge, Jun., Proc. Geol. Assoc., IV, p. 116.  
1885. *Synocladia*. Hall, Rep. State Geologist New York for the year 1884, p. 37.  
1885. *Synocladia*. Waagen and Pichl, Pal. Indica, Ser., XIII, pp. 774, 801.  
1886. *Synocladia*. Ulrich, Contr. American Pal., I, p. 6.

**SYNOCLADIA** King—Continued.

- 1889. *Synocladia*. Miller, North American Geol. Pal., p. 326.
- 1890. *Synocladia*. Ulrich, Geol. Surv. Illinois, VIII, p. 398.
- 1895. *Synocladia*. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 720, 726; Forty-seventh Ann. Rep. New York State Mus., pp. 914, 920.
- 1896. *Synocladia*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 283.
- 1897. *Synocladia*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 513, 521.

*Synocladia biserialis* Swallow. See *Septopora biserialis* (Swallow).

*Synocladia biserialis* var. *gracilis* Meek. See *Septopora biserialis-gracilis* Meek.

*Synocladia rectistyla* Whitfield. See *Septopora rectistyla* (Whitfield).

*Synocladia virgulacea* Swallow (not Phillips, nor King). See *Septopora biserialis* (Swallow).

Obs. See also Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 513, 514.

*Tabulipora* Young. See *Stenopora* Lonsdale.

**TÆNODICTYA** Ulrich. Genotype: *Tæniodictya ramulosa* Ulrich.

- 1890. *Tæniodictya*. Ulrich, Geol. Surv. Illinois, VIII, p. 393.
- 1889. *Tæniodictya*. (Ulrich, in press), Miller, North American Geol. Pal., p. 327.
- 1897. *Tæniodictya*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 533.

***Tæniodictya cingulata*** Ulrich.

- 1890. *Tæniodictya cingulata*. Ulrich, Geol. Surv. Illinois, VIII, p. 530, pl. lxvii, 3-3b, fig. 2b (p. 304).
- Keokuk: Warsaw, Illinois.

***Tæniodictya frondosa*** Ulrich.

- 1890. *Tæniodictya frondosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 259, pl. lxvii, 5, pl. lxix, 5-5c.
- 1894. *Tæniodictya frondosa*. Keyes, Missouri Geol. Surv., V, p. 22.
- Keokuk: Keokuk, Iowa; Nauvoo, Illinois.

***Tæniodictya interpolata*** Ulrich.

- 1888. *Tæniodictya interpolata*. Ulrich, Bull. Denison Univ., IV, p. 80, pl. xiii, 9, 9a.
- Waverly: Richfield and Cuyahoga County, Ohio.

***Tæniodictya ramulosa*** Ulrich.

- 1890. *Tæniodictya ramulosa*. Ulrich, Geol. Surv. Illinois, VIII, p. 528, pl. lxvii, 1-1l.
- 1894. *Tæniodictya ramulosa*. Keyes, Missouri Geol. Surv., V, p. 22.
- 1897. *Tæniodictya ramulosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 89, 90 (p. 533).
- Keokuk: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.

***Tæniodictya ramulosa-burlingtonensis*** Ulrich.

- 1890. *Tæniodictya ramulosa* var. *burlingtonensis*. Ulrich, Geol. Surv. Illinois, VIII, p. 529, pl. lxvii, 2-2b.
- Burlington: Burlington, Iowa.

**Tæniodictya ? rhomboidea (Hall).**

1883. *Stictopora rhomboidea*. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 15).  
 1886. *Stictopora rhomboidea*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 27, 28.  
 1887. *Stictopora rhomboidea*. Hall and Simpson, Pal. New York, VI, p. 95, pl. xxix, 27, 28.  
 Upper Helderberg: West of Le Roy, New York.

**Tæniodictya subrecta Ulrich.**

1890. *Tæniodictya subrecta*. Ulrich, Geol. Surv. Illinois, VIII, p. 530, pl. lxvii, 4-4d.  
 St. Louis: Elizabethtown, Kentucky.

**TÆNIOPORA Nicholson. Genotype: Tæniopora exigua Nicholson.**

1874. *Tæniopora*. Nicholson, Canadian Jour., new ser., XIV, p. 133.  
 1874. *Tæniopora*. Nicholson, Geol. Mag., new ser., I, p. 121.  
 1874. *Tæniopora*. Nicholson, Pal. Province Ontario, p. 107.  
 1883. *Tæniopora*. Hall, Trans. Albany Institute, X, p. 192 (abstract, 1881, p. 192).  
 1884. *Tæniopora*. Hall, Rep. State Geologist New York for the year 1883, p. 49.  
 1887. *Tæniopora*. Hall and Simpson, Pal. New York, VI, p. xxi.  
 1889. *Tæniopora*. Miller, North American Geol. Pal., p. 327.  
 1890. *Tæniopora*. Ulrich, Geol. Surv. Illinois, VIII, p. 386.  
 1896. *Tæniopora*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 280.  
 1897. *Tæniopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 533.  
 1899. *Tæniopora*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 174.  
 1883. *Pteropora*. Hall, Trans. Albany Institute, X, p. 192 (abstract, 1881, p. 192).  
 1897. *Stictoporidra*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.  
 1897. *Stictoporina* (in error for *Stictoporidra*). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 532 (not p. 543).

**Tæniopora exigua Nicholson.**

1874. *Tæniopora exigua*. Nicholson, Geol. Mag., new ser., I, p. 122, pl. vi, 13.  
 1874. *Tæniopora exigua*. Nicholson, Pal. Province Ontario, p. 108, fig. 47.  
 1883. *Tæniopora exigua*. Hall, Trans. Albany Institute, X, p. 192 (abstract, 1881, p. 192).  
 1884. *Tæniopora exigua*. Hall, Rep. State Geologist New York for the year 1883, p. 49.  
 1887. *Tæniopora exigua*. Hall and Simpson, Pal. New York, VI, p. 263, pl. lxii, 15-26.  
 1897. *Tæniopora exigua*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xi, 12-16, pl. xii, 1-5.  
 1899. *Tæniopora exigua*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 174, fig. 71.  
 1883. *Pteropora duogeneris*. Hall, Trans. Albany Institute, X, p. 192 (abstract, 1881, p. 192).  
 Hamilton: Arkona, Ontario; Bellona, West Hamburg, and other localities in New York.

**Tæniopora occidentalis Ulrich.**

1890. *Tæniopora occidentalis*. Ulrich, Geol. Surv. Illinois, VIII, p. 505, pl. xlii, 3-3c.  
 Hamilton: Buffalo, Iowa.

**Tæniopora penniformis** Nicholson.

1874. *Tæniopora penniformis*. Nicholson, Geol. Mag., new ser., I, p. 123, pl. vi, 12.  
 1874. *Tæniopora penniformis*. Nicholson, Pal. Province Ontario, p. 109, fig. 46.  
 1890. *Tæniopora penniformis*. Ulrich, Geol. Sur. Illinois, VIII, p. 505, pl. xlii, 3d.

Hamilton: Arkona, Ontario; Eighteenmile Creek, New York.

**Tæniopora recubans** (Hall and Simpson).

1887. *Stictopora recubans*. Hall and Simpson, Pal. New York, VI, p. 260, pl. lxiii, 20, 21.  
 1891. *Stictopora recubans*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 51; Forty-fourth Ann. Rep. New York State Mus., p. 81.  
 Hamilton: Seneca Lake, New York.  
 Obs. This may be identical with *Tæniopora subcarinata* (Hall).

**Tæniopora subcarinata** (Hall).

1883. *Stictopora?* *subcarinata*. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).  
 1887. *Stictopora subcarinata*. Hall and Simpson, Pal. New York, VI, p. 261, pl. lxiii, 1-6.  
 1891. *Stictopora subcarinata*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 52; Forty-fourth Ann. Rep. New York State Mus., p. 82.  
 1897. *Stictopora subcarinata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 8, pl. xii, 6.  
 1884. *Stictopora?* *dichotoma*. Hall, Rep. State Geologist New York for the year 1883, p. 48.  
 Hamilton: Bellona, Alden Station, and York, New York.  
 Obs. See note under *Tæniopora recubans* (Hall).

**Tectulipora** Hall. See *Loculipora* Hall.

**Tectulipora biperforata** Simpson. See *Loculipora loculata* (Hall).

**Tectulipora loculata** Simpson. See *Loculipora loculata* (Hall).

**Tectuliporella** Simpson. See *Isotrypa* Hall.

**Tectuliporella consimilis** Simpson. See *Isotrypa consimilis* Hall.

**THALLOSTIGMA** Hall. Genotype: *Thallostigma intercellata* Hall.

1883. *Thallostigma*. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 12).

Obs.—This name seems to have been regarded by its author in his later work as a synonym of *Fistulipora*. The original definition is of little value, but a study of the genotype is likely to show that the name may be held for a group of species now included under *Lioclema*, of which *Lioclema minutum* (Rominger) is a typical example. Having no authentic specimens of the genotype, we have not made these changes, but have left this species and the closely allied, if not identical, Hamilton group forms under *Lioclema*.

**Thallostigma confertipora** Hall. See *Lioclema confertiporum* (Hall).

**Thallostigma decipiens** Hall. See *Lioclema decipiens* (Hall).

**Thallostigma densa** Hall. See *Lioclema densum* (Hall).

**Thallostigma digitata** Hall. See *Lioclema digitatum* (Hall).

**Thallostigma inclusa** Hall. See *Favicella inclusa* (Hall).

**Thallostigma inclusapora** Hall. See *Favicella inclusa* (Hall).

**Thallostigma intercellata** Hall. See *Lioclema intercellatum* (Hall).



- Thallostigma lamellata* Hall. See *Fistulipora* ? *lamellata* (Hall).  
*Thallostigma longimacula* Hall. See *Fistulipora* ? *longimacula* (Hall).  
*Thallostigma micropora* Hall. See *Lioclema microporum* (Hall).  
*Thallostigma multaculeata* Hall. See *Lioclema multaculeatum* (Hall).  
*Thallostigma plana* Hall. See *Pinacotrypa plana* (Hall).  
*Thallostigma scrobiculata* Hall. See *Fistulipora* ? *scrobiculata* (Hall).  
*Thallostigma segregata* Hall. See *Lioclema segregatum* (Hall).  
*Thallostigma serrulata* Hall. See *Pinacotrypa serrulata* (Hall).  
*Thallostigma sparsipora* Hall. See *Prismopora sparsipora* (Hall).  
*Thallostigma spherioidea* Hall. See *Lioclema* ? *spherioideum* (Hall).  
*Thallostigma striata* Hall. See *Lioclema minutum* (Rominger).  
*Thallostigma subtilis* Hall. See *Lioclema subtile* (Hall).  
*Thallostigma triangularis* Hall. See *Fistulipora* ? *triangularis* (Hall).  
*Thallostigma umbilicata* Hall. See *Fistulipora* ? *umbilicata* (Hall).  
*Thallostigma variapora* Hall. See *Pinacotrypa variapora* (Hall).

***Thamnicella ascuta* Simpson.**

1897. *Thamnicella ascuta* Hall. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 6-8.

Obs. Simpson ascribes this species to Hall, but we are unable to find it in any of the latter's works.

***Thamnicella Cisseis* Simpson.** See *Drymotrypa cisseis* (Hall).

***Thamnicella Nysa* Simpson.** See *Thamniscus nysa* Hall.

**THAMNISCUS King.** Genotype: *Ceratophytes dubius* Schlotheim.

1849. *Thamniscus*. King, Ann. Mag. Nat. Hist., ser. 2, II, p. 389.  
 1850. *Thamniscus*. King, Perm. Foss. England, p. 44.  
 1860. *Thamniscus*. Eichwald, *Lethæa Rossica*, I, p. 386.  
 1875. *Thamniscus*. Etheridge, Jun., Proc. Geol. Assoc., IV, p. 120.  
 1882. *Thamniscus*. Shrubsole, Quar. Jour. Geol. Soc. London, XXXVIII, p. 343.  
 1885. *Thamniscus*. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 89.  
 1885. *Thamniscus*. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 807.  
 1886. *Thamniscus*. Ulrich, Contr. American Pal., I, p. 5.  
 1887. *Thamniscus*. Hall and Simpson, Pal. New York, VI, p. xxii.  
 1889. *Thamniscus*. Miller, North American Geol. Pal., p. 327.  
 1890. *Thamniscus*. Ulrich, Geol. Sur. Illinois, VIII, pp. 397, 606.  
 1896. *Thamniscus*. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 283.  
 1897. *Thamniscus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 524.

***Thamniscus* ? *Cisseis* Hall.** See *Drymotrypa cisseis* (Hall).

***Thamniscus dichotomus* (Hall).**

1852. *Hornera* ? *dichotoma*. Hall, Pal. New York, II, p. 163, pl. xIC, 3a-d.  
 1889. *Subretepora dichotoma*. Miller, North American Geol. Pal., p. 326.  
 1890. *Thamniscus dichotoma*. Ulrich, Geol. Sur. Illinois, VIII, p. 607.  
 Niagara: Lockport and Rochester, New York.

***Thamniscus divaricans* Ulrich.**

1890. *Thamniscus divaricans*. Ulrich, Geol. Sur. Illinois, VIII, p. 608, pl. lxii, 6-6c.

Keokuk: Kings Mountain, Kentucky.

**Thamniscus fruticellus Hall.**

1879. *Thamniscus fruticella*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 176 (reprint, 1880, p. 37).  
1883. *Thamniscus fruticella*. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 33.  
1887. *Thamniscus fruticella*. Hall and Simpson, Pal. New York, VI, p. 42, pl. xxii, 33.  
Lower Helderberg: Clarksville, New York.

**Thamniscus furcillatus Ulrich.**

1890. *Thamniscus furcillatus*. Ulrich, Geol. Sur. Illinois, VIII, p. 609, pl. lxii, 9-9b.  
1894. *Thamniscus furcillatus*. Keyes, Missouri Geol. Sur., V, p. 31, pl. xxxiii, 6. Chester: Chester, Kaskaskia, Red Bud, and other localities in Illinois; Sloans Valley and Litchfield, Kentucky.

**Thamniscus multiramus Hall.**

1883. *Thamniscus multiramus*. Hall, Trans. Albany Institute, X, p. 161 (abstract, 1881, p. 19).  
1883. *Thamniscus multiramus*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 1-5.  
1887. *Thamniscus multiramus*. Hall and Simpson, Pal. New York, VI, p. 104, pl. xxxiii, 1-5.  
Upper Helderberg: Schoharie, New York.

**Thamniscus nanus Hall.**

1883. *Thamniscus nanus*. Hall, Trans. Albany Institute, X, p. 161 (abstract, 1881, p. 19).  
1887. *Thamniscus nanus*. Hall and Simpson, Pal. New York, VI, p. 292, pl. lxvi, 11-13.  
1897. *Thamniscus nanus*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 18.  
Hamilton: Falls of the Ohio.

**Thamniscus ? Niagarensis Hall. See Drymotrypa niagarensis (Hall).****Thamniscus nysa Hall.**

1879. *Thamniscus Nysa*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 175 (reprint, 1880, p. 38); and var., p. 176 (reprint, p. 38).  
1883. *Thamniscus Nysa*. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 47, 48; and var., pl. xxii, 31, 32.  
1887. *Thamniscus Nysa*. Hall and Simpson, Pal. New York, VI, p. 43, pl. xxii, 31, 32, 47, 48.  
1897. *Thamnicella Nysa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 4, 5.  
Lower Helderberg: Clarksville, New York.

**Thamniscus otonarius Ulrich.**

1890. *Thamniscus otonarius*. Ulrich, Geol. Sur. Illinois, VIII, p. 611, pl. lxii, 7-7b.  
Upper Coal Measures: Greenwood County, Kansas.

**Thamniscus pauciramus Hall.**

1883. *Thamniscus pauciramus*. Hall, Trans. Albany Institute, X, p. 197 (abstract, 1881, p. 197).  
1884. *Thamniscus pauciramus*. Hall, Rep. State Geologist New York for the year 1883, p. 60.  
1887. *Thamniscus pauciramus*. Hall and Simpson, Pal. New York, VI, p. 274.

**Thamniscus pauciramus Hall—Continued.**

1891. *Thamniscus pauciramus*. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 55; Forty-fourth Ann. Rep. New York State Museum, p. 85.

Hamilton: Monteiths Point, Lake Canandaigua, New York.

**Thamniscus ramulosus Ulrich.**

1890. *Thamniscus ramulosus*. Ulrich, Geol. Sur. Illinois, VIII, p. 610, pl. lxii, 4-4b.

Chester: Sloans Valley, Kentucky; Chester, Illinois.

*Thamniscus ramulosus* var. *sevillensis* Ulrich. See *Thamniscus sevillensis* Ulrich.

**Thamniscus sculptilis Ulrich.**

1890. *Thamniscus sculptilis*. Ulrich, Geol. Sur. Illinois, VIII, p. 608, pl. lxii, 8-8b.

Keokuk: Kings Mountain, Kentucky.

**Thamniscus sevillensis Ulrich.**

1890. *Thamniscus ramulosus* var. *sevillensis*. Ulrich, Geol. Sur. Illinois, VIII, p. 610, pl. lv, 6, pl. lxii, 5, 5a.

Lower Coal Measures: Seville, Illinois.

**Thamniscus variolatus Hall.**

1879. *Thamniscus variolata*. Hall, Thirty-second Ann. Rep. New York State Museum, p. 175 (reprint, 1880, p. 37).

1883. *Thamniscus variolata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 34-46.

1887. *Thamniscus variolata*. Hall and Simpson, Pal. New York, VI, p. 41, pl. xxii, 34-46.

1897. *Thamniscus variolata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 14.

Lower Helderberg: Clarksville, New York.

*Thamnocella* Simpson. See *Drymotrypa* Ulrich.

*Thamnocella cisseis* Simpson. See *Drymotrypa cisseis* (Hall).

*Thamnopora* Hall (not Steininger). See *Thamnotrypa* Hall.

*Thamnopora divaricata* Hall. See *Thamnotrypa divaricata* (Hall).

**THAMNOTRYPA Hall. Genotype: Thamnopora divaricata Hall.**

1883. *Thamnopora*. Hall, Trans. Albany Institute, X, p. 158 (abstract, 1881, p. 16). (Name was preoccupied by Steininger.)

1887. *Thamnotrypa*. Hall and Simpson, Pal. New York, VI, p. xxi.

1889. *Thamnotrypa*. Miller, North American Geol. Pal., p. 328.

1897. *Thamnotrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 546.

Obs. *Thamnotrypa* is probably a synonym of *Tæniopora* Nicholson.

**Thamnotrypa divaricata (Hall).**

1883. *Thamnopora divaricata*. Hall, Trans. Albany Institute, X, p. 158 (abstract, 1881, p. 16).

1883. *Thamnopora divaricata*. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 9, 10.

1887. *Thamnotrypa divaricata*. Hall and Simpson, Pal. New York, VI, p. 101, pl. xxxiii, 9, 10.

1897. *Thamnotrypa divaricata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 7, 8.

Upper Helderberg: Near Buffalo, New York.

*Thecostegites hemisphericus* F. Roemer. See *Fistulipora hemispherica* (F. Roemer).

**TREMATELLA** Hall. Genotype: *Trematopora annulata* Hall.

1886. *Trematella*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.

1887. *Trematella*. Hall and Simpson, Pal. New York, VI, p. xiv.

1889. *Trematella*. Miller, North American Geol. Pal., p. 329.

1897. *Trematella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 550.

Obs. *Trematella* is probably a synonym for *Batostomella*, but until the genotype is better known the present arrangement seems best.

**Trematella annulata** (Hall).

1883. *Trematopora* ? *annulata*. Hall, Trans. Albany Institute, X, p. 147 (abstract, 1881, p. 5).

1883. *Trematopora* ? *annulata*. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 1, 2.

1886. *Trematella annulata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 22-24.

1887. *Trematopora* (*Trematella*) *annulata*. Hall and Simpson, Pal. New York, VI, p. 69, pl. xxv, 22, 23, pl. xxvi, 1, 2.

1893. *Batostomella annulata*. Ulrich, Geol. Minnesota, III, p. 229.

1897. *Trematella annulata*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix, 6-9.

1883. *Trematopora* ? *annulata* var. *pronaspina*. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 6).

Hamilton: Falls of the Ohio.

**Trematella arborea** (Hall).

1883. *Trematopora arborea*. Hall, Trans. Albany Institute, X, p. 147 (abstract, 1881, p. 5).

1886. *Trematella arborea*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 16-21.

1887. *Trematopora* (*Trematella*) *arborea*. Hall and Simpson, Pal. New York, VI, p. 69, pl. xxv, 16-21.

Hamilton: Falls of the Ohio

**Trematella glomerata** (Hall).

1886. *Trematella glomerata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 4, 5.

1887. *Trematopora* (*Trematella*) *glomerata*. Hall and Simpson, Pal. New York, VI, p. 70, pl. xxv, 4, 5.

Upper Helderberg: Onondaga Valley, New York.

**Trematella nodosa** (Hall and Simpson).

1887. *Trematopora* (*Trematella*) *nodosa*. Hall and Simpson, Pal. New York, VI, p. 176.

Hamilton: Jaycox's Run, New York.

**Trematella perspinulata** (Hall).

1883. *Trematopora perspinulata*. Hall, Trans. Albany Institute, X, p. 181 (abstract, 1881, p. 181).

1884. *Trematopora perspinulata*. Hall, Rep. State Geologist New York for the year 1883, p. 11.

1887. *Trematopora* (*Trematella*) *perspinulata*. Hall and Simpson, Pal. New York, VI, p. 175.

**Trematella perspinulata** (Hall)—Continued.

1893. *Batostomella perspinulata*. Ulrich, Geol. Minnesota, III, p. 229.  
Hamilton: York, New York.

**TREMATOPORA** Hall. Genotype: *Trematopora tuberculosa* Hall.

1852. *Trematopora*. Hall, Pal. New York, II, p. 149.  
1860. *Trematopora*. Eichwald, Lethæa Rossica, I, p. 494.  
1877. *Trematopora*. Dybowski, Die Chætetiden der Ostbaltischen Silur-Form., p. 69.  
1887. *Trematopora*. Hall and Simpson, Pal. New York, VI, p. xiv.  
1889. *Trematopora*. Miller, North American Geol. Pal., p. 328.  
1890. *Trematopora*. Ulrich, Geol. Sur. Illinois, VIII, pp. 373, 418.  
1893. *Trematopora*. Ulrich, Geol. Minnesota, III, p. 308.  
1897. *Trematopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 591.  
Not *Trematopora*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 153, 241; *ibid.*, VI, 1883, p. 257 (=Homotrypa).

*Trematopora alternata* Hall. See *Acanthoclema alternatum* (Hall).

**Trematopora** ?? *americana* Miller.

1881. *Trematopora americana*. Miller, Jour. Cincinnati Soc. Nat. Hist., IV, p. 312, pl. vii, 5, 5a.  
Burlington: New Mexico.

*Trematopora* ? *annulata* Hall. See *Trematella annulata* (Hall).

*Trematopora* (*Trematella*) *annulata* Hall and Simpson. See *Trematella annulata* (Hall).

*Trematopora annulata* var. *pronaspina* Hall. See *Trematella annulata* (Hall).

*Trematopora annulifer* Whitfield. See *Lioclemella annulifera* (Whitfield).

*Trematopora arborea* Hall. See *Trematella arborea* (Hall).

*Trematopora* (*Trematella*) *arborea* Hall and Simpson. See *Trematella arborea* (Hall).

*Trematopora aspera* Hall. See *Batostomella* ? *aspera* (Hall).

*Trematopora* (*Orthopora*) *bispinulata* Hall and Simpson. See *Streblotrypa* ? *bispinulata* (Hall).

**Trematopora calloporoides** Ulrich.

1890. *Trematopora calloporoides*. Ulrich, Geol. Sur. Illinois, VIII, p. 420, pl. xxxviii, 1-1d.  
Trenton: Alexander County, Illinois.

*Trematopora camerata* Hall. See *Chilotrypa camerata* (Hall).

*Trematopora canaliculata* Hall. See *Orthopora canaliculata* (Hall).

*Trematopora* (*Orthopora*) *canaliculata* Hall. See *Orthopora canaliculata* (Hall).

*Trematopora carinata* Whiteaves. See *Orthopora carinata* (Hall and Simpson).

*Trematopora* (*Orthopora*) *carinata* Hall and Simpson. See *Orthopora carinata* (Hall and Simpson).

*Trematopora claviformis* Hall. See *Stictopora claviformis* (Hall).

*Trematopora coalescens* Hall. See *Chilotrypa* ? *coalescens* (Hall.)

*Trematopora constricta* Hall. See *Chilotrypa* ? *constricta* (Hall.)

*Trematopora corticosa* Hall. See *Eridotrypa corticosa* (Hall.)

*Trematopora* (Chætetes) *corticosa* Hall. See *Eridotrypa corticosa* (Hall.)

*Trematopora* ? (*Trematella* ?) *corticosa* Hall. See *Eridotrypa corticosa* (Hall.)

*Trematopora crassa* Hall. See *Fistulipora crassa* (Hall.)

*Trematopora crebripora* Hall. Not recognizable.

1883. *Trematopora* (Chætetes) *crebripora*. Hall, Trans. Albany Institute, X, p. 59 (abstract 1879; p. 3).

1882. *Trematopora* (Chætetes) *crebripora*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 236.  
Niagara: Waldron, Indiana.

***Trematopora debilis* Ulrich.**

1890. *Trematopora debilis*. Ulrich, Geol. Sur. Illinois, VIII, p. 419, pl. xxxiv, 3-3e.

Trenton: Alexander County, Illinois.

*Trematopora densa* Hall. See *Monotrypella* ? *densa* (Hall.)

*Trematopora* (Chætetes) *densa* Hall. See *Monotrypella* ? *densa* (Hall.)

*Trematopora dispersa* Hall. See *Chilotrypa dispersa* (Hall.)

*Trematopora echinata* Hall. See *Eridotrypa echinata* (Hall.)

*Trematopora* (Orthopora) *elongata* Hall and Simpson. See *Orthopora elongata* (Hall and Simpson).

***Trematopora* ?? *fragilis* Winchell.**

1864. *Trematopora fragilis*. Winchell, Proc. Acad. Nat. Sci. Philadelphia, p. 3.  
• Burlington: Burlington, Iowa.

*Trematopora* (*Trematella*) *glomerata* Hall and Simpson. See *Trematella glomerata* (Hall.)

*Trematopora* (Orthopora) *granifera* Hall and Simpson. See *Orthopora granifera* (Hall and Simpson).

*Trematopora* (Orthopora) *granilinea* Hall and Simpson. See *Orthopora granulinea* (Hall and Simpson).

*Trematopora* ? *granistriata* Hall. See *Bactropora granistriata* (Hall.)

***Trematopora* ?? *granulata* Whitfield.**

1878. *Trematopora granulata*. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 68.

1882. *Trematopora granulata*. Whitfield, Geol. Sur. Wisconsin, IV, p. 253, pl. xi, 22, 23.

Cincinnati (Richmond): Delafield, Wisconsin.

Obs. This species probably belongs to the genus *Eridotrypa*.

*Trematopora granulifera* Hall. See *Batostomella granulifera* (Hall.)

***Trematopora halli* Ulrich.**

1883. *Trematopora halli*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 261, pl. xiii, 3, 3a.

Niagara: Waldron, Indiana.

*Trematopora* (Orthopora) *hexagona* Hall and Simpson. See *Orthopora hexagona* (Hall and Simpson).

*Trematopora* (Orthopora) *immersa* Hall and Simpson. See *Orthopora immersa* (Hall and Simpson).

*Trematopora infrequens* Hall. See *Diamesopora infrequens* (Hall).

*Trematopora* (Orthopora) *interplana* Hall and Simpson. See *Orthopora interplana* (Hall and Simpson).

*Trematopora* (Callopora) *irregularis* Hall. See *Chilotrypa irregularis* (Hall).

*Trematopora* (Orthopora) *lineata* Hall and Simpson. See *Orthopora lineata* (Hall and Simpson).

*Trematopora* ? (*Trachypora* ?) *macropora* Hall. See *Nematopora macropora* (Hall).

*Trematopora maculosa* Hall. See *Fistulipora maculosa* (Hall).

*Trematopora minuta* Hall. See *Nematopora minuta* (Hall).

*Trematopora* ? (*Trachypora* ?) *minuta* Hall. See *Nematopora minuta* (Hall).

*Trematopora* ? *nitida* Ulrich. See *Lioclemella nitida* (Ulrich).

*Trematopora* (Orthopora) *nodosa* Hall. Not defined.

1887. *Trematopora* (Orthopora) *nodosa*. Hall, Pal. New York, VI, pl. xxiii, 10.  
Lower Helderberg; Clarksville, New York.

*Trematopora* (*Trematella*) *nodosa* Hall and Simpson. See *Trematella nodosa* (Hall and Simpson).

*Trematopora orbipora* Hall. See *Orthopora orbipora* (Hall).

*Trematopora* (Orthopora ?) *orbipora* Hall and Simpson. See *Orthopora orbipora* (Hall).

*Trematopora ornata* Ulrich. See *Trematopora* ? *primigenia-ornata* Ulrich.

*Trematopora* (Orthopora) *ornata* Hall and Simpson. See *Orthopora ornata* (Hall and Simpson).

*Trematopora osculum* Hall. See *Diamesopora osculum* (Hall).

*Trematopora ostiolata* Hall. See *Chilotrypa ostiolata* (Hall).

*Trematopora ovatipora* Hall. See *Orthopora ovatipora* (Hall).

*Trematopora* (Orthopora) *ovatipora* Hall and Simpson. See *Orthopora ovatipora* (Hall).

*Trematopora parallela* Hall. See *Orthopora parallela* (Hall).

*Trematopora* (Orthopora) *parallela* Hall and Simpson. See *Orthopora parallela* (Hall).

*Trematopora perspinulata* Hall. See *Trematella perspinulata* (Hall).

*Trematopora* (*Trematella*) *perspinulata* Hall and Simpson. See *Trematella perspinulata* (Hall).

*Trematopora polygona* Hall. See *Orthopora polygona* (Hall).

*Trematopora* (Orthopora) *polygona* Hall and Simpson. See *Orthopora polygona* (Hall).

*Trematopora pandorosa* Hall. See *Fistulipora maculosa* (Hall).

*Trematopora ? primigenia* Ulrich. (noquim? bus Hall) 1886. *Trematopora primigenia*: Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 97.

1893. *Trematopora ? primigenia*. Ulrich, Geol. Minnesota, III, p. 309, pl. xxi, 23-40.  
Trenton (Black River): Minneapolis, St. Paul, Fountain and Preston, Minnesota.

*Trematopora ? primigenia ornata* Ulrich. 1886. *Trematopora ornata*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 98.

1893. *Trematopora ? primigenia* var. *ornata*. Ulrich, Geol. Minnesota, III, p. 310, pl. xxi, 26, 28, 33, 34.  
Trenton (Black River): Minneapolis and St. Paul, Minnesota.

*Trematopora ? primigenia spinosa* Ulrich.

1893. *Trematopora ? primigenia* var. *spinosa*. Ulrich, Geol. Minnesota, III, p. 310, pl. xxi, 29, 30, 33, 38.  
Trenton (Black River): Minneapolis and St. Paul, Minnesota.

*Trematopora ?? punctata* Hall.

1852. *Trematopora punctata* Hall, Pal. New York, II, p. 151, pl. xla, fig. 4.  
Niagara: Lockport, New York.

*Trematopora rectilinea* Hall. Not recognized.

1883. *Trematopora rectilinea* Hall, Trans. Albany Institute, X, p. 148 (abstract, 1884, p. 6).  
Upper Helderberg: Onondaga Valley, New York.

*Trematopora regularis* Hall. See *Orthopora regularis* (Hall).

*Trematopora* (Orthopora) *regularis* Hall and Simpson. See *Orthopora regularis* (Hall).

*Trematopora* (Orthopora) *reticulata* Hall and Simpson. See *Orthopora reticulata* (Hall).

*Trematopora rhombifera* Hall. See *Orthopora rhombifera* (Hall) and *Stictopora ?? granatula* Hall.

*Trematopora* (Orthopora) *rhombifera* Hall and Simpson. See *Orthopora rhombifera* (Hall).

*Trematopora scutulata* Hall (Upper Helderberg). See *Orthopora scutulata* (Hall).

*Trematopora scutulata* Hall (Hamilton). See *Streblotrypa scutulata* (Hall).

*Trematopora* (Orthopora) *scutulata* Hall (Upper Helderberg). See *Orthopora scutulata* (Hall).

*Trematopora signata* Hall. See *Callotrypa macropora signata* (Hall).

*Trematopora ? singularis* (Hall).

1876. *Callopora singularis*. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. x, 1, 2; *ibid.* (Museum edition), p. 115, pl. x, 1, 2.

1882. *Callopora singularis*. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 237, pl. ix, 1, 2.

1890. *Leioclema singulare*. Ulrich, Geol. Sur. Illinois, VIII, p. 425.  
Niagara: Waldron, Indiana.



- Trematopora ? spiculata** Miller. *Homotrypa solidi* (Hall) Bythopora ?  
 1876. Trematopora spinulosa. Hall, Twenty-eighth Ann. Rep. New York State  
 Museum (documentary edition), pl. xii, fig. 12. (Not Trematopora spin-  
 ulosa. Hall, Pal. New York, II, p. 155, pl. xia, fig. 12.)  
 1877. Trematopora spiculata. Miller, American Pal. Foss. edition 2, p. 245.  
 (Proposed for T. spinulosa, preoccupied by Hall in 1852.)  
 1879. Trematopora spiculata. Hall, Twenty-eighth Ann. Rep. New York State  
 Museum (Museum edition), p. 114, pl. xi, fig. 12.  
 1882. Trematopora spiculata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat.  
 Hist., p. 255, pl. x, fig. 12. (Not Trematopora spiculata.)  
 Niagara: Wallport, Indiana.
- Trematopora solida** Hall. See *Homotrypa solidi* (Hall) Bythopora ?
- Trematopora sparsa** Hall. See *Diplolema sparsum* (Hall) Bythopora ?
- Trematopora spinulosa** Hall (1852). See *Bythopora spinulosa* (Hall).  
 Trematopora spinulosa Hall (1876). See Trematopora ? spiculata  
 Miller.
- Trematopora striata** Hall.  
 1852. Trematopora striata. Hall, Pal. New York, II, p. 153, pl. xia, fig. 12.  
 Niagara: Lockport, New York.  
 Obs.—This is probably some species of *Endotrypa* or *Bythopora*, but with  
 present knowledge can not be recognized.
- Trematopora subimbricata** Hall. See *Diamesopora subimbricata* (Hall).  
 Trematopora subquadrata Hall. See *Orthopora subquadrata* (Hall).  
 Trematopora (Orthopora) subquadrata Hall. See *Orthopora* sub-  
 quadrata (Hall).
- Trematopora ?? superba** Billings.  
 1866. Trematopora superba. Billings, Catal. Sil. Foss. Appalach., p. 93.  
 Clinton and Niagara: Cabots Head, Lake Huron.
- Trematopora tortilinea** Hall. See *Orthopora tortilinea* (Hall).  
 Trematopora (Orthopora) tortilinea Hall and Simpson. See *Ortho-  
 pora tortilinea* (Hall).
- Trematopora transversa** Hall. See *Orthopora transversa* (Hall).  
 Trematopora (Orthopora ?) transversa Hall and Simpson. See *Ortho-  
 pora transversa* (Hall).
- Trematopora tuberculosa** Hall.  
 1852. Trematopora tuberculosa. Hall, Pal. New York, II, p. 149, pl. xia, fig. 12.  
 1883. Trematopora tuberculosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI,  
 p. 259, pl. xiii, 2-2b.  
 1897. Trematopora tuberculosa. Simpson, Fourteenth Ann. Rep. State Geologist  
 New York for the year 1894, p. 119, fig. 119.  
 Niagara: Lockport, New York.
- Trematopora tubulosa** Hall. See *Diamesopora tubulosa* (Hall).  
 Trematopora varia Hall. See *Chilotrypa varia* (Hall).  
 Trematopora variolata Hall. See *Chilotrypa variolata* (Hall).  
 Trematopora ?? vesiculosa Winchell.  
 1864. Trematopora vesiculosa. Winchell, Proc. Acad. Nat. Sci. Philadelphia, p. 3.  
 1865. Trematopora ? vesiculosa. Winchell, Proc. Acad. Nat. Sci. Philadelphia,  
 p. 112.

**Trematopora ?? vesiculosa** Winchell—Continued.

1870. *Trematopora ? vesiculosa*. Winchell, Proc. American Phil. Soc., XI, p. 247.  
 Burlington: Burlington, Iowa.  
 Waverly: Sciotoville, Ohio; Hillsdale, Michigan.

**Trematopora whitfieldi** Ulrich.

1883. *Trematopora whitfieldi*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI,  
 p. 262, pl. xiii, 4, 4a.  
 Niagara: Waldron, Indiana.

**TRIGONODICTYA** Ulrich. Genotype: *Pachydictya conciliatrix* Ulrich.

1893. *Trigonodictya*. Ulrich, Geol. Minnesota, III, p. 160.

**Trigonodictya conciliatrix** (Ulrich).

1886. *Pachydictya conciliatrix*. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist.  
 Sur. Minnesota, p. 76.  
 1893. *Trigonodictya conciliatrix*. Ulrich, Geol. Minnesota, III, p. 160, pl. ix, 11,  
 12, pl. x, 15–20.  
 Trenton (Black River): Cannon Falls, Minnesota.

**Trigonodictya eatonensis** Ulrich.

1893. *Trigonodictya eatonensis*. Ulrich, Geol. Minnesota, III, p. 160.  
 1895. *Trigonodictya eatonensis*. Foerste, Geol. Sur. Ohio, VII, p. 599.  
 Clinton: Eaton, Ohio.

**TROPIDOPORA** Hall and Simpson. Genotype: *Tropidopora nana* Hall.

1887. *Tropidopora*. Hall and Simpson, Pal. New York, VI, p. xv.  
 1889. *Tropidopora*. Miller, North American Geol. Pal., p. 329.  
 1897. *Tropidopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York  
 for the year 1894, p. 553.

**Tropidopora nana** Hall.

1886. *Tropidopora nana*. Hall, Fifth Ann. Rep. State Geologist New York for  
 the year 1885, pl. xxv, 25, 26.  
 1887. *Tropidopora nana*. Hall and Simpson, Pal. New York, VI, p. 71, pl. xxv,  
 25, 26.  
 1897. *Tropidopora nana*. Simpson, Fourteenth Ann. Rep. State Geologist New  
 York for the year 1894, pl. xvi, 1, 2.  
 Upper Helderberg: Onondaga Valley, New York.

**Tuberculopora Ringueberg.** Bryozoan? Genotype: *Tuberculopora inflata* Ringueberg.

1886. *Tuberculopora*. Ringueberg, Bull. Buffalo Soc. Nat. Sci., V, p. 21.

**Tuberculopora inflata** Ringueberg. Not recognizable.

1886. *Tuberculopora inflata*. Ringueberg, Bull. Buffalo Soc. Nat. Sci., V, p. 21,  
 pl. ii, 18.  
 Niagara: Lockport, New York.

**UNITRYPA** Hall. Genotype: *Fenestella (Hemitrypa) lata* Hall.

1885. *Unitrypa*. Hall, Rep. State Geologist New York for the year 1884, p. 36.  
 1886. *Unitrypa*. Ulrich, Contr. American Pal., I, p. 4.  
 1887. *Unitrypa*. Hall and Simpson, Pal. New York, VI, p. xxiii.  
 1889. *Unitrypa*. Miller, North American Geol. Pal., p. 329.  
 1890. *Unitrypa*. Ulrich, Geol. Sur. Illinois, VIII, p. 396.  
 1895. *Unitrypa*. Simpson, Thirteenth Ann. Rep. State Geologist New York for  
 the year 1893, pp. 689, 708, 726; Forty-seventh Ann. Rep. New York  
 State Museum, pp. 883, 902, 920.

**UNITRYPA Hall—Continued.**

1897. *Unitrypa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 508, 520.  
 1899. *Unitrypa*. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 161.

***Unitrypa acaulis* (Hall).**

1883. *Fenestella* (*Hemitrypa*) *acaulis*. Hall, Trans. Albany Institute, X, p. 175 (abstract, 1881, p. 33).  
 1886. *Fenestella* (*Unitrypa*) *acaulis*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. li, 1-6.  
 1887. *Fenestella* (*Unitrypa*) *acaulis*. Hall and Simpson, Pal. New York, VI, p. 131, pl. li, 1-6.  
 1886. *Unitrypa conferta*. Ulrich, Contr. American Pal., I, p. 17, pl. i, 8, 8a.  
 1887. *Fenestella* (*Unitrypa*) *projecta*. Hall and Simpson, Pal. New York, VI, p. 132.  
 1888. *Fenestella* (*Unitrypa*) *projecta*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 6-8; Forty-first Ann. Rep. New York State Museum, pl. xiv, 6-8.  
 Hamilton: Falls of the Ohio.

***Unitrypa acaulis-inclinis* (Hall and Simpson).**

1887. *Fenestella* (*Unitrypa*) *acaulis* var. *inclinis*. Hall and Simpson, Pal. New York, VI, p. 132.  
 Hamilton: Falls of the Ohio.  
 Obs. The differences between this form and *Unitrypa acaulis* are scarcely of varietal importance.

***Unitrypa acclivis* (Hall and Simpson).**

1887. *Fenestella* (*Unitrypa*) *acclivis*. Hall and Simpson, Pal. New York, VI, p. 138, pl. lii, 16-23.  
 1897. *Unitrypa acclivis*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. v, 15.  
 Upper Helderberg: Walpole, Ontario.

***Unitrypa anonyma* (Hall).**

1883. *Fenestella* (*Hemitrypa*) *anonyma*. Hall, Trans. Albany Institute, X, p. 176 (abstract, 1881, p. 34).  
 Hamilton: Falls of the Ohio.

***Unitrypa conferta* Ulrich. See *Unitrypa acaulis* (Hall).*****Unitrypa connexa* Simpson.**

1897. *Unitrypa connexa* Hall. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. v, 12-14.  
 Obs. Simpson ascribes this species to Hall, but we have been unable to find it in any of Hall's works. The species apparently has not yet been described; until described the name is invalid.

***Unitrypa ? elegantissima* (Hall).**

1883. *Fenestella* (*Hemitrypa*) *elegantissima*. Hall, Trans. Albany Institute, X, p. 177 (abstract, 1881, p. 35).  
 1886. *Fenestella* (*Unitrypa*) *elegantissima*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. liii, 12-17.  
 1887. *Fenestella* (*Unitrypa*) *elegantissima*. Hall and Simpson, Pal. New York, VI, p. 140, p. liii, 12-17.  
 Upper Helderberg: Walpole, Ontario.

**Unitrypa fastigata (Hall).**

(Continued).--[HALL] APYRTINU

1883. Fenestella (Hemitrypa) fastigata. Hall, Trans. Albany Institute, X, p. 178 (abstract, 1881, p. 36). (Abstract, 1881, p. 36)

1887. Fenestella (Unitrypa) fastigata. Hall and Simpson, Pal. New York, VI, p. 141, pl. liv. 1-6.

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1897. Unitrypa fastigata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 54 (p. 508).

Hamilton: Falls of the Ohio.

**Unitrypa ficticia (Hall and Simpson).**

1887. Fenestella (Unitrypa) ficticia. Hall and Simpson, Pal. New York, VI, p. 137, pl. lii, 11-15.

Upper Helderberg: Walpole, Ontario.

**Unitrypa lata (Hall).**

1883. Fenestella (Hemitrypa) lata. Hall, Trans. Albany Institute, X, p. 176 (abstract, 1881, p. 34).

1885. Unitrypa spatiosa (in error). Hall, Rep. State Geologist New York for the year 1884, pl. ii, 12.

1887. Fenestella (Unitrypa) lata. Hall and Simpson, Pal. New York, VI, p. 136, pl. lii, 1-10.

1897. Unitrypa lata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 55-57 (pp. 508-509), pl. 16-19.

Upper Helderberg: Walpole, Ontario.

**Unitrypa nana (Hall and Simpson).**

1887. Fenestella (Unitrypa) nana. Hall and Simpson, Pal. New York, VI, p. 133.

Upper Helderberg: Walpole, Ontario.

**Unitrypa nervia (Hall).**

1874. Fenestella Nervia. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 93.

1879. Fenestella (Hemitrypa) Nervia. Hall, Thirty-second Ann. Rep. New York State Museum, p. 173 (reprint, 1880, p. 35).

1883. Fenestella (Hemitrypa) Nervia. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 1-6, ? 9, 16.

1887. Fenestella (Unitrypa) Nervia. Hall and Simpson, Pal. New York, VI, p. 55, pl. xxi, 1-6, 8, 9, 10, 11, 12.

1874. Hemitrypa prima. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 98.

Lower Helderberg: Clarksville and Schoharie, New York.

**Unitrypa nervia: constricta (Hall).**

1879. Fenestella (Hemitrypa) Nervia var. constricta. Hall, Thirty-second Ann. Rep. New York State Museum, p. 174 (reprint, 1880, p. 36).

1883. Fenestella (Hemitrypa) Nervia var. constricta. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 1-11.

1887. Fenestella (Unitrypa) Nervia var. constricta. Hall and Simpson, Pal. New York, VI, p. 56, pl. xxii, 1-12.

Lower Helderberg: Clarksville, New York.

**Unitrypa pernodosa (Hall).**

1883. Fenestella (Hemitrypa) pernodosa. Hall, Trans. Albany Institute, X, p. 176 (abstract, 1881, p. 35).

1886. Fenestella (Unitrypa) pernodosa. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. liii, 1-11.

**Unitrypa pernodosa** (Hall)—Continued. (Hall) and Simpson, Pal. New York, 1887, Fenestella (Unitrypa) pernodosa, Hall and Simpson, Pal. New York, VI, p. 139, pl. liii, 1-11. 1881 New York, 1881 Upper Helderberg: Walpole, Ontario.

**Unitrypa præcursor** (Hall). 1874. Fenestella præcursor. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 94.

1879. Fenestella præcursor. Hall, Thirty-second Ann. Rep. New York State Museum, p. 172 (reprint, 1880, p. 33).

1883. Fenestella præcursor. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 14-18.

1885. Fenestella (Unitrypa) præcursor. Hall, Rep. State Geologist New York for the year 1884, pl. xxi, 16-19.

1887. Fenestella (Unitrypa) præcursor. Hall and Simpson, Pal. New York, VI, p. 139, pl. liii, 14-18.

Lower Helderberg: Catskill and Clarksville; New York.

**Unitrypa quadrula** (Hall). 1879. Fenestella quadrula. Hall, Thirty-second Ann. Rep. New York State Museum, p. 172 (reprint, 1880, p. 34).

1883. Fenestella quadrula. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 19-22.

1887. Fenestella quadrula. Hall and Simpson, Pal. New York, VI, p. 139, pl. liii, 19-22.

1890. Unitrypa quadrula. Ulrich, Geol. Sur. Illinois, VII, p. 534.

Lower Helderberg: Clarksville, New York.

**Unitrypa retrorsa** Ulrich. See *Unitrypa tegulata* (Hall).

**Unitrypa scalaris** (Hall). 1884. Fenestella scalaris. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 166.

1887. Fenestella (Unitrypa) scalaris. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 60.

1888. Fenestella (Unitrypa) scalaris. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, p. 111.

1899. Unitrypa scalaris. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 162, fig. 51.

Hamilton; Bellona and other localities in New York; West Williams, Ontario.

**Unitrypa spatiosa** Hall. See *Unitrypa lata* (Hall).

**Unitrypa substriata** (Hall). 1883. Fenestella (Hemitrypa) substriata. Hall, Trans. Albany Institute, X, p. 177 (abstract, 1881, p. 35).

Upper Helderberg: Falkner, New York.

**Unitrypa tegulata** (Hall). 1883. Fenestella (Hemitrypa) tegulata. Hall, Trans. Albany Institute, X, p. 176 (abstract, 1881, p. 34).

1886. Fenestella (Unitrypa) tegulata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, p. 171, 15-23.

1887. Fenestella (Unitrypa) tegulata. Hall and Simpson, Pal. New York, VI, p. 135, pl. li, 15-23.

1888. Fenestella (Hemitrypa) substriata. Hall, Trans. Albany Institute, X, p. 175 (abstract, 1881, p. 34).

**Unitrypa tegulata** (Hall)—Continued.

1886. *Fenestella* (*Unitrypa*) *stipata*. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. li, 7-14.  
 1887. *Fenestella* (*Unitrypa*) *stipata*. Hall and Simpson, Pal. New York, VI, p. 134, pl. li, 7-14.  
 1886. *Unitrypa retrorsa*. Ulrich, Contr. American Pal., I, p. 15, pl. i, 7-7c.  
 1887. *Fenestella* (*Unitrypa*) *transversa*. Hall and Simpson, Pal. New York, VI, p. 132.  
 1888. *Fenestella* (*Unitrypa*) *transversa*. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 9; Forty-first Ann. Rep. New York State Museum, pl. xiv, 9.  
 Hamilton: Falls of the Ohio.

**VINELLA** Ulrich. Genotype: *Vinella repens* Ulrich.

1890. *Vinella*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 173.  
 1892. *Vinella*. Miller, North American Geol. Pal., First Appendix, p. 685.  
 1893. *Vinella*. Ulrich, Geol. Minnesota, III, p. 112.  
 1897. *Vinella*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 604.

***Vinella radialis*** Ulrich.

1893. *Vinella radialis*. Ulrich, Geol. Minnesota, III, p. 113, fig. 8b.  
 Cincinnati (Lorraine): Cincinnati, Ohio.

***Vinella radiceformis-conferta*** Ulrich.

1893. *Vinella radiceformis* var. *conferta*. Ulrich, Geol. Minnesota, III, p. 113, fig. 8c, d.  
 Niagara: Waldron, Indiana.

***Vinella repens*** Ulrich.

1890. *Vinella repens*. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 174, fig. 1.  
 1893. *Vinella repens*. Ulrich, Geol. Minnesota, III, p. 114, pl. i, 1-5.  
 1897. *Vinella repens*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 222 (p. 604).  
 Trenton (Black River): St. Paul, Minnesota.

**WORTHENOPORA** Ulrich. Genotype: *Worthenopora spinosa* Ulrich.

1890. *Worthenopora*. Geol. Sur. Illinois, VIII, p. 403.  
 1889. *Worthenopora*. (Ulrich, in press), Miller, North American Geol. Pal., p. 330.  
 1897. *Worthenopora*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 602.

***Worthenopora spatulata*** (Prout).

1859. *Flustra spatulata*. Prout, Trans. St. Louis Acad. Sci., I, p. 446, pl. xvii, 2-2c.  
 1890. *Worthenopora spatulata*. Ulrich, Geol. Sur. Illinois, VIII, p. 670, pl. lxviii, 2, 2a.  
 1894. *Worthenopora spatulata*. Keyes, Missouri Geol. Sur., V, p. 36.  
 Warsaw: Warsaw, Illinois; Barretts Station, Missouri.

***Worthenopora spinosa*** Ulrich.

1890. *Worthenopora spinosa*. Ulrich, Geol. Sur. Illinois, VIII, p. 669, pl. lxviii, 1-1g.  
 1894. *Worthenopora spinosa*. Keyes, Missouri Geol. Sur., V, p. 36.  
 1897. *Worthenopora spinosa*. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 217-219 (p. 603).  
 Keokuk: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.

## INDEX OF SPECIFIC NAMES.

- abrupta—Batostomella.  
     —Monotrypella.  
 abruptus (Chaetetes)—Monotrypella.  
 acaulis—Unitrypa.  
 acaulis-inclinis—Unitrypa.  
 acclivis—Unitrypa.  
 acervulosa—Fistulipora.  
     —Leptotrypa.  
 acmeum—Semicoscinium.  
 aculeata—Polypora.  
 aculeolata—Cœlocaulis.  
 acuminata—Escharopora.  
 acuta—Pachydictya.  
     —Ptilopora.  
     (Ptilodictya)—Pachydictya.  
     (Stictopora)—Pachydictya.  
 acuticosta—Fenestella.  
 adherens—Stenopora.  
 adnata—Hederella.  
     —Reteporidra.  
     (Fenestella)—Reteporidra.  
     (Nicholsonia)—Hederella.  
 adornata—Fenestella.  
 adraste—Fenestella.  
 æqualis—Fenestella.  
     —Monotrypella.  
     (Monticulipora)—Monotrypella.  
 aequidistans—Chaetetes.  
 æsyle—Fenestella.  
 affinis—Heterotrypa.  
     —Prasopora.  
     (Amplexopora)—Heterotrypa.  
     (Monticulipora)—Heterotrypa.  
 agellus—Ceramopora confluens.  
 albida—Fenestella.  
 albida-richfieldensis—Fenestella richfieldensis.  
 albionensis—Polypora.  
 allicornis—Bythopora.  
     —Clathropora.  
 alcyone—Pachydictya.  
 alternata—Fistulipora.  
     —Hederella.  
     —Helopora.  
     —Nematopora.  
     —Stictopora.  
     (Ceramopora)—Cœloclema.  
 alternata (Lichenalia)—Fistulipora.  
     (Monticulipora)—Cœloclema.  
     (Stomatopora)—Hederella.  
     (Trematopora)—Acanthoclema.  
 alternatum—Acanthoclema.  
     —Cœloclema.  
 althæa—Fenestella.  
 alveata (Lichenalia)—Buskopora bi-striata.  
 ambigua—Loculipora.  
     —Sagenella.  
     (Fenestella)—Loculipora.  
     (Isotrypa)—Loculipora.  
 americana—Acanthocladia.  
     —Cystodictya.  
     —Stenopora.  
     —Trematopora.  
 americana-varsoviensis—Stenopora.  
 ampla—Callopora.  
 amplexens—Monotrypa.  
     (Paleschra)—Leptotrypa quadrangularis.  
 amplexa—Streblotrypa.  
 anastomosa—Omniretepora.  
 anceps—Acanthocladia americana.  
 andrewsi—Callopora.  
 angulare—Arthroclema.  
 angularis—Callopora.  
     —Cystodictya.  
     —Escharopora.  
     —Stenopora.  
     —Stictoporella.  
     (Stictopora)—Cystodictya.  
 angularis-intermedia—Stictoporella.  
 angulata—Fenestella.  
     —Nicholsonia.  
     —Phylloporina.  
     (Retepora)—Phylloporina.  
     (Subretepora)—Phylloporina.  
 angusta—Cystodictya.  
     —Ptilodictya.  
     (Escharopora)—Ptilodictya.  
 angustata—Fenestella.  
     —Rhombopora.  
 annulata—Trematella.  
 annulata-pronaspina—Trematella annulata.

annulifera—Lioclemella.  
 anonyma—Unitrypa.  
 antheloidea—Stellipora.  
     (Constellaria) — Constellaria  
     constellata.  
     (Hellipora) — Constellaria  
     constellata.  
     (Stellipora) — Constellaria  
     constellata.  
 anticorura—Gorgonia.  
 antiqua (Ptilodictya)—Eurydictya mul-  
     tipora.  
 aperta—Fenestella.  
     —Meekopora.  
 appressa—Dekayia.  
     —Eridotrypa.  
     (Monotrypella)—Eridotrypa.  
 approximata—Meekopora.  
     —Polypora.  
     —Scalariopora.  
     (Helopora)—Bythopora  
     parvula.  
 approximatus (Chaetetes)—Callopora  
     dalei.  
     (Monticulipora)—Callo-  
     pora dalei.  
 arachnoidea—Stomatopora.  
 araneum—Lioclema.  
 arborea—Monticulipora.  
     —Trematopora.  
     (Trematopora)—Trematella.  
 arbuscula—Homotrypa.  
 arbuscula—Monotrypella.  
 arbusculus (Chaetetes)—Monotrypella.  
 archimedes (Retepora)—Archimedes  
     wortheni.  
 archimediiformis (Helicopora)—Archime-  
     des laxus.  
 arcolata (Monticulipora)—Aspidopora  
     arcolata.  
 arctipora—Bythopora.  
 areolata—Aspidopora.  
     —Spatiopora.  
 arguta—Pachydictya crassa.  
 arkensis—Fenestella.  
     —Polypora.  
 armata—Helopora.  
     —Rhombopora.  
 armatum—Arthroclema.  
 arta—Polypora.  
 ascuta—Thamnicella.  
 aspectans—Polypora.  
 aspectus (Fenestella)—Polypora aspec-  
     tans.

aspera—Batostomella.  
     —Dekayia.  
     —Hemitrypa.  
     —Phyllopora.  
     —Phylloporina.  
     —Spatiopora.  
     (Callopora)—Lioclema.  
     (Gorgonia)—Phylloporina.  
     (Lichenotrypa)—Lichenotrypa  
     longispina.  
     (Monticulipora)—Spatiopora.  
     (Monticulipora (Dekayia))—Deka-  
     yia.  
     (Paleschara)—Paleschara macu-  
     lata.  
     (Subretepora)—Phylloporina.  
     (Trematopora)—Batostomella.  
 asperato-striata—Phylloporina.  
 asperum—Lioclema.  
 asperima (Rhombopora)—Rhombopora  
     asperula.  
 asperula—Petigopora.  
     —Rhombopora.  
     (Monticulipora)—Petigopora.  
 assita—Fenestella.  
 asteria—Fistulipora.  
 asterias (Coscinium)—Fistulipora.  
 astrica—Fistulipora.  
 astricta—Fistulipora astricta.  
 attenuata—Rhombopora.  
 attrita (Dekayia)—Dekayia aspera.  
 attritus (Chaetetes)—Dekayia aspera.  
 auroporoides—Proboscina.  
 banyana—Fenestella.  
 barrandei—Heterotrypa.  
 barrisi—Euspilopora.  
 basalis—Intrapora.  
     —Rhindictya.  
     (Stictopora)—Rhindictya.  
     (Stictoporella)—Intrapora.  
 beani—Paleschara.  
 bellistriata—Fenestella.  
 bellula—Helopora.  
     —Pinnatopora.  
 biarmica (Polypora)—Polypora biseriata.  
 bicornis—Fenestella.  
 bifaria (Isotrypa)—Isotrypa conjunctiva.  
 bifolia—Heliotrypa.  
 bifoliata—Ptilodictya nebulosa.  
 bifurca—Ptiloporella.  
 bifurcata—Arthropora.  
     —Cystodictya.  
     —Diploporaria.  
     —Fenestella.



bifurcata—Pachydictya.  
 bifurcata—(Escharella)—Pachydictya.  
 (Stictopora)—Cystodictya.  
 bifurcata-instabilis—Pachydictya.  
 bigeneris—Fenestella perplexa.  
 bimbricatum—Semioscimum.  
 bilateralis—Goniotrypa.  
 —Palescharella.  
 billingsi—Arthroclima.  
 Monticulipora.  
 biperforata—Fenestrapora.  
 (Tectulipora)—Loculipora.  
 loculifera.  
 bipunctata (Callopora)—Streblotrypa.  
 (Ptilodictya)—Phænopora  
 expansa.  
 biordo—Hemitrypa.  
 biserialis—Diploporaria.  
 —Hemitrypa.  
 —Septopora.  
 (Fenestella)—Hemitrypa.  
 (Syncladia)—Septopora.  
 biserialis-exilis—Hemitrypa.  
 biserialis-gracilis—Septopora.  
 biserialis-nervata—Septopora.  
 biseriata—Fenestella.  
 biserrulatum—Semioscimum.  
 bispinulata—Orthopora.  
 (Callopora)—Orthopora.  
 (Trematopora)—Streblotrypa.  
 bispinulatum (Acanthoclima)—Orthopora.  
 bistigilata—Semipora.  
 bistrata—Buskopora.  
 blanda—Polypora.  
 briarea (Monticulipora)—Eridotrypa.  
 (Monotrypa)—Eridotrypa.  
 briareus—Eridotrypa.  
 —Escharopora.  
 (Chaetetes)—Eridotrypa.  
 (Ptilodictya)—Escharopora.  
 brevilinea—Fenestella—Semioscimum  
 exornatum.  
 brevisulcata—Polypora.  
 bristolensis (Stictopora)—Cystodictya bi-  
 furcata.  
 bulbosa—Stenopora.  
 bullata—Fistulipora.  
 burlingtonensis—Fenestella.  
 —Polypora.  
 calceola—Leptotrypa.  
 calhounensis—Eurdictya.  
 calliporoides—Trematopora.  
 callosa—Homotrypa.

calycula—Aspidopora.  
 calyculus (Chaetetes)—Aspidopora.  
 camerata—Chilotrypa.  
 canadense—Batostoma.  
 canadensis—Fistulipora.  
 —Hederella.  
 —Ptilodictya.  
 —Scalaripora.  
 —Stomatopora.  
 (Alecto)—Tederella.  
 (Amplexopora)—Batostoma.  
 (Aulopora)—Tederella.  
 (Nicholsonia)—Hederella.  
 canaliculata—Orthopora.  
 cannonensis—Monticulipora.  
 carbaceoides—Fistula.  
 carbonaria—Cystodictya.  
 (Fistulipora)—Stenopora.  
 —Stenopora.  
 (Ptilodictya)—Cystodictya.  
 carbonaria-conferta—Stenopora.  
 carbonaria-maculosa—Stenopora.  
 carbonarius (Chaetetes)—Stenopora.  
 carinata—Lichenaria.  
 —Orthopora.  
 —Pinnatopora.  
 (Clathropora)—Coscinum cribri-  
 forme.  
 (Coscinotrypa)—Coscinotrypa  
 riforme.  
 (Glaucanome)—Pinnatopora.  
 (Trematopora)—Orthopora.  
 carinella—Polypora.  
 cavernosa—Fenestella.  
 (Lichenotrypa)—Lichenotrypa  
 longispina.  
 cellulosum—Lioclima.  
 celsipora—Polypora.  
 celsipora-minima—Polypora.  
 celsipora-minor—Polypora.  
 cervicornis—Callopora.  
 cestriensis—Fenestella.  
 —Polypora.  
 —Septopora.  
 —Stenopora.  
 (Septopora) (M. & W.)—Septo-  
 pora subquadrans.  
 cincinnatensis—Monticulipora.  
 (Callopora)—Lioclima  
 cideis.  
 (Chaetetes)—Monticulipora.  
 (Ptilodictya)—Arthropora  
 shaffneri—Cavellandi.

- cinctosum—Mitoclema.  
 cinctura (Lyropora)—Reteporidra cinctuta.  
 cinctuta—Reteporidra.  
 cingulata—Amplexopora.  
     —Fenestella.  
     —Tæniodictya.  
 circe—Helopora.  
 circincta—Selenopora.  
 circularis—Calloporella.  
 circumstata—Loculipora.  
 cirrhosa—Hederella.  
 cisseis—Drymotrypa.  
 clathrata—Fenestella.  
     —Phylloporina.  
     (Intricaria)—Phylloporina.  
     (Subretepora)—Phylloporina.  
 clathratula (Stictopora)—Escharopora pavonia.  
 clathratulus (Chætetes)—Escharopora pavonia.  
 clausa—Meekopora.  
 clavacoidea—Leptotrypa.  
 claviformis—Leptotrypa.  
     —Stictopora.  
     (Stictopora)—Stictopora.  
     (Trematopora)—Stictopora.  
 clavis—Leptotrypa.  
 cleavelandi—Monticulipora.  
 cleia—Fenestella.  
 cleis—Semioscinium.  
 clintonensis—Monticulipora.  
     (Clathropora)—Clathropora frondosa-clintonensis.  
     (Ptilodictya)—Ptilodictya nodosa.  
 clintonii—Retepora.  
 clivulata—Eridopora.  
 clypeiformis—Ceramopora.  
 coalescens—Chilotrypa.  
     —Reteporina.  
     (Fenestella)—Reteporina.  
     (Trematopora)—Chilotrypa.  
 colliculata—Fistulipora.  
     —Monotrypa.  
     (Lichenalia)—Fistulipora.  
 colliculatus (Chætetes)—Monotrypa.  
 collina—Cyclotrypa.  
 columeliata—Hemitrypa.  
 columnaris—Chætetes.  
 communis—Archimedes.  
     —Cyclotrypa.  
     (Diamesopora)—Cœloclema concentricum.  
     communis (Fistulipora)—Cyclotrypa.  
     (Monticulipora)—Calloporonealli-communis.  
 compacta—Fenestralia.  
     —Polypora.  
     (Fenestella)—Polypora.  
 compactus—Archimedes.  
 complanata—Polypora.  
 complexa—Selenopora.  
 complexata—Selenopora complexa.  
 compressa—Fenestella.  
     —Fistulipora.  
     —Peronopora.  
     —Petalotrypa.  
     —Polypora.  
     (Fenestella) (Hall)—Polypora.  
     (Monticulipora)—Peronopora.  
     (Stictopora)—Phænopora magna.  
 compressa-nododorsalis—Fenestella nododorsalis.  
 compressus (Chætetes)—Peronopora.  
 concava—Helopora.  
 concentrica—Cystodictya.  
     —Lichenalia.  
     —Paleschara.  
     (Ceramopora)—Cœloclema.  
     (Eschara)—Cystodictya.  
     (Licherotrypa)—Fistulipora neglecta.  
 concentrica-maculata—Fistulipora neglecta-maculata.  
 concentrica-parvula—Fistulipora halli.  
 concentricum—Cœloclema.  
 conciliatrix—Trigonodictya.  
 conferta—Hederella.  
     —Nematopora.  
     —Pinnatopora.  
     —Polypora.  
     (Fenestella)—Polypora.  
     (Ptilionella)—Hederella.  
     (Unitrypa)—Unitrypa acaulis.  
 confertipora (Fenestella)—Ptiloporella bifurca.  
     (Fistulipora)—Lioclema.  
     (Fistuliporina)—Lioclema.  
     (Thallostigma)—Lioclema.  
 confertiporum—Lioclema.  
 confluens—Acanthoclema.  
     —Ceramopora.  
     —Escharopora.  
     —Homotrypa.  
     (Monotrypella)—Homotrypa.  
     (Rhombopora)—Acanthoclema.

confusa—Fistulipora.  
 —Proboscina.  
 (Alecto)—Proboscina.  
 (Lichenalia)—Fistulipora.  
 confusa (Stomatopora)—Proboscina.  
 conica—Ptiloporina.  
 conjunctiva—Isotrypa.  
 conjunctus—Arthrostylus.  
 connexa—Unitrypa.  
 conoidea—Prasopora.  
 conradi—Fenestella.  
 consimilis—Isotrypa.  
 —Monotrypella.  
 (Chaetetes)—Monotrypella.  
 (Fenestella)—Isotrypa.  
 (Monticulipora)—Monticuli-  
 pora laevis-consimilis.  
 (Tectuliporella)—Isotrypa.  
 constellata—Constellaria.  
 —Phaenopora.  
 (Ceriopora)—Constellaria.  
 constellata-plana—Constellaria.  
 constellata-prominens—Constellaria.  
 constellatus (Chaetetes)—Constellaria.  
 constricta—Chilotrypa.  
 —Fistulipora.  
 —Phacelopora.  
 (Diamopora)—Chilotrypa.  
 (Fistuliporella)—Fistulipora.  
 (Lichenalia)—Fistulipora.  
 (Trematopora)—Chilotrypa.  
 contexta—Homotrypella.  
 contigua—Prasopora.  
 conulata—Fistulipora.  
 cornuta—Fistulipora.  
 cornutum—Arthroclema.  
 coronis—Semicoscium.  
 corrugata—Fistulipora.  
 cortex—Leptotrypa.  
 corticans—Spatiopora.  
 corticata—Fenestella.  
 corticosa—Eridotrypa.  
 —Phylloporina.  
 —Polypora.  
 (Chaetetes)—Eridotrypa.  
 (Phylloporina)—Phylloporina.  
 (Subretepora)—Phylloporina.  
 (Trematopora)—Eridotrypa.  
 cosciniformis—Coscinea.  
 crassa—Atactoporella.  
 —Fistulipora.  
 —Pachydictya.  
 —Polypora.  
 —Rhombopora.

crassa (Fistulipora) (Rom.)—Fistulipora  
 romingeri.  
 (Lichenalia)—Fistulipora.  
 (Ptilodictya)—Pachydictya.  
 (Stictopora)—Pachydictya.  
 (Trematopora)—Fistulipora.  
 crassimuralis—Monotrypella.  
 crebripora—Fenestella.  
 —Trematopora.  
 crebriramus—Chaetetes.  
 crenulata—Callopora.  
 (Cystodictya)—Cystodictya  
 subrigida.  
 (Stictopora)—Cystodictya sub-  
 rigida.  
 crebescens—Polypora.  
 crescens—Cystodictya.  
 cribriforme—Coscium.  
 cribriformis-carinata (Coscinotrypa)—  
 Coscium cribriforme.  
 cribrosa—Fenestella.  
 —Hemitrypa.  
 —Stictoporella.  
 (Fenestella) (Hall)—Hemitrypa.  
 (Fenestella) (Nich.)—Fenestella  
 nicholsoni.  
 crispata—Cystodictya gilberti.  
 cristata—Phractopora.  
 cristata-lineata—Phractopora cristata.  
 cruciformis (Ptilodictya)—Escharopora  
 falciformis.  
 crustacea—Lichenalia.  
 crustulata (Monticulipora)—Chaetetes.  
 crustulatus—Chaetetes.  
 cultellata—Fistulipora.  
 (Fenestella)—Polypora shumardi.  
 (Lichenalia)—Fistulipora.  
 (Polypora)—Polypora shumardi.  
 cultrata—Fenestella.  
 cumulata—Monotrypa.  
 —Nicholsonella.  
 (Monticulipora)—Nicholsonella.  
 curtus—Arthrostylus.  
 curvata—Bactropora.  
 —Fenestella.  
 —Homotrypa.  
 —Pinnatopora.  
 (Monticulipora)—Homotrypa.  
 (Rhynopora)—Rhynopora verrucosa.  
 curvijunctura—Fenestella.

- cyclops (Cosciniun) — Clathropora intertexta.  
 cylindracea — Polypora.  
 — Filopora.  
 — Fenestella — Polypora.  
 dalei — Callopora.  
 dali (White) — Monticulipora.  
 (Monticulipora) — (Hall) — Callopora ramosa.  
 davidsoni — Semicosciniun.  
 dawsoni — Homotrypa.  
 — Phylloporina.  
 (Monticulipora) — Homotrypa.  
 — (Subretepora) — Phylloporina.  
 debilis — Trematopora.  
 decipiens — Batostoma.  
 — Lioclema.  
 — Peronopora.  
 — Rhombopora.  
 — Septopora.  
 (Chaetetes) — Peronopora.  
 (Fistulipora) — Lioclema.  
 (Thallostigma) — Lioclema.  
 delicata — Fenestella.  
 — Petalotrypa.  
 delicatula — Bythopora.  
 — Fenestella.  
 — Nematopora.  
 — Septopora.  
 — Stomatopora.  
 (Hippothoa) — Stomatopora.  
 (Monticulipora) — Bythopora.  
 delicatula tenuissima — Stomatopora.  
 delicatulus (Chaetetes) — Bythopora.  
 dendrina — Bythopora.  
 densa — Monotrypella.  
 (Fistulipora) — Lioclema.  
 (Thallostigma) — Lioclema.  
 — (Trematopora) — Monotrypella.  
 densus (Chaetetes) — Monotrypella.  
 densum — Lioclema.  
 dentata — Buskopora.  
 denticulata — Eridopora.  
 — Streblotrypa.  
 (Lichenalia) — Eridopora.  
 (Pileotrypa) — Eridopora.  
 depressa — Fenestella.  
 dermata — Strotopora.  
 devonica — Dekayia.  
 — Discotrypa.  
 dichotoma — Diamesopora.  
 — Drymotrypa.  
 — Rhombopora.  
 (Hornera) — Thamniscus.  
 dichotoma (Stictopora) — Taniopora subcarinata.  
 (Subretepora) — Thamniscus.  
 dichotomus — Thamniscus.  
 dictyotum — Cosciniun.  
 diffusa — Drymotrypa.  
 digitatum — Lioclema.  
 dilata — Fenestella.  
 (Prismopora) — Prismopora dilata.  
 dilatata — Prismopora.  
 discoidea — Amplexopora.  
 — Mesotrypa.  
 — Proutella.  
 (Cyclopura) — Proutella.  
 — Leptotrypa — Amplexopora.  
 (Monticulipora) — Amplexopora.  
 — Polypora.  
 discoideus (Chaetetes) — Amplexopora.  
 dispanda — Fenestella.  
 disparilis — Polypora.  
 dispersa — Chilostypa.  
 dissimilis — Paleschara.  
 distans — Archimedes.  
 — Fistulipora.  
 — Polypora.  
 (Fenestella) — Polypora.  
 (Lichenalia) — Fistulipora.  
 distensa — Fistulipora.  
 distincta — Ceramoporella.  
 — Polypora.  
 — Streblotrypa.  
 distorta (Escharina) — Rhinopora vernucosa.  
 divaricans — Thamniscus.  
 divaricata — Helopora.  
 — Thamniscus.  
 (Thamniscus) — Thamniscus.  
 — trypa.  
 divergens — Acanthopora.  
 — Lyropora.  
 — Stictopora.  
 diversa — Callopora.  
 dubia — Diplotrypa.  
 (Hamitrypa) — Localipora ambigua.  
 (Monticulipora) — Diplotrypa.  
 (Pileotrypa) — Arthropora shafferi.  
 — cleavelandi.  
 dumalis — Callopora.  
 dumosa — Stictoporella.  
 duogeneris — Taniopora exigua.  
 dychei — Leptotrypa.  
 eatonensis — Trigonodictya.  
 eccentrica — Aspidopora.



- filistriata—Fenestella.  
 flitexta—Fenestella.  
 fimbriata—Pachydictya.  
     —Phænopora.  
     (Ptilodictya)—Phænopora.  
 firma—Pachydictya.  
 fischeri—Constellaria.  
 fistulata—Polypora.  
     —Anisotrypa.  
 fistulosa (Callopora)—Lioclema cellul-  
     sum.  
 flabellaris—Homotrypa.  
 flabellata—Diastoporina.  
     —Stictoporella.  
     (Chiloporella)—Chiloporella  
     nicholsoni.  
     (Clathropora)—Stictoporella.  
     (Fistulipora)—Chiloporella  
     nicholsoni.  
 flabelliformis—Polypora.  
 flabellum—Dichotrypa.  
 flagellum—Ptilodictya.  
 flexuosa—Pinnatopora.  
     —Retepora.  
     —Reteporina.  
     —Stictoporella.  
     (Fenestella)—Reteporina.  
     (Ptilodictya)—Stictoporella.  
 fletcheri—Dekayella ulrichi.  
 fletscheri—Dekayella ulrichi.  
 florida (Callopora)—Lioclema.  
     (Constellaria)—Constellaria con-  
     stellata.  
 florida-plana—Constellaria constellata-  
     plana.  
 florida-prominens—Constellaria constel-  
     lata-prominens.  
 floridum—Lioclema.  
 foliacea—Fistulipora.  
     —Meekopora.  
     —Retepora.  
     (Ceramopora)—Meekopora.  
     (Lichenalia)—Fistulipora.  
 foliata—Dichotrypa.  
     —Fenestella.  
     —Pachydictya.  
     (Paleschara)—Ptilodictya nebu-  
     losa.  
 foliatum—Lioclema.  
 foordi—Fistulipora.  
 formosa—Nematopora.  
 foveolata—Strotopora.  
 fungia—Cyclopora.  
 funicula—Fenestella.  
 furcatus—Chætetes.  
 furcillatus—Thamnisus.  
 fusiforme—Ascodictyon.  
 fusiformis—Lioclemella.  
     (Chætetes)—Lioclemella.  
     (Monticulipora)—Lioclemella  
     subfusiformis.  
 fustiformis—Sceptropora.  
 fragilis—Dicranopora.  
     —Helopora.  
     —Nematopora.  
     —Trematopora.  
     (Ptilodictya)—Dicranopora.  
     (Stictopora)—Dicranopora.  
 fragilis-acadiensis—Helopora.  
 frequens—Fenestella.  
 frondifera—Stictoporella.  
 frondosa—Ceramophylla.  
     —Clathropora.  
     —Heterotrypa.  
     —Phyllodictya.  
     —Proboscina.  
     —Tæniodictya.  
     (Alecto)—Proboscina.  
     (Aulopora)—Proboscina.  
     (Monticulipora)—Heterotrypa.  
     (Monticulipora) (Nich., J. &  
     J.)—Peronopora decipiens.  
     (Rhinopora)—Rhinopora verru-  
     cosa.  
     (Stomatopora)—Proboscina.  
 frondosa-clintonensis—Clathropora.  
 frondosus (Chætetes)—Heterotrypa.  
     (Chætetes) (Nich.)—Perono-  
     pora decipiens.  
 frondosus limatus (Chætetes)—Hetero-  
     trypa frondosa.  
 fruticellus—Thamnisus.  
 fruticosa—Acanthocladia.  
     —Stictopora.  
     (Bythopora)—Bythopora den-  
     drina.  
     (Monotrypa)—Chætetes.  
 fruticosus (Hamilton)—Chætetes.  
     (Lower Helderberg)—Mono-  
     trypa arbuscula.  
 furcatus—Chætetes.  
 gelasinoso—Homotrypa.  
 geniculata—Callotrypa.  
     —Cystopora.  
     (Callopora)—Callotrypa.  
 geometrica—Fistulipora.  
 gigantea—Pachydictya.  
     —Ptilodictya.

gigantea (Heterodictya)—Ptilodictya.  
 gilberti—Cystodictya.  
 gladiola—Ptilodictya.  
 glomerata—Stictopora.  
     —Trematella.  
     (Trematopora)—Trematella.  
 goodhuensis—Callopora.  
 gracilis—Bythopora.  
     —Clathropora.  
     —Phylloporina.  
     —Polypora.  
     —Rhombopora.  
     (Batostomella)—Bythopora.  
     (Chaetetes)—Bythopora.  
     (Homotrypella)—Bythopora.  
     (Monticulipora)—Bythopora.  
     (Retepora)—Phylloporina.  
     (Subretepora)—Phylloporina.  
 gracillimum—Lioclema.  
 grahami—Arthropora shafferi-cleavelandi.  
 graminifolia—Stictopora.  
 granatula—Stictopora.  
 grandis—Archimedes.  
     —Dichotrypa.  
     —Evactinopora.  
     —Prasopora.  
     —Rhinidictya.  
     (Monticulipora)—Prasopora.  
 granifera—Fistulipora.  
     —Orthopora.  
     —Stictopora.  
     (Fenestella)—Semicoscium.  
     (Lichenalia)—Fistulipora.  
     (Pileotrypa)—Fistulipora.  
     (Trematopora)—Orthopora.  
 graniferum—Semicoscium.  
 granilinea—Orthopora.  
     —Polypora.  
     (Fenestella)—Polypora.  
     (Trematopora)—Orthopora.  
 granistriata—Bactropora.  
     —Phylloporina.  
     (Trematopora)—Bactropora.  
 granosa—Nematopora.  
 granosus—Coeloconus.  
 granulata—Trematopora.  
 granulifera—Batostomella.  
     —Homotrypella.  
     (Batostomella)—Homotrypella.  
     (Monticulipora)—Homotrypella.

granulifera (Rhombopora)—Batostomella.  
     (Trematopora)—Batostomella.  
 granuliferus (Chaetetes)—Homotrypella.  
 granulosa—Ceramoporella.  
     —Dicranopora.  
     —Fenestella.  
     (Ptilodictya)—Rhinidictya.  
     (Rhinidictya)—Dicranopora.  
 granulosa-milfordensis—Ceramoporella.  
 gregaria—Petigopora.  
 halli—Fistulipora.  
     —Phylloporina.  
     —Trematopora.  
 halliana—Polypora.  
 hamiltonense—Monticulipora winchelli.  
 hamiltonensis—Chaetetes.  
     —Cystodictya.  
     —Reteporina.  
     —Streblotrypa.  
     (Callopora)—Streblotrypa.  
     (Ceripora)—Streblotrypa.  
     (Polypora)—Reteporina.  
     (Retepora)—Reteporina.  
     (Rhombopora)—Streblotrypa.  
 hamiltoniana—Polypora.  
 harrisi—Helopora.  
     (Calloporella)—Calloporella circularis.  
 helderbergiae—Monotrypa.  
 helios—Fistulipora.  
 hemicycla—Semicoscium labiatum.  
 hemispherica—Crepipora.  
     —Fistulipora.  
     (Callopora)—Fistulipora.  
 hemisphericus (Thecostegites)—Fistulipora.  
 hemitrypa—Hemitrypa proutana.  
 herrickana—Fenestella.  
 herricki—Bythopora.  
 hertzeri—Streblotrypa.  
 hestia—Fenestella.  
 heteropora—Callotrypa.  
 hexagona—Orthopora.  
 hexagonalis—Leptotrypa.  
     —Pachydictya.  
     —Polypora.  
     (Fenestella)—Polypora.  
 hexagonalis-foraminulosa—Polypora.  
 hilli—Escharopora.  
 hindei—Semicoscium.

- hirsuta—Atactopora.  
 hispida—Chilotrypa.  
 hospitalis—Prasopora.  
 hospitalis-lævis—Monticulipora lævis.  
 hospitalis-neglecta—Prasopora hospitalis.  
 humifusa—Hernodia.  
 humile—Batostoma.  
 humilis—Chætetes.  
     (Rhinidictya)—Pachydictya.  
 huronensis—Fistulipora.  
     —Stenopora.  
     (Ceramopora)—Fistulipora.  
 hyale—Cœlocaulis.  
 idalia—Fenestella.  
 idothea—Polypora.  
 imbricata—Ceramopora.  
     —Helopora.  
     —Polypora.  
     (Cœloclema)—Diamesopora.  
 imbricella—Ceramopora.  
 immersa—Orthopora.  
 imperfectum—Hemiphragma.  
 implicatum—Batostoma.  
 impolita—Anolotichia.  
 impressa—Crepipora.  
     —Polypora.  
 inæqualis—Fenestella.  
     —Ptiloporella.  
     (Fenestella)—Ptiloporella.  
 incerta—Monotrypa.  
     —Phylloporina.  
     —Polypora.  
     (Retepora)—Phylloporina.  
     (Subretepora)—Phylloporina.  
 incipiens—Phænopora.  
 incisurata—Cystodictya.  
 inclusa—Ceramoporella.  
     —Favicella.  
     (Thallostigma)—Favicella.  
 inclusapora—Favicella inclusa.  
 incompta—Monticulipora.  
 incongruens—Fenestella.  
 incontroversa—Callopora.  
 incrassata—Fistulipora.  
     —Paleschara.  
     —Rhombopora.  
     —Stictopora.  
     (Callopora)—Fistulipora.  
     (Cystodictya)—Stictopora.  
 incrustans—Ceramopora.  
     —Paleschara.  
 incurva—Clonopora.  
 indenta—Cystodictya.  
 inexpectans—Monotrypa helderbergiæ.  
 infida—Mesotrypa.  
 inflata—Stomatopora.  
     —Tuberculopora.  
     (Alecto)—Stomatopora.  
     (Hippothoa)—Stomatopora.  
 inflecta—Heterotrypa.  
 inflexum—Semicoscinium.  
 informis—Leptotrypa.  
 infraporosa—Fenestrapora.  
 infrequens—Diamesopora.  
     —Ptilopora.  
     (Cœloclema)—Diamesopora.  
     (Trematopora)—Diamesopora.  
 infundibuliformis—Gorgonia.  
 insignis—Homotrypa subramosa-insignis.  
 instabilis—Homotrypella.  
 insueta—Atactoporella.  
     —Berenicea.  
 insularis—Prasopora.  
 intabulata—Monotrypa.  
 interaspera—Fistulipora.  
 intercalaris—Homotrypa.  
     —Stenopora.  
 intercella—Paleschara.  
 intercellatum—Lioclema.  
 intermedia—Clathropora.  
     —Dichotrypa.  
     —Fenestella.  
     —Pinnatopora.  
     —Polypora.  
 intermedius—Archimedes.  
 intermittens—Stenopora.  
 internascens—Chætetes.  
 internodata—Callotrypa.  
 internodia—Dicranopora.  
 interplana—Orthopora.  
 interpolata—Tæniodictya.  
 interporosa—Ceramoporella.  
 interruptum—Semicoscinium.  
 interstincta—Batostomella.  
     (Stictoporella)—Stictoporella  
         flexuosa.  
 interstriata—Stictopora.  
 intertexta—Clathropora.  
 invaginatus—Archimedes.  
 invertis—Cystodictya.  
 involvens—Lioclema.  
 iowensis—Spatiopora.  
 irrasum—Hemiphragma.  
 irregularis—Ceramoporella.  
     —Cœlocaulis.  
     —Helopora.  
     —Leptotrypa.  
     (Alveolites)—Ceramoporella.



- irregularis (Callopora)—Coelocaulis.  
     (Ceramopora)—Batostoma  
         implicatum.  
     (Chatetes)—Leptotrypa.  
     (Monotrypa)—Leptotrypa.  
     (Monticulipora)—Leptotrypa.  
     (Trematopora)—Orthopora.  
 jamesi—Batostoma.  
     (Chatetes)—Batostoma.  
 jamesii (Cyclopora)—Escharopora pavo-  
     nia.  
 juncea—Fenestella.  
 kentuckyensis—Monticulipora.  
     —Ptilodictya.  
 keyserlingi—Glyptopora.  
 labecula—Ceramopora confluens.  
 labeculoidea—Ceramopora.  
 labeculosa—Spatiopora.  
 labiatum—Semicoscinium.  
 labiosa—Fistulipora.  
 labyrinthica—Stictopora.  
 laeviramus—Bythopora gracilis.  
 laevis—Monticulipora.  
 laevis-consimilis—Monticulipora.  
 laevistriata—Polypora.  
 lamellata—Fistulipora.  
 lamellosa—Monticulipora.  
 laminata—Nicholsonella.  
     —Lioclema.  
 laminatum—Lioclema.  
 lanceolata-america—Ptilodictya ex-  
     pansa.  
 largior—Fenestrapora.  
 largissima—Polypora.  
 lata—Prismopora.  
     —Rhinidictya.  
     —Unitrypa.  
     (Dicranopora)—Rhinidictya.  
     (Fenestella)—Unitrypa.  
 laticarina—Fenestella.  
 laticrescens—Ptiloporella.  
 latijuncturum—Semicoscinium.  
 latispiralis—Helicopora.  
 latitruncata—Polypora.  
 latum—Coscinium.  
 laxa—Proboscina.  
     (Archimedes)—Archimedes owen-  
         anus.  
     (Fenestella)—Archimedes.  
 laxata—Bythotrypa.  
 laxum—Chainodictyon.  
 laxum-minor—Chainodictyon.  
 laxis—Archimedes.  
 lens—Callopora.  
 lens (Fistulipora)—Callopora.  
     (Monticulipora)—Callopora circu-  
         laris.  
 lenticularis—Prasopora.  
 lepidodendroides—Rhombopora.  
 levinodata—Polypora.  
 libana—Escharopora.  
     —Stenopora.  
 lichenoides—Ptilodictya.  
     (Stromatopora)—Arthropora  
         shafferi.  
 lilaea—Polypora.  
 limata—Cystodictya.  
 limbata—Fenestella.  
 limbatus-remotus—Fenestella remota.  
 limitaris—Constellaria.  
     —Diplotrypa.  
     —Escharopora.  
     —Fenestella.  
     (Stellipora)—Constellaria.  
 lineanoda—Fenestella.  
 linearis—Cystodictya.  
 lineata—Cystodictya.  
     —Nematopora.  
     —Orthopora.  
     —Spatiopora.  
     (Crateripora)—Escharopora falci-  
         formis.  
     (Helopora)—Nematopora.  
     (Phractopora)—Phractopora cris-  
         tata.  
     (Rhombopora)—Orthopora.  
     (Trematopora)—Orthopora.  
 lineata-expansa (Crateripora)—Escha-  
     ropora falciformis.  
 lineata-incepta—Spatiopora.  
 lineata-major—Cystodictya.  
 lineata-sancti-ludovici—Cystodictya.  
 lineinodis—Rhombopora.  
 lineinodis-humilis—Rhombopora.  
 lineopora—Nematopora.  
 lirata—Phenopora.  
 lobata—Euspilopora.  
 loculata—Loculipora.  
 lodiensis—Fenestella.  
 longimacula—Fistulipora.  
 longispina—Lichenotrypa.  
 lunata—Buskopora.  
     (Fistulipora)—Buskopora.  
     (Lichenalia)—Buskopora den-  
         tata.  
 lunata-tubulata—Buskopora dentata.  
 lunulatum—Semicoscinium.  
 lycoperdon—Chatetes.

- lycoperdon (Prasopora) — Prasopora  
simulatrix.
- lycoperdon-selwyni—Prasopora.
- lycopodites—Favosites.  
(Chætetes)—Chætetes lycoperdon.
- lyelli—Fenestella.
- lyra (Fenestella) — Lyropora subquadrans-lyra.
- lyroides—Dichotrypa.
- maccoyana—Polypora.
- macropora—Callotrypa.  
—Nematopora.  
(Callopora)—Callotrypa.  
(Trematopora)—Nematopora.
- macropora-signata—Callotrypa.
- macrostoma—Eridopora.
- maculata—Atactopora.  
—Ceramopora.  
—Dekayia.  
—Escharopora.  
—Paleschara.  
(Leptotrypa)—Paleschara.  
(Monticulipora)—Dekayia.  
(Ptilodictya)—Escharopora.
- maculosa—Fistulipora.  
—Spatiopora.  
(Callopora)—Fistulipora.  
(Lichenalia)—Fistulipora.  
(Trematopora)—Fistulipora.
- maculosa - incepta — Spatiopora lineata-incepta.
- magna—Hederella.  
—Monotrypa.  
—Phænopora.  
(Stictopora)—Phænopora.
- magnifica—Fenestella.  
—Ptilodictya.
- magnipora—Pachydictya.
- magnopora—Callopora.
- magnoporum—Batostoma.
- major—Streblotrypa.
- mammillosa—Monticulipora molesta.
- mammulata—Monticulipora.  
(Monticulipora) (Nich.)—  
Heterotrypa frondosa.
- mammulatus (Quenstedt)—Chætetes.  
(Chætetes)—Monticulipora.  
—Heterotrypa frondosa.
- mammulata-molesta — Monticulipora molesta.
- manitobense—Batostoma.
- manitobensis—Polypora.
- marcida—Fenestella.
- marginalis—Fenestella.
- marginata—Pinacotrypa.  
(Polypora)—Polypora submarginata.
- maxima—Ceramopora.
- mediopora—Cœlocaulis
- meekana—Fenestella.  
—Stenopora.
- meekanus—Archimedes.
- meeki—Cystodictya.  
—Bythopora.  
—Helopora.  
(Chætetes)—Bythopora.  
(Homotrypella)—Bythopora.  
(Monticulipora)—Bythopora.  
(Ptilodictya)—Cystodictya.
- megastoma—Phractopora.
- membranacea—Berenicea.
- mexicana—Polypora.
- melinina—Glyptopora.  
(Phractopora)—Glyptopora sagenella-lata.
- microporum—Lioclema.
- microscopicus—Chætetes.
- microtrema—Fenestella.
- milfordensis — Ceramoporella granulosa-milfordensis.
- milleri—Mesotrypa.
- mimica—Fenestella.
- minima—Leptotrypa.  
—Prismopora.  
—Rhinidictya.  
(Eridopora)—Eridopora denticulata.
- minima-modesta—Rhinidictya.
- minus (Favosites) — Monotrypa spherica.
- minnesotense—Batostoma.
- minnesotensis—Berenicea.  
—Homotrypa.
- minnesotensis-montifera—Homotrypa.
- minor—Pinnatopora.  
—Rhombopora.
- minuta—Nematopora.  
(Fistulipora)—Lioclema.  
(Trematopora)—Nematopora.
- minutum—Lioclema.
- minutus—Bythopora delicatula.
- minutissimum—Lioclema.
- mirabile—Semicoscinium.
- missouriensis—Lioclema punctatum.
- modesta—Fenestella.
- molesta—Monticulipora.

moniliformis—Heterotrypa.  
     —Stomatopora.  
     (Amplexopora) — Heterotrypa.  
     (Chatetes)—Heterotrypa.  
     (Monticulipora) — Heterotrypa.  
 monticula—Monticulipora.  
 monticulata—Fistulipora.  
     —Monotrypa.  
 monticulatus (Chatetes)—Monotrypa.  
 montifera—Eurydictya.  
     —Spatiopora.  
     —Stenopora.  
 montuosum—Batostoma.  
 mucronata—Helopora.  
 multaculeatum—Lioclema.  
 multifida—Phænopora.  
 multigranosa—Atactoporella.  
 multiplex—Polypora.  
 multipora—Eurydictya.  
     —Rhombopora.  
     (Fistulipora) — Chiloporella nicholsoni.  
     (Phænopora)—Eurydictya.  
     (Stictopora) — Cystodictya incisurata.  
 multiporata—Homotrypella.  
     —Streblotrypa.  
 multiporata-lodiensis—Fenestella lodiensis.  
 multiramis—Ptilodictya.  
 multiramus—Thamniscus.  
 multispinosa—Dekayia.  
     —Fenestella.  
 multiseriata—Callotrypa.  
 multitabulata—Callopora.  
 multituberculata—Monotrypella quadrata.  
 mundula—Atactoporella.  
     —Homotrypella.  
     (Atactopora)—Atactoporella.  
 mundulum—Mitoclema.  
 muscatinensis—Chatetes.  
 mutabilis—Eridotrypa.  
     —Polypora.  
     —Rhinidictya.  
     (Fenestella)—Polypora.  
     (Stictopora)—Rhinidictya.  
 mutabilis-major—Rhinidictya.  
 mutabilis-minor—Eridotrypa.  
     (Stictopora) — Rhinidictya.  
 mutabilis-senilis—Rhinidictya.

nana—Tropidopora.  
     —Unitrypa.  
     (Fenestella)—Unitrypa.  
 nanus—Thamniscus.  
 nashvillensis—Rhinidictya.  
 nebulosa—Ptilodictya.  
 neglecta—Diplotrypa.  
     —Fistulipora.  
     —Rhinidictya.  
 neglecta-canadensis—Rhinidictya.  
 neglecta-maculata—Fistulipora.  
 negligens—Archimedes.  
 nereidis—Pinnatopora.  
 nereis—Ichthyorachis.  
 nervata—Ptiloporella.  
 nervia—Unitrypa.  
 nervia-constricta—Unitrypa.  
 newberryi—Aspidopora.  
 newportensis—Atactoporella.  
 nexa—Polypora.  
 nexilis—Fenestella.  
     (Alecto)—Batostoma implicatum.  
 niagarensis—Drymotrypa.  
 nicholsoni—Chiloporella.  
     —Fenestella.  
     —Rhinidictya.  
     (Ceramopora)—Chiloporella.  
     (Monticulipora) — Chiloporella.  
 nicklesi—Rhombopora.  
     —Streblotrypa.  
 nitida—Cystodictya.  
     —Lioclemella.  
     (Graptodictya)—Graptodictya perelegans.  
     (Trematopora)—Lioclemella.  
 nitidula—Batostomella.  
     —Dicranopora.  
     (Ptilodictya)—Dicranopora.  
 nodata—Pinnatopora.  
     —Reptaria.  
     (Glaucanome)—Pinnatopora.  
     (Ptilionella)—Reptaria.  
 nodocarinata—Polypora.  
 nododorsalis—Fenestella.  
 nodosa—Fenestella.  
     —Helopora.  
     —Hemitrypa.  
     —Monotrypa.  
     —Orthopora.  
     —Prasopora.  
     —Ptilodictya.  
     —Ptilopora.  
     —Trematella.

- nodosa—Trematopora.  
     (Trematopora)—Trematella.  
 nodulosa—Callopora.  
     —Callopoprella.  
     (Monticulipora)—Callopora.  
 nodulosus (Chætetes)—Callopora.  
 nodulifera—Fistulipora.  
 noe—Fenestella.  
 normalis—Fenestella.  
     —Fistulipora.  
 norwoodiana—Fenestella.  
 notha—Ceramopora.  
 nummiformis—Callopora.  
 nysa—Thamniscus.  
 obesa—Pachydictya.  
 obliqua—Eridotrypa.  
     —Homotrypa.  
     —Polypora.  
     —Ptilodictya.  
     —Rhinidictya.  
     —Streblotrypa.  
     (Stictopora)—Cystodictya incis-  
         urata.  
         —Ptilodictya.  
 obliquata—Ptilotrypa.  
 obliquatum—Semicoscinium lunulatum.  
 obliquus—Arthrostylus.  
 obscura—Dekayella.  
 obsoleta—Stictopora.  
 occidents—Lioclema.  
 occidentalis—Fenestrapora.  
     —Pachydictya.  
     —Tæniopora.  
 ocellata—Cystodictya.  
 octonarius—Thamniscus.  
 oculata—Prasopora.  
 oculifera—Callotrypa.  
 offula—Paleschara.  
 ohioensis—Ceramoporella.  
     —Lioclemella.  
     —Rhombopora.  
     —Stenopora.  
     (Callopora)—Lioclemella.  
     (Ceramopora)—Ceramoporella.  
     (Monticulipora)—Dekayella ul-  
         richi-robusta.  
 onealli—Callopora.  
     (Monticulipora (Heterotrypa))—  
         Callopora onealli-sigillarioides.  
 onealli-communis—Callopora.  
 onealli-sigillarioides—Callopora.  
 operculata—Pinacotrypa.  
 oppleta—Callopora.  
 orbiculata—Ceramopora.  
 orbiculata—Ceramopora.  
 orbipora—Orthopora.  
     —Stictotrypa.  
     (Stictopora)—Stictotrypa.  
     (Trematopora)—Orthopora.  
 ornata—Leptotrypa.  
     —Orthopora.  
     (Trematopora)—Orthopora.  
         —Trematopora pri-  
             migenia-ornata.  
 ortonii—Atactoporella.  
     (Chætetes)—Atactoporella.  
     (Monticulipora)—Atactoporella.  
         —Monotrypa no-  
             dosa.  
 osculum—Diamesopora.  
 ostiolata—Chilotrypa.  
 ottawaense—Hemiphragma.  
 ottawaensis—Astroporites.  
 ottawense—Hemiphragma.  
 ovalis—Lyropora.  
     —Nematopora.  
 ovata—Cystodictya.  
     —Fistulipora.  
     —Homotrypella.  
     —Stromatotrypa.  
     (Lichenalia)—Fistulipora.  
     (Stictopora)—Cystodictya.  
 ovatipora—Cystodictya.  
     —Orthopora.  
     (Stictopora) (Hall)—Cystodic-  
         tya.  
     (Miller)—Stictotrypa similis.  
     (Trematopora)—Orthopora.  
 ovatopora—Eschara.  
 ovatum—Acanthoclema.  
 owenanus—Archimedes.  
 oweni—Coeloclema.  
 paliformis—Glossotrypa.  
 palmipes—Euspilopora.  
 papillata—Monticulipora.  
 papillatus—Chætetes.  
 papillosa—Stictopora.  
 parallela—Fenestella.  
     —Orthopora.  
     —Ptilocella.  
     —Rhinidictya.  
     (Fenestella)—Loculipora locu-  
         lata.  
     (Ptilodictya) (James)—Rhini-  
         dictya.  
         (H. & S.)—Ptilo-  
             cella.

parallela (Trematopora)—Orthopora.  
 parasitica—Idiotrypa.  
     —Monticulipora.  
     —Sphragiopora.  
     (Callopore)—Lioclema and  
     Celocaulis mediopora.  
     (Fistulipora)—Lioclema.  
 parasitica-plana—Monticulipora.  
 parasiticum—Lioclema.  
 parmula—Aspidopora.  
 parmula-fenestelliformis—Aspidopora.  
 parva—Constellaria.  
     —Dicranopora.  
     —Stomatopora.  
     (Monticulipora)—Constellaria.  
 parvicella—Ceramopora.  
 parvula—Bythopora.  
 parvulipora—Fenestella.  
 patella—Mesotrypa.  
 patellifera—Fenestella variopora.  
 pateriformis—Hemitrypa.  
 patula—Stenopora.  
 paucipora—Callotrypa.  
 paucirama—Prismopora.  
 pauciramus—Thamniscus.  
 paupera—Heterotrypa.  
     —Ptilopora.  
     —Rhinidictya.  
     (Stictopora)—Rhinidictya pau-  
     pera and neglecta.  
 pavonia—Escharopora.  
 pavonica—Escharopora pavonia.  
 paxillata—Polypora.  
 peculiaris—Actinotrypa.  
     —Fenestella.  
     (Fistulipora)—Actinotrypa.  
 pediculata—Rhinidictya.  
 pelliculata—Dekayia.  
 penniformis—Tæniopora.  
     (Ptilionella)—Reptaria stolo-  
     nifera.  
 perampla—Crepipora.  
 perangulata—Polypora.  
 perantiqua—Gorgonia.  
 perarcta—Cystodictya.  
 perelegans—Callopore.  
     —Fenestella.  
     —Graptodictya.  
     (Ptilodictya)—Graptodictya.  
 perforata—Loculipora.  
 permarginata—Fistulipora.  
     —Stictopora.  
     (Fenestella)—Semicoscini-  
     um.

permarginata (Lichenalia)—Fistulipora.  
 permarginatum—Semicoscinium.  
 perminimus—Archimedes.  
 perminuta—Fenestella.  
     —Strotopora.  
 pernodosa—Unitrypa.  
 perplexa—Fenestella.  
 persimilis—Rhombopora.  
 perspinulata—Trematella.  
 perstriata—Hemitrypa.  
 pertenuis—Paleschara.  
     —Phacelopora.  
     (Fenestella)—Fenestella prou-  
     tana.  
     (Rhopalonaria)—Stomatopora  
     delicatula.  
 pertollata—Reteporina.  
 perundata—Reteporidra.  
 perundulata—Reteporina.  
 perversa—Cycloporella.  
 petasiformis—Amplexopora.  
 petasiformis-welchi—Amplexopora.  
 petechialis—Petigopora.  
 petropolitanus—Chætetes.  
     (Chætetes)—Mesotrypa  
     whiteavesi.  
 philia—Fenestella.  
 phillipsi—Reteporina.  
 pinnata—Phractopora.  
     —Ptiloporina.  
     —Septopora.  
     (Fenestella)—Ptiloporina.  
     (Glyptopora)—Phractopora.  
     (Pinnaporina)—Ptiloporina.  
 plana—Pinacotrypa.  
 planiramosa—Fenestella.  
     (Fenestella) (Lower Helder-  
     berg)—Polypora.  
 planodorsatum—Semicoscinium.  
 platyphylla—Phænopora expansa.  
 plumaria—Ptilodictya.  
 plumea—Stictoporina.  
 plumosa—Glyptopora.  
     —Hemitrypa.  
     (Fenestella)—Hemitrypa.  
 plumosum (Coscinium)—Glyptopora and  
     Glyptopora sagenella-caliculosa.  
 polygona—Orthopora.  
 polymorpha—Stenopora tuberculata.  
 polystomell—Constellaria.  
     (Monticulipora)—Constella-  
     ria constellata and polysto-  
     mella.  
 ponderosa—Anolotichia.

- ponderosa—*Nicholsonella*.  
     —*Ptilodictya*.  
     (Calloporea)—*Lioclema*.  
     (Fistulipora)—*Lioclema*.  
     (Fistuliporina)—*Lioclema*.  
     (Trematopora) — *Fistulipora*  
         *maculosa*.  
 ponderosum—*Lioclema*.  
 ponderosus—*Chaetetes*.  
 popeana—*Fenestella*.  
 porosa—*Polypora*.  
 præcursor—*Unitrypa*.  
 prænuntia—*Dekayella*.  
 prænuntia-multipora—*Dekayella*.  
 prænuntia-nævigera—*Dekayella*.  
 prænuntia-simplex—*Dekayella*.  
 prima—*Rhinopora*.  
     (Hemitrypa)—*Unitrypa nervia*.  
 primigenia—*Trematopora*.  
 primigenia-ornata—*Trematopora*.  
 primigenia-spinosa—*Trematopora*.  
 primitiva—*Berenicea*.  
 prisca—*Reteporina*.  
     —*Streblotrypa*.  
     (Cavea)—*Streblotrypa*.  
     (Fenestella)—*Semicoscinium tenu-*  
         *iceps*.  
     (Retepora)—*Reteporina*.  
 proceritas—*Fenestella*.  
 projecta—*Unitrypa acaulis*.  
 prolifera—*Acrogenia*.  
 prolifica—*Fistulipora*.  
     (Heterotrypa)—*Heterotrypa sub-*  
         *ramosa-prolifera*.  
     (Monticulipora) — *Heterotrypa*  
         *subramosa-prolifera*.  
 proluxa—*Fenestella*.  
 proporoides (Fistulipora) — *Pinacotrypa*  
     *elegans*.  
 propria (Fenestella)—*Polypora*.  
 proutana—*Fenestella*.  
     —*Hemitrypa*.  
     (Stomatopora) — *Stomatopora*  
         *delicula*.  
 proutana-nodulosa—*Hemitrypa*.  
 proutana-vermifera—*Hemitrypa*.  
 proutanus—*Archimedes*.  
 prouti—*Ptilopora*.  
 proxima—*Monotrypa*.  
 proximus (Favosites)—*Monotrypa*.  
 psyche—*Polypora*.  
 pulchella—*Calloporea*.  
     —*Fenestella*.  
     —*Polypora*.  
 pulchella—*Rhombopora*.  
 pulchella-persimilis—*Calloporea*.  
 pulchellum—*Arthroclema*.  
 pulchellus (Chaetetes)—*Calloporea an-*  
     *drewsi*.  
 pulchra—*Nicholsonella*.  
 pumila—*Pachydictya*.  
 pumila-sublata—*Pachydictya*.  
 punctata—*Constellaria*.  
     —*Phænopora*.  
     —*Trematopora*.  
     (Calloporea)—*Lioclema*.  
     (Monticulipora)—*Constellaria*.  
     (Ptilodictya)—*Phænopora*.  
 punctatum—*Lioclema*.  
 punctifera—*Eridopora*.  
 punctillatum—*Lioclema*.  
 punctipora—*Glyptopora*.  
     —*Stictotrypa*.  
     (Stictopora)—*Stictotrypa*.  
 punctostriata—*Polypora*.  
 pustulosa—*Amplexopora*.  
     —*Cystodictya*.  
     —*Fistulipora*.  
     (Lichenalia)—*Fistulipora*.  
     (Monticulipora)—*Amplexopora*.  
 puteolata—*Intrapora*.  
 pyriformis—*Buskopora*.  
 quadrangula—*Fenestella*.  
 quadrangularis—*Leptotrypa*.  
     —*Polypora*.  
     (Chaetetes) — *Leptotrypa*  
         *quadrangularis*.  
     (Fenestella)—*Polypora*.  
     (Paleschara)—*Leptotrypa*.  
 quadrata—*Helopora*.  
     —*Monotrypella*.  
     (Monticulipora)—*Monotrypella*.  
     (Nematopora) — *Nematopora*  
         *ovalis*.  
 quadrata-subquadrata—*Monotrypella*  
     *subquadrata*.  
 quadratus (Chaetetes)—*Monotrypella*.  
 quadula—*Unitrypa*.  
 quebécensis—*Mesotrypa*.  
 quinquerradiata—*Evactinopora*.  
 quincuncialis—*Lyropora*.  
 radialis—*Polypora*.  
     —*Streblotrypa*.  
     —*Vinella*.  
 radiata—*Ceramopora*.  
     —*Evactinopora*.  
     —*Lichenalia*.  
     —*Paleschara*.

- radiata—Scenellopora.  
 radiciformis-conferta—Vinella.  
 ramosa—Atactoporella.  
     —Callopora.  
     —Ceriopora.  
     —Escharopora.  
     —Fistulipora.  
     —Stenopora.  
     —Stictopora.  
     (Eschara)—Phænopora fimbriata.  
     (Lichenalia)—Fistulipora.  
     (Monticulipora)—Callopora.  
     (Ptilodictya)—Escharopora.  
 ramosa-dalei—Callopora dalei.  
 ramosa-rugosa—Callopora rugosa.  
 ramosus (Chaetetes)—Callopora.  
 ramulosa—Anisotrypa.  
     —Tæniodictya.  
 ramulosa-burlingtonensis—Tæniodictya.  
 ramulosus—Thamniscus.  
 ramulosus-sevillensis—Thamniscus sevillensis.  
 ranosculum—Lyropora.  
 raripora—Ceramopora.  
     —Nematopora.  
     (Ptilodictya)—Nematopora.  
     (Stictopora)—Nematopora.  
 recta—Cystodictya.  
     —Escharopora.  
     —Stomatopora.  
     (Escharopora)—Escharopora falci-formis.  
     (Stictopora)—Cystodictya.  
 recta-nodosa—Escharopora.  
 rectangularis (Monticulipora)—Monotrypella quadrata.  
 rectilatera (Stictopora)—Cystodictya.  
 rectilinea—Cystodictya.  
     —Trematopora.  
 rectimuralis—Monotrypa.  
 rectistyla—Septopora.  
 recubans—Tæniopora.  
 regalis—Fenestella.  
 regalis-macra—Fenestella.  
 regularis—Mesotrypa.  
     —Orthopora.  
     —Streblotrypa.  
     (Diplotrypa)—Mesotrypa.  
     (Rhombopora)—Orthopora.  
     (Trematopora)—Orthopora.  
 remota—Fenestella.  
 repens—Vinella.  
 reticulata—Eschara.  
     —Orthopora.  
 reticulata—Paleschara.  
     —Phylloporina.  
     (Intricaria)—Phylloporina.  
     (Rhombopora)—Orthopora.  
     (Subretepora)—Phylloporina.  
     (Trematopora)—Orthopora.  
 retiformis—Gorgonia.  
     (Ptilodictya)—Stictopora.  
 retrorsa—Lyropora.  
     —Nematopora.  
     —Polypora.  
     (Fenestella)—Lyropora.  
     (Unitrypa)—Unitrypa tegulata.  
 reversa—Arthropora.  
     (Archimedes)—Archimedes wortheni.  
 rhombicum—Semicoscium.  
 rhombicus—Cœloconus.  
     (Chaetetes)—Monotrypella quadrata.  
 rhombifera—Orthopora.  
     —Reteporina.  
     —(Fenestella)—Reteporina.  
     (Trematopora)—Orthopora  
     rhombifera and Stictopora  
     granatula.  
 rhomboidea—Tæniodictya.  
     (Cycloporina)—Semicoscium semirotundum.  
     (Stictopora)—Tæniodictya.  
 rhomboideum—Semicoscium.  
 richfieldensis—Fenestella.  
 rigida—Cystodictya.  
     —Polypora.  
     —Stictoporella.  
     (Fenestella)—Polypora.  
     (Stictopora)—Cystodictya.  
 robusta—Amplexopora.  
     —Pachydictya.  
     —Polypora.  
     —Septopora.  
     (Fenestella)—Polypora.  
 robusta-intermedia—Septopora.  
 romingeri—Fistulipora.  
 rotunda—Mesotrypa.  
 rudis—Fenestella.  
     —Stenopora.  
     (Pachydictya)—Pachydictya crassa.  
     (Ptilodictya)—Pachydictya crassa.  
 rugosa—Callopora.  
     (Fistulipora)—Batostoma.  
     (Monticulipora)—Callopora.  
 rugosum—Batostoma.  
 rugosus—Chaetetes.

- rugosus (Chætetes)—Callopora.  
 rustica—Homotrypella.  
     —Polypora.  
     (Fenestella)—Polypora.  
     (Monticulipora)—Callopora.  
     (Pachydictya)—Pachydictya  
         crassa.  
     (Ptilodictya)—Pachydictya crassa.  
 saffordi—Fistulipora.  
 saganella (Coscinium)—Glyptopora sage-  
     nella.  
     —Glyptopora.  
     (Phractopora)—Glyptopora  
         michelinia.  
 saganella-caliculosa—Glyptopora.  
 sagenella-lata—Glyptopora.  
 sancti-ludovici—Fenestralia.  
 sancti-ludovici-compacta—Fenestralia  
     compacta.  
 scabiosa—Petigopora.  
 scalaris—Unitrypa.  
 scalariformis—Scalaripora.  
 schucherti—Atactoporella.  
 scidacea—Ceramella.  
 scitula (Pachydictya)—Pachydictya  
     crassa.  
     (Stictopora)—Cystodictya.  
 scrobiculata—Crisinella.  
     —Fistulipora.  
     (Crisina)—Crisinella.  
     (Fistuliporina)—Fistulipora.  
     (Thallostigma)—Fistulipora.  
 scutulata—Stictoporina.  
     —Streblotrypa.  
     (Ptilodictya)—Stictoporina.  
     (Stictopora)—Stictoporina.  
     (Trematopora) (Upper Helder-  
         berg)—Orthopora.  
     (Trematopora) (Hamilton)—  
         Streblotrypa.  
 sculptilis—Thamniscus.  
     (Fenestella)—Fenestella stel-  
         lata.  
 scutulata—Orthopora.  
 scutulatum (Acanthoclema)—Streblotrypa.  
 segregatum—Lioclema.  
 selkirkensis—Mesotrypa.  
 selwyni—Prasopora.  
     (Monticulipora)—Prasopora simu-  
         latrix and Prasopora selwyni.  
 selwyni-hospitalis—Prasopora hospitalis.  
 semipilaris—Leptotrypa.  
 semireducta—Clonopora.  
 semirotundum—Semioscinium.  
 semistriata—Cystodictya.  
 separata—Homotrypa.  
     —Polypora.  
     —Scalaripora.  
     (Fenestella)—Polypora.  
 septosa—Amplexopora.  
 sereata—Prismopora serrata.  
 serialis—Fistulipora.  
 serrata—Euspilopora.  
     —Fenestella.  
     —Prismopora.  
 serratula—Fenestella.  
 serrulata—Pinacotrypa.  
     —Prismopora.  
     (Fistuliporina)—Pinacotrypa.  
     (Thallostigma)—Pinacotrypa.  
 sevillensis—Fenestella.  
     —Thamniscus.  
 sexradiata—Evactinopora.  
 shafferi—Arthropora.  
 shafferi-cleavelandi—Arthropora.  
 shumardi—Fenestella.  
     —Polypora.  
     (Fenestella)—Fenestella per-  
         elegans.  
     (Protoretetopora)—Polypora.  
 sigillarioides—Callopora onealli-sigilla-  
     rioides.  
 signata—Stenopora.  
     (Trematopora)—Callotrypa ma-  
         cropora-signata.  
 siluriana—Gorgonia.  
 similis—Homotrypa.  
     —Stictotrypa.  
     (Stictopora)—Stictotrypa.  
 simplex—Arthropora.  
     —Bactropora.  
     —Nemataxis.  
     (Monotrypella)—Eridotrypa.  
 simulans—Crepidopora.  
     —Cystodictya.  
 simulatrix—Eridotrypa.  
     —Pinnatopora.  
     —Polypora.  
     —Prasopora.  
     —Rhombopora.  
     (Monticulipora)—Eridotrypa.  
 simulatrix-orientalis—Prasopora.  
 singularis—Heterotrypa.  
     —Trematopora.  
     (Callopora)—Trematopora.  
     (Fenestella)—Fenestella singu-  
         laritas.



singularis (Monticulipora)—Heterotrypa.  
 singulare—Trematopora.  
 singularitas—Fenestella.  
 sinistralis—Ptilopora.  
 sinuosa—Cystodictya.  
     —Fenestella.  
     Pinnatopora.  
     (Glaucanome)—Pinnatopora.  
     (Stictocella)—Cystodictya.  
     (Stictopora)—Cystodictya.  
 socialis—Botryllopora.  
 solida—Anisotrypa.  
     —Crepipora.  
     —Homotrypa.  
     (Trematopora)—Homotrypa.  
 solidissima—Lioclemella.  
 solitaria—Heterotrypa.  
 sparsa (Trematopora)—Diploclema.  
 sparsipora—Prismopora.  
 sparsum—Diploclema.  
 spatiosa—Crepipora.  
     (Unitrypa)—Unitrypa lata.  
 spatulata—Worthenopora.  
 spergenensis—Fistulipora.  
 sphaerica—Monotrypa.  
 sphaerion—Leptotrypa.  
 spherioideum—Lioclema.  
 spiculata—Trematopora.  
 spinifera—Cycloporella.  
 spiniformis—Helopora.  
 spininodata—Polypora.  
 spinosa—Mesotrypa.  
     —Worthenopora.  
 spinosula (Monotrypa)—Monotrypa spinulosa.  
 spinulifera—Fistulipora.  
     —Polypora.  
 spinulosa—Batostomella.  
     —Bythopora.  
     —Monotrypa.  
     (Trematopora) (Hall, 1852)—  
         Bythopora.  
     (Trematopora) (Hall, 1876)—  
         Trematopora spiculata.  
 spio—Fenestella.  
 spiralis—Rhombopora.  
 spissa—Fenestella.  
 splendens—Pachydictya.  
 stidhami—Leptotrypa.  
 stipata (Fenestella)—Unitrypa tegulata.  
 stellata—Ceramoporella.  
     —Fenestella.  
     —Patellipora.  
     —Pinacotrypa.

stellata (Fistuliporina)—Pinacotrypa.  
     (Lichenalia)—Pinacotrypa.  
 stellatum—Ascodictyon.  
 stellifera—Meekopora.  
 sterlingensis—Eurydictya.  
 stolonifera—Reptaria.  
 stragula—Polypora.  
 strata (Fenestella)—Reteporina striata.  
 striata—Bythopora.  
     —Callotrypa.  
     —Pinnatopora.  
     —Ptilopora.  
     —Reteporina.  
     —Stictopora.  
     —Streblotrypa.  
     —Trematopora:  
         (Callopora)—Callotrypa.  
         (Sagenella)—Escharopora falciformis.  
         (Thallostigma)—Lioclema minutum.  
 striatopora—Nematopora.  
     —Polypora.  
     (Fenestella)—Polypora.  
     (Helopora)—Nematopora.  
 striatum—Arthroclema.  
     —Coscinium.  
 striaturum—Coscinium.  
 stricta—Polypora.  
 strigosa—Nematopora.  
 subæquata—Crepipora.  
 subangulata—Pinnatopora.  
 subannulata—Rhombopora.  
 subcarinata—Tæniopora.  
 subcava—Fistulipora.  
 subconcava—Scalaripora.  
 subcylindrica—Amplexopora filiosa.  
 subflexuosa—Fenestella.  
 subfusiformis—Lioclemella.  
 subglobosa—Monotrypa turbinata.  
 subglobosum—Lioclema.  
 subgracilis—Homotrypella.  
 subimbricata—Diamesopora.  
 sublaxa—Phylloporina.  
 sublaxus—Archimedes.  
 submarginata—Polypora.  
 submutans—Polypora.  
 subnodosa—Callopora.  
 subplana—Callopora.  
 subpulchella—Heterotrypa.  
 subquadrans—Lyropora.  
     —Septopora.  
 subquadrans-lyra—Lyropora.  
 subquadrata—Monotrypella.

- subquadrata—Orthopora.  
     (Trematopora)—Orthopora.  
 subramosa—Heterotrypa.  
     —Homotrypa.  
     (Atactopora)—Heterotrypa.  
 subramosa-insignis—Homotrypa.  
 subramosa-prolifera—Heterotrypa.  
 subrecta—Escharopora.  
     —Tæniodictya.  
     (Ptilodictya)—Escharopora.  
 subretiformis—Fenestella.  
 subrigida—Cystodictya.  
 subrotundus—Chætetes.  
 subspinosa—Streblotrypa.  
 substellata—Fistulipora.  
 substriata—Unitrypa.  
 subtile—Lioclema.  
 subortile—Semicoscinium.  
 subtrigona—Fistulipora.  
 subtriquetra—Prismopora triquetra.  
 sulcata—Cystodictya.  
     —Fistulipora.  
     —Ptilodictya.  
     (Stictopora)—Cystodictya.  
 sulcatum—Acanthoclema.  
 sulcifera—Rhombopora.  
 superba—Phænopora.  
     —Trematopora.  
     (Amplexopora) (Foord)—Batos-  
     toma.  
     (Amplexopora) (Ulrich)—Batos-  
     toma minnesotense.  
     (Phyllopora) — Reteporida pe-  
     rundata.  
     (Ptilodictya)—Phænopora.  
 superbum—Batostoma.  
 swallovanus—Archimedes.  
 sylvia—Fenestella.  
 symmetra—Ptilodictya.  
 symmetrica—Anisotrypa.  
 tabulata—Monotrypa.  
     —Rhombopora.  
 tabulatum (Ptychonema)—Monotrypa.  
 tabulatus (Chætetes)—Monotrypa.  
 tantula—Polypora.  
 tarda—Ptilodictya.  
 tegulata—Unitrypa.  
 tenax—Fenestella.  
 tenella—Atactoporella.  
     —Fenestella.  
     —Polypora.  
     (Atactopora)—Atactoporella.  
 tenera—Hemitrypa.  
     —Ptilodictya.  
 tenue (Arthronema)—Arthrostylus.  
 tenuiceps—Semicoscinium.  
     (Fenestella) (Hall) — Semicos-  
     cinium.  
     (Fenestella) (Nich.) — Fenes-  
     tella arkonensis.  
 tenuimurale—Hemiphragma.  
 tenuirama—Rhombopora.  
 tenuiramosa—Pinnatopora.  
 tenuis—Arthrostylus.  
     —Chætetes.  
     —Fenestella.  
     —Paleschara.  
     —Phænopora.  
     (Escharopora)—Phænopora.  
     (Helopora)—Arthrostylus.  
     (Ptilodictya)—Phænopora.  
 tenuissima—Stomatopora delicatula-tenu-  
     issima.  
 tenuistriata—Pinnatopora.  
 terebriformis—Archimedes.  
 teres—Ptilodictya nodosa.  
 tessellata—Favicella.  
 thyene—Semicoscinium.  
 torta—Fistulipora.  
     (Fenestella)—Semicoscinium.  
     (Lichenalia)—Fistulipora torta and  
     Fistulipora triserialis.  
 tortilinea—Orthopora.  
 tortuosa—Fistulipora serialis.  
 tortum—Semicoscinium.  
 transversa—Orthopora.  
     —Polypora.  
     (Fenestella) — Unitrypa tegu-  
     lata.  
     (Rhombopora)—Orthopora  
     hexagona.  
     (Trematopora)—Orthopora.  
 transversalis—Rhombopora.  
 trentonense—Cœloclema.  
     —Diploclema.  
 trentonensis—Dekayella.  
     —Eridotrypa.  
     —Phylloporina.  
     —Rhiniidictya.  
     (Dekayia)—Dekayella.  
     (Diamesopora)—Cœloclema.  
     (Dicranopora)—Rhiniidictya.  
     (Monticulipora) — Eridotry-  
     pa.  
     (Monotrypella)—Eridotrypa.  
     (Retepora)—Phylloporina.  
     (Subretopora) — Phyllopo-  
     rina.

triangularis—Fistulipora.  
 triangulata—Prismopora.  
 trifaria—Fistulipora.  
 trifolia—Phractopora.  
 trilineata—Cystodictya.  
     —Pinnatopora.  
     (Glauconome)—Pinnatopora.  
     (Stictopora)—Cystodictya.  
 triloba—Fistulipora.  
 triquetra—Prismopora.  
 triseriale—Acanthoclema.  
 triserialis—Fenestella.  
     —Pachydictya.  
     (Stictopora)—Acanthoclema.  
 trituberculata—Fenestella.  
 tuberculata—Eschara.  
     —Fenestella.  
     —Fistulipora.  
     —Homotrypa.  
     —Polypora.  
     —Spatiopora.  
     —Stenopora.  
     (Flustra)—Stenopora.  
     (Monticulipora)—Spatiopora.  
         (Nich.)—Spatio-  
         pora corti-  
         cans.  
     (Polypora)—Polypora arkon-  
     ensis.  
 tuberculatum—Semicoscium.  
     (Coscium)—Fistulipora.  
 tuberculatus (Chaetetes)—Spatiopora.  
     (Nich.)—Spatio-  
     pora corti-  
     cans.  
 tuberculosa—Rhinopora.  
     —Trematopora.  
 tubulosa—Diamesopora.  
     —Rhinopora.  
     (Trematopora)—Diamesopora.  
 tumulosa—Cystodictya.  
     —Proboscina.  
     (Stictopora)—Cystodictya.  
 turbinata—Monotrypa.  
 turgida—Pachydictya.  
     —Stomatopora.  
 typicalis—Aactoporella.  
 typicalis-præcepta—Aactoporella.  
 ulrichi—Dekayella.  
     —Helicopora.  
     —Hemitrypa.  
     (Monticulipora)—Dekayella.  
 ulrichi-robusta—Dekayella.  
 umbilicata—Fistulipora.

undulata—Callopora.  
     —Intrapora.  
     —Monotrypa.  
     (Monticulipora)—Monotrypa.  
     (Reteporella)—Reteporida per-  
     undata.  
     (Stictoporella)—Intrapora.  
 undulata-hemispherica—Monotrypa.  
 undulatus (Chaetetes)—Monotrypa.  
 uniformis—Peronopora compressa.  
 unilinea—Fistulipora.  
 unispina—Callotrypa.  
 unjiga—Monotrypella.  
 utriculus—Fistulipora.  
 valida—Ptilopora.  
 vancelevii—Phænopora funbriata.  
 varia—Chilotrypa.  
     —Constellaria.  
     —Polypora.  
     —Phyllodictya.  
     (Diamesopora)—Chilotrypa.  
     (Fenestella)—Polypora.  
     (Rhombopora)—Rhombopora vari-  
     ans.  
     (Trematopora)—Chilotrypa.  
 variabile (Batostoma)—Batostoma vari-  
     ans.  
 variabilis—Fenestella.  
     —Ptilodictya.  
     (Ptilodictya)—Ptilodictya  
     nodosa.  
 variacella—Paleschara.  
 varians—Batostoma.  
     —Rhombopora.  
     (Chaetetes)—Batostoma.  
     (Monticulipora)—Batostoma.  
 variapora—Fenestella.  
     —Pinacotrypa.  
     (Fistulipora)—Pinacotrypa.  
     (Thallostigma)—Pinacotrypa.  
 variolata—Chilotrypa.  
     —Phylloporina.  
     (Phyllopora)—Phylloporina.  
     (Subretepora)—Phylloporina.  
     (Trematopora)—Chilotrypa.  
 variolatus—Thamniscus.  
 variopora (Fistuliporina)—Pinacotrypa.  
 varipora—Helopora.  
 varium—Batostoma.  
 varsoviensis—Polypora.  
 vaupeli—Nicholsonella.  
     (Diamesopora)—Cœloclema alter-  
     natum.  
     (Heterotrypa)—Nicholsonella.

- vaupeli (Monticulipora)—Nicholsonella.  
 venosa—Rhinopora.  
     —Rhopalonaria.  
 venusta—Cœlocaulis.  
     —Crepipora.  
         (Calloporea)—Cœlocaulis  
         (Monticulipora)—Crepipora.  
 venustus (Chætetes)—Crepipora.  
 vera—Fenestella.  
     —Peronopora.  
 vermicula—Cystodictya.  
 verrucosa—Fenestella.  
     —Rhinopora.  
         (Monticulipora)—Calloporella  
         nodulosa.  
 vesiculata—Fistulipora.  
 vesiculosa—Berenicea.  
     —Trematopora.  
 vinei—Pinnatopora.  
 virgulacea—Septopora biserialis.  
 wachsmuthi—Lioclema.  
 welchi—Amplexopora petasiformis-  
     welchi.  
 welshi—Phænopora multifida.  
 westoni—Diplotrypa.  
     —Monticulipora.  
 wetherbyi—Monticulipora.  
 wetherbyi-asperula—Petigopora asperula.  
 whiteavesi—Mesotrypa.  
     —Ptilodictya.  
         (Monticulipora)—Mesotrypa.  
         (Monticulipora)—Prasopora  
         selwyni.  
 whiteavesi (Monticulipora)—Prasopora  
     simulatrix-orientalis.  
 whitei—Ceramoporella.  
     —Pinnatopora.  
     —Polypora.  
         (Ceramopora)—Ceramoporella.  
 whitei-eximia—Polypora whitei-  
     insculpta.  
 whitei-insculpta—Polypora.  
 whitii (Glaucanome)—Pinnatopora.  
 whitfieldi—Hemiphragma.  
     —Ptilodictya.  
     —Trematopora.  
         (Monticulipora)—Hemi-  
         phragma.  
 wilmingtonense—Lioclema.  
 wilmingtonensis—Phænopora.  
 winchelli—Batostoma.  
     —Monticulipora.  
         (Amplexopora)—Batostoma.  
 winchelli-nodosum—Batostoma.  
 winchelli-spinulosum—Batostoma.  
 wortheni—Archimedes.  
     —Coscinium.  
     —Fenestella.  
     —Monticulipora.  
     —Rhombopora.  
         (Fenestella (Archimedes))—  
         Archimedes.  
 youngi—Pinnatopora.  
 zigzag—Cystodictya.

## INDEX OF AUTHORS AND THEIR PAPERS.

	Page.
Ami. 1892. Cambro-Sil. Foss.: Canad. Record Science, V .....	147
1895. Notes on Canadian Foss. Bryozoa: Canad. Record Science, VI ..	148
Bassler. See Harper and Bassler.	
Billings. 1859. Chazy Foss.: Canad. Nat. Geol., IV .....	128
1862. Pal. Fos., I .....	129
1865. New Pal. Foss.: Canad. Nat. (2), II .....	130
1866. Sil. Foss. Island Anticosti .....	130
1874. Pal. Foss., II .....	132
Buel. 1882. Corals of Delafield: Trans. Wis. Acad. Sci., V .....	139
Castelnau. 1843. Systeme Silurien .....	126
Claypole. 1881. Archimediiform Fenestellid: Proc. Amer. Assoc. Adv. Sci., XXX .....	138
1883. On Helicopora: Quar. Jour. Geol. Soc. London, XXXIX ...	140
Cole. 1893. On Hemitrypa hibernica, McCoy: Sci. Proc. Roy. Dublin Soc. (n. s.), VIII .....	147
Conrad. 1841. Appendix to Hodge's Second. Tert. Formations: Am. Jour. Sci., XLI .....	152
1847. On the Eocene Formation: Proc. Acad. Nat. Sci. Phila., III; Jour. Acad. Nat. Sci. Phila. (2), I .....	153
1855. Miocene and Post-Pliocene of Calif.: Proc. Acad. Nat. Sci. Phila., VII .....	153
Credner. 1870. Die Kreide von New Jersey: Zeitsch. Deutsch. Geol. Gesellsch., XXII .....	158
Dana. 1846. Zoophyta .....	126
Davis. 1885. Kentucky Foss. Corals .....	142
Dawson. 1868. Acadian Geol., ed. 2 .....	131
Dyer. See Miller and Dyer.	
Eaton. 1832. Geol. Text-book .....	125
Emmons. 1858. North Carolina Geol. Sur .....	153
Etheridge, Jun. See Nicholson and Etheridge, Jun.	
Foerste. 1887. Flint Ridge Bryozoa: Bull. Sci. Lab. Denison Univ., II .....	143
1887. Clinton Group of Ohio: Bull. Sci. Lab. Denison Univ., II ....	143
1887. Recent Methods in study of Bryozoa: Science, X .....	143
1888. Notes on Pal. Foss.: Bull. Sci. Lab. Denison Univ., III .....	144
1889. Clinton Group Foss.: Proc. Boston Soc. Nat. Hist., XXIV ...	145
1895. Foss. Clinton Group: Geol. Sur. Ohio, VII .....	148
Foord. 1883. Contrib. Micro-Pal. Cambro-Sil .....	140
1884. Monticuliporoid Corals: Ann. Mag. Nat. Hist. (5), XIII .....	141
See also Nicholson and Foord.	
Gabb and Horn. 1860. New Cret. Corals: Proc. Acad. Nat. Sci. Phila., XII..	153
1860. New Amer. Tert. Cret. Foss.: Jour. Acad. Nat. Sci. Phila. (2), IV .....	154
1862. Mon. Second. Tert. Foss. Polyz.: Jour. Acad. Nat. Sci. Phila. (2), V .....	154
Geinitz. 1867. Carb. Dyas in Nebraska: Verh. Leopoldino-Carol. Akad. Naturf., XXXIII .....	131
Grabau. 1899. Geol. Pal. Eighteen-Mile Creek: Bull. Buffalo Soc. Nat. Sci., VI .....	150
1900. Faunas of Hamilton Group of Eighteen-Mile Creek: Sixteenth Ann. Rep. State Geol. New York .....	150

	Page.
Gregorio. 1890. Monographie Faune Eocenique Alabama .....	159
Haime. See Milne-Edwards and Haime.	
Hall. 1847. Pal. New York, I. ....	126
1851. Pal. Foss.: Foster and Whitney's Geol. Lake Superior Land District .....	126
1851. New Genera Foss. Corals: Amer. Jour. Sci. Arts (2), XI. ....	127
1852. Pal. New York, II .....	127
1857. Archimedes or Fenestella: Amer. Jour. Sci. Arts (2), XXIII ...	128
1857. Archimedes or Fenestella: Proc. Amer. Assoc. Adv. Sci., X .....	128
1858. Geol. Sur. Iowa, I, Pal .....	128
1860. Sil. Foss. Nova Scotia: Canad. Nat. Geol., V .....	129
1874. Lower Helderberg Bryozoa: Twenty-sixth Ann. Rep. New York State Museum .....	132
1876. Illustrations Devonian Fossils .....	135
1876. Fauna Niagara Group in Indiana: Twenty-eighth Ann. Rep. New York State Museum (doc. ed.) .....	135
1879. Niagara Foss. from Waldron, Ind.: Twenty-eighth Ann. Rep. New York State Mus. (Mus. ed.) .....	137
1879. New species from the Niagara at Waldron, Ind.: Trans. Albany Inst., X, 1883 .....	137
1880. Lower Held. Corals and Bryozoans: Thirty-second Ann. Rep. New York State Mus. ....	138
1881. Bryoz. Upper Held. and Hamilton Groups: Trans. Albany Inst., X, 1883 .....	138
1882. Niagara Foss. from Waldron, Ind.: Eleventh Ann. Rep. Indiana Geol. Nat. Hist. ....	139
1883. Genus Fenestella: Rep. State Geol. New York for 1882. ....	141
1883. Bryoz. Upper Held. Group: Rep. State Geol. New York for 1882. ....	141
1883. Van Cleve's Foss. Corals: Twelfth Ann. Rep. Indiana Geol. Nat. Hist. ....	140
1884. Bryozoans Ham. Group: Rep. State Geol. New York for 1883. ....	141
1884. Bryozoans Ham. Group: Thirty-sixth Ann. Rep. New York State Mus. ....	141
1885. Growth of the Fenestellidæ: Rep. State Geol. New York for 1884. ....	142
1886. Bryoz. Upper Held. Group: Fifth Ann. Rep. State Geol. New York for 1885. ....	142
1887. Fenestellidæ of the Ham. Group: Sixth Ann. Rep. State Geol. New York for 1886. ....	143
1888. New Species of Fenestellidæ: Rep. State Geol. New York for 1887; Forty-first Ann. Rep. New York State Mus. ....	144
1891. Descriptions of Bryozoa: Tenth Ann. Rep. State Geol. New York for 1890; Forty-fourth Ann. Rep. New York State Mus. ....	146
Hall and Simpson. 1887. Pal. New York, VI. ....	144
Hall and Whitfield. 1873. Dev. Foss.: Twenty-third Ann. Rep. New York State Mus. ....	132
1875. Sil. Invert. Foss.: Pal. Ohio, II. ....	133
Harper and Bassler. 1896. Catal. Foss. Trenton and Cincinnati Periods. ....	148
Herrick. 1888. Geol. Licking County: Bull. Denison Univ., IV. ....	145
1895. Obs. on Waverly Group: Geol. Sur. Ohio, VII. ....	148
Hinde. See Nicholson and Hinde.	
Holmes. 1860. Post-Pleiocene Foss. South Carolina. ....	154
See also Tuomey and Holmes.	
Horn. See Gabb and Horn.	

	Page.
James, Joseph F. 1888. On Monticulipora: Amer. Geol., I.....	145
1893-1896. Manual Pal. Cincinnati Group: Jour. Cin. Soc. Nat. Hist., XV-XVIII.....	147
James, U. P. 1875. Catal. Lower Sil. Foss.....	133
1878-1883. Paleontologist, Nos. 1-7.....	136
1883. Foss. Cin. Group: Jour. Cin. Soc. Nat. Hist., VI.....	141
1884. Descriptions three new sp. Foss.: Jour. Cin. Soc. Nat. Hist., VII.....	141
1884. Descriptions four new sp. Foss.: Jour. Cin. Soc. Nat. Hist., VII.....	141
James and James. 1887-88. Monticuliporoid Corals Cincinnati Group: Jour. Cin. Soc. Nat. Hist., X, XI.....	144
Keyes. 1888. Fauna of Lower Coal Measures: Proc. Acad. Nat. Sci. Phila.. 1894. Missouri Geol. Sur., V.....	145 148
Lea. 1833. Contrib. to Geol.....	151
Lonsdale. 1845. Six species of Polyparia: Quar. Jour. Geol. Soc. London, I.. 1845. Corals from Tert. Form. of N. Amer.: Quar. Jour. Geol. Soc. London, I.....	152 152
1845. Twenty-six Species Polyparia: Quar. Jour. Geol. Soc. Lon- don, I.....	152
Meek. 1871. New Species Invert. Foss.: Proc. Acad. Nat. Sci. Phila.....	131
1871. New Western Pal. Foss.: Proc. Acad. Nat. Sci. Phila.....	131
1872. Pal. Rep.: Hayden's Sixth Ann. Rep. U. S. Geol. Sur.....	131
1872. Pal. Eastern Nebr.: Hayden's Final Rep., Part II.....	131
1873. Invert. Sil. Dev. Foss.: Pal. Ohio, I.....	132
1875. Invert. Foss.: Pal. Ohio, II.....	133
Meek and Worthen. 1865. New Sp. Crinoidea, etc.: Proc. Acad. Nat. Sci. Phila.....	130
1868. Pal.: Geol. Sur. Illinois, III.....	131
1870. Synocladia: Proc. Acad. Nat. Sci. Phila.....	131
1875. Desc. Invert.: Geol. Sur. Illinois, VI.....	134
Mickleborough and Wetherby. 1878. List of Lower Sil. Foss. Cincinnati Group: Jour. Cin. Soc. Nat. Hist., I.....	136
Miller. 1874. Stenopora fibrosa: Cincinnati Quar. Jour. Sci., I.....	132
1875. New Species Foss.: Cincinnati Quar. Jour. Sci., II.....	134
1877. Amer. Pal. Foss.....	135
1878. New Genus and Eleven New Sp. Foss.: Jour. Cin. Soc. Nat. Hist., I.....	136
1880. New Species Sil. Foss.: Jour. Cin. Soc. Nat. Hist., III.....	138
1881. Subcarboniferous Foss.: Jour. Cin. Soc. Nat. Hist., IV.....	138
1882. Review of Nicholson's Genus Monticulipora: Jour. Cin. Soc. Nat. Hist., V.....	139
1882. New Genera and Species Foss.: Jour. Cin. Soc. Nat. Hist., V.. 1889. North American Geol. Pal.....	139 145
Miller and Dyer. 1878. Contrib. Pal.: Jour. Cin. Soc. Nat. Hist., I.....	136
1878. Contrib. Pal., No. 2.....	136
Milne-Edwards. 1860. Hist. Nat. des Corall., III.....	129
Milne-Edwards and Haime. 1851. Mon. Polyp. Foss. Terr. Pal.: Arch. du Mus., V.....	127
1854. Mon. British Foss. Corals.....	127
Morton. 1829. Obs. on Geol. and Organic Remains Second., Tert., Alluv. Formations.....	151
1830. Organic Remains Ferruginous Sand Formation.....	151

	Page.
Morton. 1834. Organic Remains Cretaceous Group.....	151
Nettleroth. 1889. Kentucky Foss. Shells.....	145
Nicholson. 1874. Researches on Pal. Ontario: Canad. Jour. (2), XIV.....	132
1874. New Dev. Polyz.: Ann. Mag. Nat. Hist. (4), XIII.....	132
1874. New Dev. Foss.: Geol. Mag. (2), I.....	133
1874. Descriptions of Chætetes: Quar. Jour. Geol. Soc. London, XXX.....	133
1874. Rep. Pal. Province Ontario.....	133
1875. Rep. Pal. Province Ontario.....	134
1875. Species of Hippothoa and Alecto: Ann. Mag. Nat. Hist. (4), XV.....	134
1875. New Species Polyz.: Ann. Mag. Nat. Hist. (4), XV.....	134
1875. New Species and Genus Polyz.: Geol. Mag. (2), II.....	134
1875. Massive forms of Chætetes: Geol. Mag. (2), II.....	134
1875. Sil. and Dev. Corals: Pal. Ohio, II.....	134
1875. Descriptions Polyz. Sil. Form.: Pal. Ohio, II.....	135
1876. Growth and Increase of Paleozoic Corals: Trans. Roy. Soc. Edinburgh, XXVII.....	135
1876. Pal. Corals of Ohio: Ann. Mag. Nat. Hist. (4), XVIII...	135
1879. Pal. Tabulate Corals.....	137
1881. Genus Monticulipora.....	139
Nicholson and Etheridge, Jun. 1877. Ascodictyon: Ann. Mag. Nat. Hist. (4), XIX.....	136
Nicholson and Foord. 1884. On Fistulipora: Ann. Mag. Nat. Hist. (5), XVI.	185
Nicholson and Hinde. 1874. Foss. Clinton, Niagara and Guelph: Canad. Jour. (2), XIV.....	133
Nickles. 1890. Studies on Monticulipora: Amer. Geol., VI.....	146
Orbigny. 1842. Voyage dans l'Amérique Méridionale, III.....	125
1850. Prodr. Pal., I.....	126
Owen. 1842. Human Footprints in Solid Limestone: Amer. Jour. Sci. Arts, XLIH.....	125
Prout. 1858. New Bryoz. from Texas and New Mexico: Trans. St. Louis Acad. Sci., I.....	128
1858-60. Four Series Descriptions Bryoz.: Trans. St. Louis Acad. Sci., I.....	128, 129
1866. New Bryoz.: Trans. St. Louis Acad. Sci., II.....	130
1866. Pal. Polyz.: Geol. Sur. Illinois, II.....	130
Quenstedt. 1881. Roehren- und Sternkorallen.....	139
Ringueberg. 1884. Niagara Foss.: Proc. Acad. Nat. Sci. Phila.....	141
1886. Niagara Foss.: Bull. Buffalo Soc. Nat. Sci., V.....	142
Roemer. 1860. Silur. Fauna West Tennessee.....	129
Rogers. 1900. New Bryoz. from Coal Measures of Kansas and Missouri: Kans. Univ. Quar., (A) IX.....	150
Rolle. 1851. On Reptaria: Neues Jahrbuch.....	127
Rominger. 1866. Obs. on Chætetes: Proc. Acad. Nat. Sci. Phila.....	130
1887. Description of a new Bryozoa: Proc. Acad. Nat. Sci. Phila.	144
1890. Studies on Monticulipora: Amer. Geol., VI.....	146
1892. Occurrence of Chætetes: Amer. Geol., X.....	147
Safford. 1869. Geol. Tennessee.....	131
Shumard. 1854. Carb. Cret. Foss.: Marcy's U. S. Explor. Red River, Louis- iana.....	127
Simpson. 1895. Genera of Fenestellidæ: Thirteenth Ann. Rep. State Geol. New York for 1893; Forty-seventh Ann. Rep. New York State Museum.....	148



Simpson.	1897.	Handbook of Genera: Fourteenth Ann. Rep. State Geol. New York for 1894.....	149
		See also Hall and Simpson.	
Smith.	1896.	Coal Measures Foss.: Proc. Amer. Phil. Soc., XXXV.....	149
Spencer.	1884.	Niagara Foss.: Trans. St. Louis Acad. Sci., IV; Bull. Mus. Univ. Missouri, I.....	142
Swallow.	1858.	Permian Foss.: Trans. St. Louis Acad. Sci., I.....	128
Troost.	1840.	Fifth Geol. Rep. Tennessee.....	125
Tuomey and Holmes.	1857.	Pleiocene Fossils of South Carolina.....	153
Ulrich.	1878.	New Species Foss.: Jour. Cin. Soc. Nat. Hist., I.....	136
	1879.	New Genera and Species of Foss.: Jour. Cin. Soc. Nat. Hist., II.....	137
	1879.	New Genus and Species of Bryozoans: Jour. Cin. Soc. Nat. Hist., II.....	137
	1880.	Catal. Foss. Cincinnati Group.....	138
	1882-84.	Amer. Pal. Bryoz.: Jour. Cin. Soc. Nat. Hist., V-VII..	139, 159
	1886.	New Sil. and Dev. Foss.: Contrib. Amer. Pal., I.....	143
	1886.	Lower Sil. Bryoz.: Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota.....	143
	1888.	Bryoz. Waverly Group: Bull. Denison Univ., IV.....	145
	1888.	On Sceptropora: Amer. Geol., I.....	145
	1889.	Contrib. Micro-Pal. Cambro-Sil., Part II.....	146
	1890.	New Sil. Bryoz.: Jour. Cin. Soc. Nat. Hist., XII.....	146
	1890.	Pal. Bryoz.: Geol. Sur. Illinois, VIII.....	146
	1893.	Lower Sil. Bryoz. Minn.: Geol. Minnesota, III.....	147
	1896.	Bryozoa: Zittel's Textb. Pal. (Engl. ed.).....	149
Vanuxem.	1842.	Geol. Surv. Third Geol. District.....	125
Walcott.	1879.	Foss. Utica Slate: Trans. Albany Inst., X, 1883.....	137
Wetherby.		See Mickleborough and Wetherby.	
White.	1874.	Prel. Rep. Invert. Fossils.....	133
	1876.	New Foss. from Iowa: Proc. Acad. Nat. Sci. Phila.....	135
	1877.	Invert. Foss.: Wheeler's U. S. Geol. Sur., IV.....	136
	1878.	Invert. Carb. and Upper Sil. Foss.: Proc. Acad. Nat. Sci. Phila.....	137
	1879.	Rep. Pal. Field Work: Eleventh Ann. Rep. U. S. Geol. Sur. (Hayden's).....	159
	1879.	Pal. Papers, No. 11: Bull. U. S. Geol. Sur. (Hayden's), V..	138, 158
	1882.	Van Cleve's Foss. Corals: Eleventh Ann. Rep. Indiana Geol. Nat. Hist.....	140
	1883.	Contrib. Invert. Pal., No. 6; Twelfth Ann. Rep. U. S. Geol. Sur. (Hayden's), Part I.....	141
	1887.	Contrib. Pal. Brazil: Archivos do Mus. Nac. Rio de Janeiro, VII.....	159
Whiteaves.	1891.	Contrib. Canad. Pal., I.....	147
	1895.	Foss. from Stony Mountain: Pal. Foss., III.....	148
	1897.	Foss. Galena-Trenton and Black River: Pal. Foss. III..	149
	1898.	Hamilton Foss.: Contrib. Canad. Pal., I.....	150
Whitfield.	1878.	New Species Foss.: Ann. Rep. Wisconsin Geol. Sur.....	137
	1880.	New Species Foss.: Ann. Rep. Wisconsin Geol. Sur.....	138
	1882.	Pal.: Geol. Wisconsin, IV.....	140
	1882.	New Foss. from Ohio: Annals New York Acad. Sci., II..	140
	1895.	Contrib. Pal. Ohio: Geol. Sur. Ohio, VII.....	148
		See also Hall and Whitfield.	
Winchell, A.	1863.	Fossils from the Yellow Sandstone beneath the Burlington Limestone: Proc. Acad. Nat. Sci. Phila.....	129
	1866.	Rep. Lower Peninsula Michigan.....	130
Worthen.		See Meek and Worthen.	

## LIST OF PAPERS TREATING OF BRYOZOA.

The following list includes all papers which treat exclusively of bryozoa. Works of which the bryozoa form an incidental part have been included when the bryozoa portion was deemed important. Doubtless a considerable number of papers have been overlooked, but it is hoped that the omissions will not prove serious.

For easy reference the authors' names have been arranged alphabetically, and their papers have been listed in chronological order. The dates given may not always be exactly correct, but they are probably seldom far astray. In cases where the actual date of publication is known to be considerably different from the title-page date the former is used. Titles of serials have usually been written in full in this list, but abbreviated in the second list.

In the second list the foregoing papers have been rearranged under several heads, so as to bring together those answering the needs of special workers. It has not been deemed practicable to classify except under large heads. Some errors in classification will no doubt be detected. Occasionally the titles given to their papers by authors are unintentionally misleading. A large number of papers I have been unable to examine, and many references are given on the authority of other writers.

Under the several heads the chronologic order has been adopted, as such an arrangement is very suggestive, both of the progress of knowledge and the point of view of the several authors. Under each year the authors' names are arranged alphabetically. Some works which I have not examined are included under "General;" an examination of these might show however that they would be more appropriately placed under other heads.

It is hoped that the general usefulness of the list will atone for unavoidable shortcomings. The amount of literature devoted to one comparatively small class of the animal kingdom will no doubt be surprising.

For the opportunity of consulting the libraries of Washington, District of Columbia, without which the list could not have been compiled, I have to thank the Hon. Charles D. Walcott, Director of the United States Geological Survey. Some members of the staff of the United States National Museum, and especially Mr. Charles Schuchert, have given valued help.

JOHN M. NICKLES.

## LIST OF PAPERS ARRANGED BY AUTHORS.

## AGASSIZ, ALEXANDER.

1888. Characteristic deep-sea types. Bryozoa. (Three cruises of the United States Coast and Geodetic Survey Steamer *Blake*. Vol. II.—Bulletin of the Museum of Comparative Zoology at Harvard College in Cambridge, XV, 1888, pp. 78–83, figs. 323–337.)

## ALDER, JOSHUA.

1857. Descriptions of new British Polyzoa. (Quarterly Journal of Microscopical Science, V, 1857, pp. 24–25, pls. xiii, xiv.)

1857. On a new species of Bugula. (Quarterly Journal of Microscopical Science, V, 1857, pp. 174–175, pl. xvii.)

1857. A catalogue of the Zoophytes of Northumberland and Durham. (Transactions of the Tyneside Naturalists' Field Club, III, 1858 [1857], pp. 93–162, pls. iii–x; Bryozoa on pls. vii, viii, x.)

1863. Supplement to a catalogue of the Zoophytes of Northumberland and Durham. (Transactions of the Tyneside Naturalists' Field Club, V, 1863, pp. 225–247, pls. viii–xi [Hydroids].)

1863. Report of the dredging expedition to the Dogger Bank and the coasts of Northumberland: Zoophytes. (Transactions of the Tyneside Naturalists' Field Club, V, 1863, pp. 288–290.)

1864. Descriptions of new British Polyzoa, with remarks on some imperfectly known species. (Quarterly Journal of Microscopical Science [n. s.], IV, 1864, pp. 95–109, pls. ii–iv.) Abstract. (Report of the Thirty-third Meeting of the British Association for the Advancement of Science [1863] 1864, Transactions of the Sections, pp. 97–98.)

1867. Description of three new or imperfectly known Polyzoa found on the coasts of Northumberland and Durham. (Natural History Transactions of Northumberland and Durham, I, 1867, pp. 60–64, 1 pl.)

## ALLEN, H.

1882. Vitality of fresh-water Polyzoa. [*Plumatella vesicularia*.] (Proceedings of the Academy of Natural Sciences of Philadelphia, 1882, pp. 223–224.)

## ALLMAN, GEORGE JAMES.

1843. On *Plumatella repens*. (Report of the Thirteenth Meeting of the British Association for the Advancement of Science, 1843 [London, 1844], part 2, pp. 74–76.) (L'Institut, XI, 1843, p. 454.)

1843. Synopsis of the genera and species of Zoophytes inhabiting the fresh waters of Ireland. (Report of the Thirteenth Meeting of the British Association for the Advancement of Science, 1843 [Lon-

don, 1844], part 2, p. 77.) (Annals and Magazine of Natural History, XIII, 1844, pp. 328-331.)

1844. On the muscular system of *Paludicella* and other Ascidian Zoophytes of fresh water. (Proceedings of the Royal Irish Academy, II, 1844, pp. 319-332.)

1844. On *Fredericella sultana*. (Proceedings of the Royal Irish Academy, II, 1844, pp. 545-546.)

1847. On the locomotive larva of *Plumatella fruticosa*. (Report of the Sixteenth Meeting of the British Association for the Advancement of Science, 1847 [London, 1848], part 2, p. 74.)

1847. On the larva state of *Plumatella*. (Proceedings of the Royal Irish Academy, III, 1847, pp. 218-219, 220-222.)

1849. On the natural history of the genus *Alcyonella*. (Proceedings of the Royal Irish Academy, IV, 1849, pp. 470-478.)

1849. On the nervous system and certain other points in the anatomy of the Bryozoa. (Report of the Nineteenth Meeting of the British Association for the Advancement of Science, 1849 [London, 1850], part 2, pp. 71-72.) (L'Institut, XVIII, 1850, pp. 19-20.)

1849. On *Lophopus cristallinus*. (Report of the Nineteenth Meeting of the British Association for the Advancement of Science, 1849 [London, 1850], part 2, p. 72.) (L'Institut, XVIII, 1850, p. 16.)

1849. On a new fresh-water Bryozoon. (Report of the Nineteenth Meeting of the British Association for the Advancement of Science, 1849 [London, 1850], part 2, p. 72.)

1850. On the present state of our knowledge of the fresh-water Polyzoa. (Report of the Twentieth Meeting of the British Association for the Advancement of Science, 1850 [London, 1851], pp. 305-337.)

1853. On the reproductive system and development of the gemmæ in *Paludicella articulata*. (Proceedings of the Royal Irish Academy, V, 1853, pp. 18-22.)

1853. On the structure of the muscular fiber in the Polyzoa. (Proceedings of the Royal Irish Academy, V, 1853, pp. 68-69.)

1855. On the homology of the organs of the Tunicata and the Polyzoa. (Transactions of the Royal Irish Academy, XXII, 1855, pp. 275-290.) (Proceedings of the Royal Irish Academy, V, 1853, p. 237.)

1856. A monograph of the fresh-water Polyzoa, including all the known species, both British and foreign. London, 1856. viii+119 pp., 17 figs. in the text, 11 pls., 4to. (Reviewed by George Busk in the Quarterly Journal of Microscopical Science, VI, 1858, pp. 36-43.)

1869. On *Rhabdopleura*, a new genus of Polyzoa. (Proceedings of the Royal Society of Edinburgh, VI, 1869, pp. 438-440.)

1869. On *Rhabdopleura*. (Quarterly Journal of Microscopical Science [n. s.], IX, 1869, pp. 57-63, pl. viii.)

1872. On the structure of Cyphonautes. (Quarterly Journal of Microscopical Science [n. s.], XII, 1872, pp. 395-397.) (Report of the Forty-second Meeting of the British Association for the Advancement of Science, 1872 (London 1873), part 2, pp. 133-134.)

1879. On the relations of Rhabdopleura. (Journal of the Linnean Society, Zoology, XIV, 1879, pp. 581-586.)

1879. Recent progress in our knowledge of the structure and development of the Phylactolæmatous Polyzoa. [Presidential anniversary address.] (Journal of the Linnean Society, Zoology, XIV, 1879, pp. 489-505.)

1880. Some recent additions to our knowledge of the structure of the marine Polyzoa. [Presidential anniversary address.] (Journal of the Linnean Society, Zoology, XV, 1880, pp. 1-8.)

#### AMI, H. M.

1895. Notes on Canadian fossil Bryozoa. (Canadian Record of Science, VI, 1895, pp. 222-229.)

#### ANGELIS, G. DE.

1898. Los primeros Antozoos y briozoos miocénicos recogidos en Cataluña. Barcelona, 1898.—Traduction de l'italien en espagnol par D. Jaime Almera. 8vo, 31 pp.

#### [ANONYMOUS.]

1887. Analytical key to the fresh-water Polyzoa. (Journal of the Trenton Natural History Society, I, pp. 59-67, 1 pl.) (American Monthly Microscopical Journal, IX, 1888, pp. 99-102.)

#### APLIN, C. D'O'LY H.

1860. Fresh-water Polyzoa in Australia. (Annals and Magazine of Natural History [3], VI, 1860, pp. 454-455.)

#### ARCHIAC, ETIENNE JULES ADOLPHE D'.

1835. Mémoire sur la formation crétacée du sud-ouest de la France. (Mémoires de la Société Géologique de France, II, 1835, pp. 157-192.)

1838. Observations sur le groupe moyen de la formation crétacée. (Mémoires de la Société Géologique de France, III, 1838, pp. 261-312.)

#### AUDOUIN, VICTOR.

1826. Explication sommaire des planches de Polypes de l'Égypte et de la Syrie . . . offrant un exposé des caractères naturelles des genres

avec la distinction des espèces. In Savigny's Description de l'Égypte. Histoire Naturelle, I, 1809, Part III, pp. 225-244, pls. i-xiv. Folio, Paris, 1826.

#### BARROIS, CHARLES.

1883. *Traité de Paléontologie*. [Translation of Zittel's *Handbuch der Paleontologie*.] Paris, 1883. [Bryozoa, I, pp. 582-650.]

1888. Les Bryozoaires dévoniens de l'État de New York d'après M. James Hall. (*Annales de la Société Géologique du Nord*, XV, Lille 1888, pp. 123-130.) [An extended notice of Hall and Simpson's *Paleontology of New York*, VI.]

1889. Faune du Calcaire d'Erbray (Loire-Inférieure): Contribution à l'étude du Terrain Dévonien de l'ouest de la France. (*Mémoires de la Société de l'Agriculture et des Arts de Lille* [4], XVII; also in *Mémoires de la Société Géologique du Nord*, III, Lille, 1889. 348 pp., 17 pls., 4to.) [Bryozoa, pp. 57-59.]

#### BARROIS, JULES.

1875. Des formes larvaires des Bryozoaires. (*Comptes Rendus hebdomadaires des Séances de l'Académie des Sciences*, Paris, t. 81, 1875, pp. 288-291, 443-445, 904-906, 1134-1135.) On the Larval Forms of the Bryozoa. (*Annals and Magazine Natural History* [4], XVI, 1875, pp. 301-302.)

1877. *Recherches sur l'embryologie des Bryozoaires*. (Travaux de l'Institut de Zoologie, Lille, Fasc. I, 1877, 305 pp., 16 pls.) Also as separate, Paris and Lille, 1877, 4to.

1878. Embryology of Bryozoa. (*American Naturalist*, XII, 1878, pp. 617-620.)

1878. Embryogénie des Bryozoaires. (Extrait du Procès-verbal, Association Française pour l'Avancement des Sciences, *Comptes Rendus de la 6<sup>e</sup> session* (1877), 1878, pp. 622-623.) (*Bulletin Scientifique du Département du Nord*, IX, 1878, pp. 259-265.)

1878. Du développement des Bryozoaires Chilostomes. (*Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences*, t. 87, 1878, pp. 463-466.)—(*Revue Scientifique* [2], XV, 1878-9, p. 335.)—(*Les Mondes*, t. 47, 1878, p. 220.) On the development of the Chilostomatous Bryozoa. (*Annals and Magazine of Natural History* [5], III, 1879, pp. 171-174.)

1879. Embryogénie des Bryozoaires. (*Bulletin Société belge de Microscopie*, V, 1879, pp. cxxviii-cxxxi.)

1880. *Mémoire sur la métamorphose des Bryozoaires*. (*Annales des Sciences Naturelles, Zoologie* [6], IX, 1880, Art. No. 7, pp. 1-67, pls. xiii-xvi.) (Reviewed in *Journal of the Royal Microscopical Society of London* [2], I, 1881, pp. 30-33.)

1881. Métamorphose de la Pédicelline. (Comptes Rendus hebdomadaire des Séances de l'Académie des Sciences, Paris, t. 92, 1881, pp. 1527-1528.)

1882. Embryogénie des Bryozoaires. (Journal de l'Anatomie et de la Physiologie, XVIII, 1882, 34 pp., 1 pl.) Embryogeny of the Bryozoa: An attempt at a general theory of their development, founded upon a study of their metamorphoses. (Annals and Magazine of Natural History [5], X, 1882, pp. 265-279, 388-403, pl. xiv.)

1886. Mémoire sur la métamorphose de quelques Bryozoaires. (Annales Sciences Naturelles, Zoologie [7], I, 1886, No. 1, pp. 1-94, pls. i-iv.) (Bibliothèque de l'École des Hautes Études, Section des Sciences naturelles (Paris), XXXII, No. 5, 1886. 94 pp., 4 pls.)

#### BEISSEL, IGNAZ.

1865. Ueber die Bryozoen der Aachener Kreidebildung. (Naturkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem, tweede verzameling, twee en twintigste deel. Haarlem, 1865. 92 pp., 10 pls.)

#### BELL, ALFRED.

1885. Fossil Tertiary Polyzoa of the higher zones, and note on the scarcity of Eocene Polyzoa. In Vine's Report on Recent Polyzoa. (Report of the Fifty-fifth Meeting of the British Association for the Advancement of Science, 1885, pp. 666-672.)

#### BENEDEN, P. J. VAN.

1839-40. Sur les Polypes d'eau douce. (Bulletins de l'Académie Royale des Sciences et Belle-lettres de Bruxelles, VI, 1839, part 2, pp. 276-279, 1 pl.; *ibid.*, VII, 1840, part 2, pp. 163-164.) (Annales Sciences Naturelles, Zoologie, XIV, 1840, pp. 222-224.) (Froriep, Notizen, XVII, 1841, cols. 214-216.)

1840. Quelques observations sur les Alcyonelles. (L'Institut, VIII, 1840, pp. 153-154.) (Isis, 1844, p. 371.)

1841. Sur les œufs dits mobiles dans les Alcyonelles. (Bulletins de l'Académie Royale des Sciences de Bruxelles, VIII, part 1, 1841, pp. 89-93, 1 pl.)

1844. Histoire naturelle du Crinomorpha, nouveau genre de la classe des Bryozoaires de la côte d'Ostende. (Bulletins de l'Académie Royale des Sciences de Bruxelles, XI, part 2, 1844, pp. 385-386.)

1845. Recherches sur l'anatomie, la physiologie et le développement des Bryozoaires qui habitent la côte d'Ostende. (Nouveaux Mémoires de l'Académie Royale de Bruxelles, XVIII, 1845, 44 pp., pls. i-v; *ibid.*, XIX, 1845, 31 pp., pls. i, ii.) (Reviewed in Annals and Magazine of Natural History, XVII, 1846, pp. 120-123.)

1845. Recherches sur l'organisation des Laguncula et l'histoire naturelle des différents Polypes Bryozoaires qui habitent la côte d'Ostende. (Nouveaux Mémoires de l'Académie Royale de Bruxelles, XVIII, 1845, 29 pp., pls. i-iii.)

1848. Recherches sur les Polypes Bryozoaires de la Mer du Nord. (Bulletins de l'Académie Royale de Belgique, XV, part 1, 1848, pp. 67-82, 1 pl.)

1848. Recherches sur les Bryozoaires fluviatiles de Belgique. (Mémoires de la Académie Royale de Belgique, XXI, 1848, 33 pp., pls. i-ii.)

1849. Recherches sur les Bryozoaires de la mer du nord (suite), et projet d'une classification des animaux de ce groupe. (Bulletins de l'Académie Royale de Belgique, XVI, part 2, 1849, pp. 644-658, pls. i-ii.) Sur la classification des Bryozoaires. (L'Institut, XVIII, 1850, p. 72.)

BIDENKAP, OLAF.

1897. Bryozoen von Ost-Spitzbergen. Zoologische Ergebnisse der im Jahre 1889 auf Kosten der Bremer geographischen Gesellschaft von Dr. Willy Kükenthal und Dr. Alfred Walter ausgeführten Expedition nach Ost-Spitzbergen. (Zoologischer Jahresbericht, X, 1897, pp. 609-639, pl. xxv.)

BIGSBY, JOHN J.

1868. Thesaurus Siluricus: The flora and fauna of the Silurian period. London, 1868, 4to., 214 pp. [Bryozoa, pp. 200-201.]

1878. Thesaurus Devonico-Carboniferous: The flora and fauna of the Devonian and Carboniferous periods. London, 1878, 4to, xi+448 pp. [Bryozoa, pp. 9, 12-13, 28-30, 206-211, 214-215, 260-267.]

BILLINGS, ELKANAH.

1866. Catalogue of the Silurian fossils of the island of Anticosti, with descriptions of some new genera and species. (Geological Survey of Canada. Montreal, 1866. 93 pp.)

BLAINVILLE, H. M. DE.

1830. Dictionnaire des Sciences naturelles, Vol. LX, 1830, pp. 1-546, pls. 67-68 in atlas.

1834. Manuel d'Actinologie ou de Zoophytologie. Paris, 1834. With atlas of 100 pls.

BLEICHER, —.

1894. Contribution à l'étude des Bryozoaires et des Spongiaires de l'oolithe inférieur (bajocien et bathonien) de Meurthe-et-Moselle. (Bulletin de la Société des Sciences de Nancy [2], XIII, 1894, pp. 89-101, pls. i-iii.)



## BOECK, A.

1862. Foreløbige Bemærkninger angaaende de ved de sydlige og vestlige Kyster af Norge forekommende Polyzoer. (Forhandlinger i Videnskabs-Selskabet i Christiania Aar 1861, Christiania 1862, pp. 49-50.)

## Bosc, A.

1898. Les Bryozcaires d'eau douce d'Europe. (Journal de Micrographie, Paris, VI, 1898, pp. 168-175, pls. xxii, xxiii.)

## BOUSFIELD, E. C.

1885. The *Victorella pavida* of Saville Kent. (Annals and Magazine of Natural History [5], XVI, 1885, pp. 401-407, pl. xiii, 1-3.)

## BRADY, GEORGE S.

1861. Notes of Algæ, etc., found in the Isle of Man and on the coasts of Northumberland and Durham. [Contains a list of twenty species of bryozoa gathered by Mrs. Gatty in the Isle of Man.] (Annals and Magazine of Natural History [3], VII, 1861, pp. 69-71.)

## BRAEM, FRITZ.

1888. Untersuchungen über die Bryozoen des süßen Wassers. (Zoologischer Anzeiger, XI, 1888, pp. 503-509, 533-539.)

1889. Ueber die Statoblastenbildung bei Plumatella. (Zoologischer Anzeiger, XII, 1889, pp. 64-65.)

1889. Die Entwicklung der Bryozoencolonie im keimenden Statoblasten. (Zoologischer Anzeiger, XII, 1889, pp. 675-679.)

1890. Untersuchungen über die Bryozoen des süßen Wassers. (Bibliotheca Zoologica, Heft 6, Cassel 1890, 4to, 134 pp., 15 pls.)

1892. Die Keimblätter der Bryozoenknospe. (Zoologischer Anzeiger, XV, 1892, pp. 113-115.)

1893. Notiz über *Cristella*. (Zoologischer Anzeiger, XVI, 1893, pp. 65-66.)

1893. Ein Wort über Herrn Prof. Karl Kraepelin und seinen neuesten Beitrag zur Bryozoenkunde. Cassel, 1893, 4to.

1896. Die geschlechtliche Entwicklung von *Paludicella Ehrenbergi*. (Zoologischer Anzeiger, XIX, 1896, pp. 54-57, 4 figs.)

1897. Die geschlechtliche Entwicklung von *Plumatella fungosa*. (Bibliotheca Zoologica, Heft 23, Cassel 1897, pp. 1-98, 8 pls.) (Review by C. B. D[avenport] in American Naturalist, XXXII, 1898, pp. 205-206.)

## BRAUNS, D.

1879. Die Bryozoen des mittleren Jura der Gegend von Metz. (Zeitschrift der deutschen geologischen Gesellschaft, XXXI, 1879, pp. 308-338, pl. vi.)

## BRONN, HEINRICH G.

1837. *Lethæa geognostica*, oder Beschreibungen und Abbildungen der für die Gebirgs-Formation bezeichnendsten Versteinerungen. Edition 2, 1837, 2 vols., Stuttgart. [Bryozoa, in Vol. I, 1837, pp. 240-251, pls. xv, xvi.]

1848-49. Handbuch einer Geschichte der Natur, Band III. Index paleontologicus. A. Nomenclator paleontologicus, 1848, lxxxiv, 1381 pp. B. Enumerator paleontologicus, 1849, 1106 pp.

## BRONN, H. G., AND ROEMER, F.

1851. *Lethæa geognostica*. Edition 3, 1851, Stuttgart. Band III, Theil 4, Oolithen-Periode. [Bryozoa, pp. 83-95.]

## BRUMPT, ÉMILE.

1897. Quelques faits relatifs à l'histoire du *Phascolion Strombi* (Montagu). [*Loxosoma*.] (Archiv Zoologie expér. et gén. [3], V, 1897, pp. 483-496, 4 figs.)

## BUCAILLE, E.

1890. Liste des Bryozoaires observés dans les étages crétacés du département de la Seine-Inférieure. (Bulletin de la Société des Amis de Sciences Naturelles, Rouen, 1890. 8 pp.)

## BUEL, IRA M.

1882. The Corals of Delafield. (Transactions of the Wisconsin Academy of Science, V, 1882, pp. 185-193.)

## BUSK, GEORGE.

1849. Observations on the Shepherd's Purse Coralline of Ellis (*Notamia bursaria*, Fleming). (Transactions of the Microscopical Society of London, II, 1849, pp. 110-121, pl. xxv.)

1849. Observations on the *Anguinaria spatulata*. [*Ætea anguina*.] (Transactions of the Microscopical Society of London, II, 1849, pp. 123-126, pl. xxvi.)

1850. A list of Sertularian Zoophytes and Polyzoa from Port Natal, Algoa Bay, and Table Bay, in South Africa; with remarks on their geographical distribution, and observations on the genera *Plumularia* and *Catenicella*. (Report of the Twentieth Meeting of the British Association for the Advancement of Science, 1850 [London, 1851], part 2, pp. 118-120.)

1851. Notices of three undescribed species of Polyzoa (Annals and Magazine of Natural History [2], VII, 1851, pp. 81-85, pls. viii, ix.)

1852. On the priority of the term Polyzoa for the Ascidian Polypes. (Annals and Magazine of Natural History [2], X, 1852, pp. 352-354.)

1852. An account of the Polyzoa and Sertularian Zoophytes collected in the voyage of the *Rattlesnake* on the coasts of Australia and the Louisiade Archipelago. (John MacGillivray's Narrative of the Voyage of H. M. S. *Rattlesnake*, commanded by the late Captain Owen Stanley, during the years 1846-1850, Vol. I, 1852, pp. 343-402, pl. i.)

1852-1854. Catalogue of the Marine Polyzoa in the collection of the British Museum, Cheilostomata. Part I, viii+vi+54 pp., 68 pls. London, 1852. (Review of Part I in the Quarterly Journal of Microscopical Science, I, 1853, pp. 136-137.) Part II, viii+55-120 pp., pls. 69-124. London, 1854.

1854. Remarks on the structure and function of the avicularian and vibracular organs of the Polyzoa; and on their value as diagnostic characters in the classification of those creatures. (Transactions of the Microscopical Society [n. s.], II, 1854, pp. 26-33, pl. ii.)

1855. Zoophytology. (Quarterly Journal of Microscopical Science, III, 1855, pp. 253-256, pls. i, ii; *ibid.*, pp. 320-322, pls. iii-iv.)

1856. Polyzoa collected by Mr. M'Andrew on the coasts of Norway and Finland in 1856. (Annals and Magazine of Natural History [2], XVIII, 1856, pp. 32-36, pl. i.)

1856. Zoophytology. (Quarterly Journal of Microscopical Science, IV, 1856, pp. 93-96, pls. v, vi; *ibid.*, pp. 176-179, pls. vii, viii; *ibid.*, pp. 308-312, pls. ix-xii.)

1857. Zoophytology. (Quarterly Journal of Microscopical Science, V, 1857, pp. 172-174, pls. xv, xvi.)

1857. Zoophytology. [A review of Alder's Catalogue in the Tyne-side Naturalists' Field Club and descriptions of Alder's new species and genera.] (Quarterly Journal of Microscopical Science, V, 1857, pp. 242-249.)

1858-59. Zoophytology: On some Madeiran Polyzoa. (Quarterly Journal of Microscopical Science, VI, 1858, pp. 124-130, pls. xviii, xix; *ibid.*, pp. 261-263, pls. xx, xxi; *ibid.*, VII, 1859, pp. 65-67, pls. xxii, xxiii.)

1859. List of Marine Polyzoa, collected by George Barlee, esq., in Shetland and the Orkneys, with descriptions of the new species. (Report of the Twenty-ninth Meeting of the British Association for the Advancement of Science, 1859 [London, 1860], pp. 144-147.)

1859. A Monograph of the Fossil Polyzoa of the Crag. (Publications of the Palæontographical Society, London, 1859. xiv, 136 pp., 22 pls.)

1860. Note on the fossil Polyzoa collected by the Rev. J. E. Woods near Mount Gambier, South Australia. (Quarterly Journal of the Geological Society of London, XVI, 1860, pp. 260-261.)

1860. Zoophytology: Descriptions of new species of Polyzoa collected by George Barlee, esq., in Shetland. (Quarterly Journal of Microscopical Science, VIII, 1860, p. 123-125, pls. xxiv, xxv; pp. 143-145, pls. xxvi, xxvii; pp. 213-214, pls. xxviii, xxix.)

1860-61. Description of new Polyzoa, collected by J. Y. Johnson, esq., at Madeira, in the years 1859 and 1860. (Quarterly Journal of Microscopical Science, VIII, 1860, pp. 280-285, pls. xxx, xxxi; *ibid.* [n. s.], I, 1861, pp. 77-80, pls. xxxii, xxxiii.)

1861. Zoophytology: Descriptions of new or imperfectly known Polyzoa. (Quarterly Journal of Microscopical Science [n. s.], I, 1861, pp. 153-156, pls. xxxiv, xxxv.)

1866. Description of three species of Polyzoa from the London Clay at Highgate. (Geological Magazine, III, 1866, pp. 298-302, pl. xii.)

1867. Zoophytology. (Quarterly Journal of Microscopical Science [n. s.], VII, 1867, pp. 241-243, pl. xxxvi.)

1874. Notice of a new Polyzoa (*Hippuraria Egertoni*). (Proceedings of the Zoological Society of London, 1874, pp. 29-30, 1 pl.)

1874. On *Clavopora hystricis*—a new Polyzoon belonging to the family Halcyonellæ. (Quarterly Journal of Microscopical Science [n. s.], XIV, 1874, pp. 261-262, pl. ix.)

1875. Catalogue of marine Polyzoa in the collection of the British Museum. Part III. Cyclostomata. London, 1875, viii, 41 pp., 38 pls.

1876. Descriptions of some new species of Polyzoa from Kerguelen Island. (Annals and Magazine of Natural History [4], XVIII, 1876, pp. 116-118.)

1879. Polyzoa from Kerguelen Island. (Philosophical Transactions of the Royal Society of London, vol. 168, 1879, pp. 193-199, pl. x.)

1879. On recent species of Heteropora. (Journal of the Linnean Society, Zoology, XIV, 1879, pp. 724-726, pl. xv.)

1880. List of Polyzoa collected by Capt. H. W. Fielden in the North Polar Expedition, with description of new species. (Journal of the Linnean Society, Zoology, XV, 1880, pp. 231-241, pl. xiii.)

1881. Descriptive Catalogue of the species of *Cellepora* collected in the Challenger Expedition. (Journal of the Linnean Society, Zoology, XV, 1881, pp. 341-356, 4 figs.)

1881. Supplementary note respecting the use to be made of the Chitinous organs in the Chilostomata in the diagnosis of species, and more particularly in the genus *Cellepora*. (Journal of the Linnean Society, Zoology, XV, 1881, pp. 357-362, pls. xxvi, xxvii.)

1881. Notes on a peculiar form of Polyzoa closely allied to *Bugula* (*Kinetoskias*, Kor. & Dan.). (Quarterly Journal of Microscopical Science [n. s.], XXI, 1881, pp. 1-14, pls. i, ii.)

1884-1886. Report on the Polyzoa collected by H. M. S. *Challenger*, during the years 1873-1876. (Report on the Scientific Results of the Voyage of H. M. S. *Challenger*—Zoology.) Part I, The Cheilostomata, Vol. X, part xxx, 1884, pp. i-xxiv, 1-216, pls. i-xxxvi. Part II, The Cyclostomata, Ctenostomata, and Pedicellinea. Vol. XVII, part I, pp. i-viii, 1-47, pls. i-x.

## CALVET, LOUIS.

1896. Bryozoaires. Résultats scientifiques de la Campagne du "Cauden" dans le Golfe de Gascogne. (Annales de l'Université de Lyon, XXVI, 1896, pp. 251-269, pl. vii.)

1898. Sur le développement et la structure de la larve de quelques Bryozoaires cheilostomes. (Comptes Rendus de l'Académie des Sciences, tome 127, pp. 79-81.)

1898. Sur l'origine du polypide des Bryozoaires ectoproctes marins. (Comptes Rendus de l'Académie des Sciences, tome 127, pp. 194-197.)

## CANU, F.

1897. Bryozoaires du Cénomanién de Janières (Sarthe). (Bulletin de la Société Géologique de France [3], XXV, 1897, pp. 146-159, pl. v.)

1897. Bryozoaires du Cénomanién de St. Calais (Sarthe). (Bulletin de la Société Géologique de France [3], XXV, 1897, pp. 737-754, pl. xxii.)

1899. Les ovicells des Cécidées. (Bulletin de la Société Géologique de France [3], XXVII, 1899, pp. 326-327, pl. vi.)

## CARTER, H. J.

1858. Description of a lacustrine Bryozoon allied to *Flustra* [*Hislopia*]. (Annals and Magazine of Natural History [3], I, 1858, pp. 169-171, pl. vii.)

1859. On the identity in structure and composition of the so-called seed-like body of *Spongilla* with the winter egg of the Bryozoa. (Annals and Magazine of Natural History [3], III, 1859, pp. 331-343, pl. viii.)

1882. Remarkable forms of *Cellepora* and *Palythoa* from the Senegambian coast. (Annals and Magazine of Natural History [5], IX, 1882, pp. 416-419, pl. xvi, 1.)

## CARUS, JULIUS VICTOR.

1889-1893. Prodrömus Faunæ Mediterraneæ. 2 vols., Stuttgart, 1889-1893. [Bryozoa, II, pp. 1-54.]

## CAVOLINI, FILIPO.

1785. Memorie per servire alla storia de polypi marini. Naples, 1785, 4to, 279 pp., 9 pls. [Traduit en allemand par Sprengel, Nuremberg, 1813.]

## CHWOROSTANSKY, K. J.

1890. Liste der Bryozoen von den Küsten der Solowetzki'schen Inseln. (Protocoles de la Société de Zoologie et de Physiologie des Naturalistes de St.-Petersbourg, XX, 1890, pp. 15-23.) [Russian.]

1890. Bryozoa Murmanskaio proberezh'ya. [Bryozoa of the Murman coast.] (Travaux de la Société des Naturalistes de St.-Pétersbourg, XXI, 1890, pp. 7-16.) [Russian.]

CLAPARÈDE, ÉDOUARD.

1863. Ueber eine warscheinlich zu den Bryozoen gehörige Thierform, Loxosoma singulare Keferstein. Beobachtungen über Anatomie und Entwicklungsgeschichte wirbelloser Thiere. Leipzig, 1863.

1867. Sur le Loxosoma Kefersteinii, Bryozaire mou du Golfe de Naples. (Annales des Sciences Naturelles, Zoologie [5], VII, 1867, pp. 28-30, pl. vi.) (Annals and Magazine of Natural History [4], I, 1868, pp. 311-312.)

1871. Beiträge zur Anatomie und Entwicklungsgeschichte der Seebryozoen. (Zeitschrift für wissenschaftliche Zoologie, XXI, 1871, pp. 137-174, pls. viii-x.) (Annals and Magazine of Natural History [4], VII, 1871, pp. 450-451.) (American Journal of Science and Arts [3], I, 1871, p. 387.)

CLAYPOLE, EDWARD W.

1881. On the occurrence of an Archimediform Fenestellid in the Upper Silurian rocks of Ohio. (Proceedings of the American Association for the Advancement of Science, XXX, 1881, p. 191.)

1883. On Helicopora, a new spiral genus (with three species) of North American Fenestellidæ. (Quarterly Journal of the Geological Society of London, XXXIX, 1883, pp. 30-38, pl. iv.)

COLE, F. J.

1899. On the discovery and development of Rhabdite "cells" in Cephalodiscus dodecalophus, McIntosh. (Journal of the Linnean Society, Zoology, XXVII, 1899, pp. 256-268, 1 pl.)

COLE, GRENVILLE A. J.

1893. On Hemitrypa hibernica McCoy. (Scientific Proceedings of the Royal Dublin Society [n. s.], VIII, 1893, pp. 132-144, pl. viii.)

1895. On the Fenestellidæ, with reference to Irish Carboniferous strata. (Irish Naturalist, IV, 1895, pp. 100-104.)

COPPIN, JOHN.

1848. Description of a new genus of British marine zoophytes belonging to the family Eucratiadæ. (Annals and Magazine of Natural History [2], II, 1848, pp. 273-274, pl. x.)

CORI, C. J.

1890. Ueber Nierenanälchen bei Bryozoen. (Lotus [n. s.], XI, 1890, pp. 1-18, 1 pl.)

1893. Die Nephridien der Cristatella. (Zeitschrift für wissenschaftliche Zoologie, LV, 1893, pp. 626-644, pls. xxvi, xxvii.)

COSTE, P.

1841. Propositions sur l'organisation des Polypes fluviatiles. (Comptes Rendus de l'Académie des Sciences, Paris, XII, 1841, pp. 724-728.)

1841. Observation relative à la Tubulaire sultane. (Comptes Rendus de l'Académie des Sciences, Paris, XII, 1841, p. 863.)

COUCH, RICHARD Q.

1841. An essay on the Zoophytes of Cornwall. (Reports and Transactions of the Royal Polytechnic Society of Cornwall, Falmouth, 1841, pp. 27-90.)

1844. A Cornish Fauna. Part III, Truro, 1844.

1845. Remarks on a new Zoophyte belonging to the genus Crisia, C. setacea. (Newman, Zoologist, III, 1845, pp. 1095-1096.) (Transactions of the Natural History and Antiquarian Society of Penzance, I, 1851, pp. 38-39.)

1851. On the physiological development of cells among the crustaceous Zoophytes. [Membranipora.] (Transactions of the Natural History and Antiquarian Society of Penzance, I, 1851, pp. 295-300.)

1851. Notice of a new species of Crisidia. [Johnstonia.] (Transactions of the Natural History and Antiquarian Society of Penzance, I, 1851, pp. 307-308.)

1864. Notice of the occurrence in Cornwall of that rare Zoophyte, Retepora reticulata. (Transactions of the Natural History and Antiquarian Society of Penzance, II, 1864, pp. 303-305.)

CRUGER, K.

1878. The largest of all fresh-water Polyzoa. [Pectinatella magnifica Leidy.] (American Naturalist, XII, 1878, p. 252.)

DALYELL, JOHN GRAHAM.

1834. On the propagation of Scottish Zoophytes. (Edinburgh New Philosophical Journal, XVII, 1834, pp. 411-415.)

1834. On the propagation of certain Scottish Zoophytes. (Report of the Fourth Meeting of the British Association for the Advancement of Science, 1834 [London, 1835], pp. 598-607.) (Froriep, Notizen, XLII, 1834, col. 273-278; ibid., L, 1836, col. 81-90.) (L'Institut, III, 1835, pp. 73-75.)

1848. Rare and remarkable animals of Scotland. London, 1847-48. 2 vols. Bryozoa in vol. 2.

## DANIELSSEN, D. C.

1861. Beretning om en zoologisk Reise foretagen i Sommeren 1857. (Nyt Magazin for Naturvidenskaberne, XI, 1861, pp. 1-58.)

1868. Om to nye Arter af Bryozoeer. (Forhandlinger i Videnskabs-Selskabet i Christiania, Aar 1867, 1868, pp. 23-24.)

## DAVENPORT, C. B.

1890. Cristatella: the origin and development of the individual in the colony. (Bulletin of the Museum of Comparative Zoology at Harvard College in Cambridge, XX, 1890, pp. 101-151, pls. i-xi.)

1890. Preliminary notice on budding in Bryozoa. (Proceedings of the American Academy of Arts and Sciences (n. s. XVII), XXV, 1890, pp. 278-282.)

1891. Observations on budding in Paludicella and some other Bryozoa. (Bulletin of the Museum of Comparative Zoology at Harvard College in Cambridge, XXII, 1891, pp. 1-114, pls. i-xii.)

1892. The germ-layers in Bryozoan buds. (Zoologischer Anzeiger, XV, 1892, pp. 261-263.)

1899. Synopsis of North American invertebrates. I. Fresh-water Bryozoa. (American Naturalist, XXXIII, 1899, pp. 593-596, 3 figs.)

## DAWSON, J. W.

1859. Catalogue of animals and plants collected and observed on the southeast side of the St. Lawrence from Quebec to Gaspé and in the counties of Rimouski, Gaspé, and Bonaventure, by Mr. Robert Bell, jr. Polyzoa determined by Dr. J. W. Dawson. (Geological Survey of Canada, Report of Progress for the year 1858. Montreal, 1859.) [Bryozoa, pp. 255-257.]

1859. Additional notes on the post-Pliocene deposits of the St. Lawrence Valley. (Canadian Naturalist and Geologist, IV, 1859, pp. 23-39, figs. 12-16.)

1865. Note on a species of Gemellaria from Sable Island. [G. Willisii, sp. nov.] (Proceedings of the Nova Scotian Institute of Natural Science, I, part 3, p. 3, 1865.)

## DEFRANCE, J. L. M.

1824. Tableau des corps organisés fossiles. Paris, 1824, 136 pp., 8vo. Bryozoa, pp. 99-102.

1824. Dictionnaire des sciences naturelles. Paris, 1816-30. 70 vols., with atlas.

## DEMADE, P.

1892. Le Statoblaste des Phylactolemates. [Bryozoaires d'eau douce.] (La Cellule [Carnoy], VIII, 1892, pp. 337-379, 2 pls.)



## DENDY, ARTHUR.

1889. On the anatomy of an arenaceous Polyzoan. (Proceedings of the Royal Society of Victoria [n. s.], I, 1889, pp. 1-11, pls. i-iii.)

## DESMAREST, ANSELME G.

1811. Mémoire sur un zoophyte fossile. (Nouveau Bulletin des Sciences de la Société Philomatique de Paris, II, 1811, pp. 272-275.)

## DESMAREST, ANSELME G., ET LE SEUER.

1814. Mémoire sur quelques flustres et cellépores fossiles. (Nouveau Bulletin des Sciences de la Société Philomatique de Paris, 1814, pp. 52-55, pl. ii.)

## DESOR, E.

1848. Recent zoological investigations among the shoals of Nantucket. (Proceedings of the Boston Society of Natural History, III, 1848, pp. 65-68.)

## DIENER, C.

1899. Himalayan Fossils. Vol. I, part 2. Arthracolithic fossils of Kashmir and Spiti. (Palæontologica Indica, Series XV, 1899, pp. 1-95, pls. i-viii.) [Bryozoa, pp. 83-86, pls. vii, viii.]

## DIXON, FREDERICK.

1850. The geology and fossils of the Tertiary and Cretaceous formations of Sussex. London, 1850, 422 pp., 40 pls. [Bryozoa, pp. 159-161, 268-32B, pls. 18-18B.]

## DOLLFUS, GUSTAVE F.

1875. Observations critiques sur la classification des Polypiers paléozoïques. (Comptes Rendus de l'Académie des Sciences, tome 85, 1875, pp. 681-683.)

1877. Terebripora capillacea. Bryozoaire nouveau du Terrain Dévonien du Cotentin. (Bulletin de la Société Linnéenne de Normandie, Caen [3], I, 1877, pp. 96-102, pl. i, 2-4.)

1878. Sur le Terebripora capillaris. (Bulletin de la Société géologique de France [3], VI, 1878, pp. 103-104.)

## DURDEN, J. E.

1893. New and rare Irish Polyzoa. (Proceedings of the Royal Irish Academy [3], III, 1893, pp. 121-136, pl. v.)

1894. Hydroids and Polyzoa collected between Laytown and the mouth of the Boyne. (Irish Naturalist, III, 1894, pp. 169-170.)

## DUMORTIER, B. C.

1835. Recherches sur l'anatomie et la physiologie des Polypiers composés d'eau douce. (Bulletin de l'Académie Royale des Sciences de Bruxelles, II, 1835, pp. 421-454, pls. v, vi.) (Froriep, Notizen, XLIX, 1836, pp. 193-201, 211-218.) [L'Institut, IV, 1836, pp. 183-187.] (Isis, 1837, pp. 770-775.)

## DUMORTIER, B. C., AND BENEDEN, P. J. VAN.

1843. Histoire naturelle des Polypes composés d'eau douce. (Nouveaux Mémoires de l'Académie Royale des Sciences de Bruxelles, XVI, 1843, 33 pp.)

## DUNCAN, P. MARTIN.

1873. On the genus *Palæocoryne* and its affinities. (Quarterly Journal of the Geological Society of London, XXIX, 1873, pp. 412-417, pl. xiv.)

## DUNCAN, P. MARTIN, AND JENKINS, H. M.

1869. On *Palæocoryne*, a genus of Tubularine Hydrozoa from the Carboniferous formation. (Philosophical Transactions of the Royal Society of London, vol. 159, 1869, pp. 693-699, pl. lxvi.)

## DYBOWSKI, WLADISLAW.

1876. Beschreibung einer Permischen Koralie, *Fistulipora lahuseni* n. sp. (Verhandlungen der Russisch-Kaiserlichen Mineralogischen Gesellschaft zu St. Petersburg [2], X, 1876, pp. 178-186, 4 figs.)

1877. Ueber die Gattung *Stenopora* Lonsdale, mit besonderer Berücksichtigung der *Stenopora columnaris* Schlotheim sp. (Verhandlungen der Russisch-Kaiserlichen Mineralogischen Gesellschaft zu St. Petersburg [2], XII, 1877, pp. 65-78, pl. iii.) [Also separate with date 1876.]

1879. Die Chaetetiden der Ostbaltischen Silur-Formation. (Verhandlungen der Russisch-Kaiserlichen Mineralogischen Gesellschaft zu St. Petersburg [2], XIV, 1879, pp. 1-134, pls. i-iv.) [Also separate, St. Petersburg, 1877, 134 pp., 4 pls.]

## DYSTER, FRED. D.

1858. Notes on two new British Polyzoa. (Quarterly Journal of Microscopical Science, VI, 1858, pp. 260-261, pl. xxi.)

## EDWARDS, MILNE. SEE MILNE-EDWARDS.

## EHLERS, E.

1876. *Hyphophorella expansa*: Ein Beitrag zur Kenntniss der mini-  
renden Bryozoen. (Abhandlungen der physical. Klasse der König-

lichen Gesellschaft der Wissenschaften zu Göttingen, XXI, 1876, pp. 1-156, 5 pls.)

1888. *Delagia Chætopteri* (J. Laff.), synonyme de *Hyphophorella expansa* (Ehl.). (*Archives de Zoologie expérimentale et générale* [2], VI, 1888, Notes et Revue, p. xlv.)

1890. Zur Kenntniss der Pedicellineen. (Abhandlungen der physical. Klasse der Königlichen Gesellschaft der Wissenschaften zu Göttingen, XXXVI, 1890, pp. 1-200, pls. i-v.)

1893. Zur Morphologie der Bryozoen. (Nachrichten von der Königlichen Gesellschaft der Wissenschaften zu Göttingen, aus dem Jahre 1893, pp. 483-490.)

EHRENBERG, CHRISTIAN GOTTFRIED.

1831. *Symbolæ Physicæ, seu Icones et Descriptiones Mammalium, Avium, Insectorum et Animalium Evertebratorum. Pars Zoologica*, IV, Dec. I, Berlin, 1831, fol.

1832. Beiträge zur physiologischen Kenntniss der Korallenthier im allgemeinen und besonders des Rothen Meeres, nebst einem Versuche zur physiologischen Systematik derselben. (Abhandlungen der k. Akademie der Wissenschaften in Berlin, 1832 [1834?], pp., 225-380.)

EICHWALD, EDOUARD VON.

1829. *Zoologia Specialis quam expositis animalibus tum vivis tum fossilibus potissimum Rossia in universum, et Poloniae in specie*. Vilnae, 1829-1831, 3 vols. [Bryozoa, Vol. I, 1829, pp. 179-180, 198-201, pls., ii, iii.]

1854. Die Grauwackenschichten von Liev- und Esthland. (*Bulletin de la Société Impériale des Naturalistes de Moscou*, XXVII, 1854, pp. 3-111.) [Bryozoa, pp. 86-89.]

1856. Beitrag zur geographischen Verbreitung der fossilen Thiere Russlands. (*Bulletin de la Société Impériale des Naturalistes de Moscou*, XXVIII, 1855, pp. 433-466; XXIX, 1856, pp. 88-127, 406-453, 555-608; XXX, 1857, pp. 192-212.) [Bryozoa, XXIX, 1856, pp. 91-96, 448-466.]

1860. *Lethæa Rossica, ou Paléontologie de la Russie. I. Ancienne Période*. Stuttgart, 1860, 682 pp., 4to Atlas of 59 pls. [Bryozoa, pp. 355-419, 434-435, 450-452, 475-494, pls. xxiii-xxviii, xxx, xxxiii.]

1865-1868. *Lethæa Rossica, ou Paléontologie de la Russie. II. Période Moyenne*. Stuttgart, 1865-1868. [Bryozoa, pp. 188-222, pl. viii.]

ELLIS, JOHN.

1755. Essay toward a natural history of the corallines and other marine productions of the like kind commonly found on the coasts of

Great Britain and Ireland. London, 1755, 130 pp., 39 pls. French translation, La Haye, 1756. German translation, Nuremberg, 1767.

ELLIS, JOHN, AND SOLANDER, DANIEL.

1786. The natural history of many curious and uncommon Zoophytes, collected, etc., by the late John Ellis, systematically arranged and described by Daniel Solander. London, 1786, 4to; 206 pp., 63 pls.

ETHERIDGE, ROBERT.

1881. Anniversary Address of the President: On the analysis and distribution of the British Paleozoic fossils. (Quarterly Journal of the Geological Society of London, XXXVII, 1881, pp. 37-235.) [Contains notes regarding the occurrence and geologic distribution of bryozoa.]

1882. Anniversary Address of the President: On the analysis and distribution of the British Jurassic fossils. (Quarterly Journal of the Geological Society of London, XXXVIII, 1882, pp. 59-236.) [Contains notes regarding the occurrence and geologic distribution of bryozoa.]

1886. Fossils of the British Islands stratigraphically and zoologically arranged. Vol. I, Paleozoic. Oxford, 1886, 4to, 468 pp. [Bryozoa, pp. 71-73, 147-148, 245-250, 358-359, 411-412, 457-458.]

ETHERIDGE, ROBERT, JUN.

1873. Explanation of Sheet 23. Lanarkshire, central districts. Memoirs of the Geological Survey, Scotland. Edinburgh, 1873. Paleontology, pp. 49-105. [Bryozoa, pp. 101-103.]

1873. Observations on *Chætetes tumidus*, Phillips. (Annals and Magazine of Natural History [4], XIII, 1873, pp. 194-195, pl. xi, 1-3.)

1873. On a new species of *Synocladia* from the Carboniferous limestone series of Midlothian. (Annals and Magazine of Natural History [4], XII, 1873, pp. 189-193, pl. x.)

1873. Description of *Carinella*, a new genus of Carboniferous Polyzoa. (Geological Magazine, X, 1873, pp. 433-434, pl. xv.)

1875. Note on a new provisional genus of Carboniferous Polyzoa. (Annals and Magazine of Natural History [4], XV, pp. 43-45, pl. iv B.)

1875. Observations on some Carboniferous Polyzoa. (Proceedings of the Geologists' Association, IV, 1875, pp. 116-122, 1 pl.)

1875. On the occurrence of a species of *Retepora* allied to *R. phœnicea*, Busk, in the Tertiary beds of Schnapper Point, Hobsons Bay, Victoria. (Transactions and Proceedings of the Royal Society of Victoria, XI, 1875, pp. 13, 14.)

1876. Notes on some Upper Paleozoic Polyzoa from Queensland. (Transactions and Proceedings of the Royal Society of Victoria, XII, 1876, pp. 66-68, 1 pl.)

1876. Carboniferous and Post-Tertiary Polyzoa. (Geological Magazine [n. s.], Dec. 2, III, 1876, pp. 522-523.)

1876. Notes on Carboniferous Mollusca. (Geological Magazine [n. s.], Dec. 2, III, 1876, pp. 150-156, pl. vi.)

1877. A synopsis of the known species of Australian Tertiary Polyzoa. (Journal of the Royal Society of New South Wales, XI, 1877, pp. 129-143.)

1877. Notes on Carboniferous Polyzoa. (Annals and Magazine of Natural History [4], XX, 1877, pp. 30-37, pl. ii A.)

1878. A catalogue of Australian fossils. London, 1878. 322 pp. [Bryozoa: Silurian, pp. 13, 18; Middle and Upper Paleozoic, pp. 38, 43-46; Mesozoic, p. 105; Tertiary, pp. 144-151.]

1878. Paleontology of the coasts visited by the British expedition under Capt. Sir George Nares. Bryozoa. (Quarterly Journal of the Geological Society of London, XXXIV, 1878, pp. 611-627.)

1879. On the occurrence of the genus *Ramipora* (Toula) in the Caradoc beds of the neighborhood of Corwen. (Geological Magazine [n. s.], Dec. 2, VI, 1879, pp. 1-4, pl. vi.)

1880. On a collection of fossils from the Bowen River coal field and the limestone of the Fanning River, North Queensland. (Proceedings of the Royal Physical Society of Edinburgh, V, 1880, pp. 263-328, pls. vii-xvii.) [Bryozoa, pp. 273-280.]

1892. Geology and Paleontology of Queensland and New Guinea, with 68 plates and a geological map of Queensland. 3 vols. Brisbane, 1892. [Geology, by R. L. Jack; Paleontology, by R. Etheridge, jr.] [Bryozoa; Permo-Carboniferous, pp. 217-225; Cretaceous, p. 441.]

#### FABRICIUS, OTHON.

1780. *Fauna grönlandica*. Copenhagen, 1780.

#### FARRE, ARTHUR.

1837. Observations on the minute structure of some of the higher forms of Polypi, with views of a more natural arrangement of the class. (Philosophical Transactions of the Royal Society of London, 1837 pp. 387-426, pls. xx-xxvii.)

#### FEWKES, J. WALTER.

1884. A new Pelagic Larva. (American Naturalist, XVIII, 1884, pp. 305-309, figs. 1-3.)

1889. New Invertebrata from the coast of California. (Bulletin of the Essex Institute, XXI, 1889, pp. 99-146, pls. i-vii.) [Bryozoa (Ascorhiza), pp. 135-139.]

1889. A preliminary notice of a stalked Bryozoon (*Ascorhiza occidentalis*). (Annals and Magazine of Natural History [6], III, 1889, pp. 1-6, pl. i.)

## FISCHER, P.

1866. Étude sur les Bryozoaires perforants de la famille des Térébriporides. (Comptes Rendus de l'Académie des Sciences, Paris, LXII, 1866, pp. 985-987.) (Notice in Quarterly Journal of Microscopical Science [n. s.], VI, 1866, pp. 157-158.)

1866. Étude sur les Bryozoaires perforants de la famille des Térébriporides. (Nouvelles Archives du Muséum d'Histoire Naturelle, II, 1866, pp. 293-313, pl. xi.)

1870. Bryozoaires, Echinodermes et Foraminifères Marins du Département de la Gironde et des côtes du sud-ouest de la France. (Actes de la Société Linnéenne de Bordeaux, XXVII [(3) VII], 1870, pp. 329-357.)

## FLEMING, JOHN.

1828. A History of British Animals. Edinburgh, 1828. xxiii+565 pp.

## FOERSTE, AUGUST F.

1887. Flint Ridge Bryozoa. (Bulletin of the Scientific Laboratories of Denison University, II, 1887, pp. 71-88, pls. vii, viii.)

1887. The Clinton group of Ohio, Part III. (Bulletin of the Scientific Laboratories of Denison University, II, 1887, pp. 149-176, pls. xv-xvii.) [The plates, however, were omitted, but plates xv and xvi appear in Vol. III, 1888.]

1887. Recent methods in the study of the Bryozoa. (Science, X, 1887, pp. 225-226.) Sections of Fossils. (Science, XI, 1888, p. 22.)

## FOETTINGER, ALEXANDRE.

1886. Sur l'anatomie des Pedicellines de la côte d'Ostende. (Archives de Biologie, VII, 1886, pp. 299-329, pl. x.)

## FOORD, ARTHUR H.

1883. Contributions to the Micro-Paleontology of the Cambro-Silurian Rocks of Canada. (Geological and Natural History Survey of Canada. Ottawa, 1883. 26 pp., 7 pls.)

1884. On three new species of Monticuliporoid Corals. (Annals and Magazine of Natural History [5], XIII, 1884, pp. 338-342, pl. xii.)

## FOWLER, G. HERBERT.

1892. Structure of Rhabdopleura. (Proceedings of the Royal Society of London, LII, 1892, pp. 132-134, 3 figs.)

## FREESE, W.

1888. Anatomisch-histologische Untersuchung von Membranipora pilosa L., nebst einer Beschreibung der in der Ostsee gefundenen

Bryozoen. (Archiv für Naturgeschichte, LIV, Band I, 1888, pp. 1-42, pls. i, ii.)

FRIČ, A.

1889. Studien im Gebiete der böhmischen Kreideformation. Paläontologische Untersuchungen der einzelnen Schichten. IV. Die Teplitzer Schichten. (Archiv für naturwissenschaftliche Landesdurchforschung von Böhmen, Prag, VII, 1889.) [Bryozoa, pp. 57, 89-90, figs. 92-97.]

FRIREN, A.

1892. Mélanges Paléontologiques. Art. III. Les bryozoaires de Poolithe inférieure des environs de Metz. (Bulletin de la Société d'Histoire Naturelle de Metz [2], VI, 1892, pp. 57-82.)

GABB, WILLIAM M., AND HORN, GEORGE H.

1860. Descriptions of new Cretaceous corals from New Jersey. (Proceedings of the Academy of Natural Sciences of Philadelphia, 1860, pp. 366-367.)

1860. Descriptions of new species of American Tertiary and Cretaceous fossils. (Journal of the Academy of Natural Sciences of Philadelphia [2], IV, 1860, pp. 375-404.) [Bryozoa, pp. 400-404, pl. lxix.]

1862. Monograph of the fossil Polyzoa of the Secondary and Tertiary formations of North America. (Journal of the Academy of Natural Sciences of Philadelphia [2], V, 1862, pp. 111-178, pls. xix-xxi.)

GABBETT, H. S.

1893. On the marine Polyzoa of Eastbourne. (Transactions of the Eastbourne Natural History Society, II, 1893, pp. 342-349.)

GASTALDI, B.

1878. Su alcuni fossili paleozoici delle Alpi marittime e dell' Apennino ligure studiati da G. Michelotti. (Atti della R. Accademia dei Lincei [Roma], Mémoires [3], I, 1878, pp. 113-128.)

GEINITZ, HANNS BRUNO.

1861. Dyas oder die Zechsteinformation und das Rothliegende. Leipzig, 1861, 4to, 130 pp., 23 pls. [Bryozoa, pp. 112-120, pls. xx-xxii.]

1867. Carbonformation und Dyas in Nebraska. (Verhandlungen der kaiserlichen Leopoldino-Carolinischen deutschen Akademie der Naturforscher, XXXII, 1867, pp. i-xii, 1-91, 5 pls.) (Also separate, Dresden, 1866, 4to.) [Bryozoa, pp. 66-72, pl. v.]

## GERVAIS, PAUL.

1836. Recherches sur les Polypes d'eau douce. (Comptes Rendus de l'Académie des Sciences, Paris, III, 1836, pp. 796-797.) (L'Institut, IV, 1836, p. 433.)

1837. Recherches sur les Polypes d'eau douce des genres Plumatella, Cristatella et Paludicella. (Annales Sciences Naturelles, Zoologie [2], VII, 1837, pp. 74-93.)

1838. Sur les Polypes d'eau douce. (Extraits des Procès-Verbaux des Séances de la Société Philomatique, 1838, pp. 129-130.) (L'Institut, VI, 1838, p. 398.)

1839. Sur les Polypes d'eau douce. (Comptes Rendus de l'Académie des Sciences, Paris, VIII, 1839, pp. 165-166.) (L'Institut, VII, 1839, p. 42.)

1839. Observations pour servir à l'histoire naturelle des Polypes d'eau douce. (Annales Françaises et Étrangères d'Anatomie et de Physiologie, III, 1839, pp. 129-176.) (Comptes Rendus de l'Académie des Sciences, VIII, 1839, pp. 165-166.)

## GIGLIOLI, ENRICO.

1865. Nota sul così detto sistema nervoso coloniale dei Bryozoi. (Atti della R. Accademia delle Scienze, Torino, I, 1865, pp. 131-134.)

## GILL, THEODORE NICHOLAS.

1871. Arrangement of the families of Mollusks. (Smithsonian Miscellaneous Collections, X, No. 227, 1871, 49 pp.) [Bryozoa, pp. 27-30. Proposes Order Rhabdopleuræ for Rhabdopleura.]

## GIOLI, G.

1889. Briozoi Neogenici dell'Isola di Pianosa nel mar tirreno. (Atti della Società Toscana di Scienze Naturali residente in Pise. Memorie, X, 1889, pp. 251-267, pl. xiv.)

## GIRARD, MAURICE.

1878. Les Bryozoaires. Exposition des travaux les plus récents. (Revue et Magazin de Zoologie [3], VI, 1878, pp. 34-44.)

## GOLDFUSS, AUGUST.

1827. Petrefacta Germaniæ: Abbildungen und Beschreibungen der Petrefacten Deutschlands und der angrenzenden Länder. Düsseldorf, 1827-1833. [Bryozoa, Vol. I, pp. 23-41, pls. viii-xii.] Edition 2, Leipzig, 1862. [Bryozoa, pp. 22-39, 81, 94-100, pls. viii-xii, xxxi, xxxvi-xxxvii.] Repertorium zu Goldfuss' Petrefakten Deutschlands, by Dr. C. Giebel, Leipzig, 1866, 122 pp. [Bryozoa, pp. 5-8, 21-22.]



## GOLDSTEIN, J. R. Y.

1879. On a new species of Polyzoa [*Serialaria Woodsii*]. (Quarterly Journal of the Microscopical Society of Victoria, I, 1879, pp. 19-20, pl. iii, 5.)

1880. Notes on living Polyzoa. (Quarterly Journal of the Microscopical Society of Victoria, I, 1880, pp. 42-50.)

1880. A new species of Polyzoa [*Catenicella ponderosa*]. (Quarterly Journal of the Microscopical Society of Victoria, I, 1880, p. 63, pl. v, 1-3.)

1882. Some new species of Bryozoa from the Marion Islands, with notes on *Bicellaria grandis*. (Transactions of the Royal Society of Victoria, XVIII, 1882, pp. 39-46, pls. i, ii.)

## GOODSIR, H. D. S.

1845. Description of some gigantic forms of invertebrate animals from the coast of Scotland. (Annals and Magazine of Natural History, XV, 1845, pp. 377-383, pl. xx.)

## GOSSE, PHILIP HENRY.

1855. Notes on some new or little-known marine animals. (Annals and Magazine of Natural History [2], XVI, 1855, pp. 27-36.) [Bryozoa, pp. 35-36, pl. iv, 29.]

## GOTTARDI, G. B.

1886. Briozoi Fossili di Montechio Maggiore. (Atti della Società Veneta Trentina di Scienze Naturali, IX, 1886, pp. 297-308, pl. xiv.)

## GRABAU, AMADEUS W.

1899. Geology and paleontology of Eighteen-Mile Creek and the Lake Shore sections of Erie County, New York. Part II. Paleontology. (Bulletin of the Buffalo Society of Natural Sciences, VI, 1899, pp. 98-403, 263 figs.) [Bryozoa, pp. 136-139, 158-179, figs. 47-77A.]

## GRANT, R. E.

1827. Observations on the structure and nature of Flustræ. (Edinburgh New Philosophical Journal [2], III, 1827, pp. 107-118, 337-342.) Into German: Beobachtungen über den Bau und das Wesen der Flustren. (Heusinger's Zeitschrift für organische Physiologie, I, 1827, pp. 401-418; *ibid.*, II, 1828, pp. 50-55.) Abstract: Sur la structure et la nature des Flustres. (Férussac, Bulletin Sciences Naturelles, XIII, 1828, pp. 371-374.)

## GRAY, JOHN EDWARD.

1831. Description of two new species of Celliferous Corals (*Hippothoa Elliotae* and *H. lanceolata*) discovered by Miss Elliot in the harbor of Kinglade, near Cork. (Zoological Miscellany, 1831, pp. 34-35.)

1843. [New Zealand Polyzoa.] Dieffenbach's New Zealand, II, 1843. Appendix, pp. 292-293.

1848. List of the specimens of British animals in the collection of the British Museum. Part I. Centroniæ or Radiated Animals. London, 1848, 173 pp. [Bryozoa, pp. 91-151.]

1872. On *Flustra marginata* of Krauss and an allied species, forming a new Genus (*Flustramorpha*) of *Escharidæ*, from Natal. (Annals and Magazine of Natural History [4], X, 1872, pp. 167-169.)

## GREGORIO, ANTONIO DE.

1890. Monographie de la Faune Éocénique de l'Alabama et surtout de celle de Claiborne de l'Étage Parisien. (Annales de Géologie et de Paléontologie, Livraisons vii, viii. Palermo, 1890, 4to, 316 pp., 46 pls.) [Bryozoa, pp. 239-250, pls. xxxix-xliii.]

## GREGORY, J. W.

1893. On the British Palæogene Bryozoa. (Transactions of the Zoological Society of London, XIII, 1893, pp. 219-279, pls. xxix-xxxii.)

1894. On some Jurassic species of Cheilostomata. (Geological Magazine, Dec. 4, II, 1894, pp. 61-64.)

1894. Catalogue of the Jurassic Bryozoa in the York Museum. (Report of the Yorkshire Philosophical Society for 1893, York, 1894, pp. 58-61.)

1895-96. A revision of the British Jurassic Bryozoa. (Annals and Magazine of Natural History [6], XV, 1895, pp. 223-228; *ibid.*, XVI, 1895, pp. 447-451; *ibid.*, XVII, 1896, pp. 41-49, pp. 151-155; *ibid.*, XVII, 1896, pp. 194-201, pp. 287-295.)

1896. Catalogue of the fossil Bryozoa in the Department of Geology of the British Museum (Natural History). The Jurassic Bryozoa. London, 1896. 239 pp., 11 pls. (Reviewed in Nature, vol. 54, p. 412; Natural Science, IX, pp. 334-335. [A. W. W.].)

## GÜMBEL, C. W.

1865. Die Nummiliten-führenden Schichten des Kressenbergs in Bezug auf ihre Darstellung in der Lethæa geognostica von Südbayern. (Leonhard und Bronn's Neues Jahrbuch, 1865, pp. 129-170 [Bryozoa, pp. 134-139].)

## HADDON, ALFRED C.

1883. On budding in Polyzoa. (Quarterly Journal of Microscopical Science [n. s.], XXIII, 1883, pp. 516-555, pls. xxxvii, xxxviii.)

## HAGENOW, FRIEDERICH VON.

1839-40. Monographie der Rügen'schen Kreide-Versteinerungen. (Leonhard und Bronn's Neues Jahrbuch, 1839, pp. 253-296, pls. iv, v [Bryozoa, pp. 262-296]; *ibid.*, 1840, pp. 631-672, pl. ix [Bryozoa, 643-649].)

1846. Bryozoa. In Geinitz' Grundriss der Versteinerungskunde. Dresden, 1846, 817 pp., 26 pls. [Bryozoa, pp. 586-635, pl. xxiii $\frac{1}{2}$ .]

1851. Die Bryozoen der Maastrichter Kreidebildung. Cassel, 1851. xvi+111 pp., 12 pls.

## HAIME, JULES.

1854. Description des Bryozoaires fossiles de la formation jurassique. (Mémoires de la Société Géologique, France [2], V, 1854, pp. 165-218, pls. vi-xi.)

## HALL, JAMES.

1847. Palæontology of New York. Volume I. Containing descriptions of the organic remains of the Lower Division of the New York System. Albany, 1847, 4to. Bryozoa: Chazy, pp. 15-17, pl. iv; Black River, pp. 48-51, pl. xii; Trenton, pp. 67-68, 72-79, pls. xxiii, xxiv, xxvi.

1851. New genera of fossil corals. (American Journal of Science and Arts [2], XI, 1851, pp. 398-401.)

1852. Palæontology of New York. Volume II. Containing descriptions of the organic remains of the lower Middle Division of the New York System. Albany, 1852, 4to. Bryozoa: pp. 40-52, 144-173, pls. xvii-xix, xl-xle.

1857. Remarks upon the genus *Archimedes* or *Fenestella*, from the Carboniferous limestones of the Mississippi Valley. (American Journal of Science and Arts [2], XXIII, pp. 203, 204.)

1857. Observations on the genus *Archimedes* or *Fenestella*. (Proceedings of the American Association for the Advancement of Science, X, 1857, pp. 176-180.)

1874. Descriptions of Bryozoa and Corals of the Lower Helderberg group. (Twenty-sixth Annual Report of the New York State Museum of Natural History, 1874, pp. 93-115.)

1876. The fauna of the Niagara group in central Indiana. (Twenty-eighth Annual Report of the New York State Museum of Natural History [documentary edition], Albany, 1876. 32 plates and explanations.)

1879. The fauna of the Niagara group in central Indiana. (Twenty-eighth Annual Report of the New York State Museum of Natural History [Museum edition], Albany, 1879, pp. 99-203, 32 plates. [Bryozoa, pp. 110-126, pls. v-xii.] )

1879. Descriptions of new species of fossils from the Niagara formation at Waldron, Indiana. (Transactions of the Albany Institute, X, 1883, pp. 57-76.) [Extract distributed 1879.]

1880. Corals and Bryozoans of the Lower Helderberg group. (Thirty-second Annual Report of the New York State Museum of Natural History, Albany, 1880, [1879], pp. 141-176, pls. vii-xxii.)

1881. Bryozoans of the Upper Helderberg and Hamilton groups. (Transactions of the Albany Institute, X, 1883, pp. 145-197 [Distributed in 1881 in the form of abstracts separately paged].)

1882. Descriptions of the species of fossils found in the Niagara group at Waldron, Indiana. (Indiana, Department of Geology and Natural History, Eleventh Annual Report, 1882, pp. 217-345, pls. iv-xi.)

1883. Discussion upon the manner of growth, variation of form, and characters of the genus *Fenestella*, and its relations to *Hemitrypa*, *Polypora*, *Retepora*, *Cryptopora*, etc. (Report of the State Geologist [of New York] for the year 1882, Albany, 1883, pp. 5-16, 36 figs.)

1883. Fossil Corals and Bryozoans of the Upper Helderberg group. Twenty-five plates with explanation sheets. (Report of the State Geologist [of New York] for the year 1882, Albany, 1883, pls. vii-xxxiii.)

1884. Descriptions of the Bryozoans of the Hamilton group. (Report of the State Geologist [of New York] for the year 1883, Albany, 1884, pp. 5-61.)

1884. Bryozoa (*Fenestellidae*) of the Hamilton group. (Thirty-sixth Annual Report of the New York State Museum of Natural History, Albany, 1884, pp. 57-72.)

1885. On the mode of growth and relations of the *Fenestellidae*. (Report of the State Geologist [of New York] for the year 1884, Albany, 1884, pp. 35-46, pls. i, ii.)

1886. Bryozoa of the Upper Helderberg group. Plates and explanations. (Fifth Annual Report of the State Geologist [of New York] for the year 1885, Albany, 1886. Fourteen plates with explanations.) [Twelve plates bound in quarto form were sent out as a brochure under the above title.]

1887. Descriptions of *Fenestellidae* of the Hamilton group of New York. (Sixth Annual Report of the State Geologist [of New York] for the year 1886, Albany, 1887, pp. 43-70, pls. i-vii.)

1888. Description of new species of *Fenestellidae* of the Lower Helderberg with explanations of plates illustrating species of the Hamilton group, described in the Report of the State Geologist for 1886. (Report of the State Geologist [of New York] for the year 1887, pp. [393-394], pls. viii-xv.) This report appeared also bound with the Forty-first Annual Report of the New York State Museum of Natural History, Albany, 1888.

1891. Continuation of descriptions of Bryozoa not printed in Volume VI, Palæontology of New York, for the Report of the State Geologist. (Tenth Annual Report of the State Geologist [of New York] for the year 1890, Albany, 1891, pp. 37-57.) (Forty-fourth Annual Report of the New York State Museum, Albany, 1891, pp. 67-87.)

HALL, JAMES, AND SIMPSON, GEORGE B.

1887. Palæontology of New York, Volume VI, Corals and Bryozoa: Text and plates containing descriptions and figures of species from the Lower Helderberg, Upper Helderberg, and Hamilton groups. Albany, 1887, 4to, xxvi+298 pp., 67 pls.

HALL, T. S.

1897. On the occurrence of the anchoring tubes of Adeona in the older Tertiaries of Victoria, with an account of their structure. (Proceedings of the Royal Society of Victoria [n. s.], IX, pp. 1-4, pl. i.)

HALLEZ, P.

1889. Dragages effectués dans le Pas-de-Calais pendant les mois d'août et sept. 1888. (Revue Biologique du Nord de la France, I, Lille, 1889, pp. 102-108; *ibid.*, II, 1890, pp. 32-40; *ibid.*, III, 1891, pp. 90-96.)

1892. Addition à la liste des Bryozoaires du Boulonnais, Lille. (Revue Biologique du Nord de la France, IV, 1892, pp. 119-120.)

1893. Deuxième supplément à la liste des Bryozoaires du Boulonnais. (Revue Biologique du Nord de la France, V, 1893, pp. 123-124.)

HAMILTON, A.

1880. On *Melicerta ringens* and *Plumatella repens*. (Transactions of the New Zealand Institute, XII, 1880, pp. 301-303.)

1898. A list of recent and fossil Bryozoa collected in various parts of New Zealand. (Transactions and Proceedings of the New Zealand Institute, XXX, pp. 192-199.)

HAMM, HERMANN.

1881. Die Bryozoen des Maastrichter Ober-Senon. I. Theil. Die Cyclostomen Bryozoen. Berlin, 1881. 47 pp., 8°.

HANCOCK, ALBANY.

1850. On the anatomy of the fresh-water Bryozoa, with descriptions of three new species. (Transactions of the Tyneside Naturalists' Field Club, I, 1850, pp. 367-405, 3 pls.) (Annals and Magazine of Natural History [2], V, 1850, pp. 173-202, pls. ii-v.)

1860. On a new species of *Plumatella*, and on the occurrence of *Fredericella sultana*, near Newcastle, and of *Lophopus crystallinus*, in Northumberland. (Transactions of the Tyneside Naturalists' Field Club, IV, 1860, pp. 67-68.)

HARMER, SIDNEY F.

1885. On the structure and development of *Loxosoma*. (Quarterly Journal of Microscopical Science [n. s.], XXV, 1885, pp. 261-337, pls. xix-xxi.)

1887. On the life-history of *Pedicellina*. (Quarterly Journal of Microscopical Science [n. s.], XXVII, 1887, pp. 239-263, pls. xxi, xxii.)

1888. Sur l'embryogénie des Bryozoaires Ectoproctes. (Archives de Zoologie expérimentale et générale [2], V, 1888, pp. 443-458.)

1890. On the regeneration of lost parts in Polyzoa. (Report of the Sixtieth Meeting of the British Association for the Advancement of Science, 1890 [L. 1891], pp. 862-863.)

1890. On the origin of the embryos in the ovicells of Cyclostomatous Polyzoa. (Proceedings of the Cambridge Philosophical Society, VII, p. 48.)

1891. On the nature of the excretory processes in marine Polyzoa. (Proceedings of the Cambridge Philosophical Society, VII, 1891, p. 219.)

1891. On the British species of *Crisia*. (Quarterly Journal of Microscopical Science [n. s.], XXXII, 1891, pp. 127-181, pl. xii.)

1892. On the Embryology of the Ectoprocta. (Studies from the Morphological Laboratory of the University of Cambridge, V, 1892, pp. 1-15, pls. i, ii.) [A republication of the French paper of 1888.]

1892. On the nature of the excretory processes in marine Polyzoa. (Quarterly Journal of Microscopical Science [n. s.], XXXIII, 1892, pp. 123-167, pls. ii, iii.)

1893. On the occurrence of embryonic fission in Cyclostomatous Polyzoa. (Quarterly Journal of Microscopical Science [n. s.], XXXIV, 1893, pp. 199-241, pls. xxii-xxiv.)

1895. Preliminary note on embryonic fission in *Lichenopora*. (Proceedings of the Royal Society of London, LVII, 1895, pp. 188-192.)

1896. On the development of *Lichenopora verrucaria*, Fabr. (Proceedings of the Royal Society of London, LIX, 1896, pp. 73-74.)

1896. On the development of *Lichenopora verrucaria*, Fabr. (Quarterly Journal of Microscopical Science [n. s.], XXXIX, 1896, pp. 71-144, pls. vii-x.)

1896. Polyzoa. (The Cambridge National History, Volume II, 1896, chapters xvii-xix, pp. 465-533, 25 figs.)

1897. Notes on Cyclostomatous Polyzoa. (Proceedings of the Cambridge Philosophical Society, IX, 1897, pp. 208-214.)

1897. Note on new or rare British marine Polyzoa. (Journal of the Marine Biological Association [n. s.], V, 1897, pp. 51-53.)

1897. On the Notochord of Cephalodiscus. (Zoologischer Anzeiger, XX, 1897, pp. 342-346.)

1898. On the development of Tubulipora, and on some British and northern species of this genus. (Quarterly Journal of Microscopical Science [n. s.], XLI, 1898, pp. 73-157, pls. viii-x.)

1900. A revision of the genus Steganoporella. (Quarterly Journal of Microscopical Science [n. s.], XLIII, 1900, pp. 225-297, pls. xii, xiii.)

#### HARTMANN, ROBERT.

1871. Einiges über Halodactylus diaphanus Farre [Alcyonidium gelatinosum]. (Reichert und du Bois Raymond's Archiv für Anatomie, 1871, pp. 489-529, 2 pls.)

#### HASSALL, ARTHUR HILL.

1840. Catalogue of Irish Zoophytes. (Annals and Magazine of Natural History, VI, 1840, pp. 166-175, pls. v-vii.)

1841. Supplement to a catalogue of Irish Zoophytes. (Annals and Magazine of Natural History, VII, 1841, pp. 276-287, 363-373, pls. vi-x.)

1841. Description of two new genera of Irish Zoophytes. (Annals and Magazine of Natural History, VII, 1841, pp. 483-486.)

1842. Remarks on the genus Lepralia of Dr. Johnston, with descriptions of six undescribed species, and notices of two other Zoophytes. (Annals and Magazine of Natural History, IX, 1842, pp. 407-414.)

1842. On Plumatella repens. (Annals and Magazine of Natural History, X, 1842, p. 153.)

#### HASWELL, WILLIAM A.

1880. On the Cyclostomatous Polyzoa of Port Jackson and neighborhood. (Proceedings of the Linnean Society of New South Wales, IV, 1880, pp. 350-356.)

1881. On some Polyzoa from the Queensland coast. (Proceedings of the Linnean Society of New South Wales, V, 1881, pp. 33-40, pls. i-iii.)

1882. Note on the occurrence on the coast of New South Wales of the genus Mesenteripora Bl. (Polyzoa Cyclostomata). (Proceedings of the Linnean Society of New South Wales, VI, 1882, pp. 199-202.)

1883. Note on a curious instance of symbiosis. (Proceedings of the Linnean Society of New South Wales, VII, 1883, pp. 608-610.)

## HATSCHKE, B.

1877. Embryonalentwicklung und Knospung der *Pedicellina echinata*. (Zeitschrift für wissenschaftliche Zoologie, XXIX, 1877, pp. 502-548, pls. xxviii-xxx, and 4 figs. in text.)

## HAUG, EMIL.

Ueber sogenannte Chætetes aus mesozoischen Ablagerungen. (Neues Jahrbuch für Mineralogie, etc., 1883, pp. 171-179, pl. x.)

## HÉJJAS, I.

1894. Adatok erdély Tertiär Bryozoa-Faunájához. [Beiträge zur Kenntnis der tertiären Bryozoenfauna Siebenbürgens.] (Értesítő az Erdélyi Muzeum-egylet. Orvos természettudományi szakosztályából, II, Természettudományi szak [Bulletin of the Transylvanian Museum Society, Medico-natural-science sections], XIX, 1894, pp. 113-152, 217-260, 3 pls. [resumé, pp. 201-216].)

## HELLER, CAMIL.

1867. Die Bryozoen des Adriatischen Meeres. (Verhandlungen der k. k. zoologisch-botanischen Gesellschaft in Wien, XVII, 1867, pp. 77-136, pls. i-vi.)

## HENNIG, ANDERS H.

1892. Studier öfver Bryozoerna i Sveriges Kritsystem. I. Cheilostomata. (Lunds Universitets Årsskrift, XXVIII, 1892, No. 11, pp. 1-51, pls. i, ii.)

1893. Ueber *Neuropora conuligera*, eine neue Bryozoen-Art aus der schwedischen Kreide. (Bihang till Svenska Vetenskaps-Akademiens Handlingar, XIX, 1893, Afd. IV, No. 1, pp. 1-11, pl. i.)

1894. Om Åhussandstenen. (Geologiska Föreningens i Stockholm Förhandlingar, XVI, 1894, pp. 492-530, pl. ii.) [Bryozoa, pp. 505-511.]

1894. Studier öfver Bryozoerna i Sveriges Kritsystem. II. Cyclostomata. (Lunds Universitets Årsskrift, XXX, 1894, No. 8, pp. 1-46, 2 pls. and 25 figs. in the text.)

1896. Bryozoer från Westgrönland, samlade af Dr. Ohlin under "the Peary auxiliary expedition" år 1894. (Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar, LIII, 1896, pp. 351-365.)

## HERDMAN, W. A.

1887. The reproductive organs of *Alcyonidium gelatinosum*. (Nature, XXXVII, 1887, p. 213.)

## HILGENDORF, F.

1873-1876. Japanische Süßwasser-Moosthierchen. (Mittheilungen der Deutschen Gesellschaft für Natur- und Völkerkunde Ost-Asiens, Yokohama, I, 1873-1876, Heft VI, p. 68.)



1898. On the occurrence of *Pedicellina* in New Zealand. (Transactions and Proceedings of the New Zealand Institute, XXX, 1898, p. 218, pl. xxii, l.)

HINCKS, THOMAS.

1851. Notes on British Zoophytes, with descriptions of some new species. (Annals and Magazine of Natural History [2], VIII, 1851, pp. 353-362, pl. viii.)

1852. On a peculiar organ which occurs on some of the marine Bryozoa, and which appears to indicate a difference of sex. (Report of the Twenty-second Meeting of the British Association for the Advancement of Science, 1852 [London, 1853], Part II, pp. 75-76.)

1857. On some new British Polyzoa. (Quarterly Journal of Microscopical Science, V, 1857, pp. 175-176, 249-250, pl. xvii.)

1860. Supplement to the list of Zoophytes in the "Natural History of Ireland, by W. Thompson, esq." (Vol. IV, 1856), with descriptions of new species. (Proceedings of the Dublin University Zoological and Botanical Association, II, 1860, pp. 67-78, pl. iii.)

1860. Descriptions of new Polyzoa from Ireland. (Quarterly Journal of Microscopical Science, VIII, 1860, pp. 275-280, pl. xxx.)

1861. On the ovicells of Polyzoa, with reference to the views of Prof. Huxley. (Report of the Thirty-first Meeting of the British Association for the Advancement of Science, 1861 [London, 1862], Part II, pp. 145-146.)

1861. Note on the ovicells of the Cheilostomatous Polyzoa. (Quarterly Journal of Microscopical Science [n. s.], I, 1861, pp. 278-281.)

1862. A catalogue of Zoophytes of South Devon and South Cornwall. (Annals and Magazine of Natural History [3], IX, 1862, pp. 22-30, pl. vii; pp. 200-207, pl. xii; pp. 303-310; pp. 467-475, pl. xvi; *ibid.* [3], X, 1862, pp. 360-363.)

1865. Zoophytes: The history of their development. (Quarterly Journal of Science [Samuelson], II, 1865, pp. 401-418, 2 pls.)

1870. On some interesting points in the history of the Polyzoa. (Popular Science Review, IX, 1870, pp. 57-64.)

1871. Supplement to a catalogue of Zoophytes of South Devon and South Cornwall. (Annals and Magazine of Natural History [4], VIII, 1871, pp. 73-83, pls. v, vi.)

1871. Note on Dr. Hinrich Nitsche's paper on "Some interesting points concerning the mode of reproduction of the Bryozoa." (Quarterly Journal of Microscopical Science [n. s.], XI, 1871, pp. 235-238.)

1872. On *Campylonema*, a new genus of Polyzoa. (Annals and Magazine of Natural History [4], X, 1872, pp. 396-397, pl. xx, 5.)

1873. Contributions to the history of the Polyzoa. (Quarterly Journal of Microscopical Science [n. s.], XIII, 1873, pp. 16-36, pl. ii.)

1877. On Polyzoa from Iceland and Labrador. (Annals and Magazine of Natural History [4], XIX, 1877, pp. 97-112, pls. x, xi.)

1877. On British Polyzoa. (Annals and Magazine of Natural History [4], XX, 1877. Part I, pp. 212-218. Part II. Classification, pp. 520-532.)

1877. Note on the radical fibers of the Polyzoa. (Annals and Magazine of Natural History [4], XX, 1877, pp. 218-220.)

1878. Notes on the genus *Retepora*, with descriptions of new species. (Annals and Magazine of Natural History [5], I, 1878, pp. 353-365, pls. xviii, xix.)

1878. Note on the movements of the vibracula in *Caberea Boryi*, and on the supposed common nervous system in the Polyzoa. (Quarterly Journal of Microscopical Science [n. s.], XVIII, 1878, pp. 7-9.)

1878. Salensky on the Polyzoa Entoprocta. (Quarterly Journal of Microscopical Science [n. s.], XVIII, 1878, pp. 199-205.)

1879. On the classification of the British Polyzoa. (Annals and Magazine of Natural History [5], III, 1879, pp. 153-164.)

1880. On new Hydroida and Polyzoa from Barents Sea. (Annals and Magazine of Natural History [5], VI, 1880, pp. 277-286, pl. xv.)

1880. On a supposed Pterobranchiate Polyzoon from Canada. (Annals and Magazine of Natural History [5], V, 1880, pp. 239-241, 2 figs.)

1880. On the terms Polyzoa and Bryozoa. (Annals and Magazine of Natural History [5], V, 1880, pp. 127-129.)

1880. A history of the British marine Polyzoa. 2 vols., London, 1880. Vol. I, Text, cxli+601 pp. Vol. II, Plates i-lxxxiii.

1880-1893. Contributions towards a general history of the marine Polyzoa. (Annals and Magazine of Natural History [5], VI, 1880-[6], XII, 1893)—I. Madeiran Polyzoa. II. Foreign membraniporina. (5) VI, 1880, pp. 69-92, pls. ix-xi.—II. Foreign membraniporina. III. Foreign cheilostomata (miscellaneous). (5) VI, 1880, pp. 376-384, pls. xvi, xvii.—IV. Foreign membraniporina (second series). V. Foreign cheilostomata (miscellaneous). (5) VII, 1881, pp. 147-161, pls. viii-x.—VI. Polyzoa from Bass's Strait. (5) VIII, 1881, pp. 1-14, 122-129, pls. i-iv.—VII. Foreign membraniporina (third series). VIII. Foreign cheilostomata (miscellaneous). (5) VIII, 1881, pp. 129-136, pls. iii, v.—IX. Foreign cheilostomata (miscellaneous.) (5) IX, 1882, pp. 116-127, pl. v.—X. Foreign cheilostomata (miscellaneous). (5) X, 1882, pp. 160-170, pls. vii, viii.—XI. Foreign cheilostomata (Australia and New Zealand). (5) XI, 1883, pp. 193-202, pls. vi, vii.—XII. Polyzoa from India (coast of Burmah). XIII. Polyzoa from Victoria and Western Australia. (5) XIII, 1884, pp. 356-369, pls. xiii, xiv.—XIII. Polyzoa from Victoria (continued). (5) XIV, 1884, pp. 276-285, pls. viii, ix.—XIV. Polyzoa from New Zealand and Australia. XV. Cheilostomata (miscellaneous). (5) XV, 1885, pp. 244-257, pls. vii-ix.—XV. South African and other Polyzoa. (6) VII, 1891, pp. 285-298, pls. vi, vii.—Appendix. [Critical notes and

corrections.] (6) VIII, 1891, pp. 86-93, 169-176, 471-480; (6) IX, 1892, pp. 327-334; (6) XI, 1893, pp. 175-182; (6) XII, 1893, pp. 140-147. [To the "separates" bound together an index was added by the author.]

1881. On a collection of Polyzoa from Bass's Strait. (Proceedings of the Literary and Philosophical Society of Liverpool, XXXV, 1881, pp. 249-270.)

1882. On certain remarkable modifications of the avicularium in a species of Polyzoon, and on the relation of the vibraculum to the avicularium. (Annals and Magazine of Natural History [5], IX, 1882, pp. 20-25, several woodcuts.)

1882. Polyzoa of the Queen Charlotte Islands: Preliminary notice of some new species. (Annals and Magazine of Natural History [5], X, 1882, pp. 248-256.)

1882-4. Report on the Polyzoa of the Queen Charlotte Islands. (Annals and Magazine of Natural History [5], X, 1882, pp. 459-471, pls. xix, xx; *ibid.* [5], XI, 1883, pp. 442-451, pls. xvii, xviii; *ibid.* [5], XIII, 1884, pp. 49-58, pls. iii, iv; *ibid.*, pp. 203-215, pl. ix.) These papers were reprinted and put into pamphlet form with the above title by the Geological and Natural History Survey of Canada. Ottawa, 1884, 44 pp., 7 pls.

1884. Note on Professor G. Seguenza's List of Tertiary Polyzoa from Reggio (Calabria). (Annals and Magazine of Natural History [5], XIII, 1884, pp. 265-267.)

1886-1887. The Polyzoa of the Adriatic: A supplement to Professor Heller's "Die Bryozoen des Adriatischen Meeres," 1867. (Annals and Magazine of Natural History [5], XVII, 1886, pp. 254-271, pls. ix, x; *ibid.* [5], XIX, 1887, pp. 302-316, pl. ix.)

1887. On the Polyzoa and Hydroida of the Mergui Archipelago. (Journal of the Linnean Society, Zoology, XXI, 1887, pp. 121-135.)

1887-1890. Critical notes on the Polyzoa. (Annals and Magazine of Natural History [5], XIX, 1887, pp. 150-164; *ibid.* [6], V, 1890, pp. 83-103.)

1888-1892. The Polyzoa of the St. Lawrence, a study of Arctic forms. (Annals and Magazine of Natural History [6], I, 1888, pp. 214-227, pls. xiv, xv; *ibid.* [6], III, 1889, pp. 424-433, pl. xxi; *ibid.* [6], IX, 1892, pp. 149-157, pl. viii.)

#### HINDE, GEORGE J.

1890. Notes on the Palæontology of Western Australia. Corals and Polyzoa. (Geological Magazine [n. s.], Decade III, VII, 1890, pp. 194-204, pls. viii, viii a.) [Bryozoa, pp. 199-204.]

#### HOGG, JOHN.

1839. On the tentacular classification of Zoophytes. (Annals and Magazine of Natural History [1], IV, 1839, pp. 364-368.)

## HOUGHTON, W.

1863. Our fresh-water Polyzoa. (Popular Science Review, II, 1863, pp. 301-310, 2 pls.)

1866. On the occurrence of *Paludicella Ehrenbergi* in Shropshire. (Annals and Magazine of Natural History [3], XVII, 1866, pp. 237-238.)

## HOYLE, W. E.

1888. On the deep-water fauna of the Clyde sea area. (Journal of the Linnean Society, Zoology, XX, 1888, pp. 442-472, pl. xxix.) [Bryozoa, pp. 452-455.]

## HUDLESTON, W. H.

1883. Notes on a collection of fossils and of rock specimens from West Australia, north of the Gascoyne River. (Quarterly Journal of the Geological Society of London, XXXIX, 1883, pp. 582-595, pl. xxiii.)

## HUTTON, FREDERICK WOLLASTON.

1873. Catalogue of the marine Mollusca of New Zealand. Wellington, 1873, xx+116 pp. (Publications of the Geological Survey Department.) [Bryozoa, pp. 87-104.]

1876. Corrections and additions to the list of Polyzoa in the Catalogue of the marine Mollusca of New Zealand. (Transactions and Proceedings of the New Zealand Institute, IX, 1876, pp. 358-361.)

1877. On some Australian Polyzoa. (Papers and Proceedings of the Royal Society of Tasmania, 1877, pp. 23-25.)

1878. On some South Australian Polyzoa. (Papers and Proceedings of the Royal Society of Tasmania, 1878, pp. 23-25.)

1880. Manual of New Zealand Mollusca. Wellington, 1880, xvi+iv+224 pp. (Colonial Museum and Geological Survey Department.) [Bryozoa, pp. 179-199].

1891. Revised list of the marine Bryozoa of New Zealand. (Transactions and Proceedings of the New Zealand Institute, XXIII, 1891, pp. 102-107.)

## HUXLEY, THOMAS H.

1856. Note on the reproductive organs of the Cheilostome Polyzoa. (Quarterly Journal of Microscopical Science, IV, 1856, pp. 191-192.)

## HYATT, ALPHEUS.

1867. The moss animals, or fresh-water Polyzoa. (American Naturalist, I, 1867, pp. 57-64, 131-136, 180-186, pls. iii-v.)

1866-1868. Observations on Polyzoa. Suborder Phylactolæmata. (Proceedings of the Essex Institute, IV, 1866, pp. 197-228, pls. vii-xiv; *ibid.*, V, 1866-1868, pp. 97-112, 145-160, 193-232, pl. xv.)

## HYNDMAN, GEORGE C.

1842. Note on species obtained by deep dredging near Sana Island, off the Mull of Cantire. (*Annals and Magazine of Natural History*, X, 1842, pp. 19-20.)

## JAMES, JOSEPH F.

1888. *Monticulipora*, a coral and not a polyzoon. (*American Geologist*, I, 1888, pp. 386-392.)

1893-1896. Manual of the Paleontology of the Cincinnati group. (*Journal of the Cincinnati Society of Natural History*, XV, 1893, pp. 144-159; *ibid.*, XVI, 1894, pp. 178-208; *ibid.*, XVIII, 1895, pp. 67-88; *ibid.*, XVIII, 1896, pp. 115-140.)

## JAMES, U. P.

1875. Catalogue of Lower Silurian fossils at Cincinnati, Ohio, and vicinity, with descriptions of some new species of Corals and Polyzoa. Cincinnati, 1875, 8 pp.

1878-1883. *The Paleontologist, Cincinnati*. No. 1, July 2, 1878, pp. 1-8. No. 2, September 14, 1878, pp. 9-16. No. 3, January 15, 1879, pp. 17-24. No. 4, July 10, 1879, pp. 25-32. No. 5, June 10, 1881, pp. 33-44. No. 6, September 12, 1882, pp. 45-56. No. 7, April 16, 1883, pp. 57-59, pls. i, ii.

1884. Descriptions of three species of fossils. (*Journal of the Cincinnati Society of Natural History*, VII, 1884, pp. 21-24.)

1884. Descriptions of four new species of fossils from the Cincinnati group. (*Journal of the Cincinnati Society of Natural History*, VII, 1884, pp. 137-139, pl. vii.)

## JAMES, U. P., AND JAMES, JOSEPH F.

1887-1888. On the Monticuliporoid corals of the Cincinnati group, with a critical revision of the species. (*Journal of the Cincinnati Society of Natural History*, X, 1887, pp. 118-141; *ibid.*, X, 1888, pp. 158-184; *ibid.*, XI, 1888, pp. 15-47.)

## JELLY, E. C.

1889. A synonymic catalogue of the recent marine Bryozoa, including fossil synonyms. London, 1889, xv + 322 pp.

## JOHNSON, JAMES YATE.

1897. New Cyclostomatous Bryozoa found at Madeira. (*Annals and Magazine of Natural History* [6], XX, 1897, pp. 60-65.)

## JOHNSTON, GEORGE.

1832. A descriptive catalogue of the recent Zoophytes found on the coast of North Durham. (*Transactions of the Natural History Society*

of Northumberland, Durham, and Newcastle-upon-Tyne, Newcastle, II, 1832, pp. 239-272.)

1834. A catalogue of the Zoophytes of Berwickshire. (History of the Berwickshire Naturalists' Club, I, 1834, pp. 154-156.)

1834. Illustrations in British Zoology: *Retepora cellulosa*. (London's Magazine of Natural History, VII, 1834, pp. 638-639, fig. 69.)

1837-1838. The Natural history of British Zoophytes. (Jardine's Magazine of Zoology and Botany, Edinburgh, I, 1837, pp. 64-81, 225-247, 440-448; *ibid.*, II, 1838, pp. 319-340.)

1838-1847. A history of the British Zoophytes. Ed. 1, London, 1838, xii + 333 pp., 44 pls. Ed. 2, London, 1847, 2 vols.; vol. 1, 488 pp., 87 figs., vol. 2, 74 pls.

1840. Description of a new genus of British Zoophyte. (Annals and Magazine of Natural History [1], V, 1840, pp. 272-274, figs. 1, 2.) [Beania.]

1857. Description of a specimen of *Eschara cervicornis* from Embleton Bay. (History of the Berwickshire Naturalists' Club, III, 1857, pp. 175-176.)

#### JOLIET, LUCIEN.

1877. Sur quelque points de l'organisation des Bryozoaires. (Comptes Rendus de l'Académie des Sciences, LXXXV, 1877, pp. 406-408.) On Some Points in the Organization of the Bryozoa. (Annals and Magazine of Natural History [4], XX, 1877, pp. 540-541.)

1877. Sur le système nerveux colonial de la *Bowerbankia imbricata* Johnst. (Comptes Rendus de l'Académie des Sciences, LXXXIV, 1877, pp. 723-725.)

1877. Contributions à l'histoire naturelle des Bryozoaires des côtes de France. (Archives de Zoologie expérimentale et générale, VI, 1877, pp. 193-304, pls. vi-xiii.) (Revue Scientifique [2], XIII, 1877, pp. 601-602.)

1879. Sur la présence d'un organe segmentaire chez les Bryozoaires endoproctes. (Comptes Rendus de l'Académie des Sciences, LXXXVIII, 1879, pp. 392-393.) (Bulletin de la Société d'Études Scientifiques du Finistère, Morlaix, 2 Fasc., 1880, pp. 104-105.)

1880. Organe segmentaire des Bryozoaires endoproctes. (Archives de Zoologie expérimentale et générale, VIII, 1880, pp. 497-512, 1 pl.)

1885. Sur le bourgeonnement du polypide chez plusieurs Ectoproctes marins. (Archives de Zoologie expérimentale et générale [2], III, 1885, Notes, p. xiii.)

1886. Recherches sur la blastogénèse. (Archives de Zoologie expérimentale et générale [2], IV, 1886, pp. 37-72, pls. ii, iii.)

#### JONES, T. RUPERT.

1880. On the nomenclature of Polyzoa, Busk. (Annals and Magazine of Natural History [5], V, 1880, p. 220.)

## JOYEUX-LAFFUE, J.

1888. Sur le *Delagia Chætopteri*, type d'un nouveau genre de Bryozoaires. (Comptes Rendus de l'Académie des Sciences, CVI, 1888, pp. 629-632.)

1888. Description du *Delagia Chætopteri* (J. J. -L.) type d'un nouveau genre de Bryozoaires. (Archives de Zoologie expérimentale et générale [2], VI, 1888, pp. 135-154, pl. viii.)

## JULLIEN, JULES.

1879. *Radiopora intermedia*, nouvelle espèce de Bryozoaire. (Guide du Naturaliste [Bouvier], I, 1879, p. 10.)

1880. *Norodonia cambodgiensis* et *sinensis*: Espèces et genre nouveaux de Bryozoaire cheilostomien. (Guide du Naturaliste [Bouvier], II, 1880, p. 102.)

1880. Description d'un nouveaux genre de Broyzoaire cheilostomien des eaux douces de la Chine et du Cambodge et de deux espèces nouvelles. (Bulletin de la Société Zoologique de France, V, 1880, pp. 77-79, several figures.) [*Norodonia*.]

1880. Description d'une nouvelle espèce de Bryozoaire perforant du genre *Terebripora* D'Orbigny. (Bulletin de la Société Zoologique de France, V, 1880, pp. 142-144, figs. 1-3.)

1881. Liste des Bryozoaires recueillis à Étretat (Seine-Inférieure) par le Dr. P. Fischer. (Bulletin de la Société Zoologique de France, VI, 1881, pp. 199-213.)

1881. Remarques sur quelques espèces de Bryozoaires Cheilostomiens. (Bulletin de la Société Zoologique de France, VI, 1881, pp. 163-168.)

1881. Note sur une nouvelle division des Bryozoaires Cheilostomiens. (Bulletin de la Société Zoologique de France, VI, 1881, pp. 271-285.)

1882. Dragages du Travailleur. Bryozoaires; espèces draguées dans l'Océan Atlantique en 1881. (Bulletin de la Société Zoologique de France, VII, 1882, pp. 497-529, pls. xiii-xvii.)

1885. Monographie des Bryozoaires d'eau douce. (Bulletin de la Société Zoologique de France, X, 1885, pp. 91-207, 250 figs.)

1886. Les *Costulidées*, nouvelle famille de Bryozoaires. (Bulletin de la Société Zoologique de France, XI, 1886, pp. 601-620, pls. xvii-xx.)

1888. Sur quelques Bryozoaires d'eau douce (Mémoires de la Société Zoologique de France, I, 1888, pp. 231-243.)

1888. Du testicule chez la *Lepralia figularis* Johnston, 1847, et des variétés de cet organe chez les Bryozoaires en général. (Mémoires de la Société Zoologique de France, I, 1888, pp. 270-273, pl. x.)

1888. Sur la sortie et la rentrée du Polypide dans les zoecies chez les Bryozoaires cheilostomiens monodermiés. (Bulletin de la Société Zoologique de France, XIII, 1888, pp. 67-68.)

1888. Sur la *Cristatella mucedo*. (Bulletin de la Société Zoologique de France, XIII, 1888, pp. 165-166.)

1888. Observations anatomiques sur les Caténicelles. (Mémoires de la Société Zoologique de France, I, 1888, pp. 274-280, pl. xi.)

1888. Mission scientifique du Cap Horn, 1882-83. VI, Zoologie, 1888. Bryozoaires, pp. I, 1-I, 92, pls. i-xv.

1890. Description d'un Bryozaire nouveau du genre *Rhabdopleura*. (Bulletin de la Société Zoologique de France, XV, 1890, pp. 180-183, 1 fig.)

1890. Observations sur la *Cristatella mucedo* G. Cuvier. (Mémoires de la Société Zoologique de France, III, 1890, pp. 361-395, pl. ix, 48 figs.)

KAFKA, JOS.

1882. O mechovkách českých. [Bohemian Bryozoa.] (Anzeiger der 2. Versammlung böhmischer Aerzte und Naturforscher, 1882, p. 39.)

1885. Süßwasser-Bryozoen Böhmens. (Sitzungsberichte der k. Böhmischen Gesellschaft der Wissenschaften, 1884 [1885], pp. 229-240, 1 pl.)

1887. Die Süßwasser-Bryozoen Böhmens. (Archiv für naturwissenschaftliche Landesdurchforschung von Böhmen, Prag, VI, 1887, No. 2. 73 pp., 91 figs.)

KEFERSTEIN, W.

1863. Ueber *Loxosoma singulare*, gen. et sp. n., den Schmarotzer einer Annelide. (Zeitschrift für wissenschaftliche Zoologie, XII, 1863, pp. 131-132, pl. xi, 29.)

KENT, J. SAVILLE.

1870. On a new polyzoan, "*Victorella pavida*," from the Victoria docks. (Quarterly Journal of Microscopical Science [n. s.], X, 1870, pp. 35-39, pl. iv.)

KEYES, CHARLES ROLLIN.

1894. Missouri Geological Survey, V, Paleontology of Missouri, Part II. Jefferson City, 1894. Bryozoa, pp. 13-37, pls. xxxiii, xxxiv.

KEYSERLING, ALEXANDER VON.

1846. Wissenschaftliche Beobachtungen auf einer Reise in das Petschora-Land im Jahre 1843. St. Petersburg, 1846, 4to. Bryozoa, pp. 180-193, pl. iii.



KHVOROSTANSKII, I. K. (See CHWOROSTANSKY, K. J.)

KING, WILLIAM.

1846. An account of some shells and other invertebrate forms found on the coast of Northumberland and of Durham. (Annals and Magazine of Natural History [1], XVIII, 1846, pp. 233-251.)

1849. On some families and genera of corals. (Annals and Magazine of Natural History [2], III, 1849, pp. 388-390.)

1850. A monograph of the Permian fossils of England. London, 1850, 4to. 258 pp., 28 pls. Bryozoa, pp. 28-49.

KIRCHENPAUER, GUSTAV HEINRICH.

1869. Beschreibung neuer Bryozoen. (Museum Godeffroy Catalog, IV, Hamburg, 1869, pp. xxv-xxxiv, 118-119.)

1874. Hydroiden und Bryozoen. (Die Zweite deutsche Nordpolarfahrt in den Jahren 1869 und 1870 unter Führung des Kapitäns Karl Koldewey. Herausgegeben von d. Verein f. d. deutsche Nordpolarfahrt in Bremen. II. Band. Wissenschaftliche Ergebnisse, Leipzig, 1874, pp. 411-428.) Also as a separate, Grönlandische Bryozoen. Leipzig, 1874.

1875. Zoologische Ergebnisse der Nordseefahrt von 21 Juli bis 9 September 1872. (Bericht über die Untersuchungsfahrt der *Pomerania* in der Nordsee, 1872.) VI. Bryozoa. (Jahresbericht der Commission zur wissenschaftlichen Untersuchung der deutschen Meere in Kiel, II, III, 1875, pp. 173-196. Berlin, folio.)

1879-80. Ueber die Bryozoen-Gattung Adeona. (Journal des Museum Godeffroy, 1879, 24 pp., 3 pls.) (Abhandlungen aus dem Gebiete der Naturwissenschaften des Vereins für naturwissenschaftliche Unterhaltung zu Hamburg. VII, Abth. 1, 1880, pp. 1-24, pls. i-iii.)

KIRKBY, JAMES W.

1861. The Permian of Yorkshire. (Quarterly Journal of the Geological Society of London, XVII, 1861, pp. 287-325.) [Bryozoa, pp. 307-308.]

KIRKPATRICK, R.

1888. Polyzoa of Mauritius. (Annals and Magazine of Natural History [6], I, 1888, pp. 72-85, pls. vii-x.)

1888. Polyzoa from Port Phillip. (Annals and Magazine of Natural History [6], II, 1888, pp. 12-21, pl. ii.)

1888. Description of a new species of Retepora from Port Western, Victoria. (Annals and Magazine of Natural History [6], II, 1888, p. 269.)

1888. Notes on the zoology of Fernando Noronho. Polyzoa. (Journal of the Linnean Society, Zoology, XX, 1888, pp. 504-506.)

1890. Report upon the Hydrozoa and Polyzoa collected by P. W. Bassett-Smith, Esq., surgeon R. N., during the survey of the Tizard and Macclesfield banks, in the China Sea, by H. M. S. *Rambler*, Commander W. U. Moore. (Annals and Magazine of Natural History [6], V, 1890, pp. 11-24, pls. iii-v.)

1890. Reports on the zoological collections made in Torres Strait by Prof. A. C. Haddon, 1888, 1889. Hydroida and Polyzoa. (Scientific Proceedings of the Royal Dublin Society [n. s.], VI, 1888-1890, pp. 603-626, pls. xiv-xvii.)

KOHLWEY, H.

1882. Ueber Bau und Leben von Halodactylus diaphanus (Farre.) Ein Beitrag zur Kenntnis der Bryozoen. (Inaugural-Dissertation. Halle, 1882, 33 pp.)

KONINCK, L. G. DE.

1842-1844. Description des animaux fossiles qui se trouvent dans le terrain Carbonifère de Belgique. Liège, 1842-1844, 4to. Supplément, 1851. iv+716 pp., pls. A-H, i-lv. [Bryozoa, pp. 1-12, pls. A, B.]

1863. Descriptions of some fossils from India, discovered by Dr. A. Fleming, of Edinburgh. (Quarterly Journal of the Geological Society of London, XIX, 1863, pp. 1-18, pls. i-viii.) [Bryozoa, pp. 5-6, pls. i, ii.]

1871-1872. Nouvelles recherches sur les animaux fossiles du terrain Carbonifère de la Belgique. (Mémoires de l'Académie Royale des Sciences de Belgique, XXXIX, 1872, iv+178 pp., 15 pls.) [Bryozoa (Monticuliporoids), pp. 141-147.] (Bulletin de l'Académie Royale des Sciences de Bruxelles, XXXI, 1871, pp. 316-324.)

1873. Recherches sur les animaux fossiles: Monographie des fossiles Carbonifères de Bleiberg en Carinthie. Bruxelles, 1873, 4to. [Bryozoa, pp. 10-14, pl. i.]

1876-77. Recherches sur les fossiles paléozoïques de la Nouvelle-Galles du Sud (Australie). (Mémoires de la Société Royale des Sciences de Liège [2], II, 1876-77.) [Bryozoa, pp. 168-185, pls. vii, viii.]

1898. Descriptions of the Paleozoic fossils of New South Wales (Australia). (Memoirs of the Geological Survey of New South Wales. Paleontology, No. 6. Sidney, 1898, 4to., xiii+298 pp., 24 pls.) (Bryozoa, pp. 128-140, pl. viii.) [Translation of the preceding.]

KOREN F., AND DANIELSSEN, D. C.

1877. Beskrivelse over Kinetoskias smittii og arborescens. (Fauna littoralis Norvegiae, III, 1877.)

## KOROTNEFF, ALEXIS DE.

1874. [On Paludicella.] (Bulletin de la Société impériale des Naturalistes de Moscou, X, part 2, 1874, pp. 45–50, pls. xii, xiii.) [Russian.] (Abstract by Hoyer in Jahresberichte über die Fortschritte der Anatomie und Physiologie, Hofmann und Schwalbe, Leipzig, 1874, III, pp. 369–372.)

1887. Zur Entwicklung der Alcyonella fungosa. (Zoologischer Anzeiger, X, 1887, pp. 193–194.)

1887. Sur la Spermatogénèse. (Comptes Rendus de l'Académie des Sciences, CV, 1887, pp. 953–955.)

1888. Beiträge zur Spermatologie. [Alcyonella fungosa.] (Archiv für mikroskopische Anatomie, XXXI, 1888, pp. 334–341, 1 pl.)

1890. [Sur la question du développement des Bryozoaires d'eau douce.] (Mémoires de la Société des Naturalistes de Kiew, X, part 2, 1890, pp. 393–410, pls. v, vi.) [Russian.]

## KOSCHINSKY, CARL.

1885. Ein Beitrag zur Kenntnis der Bryozoenfauna der älteren Tertiärschichten des südlichen Bayerns. I. Abtheilung. Cheilostomata. (Paleontographica, XXXII, Stuttgart, 1885, 73 pp., 7 pls.)

## KOWALEWSKY, A.

1866. Beiträge zur Anatomie und Entwicklungsgeschichte des Loxosoma Neapolitanum sp. n. (Mémoires de l'Académie Impériale des Sciences de St.-Petersbourg [7], X, No. 2, 1866, 10 pp., 1 pl.)

## KRAEPELIN, KARL.

1884. Zur Biologie und Fauna der Süßwasserbryozoen. (Zoologischer Anzeiger, VII, 1884, pp. 319–321.)

1886. Ueber die Phylogenie und Ontogenie der Süßwasserbryozoen. (Biologisches Centralblatt, Leipzig, VI, 1886, pp. 599–602.) (Tagblatt der LIX. Versammlung der Gesellschaft deutscher Naturforscher und Aerzte zu Berlin, 1886, pp. 133–135.)

1887–92. Die deutschen Süßwasser-Bryozoen. Eine Monographie. I. Anatomisch-systematischer Teil. (Abhandlungen aus dem Gebiete der Naturwissenschaften, herausgegeben vom Naturwissenschaftlichen Verein in Hamburg, X, 1887, 168 pp., 7 pls.) II. Entwicklungsgeschichtlicher Teil. (Ibid., XII, 1892, 68 pp., 5 pls.)

1888. Bemerkung zu den Mittheilungen von F. Braem über Süßwasserbryozoen (d. Zeitschr., 1888, p. 288, p. 503 ff.). (Zoologischer Anzeiger, XI, 1888, pp. 646, 647.)

1893. Ueber afrikanische und südamerikanische Süßwasserbryozoen. (Verhandlungen des Naturwissenschaftlichen Verein in Hamburg [3], I, 1893, pp. 14–15.)

1896. Phagocyten bei Bryozoen. (Zoologischer Anzeiger, XIX, 1896, pp. 507-508.)

KROHN, AUGUST.

1843. Ueber die vogelkopfähnlichen und ihnen verwandte Organe bei den Bryozoen. (Erriep, Notizen, XXV, 1843, pp. 70-72.)

LADIEWIG, FRANZ.

1899. Ueber die Knospung der ectoprocten Bryozoen. (Zoologischer Anzeiger, XXII, 1899, pp. 355-357.)

LAMARCK, JEAN BAPTISTE DE.

1801. Système des animaux sans vertèbres, ou Tableau général des classes, des ordres et des genres de ces animaux. Paris, 1801, 432 pp. Les Polypes, pp. 357-386. Ed. 2, Paris, 1816-1818.

1816. Histoire naturelle des animaux sans vertèbres. Paris, 1816. Bryozoa in Vol. II. Ed. 2, by G. P. Deshayes et H. Milne-Edwards, Paris, 1836. Histoire des Polypes in Vol. I, pp. 150-595.

LAMOUREUX, J. V. F.

1810. Mémoire sur la classification des Polypiers coralligènes. 1810.

1812. Sur la classification des Polypiers coralligènes non entièrement pierreux. (Nouveau Bulletin des Sciences de la Société Philomatique de Paris, III, 1812, pp. 181-188.)

1816. Histoire des Polypiers Coralligènes flexibles, vulgairement nommés Zoophytes. Caen, 1816, lxxxiv+560 pp., 19 pls.

1821. Exposition méthodique des genres de l'ordre des Polypiers, avec leur description et celle des principales espèces, figurées dans 84 planches. Paris, 1821, 4to, viii, 115 pp., 84 pls.

1824. Corallina; or a classical arrangement of flexible coralline Polypidoms, selected from the French of J. V. F. Lamouroux. London, 1824, 8vo, 284 pp., 19 pls.

1824. Description des Polypiers flexibles. In Quoy and Gaimard's Zoologie, vol. 3, of the Voyage Autour du Monde . . . exécuté sur les corvettes de S. M. "l'Uranie" et "la Physicienne" pendant les années 1817, 1818, 1819, et 1820. Paris, 1824, 4to. [Bryozoa, pp. 603-614, pls. 89-93.]

LAMOUREUX, J. V. F., BORY DE SAINT-VINCENT, ET EUG. DESLONG-CHAMPS.

1824. Encyclopédie Méthodique: Histoire naturelle des Zoophytes ou animaux rayonnés. Paris, 1824, 4to, viii+819 pp.

LANDSBOROUGH, D.

1852. A popular history of British Zoophytes or Corallines. London, 1852, 404 pp., 20 pls.

## LANG, ARNOLD.

1891. Zum Verständniss der Organisation von *Cephalodiscus dodecalophus* M'Intosh. (Jenaische Zeitschrift für Naturwissenschaft, XXV (n. s., XVIII), 1891, pp. 1-12.)

## LANKESTER, E. RAY.

1874. Remarks on the affinities of *Rhabdopleura*. (Quarterly Journal of Microscopical Science [n. s.], XIV, 1874, pp. 77-81, 5 figs.)

1884. A contribution to the knowledge of *Rhabdopleura*. (Quarterly Journal of Microscopical Science [n. s.], XXIV, 1884, pp. 622-647, pls. xxxvii bis-xli.)

1885. *Polyzoa*. (Encyclopædia Britannica, ninth edition, vol. XIX, pp. 429-441, 1885.)

## LANSWEERT, —.

1868. List de Zoophytes et de Mollusques inférieurs (tuniciers et bryozoaires) du littoral belge. (Annales de la Société Malacologique de Belgique, III, 1868, pp. 113-126.)

## LATTEY, A. H. H.

1872. Observations on the *Polyzoa*. (Journal of the Queckett Microscopical Club, III, 1872-1874, pp. 1-5.)

## LAURENT, J. L. M.

1841. Sur la physiologie de l'*Alcyonelle*. (Extraits des Procès-Verbaux des Séances de la Société Philomatique, 1841, pp. 61-63.) (L'Institut, IX, 1841, p. 225.)

## LEIDY, JOSEPH.

1851. On some American fresh-water *Polyzoa*. (Proceedings of the Academy of Natural Sciences of Philadelphia, V, 1851, pp. 320-322, 1 pl.)

1854. On *Urnatella gracilis* and a new species of *Plumatella*. (Proceedings of the Academy of Natural Sciences of Philadelphia, VII, 1854, pp. 191-192.)

1855. Contributions towards a knowledge of the marine invertebrate fauna of the coasts of Rhode Island and New Jersey. (Journal of the Academy of Natural Sciences of Philadelphia [2], III, 1855, pp. 135-152.) [Bryozoa, pp. 141-143.]

1858. Remarks on *Polyzoa*. (Proceedings of the Academy of Natural Sciences of Philadelphia, 1858, pp. 188-190.)

1870. [Note on *Urnatella*.] (Proceedings of the Academy of Natural Sciences of Philadelphia, 1870, pp. 100-101.)

1871. Observations on *Urnatella*, a genus of ciliated polyps of the family *Pedicellinidæ*. (*Annals and Magazine of Natural History* [4], VII, 1871, pp. 309-312.)

1879. On *Cristatella* *Idæ*. (*Proceedings of the Academy of Natural Sciences of Philadelphia*, 1879, pp. 203-204.)

1884. *Urnatella gracilis*. (*Proceedings of the Academy of Natural Sciences of Philadelphia*, 1884, p. 282.)

1884. *Urnatella gracilis*, a fresh-water Polyzoan. (*Journal of the Academy of Natural Sciences of Philadelphia* [2], IX, 1884, pp. 5-16, 6 figs., pl. i.) (*Science*, II, 1883, pp. 789-790, 2 figs.)

LENZ, HEINRICH.

1878. Die wirbellosen Thiere der Travemünder Bucht. Th. I. *Deutsch. Meer. Jahresb.*, 4-6, 1878, (Anhang) 7-11, 1884, pp. 169-174.

LEUCKART, FRÉD. SIGISM.

1828. *Mémoire sur les Zoophytes*. (Rüppel's Reise im nordlichen Africa, Abth. V, 1828.)

LEVINSEN, G. M. R.

1886. Bryozoeer fra Kara-Havet. (Dijmphna-Togtets zoologisk-botaniske Udbytte, Kjöbenhavn, 1886, pp. 305-328, pls. xxvi, xxvii.)

1891. Polyzoa. Det videnskabelige Udbytte af Kanonbaaden "Hauchs" Togter, 1883-1886, Kjöbenhavn, 1891, 4to, pp. 243-306, 3 pls.

1894. Mosdyr. *Zoologica Danica* (Danske Dyr). Hefte 9, pp. 1-105, pls. i-ix, Kjöbenhavn, 1894.

LIENENKLAUS, E.

1890. Die Ober-Oligocän Fauna des Doberges. (*Jahrbesericht des naturwissenschaftlichen Vereins zu Osnabruck*, VIII, 1890, pp. 43-174.) [*Bryozoa*, pp. 141-146.]

LINNÆUS, CAROLUS.

1767. *Systema Naturæ*. Ed. 12, *Holmiæ*, 1767. Tome I, pars ii. *Zoophyta*, pp. 1287-1301.

LISTER, JOSEPH JACKSON.

1834. Some observations on the structure and functions of tubular and cellular Polypi, and of Ascidie. (*Philosophical Transactions of the Royal Society of London for the year MDCCCXXXIV*, Part I, 1834, pp. 365-388, pls. viii-xii.) (*Entomological Magazine*, III, 1836, pp. 172-176.)

## LOMAS, JOSEPH.

1886. Report on the Polyzoa of the L. M. B. C. district. (The First Report upon the Fauna of Liverpool Bay and the neighboring seas. London, 1886. Bryozoa, pp. 161-200.) (Proceedings of the Literary and Philosophical Society of Liverpool, XL, 1886, Appendix, pp. 161-200, pl. iii.)

1887. On *Ascopodaria nodosa* (nov. sp.). (Proceedings of the Literary and Philosophical Society of Liverpool, XLI, 1887, pp. xlv-xlvii.)

1887. On the occurrence of internal calcareous spicules in Polyzoa. (Proceedings of the Liverpool Geological Society, V, Part III, 1887, pp. 241-243.)

1887. Notes on the structure of *Alcyonidium gelatinosum*. (Proceedings of the Biological Society of Liverpool, I, 1887, pp. 29-33, pl. iii.)

1888. Report on the Polyzoa of Puffin Island. (Proceedings of the Biological Society of Liverpool, II, 1888, pp. 74-77.)

1889. Second report on the Polyzoa of the L. M. B. C. district. (Proceedings of the Biological Society of Liverpool, III, 1889, pp. 214-224, figs. 1-3.)

## LONSDALE, WILLIAM.

1839. Corals. In Sir R. I. Murchison's *Silurian System*. London, 1839. Part II, pp. 675-694, pls. xv-xvi bis. [Bryozoa, pp. 676-680, pl. xv.]

1845. Description of some characteristic Paleozoic corals of Russia. In Murchison, Verneuil and von Keyserling's *Geology of Russia in Europe and the Ural Mountains*. Vol. I, *Geology*, 1845, pp. 591-634, pl. A. [Bryozoa, pp. 626-632.]

1845. Account of six species of *Polyparia* obtained from Timber Creek, New Jersey. (*Quarterly Journal of the Geological Society of London*, I, 1845, pp. 65-75, 22 figs.)

1845. Report on the Corals from the Tertiary formations of North America. (*Quarterly Journal of the Geological Society of London*, I, 1845, pp. 495-509.) [Bryozoa, pp. 500-509.]

1845. Account of twenty-six species of *Polyparia* obtained from the Eocene Tertiary formations of North America. (*Quarterly Journal of the Geological Society of London*, I, 1845, pp. 509-533.) [Bryozoa, pp. 522-533.]

1850. Polyzoa. In Dixon's *Geology and Fossils of the Tertiary and Cretaceous formations of Sussex*. London, 1850, 423 pp., 40 pls. [Bryozoa, pp. 159-161, 268-322.] Edition 2, revised by T. Rupert Jones: *The Geology of Sussex*. Brighton, 1878. [Bryozoa, pp. 200-206, 315-360.]

## LONGE, FRANCIS D.

1881. On the relation of the Escharoid forms of Oolitic Polyzoa. (Geological Magazine [n. s.], Decade II, VIII, 1881, pp. 23-34, pl. ii.)

1881. On some specimens of Diastopora and Stomatopora from the Wenlock limestone. (Quarterly Journal of the Geological Society of London, XXXVII, 1881, Proceedings, p. 239.)

## LORENZ, LUDWIG VON.

1886. Bryozoen von Jan Mayen. (Die Internationale Polarforschung 1882-1883. Die Oesterreichische Polarstation Jan Mayen, Band III, 1886, 18 pp., pl. vii.)

## LORIOI, P. DE.

1868. Monographie des Couches de l'Étage Valangien des Carrières d'Arzier (Vaud). (Matériaux pour la Paléontologie Suisse. IV Series.) Geneva, 1868, 4to, 110 pp., 9 pls. [Bryozoa, pp. 60-69, pls. v, vi.]

## LUDWIG, RUDOLPH.

1861. Die in der Umgebung von Lithwinsk (östlich von Perm und Solikamsk) in den Kalksteinen der Steinkohlenformation vorkommenden Corallen- und Bryozoenstöcke. (Bulletin de la Société impériale des Naturalistes de Moscou, XXXIV, Part II, 1861, pp. 579-598.)

1862. Actinozoen und Bryozoen aus dem Carbon-Kalkstein im Gouvernement Perm. (Paleontographica, X, 1862, pp. 179-186, pls. xx-xxxvii.) [Bryozoa, pp. 222-226, pl. xxxvii.]

## MCCOY, FREDERICK.

1844. A synopsis of the characters of the Carboniferous limestone fossils of Ireland. Dublin, 1844, 4to, 207 pp., 29 pls. [Bryozoa, pp. 194-207, pls. xxvi-xxix.] (Reprinted, but not styled Edition 2, in 1862.)

1847. On the fossil Botany and Zoology of the rocks associated with the coal of Australia. (Annals and Magazine of Natural History [1], XX, 1847, pp. 226-236.) [Bryozoa, p. 226.]

1850. On some new genera and species of Silurian Radiata in the Collection of the University of Cambridge. (Annals and Magazine of Natural History [2], VI, pp. 270-290.) [Bryozoa, pp. 282-288.]

1850. On some new Silurian Radiata. (Annals and Magazine of Natural History [2], VI, 1850, pp. 474-477.)

1854. A synopsis of the classification of the British Paleozoic rocks by the Rev. Adam Sedgwick, with a systematic description of the British Paleozoic Fossils in the geological museum of the University of Cambridge. Cambridge, 1854, 4to, 661+viii pp., 25 pls. [Bryozoa, pp. 11-12, 22-26, 44-51, 75-76, 82-83, 113-116.]



1854. Contributions to British Paleontology. Cambridge, 1854, viii+272 pp., 1 pl. [Bryozoa, pp. 66, 99-100, 103-104, 172-176.]

MACDONALD, JOHN DENIS.

1857. Brief description of a Ctenostomatous Polyzoon, allied to Vesicularia. (Proceedings of the Royal Society of London, VIII; 1857, pp. 383-384.) (Annals and Magazine of Natural History [2], XIX, pp. 390-391.)

MACGILLIVRAY, JOHN.

1842. Catalogue of the marine Zoophytes of the neighborhood of Aberdeen. (Annals and Magazine of Natural History [1], IX, 1842, pp. 462-469.)

MACGILLIVRAY, P. H.

1859. On some new Australian Polyzoa. (Transactions of the Philosophical Institute of Victoria, IV, 1859, pp. 97-98, pl. i.)

1859. Notes on the Cheilostomatous Polyzoa of Victoria, and other parts of Australia. (Transactions of the Philosophical Institute of Victoria, IV, 1859, pp. 159-168, pls. ii, iii.)

1860. Description of a new species of Plumatella (*P. Aplinii*). (Transactions of the Philosophical Society of Victoria, V, 1860, pp. 203-204.)

1868. Descriptions of some new genera and species of Australian Polyzoa; to which is added a list of species found in Victoria. (Transactions of the Royal Society of Victoria, IX, 1868, pp. 126-148.)

1879-1890. Bryozoa in McCoy's Prodrömus of the Zoology of Victoria. 2 vols., Melbourne. Vol. I, Decades I-X, 1879-1885. Vol. II, Decades XI-XX, 1885-1890.

[Bryozoa, Dec. III, 1879, pp. 15-28, pls. 24-26; Dec. IV, 1879, pp. 21-35, pls. 35-38; Dec. V, 1880, pp. 27-52, pls. 45-49; Dec. VI, 1881, pp. 27-46, pls. 57-60; Dec. VII, 1882, pp. 23-31, pls. 66-68; Dec. VIII, 1883, pp. 29-31, pl. 78; Dec. IX, 1884, pp. 29-34, pls. 89-90; Dec. X, 1885, pp. 13-35, pls. 94-99; Dec. XI, 1885, pp. 17-36, pls. 105-107; Dec. XII, 1886, pp. 63-73, pls. 116-118; Dec. XIII, 1886, pp. 99-111, pls. 126-128; Dec. XIV, 1887, pp. 137-150, pls. 136-138; Dec. XV, 1887, pp. 173-188, pls. 146-148; Dec. XVI, 1888, pp. 209-220, pls. 156-158; Dec. XVII, 1888, pp. 241-251, pls. 165-168; Dec. XVIII, 1889, pp. 271-291, pls. 175-178; Dec. XIX, 1889, pp. 307-323, pls. 185-187; Dec. XX, 1890, pp. 345-357, pls. 195-196.]

1881. On two new genera of Polyzoa. (Transactions and Proceedings of the Royal Society of Victoria, XVII, 1881, pp. 15-18, 1 pl.)

1881. On some new species of Catenicella and Dictyopora; and on Urceolipora, a new genus of Polyzoa. (Transactions and Proceedings of the Royal Society of Victoria, XVII, 1881, pp. 84-87, 1 pl.)

1882-1891. Descriptions of new or little known Polyzoa. (Transactions and Proceedings of the Royal Society of Victoria, Vols. XVIII, 1882-[n. s.], III, 1891.—Part I, Vol. XVIII, 1882, pp. 115-121, 1 pl.—Part II, Vol. XIX, 1883, pp. 130-138, pls. i-iii.—Part III, Vol. XIX, 1883, pp. 191-195, pls. i, ii.—Part IV, Vol. XIX, 1883, pp. 287-293, pls. i, ii.—Part V, Vol. XX, 1884, pp. 103-113, pls. i-iii.—Part VI, Vol. XX, 1884, pp. 126-128, 1 pl.—Part VII, Vol. XXI, 1885, pp. 92-99, pls. i-iii.—Part VIII, Vol. XXI, 1885, pp. 106-119, pls. i-v.—Part IX, Vol. XXII, 1886, pp. 128-139, pls. i-iii.—Part X, Vol. XXIII, 1887, pp. 34-38, pls. i-ii.—Part XI, Vol. XXIII, 1887, pp. 64-72, pls. i-iii.—Part XII, Vol. XXIII, 1887, pp. 179-186, pls. i-ii.—Part XIII, Vol. [n. s.] II, 1890, pp. 106-110, pls. iv-v.—Part XIV, Vol. [n. s.] III, 1891, pp. 77-83, pls. ix-x.)

1887. A catalogue of the marine Polyzoa of Victoria. (Transactions and Proceedings of the Royal Society of Victoria, XXIII, 1887, pp. 187-224.)

1889. On some South Australian Polyzoa. (Transactions and Proceedings of the Royal Society of South Australia, XII, 1889, pp. 24-30, pl. ii.)

1890. An additional list of South Australian Polyzoa. (Transactions and Proceedings of the Royal Society of South Australia, XIII, 1890, pp. 1-7, pl. i.)

1895. On the Australian species of *Amathia*. (Proceedings of the Royal Society of Victoria [n. s.], VII, 1895, pp. 131-140, pls. A-D.)

1895. A Monograph of the Tertiary Polyzoa of Victoria. [Completed by T. S. Hall and W. Baldwin Spencer.] (Transactions of the Royal Society of Victoria, IV, 1895, pp. 1-166, pls. i-xxii.)

#### McINTOSH, WILLIAM C.

1866. Observations on the marine zoology of North Uist, Outer Hebrides. (Proceedings of the Royal Society of Edinburgh, 1866, pp. 600-614.)

1874. On the invertebrate marine fauna of St. Andrews. III. Polyzoa, Tunicata. (Annals and Magazine of Natural History [4], XIII, 1874, pp. 302-315.)

1882. Preliminary note on *Cephalodiscus*, a new form allied to Professor Allman's *Rhabdopleura*, dredged in H. M. S. *Challenger*. (Report of the Fifty-second Meeting of the British Association for the Advancement of Science, 1882 [London, 1883], pp. 596-597).

1882. Preliminary notice of *Cephalodiscus*, a new type allied to Professor Allman's *Rhabdopleura*, dredged in H. M. S. *Challenger*. (Annals and Magazine of Natural History [5], X, 1882, pp. 337-348.)

1887. Report on *Cephalodiscus dodecalophus*, McIntosh, a new type of the Polyzoa, procured on the voyage of H. M. S. *Challenger* during the years 1873-1876. (Report on the Scientific Results of the

Voyage of H. M. S. *Challenger*. Zoology, Vol. XX, 1887, Part LXII, pp. 1-37, pls. i-vii.) [Appendix by Sidney A. Harmer, pp. 39-47.]

MAITLAND, R. T.

1896. Zonderling dierlijk product Zoarium in de binnenwateren van Zeeland; *Eschara lapidescens* van Baster. (Tijdschrift der Nederlandsche Dierkundige Vereeniging, V, 1896, pp. 10-14.)

MANTELL, GIDEON ALGERNON.

1844. The medals of creation, or first lessons in geology and in the study of organic remains. 2 vols., London, 1844. [Bryozoa, Vol. I, pp. 281-290, fig. 64.]

MANZONI, ANGELO.

1869. Bryozoi Pliocenici italiani. (Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, Wien, LIX, 1869, I Abth., pp. 17-28, pls. i-ii.)

1869. Bryozoi fossili Italiani. Seconda contribuzione. (Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, Wien, LIX, 1869, I Abth., pp. 512-523, pls. i-ii.)

1869. Bryozoi fossili italiani. Terza contribuzione. (Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, Wien, LX, 1869, I. Abth., pp. 930-944, pls. i-iv.)

1870. Bryozoi fossili italiani. Quarta contribuzione. (Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, Wien, LXI, 1870, I. Abth., pp. 323-349, pls. i-vi.)

1871. Supplemento alla Fauna dei Bryozoi Mediterranei. 1a contribuzione. (Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, Wien, LXIII, 1871, I. Abth., pp. 73-82, 3 pls.)

1875. I Briozoi del pliocene antico di Castrocaro. Bologna, 1875. 64 pp., 7 pls.

1877. Bryozoaires du pliocène supérieur de l'île de Rhodes. (Mémoires de la Société Géologique de France [3], I, 1877, Mém. No. 2, pp. 59-72, pls. iv-v.)

1877. I Briozoi fossili del Miocene d' Austria ed Ungheria. II. Parte. Celleporidea, Escharidea, Vincularidea, Selenaridea. (Denkschriften der math.-natur. Classe der k. Akademie der Wissenschaften, Wien, XXXVII, 1877, 2. Abtheilung, pp. 49-78, pls. i-xvii.)

1877. I Briozoi fossili del Miocene d' Austria ed Ungheria. III. Parte. Crisidea, Idmoneidea, Entalophoridae, Tubuliporidae, Diastoporidea, Cerioporidea. (Denkschriften der math.-natur. Classe der k. Akademie der Wissenschaften, Wien, XXXVIII, 1877, 2. Abtheilung, pp. 1-24, pls. i-xviii.)

## MAPLESTONE, C. M.

1879. A new species of Polyzoa. [*Bicellaria annulata*.] (Quarterly Journal of the Microscopical Society of Victoria, I, 1879, p. 19, pl. iii, 1-4.)

1880. A new species of Polyzoa. (Quarterly Journal of the Microscopical Society of Victoria, I, 1880, p. 64, pl. v, 4.)

1882. Observations on living Polyzoa. (Transactions and Proceedings of the Royal Society of Victoria, XVIII, 1882, pp. 48-51, 1 pl.)

1898-1900. Further descriptions of the Tertiary Polyzoa of Victoria. (Proceedings of the Royal Society of Victoria. Part I [n. s.], XI, 1898, pp. 14-22, pls. i, ii.—Part II [n. s.], XII, 1899, pp. 1-13, pls. i, ii.—Part III [n. s.], XII, 1900, pp. 162-169, pls. xvii, xviii.)

## MARION, ANTOINE FORTUNÉ.

1879. Dragages au large de Marseille. (Annales des Sciences Naturelles, Zoologie [6], VIII, 1879, Art. 7, pp. 5, 6.)

## MARSSON, TH.

1877. Die Bryozoen der weissen Schreibkreide der Insel Rügen. (Palæontologische Abhandlungen, Band IV, Berlin, 1877. 112 pp., 10 pls.)

1888. Bryozoa. In Fr. Noetling, Die Fauna des samländischen Tertiärs. Theil II, Lief. V, 1888. (Abhandlungen zur geologischen Specialkarte von Preussen und den Thüringischen Staaten, Band VI, Heft IV, pp. [555-560], 69-74.)

## MARTENS, E. VON.

1877. Ueber ein Bryozoon aus dem südatlantischen Oceane, welches von Einsiedler-Krebsen bewohnte Meerschnecken-Schalen überzieht. (Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin, 1877, p. 183.)

## MASTERMAN, A. T.

1897. On the "Notochord" of *Cephalodiscus*. (Zoologischer Anzeiger, XX, 1897, pp. 443-450, 5 figs.)

1899. On the "Notochord" of *Cephalodiscus*. (Zoologischer Anzeiger, XXII, 1899, pp. 359-363.)

## MEEK, FIELDING BRADFORD.

1872. Report on the paleontology of eastern Nebraska, with some remarks on the Carboniferous rocks of that district. (Hayden's Final Report of the United States Geological Survey of Nebraska and portions of adjacent Territories. Washington, 1872, 264 pp., 11 pls., Part II, Paleontology, pp. 81-264.) [Bryozoa, pp. 141-158.]

## MEEK, F. B., AND WORTHEN, A. H.

1870. Note on the relations of *Synocladia* King, 1849, to the proposed genus *Septopora* Prout, 1858. (Proceedings of the Academy of Natural Sciences of Philadelphia, 1870, pp. 15-18.)

## MEISSNER, MAXIMILIAN.

1893. Beitrag zur Kenntniss der geographischen Verbreitung der Bryozoengattung *Plumatella* in Africa. (Zoologischer Anzeiger, XVI, 1893, pp. 385-386.)

1893. Eine anscheinend neue Süsswasser-Bryozoe (*Lophopus Iheringi* n. sp.) aus Brasilien. (Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin, 1893, pp. 260-263, 1 fig.)

1895. Moosthiere. In Deutsch-Ost-Africa. IV. Die Thierwelt. Die wirbellose Thiere. Berlin, 1895, 7 pp., 4 figs., 1 pl. (Review by C. J. Cori in Zoologisches Centralblatt, II, 1895, pp. 243-244.)

1897. Weiterer Beitrag zur Kenntniss der geographischer Verbreitung der Süsswasser-Bryozoengattung *Plumatella*. (Zoologischer Anzeiger, XX, 1897, pp. 173-174.)

1897. Die zoologische Sammlung des Königlichen Museums für Naturkunde zu Berlin. Die Bryozoen-Schausammlung. (Naturwissenschaftliche Wochenschrift, XII, 1897, pp. 389-391, 1 fig.)

## MENEGHINI, GUISEPPE.

1845. Polipi della famiglia dei Tubuliporiani finora osservati nell' Adriatico. (Nuovi Annali delle Scienze Naturali dell' Istituto di Bologna [2], III, 1845, pp. 115-133.) (Nuovi Saggi dell' Accademia di Scienze di Padova, VI, 1847, pp. 59-72.)

## METSCHNIKOFF, ELIAS.

1869. Ueber die Metamorphose einiger Seethiere (*Cyphonautes*, *Mitraria*, *Actinotrocha*). (Nachrichten von der k. Gesellschaft der Wissenschaften zu Göttingen, 1869, pp. 227-233.)

1871. Beiträge zur Entwicklungsgeschichte einiger niederen Thiere. 6. *Alcyonella*. (Bulletin de l'Académie impériale des Sciences de St.-Pétersbourg, XV, 1871, pp. 507-508.)

## MEUNIER, A., AND PERGENS, ED.

1885. Nouveaux Bryozoaires du Crétacé Supérieur. (Annales de la Société Royale malacologique de Belgique, XX, 1885, Mémoires, pp. 32-37, pl. ii.)

1886. Les Bryozoaires du Système Montien. (Éocène Inférieur). Louvain, 1886, 15 pp., 3 pls.

## MEYEN, F. J. F.

1828. *Naturgeschichte der Polypen.* (Oken's *Isis*, XXI, 1828, cols. 1225-1234, pl. xiv.)

1830. *Nachträgliche Bemerkungen zur Naturgeschichte der Polypen des süßsen Wassers.* (Oken's *Isis*, XXIII, 1830, cols. 185-188.)

## MICHELIN, HARDOUIN.

1840-7. *Iconographie zoophytologique: Description par localités et terrains des Polypiers fossiles de France et pays environnants.* Paris, 1840-1847, 4to, xii+348 pp., 79 pls.

## MILLER, SAMUEL A.

1874. *Observations upon Stenopora filbrosa and the genus Chætetes.* (Cincinnati Quarterly Journal of Science, I, 1874, pp. 368-375.)

1882. Notice of a work by Professor Nicholson on the genus *Monticulipora*. (Journal of the Cincinnati Society of Natural History, V, 1882, pp. 25-33.)

1889. *North American Geology and Paleontology.* Cincinnati, 1889, 664 pp., 1194 figs. in text. [Bryozoa, pp. 289-330, figs. 448-531.] First Appendix, 1892, pp. 665-718, figs. 1195-1265. [Bryozoa, pp. 684-685.]

## MILLER, S. A., AND DYER, C. B.

1878. *Contributions to Paleontology.* No. 2. Cincinnati, 1878, 11 pp., 2 pls.

## MILNE-EDWARDS, ALPHONSE.

1882. *Mediterranean and Atlantic Bryozoa.* (Archives des Missions Scientifiques et Littéraires [3], IX, 1882.) (Journal of the Royal Microscopical Society [2], III, 1883, p. 198.)

## MILNE-EDWARDS, HENRI.

1835. *Mémoire sur un nouveau genre de la famille des Alcyoniens (genre Alcyonidium).* (Annales des Sciences Naturelles, Zoologie [2], IV, 1835, pp. 322-333.) (Oken's *Isis*, 1837, cols. 153-156.)

1836. *Recherches anatomiques, physiologiques et zoologiques sur les Eschares.* (Annales des Sciences Naturelles, Zoologie [2], VI, 1836, pp. 5-53, pls. i-v.) (Comptes Rendus de l'Académie des Sciences, Paris, II, 1836, pp. 225-228.) (L'Institut, IV, 1836, pp. 67-68.) (Froiep, Notizen, XLVII, 1836, pp. 337-341.)

1836. *Observations sur les polypiers fossiles du genre Eschare.* (Annales des Sciences Naturelles, Zoologie [2], VI, 1836, pp. 321-345, pls. ix-xi.) (Comptes Rendus de l'Académie des Sciences, Paris, III, 1836, pp. 612-614.) (Edinburgh New Philosophical Journal, XXII, 1837, pp. 171-175.)

1836. [Bryozoa.] In Lamarck's *Histoire Naturelle des Animaux sans Vertèbres*, Edition 2 [by G. P. Deshayes et H. Milne-Edwards], Paris, 1836, vol. 2.

1837. *Mémoire sur les Polypes du genre des Tubulipores*. (*Annales des Sciences Naturelles, Zoologie* [2], VIII, 1837, pp. 321-338, pls. xii-xiv.) (*Comptes Rendus de l'Académie des Sciences*, Paris, VI, 1838, pp. 162-165.)

1838. *Sur les polypes du genre Salicornaria*. (Extraits des *Procès-Verbaux des Séances de la Société Philomatique*, 1838, pp. 59-60.) (*L'Institut*, VI, 1838, p. 154.)

1838. *Mémoire sur les Crisies, les Hornères et plusieurs autres Polypes vivants ou fossiles dont l'organisation est analogue à celle des Tubulipores*. (*Annales des Sciences Naturelles, Zoologie* [2], IX, 1838, pp. 193-238, pls. vi-xvi.) (*Comptes Rendus de l'Académie des Sciences*, Paris, VI, 1838, pp. 572-574.) (*Leonhard und Bronn's Neues Jahrbuch für Mineralogie*, 1839, pp. 362-369.)

1846. *Zoophytes*. In Cuvier's *Le Règne Animal*. Paris, 1846.

1860. *Histoire naturelle des Coralliaires ou polypes proprement dits*. Tome III, Paris, 1860, 560 pp. [Monticuliporoids, pp. 272-284.]

MILNE-EDWARDS, HENRI, AND HAIME, JULES.

1851. *Monographie des polypiers fossiles des Terrains Paléozoïques, précédée d'un tableau général de la classification des Polypes*. (*Archives du Muséum d'Histoire Naturelle*, tome V, Paris, 1851, 4to, 504 pp.) [Monticuliporoids, pp. 261-279.]

1854. *A monograph of the British fossil Corals*. (*Palæontographical Society Publications*.) London, 1850-4, 4to, lxxxv+322 pp., 72 pls. [Monticuliporoids, pp. 264-269.]

MÖBIUS, K.

1873. *Die wirbellosen Thiere der Ostsee*. In "Bericht über die Expedition zur physikalisch-chemischen und biologischen Untersuchung der Ostsee im Sommer 1871, auf S. M. Aviso-Dampfer *Pomerania*." Kiel, 1873, folio, pp. 97-154.

MOLL, J. P. C.

1803. *Eschara zoophytozoorum seu phytozoorum ordine pulcherrima ac notata dignissima genus, etc*. Vindobonæ, 1803, 4to, 70 pp., 4 pls. [Die Seerinde, aus der Ordnung der Pflanzenthier, das schönste und merkwürdigste Geschlecht, mit neuen Arten vermehrt. Wien, 1803.]

MORRIS, J. W.

1862. *On mounting Polyzoa and hydroid zoophytes so as to display the outstretched tentacles as in life*. (*Quarterly Journal of Microscopical Science* [n. s.], II, 1862, pp. 116-117.)

## MORRIS, JOHN.

1843. A catalogue of British fossils. (London, 1843, x+222 pp; ed. 2, Lond., 1854, viii+374 pp.) [Bryozoa, pp. 119-129.]

## MULLER, F. VON.

1885. A record of localities of some New South Wales zoophytes as determined by Dr. Kirchenpauer. (Proceedings of the Linnean Society of New South Wales, IX, 1885, pp. 534-536.)

## MÜLLER, FRITZ.

1860. Das Kolonialnervensystem der Moosthiere, nachgewiesen an *Serialaria Coutinhii* n. sp. (Wiegmann's Archiv für Naturgeschichte, XXVI, 1860, I, pp. 311-318, pl. xiii.) (Quarterly Journal of Microscopical Science [n. s.], I, 1861, pp. 300-305.) (Annales des Sciences Naturelles, Zoologie [4], XVIII, 1862, p. 212.)

## NAMIAS, J.

1890. Briozoi Pliocenici del Modenese. (Atti della Società dei Naturalisti di Modena [3], IX, 1890, pp. 63-64.)

1890. Sul valore sistematico di alcune specie di Briozoi. (Atti della Società dei Naturalisti di Modena [3], IX, 1890, pp. 69-76.)

1891. Contributo ai Briozoi Pliocenici delle Provincie di Modena e Piacenza. (Bollettino della Società Geologica Italiana, Roma, IX, 1891, pp. 471-513, 1 pl.)

1892. Su alcune forme Briozoarie del Mar Rosso. (Atti della Società dei Naturalisti di Modena [3], XI, 1892, pp. 74-77.)

1894. Su alcune forme Briozoarie del Mar Rosso. (Atti della Società dei Naturalisti di Modena [3], XIII, 1894, pp. 93-96.)

## NEVIANI, ANTONIO.

1891. Contribuzione alla conoscenza dei Briozoi fossili italiani.—Briozoi postpliocenici del sottosuolo di Livorno. (Bollettino della Società Geologica Italiana, Roma, X, 1891, pp. 99-148, pl. iv a.)

1893. Seconda contribuzione alla conoscenza dei Briozoi fossili italiani.—La collezione dei Briozoi pliocenici di Castrocaro, illustrata dal dottor Angelo Manzoni. (Bollettino della Società Geologica Italiana, Roma, XII, 1893, pp. 109-136.)

1893. Terza contribuzione alla conoscenza dei Briozoi fossili italiani.—Di alcuni Briozoi pliocenici del Rio Landa, illustrati da Ferdinando Bassi nel 1757. (Bollettino della Società Geologica Italiana, Roma, XII, 1893 [1894], pp. 659-668.)

1895. Nuovo genere e nuove specie di Briozoi fossili. (Rivista Italiana di Paleontologia, Bologna, I, 1895, pp. 82-84.)



1895. Nuova specie fossili di Stichoporina. (*Rivista Italiana di Paleontologia*, Bologna, I, 1895, pp. 247-250.)

1895. Briozoi fossili illustrati da Soldani Ambrogio nel 1780. *Bollettino della Società Romana per gli Studi Zoologici*, IV, 1895, pp. 57-64.)

1895. Nota preliminare sui Briozoi fossili del postpliocene antico della Farnesina e Monte Mario. (*Bollettino della Società Romana per gli Studi Zoologici*, IV, 1895, pp. 65-74.)

1895. Briozoi Eocenici del calcare nummilitico di Mosciano presso Firenze. (*Bollettino della Società Geologica Italiana*, Roma, XIV, 1895, pp. 119-127.)

1895. Briozoi fossili della Farnesina e Monte Mario presso Roma. (*Palæontographica Italica*, Pisa, I, 1895, pp. 77-140, pls. v, vi.)

1895-1898. Briozoi neozoici di alcune località d' Italia. (*Bollettino della Società Romana per gli Studi Zoologici*, IV-VII, 1895-1898.)—Parte I, Vol. IV, 1895, pp. 109-123.—Parte II, Vol. IV, 1895, pp. 227-247, 2 figs.—Parte III, Vol. V, 1896, pp. 102-125, 10 figs.—Parte IV, Vol. VII, 1898, pp. 34-49, 4 figs.—Parte V, Vol. VII, 1898, pp. 97-109, 1 fig.

1896. Appunti bibliografici per servire alla storia degli studi sui Briozoi. (*Revista Italiana di Scienze Naturali*, Siena, XVI, 1896, pp. 1-7, 25-28, 35-38.)

1896. Briozoi Postpliocenici di Spilinga (Calabria). (*Atti Accademia Gioenia di Scienze Naturali in Catania* [4]. IX, 1896, pp. 1-66, 32 figs.)

1898. Briozoi della formazione plioceniche e postplioceniche di Palo, Anzio e Nettuno. (*Bollettino della Società Geologica Italiana*, Roma, XVII, 1898, pp. 220-232.)

1898. Appunti sui Briozoi del Mediterraneo. Nota Prima. (*Bollettino della Società Romana per gli Studi Zoologici*, VII, 1898, pp. 163-168, 6 figs.)

#### NEVIANI, ANTONIO AND ANGELIS D'OSSAT, G. DE.

1897. Corallari e Briozoi neogenici di Sardegna. (*Bollettino della Società Geologica Italiana*, Roma, XV, 1897, pp. 571-598, 2 figs.) [*Bryozoa*, by Neviani, pp. 580-596; *Corals* by Angelis d'Ossat.]

#### NICHOLS, A. R.

1886. Polyzoa. First report on the marine fauna of the Southwest of Ireland. (*Proceedings of the Royal Irish Academy* [2], IV, 1886, p. 22.)

#### NICHOLSON, H. ALLEYNE.

1874. Summary of recent researches on the palæontology of Ontario. (*Canadian Journal* [n.s.], XIV, 1874, pp. 125-136.)

1874. Descriptions of two new genera and species of Polyzoa from

the Devonian Rocks. (Annals and Magazine of Natural History [4], XIII, 1874, pp. 77-85.)

1874. Descriptions of species of *Chaetetes* from the Lower Silurian rocks of North America. (Quarterly Journal of the Geological Society of London, XXX, 1874, pp. 499-515, pls. xxix, xxx.)

1874. Report upon the palæontology of the Province of Ontario. Toronto, 1874. 133 pp., 8 pls.

1875. Report upon the palæontology of the Province of Ontario. Toronto, 1875. 96 pp., 4 pls.

1875. Descriptions of species of *Hippothoa* and *Alecto* from the Lower Silurian rocks of Ohio, with a description of *Aulopora arachnoidea*, Hall. (Annals and Magazine of Natural History [4], XV, 1875, pp. 123-127, pl. xi.)

1875. Descriptions of new species of Polyzoa from the Lower and Upper Silurian rocks of North America. (Annals and Magazine of Natural History [4], XV, 1875, pp. 177-184, pl. xiv.)

1875. Descriptions of new species and of a new genus of Polyzoa from the Palæozoic rocks of North America. (Geological Magazine [n. s.], Decade II, II, 1875, pp. 33-38, pl. ii.)

1875. On some of the massive forms of *Chaetetes* from the Lower Silurian. (Geological Magazine [n. s.], Decade II, II, 1875, pp. 175-177.)

1875. Descriptions of the Corals of the Silurian and Devonian Systems. (Palæontology of Ohio, II, 1875, pp. 181-242, pls. xxi, xxii.)

1875. Descriptions of the Polyzoa from the Silurian formation. (Palæontology of Ohio, II, 1875, pp. 257-268, pl. xxv.)

1876. Notes on the Palæozoic corals of the State of Ohio. (Annals and Magazine of Natural History [4], XVIII, 1876, pp. 85-94, pl. v.)

1879. On the structure and affinities of the "Tabulate Corals" of the Palæozoic period, with critical descriptions of illustrative species. Edinburgh, 1879, 342 pp. 15 pls. [Bryozoa, pp. 253-327, pls. xii-xv.]

1880. On the minute structure of the recent *Heteropora neozelanica*, Busk, and on the relations of the genus *Heteropora* to *Monticulipora*. (Annals and Magazine of Natural History [5], VI, 1880, pp. 329-338.)

1881. On the structure and affinities of the genus *Monticulipora* and its subgenera, with critical descriptions of illustrative species. Edinburgh, 1881, 240 pp. 6 pls. (Review in Annals and Magazine of Natural History [5], VIII, 1881, pp. 61-63.)

1883. Contributions to Micro-Palæontology.—On *Stenopora Howsii*, Nicholson, with notes on *Monticulipora ? tumida*, Phillips, and remarks on *Tabulipora Urii*, Young. (Annals and Magazine of Natural History [5], XII, 1883, pp. 285-297, pl. x.)

1884. Contributions to Micro-Palæontology.—Notes on some species of monticuliporoid corals from the Upper Silurian rocks of Britain. (Annals and Magazine of Natural History [5], XIII, 1884, pp. 117-127, pl. vii.)

NICHOLSON, H. ALLEYNE, AND ETHERIDGE, ROBERT, JUN.

1877. On *Ascodictyon*, a new provisional and anomalous genus of Palæozoic fossils. (Annals and Magazine of Natural History [4], XIX, 1877, pp. 463-468, pl. xix.)

1877. On *Prasopora* Grayæ, a new genus and species of Silurian corals. (Annals and Magazine of Natural History [4], XX, 1877, pp. 388-392.)

1879. Descriptions of Palæozoic corals from northern Queensland, with observations on the genus *Stenopora*. (Annals and Magazine of Natural History [5], IV, 1879, pp. 216-226, 265-285, pl. xiv.)

1886. On the Tasmanian and Australian species of the genus *Stenopora* Lonsdale. (Annals and Magazine of Natural History [5], XVII, 1886, pp. 173-187, pls. iii, iv.)

NICHOLSON, H. ALLEYNE, AND FOORD, ARTHUR H.

1885. On the genus *Fistulipora* McCoy, with descriptions of several species. (Annals and Magazine of Natural History [5], XVI, 1885, pp. 496-517, pls. xv-xviii.)

NICHOLSON, H. ALLEYNE, AND HINDE, GEORGE J.

1874. Notes on the fossils of the Clinton, Niagara, and Guelph formations of Ontario, with descriptions of new species. (Canadian Journal [n. s.], XIV, 1874, pp. 137-144.)

NICKERSON, W. S.

1899. Notes on *Loxosoma* Davenporti. (Science [n. s.], IX, 1899, pp. 366-367.)

NICKLES, JOHN M.

1890. Studies on *Monticulipora*. (American Geologist, VI, 1890, pp. 396-399.)

NITSCHKE, HINRICH.

1868. Beiträge zur Anatomie und Entwicklungsgeschichte der phylactolæmen Süßwasserbryozoen, insbesondere von *Alcyonella fungosa* Pall. sp. (Reichert und du Bois Raymond's Archiv für Anatomie, 1868, pp. 465-521, 4 pls.) [Also separate, Berlin, 1868, 57 pp., 4 pls.]

1869. Beiträge zur Kenntniss der Bryozoen. I. Beobachtungen über die Entwicklungsgeschichte einiger chilostomen Bryozoen. (Zeitschrift für wissenschaftliche Zoologie, XX, 1869, pp. 1-13, pl. i.) II. Ueber die Anatomie von *Pedicellina echinata* Sars. (Ibid., pp. 13-34, pls. ii, iii.)

1870. Untersuchungen des Baues von *Pedicellina echinata* Sars. (Sitzungsbericht der Gesellschaft naturforschender Freunde zu Berlin, 1869 [1870], p. 9.)

1870. Ueber den Hermaphroditismus von *Bugula flabellata*, *B. plumosa* und *Bicellaria ciliata*. (Sitzungsbericht der Gesellschaft naturforschender Freunde zu Berlin, 1869 [1870], p. 9.)

1871. Beiträge zur Kenntnis der Bryozoen. III. Ueber die Anatomie und Entwicklungsgeschichte von *Flustra membranacea*. (Zeitschrift für wissenschaftliche Zoologie, XXI, 1871, pp. 416-470, pls. xxv-xxvii.) IV. Ueber die Morphologie der Bryozoen. (Ibid., pp. 471-498, 4 figs.) [Also separate, Leipzig, 1871, 83 pp., 3 pls.]

1871. On some interesting points concerning the mode of reproduction of the Bryozoa. (Quarterly Journal of the Microscopical Society [n. s.], XI, 1871, pp. 155-162.)

1872. Betrachtungen über die Entwicklungsgeschichte und Morphologie der Bryozoen. (Zeitschrift für wissenschaftliche Zoologie, XXII, 1872, pp. 467-472, 2 figs.)

1874. Untersuchungen über die Knospung der Süßwasserbryozoen, insbesondere der *Alcyonella*. (Sitzungsberichte der naturforschenden Gesellschaft zu Leipzig, 1874, pp. 31-36.)

1875. Beiträge zur Kenntnis der Bryozoen. V. Ueber die Knospung der Bryozoen. A. Ueber die Knospung der Polypide der phylactolämen Süßwasserbryozoen, pp. 343-361, pls. xxiv, xxv, 1-3; B. Ueber den Bau und die Knospung von *Loxosoma Kefersteinii* Claparède, pp. 361-390, pls. xxv, 4-20, xxvi, 8-13; C. Allgemeine Betrachtungen, pp. 390-399. (Zeitschrift für wissenschaftliche Zoologie, XXV. Supplementheft, III, 1875, pp. 343-402, pls. xxiv-xxvi.) [Also separate, Leipzig, 1876.]

1875. Ueber den Bau und die Knospung von *Loxosoma Kefersteinii* Claparède. (Zeitschrift für wissenschaftliche Zoologie, XXV, 1875, pp. 451-456.) (Archives de Zoologie expérimentale et générale, IV, 1875, pp. liii-lv.)

NORDGAARD, O.

1893. Enkelte traek af Beitstadjordens eyvertebratfauna. (Bergens Museum Aarbog for 1892, Bergen, 1893, No. 2, pp. 1-11.) [Bryozoa, pp. 7, 8.]

1896. Systematisk fortegnelse over de i Norge hidtil observerede arter af marine Polyzoa. I. Cheilostomata. (Bergens Museum Aarbog for 1894-95, Bergen, 1896, No. 2, pp. 1-34, pls. i, ii.)

1896. Systematisk fortegnelse over de i Norge hidtil observerede arter af marine polyzoa. II. Cyclostomata. (Bergens Museum Aarbog for 1896, Bergen, 1896, No. 2, pp. 1-6.)

1900. Polyzoa. Den Norske Nordhavs-Expedition—The Norwegian North-Atlantic Expedition—1876-1878, XXVII, Christiania, 1900, 33 pp., 1 pl. and 1 map.

## NORDMANN, ALEX. VON.

1839. Recherches sur le *Tendra zostericola*, polype de la section Bryozoaires. (Annales des Sciences Naturelles, Zoologie [2], XI, 1839, pp. 185-191.)

1839. Sur l'anatomie du *Tendra zostericola*. (Comptes Rendus de l'Académie des Sciences, Paris, VIII, 1839, pp. 357-359.) (L'Institut, VII, 1839, p. 95.)

1841. Ueber einen mit günstigem Erfolg angestellten Versuch Süßwasser-Polypen von Paris nach Odessa zu verpflanzen. (Bulletin de l'Académie Impériale des Sciences de St.-Pétersbourg, VIII, 1841, pp. 353-357.) (Froriep, Notizen, XVIII, 1841, pp. 241-244.)

1842. Voyage dans la Russie méridionale et la Crimée, exécuté en 1837 sous la direction de M. Anatole de Demidoff, 1842. [Bryozoa, vol. II, pp. 818, 819. Vol. III. Recherches microscopiques sur l'anatomie et le développement du *Tendra zostericola*, pp. 651-678, Atlas, Polypi, pl. ii. *Cellularia avicularia*, Pall., pp. 679-707, Atlas, Polypi, pl. iii. Recherches microscopiques sur l'anatomie et le développement de la *Plumatella campanulata*, Lamarck, pp. 709-730, Atlas, Polypi, pl. i.]

## NORMAN, ALFRED MERLE.

1864. On undescribed British Actinozoa, Hydrozoa, and Polyzoa. (Annals and Magazine of Natural History [3], XIII, 1864, pp. 82-90, pls. ix-xi.)

1866. Report on the Crustacea, Echinodermata, Polyzoa, Actinozoa, and Hydrozoa from the coasts of the Hebrides. (Report of the Thirty-sixth Meeting of the British Association for the Advancement of Science, 1866 [London, 1867], pp. 193-206.) [Bryozoa, pp. 203-205.]

1867. Preliminary report on the Crustacea, Molluscoidea, Echinodermata, and Coelenterata, procured by the Shetland Dredging Committee in 1867. (Report of the Thirty-seventh Meeting of the British Association for the Advancement of Science, 1867 [London, 1868], pp. 437-441.)

1868. Shetland Final Dredging Report. Part II. On the Crustacea, Tunicata, Polyzoa, Echinodermata, Actinozoa, Hydrozoa, and Porifera. (Report of the Thirty-eighth Meeting of the British Association for the Advancement of Science, 1868 [London, 1869], pp. 247-342.) [Bryozoa, pp. 303-312.]

1868. Notes on some rare British Polyzoa, with descriptions of new species. (Quarterly Journal of Microscopical Science [n. s.], VIII, 1868, pp. 212-222, pls. v-vii.)

1879. On *Loxosoma* and *Triticella*, genera of semiparasitic Polyzoa in the British seas. (Annals and Magazine of Natural History [5], III, 1879, pp. 133-140.)

1893-1894. A Month on the Trondhjem Fjord. (Annals and Magazine of Natural History [6], XII, 1893, pp. 446-452, pl. xix; *ibid.* [6], XIII, 1894, pp. 112-133, pls. vi, vii.)

NOVAK, OTTAMAR.

1877. Beitrag zur Kenntniss der Bryozoen der böhmischen Kreidebildung. (Denkschriften der math.-natur. Classe der k. Akademie der Wissenschaften, Wien, XXXVII, 1877, pp. 79-126, pls. i-x.)

OEHLERT, D. P.

1888. Descriptions de quelques espèces dévoniennes du Département de la Mayenne. (Bulletin de la Société d'Études Scientifiques d'Angers, XVII, 1888, pp. 65-120, pls. vi-x.) [Bryozoa, pp. 104-109.]

OKA, ASAJIRO.

1890. Observations on fresh-water Polyzoa [*Pectinatella gelatinosa*, nov. sp.]. (Journal of the College of Science, Imperial University of Japan, Tokyo, IV, 1890, pp. 89-150, pls. xvii-xx.)

1895. On the Nephridium of Phylactolamatus Polyzoa. (Zoological Magazine, VII, 1895, pp. 21-37, pl. ix.)

1895. Note on the Nephridium of Endoproctous Polyzoa. (Zoological Magazine, VII, 1895, pp. 65-66.)

1895. Sur la *Barentsia misakiensis*. (Zoological Magazine, VII, 1895, pp. 76-86, pl. xii.)

1895. "Excretory Organ" of fresh-water Polyzoa. (Journal of the College of Science, Imperial University of Japan, Tokyo, VIII, Part II, 1895, pp. 339-363, pls. xxxiv, xxxv.)

ORBIGNY, ALCIDE D'.

1839. Voyage dans l'Amérique-Méridionale, V, Part IV. Zoophytes. Paris, 1839 et 1846, 4to, 28 pp., 13 pls.

1849. Description de quelques genres nouveaux de Mollusques bryozoaires. (Revue et Magasin de Zoologie [2], I, 1849, pp. 499-504.)

1849-1852. Prodrôme de paléontologie stratigraphique. Paris, tome 1, 1849 [1850?], lx+394 pp.; tome 2, 1850, 427 pp.; tome 3, 1852, 196 pp. and index, 191 pp.

1850-52. Paléontologie française. Description des animaux invertébrés. Terrain Crétacé. Tome cinquième. Bryozoaires. Paris, 1850-1852. Text, 1192 pp., Atlas, pls. DC-DCCC.

1851-52. Recherches zoologiques sur la classe des Mollusques Bryozoaires. (Annales des Sciences Naturelles, Zoologie [3], XVI, 1851, pp. 292-339; *ibid.* [3], XVII, 1852, pp. 273-348.)

1852. Cours élémentaire de paléontologie et de géologie stratigraphique. Paris, 1852, 4to. [Tableau 10, Bryozoaires.]

## ORTMANN, ARNOLD E.

1890. Die japanische Bryozoen-Fauna. (Archiv für Naturgeschichte, L, I Band, 1890, pp. 1-74, pls. i-iv.)

1894. Beiträge zur Fauna der süd-östlichen und östlichen Nordsee. III. Bryozoen. (Biologischen Anstalt auf Helgoland, Neue Folge, I Band, 1894, pp. 347-362.)

## OSSWALD, —.

1890. Die Bryozoen der mecklenburgischen Kreidegeschiebe. (Archiv des Vereins der Freunde der Naturgeschichte in Mecklenburg, Güstrow, XLIII, 1890, pp. 101-110.)

## OSTROUMOFF, ALEXIS.

1885. Note sur la métamorphose du Cyphonautes. (Zoologischer Anzeiger, VIII, 1885, p. 219.)

1885. Remarques relatives aux recherches de Mr. Vigelius sur les Bryozoaires. (Zoologischer Anzeiger, VIII, 1885, pp. 290-291.)

1885. Extrait de l'œuvre sur la morphologie des Bryozoaires marines. (Zoologischer Anzeiger, VIII, 1885, pp. 577-579.)

1886. Zur Entwicklungsgeschichte der cyclostomen Seebryozoen. (Zoologischer Anzeiger, IX, 1886, pp. 283-284.)

1886. Einiges über die Metamorphose der Süßwasserbryozoen. (Zoologischer Anzeiger, IX, 1886, pp. 547-548.)

1886. Remarques relatives aux recherches de Mr. L. Joliet sur la blastogénèse [des bryozoaires]. (Zoologischer Anzeiger, IX, 1886, pp. 618-619.)

1886. Opit izslyedovaniya mehanok Sevastopolskoi Bukhti v sistematitsheskom i morphologitsheskom othomeniyakh. [Die Bryozoen der Bucht von Sebastopol. Vollständigere Ausgabe mit einem ganz neuen Theile über die Morphologie der Bryozoen.] (Trudui obshtchestva estestvoespytatelei pre emperatorskom Kasanskom Universitet [Mémoires de la Société d'histoire naturelle de Kasan], XVI, Part II, 1886, 124 pp., 5 pls.)

1886. Contributions à l'étude zoologique et morphologique des Bryozoaires du golfe de Sébastopol. (Archives Slaves de Biologie, I, 1886, pp. 557-569; *ibid.*, II, 1886, pp. 8-25, 184-190, 329-355, 5 pls.)

1887. Zur Entwicklungsgeschichte der cyclostomen Seebryozoen. (Mittheilungen aus der Zoologischen Station zu Neapel, VII, 1887, pp. 177-190, pl. vi.)

1887. Erwiderung auf den Artikel Herrn Reinhard's "Zur Kenntnis der Süßwasserbryozoen." (Zoologischer Anzeiger, X, 1887, pp. 168-169.)

1887. Ueber die morphologische Bedeutung der Metamorphose der Süßwasserbryozoen. [Russian.] (Arbeiten der Naturforschenden Gesellschaft, Universität Kasan, Protok., 1886-7, No. 91, 8 pp.)

## PAALZOW, RICHARD.

1897. Eine neue Bryozoe aus dem Zechsteinriff von Poessneck. (Abhandlungen der Naturforschenden Gesellschaft zu Nürnberg, XI, 1897, pp. 46-47.)

## PACKARD, ALPHEUS SPRING.

1863. A list of animals dredged near Caribou Island, southern Labrador, during July and August, 1860. (Canadian Naturalist and Geologist, VIII, 1863, pp. 401-429, pls. i, ii.) [Bryozoa, pp. 406-412, pls. i, ii.]

1867. Observations on the glacial phenomena of Labrador and Maine; with a view of the recent invertebrate Fauna of Labrador. (Memoirs read before the Boston Society of Natural History; being a new series of the Boston Journal of Natural History, I, Part II, 1867, pp. 210-303, pls. vii, viii.) [Bryozoa, pp. 269-276, pl. vii.]

## PALLAS, PIERRE SIMON.

1766. Elénchus Zoophytorum, sistens generum adumbrationes generaliores et specierum cognitarum succinctas descriptiones, cum selectis auctorum synonymis. (La Haye, 1766, 8vo. Traduit en allemand, avec des remarques, par Wilckens; Nuremberg, 1787, 4to.)

## PANTANELLI, D.

1890. Cupularia umbellata e Cupularia intermedia. (Atti della Società Toscana di Scienze Naturali, residente in Pisa, Processi verbali, VII, 1890, pp. 25-28.)

## PARFITT, EDWARD.

1866. On two new species of fresh-water Polyzoa. (Annals and Magazine of Natural History [3], XVIII, 1866, pp. 171-173, pl. xii.)

1868. Note on a variety (?) of Alcyonella fungosa. (Annals and Magazine of Natural History [4], II, 1868, pp. 77-78.)

1873. On a new species of Cellepora. (Annals and Magazine of Natural History [4], XII, 1873, pp. 98-99.)

## PEACH, CHARLES WILLIAM.

1868. On a new Eschara from Cornwall. (Report of the Thirty-eighth Meeting of the British Association for the Advancement of Science, 1868 [London, 1869], p. 109.)

1868. On a new British Eschara and the occurrence in Cornwall of Sphenotrochus Wrightii, of Gosse. (Journal of the Royal Institution of Cornwall, III, 1868-1870, pp. 116-117.)



1871. On *Pustulopora clavata* of Busk, from the Wolf Rock, near Penzance. (Journal of the Royal Institute of Cornwall, IV, 1871-73, pp. 88-89, 1 pl.)

1878. Observations on British Polyzoa. (Journal of the Linnean Society, Zoology, XIII, 1878, pp. 479-486, pl. xxiii.)

PENNINGTON, ARTHUR S.

1885. British Zoophytes: An introduction to the Hydroida, Actinozoa, and Polyzoa found in Great Britain, Ireland, and the Channel Islands. London, 1885, 363 pp., 24 pls. [Bryozoa, pp. 201-335, pls. xvi-xxiv.]

PERGENS, ED.

1887. Contributions à l'Histoire des Bryozoaires et des Hydrozoaires récents. (Bulletin des Séances de la Société Royale Malacologique de Belgique, XXII, 1887, pp. lxxxv-xc.)

1887. Les Bryozoaires du Tasmajdan à Belgrade. (Bulletin des Séances de la Société Royale Malacologique de Belgique, XXII, 1887, pp. 12-28.) Note supplémentaire sur les Bryozaires du Tasmadjan. (Ibid., pp. 59-60.)

1887. Note préliminaire sur les Bryozoaires fossiles des environs de Kolosvar. (Bulletin des Séances de la Société Royale Malacologique de Belgique, XXII, 1887, pp. 33-37.)

1887. Pliocäne Bryozoen von Rhodos. (Annalen des k. k. naturhistorischen Hofmuseums, Wien, II, 1887, pp. 1-34, pl. i.)

1888. Deux nouveaux types de Bryozoaires Cténostomes. (Annales de la Société Royale Malacologique de Belgique, Mémoires, XXIII, 1888, pp. 340-343, pl. xxiv.)

1889. Révision des Bryozoaires du Crétacé figurés par d'Orbigny. (Mémoires de la Société Belge de Géologie, de Paléontologie et d'Hydrologie, Bruxelles, III, 1889, pp. 305-400, pls. xi-xiii.)

1889. Untersuchungen an Seebryozoen. (Zoologischer Anzeiger, XII, 1889, pp. 504-510, 526-533.)

1889. Notes succinctes sur les Bryozoaires. I. Sur les Bryozoaires du Miocène de la Russie méridionale, pp. 20-24. II. Bryozoaires dragués par M. G. Dollfus dans le nord-ouest de la Méditerranée, pp. 57-60. III. Bryozoaires dragués par M. Lennier aux environs de Cherbourg (Brest in error), pp. 60-62. (Bulletin des Séances de la Société Royale Malacologique de Belgique, XXIV, 1889, Procès-verbaux.)

1889. Zur fossilen Bryozoenfauna von Wola Lu'zanska. (Bulletin de la Société Belge de Géologie, III, 1889, Mémoires, pp. 59-72.)

1890. Nouveaux Bryozoaires Cyclostomes du Crétacé. (Bulletin de la Société Belge de Géologie, IV, 1890, Mémoires, pp. 277-279, pl. xi.)

1891. Bryozoaires du Miocène du Gard. (Bulletin de la Société Belge de Géologie, V, 1891, Procès-verbaux, pp. 46-53.)

1892. Bryozoaires du Sénomien de Sainte-Paterne, de Lavardin et de la Ribochère. (Bulletin de la Société Belge de Géologie, VI, 1892, Procès-verbaux, pp. 200-217.)

1893. Nouveaux Bryozoaires du Crétacé du Limbourg. (Bulletin de la Société Belge de Géologie, VII, 1893, pp. 172-189, pls. viii-xi.)

1894. Les Bryozoaires du Sénomien de la Carrière de l'Arche de Lèves, près Chartres. (Bulletin de la Société Belge de Géologie, VIII, 1894, Procès-verbaux, pp. 131-140.)

1894. Bryozoaires du Sénomien de la Carrière de Cachemback, près Chartres (Faubourg Saint-Barthélemy). (Bulletin de la Société Belge de Géologie, VII, 1894, Procès-verbaux, pp. 181-184.)

1895. Note sur l'identification et la séparation des espèces dans le groupe des Bryozoaires. (Bulletin de la Société Belge de Géologie, IX, 1895, Procès-verbaux, pp. 8-11.)

1896. Bryozoaires des environs de Buda. (Bulletin de la Société Belge de Géologie, X, 1896, Mémoires, pp. 359-368.)

PERGENS, ED., AND MEUNIER, A.

1886. La faune des Bryozoaires Garumniens de Faxe. (Annales de la Société Royale Malacologique de Belgique, Bruxelles, XXI, 1886, Mémoires, pp. 187-242, pls. ix-xiii.)

PERKINS, GEORGE H.

1869. The molluscan fauna of New Haven. Part II. Acephala and Bryozoa. (Proceedings of the Boston Society of Natural History, XIII, 1869-1871, pp. 139-163.) [Bryozoa, p. 161.]

PERON, A.

1893. Exploration scientifique de la Tunisie. Description des Brachiopodes, Bryozoaires et autres invertébrés fossiles des terrains crétacés de la région sud des Hauts-Plateaux de la Tunisie, recueillis en 1885 et 1886 par M. Philippe Thomas. Paris, Imprimerie Nationale, 1893, fol., pp. 329-405, 2 pls.

PETTY, S. L.

1897. Polyzoa and Hydrozoa at Filey. (Naturalist, 1897, pp. 275-276.)

PHILLIPS, JOHN.

1836. Illustrations of the geology of Yorkshire. Part II. The Mountain Limestone District. London, 1836, 4to, xx+253 pp., 25 pls. [Bryozoa, pp. 198-200, pl. i.]

1841. Figures and descriptions of the Paleozoic fossils of Cornwall, Devon, and West Somerset. London, 1841. 231 pp., 60 pls. [Bryozoa, pp. 20-27, pls. 9-13.]

## PICTET, F. J.

1857. *Traité de paléontologie*. Ed. 2, 1857. [Bryozoa, IV, pp. 87–171, atlas, pls. xc–xcii.]

## PIEFER, FR. W.

1881. Eine neue Bryozoe der Adria: *Gemellaria* (?) *avicularis*. (Neunter Jahresbericht des Westfälischen Provincial-Vereins für Wissenschaft und Kunst, Münster, 1881, pp. 43–48.)

## POČTA, PHILIPPE.

1892. O mechovkách z korycanských vrstev pod kaňkem u kutnehory. [Ueber Bryozoen aus dem Cenoman am Fusse des Gangberges bei Kuttendorf.] (Abhandlungen der k. böhmischen Gesellschaft der Wissenschaften, Prag, 1892. 42 pp., 16 figs., 4 pls.)

1894. Bryozoaires, Hydrozoaires et partie des Anthozoaires. (Système Silurien du Centre de la Bohême, par Joachim Barrande, VIII, tome i, 1894. 230 pp., 21 pls., 4to.) [Bryozoa, pp. 3–132, pls. i, ii, vii–xvii.]

## POTTS, EDWARD.

1884. On a supposed new species of *Cristatella*. (Proceedings of the Academy of Natural Sciences of Philadelphia, 1884, pp. 193–199, pl. iv.)

1884. On *Paludicella erecta*. (Proceedings of the Academy of Natural Sciences of Philadelphia, 1884, pp. 213–214.) (Annals and Magazine of Natural History [5], XIV, 1884, pp. 437–439.)

## POURTALES, L. F.

1867. Contributions to the fauna of the Gulf Stream at great depths. (Bulletin of the Museum of Comparative Zoology at Harvard College in Cambridge, I, 1867, pp. 103–120.) [Bryozoa, pp. 110–111.]

## PROCHÁZKA, VLADIMIR JOS.

1894. Miocæn Kralický u Náměště na Moravě. [Resumé des Miocæn von Kralic nächst Náměst in Mähren. (Vestník Královské České Společnosti Náuk, Prag.—Sitzungsberichte der k. Böhmischen Gesellschaft der Wissenschaften—1893 [1894], No. xvi.) [Bryozoa, pp. 47–55 [65–69], pls. xi, xii.]

## PROUHO, HENRI.

1889. Sur la structure et la métamorphose de la larve de la *Flustrella hispida* [Bryozoaire cténostome]. (Comptes Rendus de l'Académie des Sciences, Paris, CVIII, 1889, pp. 1023–1025.)

1889. Sur la reproduction de quelques Bryozoaires cténostomes. (Comptes Rendus de l'Académie des Sciences, Paris, CIX, 1889, pp. 197–198.)

1890. Sur la *Cyclatella annelidicola* (Van Beneden et Hesse). (Comptes Rendus de l'Académie des Sciences, Paris, CXI, 1890, pp. 799-801.)

1890. Recherches sur la larve de la *Flustrella hispida* (Gray), structure et métamorphose. (Archives de Zoologie expérimentale et générale [2], VIII, 1890, pp. 409- —.)

1891. Sur trois cas de développement libre observés chez les Bryozoaires ectoproctes. (Comptes Rendus de l'Académie des Sciences, Paris, CXII, 1891, pp. 1316-1318.)

1891. Contribution à l'histoire des Loxosomes. Étude sur le *Loxosoma annelidicola* (*Cyclatella annelidicola* Van Ben. et Hesse). (Archives de Zoologie expérimentale et générale [2], IX, 1891, pp. 91-116, 1 pl.)

1891. Sur l'appareil perforant de l'*Hypophorella expansa* (Bryozoaire cténostome). (Association Française pour l'Avancement des Sciences. Compte Rendu de la 20<sup>me</sup> session, Première Partie, pp. 247-248.)

1891. Sur le développement de la *Membranipora pilosa*. (Association Française pour l'Avancement des Sciences, XIX, 1891, Part II, pp. 517-519.)

1892. Contribution à l'histoire des Bryozoaires. (Archives de Zoologie expérimentale et générale [2], X, 1892, pp. 557-656, 8 pls.) (Review by Ehlers in Nachrichten von der k. Gesellschaft der Wissenschaften und der Georg-Augusts-Universität zu Göttingen, 1893, pp. 483-490.)

#### PROUT, HIRAM A.

1858. Description of new species of Bryozoa from Texas and New Mexico. (Transactions of the St. Louis Academy of Sciences, I, 1858, pp. 228-235.)

1858-1860. Four series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Transactions of the St. Louis Academy of Sciences, I, 1858-1860. First series, 1858, pp. 235-237, pl. xv; second series, 1858, pp. 266-273, pl. xvi; third series, 1859, pp. 443-452, pls. xvii, xviii; fourth series, 1860, pp. 571-581.)

1866. Descriptions of new species of Bryozoa. (Transactions of the St. Louis Academy of Sciences, II, 1866, pp. 410-413.)

1866. Descriptions of Polyzoa from the Paleozoic rocks. (Geological Survey of Illinois, II, 1866, pp. 412-423, pls. xxi, xxii.)

#### QUELCH, J. J.

1883. On the oecium of *Spiralaria*. (Annals and Magazine of Natural History [5], XI, 1883, pp. 276-277.)

1884. On *Schizoporella Ridleyi*, MacG., and *Schizoporella simplex*, D'Orbigny and Johnston. (Annals and Magazine of Natural History [5], XIII, 1884, pp. 215-217.)

## QUENSTEDT, FRIEDRICH AUGUSTUS.

1852-1885. Handbuch der Petrefactenkunde. Tübingen, 1852, iv+792 pp., 62 pls.; edition 2, 1867, 982 pp., 86 pls.; edition 3, 1882-5, 1239 pp., 100 pls.

1881. Petrefactenkunde Deutschlands. VI. Korallen (Röhren- und Sternkorallen). Leipzig, 1881, 1093 pp., Atlas, 42 pls.

## RABITO, LEON.

1898. Ricerche intorno alla formazione dei statoblasti nei Briozoi d'acqua dolce. (Naturalista Siciliano, Palermo [n. s.], II, 1898, pp. 131-140, 1 pl.)

## RANSON, J. JOSSELYN, AND PONTON, T. GRAHAM.

1866. Notes on Lophopus crystallinus. (Popular Science Review, V, 1866, pp. 438-441, 1 pl.)

## RASPAIL, FRANÇOIS VINCENT.

1828. Histoire naturelle de l'Alcyonelle fluviatile [A. stagnorum, Lamarck]. (Mémoires de la Société d'Histoire Naturelle de Paris, IV, 1828, pp. 75-165, 246, pls. xii-xvi.) (Oken's Isis, XXI, 1828, cols. 1224-1225.)

## REDFERN, PETER.

1857. On Flustrella hispida. (Report of the Twenty-seventh Meeting of the British Association for the Advancement of Science, 1857, [London, 1858], Part II, p. 106.)

1858. On Flustrella hispida. (Quarterly Journal of Microscopical Science, VI, 1858, pp. 96-102.)

## REICHERT, K. B.

1870. Vergleichende Anatomische Untersuchungen über Zoobotryon pellucidus (Ehrenberg). (Abhandlungen der königlichen Akademie der Wissenschaften zu Berlin, II, 1870, pp. 233-338, pls. i-vi.)

## REID, JOHN.

1845. Anatomical and physiological observations on some zoophytes. (Annals and Magazine of Natural History [1], XVI, 1845, pp. 385-400, pl. xii.)

## REINHARD, W. W.

1880. Zur Kenntniss der Süsswasser-Bryozoen. (Zoologischer Anzeiger, III, 1880, pp. 208-212.)

1880. Embryologische Untersuchungen an Alcyonella fungosa und Cristatella mucedo. (Verhandlungen der zoologischen Section der

sechsten Versammlung russischer Naturforscher und Aerzte. Abstract by Alexander Brandt in Zoologischer Anzeiger, III, 1880, pp. 234-235.)

1887. Zur Kenntniss der Süsswasser-Bryozoen. (Zoologischer Anzeiger, X, 1887, pp. 19-20.)

1887. Antwort auf die Notiz des Herrn Ostroumoff in No. 247 der vorlieg. Zeitschrift. (Zoologischer Anzeiger, X, 1887, pp. 382-383.)

1888. Otsherk stroenija i rasbitija presnovodnich mschanok. [Sketch of the structure and development of the fresh-water Bryozoa.] (Trudui obshtchestva ispytatelei prihody pre imp. Kharkovskom Universitet, Kharkoff, XV, 1888, pp. 207-310, 7 pls. [Arb. Naturf. Gesellsch. Charkow.])

#### REPIACHOFF, WASSILIJ.

1875. Zur Entwicklungsgeschichte der Tendra zostericola. (Zeitschrift für wissenschaftliche Zoologie, XXV, 1875, pp. 129-142, pls. vii-ix.)

1875. Zur Naturgeschichte der chilostomen Seebryozoen. (Zeitschrift für wissenschaftliche Zoologie, XXVI, 1876 [1875], pp. 139-160, pls. vi-ix.)

1878. Zur Kenntniss der Bryozoen. (Zoologischer Anzeiger, I, 1878, pp. 221-224.)

1878. Ueber die ersten embryonalen Entwicklungsvorgänge bei Tendra zostericola. (Zeitschrift für wissenschaftliche Zoologie, XXX, 1878, Supplement-Heft 3, pp. 411-423, pl. xix.)

1879. Zur Embryologie der Tendra zostericola. (Zoologischer Anzeiger, II, 1879, pp. 67-69.)

1879. Bemerkungen über Cyphonautes. [Larva of Membranipora.] (Zoologischer Anzeiger, II, 1879, pp. 517-518.)

1879. Zur Embryologie der Bowerbankia. (Zoologischer Anzeiger, II, 1879, pp. 660-664.)

1880. Zur Kenntniss der Bowerbankia-Larven. (Zoologischer Anzeiger, III, 1880, p. 260.)

1880. [On the Morphology of the Bryozoa.] [Russian.] (Zapiski Novorossiskagho Obshestva Estestvoispytatelei, Odessa [Mémoires Soc. Nouv. Russ.], VI, 1880. 69 pp., 4 pls.)

#### REUSS, AUGUST EMANUEL.

1846. Die Versteinerungen der böhmischen Kreideformation. Zweite Abtheilung. Stuttgart, 1846, 4to, 148 pp., 51 pls. [Bryozoa, pp. 63-70, pls. xv, xvi.]

1847. Die fossilen Polyparien des Wiener Tertiärbeckens. (Haidinger's naturwissenschaftliche Abhandlungen, II, Wien, 1847, 4to, pp. 1-109, pls. i-xi.)

1851. Ein Beitrag zur Paläontologie der Tertiärschichten Oberschlesiens. (Zeitschrift der Deutschen Geologischen Gesellschaft, Berlin, III, 1851, pp. 149–184, pls. viii, ix.) [Bryozoa, pp. 163–176, pls. viii, ix.]

1853. Ueber einige Foraminiferen, Bryozoen und Entomostrazeen des Mainzer Beckens. (Leonhard und Bronn's Neues Jahrbuch für Mineralogie, 1853, pp. 670–679, pl. ix.) [Bryozoa, pp. 677–678, pl. ix.]

1855. Beiträge zur Charakteristik der Tertiärschichten des nördlichen und mittleren Deutschlands. (Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, Wien, XVIII, 1855, pp. 197–273, pls. i–xii.) [Bryozoa, pp. 258–265, pls. x–xii.]

1860. Die marinen Tertiärschichten Böhmens und ihre Versteinerungen. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, XXXIX, 1860, pp. 207–285, pls. i–viii.) [Bryozoa, pp. 226–227.]

1863. Die fossilen Foraminiferen, Bryozoen und Anthozoen von Oberburg in Steiermark. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, XLVIII, I. Abth., 1863, pp. 118–122. [Bryozoa, p. 122.]

1864. Die fossilen Foraminiferen, Anthozoen und Bryozoen von Oberburg in Steiermark. Ein Beitrag zur Fauna der oberen Nummulitenschichten. (Denkschriften der k. Akademie der Wissenschaften, Wien, XXIII, I. Abth., 1864, pp. 1–38, pls. i–x.) [Bryozoa, pp. 29–35, pl. x.]

1864. Ueber Anthozoen und Bryozoen des Mainzer Tertiärbeckens. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, L, 1864, I. Abth., pp. 197–210, pls. i–iii.) [Bryozoa, pp. 205–209.]

1864. Zur Fauna des deutschen Oberoligocäns. II. Abtheilung. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, L, 1864, I. Abth., pp. 614–691.) [Bryozoa, pp. 623–687.]

1865. Ueber die Foraminiferen, Anthozoen und Bryozoen des deutschen Septarienthones. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, LII, 1865, I. Abth., pp. 283–286.)

1865. Die Foraminiferen, Anthozoen und Bryozoen des deutschen Septarienthones. Ein Beitrag zur Fauna der mitteloligocänen Tertiärschichten. (Denkschriften der k. Akademie der Wissenschaften, Wien, XXV, 1865, I. Abth., pp. 117–214, pls. i–xi.)

1866–7. Die Bryozoen, Anthozoen und Spongiaren des braunen Jura von Balin bei Krakau. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, LIII, 1866, I. Abth., pp. 229–231.) (Denkschriften der k. Akademie der Wissenschaften, Wien, XXVII, 1867, I. Abth., pp. 1–26, pls. i–iv.) [Bryozoa, pp. 2–12, pls. i, ii.]

1867. Die fossile Fauna der Steinsalzablagerung von Wieliczka in Galizien. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, LV, 1867, I. Abth., pp. 17–182, pls. i–viii.) [Bryozoa, pp. 111–129.]

1867. Ueber einige Bryozoen aus dem deutschen Unteroligocän. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, LV, 1867, I. Abth., pp. 216-234, pls. i-iii.)

1868-9. Paläontologische Studien über die älteren Tertiärschichten der Alpen. II. Abtheilung. Die fossilen Anthozoen und Bryozoen der Schichtengruppe von Crosaro. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, LVIII, 1868, I. Abth., pp. 288-292.) (Denkschriften der k. Akademie der Wissenschaften, Wien, XXIX, 1869, I. Abth., pp. 215-298, pls. xvii-xxxvi.) [Bryozoa, pp. 252-293, pls. xxvi-xxxvi.]

1869. Zur fossilen Fauna der Oligocänschichten von Gaas. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, LIX, 1869, I. Abth., pp. 446-488, pls. i-vi.) [Bryozoa, pp. 466-479, pls. i, iii-v.]

1869. Ueber tertiäre Bryozoen von Kischenew in Bessarabien. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, LX, 1869, I. Abth., pp. 505-513, pls. i, ii.)

1872. Die Bryozoen und Foraminiferen des unteren Pläners. In H. B. Geinitz, Das Elbthalgebirge in Sachsen. (Paleontographica, XX, Part I, Cassel, 1872, pp. 97-144, pls. xxiv-xxxiii.)

1874. Die Bryozoen des oberen Pläners. In H. B. Geinitz, Das Elbthalgebirge in Sachsen. (Paleontographica, XX, Part II, Cassel, 1874, pp. 127-138, pls. xxiv-xxvi.)

1874. Die fossilen Bryozoen des Oesterreichisch-Ungarischen Miocäns. I. Abtheilung. Salicornaridea, Cellularidea, Membraniporidae. (Denkschriften der k. Akademie der Wissenschaften, Wien, XXXIII, 1874, I. Abth., pp. 141-190, pls. i-xii.)

#### RICHIARDI, S.

1880. Briozoi del mare della Toscana. (Catalogo Sez. Ital. Esposiz. Berlino, 1880, pp. 153-154.)

#### RIDLEY, STUART O.

1881. Account of the zoological collections made during the Survey of H. M. S. *Alert* in the straits of Magellan and on the coast of Patagonia. Polyzoa. (Proceedings of the Zoological Society of London, 1881, pp. 44-61, pl. vi.)

1881. Polyzoa, Cœlenterata and Sponges of Franz-Joseph Land (Annals and Magazine of Natural History [5], VII, 1881, pp. 442-457, pl. xxi.)

1887. On the characters of the genus *Lophopus* with a description of a new species from Australia. (Journal of the Linnean Society, Zoology, XX, 1887, pp. 61-64, pl. ii.)

#### Risso, A.

1826. Histoire naturelle de l'Europe méridionale. Paris, 1826.



## ROBERTSON, DAVID.

1879. Additions to the list of Polyzoa of Garvel Park Post-Tertiary deposit. (Transactions of the Geological Society of Glasgow, VI, 1879, p. 57.)

## ROGERS, AUSTIN F.

1900. New Bryozoans from the Coal Measures of Kansas and Missouri. (Kansas University Quarterly [A], IX, 1900, pp. 1-12, pls. i-iv.)

## ROLLE, FRIEDRICH.

1851. Ueber zwei neue devonische Korallen einer neuen Sippe, Reptaria. (Leonhard and Bronn's Neues Jahrbuch für Mineralogie, 1851, pp. 810-814, pl. ix B.)

## RÖMER, FRIEDRICH ADOLPH.

1836. Die Versteinerungen des norddeutschen Oolithen-Gebirges. Hannover, 1836, 4to, ii+218 pp., 16 pls. Nachtrag, 1839, 59 pp., pls. xvii-xx. [Bryozoa, p. 18; Nachtrag, pp. 11-15, pl. xvii.]

1840. Die Versteinerungen des norddeutschen Kreidegebirges. Hannover, 1840, 4to. [Bryozoa, pp. 11-25, pl. v.]

1843. Die Versteinerungen des Harzgebirges. Hannover, 1843, 4to, 40 pp., 12 pls. [Bryozoa, p. 7, pls. iii, xii.]

1854. Beiträge zur geologischen Kenntniss des nordwestlichen Harzgebirges. (Paleontographica, III, Cassel, 1854, pp. 1-67, pls. i-x, pp. 68-111, pls. xi-xv.) [Bryozoa, pp. 6-8, 71-72, pls. i, ii, xi.]

1863. Beschreibung der norddeutschen tertiären Polyparien. (Paleontographica, IX, Cassel, 1863, 4to. Pp. 199-246, pls. xxxv-xxxix.) [Bryozoa, pp. 203-230, pls. xxxv-xxxvii.]

## ROMINGER, CARL.

1866. Observations on Chætetes and some related genera, in regard to their systematic position, with an appended description of some new species. (Proceedings of the Academy of Natural Sciences of Philadelphia, 1866, pp. 113-123.)

1887. Description of a new form of Bryozoa. (Proceedings of the Academy of Natural Sciences of Philadelphia, 1887, p. 11, pl. i.)

1890. Studies on Monticulipora. (American Geologist, VI, 1890, pp. 102-121.)

## SACCO, F.

1890. Catalogo paleontologico del bacino terziario del Piemonte. (Bollettino della Società Geologica Italiana, Roma, VIII, 1890, pp. 281-356.) [Bryozoa, pp. 326-328.]

## SÆEFTIGEN, A.

1888. Das Nervensystem der phylactolæmen Süßwasser-Bryozoen. (Zoologischer Anzeiger, XI, 1888, pp. 96-99.)

## SALENSKY, WLADIMIR W.

1874. Untersuchungen an Seebryozoen. (Zeitschrift für wissenschaftliche Zoologie, XXIV, 1874, pp. 343-348, pl. xxxii.)

1877. Études sur les Bryozoaires Entoproctes. (Annales des Sciences Naturelles, Zoologie [6], V, 1877, Art. 3, pp. 1-60, pls. xii-xv.)

## SARS, GEORGE OSSIAN.

1872. On some remarkable forms of animal life from the great deeps off the Norwegian coast. (University program for the first half year 1869, Christiania, 1872, 4to, 82 pp., 6 pls.) [Rhabdopleura and Flustra abyssicola.]

1872. Bidrag til Kundskaben om Dyrelivet paa vore Havbanker. (Forhandlinger i Videnskabs-Selskabet i Christiania, XIV, 1872, pp. 73-120.)

1873. Om en hidtil lidet kjendt mærkelig Slaegtstype af Polyzoer. [Triticella.] (Forhandlinger i Videnskabs-Selskabet i Christiania, XV, 1873, pp. 386-400.)

1874. On Rhabdopleura mirabilis [M. Sars]. (Quarterly Journal of Microscopical Science [n. s.], XIV, 1874, pp. 23-44, pl. i.)

## SARS, MICHAEL.

1835. Beskrivelser og Iagttagelser over nogle merkelige eller nye i Havet ved den Bergenske Kyst levende Dyr. [Barentsia.] 1835.

1851. Beretning om en Zoologisk Reise i Sommeren 1849 i Lofoten og Finmarken. (Nyt Magazin for Naturvidenskab, VI, 1851, pp. 121-211.)

1853. Bemaerkninger over det Adriatiske Havs Fauna sammenlignet med Nordhavets. (Nyt Magazin for Naturvidenskab, VII, 1853, pp. 367-397.)

1862. Beskrivelse over nogle norske Polyzoer. (Forhandlinger i Videnskabs-Selskabet i Christiania, 1862, pp. 141-167.)

## SAUVAGE, H. E.

1889. Note sur les Bryozoaires jurassiques de Boulogne. (Bulletin de la Société Géologique de France [3], XVII, 1889, pp. 38-53, pls. iii, iv.)

## SAVIGNY, JULES CÉSAR.

1809. "Description de l'Égypte." "Polypes." [Plates only.] "Explication" by V. Audouin, 1826. [Cf. C. Davies Sherborn, Proceedings of the Zoological Society of London, 1897, p. 287.]

## SCHAFHÄUTL, —.

1863. Süd-Bayerns Lethæa geognostica. Der Kressenberg und die südlich von ihm gelegenen Hochalpen, geognostisch betrachtet in ihren Petrefacten. Mit 46 Holzschnitten nebst einem Atlas von zwei Karten und 98 Tafeln. Leipzig, 1863, fol.

## SCHELER, GEO. VON.

1892. Ueber die Bryozoen Deutschlands. (Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg, XLVIII, 1892, p. lxx.)

## SCHLÜTER, C.

1881. Ueber Callopora eifeliensis. (Verhandlungen des Naturhistorischen Verein der preussischen Rheinlande und Westphalens, XXXVIII, Bonn, 1881, Sitzungsberichte, pp. 72-75, figs. 1, 2.)

## SCHMIDT, FERD.

1886. Die Süßwasser-Bryozoen Livlands. (Sitzungsberichte der Naturforscher-Gesellschaft bei der Universität Dorpat, VII, 1886, pp. 350-359.)

## SCHMIDT, FRIEDRICH.

1858. Untersuchungen über die silurische Formation von Ehistland, Nord-Livland und Oesel. (Archiv für die Naturkunde Liv-, Ehist- und Kurlands [1], II, 1858-9, pp. 1-247, 465-474.)

## SCHMIDT, OSCAR.

1876. Die Gattung Loxosoma. (Archiv für mikroskopische Anatomie, XII, 1876, pp. 1-14, pls. i-iii.)

1878. Bemerkungen zu den Arbeiten über Loxosoma. (Zeitschrift für wissenschaftliche Zoologie, XXXI, 1878, pp. 68-80, 2 figs.) (Annals and Magazine of Natural History [5], III, 1879, pp. 393-404.)

## SCHNEIDER, ANTON.

1868. Ueber die Entwicklung von Cyphonautes compressus zu Membranipora pilosa. (Sitzungsberichte der Gesellschaft der naturforschenden Freunde, Berlin, 1868, pp. 24-25.)

1869. Zur Entwicklungsgeschichte und systematischen Stellung der Bryozoen und Gephyreen. (Archiv für mikroskopische Anatomie, V, 1869, pp. 260-280, 4 figs., pl. xvi.)

## SCHREIBER, A.

1872. Die Bryozoen des mittelloligocänen Grünsandes bei Magdeburg. (Zeitschrift für die gesammten Naturwissenschaften; herausgegeben von dem Naturwissenschaftlichen Vereine für Sachsen und Thüringen in Halle, Berlin, XXXIX, 1872, pp. 475-481.)

## SCHULTZ, E.

1895. *Loxosoma harmeri*, n. sp. (Trudui S.-Peterburghskagho obshchestva estestvoispuitatelei. Otdyelenie Zoologii i Fisilogii, [Travaux de la Société des Naturalistes de St. Pétersbourg, Section de Zoologie et de Physiologie], XXV, 1895, Part II, pp. 49-54, 1 pl. [German abstract, pp. 55-58.]

## SCHWALBE, G.

1869. Ueber den feineren Bau der Muskelfasern wirbelloser Thiere. (Archiv für mikroskopische Anatomie, V, 1869, pp. 205-247, pls. xiv, xv.) [Bryozoa, pp. 227-228.]

## SCOTT, THOMAS.

1896. *Cristatella mucedo*, Cuvier, in the lochs of Scotland. (Annals of Scottish Natural History, 1896, p. 125.)

## SEELIGER, O.

1889. Die ungeschlechtliche Vermehrung der endoprokten Bryozoen. (Zeitschrift für wissenschaftliche Zoologie, XLIX, 1889, pp. 168-208, 6 figs., pls. ix, x.)

1890. Bemerkungen zur Knospenentwicklung der Bryozoen. (Zeitschrift für wissenschaftliche Zoologie, L, 1890, pp. 560-599, 2 pls.)

## SEGUENZA, GIUSEPPE.

1879. Le formazioni terziarie nella Provincia di Reggio (Calabria). (Reale Accademia dei Lincei, Memorie della Classe di Scienze Fisiche, Matematiche e Naturali, Roma [3], VI, 1879, 446 pp., 17 pls.) [Bryozoa, pp. 42, 53, 61, 70-86, 127-133, 196-214, 294-297, 327-330, 367-372, pls. viii, xii, xiv, xv, xvii.]

1882. Studi geologici e paleontologici sul cretaceo medio dell' Italia meridionale. (Atti della R. Accademia dei Lincei [3], Memorie, XII, Roma, 1882, pp. 65-214, 21 pls.) [Bryozoa, pp. 189-190, pl. xx.]

## SHALER, NATHANIEL SOUTHGATE.

1889. Geology of the island of Nantucket. (Bulletin of the United States Geological Survey, No. 53.) [Bryozoa, pp. 36-37.]

## SHARPE, DANIEL.

1853. Description of the new species of Zoophyta and Mollusca [from the Silurian of Bussaco in Portugal]. (Quarterly Journal of the Geological Society of London, IX, 1853, pp. 146-147, pl. vii.)

## SHERREN, HENRY.

1898. *Cristatella mucedo* [near London]. (Nature, LIX, 1898, p. 150.)

## SHRUBSOLE, GEORGE W.

1879. A review of the British Carboniferous Fenestellidæ. (Quarterly Journal of the Geological Society of London, XXXV, 1879, pp. 275-284.)

1880. A review and description of the various species of British Upper Silurian Fenestellidæ. (Quarterly Journal of the Geological Society of London, XXXVI, 1880, pp. 241-254, pl. xi.)

1881. Further notes on the Carboniferous Fenestellidæ. (Quarterly Journal of the Geological Society of London, XXXVII, pp. 178-189.)

1882. *Thamniscus*: Permian, Carboniferous, and Silurian. (Quarterly Journal of the Geological Society of London, XXXVIII, 1882, pp. 341-346.)

1882. On the occurrence of a new species of *Phyllopora* in the Permian limestone. (Quarterly Journal of the Geological Society of London, XXXVIII, 1882, pp. 347-349.)

1885. Note on the *Glaucanome disticha* from the Bala beds of Glyn Ceiriog. (Proceedings of the Chester Society of Natural Science, No. 3, 1885, pp. 98-100.)

## SHRUBSOLE, GEORGE W., AND VINE, GEORGE ROBERT.

1882. The Silurian species of *Glaucanome* and a suggested classification of the Palæozoic Polyzoa. (Geological Magazine [n. s.], Decade II, IX, 1882, pp. 381-382.) (Quarterly Journal of the Geological Society of London, XXXVIII, 1882, Proceedings, p. 245.) (Quarterly Journal of the Geological Society of London, XL, 1884, pp. 329-332.)

## SIMONOWITSCH, SPIRIDON VON.

1871. Beiträge zur Kenntniss der Bryozoen des Essener Grünsandes. (Verhandlungen des Naturhistorischen Vereins der preussischen Rheinlande und Westphalens, Bonn, XXVIII [3 Folge, Band VIII], 1871, pp. 1-70, pls. i-iv.)

## SIMPSON, GEORGE B.

1895. A discussion of the different genera of Fenestellidæ. (Thirteenth Annual Report of the State Geologist [of New York] for the year 1893, Albany, 1894 [1895], pp. 687-727). (Forty-seventh Annual Report of the New York State Museum of Natural History, Albany, 1894, pp. 881-921.)

1897. A handbook of the genera of the North American Palæozoic Bryozoa; with an introduction upon the structure of living species. (Fourteenth Annual Report of the State Geologist [of New York] for the year 1894, Albany, 1895 [1897], pp. 407-608, pls. A-E, i-xxv.) (The Report of the State Geologist also forms part of the Forty-eighth Annual Report of the New York State Museum, Albany, 1895 [1897], with the same paging.)

## SINZOW, J.

1892. Bemerkungen über einige Versteinerungen aus den Bessarabischen Neogenablagerungen. (Mémoires de la Société des Naturalistes de la Nouvelle-Russie, Odessa, XVII, Part II, 1892, pp. 51-72, pls. i-iv.) [Bryozoa, pp. 51-57, pl. i.] [Russian.]

## SLACK, HENRY S.

1863. Resting eggs, or statoblasts of a Plumatella. (Intellectual Observer, II, 1863, pp. 271-274, 1 pl.)

## SMITT, FRITZ ADAM.

1863. Bidrag till kännedomen om Hafs-Bryozoernas utveckling. (Upsala Univ. Årsskrift, 1863, 40 pp.)

1864. Några drag ur Bryozoernas (Mossdjurens) lif. Stockholm, 1864, 31 pp.

1865. Om Hafs-Bryozoernas utveckling och fettkroppar. (Öfversigt Kongl. Vetenskaps-Akademiens Förhandlingar, XXII, 1865, pp. 5-50.)

1865-1871. Kritisk förteckning öfver Skandinaviens Hafs-bryozoeer. (Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar, XXII, 1865, pp. 115-142, 1 pl.; *ibid.*, XXIII, 1866, pp. 395-533, 11 pls.; *ibid.*, XXIV, 1867, pp. 279-429, 5 pls.; *ibid.*, XXIV, 1867, Bihang, pp. 3-230, pls., xxiv, xxv; *ibid.*, XXVIII, 1871, pp. 1115-1134, pls. xx, xxi.)

1866. Polymorphism among Bryozoa. [Abstract by Agassiz.] (American Journal of Science and Arts [2], XLII, 1866, p. 134.) (American Journal of Conchology, III, 1867, p. 105.)

1867. Bryozoa Marina in regionibus arcticis et borealibus viventia, recensuit F. A. Smitt. (Öfversigt af k. Vetenskaps-Akademiens Förhandlingar, 24 Årg., 1867, pp. 443-487.)

1872. Bemerkung zu Dr. H. Nitsche's Beiträgen zur Kenntniss der Bryozoen. (Zeitschrift für wissenschaftliche Zoologie, XXII, 1872, pp. 281-282.)

1872. Remarks on Dr. Nitsche's researches on Bryozoa. (Quarterly Journal of Microscopical Science [n. s.], XII, 1872, pp. 246-248.)

1872. Floridan Bryozoa, collected by Count L. F. de Pourtales. Part I. (Kongl. Svenska Vetenskaps-Akademiens Handlingar, X, 1872, No. 11, pp. 1-20, pls. i-v.) Part II. (*Ibid.*, XI, 1873, No. 4, pp. 1-83, pls. i-xiii.)

1878. Recensio systematica animalium Bryozoorum, quæ in itineribus, annis 1875 et 1876, ad insulas Novaja Semlja et ad ostium fluminis Jenisei, duce Professore A. E. Nordenskiöld, invenerunt Doctores A. Stuxberg et H. Théel. (Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar, 35. Årg., 1878, No. 3, pp. 11-26.)

1878. Recensio animalium Bryozoorum e mari arctico, quæ ad pæninulam Kola, in itinere anno 1877, duce H. Sandeberg, invenit F. Trybom. (Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar, 35. Årg., 1878, No. 7, pp. 19-32.)

SPEYER, OSCAR.

1864. Die Tertiärfauna von Söllingen bei Jerxheim im Herzogthum Braunschweig. (Paleontographica, IX, 1864, pp. 247-337, pls. xl-xliii.) [Bryozoa, pp. 322-325.]

STENROOS, K. E.

1899. Das Thierleben im Nurmijärvi-See. Eine faunistisch-biologische Studie. (Acta Societatis pro Fauna et Flora Fennica, XVII, Helsingfors, 1899, No. 1, pp. 1-259, pls. i-iii.) [Fresh-water Bryozoa, pp. 50-51.]

STIMPSON, WILLIAM.

1854. Synopsis of the marine Invertebrata of Grand Manan or the region about the mouth of the Bay of Fundy, near New Brunswick. (Smithsonian Contributions to Knowledge, VI, 1854, Art. V, pp. 1-66, pls. i-iii.) [Bryozoa, pp. 17-19, pl. i.]

STOLICZKA, FERDINAND.

1862. Ueber heteromorphe Zellenbildungen bei Bryozoen, Ccelophyma, Reuss. (Verhandlungen der k. k. zoologisch-botanischen Gesellschaft, Wien, XII, 1862, pp. 101-104.)

1862. Oligocäne Bryozoen von Ladtorf in Bernburg. (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, XLV, Abth. I, 1862, pp. 71-94, pls. i-iii.)

1864. Kritische Bemerkungen zu Herrn Fr. A. Römer's Beschreibung der norddeutschen Polyparien. (Leonhard und Bronn's Neues Jahrbuch, 1864, pp. 340-347.)

1864. Fossile Bryozoen aus dem Tertiären Grünsandsteine der Orakei-Bay bei Aukland, mit Betrachtungen über neue oder weniger bekannte Bryozoen-Sippen und deren Classification. (Reise der Oest. Fregatte Novara, geologischer Theil, Band I, Abth. II, Palæontologie, pp. 89-158, pls. xvii-xx.)

1869. On the anatomy of Sagartia Schilleriana and Membranipora Bengalensis, a new Coral and a Bryozoon living in brackish water at Port Canning. (Journal of the Asiatic Society of Bengal, XXXVIII, Part II, 1869, pp. 28-63, pls. x-xii.)

1872. The Cretaceous fauna of Southern India. The Ciliopoda. (Palæontologica Indica, IV, Series VIII, Part II. Calcutta, 1872, pp. 1-34 [33-68], pls. i-iii.)

Bull. 173—35

## STUCKENBERG, A.

1887. Koralli e Inshanke verkhnyago yarusy srednerusskago kamennougolnago ezvestnyaka. [Corals and Polyzoa of the Upper Carboniferous limestone of Middle Russia.] (Trudui obshtchestva estestvoespytatelei pre imperatorskom Kasanskoi Universitet, Protok., 1886-87, No. 92, 3 pp.)

1888. Anthozoen und Bryozoen des oberen mittlrussischen Kohlenkalks. (Mémoires du Comité Géologique, V, No. 4, 1888, 54 pp. 4 pls.)

## STUXBERG, A.

1887. Faunan på och kring Novaja Semlja. (Vega-Expeditionens Vetenskapliga Iagttagelser, V, 1887, pp. 1-239, pl. i.) [Bryozoa, pp. 100-117.]

## SWANSON, WILLIAM, AND DUERDEN, J. E.

1893. Some North of Ireland Polyzoa. (Irish Naturalist, II, 1893, pp. 165-168.)

## TATE, RALPH.

1875. On some new Liassic fossils. (Geological Magazine [n. s.], Decade II, II, 1875, pp. 203-206.) [Bryozoa, pp. 205-206, figs. 1, 1 a.]

## TENISON-WOODS, JULIAN E.

1865. On some Tertiary fossils in South Australia. (Transactions and Proceedings of the Royal Society of Victoria, VI, 1865, pp. 3-6, 1 pl.)

1876. On the genus Fenestella. (Papers and Proceedings of the Royal Society of Tasmania for 1875, 1876, pp. 46-50.)

1876. On some Tertiary Australian Polyzoa. (Journal and Proceedings of the Royal Society of New South Wales, X, 1876, pp. 147-150, 2 pls.)

1877. Notes on the Tertiary fossils of Table Cape, Tasmania. (Papers and Proceedings of the Royal Society of Tasmania for 1876, 1877, pp. 91-116.)

1877. On some new Australian Polyzoa. (Journal and Proceedings of the Royal Society of New South Wales, XI, 1877, pp. 83-84, 2 pls.)

1878. On some Australian Tertiary fossil corals and Polyzoa. (Journal and Proceedings of the Royal Society of New South Wales, XII, 1878, pp. 57-61, 1 pl.)

1879. On the anatomy of Distichopora; with a monograph of the genus. (Journal and Proceedings of the Royal Society of New South Wales, XIII, 1879, pp. 49-63, 2 pls.)

1880. On some recent and fossil species of Selenariadæ. (Transactions and Proceedings of the Royal Society of South Australia [late Philosophical Society of Adelaide], III, 1880, pp. 1-12, pls. i, ii.)



1880. Corals and Bryozoa of the Neozoic period in New Zealand. (Palæontology of New Zealand, Part IV, Wellington, 1880, xvi+34 pp., 4-pls.)

1880. On the genus *Amathia* of Lamouroux, with a description of a new species. (Transactions and Proceedings of the Royal Society of Victoria, XVI, 1880, pp. 89-118, 1 pl.)

ТЕПЛОВ, А. ГИ.

1891. Spiski i opisaniye predmetov, nakhodyashchikhsya v Zoologicheskoy Muzeyey imperatorskoy Moskovskoy Universiteta. [The Bryozoa of the Zoological Collection of the Moscow University Museum.] (Izvestiya imperatorskago obshchestva lyubiteley estestvoznaniya, antropologii i etnografii sostoyashchagho pri imperatorskoy Moskovskoy Universitete, Moscow, LXVII, 1891, 19 pp.)

THOMPSON, JOHN VAUGHN.

1830. Zoological researches and illustrations: On Polyzoa, a new animal discovered as an inhabitant of some Zoophytes, with the description of the newly instituted genera *Pedicellaria*, *Vesicularia* and their species. Memoir No. V, Cork, 1830, pp. 89-102.

THOMPSON, WYVILLE T. C.

1840. Additions to the fauna of Ireland. (Annals and Magazine of Natural History [1], V, 1840, pp. 245-257.) [Bryozoa, pp. 249-254.]

1852. Notes on some Scotch Zoophytes and Polyzoa. (Annals and Magazine of Natural History [2], IX, 1852, pp. 403-404, pl. xvi B.)

1858. On new genera and species of Polyzoa in the collection of W. H. Harvey. (Natural History Review, V, 1858, pp. 134-147, pls. x-xiii.) (Proceedings of the Dublin University Zoological and Botanical Association, I, 1859, pp. 77-93, pls. vi-ix.)

1859. Zoophytology: [Polyzoa from Bass's Strait and New Zealand]. (Quarterly Journal of Microscopical Science, VII, 1859, pp. 143-154.)

THORNELY, L. R.

1897. On the Polyzoa [of Rockall Island]. (Transactions of the Royal Irish Academy, XXXI, 1897, pp. 79-80.)

TOULA, FRANZ.

1875. Permo-Carbon-Fossilien von der Westküste von Spitzbergen. (Leonhard und Bronn's Neues Jahrbuch für Mineralogie, 1875, pp. 225-264, pls. v-x.) [Bryozoa, pp. 228-231.]

1875. Eine Kohlenkalk-Fauna von den Barents-Inseln. (Nowaja-Semlja N. W.) (Sitzungsberichte der k. Akademie der Wissenschaften, Wien, LXXI, 1875, I. Abth., pp. 527-608, pls. i-vi.) [Bryozoa, pp. 562-574, 583-588, pls. iii-v.]

## TRASK, J. B.

1873. New species of Zoophytes from the Bay of San Francisco and adjacent localities. (Proceedings of the California Academy of Natural Sciences, I, 1854-1857; edition 2, 1873, pp. 112-114.)

## TREMBLEY, ABRAHAM.

1744. Mémoire pour servir à l'histoire d'un genre de Polypes d'eau douce. Leyde, 1744. Mém. III.

## TRINCHESE, SALVATORE.

1873. Nuove ricerche sulla struttura del fusto del Zoobotryon pellucidus (Ehrenberg). (Memorie dell' Accademia di Scienze dell' Istituto di Bologna [3], IV, 1873, pp. 205-207.)

## UBAGHS, J. C.

1858. Neue Bryozoen-Arten aus der Tuff-Kreide von Maestricht. (Paleontographica, IX, Cassel, 1858, pp. 127-131, pl. xxvi.)

1865. Die Bryozoen-Schichten der Maastrichter Kreidebildung, nebst einigen neuen Bryozoen-Arten aus der Maastrichter Tuff-Kreide. (Verhandlungen des Naturhistorischen Vereins der preussischen Rheinlande und Westphalens, Bonn, XXII, 1865, pp. 31-62, pls. ii, ii a, iii.)

## ULJANIN, B.

1869. Zur Anatomie und Entwicklungsgeschichte der Pedicellina. (Bulletin de la Société Impériale des Naturalistes de Moscou, XLII, Part I, 1869, pp. 425-440, pl. vi.)

## ULRICH, EDWARD O.

1879. Descriptions of new genera and species of fossils from the Lower Silurian about Cincinnati. (Journal of the Cincinnati Society of Natural History, II, 1879, pp. 9-30, pl. vii.)

1879. Description of a new genus and some new species of Bryozoa from the Cincinnati group. (Journal of the Cincinnati Society of Natural History, II, 1879, pp. 119-131, pl. xii.)

1882-1884. American Paleozoic Bryozoa. (Journal of the Cincinnati Society of Natural History, V, 1882, pp. 121-175, pls. vi-viii; pp. 232-257, pls. x, xi; *ibid.*, VI, 1883, pp. 82-92, pl. i; pp. 148-168, pls. vi, vii; pp. 245-279, pls. xii-xiv; *ibid.*, VII, 1884, pp. 24-51, pls. i-iii.)

1886. Report on the Lower Silurian Bryozoa, with preliminary descriptions of some of the new species. (Fourteenth Annual Report of the Geological and Natural History Survey of Minnesota, 1886, pp. 57-103.)

1886. Descriptions of New Silurian and Devonian fossils. (Contributions to American Paleontology, Cincinnati, 1886, I, No. 1, pp. 3-35, pls. i-iii.) [Bryozoa, pp. 3-25, pls. i, ii.]

1888. On Sceptropora, a new genus of Bryozoa, with remarks on Helopora, Hall, and other genera of that type. (American Geologist, I, 1888, pp. 228-234.)

1888. A list of the Bryozoa of the Waverly group in Ohio, with descriptions of new species. (Bulletin of the Denison University, Granville, IV, 1888, pp. 62-96, pls. xiii, xiv.)

1889. Contributions to the Micro-Palæontology of the Cambro-Silurian rocks of Canada. Part II. (Geological and Natural History Survey of Canada, Montreal, 1889, pp. 27-57, pls. viii, ix.)

1890. Paleozoic Bryozoa. (Geological Survey of Illinois, VIII, 1890, pp. 285-688, pls. xxix-lxxviii.)

1890. New Lower Silurian Bryozoa. (Journal of the Cincinnati Society of Natural History, XII, 1890, pp. 173-198, 22 figs.)

1893. On Lower Silurian Bryozoa of Minnesota. (Geology of Minnesota, III, Minneapolis, 1895 (1893), Part I, pp. 96-332, pls. i-xxviii.)

1896. Bryozoa. (Zittel's Textbook of Palæontology [English edition], 1896. Translated and edited by Charles Eastman. Vol. I, Part I, pp. 257-291, figs. 411-488.—For authorship, see note on page 291.)

VAN BENEDEN, P. J. See BENEDEN, P. J. VAN.

VÁNGEL, EUGEN.

1894. Daten zur Bryozoen-Fauna Ungarns. (Zoologischer Anzeiger, XVII, 1894, pp. 153-155.)

1894. Az édesvízi mohállatok. [On fresh-water Bryozoa.] (Pótfüzetek a Természettudományi közlönyhöz . . . Kiadja a K. M. Természettudományi Társulat [Supplement], Budapest, XXVIII, 1894, pp. 69-85, 11 figs.)

1895. A Balaton mohállatai. [Die Bryozoen-Fauna des Balaton-Platten-Sees.] (Pótfüzetek a Természettudományi Közlönyhöz, Budapest, XXIX, 1895, pp. 110-117.) (Zoologisches Centralblatt, II, 1895, pp. 467-468.)

1897. Moosthiere (Bryozoa) [des Plattensees]. (Resultate der wissenschaftlichen Erforschung des Balatonsees, II. Band, I. Theil, pp. 137-143, 2 figs.)

VÁVRA, V.

1893. Ein Beitrag zur Kenntniss der Süßwasserfauna von Bulgarien. (Sitzungsberichte der königliche böhmischen Gesellschaft der Wissenschaften, Prag, 1893, No. 46, 4 pp.)

## VERRILL, A. E.

1872. Brief contributions to zoology from the Museum of Yale College. No. XX. Recent additions to the Molluscan fauna of New England and the adjacent waters, with notes on other species. (American Journal of Science and Arts [3], III, 1872, pp. 281-290.)

1873. Report upon the invertebrate animals of Vineyard Sound and the adjacent waters, with an account of the physical characters of the region. (United States Fish Commission. Report for 1871-72. Washington, 1873, pp. 295-778.) [Bryozoa, pp. 707-714, pls. xxxiii, xxxiv, and numerous references in preceding pages.]

1875. Brief contributions to Zoology from the Museum of Yale College. Nos. XXXII and XXXIII. Results of dredging expeditions off the New England coast in 1874. (American Journal of Science and Arts [3], IX, 1875, pp. 411-415, pl. vii; *ibid.*, X, 1875, pp. 36-44, pls. iii, iv.)

1879. Brief contributions to Zoology from the Museum of Yale College. No. XLIII. Notice of recent additions to the marine fauna of the eastern coast of North America. (American Journal of Science and Arts [6], XVIII, 1879, pp. 52-54.)

1879. Notice of recent additions to the marine invertebrata of the northeastern coast of America. (Proceedings of the United States National Museum, II, 1879, pp. 165-205.) [Bryozoa, pp. 188-196.]

1879. Contributions to the Natural History of Arctic America. Mollusoids. (Bulletin of the United States National Museum, No. 15, 1879.) [Bryozoa, pp. 148-150.]

## VERWORN, M.

1887. Beiträge zur Kenntniss der Süsswasserbryozoen. (Zeitschrift für wissenschaftliche Zoologie, XLVI, 1887, pp. 99-130, pls. xii, xiii.)

## VIGELIUS, W. J.

1882. Zur Entstehung und Entwicklung der Geschlechtsprodukte bei chilostomen Bryozoen. (Biologisches Centralblatt, Erlangen, II, 1882, pp. 435-442.)

1882. Catalogue of the Polyzoa collected during the Dutch North-Polar cruises of the *Willem Barents* in the years 1878 and 1879. (Niederländisches Archiv für Zoologie, Supplement-Band I, Lief. 3, 1882. 20 pp., 1 pl.)

1882. Beobachtungen an *Barentsia bulbosa* Hincks. (Zoologischer Anzeiger, V, 1882, pp. 141-144.)

1884. Die Bryozoen gesammelt während der dritten und vierten Polarfahrt des *Willem Barents*, in den Jahren 1880 u. 1881. (Bijdragen tot de Dierkunde, Amsterdam, XI, 1884. 104 pp., 8 pls.)

1884. Bijdragen tot de kennis der Oosterschelde fauna. Bryozoen. (Tijdschrift der Nederlandsche Dierkundige Vereeniging. Supplement, Deel I, 1884, pp. 546-549.)

1884. Morphologische Untersuchungen über *Flustra membranaceo-truncata* Smitt. (Biologisches Centralblatt, III, 1884, pp. 705-721.)

1886. Ontwikkelingsgeschiedenis der Bryozoa Ectoprocta. (Tijdschrift der Nederlandse Dierkundige Vereeniging, Leiden [2], D. I., Afl. 2, 1886, Verslag, pp. liv-lvi.)

1886. Zur Ontogenie der marinen Bryozoen. (Mittheilungen aus der Zoologischen Station zu Neapel, VI, 1886, pp. 499-541, pls. xxvi, xxvii.)

1887. Contributions à la morphologie des Bryozoaires ectoproctes. (Tijdschrift der Nederlandsche Dierkundige Vereeniging [2], I, Afl. 3, 1887, pp. 77-92, pl. vi.)

1887. Zur Morphologie der Marinen Bryozoen. (Zoologischer Anzeiger, X, 1887, pp. 237-240.)

1888. Zur Ontogenie der marinen Bryozoen. (Mittheilungen aus der Zoologischen Station zu Neapel, VIII, 1888, pp. 374-376, pl. xix.)

#### VINE, GEORGE ROBERT.

1877. Chapters on Carboniferous Polyzoa. (Hardwicke's Science Gossip, XIII, 1877, pp. 108-110, 152-156, 220-222, 271-274.)

1878. Fossil Polyzoa. The genus *Fenestella*; its history, development and range in time and space. (Hardwicke's Science Gossip, XIV, 1878, pp. 247-250, 274-276.)

1879. Physiological characters of *Fenestella*. (Hardwicke's Science Gossip, XV, 1879, pp. 50-54.)

1879. On *Palæocoryne* and its development of *Fenestella*. (Hardwicke's Science Gossip, XV, 1879, pp. 225-229, 247-249.)

1879. On Carboniferous Polyzoa and *Palæocoryne*. (Report of the Forty-ninth Meeting of the British Association for the Advancement of Science, 1879 [London, 1880], pp. 350-351.)

1880. A review of the family *Diastoporidæ* for the purpose of classification. (Quarterly Journal of the Geological Society, XXXVI, 1880, pp. 356-361, pl. xiii.)

1880. Report of the committee appointed for the purpose of reporting on the Carboniferous Polyzoa. (Report of the Fiftieth Meeting of the British Association for the Advancement of Science, 1880 [London, 1881], pp. 76-87.) On the Carboniferous Polyzoa. (Geological Magazine [n. s.], Decade II, VII, 1880, pp. 501-512.)

1881. Second report of the committee appointed for the purpose of reporting on fossil Polyzoa. (Report of the Fifty-first Meeting of the British Association for the Advancement of Science, 1881 [London, 1882], pp. 161-176.)

1881. Further notes on the family Diastoporidæ, Busk, species from the Lias and Oolite. (Quarterly Journal of the Geological Society of London, XXXVII, 1881, pp. 381-390, pl. xix.)

1881. Silurian uniserial Stomatoporæ and Ascodictya. (Quarterly Journal of the Geological Society of London, XXXVII, 1881, pp. 613-619.)

1881. Notes on the Carboniferous Polyzoa of north Yorkshire. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], VII, 1881, pp. 329-341.)

1882. Third report of the committee appointed for the purpose of reporting on fossil Polyzoa, Jurassic species—British area only. (Report of the Fifty-second Meeting of the British Association for the Advancement of Science, 1882 [London, 1883], pp. 249-266.)

1882. The Diastoporidæ, or the natural history of a family type. (Hardwicke's Science Gossip, XVIII, 1882, pp. 81-83, 145-147, 244-247.)

1882. Notes on the Polyzoa of the Wenlock shales, Wenlock limestone, and shales over the Wenlock limestone. (Quarterly Journal of the Geological Society of London, XXXVIII, 1882, pp. 44-68.)

1883. Fourth report of the committee appointed for the purpose of reporting on fossil Polyzoa. (Report of the Fifty-third Meeting of the British Association for the Advancement of Science, 1883 [London, 1884], pp. 161-209.)

1883. Further notes on new species and other Yorkshire Carboniferous fossil Polyzoa, described by Prof. John Phillips. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], VIII, 1883, pp. 93-108.)

1883. Notes on the Carboniferous Polyzoa of west Yorkshire and Derbyshire. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], VIII, 1883, pp. 161-174.)

1884. Polyzoa (Bryozoa) found in the boring at Richmond, Surrey. (Quarterly Journal of the Geological Society of London, XL, 1884, pp. 784-794.)

1884. Notes on species of Ascodictyon and Rhopalonaria from the Wenlock shales. (Annals and Magazine of Natural History [5], XIV, 1884, pp. 77-89.)

1884. Fifth and last report of the committee appointed for the purpose of reporting on fossil Polyzoa. (Report of the Fifty-fourth Meeting of the British Association for the Advancement of Science, 1884 [London, 1885], pp. 97-219.)

1884. Notes on some Cretaceous Lichenoporidæ. (Quarterly Journal of the Geological Society of London, XL, 1884, pp. 850-854.)

1884-85. Micro-Palæontology of the Northern Carboniferous Shales. II. Polyzoa of the Redesdale Shales, Northumberland. (The Naturalist, London [n. s.], X, 1884, No. 111, pp. 61-66.) III. The Ostracoda,

Monticulipora and Miscellaneous Forms: Redesdale Shales, Northumberland. (Ibid., No. 113, pp. 97-103.) IV. Polyzoa, Entomostraca, Gasteropoda, and Miscellaneous Organisms of the Skelly Gate Shales: Northumberland. (Ibid., 1885, No. 117, pp. 207-212.)

1885. Notes on the Yoredale Polyzoa of North Lancashire. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], IX, 1885, pp. 70-98, pl. x.)

1885. Notes on the Cambridge Greensand. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], IX, 1885, pp. 10-29, pls. i, ii.)

1885. Notes on the Polyzoa of the Wenlock shales. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], IX, 1885, pp. 179-201, pl. xii.)

1885. Notes on the Palæontology of the Wenlock shales of Shropshire. (Mr. Maw's Washings, 1880.) (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], IX, 1885, pp. 225-248.)

1885. Report of the committee appointed for the purpose of reporting on recent Polyzoa. (Report of the Fifty-fifth Meeting of the British Association for the Advancement of Science, 1885 [London, 1886], pp. 481-680.)

1887. Jurassic Polyzoa in the neighborhood of Northampton. (Journal of the Northamptonshire Natural History Society and Field Club, IV, 1887, pp. 202-211, 2 pls.)

1887. Notes on the Polyzoa and other organisms from the Gayton Boring, Northamptonshire. (Journal of the Northamptonshire Natural History Society and Field Club, IV, 1887, pp. 225-266.)

1887. Notes on classifications of Cyclostomatous Polyzoa; old and new. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], IX, 1887, pp. 346-362.)

1887. Notes on a species of Entalophora from the Neocomian clay of Lincolnshire. (Annals and Magazine of Natural History [5], XIX, 1887, pp. 17-19.)

1888. Notes on the classification of the Palæozoic Polyzoa. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XI, 1888, pp. 20-44.)

1888. Notes on the Polyzoa of Caen and Ranville now preserved in the Northampton Museum. (Journal of the Northamptonshire Natural History Society and Field Club, V, 1888, pp. 1-24.)

1888. A monograph of Yorkshire Carboniferous and Permian Polyzoa. Part I. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XI, 1888, pp. 68-85, pls. iii, iv.)

1889. Notes on British Eocene Polyzoa. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XI, 1889, pp. 154-169, pl. v.)

1889. A monograph of Yorkshire Carboniferous and Permian

Polyzoa. Part II. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XI, 1889, pp. 184-200, pl. vii.)

1889. Further notes on the Polyzoa of the Lower Greensand and the Upper Greensand of Cambridge. Part II. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XI, 1889, pp. 250-275, pl. xii.)

1890. Report of the committee appointed to prepare a report on the Cretaceous Polyzoa. (Report of the Sixtieth Meeting of the British Association for the Advancement of Science, 1890 [London, 1891], pp. 378-396.)

1890. The Polyzoa of the Red Chalk of Hunstanton. (Quarterly Journal of the Geological Society of London, XLVI, 1890, pp. 454-486, pl. xix.)

1891. Notes on Polyzoa of the zones of the Upper Chalk. (Report of the Sixty-first Meeting of the British Association for the Advancement of Science, 1891 [London, 1892], pp. 656-659.)

1891. Notes on some new or but little known Eocene Polyzoa from localities. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XII, 1891, pp. 52-61.)

1891. British Palæozoic Ctenostomatous Polyzoa. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XII, 1891, pp. 74-93, pls. iii, iv.)

1892. Notes on Polyzoa found at Cleethorpes in 1875, 1879, and 1882. (The Naturalist, 1892, pp. 5-11.)

1892. Fossil Polyzoa; further additions to the Cretaceous lists. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XII, 1892, pp. 149-161, pl. vi.)

1892. Report of the committee appointed for the completion of a report on the Cretaceous Polyzoa. (Report of the Sixty-second Meeting of the British Association for the Advancement of Science, 1892 [London, 1893], pp. 301-337.)

1893. Notes on the Polyzoa, Stomatopora and Proboscina groups, from the Cornbrash of Thrapston, Northamptonshire. (Proceedings of the Yorkshire Geological and Polytechnic Society [n. s.], XII, 1893, pp. 247-258, pls. xii, xiii.)

#### VOGT, CARL.

1876. Sur le Loxosome des Phascolosomes (*Loxosoma Phascolosomatum*). (Archives de Zoologie expérimentale et générale, V, 1876.)

1877. *Loxosoma*. (Translated and condensed by Thomas Hincks in Quarterly Journal of Microscopical Science [n. s.], XVII, 1877, pp. 354-376.)

1878. Bemerkungen zu Dr. B. Hatschek's Aufsatz über Embryonalentwicklung und Knospung von *Pedicellina echinata* [cernua]. (Zeitschrift für wissenschaftliche Zoologie, XXX, 1878, pp. 374-378, 2 figs.)



## WAAGEN, WILLIAM.

1868. Ueber die Zone des *Ammonites sowerbyi*. (Geognostisch-paläontologische Beiträge von Dr. E. W. Benecke, München, I, 1868, pp. 507-668, pls. xxi-xxxiv.) [Bryozoa, pp. 640-647, pls. xxxii, xxxiii.]

## WAAGEN, WILLIAM, AND PICHL, JOSEPH.

1885. Salt-Range Fossils. (Memoirs of the Geological Survey of India. Palæontologica Indica, Series XIII, Calcutta, 1885, 4to.) [Bryozoa, pp. 771-834, pls. lxxxvii-xcvi.]

## WAAGEN, WILLIAM, AND WENZEL, JOSEPH.

1886. Salt-Range Fossils. (Memoirs of the Geological Survey of India. Palæontologica Indica, Series XIII, Calcutta, 1886, 4to.) [Cœlenterata (Bryozoa in part), pp. 854-892, 904-924, pls. cii-cxv. Supplement to Bryozoa, pp. 963-966.]

## WALFORD, E. A.

1887. Notes on some Polyzoa from the Lias. (Quarterly Journal of the Geological Society of London, XLIII, 1887, pp. 632-636, pl. xxv.)

1889-1894. On some Bryozoa from the Inferior Oolite of Shipton Gorge, Dorset. (Quarterly Journal of the Geological Society of London, XLV, 1889, pp. 561-574, pls. xvii-xix; *ibid.*, L, 1894, pp. 72-78, pls. ii-iv.)

1894. On Cheilostomatous Bryozoa from the Middle Lias. (Quarterly Journal of the Geological Society of London, L, 1894, pp. 79-84, pls. v-vii.)

## WARD, H. B.

1897. Statoblasts ("Winter eggs") of *Pectinatella*. (American Monthly Microscopical Journal, XVIII, p. 232.)

## WATERS, ARTHUR WILLIAM.

1878. On Bryozoa. (Proceedings of the Manchester Literary and Philosophical Society, XVII, 1878, pp. 125-138, 178.)

1878. The use of the opercula in the determination of the Cheilostomatous Bryozoa. (Proceedings of the Manchester Literary and Philosophical Society, XVIII, 1878, pp. 8-11, pl. i.)

1878. Sur l'usage des opercules pour la détermination des Cheilostomes. (Archives de Zoologie expérimentale et générale, VII, 1878, N. et R., pp. xlvi-xlvii.)

1878. Remarks on some Fenestellidæ. (Transactions of the Manchester Geological Society, XIV, 1878, pp. 461-464, pl. i.)

1878. Bryozoa (Polyzoa) from the Pliocene of Brucoli (Sicily). (Transactions of the Manchester Geological Society, XIV, 1878, pp. 465-488, 1 pl.)

1879. On the occurrence of recent Heteropora. (Journal of the Royal Microscopical Society, II, 1879, pp. 390-393, pl. xv.)

1879. On the Bryozoa (Polyzoa) of the Bay of Naples. (Annals and Magazine of Natural History [5], III, 1879, pp. 28-43, 114-126, 192-202, 267-281, pls. viii-xv, xxiii, xxiv.)

1880. On the terms Bryozoa and Polyzoa. (Annals and Magazine of Natural History [5], V, 1880, pp. 34-36.) Reply on the term "Bryozoa." (Annals and Magazine of Natural History [5], VI, 1880, pp. 157-158.)

1880. Note on the genus Heteropora. (Annals and Magazine of Natural History [5], VI, 1880, pp. 156-157.)

1881. On fossil Chilostomatous Bryozoa from southwest Victoria, Australia. (Quarterly Journal of the Geological Society of London, XXXVII, 1881, pp. 309-347, pls. xiv-xviii.)

1882. On fossil Chilostomatous Bryozoa from Mount Gambier, South Australia. (Quarterly Journal of the Geological Society of London, XXXVIII, 1882, pp. 257-276, pls. vii-ix.)

1882. On Chilostomatous Bryozoa from Bairnsdale (Gippsland). (Quarterly Journal of the Geological Society of London, XXXVIII, 1882, pp. 502-513, pl. xxii.)

1883. Fossil Chilostomatous Bryozoa from Muddy Creek, Victoria, etc. (Quarterly Journal of the Geological Society of London, XXXIX, 1883, pp. 423-443, pl. xii.)

1884. Closure of the Cyclostomatous Bryozoa. (Journal of the Linnean Society, Zoology, XVII, 1884, pp. 400-404, pl. xvii.)

1884. On fossil Cyclostomatous Bryozoa from Australia. (Quarterly Journal of the Geological Society of London, XL, 1884, pp. 674-697, pls. xxx, xxxi.)

1885. Chilostomatous Bryozoa from Aldinga and the River-Murray Cliffs, South Australia. (Quarterly Journal of the Geological Society of London, XLI, 1885, pp. 279-310, pl. vii.)

1885. On the use of the avicularian mandible in the determination of Chilostomatous Bryozoa. (Journal of the Royal Microscopical Society [2], V, 1885, pp. 774-779, pl. xiv.)

1887. On Tertiary Chilostomatous Bryozoa from New Zealand. (Quarterly Journal of the Geological Society of London, XLIII, 1887, pp. 40-72, pls. vi-viii.)

1887. Bryozoa from New South Wales, North Australia, etc. (Annals and Magazine of Natural History [5], XX, 1887, pp. 81-95, pl. iv; pp. 181-203, pls. v, vi; pp. 253-265, pl. vii.)

1888. On some ovicells of Cyclostomatous Bryozoa. (Journal of the Linnean Society, Zoology, XX, 1888, pp. 275-280, pl. xiv.)

1888. On the ovicells of some Lichenopora. (Journal of the Linnean Society, Zoology, XX, 1888, pp. 280-285, pl. xv.)

1889. Supplementary report on the Polyzoa collected by H. M. S. *Challenger* during the years 1873-1876. (Report on the scientific results of the voyage of H. M. S. *Challenger*, Zoology, XXXI, Part lxxix, London, 1889, 4to, pp. 1-41, pls. i-iii.)

1889. Bryozoa from New South Wales. (Annals and Magazine of Natural History [6], IV, 1889, pp. 1-24, pls. i-iii.)

1891. On Chilostomatous characters in Melicertitidae and other fossil Bryozoa. (Annals and Magazine of Natural History [6], VIII, 1891, pp. 48-53, pl. vi.)

1891. North-Italian Bryozoa. (Quarterly Journal of the Geological Society of London, XLVII, 1891, pp. 1-34, pls. i-iv.)

1892. North-Italian Bryozoa. Part II. Cyclostomata. (Quarterly Journal of the Geological Society of London, XLVIII, 1892, pp. 153-162, pl. iii.)

1892. Observations on the gland-like bodies in the Bryozoa. (Journal of the Linnean Society, Zoology, XXIV, 1892, pp. 272-278, pl. xix.)

1894. On Mediterranean and New Zealand Retepora and a Fenestrate Bryozoa. (Journal of the Linnean Society, Zoology, XXV, 1894, pp. 255-271, pls. vi, vii.)

1896. Interzoöcial communication in Flustridae and notes on Flustra. (Journal of the Royal Microscopical Society, 1896, pp. 279-292, pls. vii, viii.)

1896. Notes on the Bryozoa from Rapallo and other Mediterranean localities, chiefly Cellulariidae. (Journal of the Linnean Society, Zoology, XXVI, 1896, pp. 1-21, pls. i, ii.)

1896. Review of the British Museum Catalogue of Jurassic Bryozoa, by J. W. Gregory. (Natural Science, IX, 1896, pp. 334-335.)

1898. Observations on Membraniporidae. (Journal of the Linnean Society, Zoology, XXVI, 1898, pp. 654-693, pls. xlvii-xlix.)

1899. Bryozoa from Madeira. (Journal of the Royal Microscopical Society, 1899, pp. 6-16, pl. iii.)

#### WATTS, H.

1865. On fossil Polyzoa. (Transactions of the Royal Society of Victoria, VI, 1865, pp. 82-84.)

#### WESENBERG-LUND, C.

1897. Biologiske Studier over Ferskvandsbryozoer. (Videnskabelige Meddelelser, fra den Naturhistoriske Forening i Kjöbenhavn [5], VIII, 1897, pp. 252-360, 361-363. Résumé en français, pp. [364], i-xxxvi.)

## WESTENDORP, G. D.

1845. Recherches sur les Polypiers flexibles de la Belgique, et particulièrement des environs d'Ostende. (Annales de la Société médico-chirurgicale de Bruges, IV, 1845, pp. 214-230, 303-326, 1 pl.)

## WHEATCROFT, W. G.

1893. Polyzoa. (International Journal of Microscopy and Natural Science, London, III, 1893, pp. 405-411, pls. xviii, xix.)

## WHIDBORNE, G. F.

1895. A monograph of the Devonian Fauna of the South of England. (Palæontographical Society's Publications.) [Bryozoa, Vol. II, Part IV, 1895, pp. 161-188, pls. xviii-xx.]

## WHITEAVES, J. F.

1874-75. On recent deep-sea dredging operations in the Gulf of St. Lawrence. (American Journal of Science and Arts [3], VII, 1874, pp. 210-219.) (Canadian Naturalist [n. s.], VII, 1875, pp. 257-267.)

1882. On a recent species of Heteropora from the Strait of Juan de Fuca. (American Journal of Science and Arts [3], XXIV, 1882, pp. 279-280.)

## WHITLEGGE, T.

1887. Notes on some Australian Polyzoa. (Proceedings of the Linnean Society of New South Wales [2], II, 1887, pp. 337-347.) (Annals and Magazine of Natural History [6], I, 1888, pp. 13-22.)

1888. Note on a species of Polyzoa (*Porina inversa*, Waters) from Port Jackson. (Proceedings of the Linnean Society of New South Wales [2], II, 1888, p. 680.)

## WHITFIELD, R. P.

1878. Preliminary descriptions of new species of fossils from the lower geological formations of Wisconsin. (Annual Report of the Geological Survey of Wisconsin for 1877, pp. 50-89.) [Bryozoa, pp. 67-72.]

1882. Paleontology. (Geology of Wisconsin, IV, 1882, pp. 163-349, pls. i-xxvii.) [Bryozoa, pp. 248-258, pls. xi, xii.]

## WIERZEJSKI, A.

1887. O Mszywiolach (Bryozoa) krajowych. [On native Bryozoa.] (Sprawozdanie Komisji fisyjograficznej oraz materyjaly fizyjografii, Krajowej [Cracow], XXI, 1887, 16 pp.)

## WILSON, J. BRACEBRIDGE.

1880. Fossil Catenicellæ from the Miocene beds at Bird Rock, near Geelong. (Quarterly Journal of the Microscopical Society of Victoria, I, 1880, pp. 60-63.)

1880. On a new genus of Polyzoa. [Catenicellopsis.] (Quarterly Journal of the Microscopical Society of Victoria, I, 1880, pp. 64-65, 1 pl.)

## WINTHER, G.

1877. Fortegnelse over de i Danmark hidtil fundne Hav-Bryozoer. (Naturhistorisk Tidsskrift, Kjöbenhavn [3], XI, 1877, pp. 1-40.)

## WOOD, SEARLES V.

1844. Descriptive catalogue of the zoophytes from the Crag. (Annals and Magazine of Natural History [1], XIII, 1844, pp. 10-21.)

WOODS, J. E. See TENISON-WOODS, J. E.

## YOUNG, JOHN.

1874. Notes accompanying two slides of Carboniferous Polyzoa from the fossiliferous shales of Hairmyres, near East Kilbride. (Transactions of the Edinburgh Geological Society, II, 1874, pp. 400-402.)

1876. On a fresh-water Polyzoon belonging to the genus Alcyonella, discovered in the Germain's Loch, near Maryhill, in August, 1869. (Proceedings of the Natural History Society of Glasgow, II, 1876, pp. 2-3.)

1877. A new method of fixing fronds of Carboniferous Polyzoa on a layer of asphalt to show the celluliferous face. (Proceedings of the Natural History Society of Glasgow, III, 1877, pp. 207-210.)

1880. Notes on a Carboniferous species of Glauconome. (Proceedings of the Natural History Society of Glasgow, IV, 1880, pp. 257-259.)

1881. Remarks on the genus Synocladia and other allied forms, with description of a new species. (Proceedings of the Natural History Society of Glasgow, V, 1881, pp. 30-35.)

1882. Notes on the perfect condition of the cell-pores and other points of structure in certain species of Carboniferous Polyzoa from western Scotland. (Transactions of the Geological Society of Glasgow, VI, 1882, pp. 211-217.)

1882. Remarks on some of the external characters which distinguish *Fenestella plebeia* McCoy from *F. tuberculocarinata*, Eth., jun. (Transactions of the Geological Society of Glasgow, VI, 1882, pp. 182-188.)

1882. On the identity of *Ceramopora* (Berenicea) *megastoma* McCoy with *Fistulipora minor*, McCoy. (Annals and Magazine of Natural History [5], X, 1882, pp. 427-431.) (Transactions of the Geological Society of Glasgow, VII, Part II, 1885, pp. 244-250.)

1883. On Ure's "Millepore," *Tabulipora* (*Cellepora*) *Urii*, Flem. (*Annals and Magazine of Natural History* [5], XII, 1883, pp. 154-158.)

1883. Notes on Ure's "Millepore," *Tabulipora Urii*, J. Young (*Cellepora Urii* Flem.). (*Transactions of the Geological Society of Glasgow* VII, 1883, pp. 264-272.)

1887. Note on a new family of the Polyzoa—*Cystodictyonidae* (E. O. Ulrich)—with notice of three Carboniferous species. (*Transactions of the Edinburgh Geological Society*, V, Part III, 1887, pp. 461-466.)

1888. On the structure of *Fistulipora incrustans* Phill. (F. minor McCoy). (*Annals and Magazine of Natural History* [6], I, 1888, pp. 237-247.)

YOUNG, JOHN, AND ARMSTRONG, JAMES.

1871. On the Carboniferous fossils of the west of Scotland; their vertical range and distribution. By John Young. With a general catalogue of the fossils and their mode of occurrence, and an index to the principal localities. By James Armstrong. Glasgow, 1871, 8vo. 103 pp. Also as a supplement to Vol. III of the *Transactions of the Geological Society of Glasgow*, 1871. [Bryozoa, pp. 32-35.]

1873. The fossils of the Carboniferous strata of the west of Scotland. (*Transactions of the Geological Society of Glasgow*, IV, 1873, Part III, pp. 267-281.) [Bryozoa, pp. 274-275.]

YOUNG, DR. JOHN, AND YOUNG, JOHN.

1874. On *Palæocoryne* and other Polyzoal appendages. (*Geological Magazine* [n.s.], Decade II, I, 1874, pp. 422-423.) (*Quarterly Journal of the Geological Society of London*, XXX, 1874, pp. 684-689, pls. xl-xliii.)

1874. Note on the occurrence of *Polypora tuberculata* Prout in Scotland. (*Geological Magazine* [n. s.], Decade II, I, 1874, pp. 258-259.)

1874. New Carboniferous Polyzoa. (*Quarterly Journal of the Geological Society of London*, XXX, 1874, pp. 681-683, pls. xl, xli.) (*Geological Magazine* [n. s.], Decade II, I, 1874, p. 422.)

1874. On a new genus of Carboniferous Polyzoa. (*Annals and Magazine of Natural History* [4], XIII, 1874, pp. 335-339, pl. xvi.B.)

1875. On new Carboniferous Polyzoa. (*Annals and Magazine of Natural History* [4], XV, 1875, pp. 333-336, pls. ix, ix bis.)

1875. New species of *Glauconome* from Carboniferous limestone strata of the west of Scotland. (*Proceedings of the Natural History Society of Glasgow*, II, 1875, pp. 325-335, pls. ii-iv.)

1877. On a new species of *Sulcoretopora*. (*Proceedings of the Natural History Society of Glasgow*, III, 1877, pp. 166-168.)

1878. On two new species of Carboniferous Polyzoa. (*Proceedings of the Natural History Society of Glasgow*, III, 1878, pp. 354-356, pl. ii.)

ZITTEL, KARL A.

1880. Handbuch der Palæontologie. München und Leipzig, 1880.  
[Bryozoa, pp. 575-641.]

ZITTEL, KARL A., AND BARROIS, CHARLES.

1883. Traité de Paléontologie. Paris, 1883. [Bryozoa, pp. 582-650.]  
[Translation of Zittel's Handbuch into French by Dr. Barrois.]

ZYKOFF, W.

1890. Zur Fauna der Süsswasser-Bryozoen der Umgegend von Moskau. (Zoologischer Anzeiger, XIII, 1890, p. 444.)  
Bull. 173—36

## THE FOREGOING LIST CLASSIFIED.

### HEADS OF CLASSIFICATION.

- A. Bibliographic—including annual reviews and lists of papers dealing with Bryozoa.
- B. General—including works which treat of the Bryozoa as a whole or are too general in scope to come under more particular heads.
- C. Biological—including papers concerned mainly with anatomy, morphology, embryology, development, etc.
- D. Fresh-water—including papers which treat of fresh-water Bryozoa biologically and systematically.
- E. Marine—including papers which treat of living marine Bryozoa mainly from a systematic standpoint.
- F. Tertiary and Quaternary.
- G. Mesozoic.
- H. Paleozoic.

#### A. BIBLIOGRAPHIC.

##### INCLUDING ANNUAL REVIEWS AND LISTS OF PAPERS DEALING WITH BRYOZOA.

###### (a) ANNUAL REVIEWS.

[The annual reviews are generally accompanied by a list of the publications that have appeared during the period covered by the review.]

1. *Annuaire Géologique Universel, Revue de Géologie et Paléontologie*, Paris. Annual reviews by Gustave F. Dollfus, IV, 1888, pp. 815-823; V, 1889, pp. 1159-1170; VI, 1890, pp. 921-933; VII, 1891, pp. 1039-1049; VIII, 1892, pp. 789-795; IX, 1893, pp. 837-845; X, 1894, pp. 781-793.

2. *Archiv für Naturgeschichte*, Wiegmann, Berlin. Bericht über die wissenschaftlichen Leistungen in der Naturgeschichte der niederen Thiere: Bryozoen.

Braun, M. XLVIII, Band II, 1882, pp. 577-593. [For 1880 and 1881.]

Kraepelin, Karl. LI, Band II, 1885, pp. 174-196. [For 1882 and 1883.]

Kraepelin, Karl. LII, Band II, 1886, pp. 231-262. [For 1884 and 1885.]

Michaelsen, W. LIV, Band II, 1888, pp. 10-37. [For 1886 and 1887.]

Michaelsen, W. LV, Band II, 1889, pp. 93-107. [For 1888.]

Matzdorff, C. LVI, Band II, 1890, pp. 15-38. [For 1889.]

Matzdorff, C. LVII, Band II, 1891, pp. 15-28. [For 1890.]

Matzdorff, C. LVIII, Band II, 1892, pp. 25-44. [For 1891.]

Matzdorff, C. LIX, Band II, 1893 (Issued 1897), pp. 45-76. [For 1892 and 1893.]

3. *The Geological Record*. An account of works on Geology, Mineralogy, and Palæontology published during the year.

For 1874; London, 1875, *Invertebrata*, [Nicholson, H. A.], pp. 283-329.

For 1875; London, 1877, *Invertebrata*, [Nicholson, H. A.], pp. 297-332.



For 1876; London, 1878, *Invertebrata*, [Nicholson, H. A.], pp. 269-300.

For 1877; London, 1880, *Invertebrata*, [Nicholson, H. A., and Etheridge, R., jun.], pp. 300-334.

For 1878; London, 1882, *Invertebrata*, [Blake, J. F.], pp. 313-369.

For 1879; London, 1887, *Invertebrata*, [Sollas, W. J.], pp. 311-344.

For 1880-1884; Vol. II, London, 1889, *Invertebrata*, [Sherborn, C. D.], pp. 323-412.

4. *Journal of the Royal Microscopical Society*, London, 1878-1900+.

Short abstracts of a large number of papers on Bryozoa appear in current numbers of this serial.

5. *Revue Critique de Paléozoologie*, Cossman, Paris.

Bryozoaires, by G. F. Dollfus. Première Année, 1897, pp. 37-38, 76, 121-124, 170-172.

Deuxième Année, 1898, pp. 70-75. Troisième Année, 1899, pp. 85-87, 124-125.

6. *Zoologischer Jahresbericht*, herausgegeben von der zoologischen

Station zu Neapel. Leipzig, 1880-6, Berlin, 1887—.

Spengel, J. W., and Hatschek, B. (For 1879), L., 1880, pp. 790-795.

Spengel, J. W. (For 1880), L. 1881, pp. 336-347; (for 1881), L., 1882, pp. 311-322.

Vigelius, W. J. (For 1882), L., 1883, pp. 302-315; (for 1883), L., 1885, pp. 224-243; (for 1884), L., 1886, pp. 271-293; (for 1885), B., 1887, pp. 209-225; (for 1886), B., 1888, g, pp. 1-8; (for 1887), B., 1888, k, pp. 1-5.

Bemmelen, J. F. van. (For 1888), B., 1890, ε, pp. 1-8; (for 1889), B., 1891, ε, pp. 1-7.

Schiemenz, P. (For 1890), B., 1892, δ, ε, pp. 1-11; (for 1891), B., 1893, l, m, pp. 1-12.

[Later volumes not seen.]

7. *The Zoological Record*. [Vols. 1-6 called *The Record of Zoological Literature*.] London.

Greene, J. Reay. (For 1864), I, 1865, pp. 251-256.

Wright, E. Perceval. (For 1865), II, 1866, pp. 298-305; (for 1866), III, 1867, pp. 213-216; (for 1867), IV, 1868, pp. 603-660; (for 1868), V, 1869, pp. 505-509; (for 1869), VI, 1870, pp. 594-597.

Martens, Eduard von. (For 1870), VII, 1871, pp. 180-187; (for 1871), VIII, 1873, pp. 177-178; (for 1872), IX, 1874, pp. 175-184; (for 1873), X, 1875, pp. 179-182; (for 1874), XI, 1876, pp. 191-198; (for 1875), XII, 1877, pp. 206-212; (for 1876), XIII, 1878, Moll. pp. 63-67; (for 1877), XIV, 1879, Moll. pp. 88-98; (for 1878), XV, 1880, Moll. pp. 88-95; (for 1879), XVI, 1881, Moll. pp. 103-113; (for 1880), XVII, 1881, Moll. pp. 105-125; (for 1881), XVIII, 1882, Moll. pp. 94-108; (for 1882), XIX, 1883, Moll. pp. 97-115; (for 1883), XX, 1884, Moll. pp. 97-113; (for 1884), XXI, 1885, Pol. pp. 1-15.

Vine, G. R. (For 1885), XXII, 1886, Pol. pp. 1-10.

Hoyle, W. E. (For 1886), XXIII, 1887, Pol. pp. 1-12; (for 1887), XXIV, 1888, Pol. pp. 1-17; (for 1888), XXV, 1890, Pol. pp. 1-11.

Latter, O. H. (For 1889), XXVI, 1890, Pol. pp. 1-8.

Mitchell, P. Chalmers. (For 1890), XXVII, 1892, Pol. pp. 1-10.

Woodward, B. B. (For 1891), XXVIII, 1892, Pol. pp. 1-4; (for 1892), XXIX, 1893, Bry. pp. 1-5; (for 1893), XXX, 1894, Bry. pp. 1-7; (for 1894), XXXI, 1895, Bry. pp. 1-6; (for 1895), XXXII, 1896, Bry. pp. 1-6.

Buchanan, Florence. (For 1896), XXXIII, 1897, Bry. pp. 1-6; (for 1897), XXXIV, 1898, Bry. pp. 1-4; (for 1898), XXXV, 1899, Bry. pp. 1-5.

*Zoologischer Anzeiger*, herausgegeben von Prof. J. Victor Carus, Leipzig. Vols. 1-18, 1878-1895. Current numbers contain titles of

publications relating to Bryozoa; consult index of each volume under I. Literature. This feature of the "Anzeiger" continued as—

*Bibliographia Zoologica* (diario "Zoologischer Anzeiger" adnexa), adjuvante concilio bibliographico quod Turici præsiede H. H. Field institutum est, edidit J. Victor Carus. Vols. I—, 1896—. Consult index of each volume.

*Bibliographia Universalis. Sectio Zoologica.* Edidit Concilium Bibliographicum, Turici (Zurich), 1896–1900+.

This is the "card system" applied to a current record of publications relating to zoology and several kindred branches. The titles are classified and numbered according to the Dewey decimal classification. Recent Bryozoa are 594.7; fossil Bryozoa 564.7.

(b) LISTS GIVING TITLES OF PAPERS CONCERNING BRYOZOA.

1830.

**Blainville, M. H. de.** Dictionnaire des Sciences Naturelles, Vol. LX, 1830, pp. 535–546.

1846.

**Engelmann, Wilhelm.** Index Librorum Historiam Naturalem, or Bibliotheca Historico-Naturalis. Verzeichniss der Bücher über Naturgeschichte, 1700–1846. Leipzig, 1846.

1848.

**Beneden, P. J. van.** Liste des principaux ouvrages sur les polypes. (Mémoires de l'Académie Royale de Belgique, XXI, 1848, pp. 28–33.)

1861.

**Carus, J. Victor, and Engelmann, Wilhelm.** Bibliotheca Zoologica: Verzeichniss der Schriften über Zoologie, 1846–1860. Leipzig, 1861, pp. 834–840, 1664.

1880.

**Hincks, Thomas.** A history of the British marine Polyzoa. 2 vols.. London, 1880. Vol. I, pp. 583–589.

**Tenison-Woods, J. E.** On the genus *Amathia*. Appendix: List of authors who have written directly or indirectly on Polyzoa. (Trans. Proc. Roy. Soc. Victoria, XVI, 1880, pp. 107–118.)

1883.

**Haddon, A. C.** On budding in Polyzoa: List of papers referred to. (Quar. Jour. Micro. Sci. [n. s.], XXIII, 1883, pp. 553–555.)

**Vine, G. R.** Report on fossil Polyzoa: Bibliography. (Brit. Assoc. Rep., LIII, 1883, pp. 206–209.) [Paleozoic and Mesozoic.]

## 1884.

- Vine, G. R.** Report on fossil Polyzoa: Bibliography. (Brit. Assoc. Rep., LIV, 1884, pp. 214-219.) [Cretaceous and Tertiary.]

## 1885.

- Harmer, S. F.** Structure and development of Loxosoma: List of papers referred to. (Quar. Jour. Micro. Sci. [n. s.], XXV, 1885, pp. 328-331.)
- Pennington, A. S.** British Zoophytes: An introduction to the Hydroida, Actinozoa and Polyzoa found in Great Britain, Ireland, and the Channel Islands. London, 1895, pp. 342-345.
- Thompson, D'Arcy W.** A bibliography of Protozoa, Sponges, Cœlenterata, and Worms, including also the Polyzoa, Brachiopoda, and Tunicata, for the years 1861-1883. Cambridge, 1885. [Phoronis, p. 218.] Polyzoa, pp. 218-231.
- Vine, G. R.** Report on recent Polyzoa: Bibliography. (Brit. Assoc. Rep., LV, 1885, pp. 674-680.)

## 1887.

- MacGillivray, P. H.** A catalogue of the marine Polyzoa of Victoria: List of authors and their works on Polyzoa. (Trans. Proc. Roy. Soc. Victoria, XXIII, 1887, pp. 222-224.)

## 1889.

- Jelly, E. C.** A synonymic catalogue of the recent marine Bryozoa, including Fossil Synonyms. London, 1889. Bibliography, pp. 273-287.

## 1890.

- Davenport, C. B.** Cristatella: List of papers referred to. (Bull. Mus. Comp. Zool., XX, 1890, pp. 148-151.)

## 1891.

- Davenport, C. B.** Observations on budding in Paludicella: List of papers referred to. (Bull. Mus. Comp. Zool., XXII, 1891, pp. 109-114.)

## 1893.

- Gregory, J. W.** On the British Palæogene Bryozoa: Bibliography. (Trans. Zool. Soc. London, XIII, 1893, pp. 266-275.)

## 1894.

- Taschenberg, O.** Bibliotheca Zoologica II. Zoologie, IV, Leipzig, 1894, pp. 2761-2770.

## 1896.

- Gregory, J. W.** Jurassic Bryozoa: Bibliography. British Museum Catalogue, 1896, pp. 224-231.
- Neviani, Antonio.** Appunti bibliografici per servire alla storia degli studi sui Briozoi. (Rev. Ital. Sc. Nat. Siena, XVI, 1896, pp. 1-7, 25-28, 35-38.) [Not seen.]
- Nordgaard, O.** Litteratur vedkommende Norges polyzofauna. (Bergens Museums Aarbog, 1894-95, No. II, 1896, pp. 6-9.)

## 1897.

- Simpson, G. B.** Handbook of the genera of the North American Palæozoic Bryozoa. (Fourteenth Ann. Rep. State Geologist [of New York].) Bibliography, Recent Forms, pp. 413-420, Fossil forms found in North America, pp. 483-486.

## 1899.

- Heider, K.** Literature on Bryozoa, pp. 60-64, in Korschelt and Heider's Textbook of the Embryology of Invertebrates. Engl. Transl., London, 1899. [Literature on Phoronis, pp. 10-11.]

## B. GENERAL.

INCLUDING WORKS WHICH TREAT OF THE BRYOZOA AS A WHOLE OR ARE TOO GENERAL IN SCOPE TO COME UNDER MORE PARTICULAR HEADS.

## 1809.

- Savigny, J. C.** Description de l'Égypte. [Plates only.] [Explication des Planches by V. Audouin, 1826.] [On the dates, see C. D. Sherborn in Proc. Zool. Soc. London, 1897, pp. 285-288.]

## 1810.

- Lamouroux, J. V. F.** Mémoire sur la classification des Polypiers coralligènes. 1810.

## 1812.

- Lamouroux, J. V. F.** Sur la classification des Polypiers coralligènes non entièrement pierreux. (Nouv. Bull. Sci. Soc. Phil. Paris, III, 1812, pp. 181-188.)

## 1816.

- Lamarck, J. B.** Histoire naturelle des animaux sans vertèbres. Paris, 1816. [Bryozoa in vol. 2.]
- Système des animaux sans vertèbres. Paris, 1816-18.

## 1821.

- Lamouroux, J. V. F.** Exposition méthodique des genres de l'ordre des Polypiers. Paris, 1821.

## 1824.

**Defrance, J. L. M.** Tableau des corps organisés fossiles. Paris, 1824. [Bryozoa, pp. 99–102.]

—— Dictionnaire des sciences naturelles. 70 vols., with Atlas, Paris, 1816–1830. [Bryozoa: Millepore, XXXI, pp. 80–85, 1824; Poly-piers, XLII, pp. 372–397, 1826; Spiropore, L, pp. 299, 300, 1827; Terebellaire, LIII, pp. 111, 112, 1828; Theonée, LIII, p. 470, 1828.]

**Lamouroux, J. V. F.** Corallina; or, a classical arrangement of Flexible Coralline Polypidoms, selected from the French of J. V. F. Lamouroux. London, 1824. [Translator anonymous.]

—— **Bory de Saint-Vincent et Eug. Deslongchamps.** Encyclopédie méthodique: Histoire naturelle des Zoophytes, ou animaux rayonnés. Paris, 1824.

## 1826.

**Audouin, V.** Explication sommaire des Planches de Polypes, of Savigny's Description de l'Égypte. Vol. I, Part III, Paris, 1826. Zoophytes, pp. 213–214; Polypes, pp. 225–244, pls. i–xiv.

## 1829.

**Eichwald, E.** Zoologia Specialis. 3 vols., Vilnæ, 1829–1831. [Bryozoa, I, pp. 179–180, 198–201, pls. ii, iii.]

## 1830.

**Blainville, H. M. de.** Dictionnaire des sciences naturelles, Vol. LX, 1830, pp. 1–546, pls. 67, 68, in Atlas.

## 1834.

**Blainville, H. M. de.** Manuel d'Actinologie ou de Zoophytologie. Paris, 1834.

## 1836.

**Milne-Edwards, H.** Histoire des Polypes. In Vol. II of Ed. 2 of Lamarck's Histoire Naturelles des Animaux sans Vertèbres. Paris, 1836.

## 1837.

**Bronn, H. G.** Lethæa Geognostica, oder Beschreibungen und Abbildungen der für die Gebirgs-Formation bezeichnendsten Versteinerungen. Ed. 2, Stuttgart, 1837. [Bryozoa, I, pp. 240–251, pls. xv, xvi.]

## 1840.

**Michelin, H.** Iconographie Zoophytologie, description par localités et terrains des Polypiers fossiles de France et pays environnants. Paris, 4to. Dates of parts: pp. 1-16, pls. i-iv, 1840; pp. 17-148, pls. v-xliii, 1841-3; pp. 149-178, pls. xliii-xlvi, 1844; pp. 179-220, pls. xlvii-liii, 1845?; pp. 221-306, pls. liv-lxxiii, 1846; pp. 307-348, i-xii, pls. lxxiv-lxxix, 1847.

## 1843.

**Morris, John.** A catalogue of British fossils. London, 1843.

## 1844.

**Mantell, G. A.** The medals of creation. London, 1844. [Bryozoa, Vol. I, pp. 281-290.]

## 1846.

**Hagenow, F.** Bryozoa, in Geinitz, Grundriss der Versteinerungskunde. Leipzig, 1846. [Bryozoa, pp. 586-635, pl. xxiii b.]

**Milne-Edwards, H.** Zoophytes, in Cuvier, Le Règne Animal. Paris, 1846.

## 1848.

**Bronn, H. G.** Handbuch einer Geschichte der Natur. Band III. Index paleontologicus. A. Nomenclator paleontologicus, 1848. B. Enumerator paleontologicus, 1849.

## 1849.

**Orbigny, A. d'.** Prodrome de Paléontologie stratigraphique. 3 vols., Paris, 1849-1852.

## 1851.

**Orbigny, A. d'.** Recherches zoologiques sur la classe des Mollusques Bryozoaires. (Ann. Sci. Nat., Zool. [3], XVI, 1851, pp. 292-339; *ibid.* [3], XVII, 1852, pp. 273-348.)

## 1852.

**Orbigny, A. d'.** Cours élémentaire de Paléontologie et de Géologie stratigraphique. Paris, 1852. [Tableau 10, Bryozoaires.]

**Quenstedt, F. A.** Handbuch der Petrefactenkunde. Tübingen, 1852. [Bryozoa, pp. 634-641, pls. lvi, lvii.]

## 1854.

**Morris, John.** A catalogue of British fossils. Ed. 2, London, 1854. [Bryozoa, pp. 119-129.]

## 1857.

- Pictet, F. J.** *Traité de Paléontologie.* Ed. 2, 1857. [Bryozoa, pp. 87-171, Atlas, pls. xc-xcii.]

## 1862.

- Goldfuss, A.** *Petrefacta Germaniæ.* Ed. 2, Leipzig, 1862.  
**Morris, J. W.** On mounting Polyzoa and hydroid Zoophytes so as to display the outstretched tentacles as in life. (*Quar. Jour. Micro. Sci.* [n. s.], II, 1862, pp. 116-117.)

## 1867.

- Quenstedt, F. A.** *Handbuch der Petrefactenkunde.* Ed. 2, 1867.

## 1871.

- Gill, T. H.** Arrangement of the families of mollusks. (*Smithsonian Miscellaneous Collections*, X, 1871. Bryozoa, pp. 27-30.) [Proposes order Rhabdopleuræ for Rhabdopleura.]

## 1878.

- Etheridge, R., Jun.** *A catalogue of Australian fossils.* London, 1878.

## 1880.

- Hincks, T.** On the terms Polyzoa and Bryozoa. (*Ann. Mag. Nat. Hist.* [5], V, 1880, pp. 127-129.)  
**Jones, T. R.** On the nomenclature of Polyzoa, Busk. (*Ann. Mag. Nat. Hist.* [5], V, 1880, p. 220.)  
**Waters, A. W.** On the terms Bryozoa and Polyzoa. (*Ann. Mag. Nat. Hist.* [5], V, 1880, pp. 34-36.) Reply on the term "Bryozoa." (*Ann. Mag. Nat. Hist.* [5], VI, 1880, pp. 157-158.)  
**Vine, G. R.** A review of the family Diastoporidæ for the purpose of classification. (*Quar. Jour. Geol. Soc. London*, XXXVI, 1880, pp. 356-361, pl. xiii.)  
**Zittel, K. A.** *Handbuch der Palæontologie.* München und Leipzig, 1880. [Bryozoa, pp. 575-641.]

## 1881.

- Quenstedt, F. A.** *Petrefactenkunde Deutschlands.* VI, Korallen. (Röhren- und Sternkorallen). Leipzig, 1881.

## 1882.

- Vine, G. R.** The Diastoporidæ, or the natural history of a family type. (*Science Gossip*, XVIII, 1882, pp. 81-83, 145-147, 244-247.)

## 1883.

**Zittel, K. A., and Barrois, C.** *Traité de Paléontologie.* Paris, 1883.  
[Bryozoa, I, pp. 582-650.]

## 1885.

**Lankester, E. R.** Article "Polyzoa." In *Encyclopædia Britannica*, ed. 9, vol. xix, 1885, pp. 429-441.

## 1887.

**Vine, G. R.** Notes on classifications of Cyclostomatous Polyzoa: old and new. (*Proc. Yorkshire Geol. Polyt. Soc. [n. s.], IX*, 1887, pp. 346-362.)

## 1891.

**Teplov, A. G.** [The Bryozoa of the Zoological collection of the Moscow University Museum.] [Russian.] (*Izvy. imp. obsh. lyub. est. Moskovskom Univ., LXVII*, 1891, 19 pp.)

## 1893.

**Wheatcroft, W. G.** Polyzoa. (*Intern. Jour. Micro. Nat. Sci.*, London, III, 1893, pp. 405-411, pls. xviii, xix.)

## 1895.

**Pergens, E.** Note sur l'identification et la séparation des espèces dans le Groupe des Bryozoaires. (*Bull. Soc. Belge Geol., IX*, 1895, *Proc.-verb.*, pp. 8-11.)

## 1896.

**Harmer, S. F.** Polyzoa, in "The Cambridge Natural History." London, 1896, Vol. II, chapters xvii-xix, pp. 463-533, figs. 232-257.

## C. BIOLOGICAL

INCLUDING PAPERS CONCERNED MAINLY WITH ANATOMY, MORPHOLOGY, EMBRYOLOGY, DEVELOPMENT, ETC.

## 1827.

**Grant, R. E.** Observations on the structure and nature of Flustræ. (*Edinburgh New Phil. Jour. [2], III*, 1827, pp. 107-118, 337-342.) (*Heusinger's Zeitschr. f. organ. Phys., I*, 1827, pp. 401-418; *II*, 1828, pp. 50-55.) (*Féruss., Bull. Sci. Nat., XIII*, 1828, pp. 371-374.)



## 1834.

- Lister, J. J.** Some observations on the structure and functions of tubular and cellular Polypi, and of Ascidiae. (Phil. Trans. R. Soc. London, 1834, pp. 365-388, pls. viii-xii.) (Entomol. Mag., III, 1836, pp. 172-176.)

## 1836.

- Milne-Edwards, H.** Recherches anatomiques, physiologiques et zoologiques sur les Eschares. (Ann. Sci. Nat., Zool. [2], VI, 1866, pp. 5-53, pls. i-v.) (Compt. Rend. Acad. Sci., Paris, II, 1836, pp. 225-228.) (L'Institut, IV, 1836, pp. 67-68.) (Froriep, Notiz., XLVII, 1836, pp. 337-341.)

## 1837.

- Farre, A.** Observations on the minute structure of some of the higher forms of Polypi, with views of a more natural arrangement of the class. (Phil. Trans. R. Soc. London 1837, pp. 387-426, pls. xx-xxvii.)

## 1839.

- Nordmann, A.** Sur l'anatomie du Tendra zostericola. (Compt. Rend., Acad. Sci., Paris, VIII, 1839, pp. 357-359.) (L'Institut, VII, 1839, p. 95.)  
 — Recherches sur le Tendra zostericola, polype de la section Bryozoaires. (Ann. Sci. Nat., Zool. [2], XI, 1839, pp. 185-191.)

## 1842.

- Nordmann, A.** Voyage dans la Russie Méridionale et la Crimée. [Bryozoa, Vol. II, 1842, pp. 818, 819. In Vol. III, Recherches microscopiques sur l'anatomie et le développement du Tendra zostericola, pp. 651-678, Atlas, Polypi, pl. ii.]

## 1845.

- Beneden, P. J. van.** Recherches sur l'anatomie, la physiologie et le développement des Bryozoaires qui habitent la côte d'Ostende. (Nouv. Mém. Acad. R. Bruxelles, XVIII, 1845, 44 pp., pls. i-v; ibid., XIX, 1845, 31 pp., pls. i, ii.) (Reviewed in Ann. Mag. Nat. Hist., XVII, 1846, pp. 120-123.)  
 — Recherches sur l'organisation des Laguncula et l'histoire naturelle des différents Polypes Bryozoaires qui habitent la côte d'Ostende. (Nouv. Mém. Acad. R. Bruxelles, XVIII, 1845, 29 pp., pls. i-iii.)

## 1849.

- Allman, G. J.** On the nervous system and certain other points in the anatomy of the Bryozoa. (Brit. Assoc. Rep., XIX, 1849, pp. 71-72.) (L'Institut, XVIII, 1850, pp. 19-20.)

## 1851.

- Couch, R. Q.** On the physiological development of cells among the crustaceous Zoophytes. (Trans. Nat. Hist. Antiq. Soc. Penzance, I, 1851, pp. 295-300.)

## 1853.

- Allman, G. J.** On the structure of the muscular fiber in the Polyzoa. (Proc. Irish Acad., V, 1853, pp. 68-69.)

## 1855.

- Allman, G. J.** On the homology of the organs of the Tunicata and the Polyzoa. (Trans. Irish Acad., XXII, 1855, pp. 275-290.) (Proc. Irish Acad., V, 1853, p. 237.)

## 1856.

- Huxley, T. H.** Note on the reproductive organs of the Cheilostome Polyzoa. (Quar. Jour. Micr. Science, IV, 1856, pp. 191-192.)

## 1859.

- Carter, H. J.** On the identity in structure and composition of the so-called seed-like body of Spongilla with the winter egg of the Bryozoa. (Ann. Mag. Nat. Hist. [3], III, 1859, pp. 331-343, pl. viii.)

## 1860.

- Müller, F.** Das Kolonialnervensystem der Moosthiere, nachgewiesen an *Serialaria Coutinhii* n. sp. (Wiegmann's Archiv für Naturgeschichte, XXVI, 1860, Band I, pp. 311-318, pl. xiii.) (Quar. Jour. Micro. Sci. [n. s.], I, 1861, pp. 300-305.) (Ann. Sci. Nat., Zool. [4], XVIII, 1862, p. 212.)

## 1863.

- Claparède, E.** Ueber eine wahrscheinlich zu den Bryozoen gehörige Thierform, *Loxosoma singulare* Keferst. Beobachtungen über Anatomie und Entwicklungsgeschichte wirbelloser Thiere, etc. Leipzig, 1863.
- Smitt, F. A.** Bidrag till kännedom om Hafs-Bryozoernas utveckling. (Upsala Univ. Årsskrift, 1863, 40 pp.)

## 1864.

**Smitt, F. A.** Några drag ur Bryozoernas (Mossdjurens) lif. Stockholm, 1864, 31 pp.

## 1865.

**Giglioli, E.** Nota sul così detto sistema nervoso coloniale dei Bryozoi. (Atti R. Accad. Sci. Torino, I, 1865, pp. 131-134.)

**Smitt, F. A.** Om Hafs-Bryozoernas utveckling och fettkroppar. (Öfv. k. Vet. Akad. Förhandl., XXII, 1865, pp. 5-50.)

—— Kritisk förteckning öfver Skandinaviens Hafs-bryozoeer. (Öfv. k. Vet. Akad. Förhandl., XXII, 1865, pp. 115-142, 1 pl.; ibid., XXIII, 1866, pp. 395-533, 11 pls.; ibid., XXIV, 1867, pp. 279-429, 5 pls., ibid., XXIV, 1867, Bihang, pp. 3-230, pls. xxiv, xxv; ibid., XXVIII, 1871, pp. 1115-1134, pls. xx, xxi.)

## 1866.

**Kowalewsky, A.** Beiträge zur Anatomie und Entwicklungs-geschichte des Loxosoma Neapolitanum sp. n. (Mém. Acad. imp. Sci. St.-Petersbourg [7], X, No. 2, 1866, 10 pp., 1 pl.)

**Smitt, F. A.** Polymorphism among Bryozoa. [Abst. by Agassiz.] (Amer. Jour. Sci. [2], XLII, 1866, p. 134.) (Amer. Jour. Conchology, III, 1867, p. 105.)

## 1867.

**Claparède, E.** Sur le Loxosoma Kefersteinii, Bryozoaire mou du Golfe de Naples. (Ann. Sci. Nat., Zool. [5], VIII, 1867, pp. 28-30, pl. vi.) (Ann. Mag. Nat. Hist. [4], I, 1868, pp. 311-312.)

## 1868.

**Schneider, A.** Ueber die Entwicklung von Cyphonautes compressus zu Membranipora pilosa. (Sitz. d. Ges. naturf. Freunde, Berlin, 1868, pp. 24-25.)

## 1869.

**Metschnikoff, E.** Ueber die Metamorphose einiger Seethiere (Cyphonautes, Mitraria, Actinotrocha). (Nachr. d. k. Ges. d. Wiss. zu Göttingen, 1869, pp. 227-233.)

**Nitsche, H.** Beiträge zur Kenntniss der Bryozoen. I. Beobachtungen über die Entwicklungsgeschichte einiger chilostomen Bryozoen, pp. 1-13, pl. i. II. Ueber die Anatomie von Pedicellina echinata Sars, pp. 13-34, pls. ii, iii. (Zeitschr. f. wiss. Zool., XX, 1869, pp. 1-36, pls. i-iii.)

**Schneider, A.** Zur Entwicklungsgeschichte und systematischen Stellung der Bryozoen und Gephyreen. (Archiv f. mikro. Anat., V, 1869, pp. 260-280, pl. xvi.)

**Schwalbe, G.** Ueber den feineren Bau der Muskelfasern wirbelloser Thiere. (Arch. f. mikro. Anat., V, 1869, pp. 205-247, pls. xiv, xv.) [Bryozoa, pp. 227-228.]

**Uljanin, B.** Zur Anatomie und Entwicklungsgeschichte der Pedicellina. (Bull. Soc. Imp. Natur. Moscou, XLII, Part I, 1869, pp. 425-440, pl. vi.)

### 1870.

**Nitsche, H.** Untersuchungen des Baues von *Pedicellina echinata* Sars. (Sitz. d. Ges. naturf. Freunde, Berlin, 1870, p. 9.)

—— Ueber den Hermaphroditismus von *Bugula flabellata*, *B. plumosa* u. *Bicellaria ciliata*. (Sitz. d. Ges. naturf. Freunde, Berlin, 1870, p. 9.)

**Reichert, K. B.** Vergleichende anatomische Untersuchungen über *Zoobotryon pellucidus* (Ehrenberg). (Abh. d. k. Akad. d. Wiss., Berlin, 1870, pp. 233-338, pls. i-vi.)

### 1871.

**Claparède, E.** Beiträge zur Anatomie und Entwicklungsgeschichte der Seebryozoen. (Zeitschr. f. wiss. Zool., XXI, 1871, pp. 137-174, pls. viii-x.) (Ann. Mag. Nat. Hist. [4], VII, 1871, pp. 450-451.)

—— Notice by A[lexander] Ag[assiz]. Claparède on marine Bryozoa. (Amer. Jour. Sci. [3], I, 1871, p. 387.)

**Hartmann, R.** Einiges über *Halodactylus diaphanus* Farre [*Alcyonium gelatinosum*]. (Reichert u. du Bois R.'s Arch. f. Anat., 1871, pp. 489-529, 2 pls.)

**Hincks, T.** Note on Dr. Hinrich Nitsche's paper on "Some interesting points concerning the mode of reproduction of the Bryozoa." (Quar. Jour. Micro. Sci. [n. s.], XI, 1871, pp. 235-238.)

**Metschnikoff, E.** Beiträge zur Entwicklungsgeschichte einiger niederen Thiere. 6. *Alcyonella*. (Bull. Acad. Imp. Sci. St.-Pétersbourg, XV, 1871, pp. 507-508.)

**Nitsche, H.** Beiträge zur Kenntniss der Bryozoen. III. Ueber die Anatomie und Entwicklungsgeschichte von *Flustra membranacea*, pp. 416-470, pls. xxv-xxvii. IV. Ueber die Morphologie der Bryozoen, pp. 471-498. (Zeitschr. f. wiss. Zool., XXI, 1871, pp. 416-498, 3 pls.)

—— On some interesting points concerning the mode of reproduction of the Bryozoa. (Quar. Jour. Micro. Sci. [n. s.], XI, 1871, pp. 155-162.)

### 1872.

**Allman, G. J.** On the structure of *Cyphonautes*. (Brit. Assoc. Rep., XLII, 1872, Part 2, pp. 133-134.) (Quar. Jour. Micro. Sci. [n. s.], XII, 1872, pp. 395-397.)

**Lattey, A. H. H.** Observations on the Polyzoa. (Jour. Queckett Micro. Club, III, 1872, pp. 1-5.)

**Nitsche, H.** Betrachtungen über die Entwicklungsgeschichte und Morphologie der Bryozoen. (Zeitschr. f. wiss. Zool., XXII, 1872, pp. 467-472.)

**Smitt, F. A.** Bemerkung zu Dr. H. Nitsche's Beiträgen zur Kenntniss der Bryozoen. (Zeitschr. f. wiss. Zool., XXII, 1872, pp. 281-282.)

——— Remarks on Dr. Nitsche's researches on Bryozoa. (Quar. Jour. Micro. Sci. [n. s.], XII, 1872, pp. 246-248.)

### 1873.

**Trinchese, S.** Nuove ricerche sulla struttura del fusto del Zoobryon pellucidus (Ehrenberg). (Mem. Accad. Sci. Bologna [3], IV, 1873, pp. 205-207.)

### 1874.

**Nitsche, H.** Untersuchungen über die Knospung der Süsswasserbryozoen, insbesondere der Alcyonella. (Sitz. d. Naturf. Ges. Leipzig, 1874, pp. 31-36.)

**Salensky, W. W.** Untersuchungen an Seebryozoen. (Zeitschr. f. wiss. Zool., XXIV, 1874, pp. 343-348, pl. xxxii.)

### 1875.

**Barrois, J.** Des formes larvaires des Bryozoaires. (Compt. Rend. Acad. Sci. Paris, LXXXI, 1875, pp. 288-291, 443-445, 904-906, 1134-1135.) (Ann. Mag. Nat. Hist. [4], XVI, 1875, pp. 301-302.)

**Nitsche, H.** Beiträge zur Kenntniss der Bryozoen. V. Ueber die Knospung der Polypide der phylactolämen Süsswasserbryozoen, pp. 343-361, pls. xxiv, xxv. B. Ueber den Bau und die Knospung von Loxosoma Kefersteinii Claparède, pp. 361-390, pls. xxv, xxvi. C. Allgemeine Betrachtungen, pp. 390-399. (Zeitschr. f. wiss. Zool., XXV, Supplementheft III, 1875, pp. 343-402, pls. xxiv-xxvi.)

——— Ueber den bau und die Knospung von Loxosoma Kefersteinii Claparède. (Zeitschr. f. wiss. Zool., XXV, 1875, pp. 451-456. (Arch. Zool. exp., IV, 1875, pp. liii-lv.)

**Repiachoff, W.** Zur Entwicklungsgeschichte der Tendra zostericola. (Zeitschr. f. wiss. Zool., XXV, 1875, pp. 129-142, pls. vii-ix.)

——— Zur Naturgeschichte der chilostomen Seebryozoen. (Zeitschr. f. wiss. Zool., XXVI, 1876 [1875], pp. 139-160, pls. vi-ix.)

### 1876.

**Ehlers, E.** Hypophorella expansa: Ein Beitrag zur Kenntniss der minirenden Bryozoen. (Abh. d. k. Ges. d. Wiss. Göttingen, XXI, 1876, pp. 1-156, 5 pls.)

**Schmidt, O.** Die Gattung *Loxosoma*. (Arch. f. mikro. Anat., XII, 1876, pp. 1-14, pls. i-iii.)

**Vogt, C.** Sur le *Loxosome* des *Phascolosomes* (*Loxosoma Phascolosomatium*). (Arch. Zool. exp., V, 1876.)

### 1877.

**Barrois, J.** Recherches sur l'embryologie des Bryozoaires. (Trav. de l'Inst. Zool. Lille, Fasc. I, 1877. 305 pp., 16 pls.) [Also separate.]

**Hatschek, B.** Embryonal entwicklung und Knospung der *Pedicellina echinata*. (Zeitschr. f. wiss. Zool., XXIX, 1877, pp. 502-548, pls. xxviii-xxx.)

**Joliet, L.** Sur quelques points de l'organisation des Bryozoaires. (Compt. Rend. Acad. Sci. Paris, LXXXV, 1877, pp. 406-408.) (Ann. Mag. Nat. Hist. [4], XX, 1877, pp. 540-541.)

—— Sur le système nerveux colonial de la *Bowerbankia imbricata* Johnst. (Compt. Rend. Acad. Sci. Paris, LXXXIV, 1877, pp. 723-725.)

**Salensky, W. W.** Études sur les Bryozoaires Entoproctes. (Ann. Sci. Nat., Zool. [6], V, 1877, Art. No. 3, pp. 1-60, pls. xii-xv.)

**Vogt, C.** *Loxosoma*. (Trans. and condensed by T. Hincks in Quar. Jour. Micro. Sci. [n. s.], XVII, 1877, pp. 354-376.)

### 1878.

**Barrois, J.** Embryology of Bryozoa. (Amer. Naturalist, XII, 1878, pp. 617-620.)

—— Embryogénie des Bryozoaires. (Extrait du Procès-verb. Assoc. franç. p. l'Avanc. d. Sci., Compt. Rend. de la 6 Sess. [1877] 1878, pp. 622, 623.) (Bull. scientif. du depart. du Nord, IX, 1878, pp. 259-265.) (Bull. Soc. Belge de Micro., V, 1879, pp. cxxiii-cxxxi.)

—— Du développement des Bryozoaires chilostomes. (Compt. Rend. Acad. Sci. Paris, LXXXVII, 1878, pp. 463-466.) (Revue Scientif. [2], XV, 1878, p. 335.) (Les Mondes, XLVII, 1878, p. 220.) (Ann. Mag. Nat. Hist. [5], III, 1879, pp. 171-174.)

**Hincks, T.** Note on the movements of the vibracula in *Caberea Boryi*, and on the supposed common nervous system in the Polyzoa. (Quar. Jour. Micro. Sci. [n. s.], XVIII, 1878, pp. 7-9.)

—— Salensky on the Polyzoa Entoprocta. (Quar. Jour. Micro. Sci. [n. s.], XVIII, 1878, pp. 199-205.)

**Repiachoff, W.** Ueber die ersten embryonalen Entwicklungsvorgänge bei *Tendra zostericola*. (Zeitschr. f. wiss. Zool., XXX, 1878, Suppl. Heft 3, pp. 411-423, pl. xix.)

—— Zur Kenntniss der Bryozoen. (Zool. Anz., I, 1878, pp. 221-224.)

**Schmidt, O.** Bemerkungen zu den Arbeiten über Loxozoma. (Zeitschr. f. wiss. Zool., XXXI, 1878, pp. 68-80.) (Ann. Mag. Nat. Hist., [5], III, 1879, pp. 393-404.)

**Vogt, C.** Bemerkungen zu Dr. B. Hatschek's Aufsatz über Embryonalentwicklung und Knospung von *Pedicellina echinata* [cernua]. (Zeitschr. f. wiss. Zool., XXX, 1878, pp. 374-378.)

## 1879.

**Joliet, L.** Sur la présence d'un organe segmentaire chez les Bryozoaires endoproctes. (Compt. Rend. Acad. Sci. Paris, LXXXVIII, 1879, pp. 392, 393.) (Bull. Soc. d'Étud. Scientif. Finistère, Fasc. 2, 1880, pp. 104-105.)

**Repiachoff, W.** Zur Embryologie der *Tendra zostericola*. (Zool. Anz., II, 1879, pp. 67-69.)

—— Bemerkungen über *Cyphonautes* [Larva of *Membranipora*]. (Zool. Anz., II, 1879, pp. 517, 518.)

—— Zur Embryologie der *Bowerbankia*. (Zool. Anz., II, 1879, pp. 660-664.)

## 1880.

**Allman, G. J.** Some recent additions to our knowledge of the structure of the marine Polyzoa. [Anniv. Address of President.] (Jour. Linnean Soc. Zool., XV, 1880, pp. 1-8.)

**Barrois, J.** Mémoire sur la métamorphose des Bryozoaires. (Ann. Sci. Nat., Zool. [6], IX, 1880, Art. No. 7, pp. 1-67, pls. xiii-xvi.) (Jour. R. Micro. Soc. London [2], I, 1881, pp. 30-33.)

**Joliet, L.** Organe segmentaire des Bryozoaires endoproctes. (Arch. Zool. exp., VIII, 1880, pp. 497-512, 1 pl.)

**Repiachoff, W.** Zur Kenntniss der *Bowerbankia*-Larven. (Zool. Anz., III, 1880, p. 260.)

—— [On the morphology of the Bryozoa.] [Russian.] (Mém. Soc. Nouv. Russ., VI, 1880, 69 pp., 4 pls.)

## 1881.

**Barrois, J.** Métamorphose de la *Pedicellina*. (Compt. Rend. Acad. Sci., Paris, XCII, 1881, pp. 1527-1528.)

## 1882.

**Barrois, J.** Embryogénie des Bryozoaires. (Jour. de l'Anat. et de la Phys., XVIII, 1882, 34 pp., 1 pl.) (Ann. Mag. Nat. Hist. [5], X, 1882, pp. 265-279, 388-403, pl. xiv.)

**Kohlwey, H.** Ueber Bau und Leben von *Halodactylus diaphanus* (Farre). Ein Beitrag zur Kenntnis der Bryozoen. Inaug.-Dissert., Halle, 1882, 33 pp.

**Vigelius, W. J.** Zur Entstehung und Entwicklung der Geschlechtsprodukte bei chilostomen Bryozoen. (Biol. Centralblatt, II, 1882, pp. 435-442.)

## 1883.

**Haddon, A. C.** On budding in Polyzoa. (Quar. Jour. Micro. Sci. [n. s.], XXIII, 1883, pp. 516-555, pls. xxxvii, xxxviii.)

## 1884.

**Vigelius, W. J.** Morphologische Untersuchungen über *Flustra membranaceo-truncata* Smitt. (Biol. Centralblatt, III, 1884, pp. 705-721.)

## 1885.

**Harmer, S. F.** On the structure and development of *Loxosoma*. (Quar. Jour. Micro. Sci. [n. s.], XXV, 1885, pp. 261-337, pls. xix-xxi.)

**Joliet, L.** Sur le bourgeonnement du polypide chez plusieurs Ectoproctes marins. (Arch. Zool. exp. [2], III, 1885, Notes p. xiii.)

**Ostroumoff, A.** Remarques relatives aux recherches de Mr. Vigelius sur les Bryozoaires. (Zool. Anz., VIII, 1885, pp. 290-291.)

——— Extrait de l'œuvre sur la morphologie des Bryozoaires marins. (Zool. Anz., VIII, 1885, pp. 577-579.)

## 1886.

**Barrois, J.** Mémoire sur la métamorphose de quelques Bryozoaires. (Ann. Sci. Nat., Zool. [7], I, 1886, No. 1, pp. 1-94, pls. i-iv.) (Bibliothèque de l'École des Hautes Études. Section des Sciences Naturelles, Paris, XXXII, No. 5, 1886, 94 pp., 4 pls.)

**Foettinger, A.** Sur l'anatomie des Pédicellines de la côte d'Ostende. (Arch. Biol., VII, 1886, pp. 299-329, pl. x.)

**Joliet, L.** Recherches sur la Blastogénèse. (Arch. Zool. exp. [2], IV, 1886, pp. 37-72, pls. ii, iii.)

**Ostroumoff, A.** Zur Entwicklungsgeschichte der cyclostomen Seebryozoen. (Zool. Anz., IX, 1886, pp. 283-284.)

——— Einiges über die Metamorphose der Süßwasserbryozoen. (Zool. Anz., IX, 1886, pp. 547-548.)

——— Remarques relatives aux recherches de Mr. L. Joliet sur la blastogénèse [des Bryozoaires]. (Zool. Anz., IX, 1886, pp. 618-619.)

——— [Die Bryozoen der Bucht von Sebastopol. Vollständigere Ausgabe mit einem ganz neuen Theile über die Morphologie der Bryozoen.] [Russian.] (Mém. Soc. d'Hist. Nat. Kasan, XVI, 1886, 124 pp., 5 pls.)

——— Contributions à l'étude zoologique et morphologique des Bryozoaires du golfe de Sébastopol. (Arch. Slaves de Biol., I, 1886, pp. 557-569; II, 1886, pp. 8-25, 184-190, 329-355, 5 pls.)



**Vigelius, W. J.** Ontwikkelingsgeschiedenis der Bryozoa ectoprocta. (Tijds. d. Nederl. Dierk. Ver. [2], VI, Afl. 2, 1886, Versl., pp. liv-lvi.)

—— Zur Ontogenie der marinen Bryozoen. (Mitth. a. d. Zool. Stat. z. Neapel, VI, 1886, pp. 499-541, pls. xxvi, xxvii.)

### 1887.

**Harmer, S. F.** On the life-history of *Pedicellina*. (Quar. Jour. Micro. Sci. [n. s.], XXVII, 1887, pp. 239-263, pls. xxi, xxii.)

**Herdman, W. A.** The reproductive organs of *Alcyonidium gelatinosum*. (Nature, XXXVII, 1887, p. 213.)

**Korotneff, A.** Zur Entwicklung der *Alcyonella fungosa*. (Zool. Anz., X, 1887, pp. 193-194.)

—— Sur la spermatogénèse. (Compt. Rend. Acad. Sci. Paris, CV, 1887, pp. 953-955.)

**Kraepelin, K.** Die deutschen Süsswasser-Bryozoen. Eine Monographie. I. Anatomisch-systematischer Teil. (Abh. a. d. Geb. d. naturw. Ver., Hamburg, X, 1887, 168 pp., 7 pls.)

**Lomas, J.** Notes on the structure of *Alcyonidium gelatinosum*. (Proc. Biol. Soc. Liverpool, I, 1887, pp. 29-33, pl. iii.)

**Ostroumoff, A.** Zur Entwicklungsgeschichte der cyclostomen Seebryozoen. (Mitth. a. d. Zool. Stat. z. Neapel, VII, 1887, pp. 177-190, pl. vi.)

—— Erwiderung auf den Artikel Herrn Reinhard's "Zur Kenntnis der Süsswasserbryozoen." (Zool. Anz., X, 1887, pp. 168-169.)

**Vigelius, W. J.** Contributions à la morphologie des Bryozoaires ectoproctes. (Tijds. d. nederl. Dierk. Ver. [2], I, Afl. 3, 1887, pp. 77-92, pl. vi.)

—— Zur Morphologie der marinen Bryozoen. (Zool. Anz., X, 1887, pp. 237-240.)

### 1888.

**Freese, W.** Anatomisch-histologische Untersuchung von *Membranipora pilosa* L., nebst einer Beschreibung der in der Ostsee gefundenen Bryozoen. (Arch. f. Naturg., LIV, Band I, 1888, pp. 1-42, pls. i, ii.)

**Harmer, S. F.** Sur l'Embryogénie des Bryozoaires Ectoproctes. (Arch. Zool. exp. [2], V, 1888, pp. 443-458, pls. xxvii, xxviii.) (Studies Morph. Lab. Univ. Cambridge, V, 1892, pp. 1-15, pls. i, ii.)

**Jullien, J.** Du testicle chez la *Lepralia figularis* Johnston, 1847, et des variétés de cet organe chez les bryozoaires en général. (Mém. Soc. Zool. France I, 1888, pp. 270-273, pl. x.)

—— Observations anatomiques sur les caténicelles. (Mém. Soc. Zool. France I, 1888, pp. 274-280, pl. xi.)

**Korotneff, A.** Beiträge zur spermatologie [*Aleyonella fungosa*]. (Arch. f. mikro. Anat., XXXI, 1888, pp. 334-341, 1 pl.)

**Vigelius, W. J.** Zur Ontogenie der marinen Bryozoen. (Mitth. a. d. Zool. Stat. z. Neapel, VIII, 1888, pp. 374-376, pl. xix.)

### 1889.

**Pergens, E.** Untersuchungen an Seebryozoen. (Zool. Anz., XII, 1889, pp. 504-510, 526-533.)

**Prouho, H.** Sur la reproduction de quelques Bryozoaires cténostomes. (Compt. Rend. Acad. Sci. Paris, CIX, 1889, pp. 197-198.)

—— Sur la structure et la métamorphose de la larve de la *Flustrella hispida* (Bryzoaire cténostome). (Compt. Rend. Acad. Sci. Paris, CVIII, 1889, pp. 1023-1025.)

**Seeliger, O.** Die ungeschlechtliche Vermehrung der endoprokten Bryozoen. (Zeitschr. f. wiss. Zool., XLIX, 1889, pp. 168-208, pls. ix, x.)

### 1890.

**Cori, C. J.** Ueber Nierenkanälchen bei Bryozoen. (Lotus [n. s.], XI, 1890, pp. 1-18, 1 pl.)

**Davenport, C. B.** Preliminary notice on budding in Bryozoa. (Proc. Amer. Acad. Arts and Sci. [n. s., XVII] XXV, 1890, pp. 278-282.)

—— *Cristatella*: the origin and development of the individual in the colony. (Bull. Mus. Comp. Zool. Harvard Coll., XX, 1890, pp. 101-151, pls. i-xi.)

**Ehlers, E.** Zur Kenntniss der Pedicellineen. (Abh. d. k. Ges. d. Wiss., Göttingen, XXXVI, 1890, pp. 1-200, pls. i-v.)

**Harmer, S. F.** On the regeneration of lost parts in Polyzoa. (Brit. Assoc. Rep., LX, 1890, pp. 862-863.)

—— On the origin of the embryos in the ovicells of Cyclostomatous Polyzoa. (Proc. Cambridge Phil. Soc., VII, 1890, p. 48.)

**Korotneff, A.** Sur la question du développement des Bryozoaires d'eau douce. (Mém. Soc. Nat. Kiew, X, 1890, pp. 393-410, pls. v, vi.) [Russian.]

**Prouho, H.** Sur la *Cyclatella annelidicola* (Van Bened. et Hesse). (Compt. Rend. Acad. Sci., Paris, CXI, 1890, pp. 799-801.)

—— Recherches sur la larve de la *Flustrella hispida* (Gray), structure et métamorphose. (Arch. Zool. exp. [2], VIII, 1890, pp. 409 et seq.)

**Seeliger, O.** Bemerkungen zur Knospenentwicklung der Bryozoen. (Zeitschr. f. wiss. Zool., L, 1890, pp. 560-599, 2 pls.)

### 1891.

**Davenport, C. B.** Observations on budding in *Paludicella* and some other Bryozoa. (Bull. Mus. Comp. Zool. Harvard Coll., XXII, 1891, No. 1, pp. 1-114, pls. i-xii.)

- Harmer, S. F.** On the nature of the excretory processes in marine Polyzoa. (Proc. Cambridge Phil. Soc., VII, 1891, p. 219.)
- Prouho, H.** Sur trois cas de développement libre observés chez les Bryozoaires ectoproctes. (Compt. Rend. Acad. Sci., Paris, CXII, 1891, pp. 1316-1318.)
- Contribution à l'histoire des Loxosomes. Étude sur le Loxosoma annelidicola. (Cyclatella annelidicola Van Ben. et Hesse.) (Arch. Zool. exp. [2], IX, 1891, pp. 91-116, 1 pl.)
- Sur l'appareil perforant de l'Hypophorella expansa (Bryzoaire cténostome.) (Assoc. Franç., Compt. Rend. 20<sup>me</sup> Sess., Part I, pp. 247-248.)
- Sur le développement de la Membranipora pilosa. (Assoc. Franç., XIX, 1891, Part II, pp. 517-519.)

## 1892.

- Davenport, C. B.** The germ-layers in Bryozoan buds. (Zool. Anz., XV, 1892, pp. 261-263.)
- Fowler, G. H.** Structure of Rhabdopleura. (Proc. R. Soc. London, LII, 1892, pp. 132-134.)
- Harmer, S. F.** On the nature of excretory processes in marine Polyzoa. (Quar. Jour. Micro. Sci. [n. s.], XXXIII, 1892, pp. 123-167, pls. ii, iii.)
- Kraepelin, K.** Die deutschen Süßwasser-Bryozoen. II. Entwicklungsgeschichtlicher Teil. (Abh. a. d. Geb. d. naturw. Ver. Hamburg, XII, 1892, pp. 1-68, pls. i-v.)
- Prouho, H.** Contribution à l'histoire des Bryozoaires. (Arch. Zool. exp. [2], X, 1892, pp. 557-656, 8 pls.) (Review by Ehlers in Nachr. k. Ges. Wiss., Göttingen, 1893, pp. 483-490.)

## 1893.

- Ehlers, E.** Zur Morphologie der Bryozoen. (Nachr. k. Ges. Wiss., Göttingen, 1893, pp. 483-490.)
- Harmer, S. F.** On the occurrence of embryonic fission in Cyclostomatous Polyzoa. (Quar. Jour. Micro. Sci. [n. s.], XXXIV, 1893, pp. 199-241, pls. xxii-xxiv.)

## 1895.

- Harmer, S. F.** Preliminary note on embryonic fission in Lichenopora. (Proc. R. Soc. London, LVII, 1895, pp. 188-192.)
- Oka, A.** Note on the Nephridium of Endoproctous Polyzoa. (Zool. Mag., VII, 1895, pp. 65-66.)
- Sur la Barentsia misakiensis. (Zool. Mag., VII, 1895, pp. 76-86, pl. xii.)

## 1896.

- Harmer, S. F.** On the development of *Lichenopora verrucaria*, Fabr. (Quar. Jour. Micro. Sci. [n. s.], XXXIX, 1896, pp. 71-144, pls. vii-x.) (Proc. R. Soc. London, LIX, 1896, pp. 73-74.)

## 1897.

- Brumpt, E.** Quelques faits relatifs à l'histoire du *Phascolion strombi* (Montagu). (Arch. Zool. exp. [3], V, 1897, pp. 483-496.)
- Harmer, S. F.** Notes on Cyclostomatous Polyzoa. (Proc. Cambridge Phil. Soc., IX, 1897, pp. 208-214.)

## 1898.

- Calvet, L.** Sur le développement et la structure de la larve de quelques Bryozoaires chéilostomes. (Compt. Rend. Acad. Sci. Paris, CXXVII, 1898, pp. 79-81.)
- Sur l'origine du polypide des Bryozoaires ectoproctes marins. (Compt. Rend. Acad. Sci. Paris, CXXVII, 1898, pp. 194-197.)
- Harmer, S. F.** On the development of *Tubulipora*, and on some British and northern species of this genus. (Quar. Jour. Micro. Sci. [n. s.], XLI, 1898, pp. 73-157, pls. viii-x.)

## 1899.

- Heider, K.** Bryozoa, in Korschelt and Heider's Textbook of the Embryology of Invertebrates. English transl., London, 1899. Vol. II, pp. 12-64.
- Ladewig, F.** Ueber die Knospung der ectoprocten Bryozoen. (Zool. Anz., XXII, 1899, pp. 355-357.)
- Nickerson, W. S.** Notes on *Loxosoma Davenporti*. (Science [n. s.], IX, 1899, pp. 366-367.)

## D. FRESH-WATER.

INCLUDING PAPERS WHICH TREAT OF FRESH-WATER BRYOZOA BIOLOGICALLY AND SYSTEMATICALLY.

## 1744.

- Trembley, A.** Mémoire pour servir à l'histoire d'un genre de polypes d'eau douce. Mém. III. Leyde, 1744.

## 1828.

- Meyen, F. J. F.** Naturgeschichte der Polypen. [Alcyonella.] (Oken's Isis, XXI, 1828, cols. 1225-1234, pl. xiv.)
- Raspail, F. V.** Histoire naturelle de l'Alcyonelle fluviatile (*Alcyonella stagnorum* Lmk.), et de tous les genres voisins. (Mém. Soc. d'Hist. Nat. Paris, IV, 1828, pp. 75-165, 246, pls. xii-xvi.) (Oken's Isis, XXI, 1828, cols. 1224-1225.)

## 1830.

**Meyen, F. J. F.** Nachträgliche Bemerkungen zur Naturgeschichte der Polypen des süßsen Wassers. (Oken's Isis, XXIII, 1830, cols. 185-188.)

## 1835.

**Dumortier, B. C.** Recherches sur l'anatomie et physiologie des polypiers composés d'eau douce. (Bull. Acad. R. Sci. Bruxelles, II, 1835, pp. 421-454 pls. v, vi.) (L'Institut, IV, 1836, pp. 183-187.) (Oken's Isis, 1837, pp. 770-775.) (Froriep's Notizen, XLIX, 1836, pp. 193-201, 211-218.)

## 1836.

**Gervais, P.** Recherches sur les Polypes d'eau douce. (Compt. Rend. Acad. Sc. Paris, III, 1836, pp. 796-797.) (L'Institut, IV, 1836, p. 433.)

## 1837.

**Gervais, P.** Recherches sur les Polypes d'eau douce des genres Plumatella et Paludicella. (Ann. Sci. Nat., Zool. [2], VII, 1837, pp. 74-93.)

## 1838.

**Gervais, P.** Recherches sur les Polypes d'eau douce. (Extr. Proc.-verb. Soc. Phil., 1838, pp. 129-130.) (L'Institut, VI, 1838, p. 398.)

## 1839.

**Beneden, P. J. van.** Sur les Polypes d'eau douce. (Bull. Acad. R. Sci. Bruxelles, VI, 1839, Part 2, pp. 276-279, 1 pl.; VII, 1840, Part II, pp. 163, 164.) (Ann. Sci. Nat., Zool., XIV, 1840, pp. 222-224.) (Froriep, Notizen, XVII, 1841, cols. 214-216.)

**Gervais, P.** Observations pour servir à l'histoire naturelle des Polypes d'eau douce. (Laurent, Ann. Franç. Étrang. Anat. Phys., III, 1839, pp. 129-176.) (Compt. Rend. Acad. Sci. Paris, VIII, 1839, pp. 165-166.) (L'Institut, VII, 1839, p. 42.)

## 1840.

**Beneden, P. J. van.** Quelques observations sur les Alcyonelles. (L'Institut, VIII, 1840, pp. 153-154.) (Oken's Isis, 1844, p. 371.)

## 1841.

**Beneden, P. J. van.** Sur les œufs dits mobiles dans les Alcyonelles. (Bull. Acad. R. Sci. Bruxelles, VIII, 1841, Part I, pp. 89-93, 1 pl.)

**Coste, P.** Propositions sur l'organisation des Polypes fluviatiles. (Compt. Rend. Acad. Sci. Paris, XII, 1841, pp. 724-728.)

—— Observation relative à la Tubulaire sultane. (Compt. Rend. Acad. Sci. Paris, XII, 1841, p. 863.)

**Laurent, J. L. M.** Sur la physiologie de l'Alcyonelle. (Extr. Proc.-Verb. Soc. Phil., 1841, pp. 61-63.) (L'Institut, IX, 1841, p. 225.)

**Nordmann, A. von.** Ueber einen mit günstigem Erfolg angestellten Versuch Süsswasser-Polypen von Paris nach Odessa zu verpflanzen. (Bull. Acad. Sci. St.-Pétersbourg, VIII, 1841, pp. 353-357.) (Fro-riep, Notizen, XVIII, 1841, pp. 241-244.)

#### 1842.

**Hassall, A. H.** On Plumatella repens. (Ann. Mag. Nat. Hist., X, 1842, p. 153.)

**Nordmann, A. von.** Recherches microscopiques sur l'anatomie et le développement de la Plumatella campanulata, Lamarck. In Voyage dans la Russie méridionale et la Crimée, Vol. III, 1842, pp. 709-730, Atlas, Polypi, pl. i.

#### 1843.

**Allman, G. J.** On Plumatella repens. (Brit. Assoc. Rep., XIII, 1843, Part II, pp. 74-76.) (L'Institut, XI, 1843, p. 454.)

—— Synopsis of the genera and species of Zoophytes inhabiting the fresh waters of Ireland. (Brit. Assoc. Rep., XIII, 1843, Part II, p. 77.)

**Dumortier, B. C., and Beneden, P. J. van.** Histoire naturelle des Polypes composés d'eau douce. (Nouv. Mém. Acad. R. Bruxelles, XVI, 1843, 33 pp.)

#### 1844.

**Allman, G. J.** Synopsis of the genera and species of Zoophytes inhabiting the fresh waters of Ireland. (Ann. Mag. Nat. Hist., XIII, 1844, pp. 328-331.)

—— On the muscular system of Paludicella and other Ascidian Zoophytes of fresh water. (Proc. R. Irish Acad., II, 1844, pp. 319-332.)

—— On Fredericella sultana. (Proc. R. Irish Acad., II, 1844, pp. 545-546.)

#### 1847.

**Allman, G. J.** On the locomotive larva of Plumatella fruticosa. (Brit. Assoc. Rep., XVII, 1847, Part II, p. 74.)

—— On the larva state of Plumatella. (Proc. R. Irish Acad., III, 1847, pp. 218-219, 220-222.)

## 1848.

- Beneden, P. J. van.** Recherches sur les Bryozoaires fluviatiles de Belgique. (Mém. Acad. R. Belgique, XXI, 1848, 33 pp., pls. i, ii.)
- Dalyell, J. G.** Rare and remarkable animals of Scotland. 2 vols., London, 1847-48. Bryozoa in vol. 2.

## 1849.

- Allman, G. J.** On *Lophopus cristallinus*. (Brit. Assoc. Rep., XIX, 1849, Part II, p. 72.) (L'Institut, XVIII, 1850, p. 16.)
- On a new fresh-water Bryozoon. (Brit. Assoc. Rep., XIX, 1849, Part 2, p. 72.)
- On the natural history of the genus *Alcyonella*. (Proc. R. Irish Acad., IV, 1849, pp. 470-478.)

## 1850.

- Allman, G. J.** On the present state of our knowledge of the fresh-water Polyzoa. (Brit. Assoc. Rep., XX, 1850, pp. 305-337.)
- Hancock, A.** On the anatomy of the fresh-water Bryozoa, with descriptions of three new species. (Trans. Tyneside Nat. Field Club, I, 1850, pp. 367-405, 3 pls.) (Ann. Mag. Nat. Hist. [2], V, 1850, pp. 173-202, pls. ii-v.)

## 1851.

- Leidy, J.** On some American fresh-water Polyzoa. (Proc. Acad. Nat. Sci. Philadelphia, V, 1851, pp. 320-322, 1 pl.)

## 1853.

- Allman, G. J.** On the reproductive system and development of the gemmæ in *Paludicella articulata*. (Proc. R. Irish Acad., V, 1853, pp. 18-22.)

## 1854.

- Leidy, J.** On *Urnatella gracilis* and a new species of *Plumatella*. (Proc. Acad. Nat. Sci. Philadelphia, VII, 1854, pp. 191-192.)

## 1856.

- Allman, G. J.** A monograph of the fresh-water Polyzoa, including all the known species, both British and foreign. London, 1856. viii+119 pp., 11 pls. (Review in Quar. Jour. Micro. Sci., VI, 1858, pp. 36-43, by George Busk.)

## 1858.

- Leidy, J.** Remarks on Polyzoa. (Proc. Acad. Nat. Sci. Philadelphia, 1858, pp. 188-190.)

## 1860.

- Aplin, C. d'Oyly H.** Fresh-water Polyzoa in Australia. (Ann. Mag. Nat. Hist. [3], VI, 1860, pp. 454-455.)
- Hancock, A.** On a new species of Plumatella, and on the occurrence of Fredericella sultana, near Newcastle, and of Lophopus crystallinus, in Northumberland. (Trans. Tyneside Nat. Field Club, IV, 1860, pp. 67-68.)
- MacGillivray, P. H.** Description of a new species of Plumatella (P. Aplinii). (Trans. R. Soc. Victoria, V, 1860, pp. 203-204.)

## 1863.

- Houghton, W.** Our fresh-water Polyzoa. (Pop. Sci. Rev., II, 1863, pp. 301-310, 2 pls.)
- Slack, H. S.** Resting Eggs, or statoblasts of a Plumatella. (Intel. Obser., II, 1863, pp. 271-274, 1 pl.)

## 1866.

- Houghton, W.** On the occurrence of Paludicella Ehrenbergi in Shropshire. (Ann. Mag. Nat. Hist. [3], XVII, 1866, pp. 237-238.)
- Hyatt, A.** Observations on Polyzoa. Suborder Phylactolæmata. (Proc. Essex Inst., IV, 1866, pp. 197-228, pls. vii-xiv; *ibid.*, V, 1866-1868, pp. 97-112, 145-160, 193-232, pl. xv.)
- Parfitt, E.** On two new species of fresh-water Polyzoa. (Ann. Mag. Nat. Hist. [3], XVIII, 1866, pp. 171-173, pl. xii.)
- Ranson, J. J., and Ponton, T. G.** Notes on Lophopus crystallinus. (Pop. Sci. Rev., V, 1866, pp. 438-441, 1 pl.)

## 1867.

- Hyatt, A.** The moss-animals, or fresh-water Polyzoa. (Amer. Nat., I, 1867, pp. 57-64, pl. iii; pp. 131-136, pl. iv; pp. 180-186, pl. v.)

## 1868.

- Nitsche, H.** Beiträge zur Anatomie und Entwicklungsgeschichte der phylactolæmen Süßwasserbryozoen, insbesondere von Alcyonella fungosa Pall. sp. (Reichert u. du Bois R.'s Arch. f. Anat., 1868, pp. 465-521, 4 pls.)
- Parfitt, E.** Note on a variety (?) of Alcyonella fungosa. (Ann. Mag. Nat. Hist. [4], II, 1868, pp. 77-78.)

## 1870.

- Leidy, J.** [Note on Urnatella.] (Proc. Acad. Nat. Sci. Philadelphia, 1870, pp. 100-101.)



## 1871.

**Leidy, J.** Observations on Urnatella, a genus of ciliated polyps of the family Pedicellinidae. (Ann. Mag. Nat. Hist. [4], VII, 1871, pp. 309-312.)

**Metschnikoff, E.** Beiträge zur Entwicklungsgeschichte einiger niederen Thiere. 6. Alcyonella. (Bull. Acad. Imp. Sci. St.-Pétersbourg, XV, 1871, pp. 507-508.)

## 1873.

**Hilgendorf, F.** Japanische Süßwasser-Moosthierchen. (Mitt. d. deutsch. Ges. f. Natur- u. Völkerk. Ost-Asiens, Yokohama, I, 1873-1876, Heft 6, p. 68.)

## 1874.

**Korotneff, A.** [Paludicella.] (Bull. R. Soc. Moscou, X, Part 2, 1874, pp. 45-50, pls. xii, xiii.) [Russian.] (Abstract by Hoyer in Hoffman u. Schwalbe's Jahresb. Anat. u. Phys. f. 1874, III, pp. 369-372.)

**Nitsche, H.** Untersuchungen über die Knospung der Süßwasser-bryozoen, insbesondere der Alcyonella. (Sitz. d. Naturf. Ges. Leipzig, 1874, pp. 31-36.)

## 1875.

**Nitsche, H.** Beiträge zur Kenntniss der Bryozoen. A. Ueber die Knospung der Polypide der phylactolæmen Süßwasserbryozoen. (Zeitschr. f. wiss. Zool., XXV, 1875, Suppl.-Heft, 3, pp. 343-361, pls. xxiv, xxv.)

## 1876.

**Young, J.** On a fresh-water Polyzoon belonging to the genus Alcyonella, discovered in the Germain's Loch, near Maryhill, in August, 1869. (Proc. Nat. Hist. Soc. Glasgow, II, 1876, pp. 2-3.)

## 1878.

**Cruger, K.** The largest of all fresh-water Polyzoa. [Pectinatella magnifica Leidy.] (Amer. Natur., XII, 1878, p. 252.)

## 1879.

**Allman, G. J.** Recent progress in our knowledge of the structure and development of the Phylactolæmatous Polyzoa. (Presidential Anniversary Address.) (Jour. Linn. Soc. Zool., XIV, 1879, pp. 489-505.)

**Leidy, J.** On Cristatella Idæ. (Proc. Acad. Nat. Sci. Philadelphia, 1879, pp. 203-204.)

## 1880.

- Hamilton, A.** On *Melicerta ringens* and *Plumatella repens*. (Trans. New Zealand Inst., XII, 1879 (1880), pp. 301-303.)
- Jullien, J.** *Norodonia cambodgiensis* et *sinensis*: Espèces et genre nouveaux de Bryozoaire cheilostomien. (Guide du Nat., II, 1880, p. 102.)
- Description d'un nouveau genre de Bryozoaire cheilostomien des eaux douces de la Chine et du Cambodge et de deux espèces nouvelles. (Bull. Soc. Zool. France, V, 1880, pp. 77-79.)
- Reinhard, W. W.** Zur Kenntniss der Süsswasser-Bryozoen. (Zool. Anz., III, 1880, pp. 208-212.)
- Embryologische Untersuchungen an *Aleyonella fungosa* und *Cristatella mucedo*. (Verh. d. zool. Sect. d. VI. Vers. russ. Naturf. Abstract by A. Brandt. in Zool. Anz., III, 1880, pp. 234-235.)

## 1882.

- Allen, H.** Vitality of fresh-water Polyzoa. [*Plumatella vesicularia*.] (Proc. Acad. Nat. Sci. Philadelphia, 1882, pp. 223-224.)
- Kafka, J.** O mechovkách českých. [Bohemian Bryozoa.] (Anz. d. 2. Vers. böhm. Aerzte u. Naturf., 1882, p. 39.)

## 1884.

- Kraepelin, K.** Zur Biologie und Fauna der Süsswasserbryozoen. (Zool. Anz., VII, 1884, pp. 319-321.)
- Leidy, J.** *Urnatella gracilis*. (Proc. Acad. Nat. Sci. Philadelphia, 1884, p. 282.)
- *Urnatella gracilis*, a fresh-water Polyzoon. (Jour. Acad. Nat. Sci. Philadelphia [2], IX, 1884, pp. 5-16, pl. i.) (Science, II, 1883, pp. 789-790.)
- Potts, E.** On a supposed new species of *Cristatella*. (Proc. Acad. Nat. Sci. Philadelphia, 1884, pp. 193-199, pl. iv.)
- On *Paludicella erecta*. (Proc. Acad. Nat. Sci. Philadelphia, 1884, pp. 213-214.) (Ann. Mag. Nat. Hist. [5], XIV, 1884, pp. 437-439.)

## 1885.

- Jullien, J.** Monographie des Bryozoaires d'eau douce. (Bull. Soc. Zool. France, X, 1885, pp. 91-207, 250 figs.)
- Kafka, J.** Süsswasser-Bryozoen Böhmens. (Sitz. d. k. böhm. Ges. Wiss., Prag, 1885, pp. 229-240, 1 pl.)
- Pennington, A. S.** British Zoophytes: An introduction to the Hydroids, Actinozoa, and Polyzoa found in Great Britain, Ireland, and the Channel Islands. London, 1885. Pp. 324-332, pl. xxiv.

## 1886.

**Kraepelin, K.** Ueber die Phylogenie und Ontogenie der Süßwasserbryozoen. (Tag. d. LIX. Vers. d. Ges. deutsch. Naturf. u. Aerz. Berlin, 1886, pp. 133-135.) (Biol. Centralblatt, VI, 1886, pp. 599-602.)

**Ostroumoff, A.** Einiges über die Metamorphose der Süßwasserbryozoen. (Zool. Anz., IX, 1886, pp. 547-548.)

**Schmidt, F.** Die Süßwasser-Bryozoen Livlands. (Sitz. d. Naturf. Ges. Dorpat, VII, 1886, pp. 350-359.)

## 1887.

[Anon.] Analytical key to the fresh-water Polyzoa. (Jour. Trenton Nat. Hist. Soc., I, 1887, pp. 59-67, 1 pl.) (Amer. Monthly Micro. Jour., IX, 1888, pp. 99-102.)

**Kafka, J.** Die Süßwasserbryozoen Böhmens. (Arch. f. naturw. Landesd. Böhmens, Prag, VI, 1887, No. 2, 73 pp., 91 figs.)

**Korotneff, A.** Zur Entwicklung der Alcyonella fungosa. (Zool. Anz., X, 1887, pp. 193-194.)

—— Sur la spermatogénèse. (Compt. Rend. Acad. Sci. Paris, CV, 1887, pp. 953-955.)

**Kraepelin, K.** Die deutschen Süßwasser-Bryozoen. Eine Monographie. I. Anatomisch-systematischer Teil. (Abh. a. d. Geb. d. naturw. Ver. Hamburg, X, 1887, 168 pp., 7 pls.)

**Ostroumoff, A.** Erwiderung auf den Artikel Herrn Reinhard's "Zur Kenntnis der Süßwasserbryozoen." (Zool. Anz., X, 1887, pp. 168-169.)

—— Ueber die morphologische Bedeutung der Metamorphose der Süßwasserbryozoen. [Russian.] (Arb. d. Naturf. Ges. Univ. Kasan, Protok., 1887, No. 91, 8 pp.)

**Reinhard, W. W.** Zur Kenntnis der Süßwasser-Bryozoen. (Zool. Anz., X, 1887, pp. 19-20.)

—— Antwort auf die Notiz des Herrn Ostroumoff in No. 247 der vorlieg. Zeitschrift. (Zool. Anz., X, 1887, pp. 382-383.)

**Ridley, S. O.** On the characters of the genus Lophopus, with a description of a new species from Australia. (Jour. Linn. Soc. Zool., XX, 1887, pp. 61-64, pl. ii.)

**Verworn, M.** Beiträge zur Kenntniss der Süßwasserbryozoen. (Zeitschr. f. wiss. Zool., XLVI, 1887, pp. 99-130, pls. xii, xiii.)

**Wierzejski, A.** O Mszywiolach krajowych. [On native Bryozoa.] (Spraw. Komis. fis., Krajowej [Cracow], XXI, 1887, 16 pp.)

## 1888.

**Braem, F.** Untersuchungen über die Bryozoen des süßen Wassers. (Zool. Anz., XI, 1888, pp. 503-509, 533-539.)

- Jullien, J.** Sur la *Cristatella mucedo*. (Bull. Soc. Zool. France, XIII, 1888, pp. 165-166.)
- Sur quelques Bryozoaires d'eau douce. (Mém. Soc. Zool. France, I, 1888, pp. 231-243.)
- Korotneff, A.** Beiträge zur Spermatologie [*Alcyonella fungosa*]. (Arch. f. mikro. Anat., XXXI, 1888, pp. 334-341, 1 pl.)
- Kraepelin, K.** Bemerkung zu den Mittheilungen von F. Braem über Süßwasserbryozoen (d. Zeitschr. 1888, p. 288, p. 503 ff). (Zool. Anz., XI, 1888, pp. 646-647.)
- Reinhard, W. W.** Sketch of the structure and development of the fresh-water Bryozoa. [Russian.] (Trud. obsch. isp. pri. p. imp. Khar. Univ., Kharkoff, XV, 1888, pp. 207-310, 7 pls.)
- Saeftigen, A.** Das Nervensystem der phylactolæmen Süßwasserbryozoen. (Zool. Anz. XI, 1888, pp. 96-99.)

## 1889.

- Braem, F.** Ueber die Statoblastenbildung bei *Plumatella*. (Zool. Anz., XII, 1889, pp. 64-65.)
- Die Entwicklung der Bryozoencolonie im keimenden Statoblasten. (Zool. Anz., XII, 1889, pp. 675-679.)

## 1890.

- Braem, F.** Untersuchungen über die Bryozoen des süßen Wassers. (Bibliotheca Zoologica, Heft 6, Cassel, 1890, 134 pp., 15 pls.)
- Davenport, C. B.** Preliminary notice on budding in Bryozoa. (Proc. Amer. Acad. Arts. Sci., XXV, 1890, pp. 278-282.)
- *Cristatella*: The origin and development of the individual in the colony. (Bull. Mus. Comp. Zool. Harvard. Coll., XX, 1890, pp. 101-151, pls. i-xi.)
- Jullien, J.** Observations sur la *Cristatella mucedo* G. Cuvier. (Mém. Soc. Zool. France, III, 1890, pp. 361-395, pl. ix.)
- Korotneff, A.** On the development of the fresh-water Bryozoa. [Russian.] (Zap. Kiev. obsh. est. [Mém. Soc. Natur. Kiew], X, 1890, pp. 393-410, 2 pls.)
- Oka, A.** Observations on fresh-water Polyzoa (*Pectinatella gelatinosa*, nov. sp.) (Jour. Coll. Sci. Imper. Univ. Japan, IV, 1890, pp. 89-150, pls. xvii-xx.)
- Zykoff, W.** Zur Fauna der Süßwasser-Bryozoen der Umgegend von Moskau. (Zool. Anz., XIII, 1890, p. 444.)

## 1891.

- Davenport, C. B.** Observations on budding in *Paludicella* and some other Bryozoa. (Bull. Mus. Comp. Zool. Harvard Coll., XXII, No. 1, 1891, pp. 1-114, pls. i-xii.)

## 1892.

- Braem, F.** Die Keimblätter der Bryozoenknospe. (Zool. Anz., XV, 1892, pp. 113–115.)
- Demade, P.** Le Statoblaste des Phylactolemates (Bryozoaires d'eau douce). (La Cellule, VIII, 1892, pp. 337–379, 2 pls.)
- Kraepelin, K.** Die deutschen Süßwasser-Bryozoen. II. Entwicklungsgeschichtlicher Teil. (Abh. a. d. Geb. d. naturw. Ver. Hamburg, XII, 1892, 67 pp., 5 pls.)
- Scheler, G. von.** Ueber die Bryozoen Deutschlands. (Jahresh. d. Ver. f. vaterl. Naturk. Württemberg, XLVIII, 1892, p. lxx.)

## 1893.

- Braem, F.** Notiz über Cristatella. (Zool. Anz., XVI, 1893, pp. 65–66.)
- Ein Wort über Herrn Prof. Karl Kraepelin und seinen neuesten Beitrag zur Bryozoenkunde, Cassel, 1893.
- Cori, C. J.** Die Nephridien der Cristatella. (Zeitschr. f. wiss. Zool., LV, 1893, pp. 626–644, pls. xxvi, xxvii.)
- Kraepelin, K.** Ueber afrikanische und südamerikanische Süßwasser-bryozoen. (Verh. Naturw. Ver. Hamburg [3], I, 1893, pp. 14–15.)
- Meissner, M.** Beitrag zur Kenntniss der geographischen Verbreitung der Bryozoengattung Plumatella in Africa. (Zool. Anz., XVI, 1893, pp. 385–386.)
- Eine anscheinend neue Süßwasser-Bryozoe (*Lophopus Iheringi* n. sp.) aus Brasilien. (Sitz. d. Ges. naturf. Freunde Berlin, 1893, pp. 260–263, 1 fig.)
- Vávra, V.** Ein Beitrag zur Kenntniss der Süßwasserfauna von Bulgarien. (Sitz. d. k. böhm. Ges. d. Wiss., Prag, 1893, 4 pp.)

## 1894.

- Váňgel, E.** Daten zur Bryozoen-Fauna Ungarns. (Zool. Anz., XVII, 1894, pp. 153–155.)
- [On Fresh-water Bryozoa.] (Pótf. a. Term. Közl, Budapest, XXVIII, 1894, pp. 69–85, 11 figs.)

## 1895.

- Meissner, M.** Moosthiere. In Deutsch-Ost-Africa. IV. Die Thierwelt. Die wirbellose Thiere. Berlin, 1895. 7 pp., 1 pl. (Review by C. J. Cori, in Zool. Centralblatt, II, 1895, pp. 243–244.)
- Oka, A.** On the Nephridium of Phylactolæmatous Polyzoa. (Zool. Mag., VII, 1895, pp. 21–37, pl. ix.)
- “Excretory organ” of fresh-water Polyzoa. (Jour. Coll. Sci. Imper. Univ. Japan, VIII, Part II, 1895, pp. 339–363, pls. xxxiv, xxxv.)

- Váγγελ, E.** A Balaton mohállatai. [Die Bryozoen-Fauna des Balaton-Platten-Sees.] (Pótf. a Term. Közl., Budapest, XXIX, 1895, pp. 110-117.) (Zool. Centralblatt, II, 1895, pp. 467-468.)

## 1896.

- Braem, F.** Die geschlechtliche Entwicklung von Paludicella Ehrenbergi. (Zool. Anz., XIX, 1896, pp. 54-57.)
- Kraepelin, K.** Phagocyten bei Bryozoen. (Zool. Anz., XIX, 1896, pp. 507-508.)
- Scott, T.** Cristatella mucedo, Cuvier, in the lochs of Scotland. (Ann. Scott. Nat. Hist., 1896, p. 125.)

## 1897.

- Braem, F.** Die geschlechtliche Entwicklung von Plumatella fungosa. (Bibliotheca Zoologica, Heft 23, 1897, 96 pp., 8 pls.) (Review by C. B. D[avenport] in Amer. Natur., XXXII, 1898, pp. 205-206.)
- Meissner, M.** Weiterer Beitrag zur Kenntniss der geographischen Verbreitung der Süßwasser-Bryozoen Gattung Plumatella. (Zool. Anz., XX, 1897, pp. 173-174.)
- Váγγελ, E.** Moosthiere. [Bryozoen des Plattensees.] (Resulten wiss. Erforsch. Balatonsees, II. Band, 1. Theil, 1897, pp. 137-143, 2 figs.)
- Ward, H. B.** Statoblasts ("winter eggs") of Pectinatella. (Amer. Monthly Micro. Jour., XVIII, 1897, p. 232.)
- Wesenberg-Lund, C.** Biologiske Studier over Ferskvandsbryozoer. (Vid. Meddel. Naturh. Foren. Kjöbenh. [5], VIII, Aarg. 1896 [1897], pp. 252-360, 361-363, i-xxxvi.)

## 1898.

- Bosc, A.** Les Bryozoaires d'eau douce d'Europe. (Jour. de Microg., Paris, VI, 1898, pp. 168-175, pls. xxii, xxiii.)
- Rabito, L.** Ricerche intorno alla formazione dei statoblasti nei Briozoi d'acqua dolce. (Nat. Siciliano [n. s.], II, 1898, pp. 131-140, 1 pl.)
- Sherren, H.** Cristatella mucedo [near London]. (Nature, LIX, 1898, p. 150.)

## 1899.

- Davenport, C. B.** Synopsis of North American invertebrates. I. Fresh-water Bryozoa. (Amer. Natur., XXXIII, 1899, pp. 593-596, 3 figs.)
- Stenroos, K. E.** Das Thierleben im Nurmijärvi-See. Eine faunistisch-biologische Studie. (Acta Soc. pro Fauna et Flora Fennica, XVII, Helsingfors, 1899, No. 1, pp. 1-259, pls. i-iii.) [Fresh-water Bryozoa, pp. 50-51.]

## E. MARINE.

INCLUDING PAPERS WHICH TREAT OF LIVING MARINE BRYOZOA MAINLY FROM A SYSTEM-  
ATIC STANDPOINT.

## 1755.

**Ellis, J.** Essay towards a natural history of the Corallines and other marine productions of the kind commonly found on the coasts of Great Britain and Ireland. London, 1755, 130 pp., 39 pls. [French trans., La Haye, 1756; German trans., Nuremberg, 1767.]

## 1766.

**Pallas, P. S.** Elenchus zoophytorum, sistens generum adumbrationes generaliores et specierum cognitarum succinctas descriptiones, cum selectis auctorum synonymis. La Haye, 1766. [German trans., Nuremberg, 1787.]

## 1767.

**Linnaeus, C.** Systema naturæ. Ed. 12, Holmiæ, 1767. Tome I, Pars II. [Zoophyta, pp. 1287-1301.]

## 1780.

**Fabricius, O.** Fauna grönlandica. Kjöbenhavn, 1780.

## 1785.

**Cavolini, F.** Memorie per servire alla storia de polypi marini. Naples, 1785, 279 pp., 9 pls. [German trans., Nuremberg, 1813.]

## 1786.

**Ellis, J., and Solander, D.** The natural history of many curious and uncommon Zoophytes collected, etc., by the late John Ellis, systematically arranged and described by Daniel Solander. London, 1786, 206 pp., 63 pls.

## 1801.

**Lamarck, J. B.** Système des animaux sans vertèbres, ou tableau général des classes, des ordres et des genres de ces animaux. Paris, 1801. [Les Polypes, pp. 357-386.]

## 1803.

**Moll, J.** Eschara zoophytorum seu phytozoorum ordine pulcherrima ac notata dignissima genus. Vindobonæ, 1803, 70 pp., 4 pls. [Die Seerinde, aus der Ordnung der Pflanzenthier, das schönste und merkwürdigste Geschlecht, mit neuen Arten vermehrt. Wien, 1803.]

## 1810.

- Lamouroux, J. V. F.** Mémoire sur la classification des Polypiers coralligènes. 1810.

## 1816.

- Lamarck, J. B.** Histoire naturelle des animaux sans vertèbres. Paris, 1816. Vol. II.

- Lamouroux, J. V. F.** Histoire des Polypiers coralligènes flexibles, vulgairement nommés Zoophytes. Caen, 1816, lxxxiv+560 pp., 19 pls.

## 1821.

- Lamouroux, J. V. F.** Exposition méthodique des genres de l'ordre des Polypiers, avec leur description et celle des principales espèces, figurées dans 84 planches. Paris, 1821.

## 1824.

- Lamouroux, J. V. F.** Description des Polypiers flexibles. In Quoy and Gaimard's Zoologie, Vol. III of the "Voyage Autour du Monde" in the corvettes *l'Uranie* and *la Physicienne*, 1817-1820. Paris, 1824. [Bryozoa, pp. 603-614, pls. 89-93.]

- [Anon.] Corallina; or a classical arrangement of flexible coralline Polypidoms, selected from the French of J. V. F. Lamouroux. London, 1824, 284 pp., 19 pls.

## 1826.

- Audouin, V.** Explication sommaire des planches de Polypes de l'Égypte et de la Syrie . . . offrant un exposé des caractères naturels des genres avec la distinction des espèces. In Savigny's "Description de l'Égypte." Histoire naturelle, I, 1809, Part III, pp. 225-244, pls. i-xiv. Paris, 1826.

- Risso, A.** Histoire naturelle de l'Europe méridionale. Paris, 1826.

## 1828.

- Fleming, J.** A history of British animals. Edinburgh, 1828.

- Leuckart, F. S.** Mémoire sur les Zoophytes. (W. P. Rüppell's Reise im nördlichen Africa, Abth. V, 1828.)

## 1830.

- Thompson, J. V.** Zoological researches and illustrations: On Polyzoa, a new animal discovered as an inhabitant of some Zoophytes, with the description of the newly-instituted genera *Pedicellaria*, *Vesicularia*, and their species. Memoir, No. V, Cork, 1830, pp. 89-102.



## 1831.

**Ehrenberg, C. G.** *Symbolæ physicae, seu Icones et Descriptiones Mammalium, Avium, Insectorum et Animalium Evertebratorum. Pars Zoologica*, IV, Dec. I, Berlin, 1831, fol.

**Gray, J. E.** Description of two new species of Celliferous Corals (*Hippothoa Elliotæ* and *H. lanceolata*) discovered by Miss Elliot in the harbour of Kinglade, near Cork. (*Zoological Miscellany*, 1831, pp. 34–35.)

## 1832.

**Ehrenberg, C. G.** Beiträge zur physiologischen Kenntniss der Corallenthier in allgemeinen und besonders des Rothen Meeres, nebst einem Versuche zur physiologischen Systematik derselben. (Abh. d. k. Akad. d. Wiss. Berlin, 1832, pp. 225–380.)

**Johnston, G.** A descriptive catalogue of the recent Zoophytes found on the coast of North Durham. (Trans. Nat. Hist. Soc. Northumberland, Durham, and Newcastle-upon-Tyne, II, 1832, pp. 239–272.)

## 1834.

**Dalyell, J. G.** On the propagation of certain Scottish Zoophytes. (Brit. Assoc. Rep., IV, 1834, pp. 598–607.) (Froriep, Notizen, XLII, 1834, cols. 273–278; *ibid.*, L, 1836, cols. 81–90.) (L'Institut, III, 1835, pp. 73–75.) (Edinburgh New Phil. Jour., XVII, 1834, pp. 411–415.)

**Johnston, G.** A catalogue of the Zoophytes of Berwickshire. (Hist. Berwickshire Naturalists' Club, I, 1834, pp. 154–156.)

——— Illustrations in British Zoology: *Retepora cellulosa*. (London's Mag. Nat. Hist., VII, 1834, pp. 638–639.) [*Mediterranean.*]

## 1835.

**Milne-Edwards, H.** Mémoire sur un nouveau genre de la famille des Alcyoniens (genre *Alcyonidium*). (Ann. Sci. Nat. Zool. [2], IV, 1835, pp. 322–333.) (Oken's Isis, 1837, cols. 153–156.)

**Sars, M.** Beskrivelser og Iagttagelser over nogle merkelige eller nye i Havet ved den Bergenske Kyst levende Dyr. 1835.

## 1836.

**Milne-Edwards, H.** Recherches anatomiques, physiologiques et zoologiques sur les Eschares. (Ann. Sci. Nat. Zool. [2], VI, 1836, pp. 5–53, pls. i–v.) (Compt. Rend. Acad. Sci. Paris, II, 1836, pp. 225–228.) (L'Institut, IV, 1836, pp. 67–68.) (Froriep, Notizen, XLVII, 1836, pp. 337–341.)

——— Histoire des Polypes. In Vol. II of Ed. 2 of Lamarck's Histoire Naturelle des Animaux sans Vertèbres. Paris, 1836.

## 1837.

**Johnston, G.** The natural history of British Zoophytes. (Jardine's Mag. Zool. Bot. Edinburgh, I, 1837, pp. 64-81, 225-247, 440-448; *ibid.*, II, 1838, pp. 319-340.)

**Milne-Edwards, H.** Mémoire sur les Polypes du genre des Tubulipores. (Ann. Sci. Nat. Zool. [2], VIII, 1837, pp. 321-338, pls. xii-xiv.) (Compt. Rend. Acad. Sci. Paris, VI, 1838, pp. 162-165.)

## 1838.

**Johnston, G.** A History of the British Zoophytes. London, 1838. xii+333 pp., 44 pls.

**Milne-Edwards, H.** Sur les Polypes du genre Salicornaria. Extr. Proc. -verb. Soc. Phil., 1838, pp. 59-60.) (L'Institut, VI, 1838, p. 154.)

—— Mémoire sur les Crisies, les Hornères et plusieurs autres Polypes vivants ou fossiles dont l'organisation est analogue à celle des Tubulipores. (Ann. Sci. Nat., Zool. [2], IX, 1838, pp. 193-238, pls. vi-xvi.) (Compt. Rend. Acad. Sci. Paris, VI, 1838, pp. 572-574.) (Leonhard u. Bronn's Neues Jahrb., 1839, pp. 362-369.)

## 1839.

**Hogg, J.** On the tentacular classification of Zoophytes. (Ann. Mag. Nat. Hist., IV, 1839, pp. 364-368.)

**Orbigny, A. d'** Voyage dans l'Amérique méridionale, V, Part IV, Zoophytes. Paris, 1839 et 1846, 28 pp., 13 pls.

## 1840.

**Hassall, A. H.** Catalogue of Irish Zoophytes. (Ann. Mag. Nat. Hist., VI, 1840, pp. 166-175, pls. v-vii.)

**Johnston, G.** Description of a new genus of British Zoophyte. (Ann. Mag. Nat. Hist., V, 1840, pp. 272-274.)

**Thompson, W.** Additions to the fauna of Ireland. (Ann. Mag. Nat. Hist., V, 1840, pp. 245-257.) [Bryozoa, pp. 249-254.]

## 1841.

**Couch, R. Q.** An essay on the Zoophytes of Cornwall. (Rep. Trans. R. Polyt. Soc. Cornwall, 1841, pp. 27-90.)

**Hassall, A. H.** Supplement to a catalogue of Irish Zoophytes. (Ann. Mag. Nat. Hist., VII, 1841, pp. 276-287, pp. 363-373, pls. vi-x.)

—— Description of two new genera of Irish Zoophytes. (Ann. Mag. Nat. Hist., VII, 1841, pp. 483-486.)

## 1842.

- Hassall, A. H.** Remarks on the genus *Lepralia* of Dr. Johnston, with descriptions of six undescribed species, and notices of two other Zoophytes. (Ann. Mag. Nat. Hist., IX, 1842, pp. 407-414.) [Ireland.]
- Hyndman, G. C.** Note on species obtained by deep dredging near Sana Island, off the mull of Cantire. (Ann. Mag. Nat. Hist., X, 1842, pp. 19-20.)
- MacGillivray, J.** Catalogue of the marine Zoophytes of the neighborhood of Aberdeen. (Ann. Mag. Nat. Hist., IX, 1842, pp. 462-469.)
- Nordmann, A. von.** Voyage dans la Russie méridionale et la Crimée, 1842. Bryozoa, vol. II, pp. 818-819, vol. III, pp. 651-707, Atlas, Polypi, pls. ii, iii.

## 1843.

- Gray, J. E.** [New Zealand Polyzoa.] In Dieffenbach's New Zealand, Vol. II, 1843, Appendix, pp. 292-293.
- Krohn, A.** Ueber die vogelkopfähnlichen und ihnen verwandte Organe bei den Bryozoen. (Froriep, Notizen, XXV, 1843, pp. 70-72.)

## 1844.

- Beneden, P. J. van.** Histoire naturelle du Crinomorpha, nouveau genre de la classe des Bryozoaires de la côte d'Ostende. (Bull. Acad. R. Bruxelles, XI, 1844, Part II, pp. 385-386.)
- Couch, R. Q.** A Cornish fauna. Part III. Truro, 1844.

## 1845.

- Beneden, P. J. van.** Recherches sur l'organisation des Laguncula et l'histoire naturelle des différents Polypes Bryozoaires qui habitent la côte d'Ostende. (Nouv. Mém. Acad. R. Bruxelles, XVIII, 1845, 29 pp., pls. i-iii.)
- Recherches sur l'anatomie, la physiologie et le développement des Bryozoaires qui habitent la côte d'Ostende. (Nouv. Mém. Acad. R. Bruxelles, XVIII, 1845, 44 pp., pls. i-v; *ibid.*, XIX, 1845, 31 pp., pls. i-ii.) (Reviewed in Ann. Mag. Nat. Hist., XVII, 1846, pp. 120-123.)
- Couch, R. Q.** Remarks on a new Zoophyte belonging to the genus *Crisia*, C. setacea. (Newman, Zoologist, III, 1845, pp. 1095-1096.)
- Goodsir, H. D. S.** Description of some gigantic forms of invertebrate animals from the coast of Scotland. (Ann. Mag. Nat. Hist., XV, 1845, pp. 377-383, pl. xx.)
- Meneghini, G.** Polipi della famiglia dei Tubuliporiani finora osservati nell' Adriatico. (Nuo. Ann. Sci. Nat. Ist. Bologna [2], III, 1845, pp. 115-133.) (Nuo. Saggi Accad. Sci. Padova, VI, 1847, pp. 59-72.)

**Reid, J.** Anatomical and physiological observations on some Zoophytes. (Ann. Mag. Nat. Hist., XVI, 1845, pp. 385-400, pl. xii.)

**Westendorp, G. D.** Recherches sur les Polypiers flexibles de la Belgique, et particulièrement des environs d'Ostende. (Annales de la Société Médico-chirurgicale de Bruges, IV, 1845, pp. 214-230, 303-326, 1 pl.)

#### 1846.

**King, W.** An account of some shells and other invertebrate forms found on the coast of Northumberland and of Durham. (Ann. Mag. Nat. Hist., XVIII, 1846, pp. 233-251.)

**Milne-Edwards, H.** Zoophytes. In Cuvier, Le Règne Animal. Paris, 1846.

#### 1847.

**Johnston, G.** A history of the British Zoophytes. Ed. 2. London, 1847, 2 vols. Vol. I, 488 pp., 87 figs.; Vol. 2, 74 pls.

#### 1848.

**Beneden, P. J. van.** Recherches sur les Polypes Bryozoaires de la Mer du Nord. (Bull. Acad. R. Belgique, XV, 1848, Part I, pp. 67-82, 1 pl.)

**Coppin, J.** Description of a new genus of British marine Zoophytes belonging to the family Eucratiadae. (Ann. Mag. Nat. Hist. [2], II, 1848, pp. 273-274, pl. x.)

**Dalyell, J. G.** Rare and remarkable animals of Scotland. London, 1847-8, 2 vols. [Bryozoa in Vol. II.]

**Desor, E.** Recent zoological investigations among the shoals of Nantucket. (Proc. Boston Soc. Nat. Hist., III, 1848-51, pp. 65-68.)

**Gray, J. E.** List of the specimens of British animals in the collection of the British Museum. Part I. Centroniae or radiated animals. London, 1848, 173 pp. [Bryozoa, pp. 91-151.]

#### 1849.

**Beneden, P. J. van.** Recherches sur les Bryozoaires de la Mer du Nord (suite), et projet d'une classification des animaux de ce groupe. (Bull. Acad. R. Belgique, XVI, 1849, Part II, pp. 644-658, pls. i, ii.) (L'Institut, XVIII, 1850, p. 72.)

**Busk, G.** Observations on the Shepherd's Purse Coralline of Ellis (Notamia bursaria, Fleming). (Trans. Micro. Soc. London, II, 1849, pp. 110-121, pl. xxv.)

——— Observations on the Anguinaria spatulata [*Ætea anguina*]. (Trans. Micro. Soc. London, II, 1849, pp. 123-126, pl. xxvi.)

## 1850.

- Busk, G.** A list of Sertularian Zoophytes and Polyzoa from Port Natal, Algoa Bay, and Table Bay, in South Africa; with remarks on their geographical distribution, and observations on the genera Plumularia and Catenicella. (Brit. Assoc. Rep., XX, 1850, Part II, pp. 118-120.)

## 1851.

- Busk, G.** Notices of three undescribed species of Polyzoa. (Ann. Mag. Nat. Hist. [2], VII, 1851, pp. 81-85, pls. viii, ix.) [Great Britain and Torres Strait (?).]
- Couch, R. Q.** Remarks on a new Zoophyte belonging to the genus Crisia. (Trans. Nat. Hist. Antiq. Soc. Penzance, I, 1851, pp. 38-39.)
- Notice of a new species of Crisia [Johnstonia]. (Trans. Nat. Hist. Antiq. Soc. Penzance, I, 1851, pp. 307-308.)
- Hincks, Thomas.** Notes on British Zoophytes, with descriptions of some new species. (Ann. Mag. Nat. Hist. [2], VIII, 1851, pp. 353-362, pl. viii.)
- Sars, M.** Beretning om en Zoologisk Reise i Sommeren 1849 i Lofoten og Finmarken. (Nyt Mag. Naturv., VI, 1851, pp. 121-211.)

## 1852.

- Busk, G.** An account of the Polyzoa and Sertularian Zoophytes collected in the voyage of the *Rattlesnake* on the coasts of Australia and the Louisiade Archipelago. In John MacGillivray's Narrative of the voyage of H. M. S. *Rattlesnake*, commanded by the late Captain Owen Stanley during the years 1846-1850, Vol. I, 1852, pp. 343-402, pl. i.)
- On the priority of the term Polyzoa for the Ascidian Polypes. (Ann. Mag. Nat. Hist. [2], X, 1852, pp. 352-354.)
- Catalogue of the marine Polyzoa in the collection of the British Museum. Parts I and II. Cheilostomata. 1852-1854. Part I, 1852, viii+vi+54 pp., 68 pls. (Review in Quar. Jour. Micro. Sci., I, 1853, pp. 136-137.) Part II, 1854, viii+55-120 pp., pls. 69-124.
- Hincks, T.** On a peculiar organ which occurs on some of the marine Bryozoa and which appears to indicate a difference of sex. (Brit. Assoc. Rep., XXII, 1852, Part II, pp. 75-76.)
- Landsborough, D.** A popular history of British Zoophytes or Corallines. London, 1852, 404 pp., 20 pls.
- Thompson, W.** Notes on some Scotch Zoophytes and Polyzoa. (Ann. Mag. Nat. Hist. [2], IX, 1852, pp. 403-404, pl. xvi B.)

## 1853.

- Sars, M.** Bemærkninger over det Adriatiske Havs Fauna sammenlignet med Nordhavets. (Nyt Mag. Naturv., VII, 1853, pp. 367-397.)

## 1854.

- Busk, G.** Remarks on the structure and function of the avicularian and vibracular organs of the Polyzoa; and on their value as diagnostic characters in the classification of those creatures. (Trans. Micro. Soc. London [n. s.], II, 1854, pp. 26-33, pl. ii.)
- Stimpson, W.** Synopsis of the marine invertebrata of Grand Manan or the region about the mouth of the Bay of Fundy, near New Brunswick. (Smithsonian Contr. Knowl., VI, 1854, Art. V, pp. 1-66, pls. i-iii.) [Bryozoa, pp. 17-19, pl. i.]

## 1855.

- Busk, G.** Zoophytology. (Quar. Jour. Micro. Sci., III, 1855, pp. 253-256, pls. i, ii.) [Arctic.] (Ibid., pp. 320-322, pls. iii-iv.) [New Zealand, Ægean Sea, Philippine Islands, or Australia.]
- Gosse, P. H.** Notes on some new or little-known marine animals. (Ann. Mag. Nat. Hist. [2], XVI, 1855, pp. 27-36.) [Bryozoa, pp. 35-36, pl. iv.]
- Leidy, J.** Contributions toward a knowledge of the marine invertebrate Fauna of the coasts of Rhode Island and New Jersey. (Jour. Acad. Nat. Sci. Philadelphia [2], III, 1855, pp. 135-152.) [Bryozoa, pp. 141-143.]

## 1856.

- Busk, G.** Zoophytology. (Quar. Jour. Micro. Sci., IV, 1856, pp. 93-96, pls. v, vi.) [Great Britain.] (Ibid., pp. 176-179, pls. vii, viii.) [Mazatlan, Gulf of California.] (Ibid., pp. 308-312, pls. ix-xii.) [Great Britain, California.]
- Polyzoa collected by Mr. M'Andrew on the coast of Norway and Finland in 1856. (Ann. Mag. Nat. Hist. [2], XVIII, 1856, pp. 32-36, pl. i.)

## 1857.

- Alder, J.** Descriptions of new British Polyzoa. (Quar. Jour. Micro. Sci., V, 1857, pp. 24-25, pls. xiii, xiv.)
- On a new species of Bugula. (Quar. Jour. Micro. Sci., V, 1857, pp. 174-175, pl. xvii.)
- A catalogue of the Zoophytes of Northumberland and Durham. (Trans. Tyneside Nat. Field Club, III, 1858 [1857], pp. 93-162, pls. iii-x, Bryozoa on pls. vii, viii, x.)
- Busk, G.** Zoophytology. (Quar. Jour. Micro. Sci., V, 1857, pp. 172-174, pls. xv, xvi.) [New Zealand.]
- Zoophytology. [A review of Alder's Catalogue in Tyneside Natural Field Club, and descriptions of Alder's new species and genera.] (Quar. Jour. Micro. Sci., V, 1857, pp. 242-249.)

- Hincks, T.** On some new British Polyzoa. (Quar. Jour. Micro. Sci., V, 1857, pp. 175-176, 249-250, pl. xvii.)
- Johnston, G.** Description of a specimen of *Eschara cervicornis* from Embleton Bay. (Hist. Berwickshire Nat. Club, III, 1857, pp. 175-176.)
- MacDonald, J. D.** Brief description of a Ctenostomatous Polyzoon, allied to *Vesicularia*. (Proc. R. Soc. London, VIII, 1857, pp. 383-384.) (Ann. Mag. Nat. Hist. [2], XIX, 1857, pp. 390-391.)
- Redfern, P.** On *Flustrella hispida*. (Brit. Assoc. Rep., XXVII, 1857, Part II, p. 106.)

## 1858.

- Busk, G.** Zoophytology: On some Madeiran Polyzoa. (Quar. Jour. Micro. Sci., VI, 1858, pp. 124-130, pls. xviii, xix; *ibid.*, pp. 261-263, pls. xx, xxi; *ibid.*, VII, 1859, pp. 65-67, pls. xxii, xxiii.)
- Carter, H. J.** Description of a lacustrine Bryozoon allied to *Flustra* [*Hislopia*]. (Ann. Mag. Nat. Hist. [3], I, 1858, pp. 169-171, pl. vii.)
- Dyster, F. D.** Notes on two new British Polyzoa. (Quar. Jour. Micro. Sci., VI, 1858, pp. 260, 261, pl. xxi.)
- Redfern, P.** On *Flustrella hispida*. (Quar. Jour. Micro. Sci., VI, 1858, pp. 96-102.)
- Thompson, W.** On new genera and species of Polyzoa in the collection of W. H. Harvey. (Nat. Hist. Rev., Proc. Soc., V, 1858, pp. 134-147, pls. x-xiii.) (Proc. Dublin Univ. Zool. Bot. Assoc., I, 1859, pp. 77-93, pls. vi-ix.)

## 1859.

- Busk, G.** List of marine Polyzoa, collected by George Barlee, Esq., in Shetland and the Orkneys, with descriptions of the new species. (Brit. Assoc. Rep., XXIX, 1859, pp. 144-147.)
- Dawson, J. W.** Additional notes on the Post-Pliocene deposits of the St. Lawrence Valley. (Canad. Nat. Geol., IV, 1859, pp. 23-39, figs. 12-16.)
- Catalogue of animals and plants collected and observed on the southeast side of the St. Lawrence from Quebec to Gaspé, and and in the counties of Rimouski, Gaspé, and Bonaventure. By Robert Bell, Jr. Polyzoa determined by Dr. J. W. Dawson. (Geol. Sur. Canada, Rep. Progress for 1858, Montreal, 1859.) [Bryozoa, pp. 255-257.]
- MacGillivray, P. H.** On some new Australian Polyzoa. (Trans. Phil. Inst. Victoria, IV, 1859, pp. 97, 98, pl. i.)
- Notes on the Cheilostomatous Polyzoa of Victoria and other parts of Australia. (Trans. Phil. Inst. Victoria, IV, 1859, pp. 159-168, pls. ii, iii.)
- Thompson, W.** Zoophytology. (Quar. Jour. Micro. Sci., VII, 1859, pp. 143-154.) [Bass's Strait and New Zealand.]

## 1860.

**Busk, G.** Zoophytology: Descriptions of new species of Polyzoa, collected by George Barlee, Esq., in Shetland. (Quar. Jour. Micro. Sci., VIII, 1860, pp. 123-125, pls. xxiv, xxv; *ibid.*, pp. 143-145, pls. xxvi, xxvii; *ibid.*, pp. 213-214, pls. xxviii, xxix.)

—— Zoophytology: Description of new Polyzoa, collected by J. Y. Johnson, Esq., at Madeira in the years 1859 and 1860. (Quar. Jour. Micro. Sci., VIII, 1860, pp. 280-285, pls. xxx, xxxi; *ibid.* [n. s.], I, 1861, pp. 77-80, pls. xxxii, xxxiii.)

**Hincks, T.** Supplement to the list of Zoophytes in the "Natural History of Ireland, by W. Thompson, Esq." (Vol. IV, 1856), with descriptions of new species. (Proc. Dublin Univ. Zool. Bot. Assoc., II, Part I, 1860, pp. 67-78, pl. iii.)

—— Descriptions of new Polyzoa from Ireland. (Quar. Jour. Micro Sci., VIII, 1860, pp. 275-280, pl. xxx.)

## 1861.

**Brady, G. S.** Notes of Algæ, etc., found in the Isle of Man and on the coasts of Northumberland and Durham. (Ann. Mag. Nat. Hist. [3], VII, 1861, pp. 69-71.)

**Busk, G.** Zoophytology: Descriptions of new or imperfectly known Polyzoa. (Quar. Jour. Micro. Sci. [n. s.], I, 1861, pp. 153-156, pls. xxxiv, xxv.) [New Zealand, Australia, and Great Britain.]

**Danielssen, D. C.** Beretning om en zoologisk Reise foretagen i Sommeren 1857. (Nyt Mag. Naturv., XI, 1861, pp. 1-58.)

**Hincks, T.** On the ovicells of Polyzoa, with reference to the views of Professor Huxley. (Brit. Assoc. Rep., XXXI, 1861, Part II, pp. 145-146.)

—— Note on the ovicells of the Cheilostomatous Polyzoa. (Quar. Jour. Micro. Sci. [n. s.], I, 1861, pp. 278-281.)

## 1862.

**Boeck, A.** Foreløbige Bemærkninger agaaende de ved de sydlige og vestlige Kyster af Norge forekommende Polyzoer. (Forh. Vidensk. Selsk. Christiania, 1862, pp. 49-50.)

**Hincks, T.** A catalogue of Zoophytes of South Devon and South Cornwall. (Ann. Mag. Nat. Hist. [3], IX, 1862, pp. 22-30, pl. vii; *ibid.*, pp. 200-207, pl. xii; *ibid.*, pp. 303-310, 467-475, pl. xvi; *ibid.* [3], X, 1862, pp. 360-363.) (Supplement in Ann. Mag. Nat. Hist. [4], VIII, 1871, pp. 73-83, pls. v, vi.)

**Sars, M.** Beskrivelse over nogle norske Polyzoer. (Forh. Vidensk. Selsk. Christiania, 1862, pp. 141-167.)

## 1863.

**Alder, J.** Supplement to a catalogue of the Zoophytes of Northumberland and Durham. (Trans. Tyneside Nat. Field Club, V, 1863, pp. 225-247, pls. viii-xi.)



**Alder, J.** Report of the dredging expedition to the Dogger Bank and the coasts of Northumberland. Zoophytes. (Trans. Tyneside Nat. Field Club, V, 1863, pp. 288-290.)

**Claparède, E.** Ueber eine wahrscheinlich zu den Bryozoen gehörige Thierform, *Loxosoma singulare* Keferst. Beobachtungen über Anatomie und Entwicklungsgeschichte wirbelloser Thiere. Leipzig, 1863.

**Keferstein, W.** Ueber *Loxosoma singulare*, gen. et sp. n., den Schmarotzer einer Annelide. (Zeitschr. f. wiss. Zool., XII, 1863, pp. 131-132, pl. xi.)

**Packard, A. S.** A list of animals dredged near Caribou Island, southern Labrador, 1860. (Canad. Nat. Geol., VIII, 1863, pp. 401-429, pls. i, ii.) [Bryozoa, pp. 406-412, pls. i, ii.]

#### 1864.

**Alder, J.** Descriptions of new British Polyzoa, with remarks on some imperfectly known species. (Quar. Jour. Micro. Sci. [n. s.], IV, 1864, pp. 95-109, pls. ii-iv.) (Brit. Assoc. Rep., XXXIII, 1863, Part II, pp. 97-98.)

**Couch, R. Q.** Notice of the occurrence in Cornwall of that rare Zoophyte, *Retepora reticulata*. (Trans. Nat. Hist. Antiq. Soc. Penzance, II, 1864, pp. 303-305.)

**Norman, A. M.** On undescribed British Actinozoa, Hydrozoa, and Polyzoa. (Ann. Mag. Nat. Hist. [3], XIII, 1864, pp. 82-90, pls. ix-xi.)

#### 1865.

**Dawson, J. W.** Note on a species of *Gemellaria* from Sable Island. [*G. Willisii* sp. nov.] (Proc. Nova Scotian Inst. Nat. Sci., I, Part III, p. 3, 1867 [1865].)

**Hincks, T.** Zoophytes: The history of their development. (Quar. Jour. Sci. [Samuelson], II, 1865, pp. 401-418, 2 pls.)

**Smitt, F. A.** Kritisk förteckning öfver Skandinaviens Hafs-bryozoer. (Öfv. k. Vetens.-Akad. Förh., XXII, 1865, pp. 115-142, 1 pl.; ibid., XXIII, 1866, pp. 395-533, 11 pls.; ibid., XXIV, 1867, pp. 279-429, 5 pls.; ibid., XXIV, 1867, Bihang, pp. 3-230, pls. xxiv, xxv; ibid., 1871, pp. 1115-1134, pls. xx, xxi.)

#### 1866.

**Fischer, P.** Étude sur les Bryozoaires perforants de la famille des Térébriporides. (Compt. Rend. Acad. Sci. Paris, LXII, 1866, pp. 985-987.) (Quar. Jour. Micro. Sci. [n. s.], VI, 1866, pp. 157-158.) (Nouv. Arch. Mus. Hist. Nat. Paris, II, 1866, pp. 293-313, pl. xi.)

**M'Intosh, W. C.** Observations on the marine Zoology of North Uist, Outer Hebrides. (Proc. R. Soc. Edinburgh, 1866, pp. 600-614.)

**Norman, A. M.** Report on the Crustacea, Echinodermata, Polyzoa, Actinozoa, and Hydrozoa from the coasts of the Hebrides. (Brit. Assoc. Rep., XXXVI, 1866, pp. 193-206.) [Bryozoa, pp. 203-205.]

### 1867.

**Alder, J.** Description of three new or imperfectly known Polyzoa, found on the coasts of Northumberland and Durham. (Nat. Hist. Trans. Northumberland and Durham, I, 1867, pp. 60-64, 1 pl.)

**Busk, G.** Zoophytology. (Quar. Jour. Micro. Soc. [n. s.], VII, 1867, pp. 241-243, pl. xxxvi.) [Australia and Cape of Good Hope.]

**Claparède, E.** Sur le *Loxosoma Kefersteinii*, Bryozoaire mou du Golfe de Naples. (Ann. Sci. Nat., Zool. [5], VIII, 1867, pp. 28-30, pl. vi.) (Ann. Mag. Nat. Hist. [4], I, 1868, pp. 311-312.)

**Heller, C.** Die Bryozoen des Adriatischen Meeres. (Verh. d. k. k. zool.-bot. Ges. Wien, XVII, 1867, pp. 77-136, pls. i-vi.)

**Norman, A. M.** Preliminary report on the Crustacea, Molluscoidea, Echinodermata, and Cœlenterata, procured by the Shetland Dredging Committee in 1867. (Brit. Assoc. Rep., XXXVII, 1867, pp. 437-441.)

**Packard, A. S.** Observations on the glacial phenomena of Labrador and Maine; with a view of the recent invertebrate fauna of Labrador. (Mem. Boston Soc. Nat. Hist., I, 1867, pp. 210-303, pls. vii, viii.) [Bryozoa, pp. 269-276, pl. vii.]

**Pourtales, L. F.** Contributions to the fauna of the Gulf Stream at great depths. (Bull. Mus. Comp. Zool. Harvard Coll., I, No. 6, 1867, pp. 103-130.) [Bryozoa, pp. 110-111.]

**Smitt, F. A.** Bryozoa marina in regionibus arcticis et borealibus viventia, recensuit F. A. Smitt. (Öfv. k. Vetens.-Akad. Förh., 1867, No. 6, pp. 443-487.)

### 1868.

**Danielssen, D. C.** Om to nye Arter Bryozoer. (Förh. Vidensk. Selsk. Christiania, Aar 1867, 1868, pp. 23-24.)

**Lansweert, —.** Liste de Zoophytes et de mollusques inférieurs (tuniciers et bryozoaires) du littoral Belge. (Ann. Soc. Malac. Belgique, III, 1868, pp. 113-126.)

**MacGillivray, P. H.** Descriptions of some new genera and species of Australian Polyzoa; to which is added a list of species found in Victoria. (Trans. R. Soc. Victoria, IX, 1868, pp. 126-148.)

**Norman, A. M.** Shetland Final Dredging Report. Part II. On the Crustacea, Tunicata, Polyzoa, Echinodermata, Actinozoa, Hydrozoa, and Porifera. (Brit. Assoc. Rep., XXXVIII, 1868, pp. 247-342.) [Bryozoa, pp. 303-312.]

— Notes on some rare British Polyzoa, with descriptions of new species. (Quar. Jour. Micro. Sci. [n. s.], VIII, 1868, pp. 212-222, pls. v-vii.)

**Peach, C. W.** On a new *Eschara* from Cornwall [*E. verrucosa*]. (Brit. Assoc. Rep., XXXVIII, 1868, p. 109.)

— On a new British *Eschara* [*E. verrucosa*], and the occurrence in Cornwall of *Sphenotrochus Wrightii*, of Gosse. (Jour. R. Inst. Cornwall, III, 1868-70, pp. 116, 117.)

### 1869.

**Allman, G. J.** On *Rhabdopleura*, a new genus of Polyzoa. (Proc. R. Soc. Edinburgh, VI, 1869, pp. 438-440.)

— On *Rhabdopleura*. (Quar. Jour. Micro. Sci. [n. s.], IX, 1869, pp. 57-63, pl. viii.)

**Kirchenpauer, G. H.** Beschreibung neuer Bryozoen. (Museum Godeffroy, Catalog IV, 1869, pp. xxv-xxxiv, 118-119.)

**Perkins, G. H.** The Molluscan fauna of New Haven. Part II. Acephala and Bryozoa. (Proc. Boston Soc. Nat. Hist., XIII, 1869-71, pp. 139-163.) [Bryozoa, p. 161.]

**Stoliczka, F.** On the anatomy of *Sagartia Schilleriana* and *Membranipora Bengalensis*, a new Coral and a Bryozoon living in brackish water at Port Canning. (Jour. Asiatic Soc. Bengal, XXXVIII, Part II, 1869, pp. 28-63, pls. x-xii.)

### 1870.

**Fischer, P.** Bryozoaires, Echinodermes et Foraminifères marins du Département de la Gironde et des côtes du sud-ouest de la France. (Actes Soc. Linn. Bordeaux, XXVII [(3) VII], 1870, pp. 329-357.)

**Hincks, T.** On some interesting points in the history of the Polyzoa. (Pop. Sci. Rev., IX, 1870, pp. 57-64.)

**Kent, J. S.** On a New Polyzoan, "*Victorella pavida*," from the Victoria docks. (Quar. Jour. Micro. Sci. [n. s.], X, 1870, pp. 35-39, pl. iv.)

### 1871.

**Gill, T. N.** Arrangement of the families of Mollusks. (Smithsonian Misc. Coll., X, No. 227, 1871, 49 pp. Bryozoa, pp. 27-30.) [Proposes Order *Rhabdopleuræ* for *Rhabdopleura*.]

**Hincks, T.** Supplement to a catalogue of zoophytes of South Devon and South Cornwall. (Ann. Mag. Nat. Hist. [4], VIII, 1871, pp. 73-83, pls. v, vi.)

**Manzoni, A.** Supplemento alla fauna dei Bryozoi Mediterranei. 1<sup>a</sup> contribuzione. (Sitz. d. k. Akad. Wiss. Wien, LXIII, 1871, I Abth., pp. 73-82, 3 pls.)

**Peach, C. W.** On *Pustulopora clavata* of Busk, from the Wolf Rock, near Penzance. (Jour. R. Inst. Cornwall, IV, 1871-3, pp. 88-89, 1 pl., figs. C, D.)

## 1872.

- Allman, G. J.** On the structure of Cyphonautes. (Brit. Assoc. Rep., XLII, 1872, Part II, pp. 133-134.) (Quar. Jour. Micro. Sci. [n. s.], XII, 1872, pp. 395-397.)
- Gray, J. E.** On *Flustra marginata* of Krauss and an allied species, forming a new genus (*Flustramorpha*) of Escharidæ, from Natal. (Ann. Mag. Nat. Hist. [4], X, 1872, pp. 167-169.)
- Hincks, T.** On *Campylonema*, a new genus of Polyzoa. (Ann. Mag. Nat. Hist. [4], X, 1872, pp. 396-397, pl. xx, 5.)
- Sars, G. O.** On some remarkable forms of animal life from the great depths off the Norwegian coast. (University program for the first half year 1869, Christiania, 1872.)
- Bidrag til Kundskaben om Dyrelivet paa vore Havbanker. (Förh. Videns.-Selsk. Christiania, XIV, 1872, pp. 73-120.)
- Smitt, F. A.** Floridan Bryozoa, collected by Count L. F. de Pourtalès. Part I. (K. Svenska-Vetens. Akad. Handl., X, 1872, No. 11, pp. 1-20, pls. i-v.) Part II. (Ibid., XI, 1872, No. 4, pp. 1-83, pls. i-xiii.)
- Verrill, A. E.** Brief contributions to Zoology from the Museum of Yale College. No. XX. Recent additions to the Molluscan fauna of New England and the adjacent waters, with notes on other species. (Amer. Jour. Sci. [3], III, 1872, pp. 281-290.)

## 1873.

- Hincks, T.** Contributions to the history of the Polyzoa. (Quar. Jour. Micro. Sci. [n. s.], XIII, 1873, pp. 16-36, pl. ii.)
- Hutton, F. W.** Catalogue of the marine mollusca of New Zealand, Wellington, 1873. (Publications Geol. Sur. Department). xx+116 pp. [Bryozoa, pp. 87-104.]
- Möbius K.** Die wirbellosen Thiere der Ostsee. In "Bericht über die expedition zur physikalisch-chemischen und biologischen Untersuchung der Ostsee in Sommer, 1871, auf S. M. Aviso-Dampfer *Pommerania*." Kiel, 1873, pp. 97-144.
- Parfitt, E.** On a new species of Cellepora. (Ann. Mag. Nat. Hist., [4], XII, 1873, pp. 98-99.)
- Sars, G. O.** Om en hidtil lidet kjendt mærkelig Slægtstype af Polyzoer. (Förh. Videns.-Selsk. Christiania, XV, 1873, pp. 386-400.)
- Trask, J. B.** New species of Zoophytes from the bay of San Francisco and adjacent localities. (Proc. California Acad. Nat. Sci., I, 1854-1857 (newspaper reports), edition 2, 1873, pp. 112-114.)
- Verrill, A. E.** Report upon the invertebrate animals of Vineyard Sound and the adjacent waters, with an account of the physical characters of the region. (U. S. Fish Comm. Rep. for 1871-72, Washington, 1873, pp. 295-778.) [Bryozoa, pp. 707-714, pls. xxxiii, xxxiv, and numerous references in preceding pages.]

## 1874.

- Busk, George.** Notice of a new Polyzoan (*Hippuraria Egertoni*). (Proc. Zool. Soc. London, 1874, pp. 29-30, 1 pl.)
- On *Clavopora hystricis*, a new Polyzoan belonging to the family Halcyonellæ. (Quar. Jour. Micro. Sci. [n. s.], XIV, 1874, pp. 261-262, pl. ix.) [Mediterranean.]
- Kirchenpauer, G. H.** Grönlandische Bryozoen. Leipzig, 1874. (Die zweite Deutsche Nordpolarfahrt in den Jahren 1869 und 1870, unter Führung des Kapitäns Karl Koldewey. Herausgegeben von d. Verein f. d. deutsche Nordpolarfahrt in Bremen. II. Band. Wiss. Ergebnisse, 1874, pp. 411-428.)
- Lankester, E. R.** Remarks on the affinities of Rhabdopleura. (Quar. Jour. Micro. Sci. [n. s.], XIV, 1874, pp. 77-81.)
- M'Intosh, W. C.** On the invertebrate marine fauna of St. Andrews. III. Polyzoa, Tunicata. (Ann. Mag. Nat. Hist. [4], XIII, 1874, pp. 302-315.)
- Sars, G. O.** On Rhabdopleura mirabilis (M. Sars). (Quar. Jour. Micro. Sci. [n. s.], XIV, 1874, pp. 23-44, pl. i.)
- Whiteaves, J. F.** On recent deep-sea dredging operations in the Gulf of St. Lawrence. (Amer. Jour. Sci. [3], VII, 1874, pp. 210-219.) (Canad. Nat. [n. s.], VII, 1875, pp. 257-267.)

## 1875.

- Busk, G.** Catalogue of marine Polyzoa in the collection of the British Museum. Part III. Cyclostomata. London, 1875, viii+41 pp., 38 pls.
- Kirchenpauer, G. H.** Zoologische Ergebnisse der Nordseefahrt von 21. Juli bis 9. September 1872. (Bericht über die Untersuchungsfahrt der *Pommerania* in der Nordsee, 1872.) VI. Bryozoa. (Jahresbericht der Commission zur wissenschaftlichen Untersuchung der deutschen Meere in Kiel, II, III, 1875, pp. 173-196.)
- Verrill, A. E.** Brief contributions to zoology from the museum of Yale College. Nos. XXXII and XXXIII. Results of dredging expeditions off the New England coast in 1874. (Amer. Jour. Sci. [3], IX, 1875, pp. 411-415, pl. vii; *ibid.* [3], X, 1875, pp. 36-44, pls. iii, iv.)

## 1876.

- Busk, G.** Descriptions of some new species of Polyzoa from Kerguelen Islands. (Ann. Mag. Nat. Hist. [4], XVIII, 1876, pp. 116-118.)
- Ehlers, E.** *Hypophorella expansa*. Ein Beitrag zur Kenntniss der minirenden Bryozoen. (Abh. d. k. Ges. d. Wiss. Göttingen, XXI, 1876, pp. 1-156, 5 pls.)

- Hutton, F. W.** Corrections and additions to the list of Polyzoa in the catalogue of the marine mollusca of New Zealand. (Trans. Proc. New Zealand Inst., IX, 1876, pp. 358-361.)

## 1877.

- Hincks, T.** On Polyzoa from Iceland and Labrador. (Ann. Mag. Nat. Hist. [4], XIX, 1877, pp. 97-112, pls. x, xi.)  
 — On British Polyzoa. (Ann. Mag. Nat. Hist. [4], XX, 1877, Part I, pp. 212-218; Part II, classification, pp. 520-532.)  
 — Note on the radical fibres of the Polyzoa. (Ann. Mag. Nat. Hist. [4], XX, 1877, pp. 218-220.)
- Hutton, F. W.** On some Australian Polyzoa. (Proc. R. Soc. Tasmania for 1877, pp. 23-25.)
- Joliet, L.** Contributions à l'histoire naturelle des Bryozoaires des côtes de France. (Arch. Zool. exp., VI, 1877, pp. 93-304, pls. vi-xiii.) (Revue Scient. [2], XIII, 1877, pp. 601-602.)
- Koren, F., and Danielssen, D. C.** Beskrivelse over Kinetoskias smittii og arborescens. (Fauna littoralis Norwegiæ, III, 1877.)
- Martens, E. von.** Ueber ein Bryozoon aus dem südatlantischen Oceane, welches von Einsiedler-Krebsen bewohnte Meerschnecken-Schalen überzieht. (Sitzb. d. Ges. naturf. Freunde, Berlin, 1877, p. 183.)
- Tenison-Woods, J. E.** On some new Australian Polyzoa. (Jour. Proc. R. Soc. New South Wales, XI, 1877, pp. 83-84, 2 pls.)
- Winther, G.** Fortegnelse over de i Danmark hidtil fundne Hav-Bryozoeer. (Naturh. Tidskr. Kjöbenhavn [3], XI, 1877-78, pp. 1-40.)

## 1878.

- Girard, M.** Les Bryozoaires. Exposition des travaux les plus récents. (Rev. et Mag. Zool. [3], VI, 1878, pp. 34-44.)
- Hincks, T.** Note on the movements of the vibracula in Caberea Boryi, and on the supposed common nervous system in the Polyzoa. (Quar. Jour. Micro. Sci. [n. s.], XVIII, 1878, pp. 7-9.)  
 — Notes on the genus Retepora, with descriptions of new species. (Ann. Mag. Nat. Hist. [5], I, 1878, pp. 353-365, pls. xviii, xix.)
- Hutton, F. W.** On some South Australian Polyzoa. (Proc. R. Soc. Tasmania for 1877, 1878, pp. 23-25.)
- Lenz, Heinrich.** Die wirbellosen Thiere der Travemünder Bucht. Th. I. Deutsch. Meer. Jahresb. 4, 5, and 6, 1878; [Anhang] 7-11, 1884, pp. 169-174.
- Peach, C. W.** Observations on British Polyzoa. (Jour. Linn. Soc. Zool., XIII, 1878, pp. 479-486, pl. xxiii.)

**Smitt, F. A.** Recensio systematica animalium Bryozoorum, quæ in itineribus, annis 1875 et 1876, ad insulas Novaja Semlja et ad ostium fluminis Jenisei, duce Professore A. E. Nordenskiöld, invenerunt Doctores A. Stuxberg et H. Théel. (Öfv. k. Vetensk.-Akad. Förh., 35. Årg., 1878, No. 3, pp. 11-26.)

—— Recensio animalium Bryozoorum e mari arctico, quæ ad pæeninsulam Kola, in itinere anno 1877; duce H. Sandeberg, invenit F. Trybom. (Öfv. k. Vetensk.-Akad. Förh., 35. Årg., 1878, No. 7, pp. 19-32.)

**Waters, A. W.** On Bryozoa. (Proc. Manchester Lit. Phil. Soc., XVII, 1878, pp. 125-138, 178.)

—— The use of the opercula in the determination of the Chilostomatus Bryozoa. (Proc. Manchester Lit. Phil. Soc., XVIII, 1878, pp. 8-11, pl. i.) (Arch. Zool. exp., VII, 1878, N. et R., pp. xlvii.)

### 1879.

**Allman, G. J.** On the relations of Rhabdopleura. (Jour. Linn. Soc. Zool., XIV, 1879, pp. 581-586.)

**Busk, G.** Polyzoa from Kerguelen Island. (Phil. Trans. R. Soc. London, vol. 168, 1879, pp. 193-199, pl. x.)

—— On recent species of Heteropora. (Jour. Linn. Soc. Zool., XIV, 1879, pp. 724-726, pl. xv.)

**Goldstein, J. R. Y.** On a new species of Polyzoa [Serialaria Woodsii]. (Quar. Jour. Micro. Soc. Victoria, I, 1879, pp. 19-20, pl. iii.)

**Hincks, T.** On the classification of the British Polyzoa. (Ann. Mag. Nat. Hist. [5], III, 1879, pp. 153-164.)

**Jullien, J.** Radiopora intermedia, nouvelle espèce de Bryozoaire. (Guide du Nat. [Bouvier], I, 1879, p. 10.)

**Kirchenpauer, G. H.** Ueber die Bryozoen-Gattung Adeona. (Jour. Museum Godeffroy, 1879, 24 pp., 3 pls.)

**MacGillivray, P. H.** Polyzoa in McCoy's Prodr. Zool. Victoria, I, Dec. III, 1879, pp. 15-28, pls. 24-26; *ibid.* Dec. IV, 1879, pp. 21-35, pls. 35-38.

**Maplestone, C. M.** A new species of Polyzoa [Bicellaria annulata]. (Quar. Jour. Micro. Soc. Victoria, I, 1879, p. 19, pl. iii.)

**Marion, A. F.** Dragages au large de Marseille. (Ann. Sci. Nat. Zool. [6], VIII, 1879, Art. 7, pp. 5, 6.)

**Norman, A. M.** On Loxosoma and Triticella, genera of semiparasitic Polyzoa in the British seas. (Ann. Mag. Nat. Hist. [5], III, 1879, pp. 133-140.)

**Repiachoff, W.** Bemerkungen über Cyphonautes [Larva of Membranipora]. (Zool. Anz., II, 1879, pp. 517-518.)

**Tenison-Woods, J. E.** On the anatomy of Distichopora, with a monograph of the genus. (Proc. R. Soc. New South Wales, XIII, 1879, pp. 49-63, 2 pls.)

Bull. 173—39

- Verrill, A. E.** Brief contributions to Zoology from the Museum of Yale College, No. XLIII. Notice of recent additions to the marine fauna of the eastern coast of North America. (Amer. Jour. Sci. [3], XVIII, 1879, pp. 52-54.)
- Notice of recent additions to the marine invertebrata of the northeastern coast of America. (Proc. U. S. Nat. Mus., II, 1879, pp. 165-205.) [Bryozoa, pp. 188-196.]
- Contributions to the natural history of Arctic America. Molluscoids. (Bull. U. S. Nat. Mus., No. 15, 1879.) [Bryozoa, pp. 148-150.]
- Waters, A. W.** On the occurrence of recent Heteropora. (Jour. R. Micro. Soc., II, 1879, pp. 390-393, pl. xv.)
- On the Bryozoa (Polyzoa) of the Bay of Naples. (Ann. Mag. Nat. Hist. [5], III, 1879, pp. 28-43, 114-126, 192-202, 267-281, pls. viii-xv, xxiii. xxiv.)

### 1880.

- Busk, G.** List of Polyzoa collected by Capt. H. W. Fielden in the North Polar Expedition, with description of new species. (Jour. Linn. Soc. Zool., XV, 1880, pp. 231-241, pl. xiii.)
- Goldstein, J. R. Y.** Notes on living Polyzoa. (Quar. Jour. Micro. Soc. Victoria, I, 1880, pp. 42-50.)
- A new species of Polyzoa [*Catenicella ponderosa*]. (Quar. Jour. Micro. Soc. Victoria, I, 1880, p. 63, pl. v.)
- Haswell, W. A.** On the Cyclostomatous Polyzoa of Port Jackson and neighborhood. (Proc. Linn. Soc. New South Wales, IV, 1880, pp. 350-356.)
- Hincks, T.** Contributions towards a general history of the marine Polyzoa. I. Madeiran Polyzoa. II. Foreign Membraniporina. (Ann. Mag. Nat. Hist. [5], VI, 1880, pp. 69-92, pls. ix-xi.) II. Foreign Membraniporina. III. Foreign Cheilostomata (Miscellaneous). (Ann. Mag. Nat. Hist. [5], VI, 1880, pp. 376-384, pls. xvi, xvii.)
- On a supposed Pterobranchiate Polyzoan from Canada. (Ann. Mag. Nat. Hist. [5], V, 1880, pp. 239-241, 2 figs.)
- On new Hydroida and Polyzoa from Barents Sea. (Ann. Mag. Nat. Hist. [5], VI, 1880, pp. 277-286, pl. xv.)
- A history of the British marine Polyzoa. 2 vols., London, 1880. Vol. I, text, cxli+601 pp. Vol. II, 83 pls.
- Hutton, F. W.** Manual of New Zealand Mollusca. (Col. Mus. Geol. Sur. Dep., 1880, xvi+iv+224 pp.) [Bryozoa, pp. 179-199.]
- Jullien, J.** Description d'une nouvelle espèce de Bryozoaire perforant du genre *Terebripora* d'Orbigny. (Bull. Soc. Zool. France, V, 1880, pp. 142-144, 3 figs.)



- Kirchenpauer, G. H.** Ueber die Bryozoen-Gattung Adeona. (Abh. a. d. Geb. d. Naturw. Ver., Hamburg, VII, 1880, Abth. 1, pp. 1-24, pls. i-iii.)
- MacGillivray, P. H.** Polyzoa in McCoy's Prodr. Zool. Victoria, Vol. I, Decade V, 1880, pp. 27-52, pls. 45-49.
- Maplestone, C. M.** A new species of Polyzoa. (Quar. Jour. Micro. Soc. Victoria, I, 1880, p. 64, pl. v.)
- Nicholson, H. A.** On the minute structure of the recent *Heteropora neozelanica*, Busk, and on the relations of the genus *Heteropora* to *Monticulipora*. (Ann. Mag. Nat. Hist. [5], VI, 1880, pp. 329-338.)
- Richiardi, S.** Briozoi del mare della Toscana. (Catalogo Sez. Ital. Esposiz. Berlino, 1880, pp. 153-154.)
- Tenison-Woods, J. E.** On some recent and fossil species of *Selenariadæ*. (Trans. Proc. R. Soc. South Australia, III, 1880, pp. 1-12, pls. i, ii.)
- On the genus *Amathia* of Lamouroux, with a description of a new species. (Trans. Proc. R. Soc. Victoria, XVI, 1880, pp. 89-118, 1 pl.)
- Waters, A. W.** Note on the genus *Heteropora*. (Ann. Mag. Nat. Hist. [5], VI, 1880, pp. 156-157.)
- Wilson, J. B.** On a new genus of Polyzoa [*Catenicellopsis*]. (Quar. Jour. Micro. Soc. Victoria, I, 1880, pp. 64-65, 1 pl.)

## 1881.

- Busk, G.** Descriptive catalogue of the species of *Cellepora* collected in the Challenger Expedition. (Jour. Linn. Soc. Zool., XV, 1881, pp. 341-356.)
- Supplementary note respecting the use to be made of the chitinous organs in the Cheilostomata in the diagnosis of species, and more particularly in the genus *Cellepora*. (Jour. Linn. Soc. Zool., pp. 357-362, pls. xxvi, xxvii.)
- Notes on a peculiar form of Polyzoa closely allied to *Bugula* (*Kinetoskias*, Kor. & Dan.). (Quar. Jour. Micro. Sci. [n. s.], XXI, 1881, pp. 1-14, pls. i, ii.)
- Haswell, W. A.** On some Polyzoa from the Queensland coast. (Proc. Linn. Soc. New South Wales, V, 1881, pp. 33-40, pls. i-iii.)
- Hincks, T.** Contributions towards a general history of the marine Polyzoa. IV. Foreign *Membranipora* (second series). V. Foreign Cheilostomata (miscellaneous). (Ann. Mag. Nat. Hist. [5], VII, 1881, pp. 147-161, pls. viii-x.) VI. Polyzoa from Bass's Straits. (Ibid. [5], VIII, 1881, pp. 1-14, 122-129, pls. i-v.) VII. Foreign *Membraniporina* (third series). VIII. Foreign Cheilostomata (miscellaneous). (Ibid. [5], VIII, 1881, pp. 129-136, pls. iii, v.)
- On a collection of Polyzoa from Bass's Strait. (Proc. Lit. Phil. Soc. Liverpool, No. XXXV, 1881, pp. 249-270.)

- Jullien, J.** Liste des Bryozoaires recueillis à Étretat (Seine-Inférieure) par le Dr. P. Fischer. (Bull. Soc. Zool. France, VI, 1881, pp. 199-213.)
- Remarques sur quelques espèces de Bryozoaires Cheilostomiens. (Bull. Soc. Zool. France, VI, 1881, pp. 163-168.)
- Note sur une nouvelle division des Bryozoaires Cheilostomiens. (Bull. Soc. Zool. France, VI, 1881, pp. 271-285.)
- MacGillivray, P. H.** On two new genera of Polyzoa. (Trans. Proc. R. Soc. Victoria, XVII, 1881, pp. 15-18, 1 pl.)
- On some new species of Catenicella and Dictyopora; and on Urceolipora, a new genus of Polyzoa. (Trans. Proc. R. Soc. Victoria, XVII, 1881, pp. 84-87, 1 pl.)
- Polyzoa in McCoy's Prodr. Zool. Victoria, I, Decade VI, 1881, pp. 27-46, pls. 57-60.
- Pieper, F. W.** Eine neue Bryozoe der Adria: Gemellaria (?) avicularis. (Jahresb. d. Westfälischen Prov.-Ver. f. Wiss. u. Kunst, IX, Münster, 1881, pp. 43-48.)
- Ridley, S. O.** Account of the zoological collections made during the survey of H. M. S. *Alert* in the Straits of Magellan and on the coast of Patagonia: Polyzoa. (Proc. Zool. Soc. London, 1881, pp. 44-61, pl. vi.)
- Polyzoa, Coelenterata, and Sponges of Franz-Joseph Land. (Ann. Mag. Nat. Hist. [5], VII, 1881, pp. 442-457, pl. xxi.)

### 1882.

- Carter, H. J.** Remarkable forms of Cellepora and Palythoa from the Senegambian coast. (Ann. Mag. Nat. Hist. [5], IX, 1882, pp. 416-419, pl. xvi.)
- Goldstein, J. R. Y.** Some new species of Bryozoa from the Marion Islands, with notes on Bicellaria grandis. (Trans. Proc. R. Soc. Victoria, XVIII, 1882, pp. 39-46, pls. i, ii.)
- Haswell, W. A.** Note on the occurrence on the coast of New South Wales of the genus Mesenteripora Bl. (Polyzoa Cyclostomata). (Proc. Linn. Soc. New South Wales, VI, 1882, pp. 199-202.)
- Hincks, T.** On certain remarkable modifications of the avicularium in a species of Polyzoon, and on the relation of the vibraculum to the avicularium. (Ann. Mag. Nat. Hist. [5], IX, 1882, pp. 20-25.)
- Contributions towards a general history of the marine Polyzoa. IX and X. Foreign Cheilostomata (miscellaneous). (Ann. Mag. Nat. Hist. [5], IX, 1882, pp. 116-127, pl. v; *ibid.* [5], X, 1882, pp. 160-170, pls. vii, viii.)
- Polyzoa of the Queen Charlotte Islands: Preliminary notice of some new species. (Ann. Mag. Nat. Hist. [5], X, 1882, pp. 248-256.)

- Hincks, T.** Report on the Polyzoa of the Queen Charlotte Islands. (Ann. Mag. Nat. Hist. [5], X, 1882, pp. 459-471, pls. xix, xx; ibid. [5], XI, 1883, pp. 442-451, pls. xvii, xviii; ibid. [5], XIII, 1884, pp. 49-58, pls. iii, iv; pp. 203-215, pl. ix.) [Above papers reprinted and bound in pamphlet form by the Geol. Nat. Hist. Surv. Canada, Ottawa, 1884, 44 pp., plates numbered as above.]
- Jullien, J.** Dragages du Travailleur. Bryozoaires: Espèces draguées dans l'océan Atlantique en 1881. (Bull. Soc. Zool. France, VII, 1882, pp. 497-529, pls. xiii-xvii.)
- MacGillivray, P. H.** Descriptions of new or little known Polyzoa. Part I. (Trans. Proc. R. Soc. Victoria, XVIII, 1882, pp. 115-121, 1 pl.)
- Polyzoa in McCoy's Prodr. Zool. Victoria, I, Decade VII, 1882, pp. 23-21, pls. 66-68.
- Maplestone, C. M.** Observations on living Polyzoa. (Trans. Proc. R. Soc. Victoria, XVIII, 1882, pp. 48-51, 1 pl.)
- Milne-Edwards, A.** Mediterranean and Atlantic Bryozoa. (Arch. Miss. Sci. Litt. [3], IX, 1882.) (Jour. R. Micro. Soc. [2], III, 1883, p. 198.)
- Vigelius, W. J.** Beobachtungen an Barentsia bulbosa Hincks. (Zool. Anz., V, 1882, pp. 141-144.)
- Catalogue of the Polyzoa collected during the Dutch North-Polar cruises of the *Willem Barents* in the years 1878 and 1879. (Niederländisches Arch. f. Zool., Supplement-Band, I, 1882, 3. Lief., 20 pp., 1 pl.)
- Whiteaves, J. F.** On a recent species of Heteropora from the Strait of Juan de Fuca. (Amer. Jour. Sci. [3], XXIV, 1882, pp. 279-280.)

### 1883.

- Haswell, W. A.** Note on a curious instance of symbiosis. (Proc. Linn. Soc. New South Wales, VII, 1883, pp. 608-610.)
- Hincks, T.** Contributions towards a general history of the marine Polyzoa. XI. Foreign Cheilostomata (Australia and New Zealand). (Ann. Mag. Nat. Hist. [5], XI, 1883, pp. 193-202, pls. vi, vii.)
- MacGillivray, P. H.** Descriptions of new, or little known, Polyzoa. Part II. (Trans. Proc. R. Soc. Victoria, XIX, 1883, pp. 130-138, pls. i-iii.) Part III. (Ibid., pp. 191-195, pls. i, ii.) Part IV. (Ibid., pp. 287-293, pls. i, ii.)
- Polyzoa in McCoy's Prodr. Zool. Victoria, I, Decade VIII, 1883, pp. 29-31, pl. 78.)
- Quelch, J. J.** On the oecium of Spiralaria. (Ann. Mag. Nat. Hist. [5], XI, 1883, pp. 276-277.)

## 1884.

- Busk, G.** Report on the Polyzoa collected by H. M. S. *Challenger* during the years 1873-1876. Part I. The Cheilostomata. (Rep. Sci. Results Voy. *Challenger*, Zool., X, Part xxx, 1884, pp. i-xxiv, 1-216, pls. i-xxxvi.)
- Fewkes, J. W.** A new pelagic larva. (Amer. Natur., XVIII, 1884, pp. 305-309, figs. 1-3.)
- Hincks, T.** Contributions towards a general history of the marine Polyzoa. XII. Polyzoa from India (coast of Burmah). XIII. Polyzoa from Victoria and Western Australia. (Ann. Mag. Nat. Hist. [5], XIII, 1884, pp. 356-369, pls. xiii, xiv; *ibid.* [5], XIV, 1884, pp. 276-285, pls. viii, ix.)
- Lankester, E. R.** A contribution to the knowledge of Rhabdopleura. (Quar. Jour. Micro. Sci. [n. s.], XXIV, 1884, pp. 622-647, pls. xxxvii bis-xli.)
- MacGillivray, P. H.** Descriptions of new, or little known, Polyzoa. Part V. (Trans. Proc. R. Soc. Victoria, XX, 1884, pp. 103-113, pls. i-iii.) Part VI. (*Ibid.*, pp. 126-128, 1 pl.)
- Polyzoa in McCoy's Prodr. Zool. Victoria, I, Decade IX, 1884, pp. 29-34, pls. 89, 90.)
- Quelch, J. J.** On Schizoporella Ridleyi, MacG., and Schizoporella simplex, D'Orbigny and Johnston. (Ann. Mag. Nat. Hist. [5], XIII, 1884, pp. 215-217.)
- Vigelius, W. J.** Die Bryozoen gesammelt während der dritten und vierten Polarfahrt des "*Willem Barents*," in den Jahren 1880 u. 1881. (Bijd. tot de Dierk., Amsterdam, XI, 1884, 104 pp., 8 pls.)
- Bijdragen tot de kennis der Oosterschelde fauna. Bryozoen. (Tijds. Nederlandsche dierk. Ver., Supplement, D. I, 1884, pp. 546-549.)
- Waters, A. W.** Closure of the Cyclostomatous Bryozoa. (Jour. Linn. Soc. Zool., XVII, 1884, pp. 400-404, pl. xvii.)

## 1885.

- Bousfield, E. C.** The Victorella pavida of Saville Kent. (Ann. Mag. Nat. Hist. [5], XVI, 1885, pp. 401-407, pl. xii.)
- Harmer, S. F.** On the structure and development of Loxosoma. (Quar. Jour. Micro. Sci. [n. s.], XXV, 1885, pp. 261-337, pls. xix-xxi.)
- Hincks, T.** Contributions towards a general history of the marine Polyzoa. XIV. Polyzoa from New Zealand and Australia. XV. Cheilostomata (Miscellaneous). (Ann. Mag. Nat. Hist. [5], XV, 1885, pp. 244-257, pls. vii-ix.)
- MacGillivray, P. H.** Descriptions of new, or little known, Polyzoa. Part VII. (Trans. Proc. R. Soc. Victoria, XXI, 1885, pp. 92-99, pls. i-iii.) Part VIII. (*Ibid.*, pp. 106-119, pls. i-v.)

- MacGillivray, P. H.** Polyzoa in McCoy's Prodr. Zool. Victoria, I, Decade X, 1885, pp. 13-35, pls. 94-99; II, Decade XI, 1885, pp. 17-36, pls. 105-107.
- Muller, F. von.** A record of localities of some New South Wales Zoophytes, as determined by Dr. Kirchenpauer. (Proc. Linn. Soc. New South Wales, IX, 1885, pp. 534-536.)
- Ostroumoff, A.** Note sur la métamorphose du Cyphonautes. (Zool. Anz., VIII, 1885, p. 219.)
- Pennington, A. S.** British Zoophytes: An introduction to the Hydroida, Actinozoa and Polyzoa found in Great Britain, Ireland, and the Channel Islands. London, 1885, 363 pp., 24 pls. [Bryozoa, pp. 201-335, pls. xvi-xxiv.]
- Vine, G. R.** Report of the committee appointed for the purpose of reporting on recent Polyzoa. (Brit. Assoc. Rep., LV, 1885, pp. 481-680.)
- Waters, A. W.** On the use of the avicularian mandible in the determination of Chilostomatous Bryozoa. (Jour. R. Micro. Soc. [2], V, 1885, pp. 774-779. pl. xiv.)

## 1886.

- Busk, G.** Report on the Polyzoa collected by H. M. S. *Challenger*, during the years 1873-1876. Part II. The Cyclostomata, Ctenostomata, and Pedicellinea. (Rep. Sci. Results Voy. *Challenger*, Zool., XVII, Part L, 1886, pp. i-viii, 1-47, pls. i-x.)
- Foettinger, A.** Sur l'anatomie des Pédicellines de la côte d'Ostende. (Arch. Biol., VII, 1886, pp. 299-329, pl. x.)
- Hincks, T.** The Polyzoa of the Adriatic: A supplement to Prof. Heller's "Die Bryozoen des Adriatischen Meeres," 1867. (Ann. Mag. Nat. Hist. [5], XVII, 1886, pp. 254-271, pls. ix, x; *ibid.* [5], XIX, 1887, pp. 302-316, pl. ix.)
- Jullien, J.** Les Costulidées, nouvelle famille de Bryozoaires. (Bull. Soc. Zool. France, XI, 1886, pp. 601-620, pls. xvii-xx.)
- Levinson, G. M. R.** Bryozoer fra Kara-Havet. (Dijmphna-Togtøets zool.-bot. Udbytte, Kjöbenhavn, 1886, pp. 305-328, pls. xxvi, xxvii.)
- Lomas, J.** Report on the Polyzoa of the L. M. B. C. District. (The first report upon the fauna of Liverpool Bay and the neighboring seas, London, 1886, pp. 161-200.) (Proc. Lit. Phil. Soc. Liverpool, XL, 1886. Appendix, pp. 161-200, pl. iii.)
- Lorenz, L. von.** Bryozoen von Jan Mayen. (Die Internationale Polarforschung 1882-1883. Die Oesterreichische Polarstation Jan Mayen, Band III, 1886, 18 pp., pl. vii.)
- MacGillivray, P. H.** Descriptions of new, or little known, Polyzoa. Part IX. (Trans. Proc. R. Soc. Victoria, XXII, 1886, pp. 139, pls. i-iii.)

**MacGillivray, P. H.** Polyzoa in McCoy's Prodr. Zool. Victoria, II, Decade XII, 1886, pp. 63-73, pls. 116-118; II, Decade XIII, 1886, pp. 99-111, pls. 126-128.

**Nichols, A. R.** Polyzoa, in "First Report on the marine fauna of the southwest of Ireland." (Proc. R. Irish Acad. [2], IV, 1886, p. 22.)

**Ostroumoff, A.** Contributions à l'étude zoologique et morphologique des Bryozoaires du golfe de Sébastopol. (Arch. Slaves Biol., I, 1886, pp. 557-569; II, 1886, pp. 8-25, 184-190, 329-355, 5 pls.)

—— Die Bryozoen der Bucht von Sebastopol. [Russian.] (Mém. Soc. Hist. Nat. Kasan, XVI, 1886, 124 pp., 5 pls.)

### 1887.

**Harmer, S. F.** On the life-history of Pedicellina. (Quar. Jour. Micro. Sci. [n. s.], XXVII, 1887, pp. 239-263, pls. xxi, xxii.)

**Hincks, T.** On the Polyzoa and Hydroids of the Mergui archipelago. (Jour. Linn. Soc. Zool., XXI, 1887, pp. 121-135, pl. xii.)

—— Critical notes on the Polyzoa. (Ann. Mag. Nat. Hist. [5], XIX, 1887, pp. 150-164.)

**Lomas, J.** On Ascopodaria nodosa (nov. sp.). (Proc. Liverpool Lit. Phil. Soc., XLI, 1887, pp. xlv, xlvii.)

—— Notes on the structure of Alcyonidium gelatinosum. (Proc. Biol. Soc. Liverpool, I, 1887, pp. 29-33, pl. iii.)

—— On the occurrence of internal calcareous spicules in Polyzoa. (Proc. Liverpool Geol. Soc., V, 1887, pp. 241-243.)

**MacGillivray, P. H.** Descriptions of new or little known Polyzoa. Part X. (Trans. Proc. R. Soc. Victoria, XXIII, 1887, pp. 34-38, pls. i, ii.) Part XI. (Ibid., pp. 64-72, pls. i-iii.) Part XII. (Ibid., pp. 179-186, pls. i, ii.)

—— A catalogue of the marine Polyzoa of Victoria. (Trans. Proc. R. Soc. Victoria, XXIII, 1887, pp. 187-224.)

—— Polyzoa in McCoy's Prodr. Zool. Victoria, II, Decade XIV, 1887, pp. 137-150, pls. 136-138; II, Decade XV, 1887, pp. 173-188, pls. 146-148.

**Pergens, E.** Contributions à l'histoire des Bryozoaires et des Hydrozoaires récents. (Bull. Soc. R. Malac. Belgique, XXII, 1887, pp. lxxxv-xc.)

**Stuxberg, A.** Faunan på och kring Novaja Semlja. (Vega-Expéditionens Vetenskapliga Iakttagelser, V, 1887, pp. 1-239, pl. i.) [Bryozoa, pp. 100-117.]

**Waters, A. W.** Bryozoa from New South Wales, North Australia, etc. (Ann. Mag. Nat. Hist. [5], XX, 1887, pp. 81-95, pl. iv; pp. 181-203, pls. v, vi; pp. 253-265, pl. vii.)

**egge, T.** Notes on some Australian Polyzoa. (Proc. Linn. Soc. South Wales [2], II, 1887, pp. 337-347.) (Ann. Mag. Nat. [6], I, 1888, pp. 13-22.)

## 1888.

- Agassiz, A.** Characteristic deep-sea types. Bryozoa. (Three cruises of the U. S. Coast and Geodetic Survey Steamer *Blake*, Vol. II.—Bull. Mus. Comp. Zool. Harvard Coll., XV, 1888, pp. 78-83, figs. 323-337.)
- Ehlers, E.** *Delagia chaetopteri* (J. Laff.), synonyme de *Hypophorella expansa* (Ehl.). (Arch. Zool. exp. [2], VI, 1888, N. et R., p. xlv.)
- Freese, W.** Anatomisch-histologische Untersuchung von *Membranipora pilosa* L., nebst einer Beschreibung der in der Ostsee gefundenen Bryozoen. (Arch. f. Naturg., LIV, Band I, 1888, pp. 1-42, pls. i, ii.)
- Hincks, T.** The Polyzoa of the St. Lawrence: A study of Arctic forms. (Ann. Mag. Nat. Hist. [6], I, 1888, pp. 214-227, pls. xiv, xv; *ibid.* [6], III, 1889, pp. 424-433, pl. xxi; *ibid.* [6], IX, 1892, pp. 149-157, pl. viii.)
- Hoyle, W. E.** On the deep-water fauna of the Clyde sea area. Polyzoa. (Jour. Linn. Soc. Zool., XX, 1888, pp. 442-472, pl. xxix.) [Bryozoa, pp. 452-455.]
- Joyeux-Laffuie, J.** Sur le *Delagia chaetopteri*, type d'un nouveau genre de Bryozoaires. (Compt. Rend. Acad. Sci. Paris, CVI, 1888, pp. 629-632.) (Arch. Zool. exp. [2], VI, 1888, pp. 135-154, pl. viii.)
- Jullien, J.** Sur la sortie et la rentrée du Polypide dans les zoecies chez les Bryozoaires cheilostomiens monodermiés. (Bull. Soc. Zool. France, XIII, 1888, pp. 67-68.)
- Observations anatomiques sur les Caténicelles. (Mém. Soc. Zool. France, I, 1888, pp. 274-280, pl. xi.)
- Mission scientifique du cap Horn, 1882-3. VI. Zoologie, 1888. Bryozoaires, pp. I, 1-I, 92, pls. i-xv.
- Kirkpatrick, R.** Polyzoa of Mauritius. (Ann. Mag. Nat. Hist. [6], I, 1888, pp. 72-85, pls. vii-x.)
- Polyzoa from Port Phillip. (Ann. Mag. Nat. Hist. [6], II, 1888, pp. 12-21, pl. ii.)
- Description of a new species of *Retepora* from Port Western, Victoria. (Ann. Mag. Nat. Hist. [6], II, 1888, p. 269.)
- Notes on the Zoology of Fernando Noronho [H. N. Ridley]. Polyzoa. (Jour. Linn. Soc. Zool., XX, 1888, pp. 504-506.)
- Lomas, J.** Report on the Polyzoa of Puffin Island. (Proc. Biol. Soc. Liverpool, II, 1888, pp. 74-77.)
- MacGillivray, P. H.** Polyzoa in McCoy's Prodr. Zool. Victoria, II, Decade XVI, 1888, pp. 209-220, pls. 156-158; Decade XVII, 1888, pp. 241-251, pls. 165-168.)
- Pergens, E.** Deux nouveaux types de Bryozoaires cténostomes. (Ann. Soc. R. Malac. Belgique, Mém., XXIII, 1888, pp. 340-343, pl. xxiv.) [Mediterranean.]

- Waters, A. W.** On some ovicells of Cyclostomatous Bryozoa. (Jour. Linn. Soc. Zool., XX, 1888, pp. 275-280, pl. xiv.)
- On the ovicells of some Lichenopora. (Jour. Linn. Soc. Zool., XX, 1888, pp. 280-285, pl. xv.)
- Whitlegge, T.** Notes on some Australian Polyzoa. (Ann. Mag. Nat. Hist. [6], I, 1888, pp. 13-22.)
- Note on a species of Polyzoa (*Porina inversa*, Waters) from Port Jackson. (Proc. Linn. Soc. New South Wales [2], II, 1888, p. 680.)

## 1889.

- Carus, J. V.** Brachiostomata. Bryozoa. (Prodrome Faunæ Mediterraneæ, II, 1889, Part 1, pp. 1-54.)
- Dendy, A.** On the anatomy of an arenaceous Polyzoon. (Proc. R. Soc. Victoria [n. s.], I, 1889, pp. 1-11, pls. i-iii.)
- Fewkes, J. W.** New invertebrata from the coast of California. (Bull. Essex Inst., XXI, 1889, pp. 99-146, pls. i-vii.) [Bryozoa [*Ascorhiza*], pp. 135-139.]
- A preliminary notice of a stalked Bryozoon. (*Ascorhiza occidentalis*.) (Ann. Mag. Nat. Hist. [6], III, 1889, pp. 1-6, pl. 1.)
- Hallez, P.** Draguages effectués dans le Pas-de-Calais pendant les mois d'août et Sept. 1888. (Rev. Biol du Nord, Lille, I, 1889, pp. 102-108; *ibid.*, II, 1890, pp. 32-40; *ibid.*, III, 1891, pp. 90-96.)
- Jelly, E. C.** A synonymic catalogue of the recent marine Bryozoa; including fossil synonyms. London, 1889, xv+322 pp.
- Lomas, J.** Second Report on the Polyzoa of the L. M. B. C. District. (Proc. Liverpool Biol. Soc., III, 1889, pp. 214-224, figs. 1-3.)
- MacGillivray, P. H.** On some South Australian Polyzoa. (Trans. Proc. R. Soc. South Australia, XII, 1889, pp. 24-30, pl. ii.)
- Polyzoa in McCoy's Prodr. Zool. Victoria, II, Decade XVIII, 1889, pp. 271-291, pls. 175-178; II, Decade XIX, 1889, pp. 307-323, pls. 185-187.
- Pergens, E.** Notes succinctes sur les Bryozoaires. II. Bryozoaires dragués par M. G. Dollfus dans le nord-ouest de la Méditerranée. III. Bryozoaires dragués par M. Lennier aux environs de Cherbourg (Brest in error). (Bull. Soc. R. Malac. Belgique, XXIV, 1889, Proc.-verb., pp. 57-62.)
- Shaler, N. S.** Geology of the Island of Nantucket. (Bull. U. S. Geol. Surv., No. 53. Bryozoa, pp. 36-37.)
- Waters, A. W.** Supplementary report on the Polyzoa collected by H. M. S. *Challenger* during the years 1873-1876. (Rep. Sci. Results Voy. *Challenger*, Zoology, XXXI, part lxxix, London, 1889, pp. 1-41, pls. i-iii.)
- Bryozoa from New South Wales. (Ann. Mag. Nat. Hist. [6], IV, 1889, pp. 1-24, pls. i-iii.)



## 1890.

**Chworostansky, K. J.** [Liste der Bryozoen von den Küsten der Solowetzki'schen Inseln.] [Russian.] (Prot. Soc. Zool. Phys. Natur. St.-Pétersbourg, XX, 1890, pp. 15-23.)

—— [Bryozoa of the Murman coast.] [Russian.] (Trav. Soc. Natur. St.-Pétersbourg, XXI, 1890, pp. 7-16.)

**Ehlers, E.** Zur Kenntniss der Pedicellineen. (Abh. d. k. Ges. d. Wiss. zu Göttingen, XXXVI, 1890, pp. 1-200, pls. i-v.)

**Hincks, T.** Critical notes on the Polyzoa: Classification. (Ann. Mag. Nat. Hist. [6], V, 1890, pp. 83-103.)

**Jullien, J.** Description d'un Bryozoaire nouveau du genre Rhabdopleura [Rh. Grimaldii sp. n.]. (Bull. Soc. Zool. France, XV, 1890, pp. 180-183.)

**Kirkpatrick, R.** Report upon the Hydrozoa and Polyzoa collected by P. W. Bassett-Smith, Esq., surgeon R. N., during the survey of the Tizard and Macclesfield Banks, in the China Sea, by H. M. S. *Rambler*, Commander W. U. Moore. (Ann. Mag. Nat. Hist. [6], V, 1890, pp. 11-24, pls. iii-v.)

—— Reports on the Zoological collections made in Torres Straits, by Prof. A. C. Haddon, 1888, 1889. Hydroida and Polyzoa: (Scient. Proc. R. Dublin Soc. [n. s.], VI, 1888-1890, pp. 603-626, pls. xiv-xvii.)

**MacGillivray, P. H.** Descriptions of new or little known Polyzoa. Part XIII. (Proc. R. Soc. Victoria [n. s.], II, 1890, pp. 106-110, pls. iv, v.)

—— An additional list of South Australian Polyzoa. (Trans. R. Soc. South Australia, XIII, 1890, pp. 1-7, pl. i.)

—— Polyzoa in McCoy's Prodr. Zool. Victoria, II, Decade XX, 1890, pp. 345-357, pls. 195-196.

**Namias, J.** Sul valore sistematico di alcune specie di Briozoi. (Atti Soc. Natural. Modena [3], IX, 1890, pp. 69-76.)

**Ortmann, A. E.** Die Japanische Bryozoen-Fauna. (Arch. f. Naturg., L, Band I, 1890, pp. 1-74, pls. i-iv.)

**Pantaneli, D.** Cupularia umbellata e Cupularia intermedia. (Atti Soc. Toscana Sci. Nat. Pisa, Proc. verb., VII, 1890, pp. 25-28.)

## 1891.

**Harmer, S. F.** On the British species of Crisia. (Quar. Jour. Micro. Sci. [n. s.], XXXII, 1891, pp. 127-181, pl. xii.)

**Hincks, T.** Contributions towards a general history of the marine Polyzoa. XV. South-African and other Polyzoa. (Ann. Mag. Nat. Hist. [6], VII, 1891, pp. 285-298, pls. vi, vii.)

—— Contributions towards a general history of the marine Polyzoa. Appendix [critical notes and corrections]. (Ann. Mag. Nat. Hist. [6], VIII, 1891, pp. 86-93, 169-176, 471-480.)

- Hutton, F. W.** Revised list of the marine Bryozoa of New Zealand. (Trans. Proc. New Zealand Inst., XXIII, 1891, pp. 102-107.)
- Levinson, G. M. R.** Polyzoa. Det videnskabelige Udbytte af Kanonbaaden "Hauchs" Togter 1883-1886, Kjöbenhavn, 1891, pp. 243-306, 3 pls.
- MacGillivray, P. H.** Descriptions of new or little known Polyzoa. Part XIV. (Proc. R. Soc. Victoria [n. s.], III, 1891, pp. 77-83, pls. ix, x.)
- Prouho, H.** Sur l'appareil perforant de l'Hypophorella expansa. (Bryozoaire cténostome.) (Assoc. Franç. l'Avancem. Sci., Compt. Rend. 20<sup>me</sup> sess., Part I, pp. 247-248.)

## 1892.

- Fowler, G. H.** Structure of Rhabdopleura. (Proc. R. Soc. London, LII, 1892, pp. 132-134.)
- Hallez, P.** Addition à la liste des Bryozoaires du Boulonnais, Lille. (Rev. Biol. du Nord, IV, 1892, pp. 119-120.)
- Hincks, T.** Contributions towards a general history of the marine Polyzoa. Appendix (continued) [critical notes and corrections]. (Ann. Mag. Nat. Hist. [6], IX, 1892, pp. 327-334.)
- Namias, J.** Su alcune forme Briozoarie del Mar Rosso. (Atti Soc. Natural. Modena [3], XI, 1892, pp. 74-77.)
- Prouho, H.** Contribution à l'histoire des Bryozoaires. (Arch. Zool. exp., X, 1892, pp. 557-656, 8 pls.) (See also Nachr. k. Ges. d. Wiss. zu Göttingen, 1893, pp. 483-490.)
- Waters, A. W.** Observations on the gland-like bodies in the Bryozoa. (Jour. Linn. Soc. Zool., XXIV, 1892, pp. 272-278, pl. xix.)

## 1893.

- Duerden, J. E.** New and rare Irish Polyzoa. (Proc. R. Irish Acad. [3], III, 1893, pp. 121-136, pl. v.)
- Gabbett, H. S.** On the marine Polyzoa of Eastbourne. (Trans. Eastbourne Nat. Hist. Soc., II, 1893, pp. 342-349.)
- Hallez, P.** Deuxième supplément à la liste des Bryozoaires du Boulonnais. (Rev. Biol. du Nord, V, 1893, pp. 123-124.)
- Hincks, T.** Contributions towards a general history of the marine Polyzoa. Appendix (concluded) [critical notes and corrections]. (Ann. Mag. Nat. Hist. [6], XI, 1893, pp. 175-182; *ibid.* [6], XII, 1893, pp. 140-147.)
- Nordgaard, O.** Enkelte traek af Beitstadfjordens evertebrat-fauna. (Bergens Museum Aarbog for 1892, Bergen, 1893, No. 2, pp. 1-11.) [Bryozoa, pp. 7, 8.]
- Norman, A. M.** A month on the Trondhjem Fjord. (Ann. Mag. Nat. Hist. [6], XII, 1893, pp. 446-452, pl. xix; *ibid.* [6], XIII, 1894, pp. 112-133, pls. vi, vii.)

- Swanson, W., and Duerden, J. E.** Some North of Ireland Polyzoa. (Irish Natural., II, 1893, pp. 165-168.)

## 1894.

- Duerden, J. E.** Hydroids and Polyzoa, collected between Laytown and the mouth of the Boyne. (Irish Natural., III, 1894, pp. 169-170.)
- Levinson, G. M. R.** Mosdyr. Zoologica Danica. (Danske Dyr.) (Hefte 9, Kjöbenhavn, 1894, pp. 1-105, pls. i-ix.)
- Namias, J.** Su alcune forme Bryozoarie del Mar Rosso. (Atti Soc. Natural. Modena [3], XIII, 1894, pp. 93-96.)
- Ortmann, A. E.** Beiträge zur Fauna der südöstlichen und östlichen Nordsee. III. Bryozoen. (Biologischen Anstalt auf Helgoland. Neue Folge, I. Band, 1894, pp. 347-362.)
- Waters, A. W.** On Mediterranean and New Zealand Reteporæ and a Fenestrate Bryozoa. (Jour. Linn. Soc. Zool., XXV, 1894, pp. 255-271, pls. vi, vii.)

## 1895.

- MacGillivray, P. H.** On the Australian species of Amathia. (Proc. R. Soc. Victoria [n. s.], VII, 1895, pp. 131-140, pls. A-D.)
- Pergens, E.** Note sur l'identification et la séparation des espèces dans le Groupe des Bryozoaires. (Bull. Soc. Belge, Géol., IX, 1895, Proc.-verb., pp. 8-11.)
- Schultz, E.** Loxosoma harmeri, n. sp. [Russian.] (Trav. Soc. Natur. St.-Pétersbourg, XXV, 1895, Part II, pp. 49-58, 1 pl.)

## 1896.

- Calvet, L.** Bryozoaires dans le Golfe de Gascogne. (Résult. scient, campagne du Caudan, 1896, pp. 251-271, 1 pl.) (Ann. l'Univ. Lyon, XXVI, 1896, pp. 251-269, pl. vii.)
- Harmer, S. F.** On the development of Lichenopora verrucaria, Fabr. (Proc. R. Soc. London, LIX, 1896, pp. 73-74.) (Quar. Jour. Micro. Sci. [n. s.], XXXIX, 1896, pp. 71-144, pls. vii-x.)
- Hennig, A.** Bryozoer från Westgrönland, samlade af Dr. Ohlin under "the Peary Auxiliary Expedition" år 1894. (Öfv. k. Vetens.-Akad. Förh., LIII, 1896, pp. 351-365.)
- Maitland, R. T.** Zonderling dierlijk product Zoarium in de binnenwateren van Zeeland; Eschara lapidescens van Baster. Tijds. Nederlandsche Dierk. Ver., V., 1896, pp. 10-14.)
- Nordgaard, O.** Systematisk fortegnelse over de i Norge hidtil observerede arter af marine Polyzoa. I, Cheilostomata. (Bergens Mus. Aarbog, 1894-95, 1896, No. 2, pp. 1-34, pls. i, ii.)
- Systematisk fortegnelse over de i Norge hidtil observerede arter af marine Polyzoa. II, Cyclostomata. (Bergens Mus. Aarbog, 1896, No. 2, pp. 1-6.)

- Waters, A. W.** Interzoecial communication in Flustridæ, and notes on Flustra. (Jour. R. Micro. Soc., 1896, pp. 279-292, pls. vii, viii.)  
 — Notes on the Bryozoa from Rapallo and other Mediterranean localities, chiefly Cellulariidae. (Jour. Linn. Soc. Zool., XXVI, 1896, pp. 1-21, pls. i, ii.)

## 1897.

- Bidenkap, O.** Bryozoen von Ost-Spitzbergen. Zoologische Ergebnisse der im Jahre 1889 auf Kosten der Bremergeographischen Gesellschaft von Dr. Willy Kükenthal und Dr. Alf. Walter ausgeführten expedition nach Ost-Spitzbergen. (Zool. Jahresb., X, 1897, pp. 609-639, pl. xxv.)  
**Brumpt, E.** Quelques faits relatifs à l'histoire du Phascolion strombi (Montagu). (Arch. Zool. exp. [3], V, 1897, pp. 483-496, 4 figs.)  
**Harmer, S. F.** Notes on Cyclostomatous Polyzoa. (Proc. Cambridge Phil. Soc., IX, 1897, pp. 208-214.)  
 — Note on new or rare British marine Polyzoa. (Jour. Marine Biol. Assoc. [n. s.], V, 1897, pp. 51-53.)  
**Johnson, J. Y.** New Cyclostomatous Bryozoa found at Madeira. (Ann. Mag. Nat. Hist. [6], XX, 1897, pp. 60-65.)  
**Meissner, M.** Die zoologische Sammlung des Königlichen Museums für Naturkunde zu Berlin. Die Bryozoen-Schausammlung. (Naturw. Wochenschrift, XII, 1897, pp. 389-391.)  
**Petty, S. L.** Polyzoa and Hydrozoa at Filey. (Naturalist, 1897, pp. 275-276.)  
**Thornely, L. R.** On the Polyzoa [of Rockall Island]. (Trans. R. Irish Acad., XXXI, 1897, pp. 79-80.)

## 1898.

- Hamilton, A.** A list of recent and fossil Bryozoa collected in various parts of New Zealand. (Trans. Proc. New Zealand Inst., XXX, pp. 192-199.)  
**Harmer, S. F.** On the development of Tubulipora, and on some British and Northern species of this genus. (Quar. Jour. Micro. Sci. [n. s.], XLI, 1898, pp. 73-157, pls. viii-x.)  
**Hilgendorf, F. W.** On the occurrence of Pedicellina in New Zealand. (Trans. Proc. New Zealand Inst., XXX, 1898, p. 218, pl. xxii.)  
**Neviani, A.** Appunti sui Briozoi del Mediterraneo. Nota Prima. (Boll. Soc. Rom. Stud. Zool, VII, 1898, pp. 163-168, 6 figs.)  
**Waters, A. W.** Observations on Membraniporidae. (Jour. Linn. Soc. Zool., XXVI, 1898, pp. 654-693, pls. xlvii-xlix.)

## 1899.

- Waters, A. W.** Bryozoa from Madeira. (Jour. R. Micro. Soc., 1899, pp. 6-16, pl. iii.)

## 1900.

- Harmer, S. F.** A revision of the genus *Steganoporella*. (Quar. Jour. Micro. Sci. [n. s.], XLIII, 1900, pp. 225-297, pls. xii, xiii.)
- Nordgaard, O.** Polyzoa. Den Norske Nordhavs-Expedition—The Norwegian North-Atlantic Expedition—1876-1878, XXVII, Christiania, 1900. 33 pp., 1 pl. and 1 map.

## CEPHALODISCUS.

The systematic position of this form is in doubt. Many writers place it with the Bryozoa.

## 1882.

- M'Intosh, W. C.** Preliminary note on *Cephalodiscus*, a new form allied to Prof. Allman's *Rhabdopleura*—dredged in H. M. S. *Challenger*. (Brit. Assoc. Rep., LII, 1882, pp. 596-597.)
- Preliminary notice of *Cephalodiscus*, a new type allied to Prof. Allman's *Rhabdopleura*, dredged in H. M. S. *Challenger*. (Ann. Mag. Nat. Hist. [5], X, 1882, pp. 337-348.)

## 1887.

- M'Intosh, W. C.** Report on *Cephalodiscus dodecalophus*, M'Intosh, a new type of the Polyzoa, procured on the voyage of H. M. S. *Challenger* during the years 1873-76. (Rep. Sci. Results Voy. *Challenger*, Zool., XX, 1887, Part lxii, pp. 1-37, pls. i-vii.) Appendix by S. F. Harmer, pp. 39-47.

## 1891.

- Lang, Arnold.** Zum Verständniss der Organisation von *Cephalodiscus dodecalophus* M'Int. (Jenaische Zeitschrift für Naturwissenschaft, XXV (n. s. XVIII), 1891, pp. 1-12.)

## 1897.

- Harmer, S. F.** On the Notochord of *Cephalodiscus*. (Zool. Anz., XX, 1897, pp. 342-346.)
- Masterman, A. T.** On the "Notochord" of *Cephalodiscus*. (Zool. Anz., XX, 1897, pp. 443-450.)

## 1899.

- Cole, F. J.** On the discovery and development of Rhabdite—"cells" in *Cephalodiscus dodecalophus*, M'Intosh. (Jour. Linn. Soc. Zool., XXVII, 1899, pp. 256-268, 1 pl.)
- Masterman, A. T.** On the "notochord" of *Cephalodiscus*. (Zool. Anz., XXII, 1899, pp. 359-363.)

## PHORONIS.

As a genealogical relationship is supposed by some writers to exist between the Bryozoa and Phoronis, we give citations to the literature on Phoronis.

## 1881.

**M'Intosh, W. C.** Note on a Phoronis dredged in H. M. S. *Challenger*. (Proc. R. Soc. Edinburgh, XI, 1881, pp. 211-217.)

## 1883.

**Caldwell, W. H.** Preliminary note on the structure, development, and affinities of Phoronis. (Proc. R. Soc. London, XXXIV, 1882 [1883], pp. 371-383.)

## 1888.

**M'Intosh, W. C.** Report on Phoronis Buskii n. sp., dredged during the voyage of H. M. S. *Challenger*, 1873-1876. (Rep. Sci. Results Voy. *Challenger*, Zool., XXVII, 1888, part lxxv, pp. 1-27, pls. i-iii.) [Literature on subject given in this paper.]

## 1889.

**Benham, W. B.** The anatomy of Phoronis Australis. (Quar. Jour. Micro. Sci., XXX, 1889, pp. 125-158, pls. x-xiii.)

## 1898.

**Roule, Louis.** Sur la place des Phoronidiens dans la classification des animaux et sur leurs relations avec les vertébrés. (Compt. Rend. Acad. Sci. Paris, CXXVII, 1898, pp. 633-636.)

## 1899.

**Heider, K.** Phoronidea. In Korschelt and Heider's Textbook of the Embryology of Invertebrates. English trans., London, 1899, Vol. II, pp. 1-11. [Literature on Phoronidea, pp. 10-11.]

## F. TERTIARY AND QUATERNARY.

## 1811.

**Desmarest, A. G.** Mémoire sur un Zoophyte fossile. (Nouv. Bull. Soc. Philom. Paris, II, 1811, pp. 272-275.) [Eocene.

## 1814.

**Desmarest, A. G.** Mémoire sur quelques Flustres et Cellépores fossiles. (Nouv. Bull. Soc. Philom. Paris, 1814, pp. 52-55, pl. ii.) [Eocene.

## 1824.

**Defrance, J. L. M.** Tableau des corps organisés fossiles. Paris, 1824. [Bryozoa, pp. 99–102.]

## 1836.

**Milne-Edwards, H.** Observations sur les polypiers fossiles du genre Eschare. (Ann. Sci. Nat. Zool. [2], VI, 1836, pp. 321–345, pls. ix–xi.) (Compt. Rend. Acad. Sci. Paris, III, 1836, pp. 612–614.) (Edinburgh New Phil. Jour., XXII, 1837, pp. 171–175.)

## 1838.

**Milne-Edwards, H.** Mémoire sur les Crisies, les Hornères et plusieurs autres Polypes vivants ou fossiles dont l'organisation est analogue à celle des Tubulipores. (Ann. Sci. Nat. Zool. [2], IX, 1838, pp. 193–238, pls. vi–xvi.) (Compt. Rend. Acad. Sci. Paris, VI, 1838, pp. 572–574.) (Leonhard u. Bronn's Neues Jahrbuch, 1839, pp. 362–369.)

## 1844.

**Wood, S. V.** Descriptive catalogue of the Zoophytes from the Crag. (Ann. Mag. Nat. Hist., XIII, 1844, pp. 10–21.) [Pliocene.]

## 1845.

**Lonsdale, W.** Report on the Corals from the Tertiary formations of North America. (Quar. Jour. Geol. Soc. London, I, 1845, pp. 495–509.) [Bryozoa, pp. 500–509.] [Miocene.]  
 — Account of twenty-six species of Polyparia obtained from the Eocene Tertiary formations of North America. (Quar. Jour. Geol. Soc. London, I, 1845, pp. 509–533.) [Bryozoa, pp. 522–533.] [Eocene.]

## 1847.

**Reuss, A. E.** Die fossilen Polyparien des Wiener Tertiärbeckens. (Haidinger's Naturwissenschaftliche Abhandlungen, II, Wien, 1847, pp. 1–109, pls. i–xi.)

## 1849.

**Orbigny, A. d'.** Prodrome de Paléontologie stratigraphique. 3 vols., Paris, 1849–1852. [Tertiary in vols. 2 and 3.]  
 Bull. 173—40

## 1850.

- Lonsdale, W.** Polyzoa. In Dixon's Geology and Fossils of the Tertiary and Cretaceous formations of Sussex. London, 1850. [Bryozoa, pp. 159-161, 268-322.] Edition 2 (revised by T. R. Jones), The Geology of Sussex, Brighton, 1878. [Bryozoa, pp. 200-206, 315-360.]

## 1851.

- Reuss, A. E.** Ein Beitrag zur Paläontologie der Tertiärschichten Oberschlesiens. (Zeitschr. d. deutsch. geol. Ges., III, 1851, pp. 149-184, pls. viii, ix.) [Bryozoa, pp. 163-176, pls. viii, ix.]

## 1853.

- Reuss, A. E.** Ueber einige Foraminiferen, Bryozoen und Entomostrazeen des Mainzer Beckens. (Leonhard u. Bronn's Neues Jahrb., 1853, pp. 670-679, pl. ix.) [Bryozoa, pp. 677-678, pl. ix.]

## 1855.

- Reuss, A. E.** Beiträge zur Charakteristik der Tertiärschichten des nördlichen und mittlern Deutschlands. (Sitz. d. k. Akad. d. Wiss., Wien, XVIII, 1855, pp. 197-273, pls. i-xii.) [Bryozoa, pp. 258-265, pls. x-xii.]

## 1859.

- Busk, G.** A monograph of the fossil Polyzoa of the Crag. (Palæont. Soc. Publ., London, 1859, xiv+136 pp., 22 pls.) [Pliocene.]

## 1860.

- Busk, G.** Note on the fossil Polyzoa collected by the Rev. J. E. Woods near Mount Gambier, South Australia. (Quar. Jour. Geol. Soc. London, XVI, 1860, pp. 260-261.)
- Gabb, W. M., and Horn, G. H.** Descriptions of new species of American Tertiary and Cretaceous Fossils. (Jour. Acad. Nat. Sci., Philadelphia [2], IV, 1860, pp. 375-404. [Bryozoa, pp. 400-404, pl. lxix.]
- Reuss, A. E.** Die marinen Tertiärschichten Böhmens und ihre Versteinerungen. (Sitz. d. k. Akad. d. Wiss. Wien, XXXIX, 1860, pp. 207-285, pls. i-viii.) [Bryozoa, pp. 226-227.]

## 1862.

- Gabb, W. M., and Horn, G. H.** Monograph of the fossil Polyzoa of the Secondary and Tertiary formations of North America. (Jour. Acad. Nat. Sci. Philadelphia [2], V, 1862, pp. 111-178, pls. xix-xxi.)



**Stoliczka, F.** Ueber heteromorphe Zellenbildungen bei Bryozoen, *Cœlophylla*, Reuss. (Verh. d. k. k. zool.-bot. Ges. Wien, XII, 1862, pp. 101–104.)

—— Oligocäne Bryozoen von Latdorf in Bernburg. (Sitz. d. k. Akad. d. Wiss. Wien, XLV, Abth. I, 1862, pp. 71–94, pls. i–iii.)  
[Oligocene.]

## 1863.

**Roemer, F. A.** Beschreibung der norddeutschen tertiären Polyparien. (Palæontog., IX, 1863, pp. 199–246, pls. xxxv–xxxix.) [Bryozoa, pp. 203–230, pls. xxxv–xxxvii.]

**Schafhäutl, —.** Süd-Bayerns *Lethæa geognostica*. Der Kressenberg und die südlich von ihm gelegenen Hochalpen, geognostisch betrachtet in ihren Petrefacten, mit 46 Holzschnitten nebst einem Atlas von zwei Karten und 98 Tafeln. Leipzig, 1863, fol.

## 1864.

**Ruess, A. E.** Die fossilen Foraminiferen, Anthozoen und Bryozoen von Oberburg in Steiermark. Ein Beitrag zur Fauna der oberen Nummilitenschichten. (Denkschr. d. k. Akad. d. Wiss. Wien, XXIII, I. Abth., 1864, pp. 1–38, pls. i–x.) [Bryozoa, pp. 29–35, pl. x.] (Sitz. ibid., XLVIII, I. Abth., 1863, pp. 118–122.)  
[Eocene.]

—— Ueber Anthozoen und Bryozoen des Mainzer Tertiärbeckens. (Sitz. d. k. Akad. d. Wiss. Wien, L, 1864, I. Abth., pp. 197–210, pls. i–iii.) [Bryozoa, pp. 205–209, pls. ii, iii.]

—— Zur Fauna des deutschen Oberoligocäns. II. Abtheilung. (Sitz. d. k. Akad. d. Wiss. Wien, L, 1864, I. Abth., pp. 614–691.) [Bryozoa, pp. 623–687.] [Oligocene.]

**Speyer, O.** Die Tertiärfauna von Söllingen bei Jerxheim im Herzogthum Braunschweig. (Palæontog., IX, 1864, pp. 247–337, pls. xl–xliii.) [Bryozoa, pp. 322–325.]

**Stoliczka, F.** Kritische Bemerkungen zu Herrn Fr. A. Römer's Beschreibung der nörddeutschen tertiären Polyparien. (Leonhard u. Bronn's Neues Jahrb., 1864, pp. 340–347.)

—— Fossile Bryozoen aus dem tertiären Grünsandsteine der Orakei-Bay bei Auckland mit Betrachtungen über neue oder weniger bekannte Bryozoen-sippen und deren classification. (Novara Expedition, Neu Seeland, Band I, Abth. 2. 1864, Palæontologie, pp. 89–158, pls. xvii–xx.)

## 1865.

**Gümbel, C. W.** Die Nummiliten-führenden Schichten des Kressenbergs in Bezug auf ihre Darstellung in der *Lethæa geognostica* von Südbayern. (Leonhard u. Bronn's Neues Jahrb., 1865, pp. 129–170.) [Bryozoa, pp. 134–139.] [Eocene.]

- Reuss, A. E.** Die Foraminiferen, Anthozoen und Bryozoen des deutschen Septarienthones. Ein Beitrag zur Fauna der mittel-oligocänen Tertiärschichten. (Denkschr. d. k. Akad. d. Wiss. Wien, XXV, 1865, I. Abth., pp. 117–214, pls. i–xi.) (Sitz. ibid., LII, 1865, I. Abth., pp. 283–286.) [Oligocene.]
- Tenison-Woods, J. E.** On some Tertiary fossils in South Australia. (Trans. Proc. R. Soc. Victoria, VI, 1865, pp. 3–6, 1 pl.)
- Watts, H.** On fossil Polyzoa. [Australian.] (Trans. Proc. R. Soc. Victoria, VI, 1865, pp. 82–84.)

## 1866.

- Busk, G.** Description of three species of Polyzoa from the London Clay at Highgate. (Geol. Mag. III, 1866, pp. 298–302, pl. xii.) [Eocene.]

## 1867.

- Reuss, A. E.** Die fossile Fauna der Steinsalzablagerung von Wieliczka in Galizien. (Sitz. d. k. Akad. d. Wiss. Wien, LV, 1867, I. Abth., pp. 17–182, pls. i–viii.) [Bryozoa, pp. 111–129.] [Miocene.]
- Ueber einige Bryozoen aus dem deutschen Unteroligocän (Sitz. d. k. Akad. d. Wiss. Wien, LV, 1867, I. Abth., pp. 216–234, pls. i–iii.) [Oligocene.]

## 1869.

- Manzoni, A.** Bryozoi Pliocenici Italiani. (Sitz. d. k. Akad. d. Wiss. Wien., LIX, 1869, I. Abth., pp. 17–28, pls. i, ii.) [Pliocene.]
- Bryozoi fossili Italiani. Seconda contribuzione. (Sitz. d. k. Akad. d. Wiss. Wien, LIX, 1869, I. Abth., pp. 512–523, pls. i, ii.) [Miocene, Pliocene.]
- Bryozoi fossili Italiani. Terza contribuzione. (Sitz. d. k. Akad. d. Wiss. Wien, LX, 1869, I. Abth., pp. 930–944, pls. i–iv.) [Miocene, Pliocene.]
- Reuss, A. E.** Zur fossilen Fauna der Oligocänschichten von Gaas. (Sitz. d. k. Akad. d. Wiss. Wien, LIX, 1869, I. Abth., pp. 446–488, pls. i–vi.) [Bryozoa, pp. 466–479, pls. i, iii–v.] [Oligocene.]
- Paläontologische Studien über die älteren Tertiärschichten der Alpen. II. Abtheilung. Die fossilen Anthozoen und Bryozoen der Schichtengruppe von Crosara. (Denkschr. d. k. Akad. d. Wiss. Wien, XXIX, 1869, I. Abth., pp. 215–298, pls. xvii–xxxvi.) [Bryozoa, pp. 252–293, pls. xxvi–xxxvi.] (Sitz. ibid., LVIII, 1868, I. Abth., pp. 288–292.) [Oligocene.]
- Ueber tertiäre Bryozoen von Kischenew in Bessarabien. (Sitz. d. k. Akad. d. Wiss. Wien, LX, 1869, I. Abth., pp. 505–513, pls. i, ii.)

## 1870.

- Manzoni, A.** Bryozoi fossili Italiani. Quarta contribuzione. (Sitz. d.k. Akad. d. Wiss. Wien, LXI, 1870, I. Abth., pp. 323-349, pls. i-vi.) [Miocene, Pliocene.]

## 1872.

- Schreiber, A.** Die Bryozoen des mitteloligocänen Grünsandes bei Magdeburg. (Zeitschr. Gesammt. Naturw. Ver. Sachsen u. Thüringen, Halle, XXXIX, 1872, pp. 475-481.) [Oligocene.]

## 1874.

- Reuss, A. E.** Die fossilen Bryozoen des Oesterreichisch-Ungarischen Miocäns. I. Abtheilung. Salicornaridea, Cellularidea, Membraniporidae. (Denkschr. d. k. Akad. d. Wiss. Wien, XXXIII, 1874, Abth. I, pp. 141-190, pls. i-xii.) [Miocene.]

## 1875.

- Etheridge, R., Jun.** On the occurrence of a species of *Retepora* allied to *R. phœnicea*, Busk, in the Tertiary beds of Schnapper Point, Hobson's Bay, Victoria. (Trans. Proc. R. Soc. Victoria, XI, 1875, pp. 13-14.)

- Manzoni, A.** I Briozoi del Pliocene antico di Castrocaro. Bologna, 1875, 64 pp., 7 pls. [Pliocene.]

## 1876.

- Etheridge, R., Jun.** [Busk, G.] Carboniferous and post-Tertiary Polyzoa. (Geol. Mag. [n. s.], Decade II, III, 1876, pp. 522-523.)
- Tenison-Woods, J. E.** On some Tertiary Australian Polyzoa. (Jour. Proc. R. Soc. New South Wales, X, 1876, pp. 147-150, 2 pls.)

## 1877.

- Etheridge, R., Jun.** A synopsis of the known species of Australian Tertiary Polyzoa. (Jour. Proc. R. Soc. New South Wales, XI, 1877, pp. 129-143.)

- Manzoni, A.** Bryozoaires du pliocène supérieur de l'île de Rhodes. (Mém. Soc. géol. France [3], I, 1877, Mém. No. 2, pp. 59-72, pls. iv, v.) [Pliocene.]

- I Briozoi Fossili del Miocene d'Austria ed Ungheria. II. Parte. Celleporidea, Escharidea, Vincularidea, Selenaridea. (Denkschr. d. k. Akad. d. Wiss. Wien, XXXVII, 1877, Abth. II, pp. 49-78, pls. i-xvii.) [First part by Reuss.] [Miocene.]

- I Briozoi Fossili del Miocene d'Austria ed Ungheria. III. Parte. Crisidea, Idmoneidea, Entalophoridae, Tubuliporidae, Diastoporidea, Cerioporidea. (Denkschr. d. k. Acad. d. Wiss. Wien, XXXVIII, 1877, Abth. II, pp. 1-24, pls. i-xviii.) [Miocene.]

- Tenison-Woods, J. E.** Notes on the Tertiary fossils of Table Cape, Tasmania. (Proc. R. Soc. Tasmania for 1876, 1877, pp. 91-116.)

### 1878.

- Etheridge, R., Jun.** A catalogue of Australian fossils. London, 1878, 232 pp. [Tertiary Bryozoa, pp. 144-151.]
- Tenison-Woods, J. E.** On some Australian Tertiary fossil Corals and Polyzoa. (Jour. Proc. R. Soc. New South Wales, XII, 1878, pp. 57-61, 1 pl.)
- Waters, A. W.** Bryozoa [Polyzoa] from the Pliocene of Bruccoli [Sicily]. (Trans. Manchester Geol. Soc., XIV, 1878, pp. 465-488, 1 pl.) [Pliocene.]

### 1879.

- Robertson, D.** Additions to the list of Polyzoa of Garvel Park Post-Tertiary deposit. (Trans. Geol. Soc. Glasgow, VI, 1879, p. 57.)
- Seguenza, G.** Le formazioni terziarie nella Provincia di Reggio [Calabria]. (Mem. R. Accad. Lincei [3], VI, 1879, 446 pp., 17 pls.)

### 1880.

- Tenison-Woods, J. E.** Corals and Bryozoa of the Neozoic period in New Zealand. (Palæontology of New Zealand, Part IV, Wellington, 1880, xvi + 34 pp., 4 pls.)
- On some recent and fossil species of Selenariadæ. [Australian.] (Trans. Proc. R. Soc. South Australia, III, 1880, pp. 1-12, pls. i-ii.)
- Wilson, J. B.** Fossil Catenicellæ from the Miocene beds at Bird Rock, near Geelong. (Quar. Jour. Micro. Soc. Victoria, I, 1880, pp. 60-63.) [Miocene.]

### 1881.

- Waters, A. W.** On fossil Chilostomatous Bryozoa from southwest Victoria, Australia. (Quar. Jour. Geol. Soc. London, XXXVII, 1881, pp. 309-347, pls. xiv-xviii.)

### 1882.

- Waters, A. W.** On fossil Chilostomatous Bryozoa from Mount Gambier, South Australia. (Quar. Jour. Geol. Soc. London, XXXVIII, 1882, pp. 257-276, pls. vii-ix.)
- On Chilostomatous Bryozoa from Bairnsdale [Gippsland]. (Quar. Jour. Geol. Soc. London, XXXVIII, 1882, pp. 502-513, pl. xxii.)

### 1883.

- Waters, A. W.** Fossil Chilostomatous Bryozoa from Muddy Creek, Victoria, etc. (Quar. Jour. Geol. Soc. London, XXXIX, 1883, pp. 423-443, pl. xii.)

## 1884.

**Hincks, T.** Note on Professor G. Seguenza's List of Tertiary Polyzoa from Reggio [Calabria]. (Ann. Mag. Nat. Hist. [5], XIII, 1884, pp. 265-267.)

**Vine, G. R.** Fifth and last report of the committee appointed for the purpose of reporting on fossil Polyzoa. (Brit. Assoc. Rep., LIV, 1884, pp. 97-219.)

**Waters, A. W.** On fossil Cyclostomatous Bryozoa from Australia. (Quar. Jour. Geol. Soc. London, XL, 1884, pp. 674-697, pls. xxx, xxxi.)

## 1885.

**Bell, A.** Fossil Tertiary Polyzoa of the higher zones, and note on the scarcity of Eocene Polyzoa. In Vine's Report on recent Polyzoa. (Brit. Assoc. Rep., LV, 1885, pp. 666-672.)

**Koschinsky, C.** Ein Beitrag zur Kenntniss der Bryozoen-Fauna der älteren Tertiärschichten des südlichen Bayerns. I. Abtheilung, Cheilostomata. (Palæontog., XXXII, 1885, 73 pp., 7 pls.)

**Waters, A. W.** Chilostomatous Bryozoa from Aldinga and the River-Murray cliffs, South Australia. (Quar. Jour. Geol. Soc. London, XLI, 1885, pp. 279-310, pl. vii.)

## 1886.

**Gottardi, G. B.** Briozoi Fossili di Montechio Maggiore. (Atti Soc. Veneta-Trentina Sci. Nat. Padova, IX, 1886, pp. 297-308, pl. xiv.) [Eocene.]

**Jullien, J.** Les Costulidées, nouvelle Famille de Bryozoaires. (Bull. Soc. Zool. France, XI, 1886, pp. 601-620, pls. xvii-xx.)

**Meunier, A., and Pergens, E.** Les Bryozoaires du Système Montien [Eocene Inferieur]. (Louvain, 1886, 15 pp., 3 pl.) [Eocene.]

## 1887.

**Pergens, E.** Pliocäne Bryozoen von Rhodos. (Ann. d. k. k. naturh. Hofmuseums, Wien, Band II, 1887, pp. 1-34, pl. i.) [Pliocene.]

—— Les Bryozoaires du Tasmajdan à Belgrade. (Bull. Soc. R. Malac. Belgique, XXII, 1887, pp. 12-28.) Note supplémentaire sur les bryozoaires du Tasmajdan. (Ibid., pp. 59-60.) [Miocene.]

—— Note Préliminaire sur les Bryozoaires Fossiles des environs de Kolosvar. (Bull. Soc. R. Malac. Belgique, XXII, 1887, pp. 33-37.) [Eocene.]

**Waters, A. W.** On Tertiary Chilostomatous Bryozoa from New Zealand. (Quar. Jour. Geol. Soc. London, XLIII, 1887, pp. 40-72, pls. vi-viii.)

## 1888.

- Marsson, T.** Bryozoa. In Fr. Noetling, Die Fauna des samländischen Tertiärs. Th. II, Lief. v, 1888. (Abh. Geol. Specialk. Preuss., VI, Heft IV, pp. [555-560], 69-74.)

## 1889.

- Gioli, G.** Briozoi Neogenici dell' Isola di Pianosa nel mar Tirreno. (Atti Soc. Toscana Sci. Nat., Pisa, Mem., X, 1889, pp. 251-267, pl. xiv.) [Neogene.]
- Pergens, E.** Zur fossilen Bryozoenfauna von Wola Lu'zanska. (Bull. Soc. Belge Géol., III, 1889, Mém., pp. 59-72.) [Eocene.]
- Notes succinctes sur les Bryozoaires. I. Sur les Bryozoaires du Miocène de la Russie méridionale. (Bull. Soc. R. Malac. Belgique, XXIV, 1889, Proc.-verb., pp. 20-24.) [Miocene.]
- Vine, G. R.** Notes on British Eocene Polyzoa. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], XI, 1889, pp. 154-169, pl. v.) [Eocene.]

## 1890.

- Gregorio, A. de.** Monographie de la Faune Éocénique de l'Alabama et surtout de celle de Claiborne de l'Étage Parisien. (Ann. Géol. Pal., livr. vii, viii, Palermo, 1890, 316 pp., 46 pls.) [Bryozoa, pp. 239-250, pls. xxxix-xliii.] [Eocene.]
- Lienenklaus, E.** Die Ober-Oligocän Fauna des Doberges. (Jahresb. d. Naturw. Ver. Osnabrück, VIII, 1890, pp. 43-174.) [Bryozoa, pp. 141-146.] [Oligocene.]
- Namias, J.** Briozoi Pliocenici del Modenese. (Atti Soc. Nat. Modena [3], IX, 1890, pp. 63-64.) [Pliocene.]
- Sacco, F.** Catalogo Paleontologico del bacino Terziario del Piemonte. (Boll. Soc. Geol. Italiana, Roma, VIII, 1890, pp. 281-356.) [Bryozoa, pp. 326-328.]

## 1891.

- Namias, J.** Contributo ai Briozoi Pliocenici delle provincie di Modena e Piacenza. (Boll. Soc. Geol. Italiana, Roma, IX, 1891, pp. 471-513, 1 pl.) [Pliocene.]
- Neviani, A.** Contribuzione alla conoscenza dei Briozoi fossili italiani. Briozoi postpliocenici del sottosuolo di Livorno. (Boll. Soc. Geol. Italiana, Roma, X, 1891, pp. 99-148, pl. iv a.) [Post-Pliocene.]
- Pergens, E.** Bryozoaires du Miocène du Gard. (Bull. Soc. Belge Géol., V, 1891, Proc.-verb., pp. 46-53.) [Miocene.]
- Vine, G. R.** Notes on some new or but little known Eocene Polyzoa from localities. (Proc. Yorkshire Geol. Polyt. Soc., XII, 1891, pp. 52-61.) [Eocene.]
- Waters, A. W.** North Italian Bryozoa. (Quar. Jour. Geol. Soc. London, XLVII, 1891, pp. 1-34, pls. i-iv.) [Eocene.]

## 1892.

- Sinzow, J.** Bemerkungen über einige Versteinerungen aus den Bessarabischen Neogenablagerungen. (Mém. Soc. Nat. Nouvelle-Russie [Odessa], XVII, 1892, Part II, pp. 51-62, pls. i-iv.) [Bryozoa, pp. 51-57, pl. i.] [Russian.] [Neogene.]
- Waters, A. W.** North Italian Bryozoa. Part II. Cyclostomata. (Quar. Jour. Geol. Soc. London, XLVIII, 1892, pp. 153-162, pl. iii.) [Eocene.]

## 1893.

- Gregory, J. W.** On the British Palæogene Bryozoa. (Trans. Zool. Soc. London, XIII, 1893, pp. 219-279, pls. xxix-xxxii.) [Palæogene.]
- Neviani, A.** Seconda contribuzione alla conoscenza dei Briozoi fossili italiani. La collezione dei Briozoi pliocenici di Castrocaro, illustrata dal dottor Angelo Manzoni. (Boll. Soc. Geol. Italiana, Roma, XII, 1893, pp. 109-136.) [Pliocene.]

## 1894.

- Héjjas, I.** [Beiträge zur Kenntniss der Tertiären Briozoenfauna Siebenbürgens.] ([Bull. Transylvanian Museum Soc., Kolozsvart,] XIX, 1894, pp. 113-152, 201-216, 217-260, 3 pls.)
- Neviani, A.** Terza contribuzione alla conoscenza dei Briozoi fossili italiani. Di alcuni Briozoi pliocenici del Rio Landa illustrati da Ferdinando Bassi nel 1757. (Boll. Soc. Geol. Italiana, Roma, XII, 1893 (1894), pp. 659-668.) [Pliocene.]
- Procházka, V. J.** [Das Miocän von Kralic nächst Náměště in Mähren.] (Sitz. d. k. Böhmischen Ges. d. Wiss., Prag, 1893 [1894], No. XVI.) [Bryozoa, pp. 47-55 [65-69], pls. xi-xii.] [Miocene.]

## 1895.

- MacGillivray, P. H.** A monograph of the Tertiary Polyzoa of Victoria. (Trans. R. Soc. Victoria, IV, 1895, pp. 1-166, pls. i-xxii.)
- Neviani, A.** Briozoi fossili illustrati da Soldani Ambrogio nel 1780. (Boll. Soc. Romana Zool., IV, 1895, pp. 57-64.)
- Neviani, A.** Nota preliminare sui Briozoi fossili del postpliocene antico della Farnesina e Monte Mario. (Boll. Soc. Romana Zool., IV, 1895, pp. 65-74.) [Post-Pliocene.]
- Briozoi neozoici di alcune località d'Italia. Parte I. (Boll. Soc. Romana Zool., IV, 1895, pp. 109-123.) [Pliocene, Post-Pliocene.]
1. Formazioni plioceniche e postplioceniche delle Puglie.
  2. Briozoi postpliocenici di Calabria posseduti dal Museo geologico di Napoli.
  3. Briozoi postpliocenici di Santa Maria di Catanzaro.
  4. Briozoi postpliocenici di Caraffa-Catanzaro.

**Neviani, A.** Briozoi neozoici di alcune località d'Italia. Parte II. (Boll. Soc. Romana Zool., IV, 1895, pp. 227-247.)

[Miocene, Pliocene, Post-Pliocene.

5. Briozoi postpliocenici di Presinaci (Calabria).

6. Briozoi del calcare ad *Amphistegina* di Parlascio:

7. Briozoi pliocenici del Bolognese.

8. Briozoi miocenici e pliocenici dell'Astigiano-Piemonte.

—— Briozoi fossili della Farnesina e Monte Mario presso Roma. (Palæontog. Italica, Pisa, I, 1895, pp. 77-140, pls. v, vi.)

—— Briozoi eocenici del calcare nummilitico di Mosciano presso Firenze. (Boll. Soc. Geol. Italiana, XIV, 1895, pp. 119-127.)

[Eocene.

—— Nuovo genere e nuove specie di Briozoi fossili. (Riv. Italiana Pal., Bologna, I, 1895, pp. 82-84.)

—— Nuova specie fossili di *Stichoporina*. (Rev. Italiana Pal., Bologna, I, 1895, pp. 247-250.)

### 1896.

**Neviani, A.** Appunti bibliografici per servire alla storia degli studi sui Briozoi. (Riv. Italiana Sci. Nat. Siena, XVI, 1896, pp. 1-7, 25-28, 35-38.)

—— Briozoi postpliocenici di Spilinga [Calabria]. (Atti Accad. Gioenia Sci. Nat. Catania [4], IX, 1896, pp. 1-66, 32 figs.)

[Post-Pliocene.

—— Briozoi neozoici di alcune località d'Italia. Parte III. (Boll. Soc. Romana Zool., V, 1896, pp. 102-125, 10 figs.)

[Pliocene, Post-Pliocene.

9. Briozoi pliocenici del calcare di Monteleone Calabro.

10. Briozoi postpliocenici di Spilinga (Catanzaro).

11. Briozoi postpliocenici di Livorno.

**Pergens, E.** Bryozoaires des environs de Buda. (Bull. Soc. Belge Géol., X, 1896, Mém., pp. 359-368.)

[Eocene.

### 1897.

**Hall, T. S.** On the occurrence of the anchoring tubes of *Adeona* in the older Tertiaries of Victoria, with an account of their structure. (Proc. R. Soc. Victoria [n. s.], IX, 1897, pp. 1-4, 1 pl.)

**Neviani, A., et Angelis d'Ossat, G. de.** Corallari e Briozoi neogenici di Sardegna. (Boll. Soc. Geol. Italiana, XV, 1897, pp. 571-598.)

[Bryozoa by Neviani, pp. 580-596.]

[Neogene.

### 1898.

**Angelis, G. de.** Los primeros Antozoos y Briozoos miocenicos recogidos en Cataluña. Barcelona, 1898. Traduction de l'italien en Espagnol, par D. Jaime Almera. 31 pp.

[Miocene.



**Hamilton, A.** A list of recent and fossil Bryozoa collected in various parts of New Zealand. (Trans. Proc. New Zealand Inst., XXX, 1898, pp. 192-199.)

**Maplestone, C. M.** Further descriptions of the Tertiary Polyzoa of Victoria. Part I. (Proc. R. Soc. Victoria [n. s.], XI, 1898, pp. 14-22, pls. i, ii.)

**Neviani, A.** Briozoi neozoici di alcune località d'Italia. Parte IV. (Boll. Soc. Romana Zool., VII, 1898, pp. 34-49, 4 figs.)

12. Briozoi fossili terziari appartenenti al R. Istituto Technico di Udine.

——— Briozoi neozoici di alcune località d'Italia. Parte V. (Boll. Soc. Romana Zool., VII, 1898, pp. 97-109, 1 fig.) [Pliocene.

13. Fannula a Briozoi di Crescentino in Piemonte (Piacenziano).

14. Briozoi pliocenici della Liguria.

15. Briozoi delle formazioni plioceniche e postplioceniche di Palo, Anzio e Nettuno.

16. Briozoi del pliocene inferiore di Civitavecchia.

——— Briozoi delle formazioni plioceniche e postplioceniche di Palo, Anzio e Nettuno. (Boll. Soc. Geol. Italiana, Roma, XVII, 1898, pp. 220-232.) [Pliocene, Post-Pliocene.

#### 1899.

**Maplestone, C. M.** Further descriptions of the Tertiary Polyzoa of Victoria. Part II. (Proc. R. Soc. Victoria [n. s.], XII, 1899, pp. 1-13, pls. i, ii.)

#### 1900.

**Maplestone, C. M.** Further descriptions of the Tertiary Polyzoa of Victoria. Part III. (Proc. R. Soc. Victoria [n. s.], XII, 1900, pp. 162-169, pls. xvii, xviii.)

#### G. MESOZOIC.

#### 1827.

**Goldfuss, A.** Petrefacta Germaniæ. Düsseldorf, 1827-1833. [Bryozoa, I, pp. 23-41, pls. viii-xii.]

#### 1835.

**Archiac, E. J. A. d'.** Mémoire sur la formation crétacée du Sud-Ouest de la France. (Mém. Soc. Géol. France, II, 1835, pp. 157-192.) [Cretaceous.

#### 1836.

**Roemer, F. A.** Die Versteinerungen des Norddeutschen Oolithen-Gebirges. Hannover, 1836, ii+218 pp., 16 pls. [Bryozoa, p. 18.] Nachtrag, 1839, 59 pp., pls. xvii-xx. [Bryozoa, pp. 11-15, pl. xvii.] [Jurassic.

#### 1837.

**Bronn, H. G.** Lethæa geognostica, oder Beschreibungen und Abbildungen der für die Gebirgs-Formation bezeichnendsten Versteinerungen. Ed. 2, Stuttgart. [Bryozoa, I, 1837, pp. 240-251, pls. xv, xvi.] [Jurassic.

## 1838.

- Archiac, E. J. A. d'.** Observations sur le groupe moyen de la formation crétacée. (Mém. Soc. Géol. France, III, 1838, pp. 261-312.) [Cretaceous.]

## 1839.

- Hagenow, F. von.** Monographie der Rügenschens Kreide-Versteinerungen. (Leonhard u. Bronn's Neues Jahrb., 1839, pp. 253-296, pls. iv, v. [Bryozoa, pp. 262-296]; *ibid.*, 1840, pp. 631-672, pl. ix. [Bryozoa, pp. 643-649.]) [Cretaceous.]

## 1840.

- Roemer, F. A.** Die Versteinerungen des Norddeutschen Kreidegebirges. Hannover, 1840. [Bryozoa, pp. 11-25, pl. v.] [Cretaceous.]

## 1841.

- Michelin, H.** Iconographie zoophytologique: Description par localités et terrains des Polypiers fossiles de France et pays environnants. [Groupe Supracrétacé.] 2 vols., 4to, 79 pls.

## 1845.

- Lonsdale, W.** Account of six species of Polyparia obtained from Timber Creek, New Jersey. (Quar. Jour. Geol. Soc. London, I, 1845, pp. 65-75, 22 figs.) [Cretaceous.]

## 1846.

- Reuss, A. E.** Die Versteinerungen der böhmischen Kreideformation. Zweite Abtheilung. Stuttgart, 1846, 148 pp., 51 pls. [Bryozoa, pp. 63-70, pls. xv, xvi.] [Cretaceous.]

## 1849.

- Orbigny, A. d'.** Description de quelques genres nouveaux de Mollusques bryozoaires. (Rev. Mag. Zool. [2], I, 1849, pp. 499-504.)  
——— Prodrôme de Paléontologie stratigraphique, 3 vols., Paris, 1849-1852. [Mesozoic Bryozoa in vols. 1 and 2.]

## 1850.

- Lonsdale, W.** Polyzoa: In Dixon's Geology and Fossils of the Tertiary and Cretaceous formations of Sussex. London, 1850, 423 pp., 40 pls. [Bryozoa, pp. 268-322.] Edition 2 (revised by T. R. Jones), The Geology of Sussex, Brighton, 1878. [Bryozoa, pp. 315-360.]
- Orbigny, A. d'.** Paléontologie Française. Description des Animaux Invertébrés. Terrain Crétacé. Tome Cinquième. Bryozoaires. Paris, 1850-1852. Texte, 1192 pp., Atlas, pls. DC-DCCC. [Cretaceous.]

## 1851.

**Bronn, H. G., and Roemer, F.** *Lethæa Geognostica*. Ed. 3. Band III, Th. IV, Oolithen-Periode. Stuttgart, 1851, 571 pp. [Bryozoa, pp. 83-95.] [Jurassic.]

**Hagenow, F. von.** *Die Bryozoen der Maastrichter Kreidebildung*. Cassel, 1851, xvi+111 pp., 12 pls. [Cretaceous.]

## 1854.

**Haime, J.** *Description des Bryozoaires fossiles de la Formation jurassique*. (Mém. Soc. Géol. France [2], V, 1854, pp. 156-218, pls. vi-xi.) [Jurassic.]

**McCoy, F.** *Contributions to British Palæontology*. Cambridge, 1854. viii+272 pp., 1 pl. [Mesozoic Bryozoa, p. 66.]

## 1858.

**Ubaghs, J. C.** *Neue Bryozoen-Arten aus der Tuff-Kreide von Maestricht*. (Palæontogr., IX, Cassel, 1858, pp. 127-131, pl. xxvi.) [Cretaceous.]

## 1860.

**Gabb, W. M., and Horn, G. H.** *Descriptions of new Cretaceous Corals from New Jersey*. (Proc. Acad. Nat. Sci. Philadelphia, XII, 1860, pp. 366-367.) [Cretaceous.]

——— *Descriptions of new species of American Tertiary and Cretaceous fossils*. (Jour. Acad. Nat. Sci. Philadelphia [2], IV, 1860, pp. 375-404.) [Bryozoa, pp. 400-404, pl. lxix.]

## 1862.

**Gabb, W. M., and Horn, G. H.** *Monograph of the fossil Polyzoa of the Secondary and Tertiary formations of North America*. (Jour. Acad. Nat. Sci. Philadelphia [2], V, 1862, pp. 111-178, pls. xix-xxi.)

**Goldfuss, A.** *Petrefacta Germaniæ*. Ed. 2, Leipzig, 1862. [Bryozoa, I, pp. 22-38, pls. viii-xii.]

## 1865.

**Beissel, I.** *Ueber die Bryozoen der Aachener Kreidebildung*. (Natuurk. Verh. Hollandsche Maats. Wetens. Haarlem [2], XXII, 1865, 92 pp., 10 pls.) [Cretaceous.]

**Eichwald, E. von.** *Lethæa Rossica ou Paléontologie de la Russie. Période Moyenne*. II. Stuttgart, 1865-1868. [Bryozoa, pp. 188-222, pl. viii.] [Cretaceous.]

**Ubaghs, J. C.** *Die Bryozoen-Schichten der Maastrichter Kreidebildung, nebst einigen neuen Bryozoen-Arten aus der Maastrichter Tuff-Kreide*. (Verh. d. Nat. Ver. Preus. Rheinlande u. Westphalens, XXII [(3), II], 1865, pp. 31-62, pls. ii-iii.) [Cretaceous.]

## 1866.

- Reuss, A. E.** Die Bryozoen, Anthozoen und Spongiaren des braunen Jura von Balin bei Krakau. (Sitz. d. k. Akad. d. Wiss. Wien, LIII, 1866, I. Abth., pp. 229-231; Denkschr., *ibid.*, XXVII, 1867, I. Abth., pp. 1-26, pls. i-iv.) [Bryozoa, pp. 2-12, pls. i, ii.]  
[Jurassic.]

## 1868.

- Loriol, P. de.** Monographie des Couches de l'Étage Valangien des Carrières d'Arzier [Vaud]. (Matériaux pour la Paléontologie Suisse, IV Series. Geneva, 1868, 110 pp., 9 pls.) [Bryozoa, pp. 60-69, pls. v, vi.] [Cretaceous.]
- Waagen, W.** Ueber die Zone des Ammonites sowerbyi. (Geogn.-Pal. Beitr., I, 1868, pp. 507-668, pls. xxi-xxxiv.) [Bryozoa, pp. 640-647, pls. xxxii-xxxiii.] [Jurassic.]

## 1871.

- Simonowitsch, S.** Beiträge zur Kenntniss der Bryozoen des Essener Grünsandes. (Verh. d. Nat. Ver. Rheinland u. Westphalen, XXVIII [(3), VIII], 1871, pp. 1-70, pls. i-iv.) [Cretaceous.]

## 1872.

- Reuss, A. E.** Die Bryozoen und Foraminiferen des unteren Pläners. In H. B. Geinitz, Das Elbthalgebirge in Sachsen, IV. (Paläontogr., XX, Part I, 1872, pp. 97-144, pls. xxiv-xxxiii.) [Cretaceous.]
- Stoliczka, F.** The Cretaceous fauna of southern India. The Ciliopoda. (Paläont. Indica, IV, Series VIII, Part II. Calcutta, 1872, pp. 1-34, [33-68], pls. i-iii.) [Cretaceous.]

## 1874.

- Reuss, A. E.** Die Bryozoen des oberen Pläners. In H. B. Geinitz, Das Elbthalgebirge in Sachsen. (Paläontogr., XX, Part II, 1874, pp. 127-138, pls. xxiv-xxvi.) [Cretaceous.]

## 1875.

- Tate, R.** On some new Liassic fossils. (Geol. Mag. [n. s.], Decade II, II, 1875, pp. 203-206.) [Jurassic.]

## 1877.

- Marsson T.** Die Bryozoen der weissen Schreibkreide der Insel Rügen. (Paläont. Abh., IV, Berlin, 1877, 112 pp., 10 pls.) [Cretaceous.]
- Novak, O.** Beitrag zur Kenntniss der Bryozoen der Böhmischen Kreidebildung. (Denkschr. d. k. Akad. d. Wiss. Wien, XXXVII, 1877, pp. 79-126, pls. i-x.) [Cretaceous.]

## 1878.

- Etheridge, R., Jun.** A catalogue of Australian fossils. London, 1878, 232 pp. [Mesozoic Bryozoa, p. 105.]

## 1879.

- Brauns, D.** Die Bryozoen des mittleren Jura der Gegend von Metz. (Zeitschr. d. deutsch. geol. Ges., XXXI, 1879, pp. 308-338, pl. vi.) [Jurassic.]

## 1881.

- Hamm, H.** Die Bryozoen des Maastrichter Ober-Senon. I. Theil. Die Cyclostomen Bryozoen. Berlin, 1881, 47 pp. [Cretaceous.]
- Longe, F. D.** On the relation of the escharoid forms of oolitic Polyzoa. (Geol. Mag. [n. s.], Decade II, VIII, 1881, pp. 23-34, pl. ii.) [Jurassic.]
- Vine, G. R.** Further notes on the family Diastoporidæ, Busk, species from the Lias and Oolite. (Quar. Jour. Geol. Soc. London, XXXVII, 1881, pp. 381-390, pl. xix.) [Jurassic.]

## 1882.

- Etheridge, R.** On the analysis and distribution of the British Jurassic fossils. (Anniversary Address of the President.) (Quar. Jour. Geol. Soc. London, XXXVIII, 1882, pp. 59-236.) [Contains references to the occurrence and distribution of Bryozoa.] [Jurassic.]
- Seguenza, G.** Studi geologici e paleontologici sul cretaceo medio dell' Italia meridionale. (Atti R. Accad. Lincei, Mem. [3], XII, 1882, pp. 65-214, 21 pls.) [Bryozoa, pp. 189-190, pl. xx.] [Cretaceous.]
- Vine, G. R.** Third report of the committee appointed for the purpose of reporting on fossil Polyzoa. Jurassic species—British area only. (Brit. Assoc. Rep., LII, 1882, pp. 249-266.) [Jurassic.]

## 1883.

- Haug, E.** Ueber sogenannte Chætetes aus mesozoischen Ablagerungen. (Leonhard u. Brönn's Neues Jahrb., 1883, Band I, pp. 171-179, pl. x.) [Cretaceous.]
- Vine, G. R.** Fourth report of the committee appointed for the purpose of reporting on fossil Polyzoa. (Brit. Assoc. Rep., LIII, 1883, pp. 161-175.) [Cretaceous.]

## 1884.

- Vine, G. R.** Polyzoa (Bryozoa) found in the boring at Richmond, Surrey. (Quar. Jour. Geol. Soc. London, XL, 1884, pp. 784-794.) [Jurassic.]

- Vine, G. R.** Notes on some Cretaceous Lichenoporidae. (Quar. Jour. Geol. Soc. London, XL, 1884, pp. 850-854.) [Cretaceous.]  
—— Fifth and last report of the committee appointed for the purpose of reporting on fossil Polyzoa (Brit. Assoc. Rep., LIV, 1884, pp. 97-219.) [Cretaceous.]

## 1885.

- Meunier, A., and Pergens, E.** Nouveaux Bryozoaires du crétacé supérieur. (Ann. Soc. R. Malac. Belgique, XX, 1885, Mém., pp. 32-37, pl. ii.) [Cretaceous.]  
**Vine, G. R.** Notes on the Cambridge Greensand. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], IX, 1885, pp. 10-29, pls. i, ii.) [Cretaceous.]

## 1886.

- Jullien, J.** Les Costulidées, nouvelle famille de Bryozoaires. (Bull. Soc. Zool. France, XI, 1886, pp. 601-620, pls. xvii-xx.)  
**Pergens, E., and Meunier, A.** La faune des Bryozoaires Garumniens de Faxe. (Ann. Soc. R. Malac. Belgique, XXI, 1886, Mém., pp. 187-242, pls. ix-xiii.) [Cretaceous.]

## 1887.

- Vine, G. R.** Jurassic Polyzoa in the neighborhood of Northampton. (Jour. Northamptonshire Nat. Hist. Soc. Field Club, IV, 1887, pp. 202-211, 2 pls.) [Jurassic.]  
—— Notes on the Polyzoa and other organisms from the Gayton Boring, Northamptonshire. (Jour. Northamptonshire Nat. Hist. Soc. Field Club, IV, 1887, pp. 225-266.) [Jurassic.]  
—— Notes on a species of Entalophora from the Neocomian clay of Lincolnshire. (Ann. Mag. Nat. Hist. [5], XIX, 1887, pp. 17-19.) [Cretaceous.]  
**Walford, E. A.** Notes on some Polyzoa from the Lias. (Quar. Jour. Geol. Soc. London, XLIII, 1887, pp. 632-636, pl. xxv.) [Jurassic.]

## 1888.

- Vine, G. R.** Notes on the Polyzoa of Caen and Ranville now preserved in the Northampton Museum. (Jour. Northamptonshire Nat. Hist. Soc. Field Club, V, 1888, pp. 1-24.) [Jurassic.]

## 1889.

- Frič, A.** Studien im Gebiete der Böhmischen Kreideformation. Paläontologische Untersuchungen der einzelnen Schichten. IV. Die Teplitzer Schichten. Bryozoa. (Arch. f. naturw. Landesd. Böhmen, Prag, VII, 1889, pp. 57, 89-90, figs. 92-97.) [Cretaceous.]

**Pergens, E.** Révision des Bryozoaires du Crétacé figurés par d'Orbigny. (Mém. Soc. Belge Géol. Pal., Bruxelles, III, 1889, pp. 305-400, pls. xi-xiii.) [Cretaceous.

**Sauvage, H. E.** Note sur les Bryozoaires jurassiques de Boulogne. (Bull. Soc. Géol. France [3], XVII, 1889, pp. 38-53, pls. iii, iv.) [Jurassic.

**Vine, G. R.** Further notes on the Polyzoa of the Lower Greensand and the Upper Greensand of Cambridge. Part II. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], XI, 1889, pp. 250-275, pl. xii.) [Cretaceous.

**Walford, E. A.** On some Bryozoa from the Inferior Oolite of Shipton Gorge, Dorset. Part I. (Quar. Jour. Geol. Soc. London, XLV, 1889, pp. 561-574, pls. xvii-xix.) Part II. (Ibid., L, 1894, pp. 72-78, pls. ii-iv.) [Jurassic.

### 1890.

**Bucaille, E.** Liste des Bryozoaires observés dans les étages crétacés du département de la Seine-Inférieure. (Bull. Soc. Amis Sci. Nat., Rouen, 1890, 8 pp.) [Cretaceous.

**Osswald, —.** Die Bryozoen der mecklenburgischen Kreidegeschiebe. (Arch. d. Ver. d. Fr. d. Naturg. Mecklenburg, XLIII, 1890, pp. 101-110.) [Cretaceous.

**Pergens, E.** Nouveaux Bryozoaires Cyclostomes du Crétacé. (Bull. Soc. Belge Géol., IV, 1890, Mém., pp. 277-279, pl. xi.) [Cretaceous.

**Vine, G. R.** Report of the committee appointed to prepare a report on the Cretaceous Polyzoa. (Brit. Assoc. Rep., LX, 1890, pp. 378-396.) [Cretaceous.

— The Polyzoa of the Red Chalk of Hunstanton. (Quar. Jour. Geol. Soc. London, XLVI, 1890, pp. 454-486, pl. xix.) [Cretaceous.

### 1891.

**Vine, G. R.** Notes on the Polyzoa of the zones of the Upper Chalk. (Brit. Assoc. Rep., LXI, 1891, pp. 656-659.) [Cretaceous.

**Waters, A. W.** On Chilostomatous characters in Melicertitidae and other Fossil Bryozoa. (Ann. Mag. Nat. Hist. [6], VIII, 1891, pp. 48-53, pl. vi.)

### 1892.

**Friren, A.** Mélanges Paléontologiques. Art. III. Les bryozoaires de l'oolithe inférieure des environs de Metz. (Bull. Soc. Hist. Nat. Metz [2], VI, 1892, pp. 57-82.) [Jurassic.

**Hennig, A. H.** Studier öfver Bryozoerna i Sveriges Kritsystem. I. Cheilostomata. (Lunds Univ. Årssk., XXVIII, 1892, No. 11, pp. 1-51, pls i, ii.) [Cretaceous.

- Pergens, E.** Bryozoaires du Sénonien de Sainte-Paterne, de Lavardin et de la Ribochère. (Bull. Soc. Belge Géol. Pal., VI, 1892, Proc.-verb., pp. 200-217.) [Cretaceous.]
- Počta, P.** [Ueber Bryozoen aus dem Cenoman am Fusse des Gangberges bei Kuttendorf.] (Abh. d. k. böhmischen Ges. d. Wiss., Prag, 1892, 42 pp., 4 pls.) [Cretaceous.]
- Vine, G. R.** Notes on Polyzoa found at Cleethorpes in 1875, 1879 and 1882. (Naturalist, 1892, pp. 5-11.) [Cretaceous.]
- Fossil Polyzoa; further additions to the Cretaceous lists. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], XII, 1892, pp. 149-161, pl. vi.) [Cretaceous.]
- Report of the committee appointed for the completion of a report on the Cretaceous Polyzoa. (Brit. Assoc. Rep., LXII, 1892, pp. 301-337.) [Cretaceous.]

## 1893.

- Hennig, A.** Ueber Neuropora conuligera, eine neue Bryozoen-Art aus der Schwedischen Kreide. (Bihang till Svenska Vetensk.-Akad. Handl., XIX, 1893, No. 1, pp. 1-11, pl. i.) [Cretaceous.]
- Pergens, E.** Nouveaux Bryozoaires du Crétacé du Limbourg. (Bull. Soc. Belge Géol., VII, 1893, pp. 172-189, pls. viii-xi.) [Cretaceous.]
- Peron, A.** Exploration scientifique de la Tunisie. Description des Brachiopodes, Bryozoaires et autres invertébrés fossiles des terrains crétacés de la région sud des Hauts-Plateaux de la Tunisie, recueillis en 1885 et 1886 par M. Philippe Thomas, Paris, 1893, pp. 329-405, 2 pls. [Cretaceous.]
- Vine, G. R.** Notes on the Polyzoa, Stomatopora and Proboscina groups from the Cornbrash of Thrapston, Northamptonshire. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], XII, 1893, pp. 247-258, pls. xii, xiii.) [Jurassic.]

## 1894.

- Bleicher, —.** Contribution à l'étude des Bryozoaires et des Spongiaires de l'oolithe inférieure (bajocien et bathonien) de Meurthe-et-Moselle. (Bull. Soc. Sci. Nancy [2], XIII, 1894, pp. 89-101, pls. i-iii.) [Jurassic.]
- Gregory, J. W.** On some Jurassic species of Cheilostomata. (Geol. Mag., Decade IV, II, 1894, pp. 61-64.) [Jurassic.]
- Catalogue of the Jurassic Bryozoa in the York Museum. (Rep. Yorkshire Phil. Soc. for 1893, York 1894, pp. 58-61.) [Jurassic.]
- Hennig, A.** Om Åhussandstenen. (Geol. Fören. i Stockholm Förh., XVI, 1894, pp. 492-530, pl. ii.) [Bryozoa, pp. 505-511.] [Cretaceous.]
- Studier öfver Bryozoerna i Sveriges Kritsystem. II. Cyclostomata. (Lunds Univ. Årssk., XXX, 1894, No. 8, pp. 1-46, 2. pls.) [Cretaceous.]



- Pergens, E.** Les Bryozoaires du Sénonien de la Carrière del l'Arche de Lèves près Chartres. (Bull. Soc. Belge Géol., VIII, 1894, Proc.-verb., pp. 131-140.) [Cretaceous.]
- Bryozoaires du Sénonien de la Carrière de Cachemback près Chartres (Faubourg Saint-Barthélemy). (Bull. Soc. Belge Géol., VIII, 1894, Proc.-verb., pp. 181-184.) [Cretaceous.]
- Walford, E. A.** On Cheilostomatous Bryozoa from the Middle Lias. (Quar. Jour. Geol. Soc. London, L, 1894, pp. 79-84, pls. v-vii.) [Jurassic.]

## 1895.

- Gregory, J. W.** A revision of the British Jurassic Bryozoa. (Ann. Mag. Nat. Hist. [6], XV, 1895, pp. 223-228; *ibid.*, XVI, 1895, pp. 447-451; *ibid.*, XVII, 1896, pp. 41-49, 151-155, 194-201, 287-295.) [Jurassic.]

## 1896.

- Gregory, J. W.** Catalogue of the fossil Bryozoa in the Department of Geology of the British Museum (Natural History). The Jurassic Bryozoa. London, 1896, 239 pp., 11 pls. (Reviewed in Nature, LIV, 1896, p. 412; Nat. Sci., IX, No. 57, 1896, pp. 334-335 (A. W. W.).) [Jurassic.]

## 1897.

- Canu, F.** Bryozoaires de Cénomaniens de Janières (Sarthe). (Bull. Soc. Géol. France [3], XXV, 1897, pp. 146-159, pl. v.) [Cretaceous.]
- Bryozoaires du Cénomaniens de St.-Calais (Sarthe). (Bull. Soc. Géol. France [3], XXV, 1897, pp. 737-754, pl. xxii.) [Cretaceous.]

## 1899.

- Canu, F.** Les ovicells des Cécidées. (Bull. Soc. Géol. France [3], XXVII, 1899, pp. 326-327, pl. vi.) [Cretaceous.]

## H. PALEOZOIC.

## 1829.

- Eichwald, E.** Zoologia specialis. Vilnæ, 1829-1831, 3 vols. [Bryozoa, I, pp. 179-180, 198-201, pls. ii, iii.]

## 1836.

- Phillips, J.** Illustrations of the geology of Yorkshire. Part II. The Mountain Limestone District. London, 1836. xx+253 pp., 25 pls. [Bryozoa, pp. 198-200, pl. i.] [Carboniferous.]

## 1839.

- Lonsdale, W.** Corals. In Sir R. I. Murchison's *Silurian System*. London, 1839. [Bryozoa, Part II, pp. 676-680, pl. xv.] [Silurian.]

## 1841.

- Phillips, J.** Figures and descriptions of the Paleozoic fossils of Cornwall, Devon, and West Somerset. London, 1841. [Bryozoa, pp. 20-27, pls. ix-xiii.]

## 1842.

- Koninck, L. G. de.** Description des animaux fossiles qui se trouvent dans le terrain Carbonifère de Belgique. Liège, 1842-1844, Supplement, 1851. [Bryozoa, pp. 1-12, pls. A, B.]  
[Carboniferous.]

## 1843.

- Roemer, F. A.** Die Versteinerungen des Harzgebirges. Hannover, 1843. [Bryozoa, p. 7.]  
[Devonian.]

## 1844.

- McCoy, F.** A synopsis of the characters of the Carboniferous limestone fossils of Ireland. Dublin, 1844. Reprint, 1862. [Bryozoa, pp. 194-207, pls. xxvi-xxix.]  
[Carboniferous.]

## 1845.

- Lonsdale, W.** Description of some characteristic Paleozoic Corals of Russia. In Murchison, Verneuil, and Von Keyserling's *Geology of Russia in Europe and the Ural Mountains*. [Bryozoa, Vol. I, 1845, pp. 626-632.]  
[Carboniferous, Permian.]

## 1846.

- [**Keyserling, A. von.**] Wissenschaftliche Beobachtungen auf einer Reise in das Petschora-Land im Jahre 1843. St. Petersburg, 1846. [Bryozoa, pp. 180-193, pl. iii.]  
[Carboniferous.]

## 1847.

- Hall, J.** Palæontology of New York. Vol. I, containing the descriptions of the organic remains of the Lower Division of the New York system. Albany, 1847. [Bryozoa: Chazy, pp. 15-17, pl. iv; Black River, pp. 48-51, pl. xii; Trenton, pp. 67-68, 72-79, pls. xxiii, xxiv, xxvi.]  
[Ordovician.]
- McCoy, F.** On the Fossil Botany and Zoology of the rocks associated with the coal of Australia. (*Ann. Mag. Nat. Hist.*, XX, 1847, pp. 226-236.) [Bryozoa, p. 226.]  
[Carboniferous.]

## 1849.

- King, W.** On some families and genera of Corals. (Ann. Mag. Nat. Hist. [2], III, 1849, pp. 388-390.) [Permian.]
- Orbigny, A. d'.** Prodrome de Paléontologie stratigraphique. Paris, 1849-1852, 3 vols. [Paleozoic Bryozoa in Vol. I, pp. 21-22, 25-26, 44-45, 100-102, 151-154, 168-169, 205.]

## 1850.

- King, W.** A monograph of the Permian fossils of England. London, 1850. [Bryozoa, pp. 28-49.] [Permian.]
- McCoy, F.** On some new genera and species of Silurian Radiata in the collection of the University of Cambridge. (Ann. Mag. Nat. Hist. [2], VI, 1850, pp. 270-290.) [Bryozoa, pp. 282-288.] [Silurian.]
- On some new Silurian Radiata. (Ann. Mag. Nat. Hist. [2], VI, 1850, pp. 474-477.) [Silurian.]

## 1851.

- Hall, J.** New genera of fossil Corals. (Amer. Jour. Sci. [2], XI, 1851, pp. 398-401.) [Silurian.]
- Milne-Edwards, H., et Haime, J.** Monographie des Polypiers fossiles des terrains Paléozoïques, précédée d'un tableau général de la classification des Polypes. (Arch. Mus. Hist. Nat., Paris, V, 1851, pp. 1-504.) [Monticuliporoids, pp. 261-279, pls. xvi, xix, xx.]
- Rolle, F.** Ueber zwei neue devonische Korallen einer neuen Sippe, Reptaria. (Leonard u. Bronn's Neues Jahrb., 1851, pp. 810-814, pl. ix B.) [Devonian.]

## 1852.

- Hall, J.** Palæontology of New York. Vol. II, containing descriptions of the organic remains of the Lower Middle Division of the New York system. Albany, 1852. [Bryozoa: Clinton, pp. 40-52, pls. xvii-xix; Niagara, pp. 144-173, pls. xl-xl E.] [Silurian.]

## 1853.

- Sharpe, D.** Description of the new species of Zoophyta and Mollusca [from the Silurian of Bussaco in Portugal]. (Quar. Jour. Geol. Soc. London, IX, 1853, pp. 146-147, pl. vii.) [Silurian.]

## 1854.

- Eichwald, E. von.** Die Grauwackenschichten von Liev- und Esthland. (Bull. Soc. Imp. Nat. Moscou, XXVII, 1854, pp. 3-111.) [Bryozoa, pp. 86-89.]

**McCoy, F.** A synopsis of the classification of the British Palæozoic rocks by the Rev. Adam Sedgwick; with a systematic description of the British Palæozoic fossils in the geological museum of the University of Cambridge by Frederick McCoy. Cambridge, 1854. [Bryozoa: Silurian, pp. 11-12, 22-26, 44-51; Devonian, pp. 75-76; Carboniferous, pp. 82-83, 113-116.]

—— Contributions to British Palæontology. Cambridge, 1854. [Bryozoa: Silurian, pp. 172-176; Carboniferous, pp. 99-100, 103-104.]

**Milne-Edwards, H., and Haime, J.** A monograph of the British fossil Corals. (Palæontogr. Soc. Publ., 1850-1854.) [Monticuliporoids, pp. 264-269.]

**Roemer, F. A.** Beiträge zur geologischen Kenntniss des nordwestlichen Harzgebirges. (Palæontogr., III, Cassel, 1854.) [Bryozoa: Silurian, pp. 6-8; Devonian, pp. 71-72.]

#### 1855.

**Eichwald, E. von.** Beitrag zur geographischen Verbreitung der fossilen Thiere Russlands. (Bull. Soc. Imp. Nat. Moscou, XXVIII, 1855, pp. 433-466; *ibid.*, XXIX, 1856, pp. 88-127, 406-453, 555-608; *ibid.*, XXX, 1857, pp. 192-212.) [Bryozoa, XXVIII, 1855, pp. 448-466; XXIX, 1856, pp. 91-96.]

#### 1857.

**Hall, J.** Observations on the genus Archimedes, or Fenestella. (Proc. Amer. Assoc. Adv. Sci., X, 1857, pp. 176-180.) [Carboniferous.]

—— Remarks upon the genus Archimedes, or Fenestella, from the Carboniferous limestones of the Mississippi Valley. (Amer. Jour. Sci. [2], XXIII, 1857, pp. 203-204.) [Carboniferous.]

#### 1858.

**Prout, H. A.** Description of new species of Bryozoa from Texas and New Mexico. (Trans. St. Louis Acad. Sci., I, 1858, pp. 228-235.) [Carboniferous.]

—— First of a series of descriptions of Carboniferous Bryozoa. (Trans. St. Louis Acad. Sci., I, 1858, pp. 235-237, pl. xv.)

—— Second series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1858, pp. 266-273, pl. xvi.)

**Schmidt, F.** Untersuchungen über die Silurische Formation von Ehstland, Nord-Livland und Oesel. (Arch. f. d. Naturk. Liv-, Esth- und Kurlands [1], II, 1858-9, pp. 1-247, 465-474.)

[Silurian.]

## 1859.

- Prout, H. A.** Third series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1859, pp. 443-452, pls. xvii, xviii.)

## 1860.

- Eichwald, E. von.** Lethæa Rossica, ou Paléontologie de la Russie. Ancienne Période, I, Stuttgart, 1860, 682 pp., 4to atlas of 59 pls. [Bryozoa, pp. 355-419, 434-435, 450-452, 475-494, pls. xxiii-xxxiii.]
- Milne-Edwards, H.** Histoire naturelle des Coralliaires, ou polypes proprement dits. Tome III, Paris, 1860, 560 pp. [Monticuliporoids, pp. 272-284.]
- Prout, H. A.** Fourth series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1860, pp. 571-581.)

## 1861.

- Geinitz, H. B.** Dyas oder die Zechsteinformation und das Rothliegende. Leipzig, 1861. [Bryozoa, pp. 112-120, pls. xx-xxii.] [Permian.]
- Kirkby, J. W.** The Permian of Yorkshire. (Quar. Jour. Geol. Soc. London, XVII, 1861, pp. 287-325.) [Bryozoa, pp. 307-308.] [Permian.]
- Ludwig, R.** Die in der Umgebung von Lithwinsk (östlich von Perm und Solikamsk) in den Kalksteinen der Steinkohlenformation vorkommenden Corallen- und Bryozoenstöcke. (Bull. Soc. Imp. Nat. Moscou, XXXIV, 1861, Part II, pp. 579-598.) [Carboniferous.]

## 1862.

- Ludwig, R.** Actinozoen und Bryozoen aus dem Carbon-Kalkstein im Gouvernement Perm. (Palæontogr., X, 1862, pp. 179-186, pls. xx-xxxvii.) [Bryozoa, pp. 222-226, pl. xxxvii.] [Carboniferous.]

## 1863.

- Koninck, L. G. de.** Descriptions of some fossils from India, discovered by Dr. A. Fleming, of Edinburgh. (Quar. Jour. Geol. Soc. London, XIX, 1863, pp. 1-18, pls. i-viii.) [Bryozoa, pp. 5-6, pls. i, ii.] [Carboniferous.]

## 1866.

- Billings, E.** Catalogue of the Silurian fossils of the Island of Anticosti, with descriptions of some new genera and species. (Geol. Surv. Canada, Montreal, 1866, 93 pp.) [Silurian.]

**Prout, H. A.** Descriptions of new species of Bryozoa. (Trans. St. Louis Acad. Sci., II, 1866, pp. 410-413.)

— Descriptions of Polyzoa from the Paleozoic rocks. (Geol. Surv. Illinois, II, 1866, pp. 412-423, pls. xxi, xxii.)

**Rominger, C.** Observations on Chætetes and some related genera in regard to their systematic position; with an appended description of some new species. (Proc. Acad. Nat. Sci. Philadelphia, 1866, pp. 113-123.)

#### 1867.

**Geinitz, H. B.** Carbonformation und Dyas in Nebraska. (Verhandl. d. k. Leopoldino-Carolinischen Deutsch. Akad. d. Naturf., XXXIII, 1867, pp. i-xii, 1-91, 5 pls.) [Bryozoa, pp. 66-72, pl. v.] [Permo-Carboniferous.]

#### 1868.

**Bigsby, J. J.** Thesaurus Siluricus: The flora and fauna of the Silurian period. London, 1868, 214 pp. [Bryozoa, pp. 200-201.] [Silurian.]

#### 1869.

**Duncan, P. M., and Jenkins, H. M.** On Palæocoryne, a genus of tubularine Hydrozoa from the Carboniferous formation. (Phil. Trans. R. Soc. London, vol. 159, 1869, pp. 693-699, pl. lxvi.) [Carboniferous.]

#### 1870.

**Meek, F. B. and Worthen, A. H.** Note on the relations of Synocladia King, 1849, to the proposed genus Septopora Prout, 1858. (Proc. Acad. Nat. Sci. Philadelphia, 1870, pp. 15-18.) [Carboniferous.]

#### 1871.

**Koninck, L. G. de.** Nouvelles recherches sur les animaux fossiles du terrain carbonifère de la Belgique. (Bull. Acad. R. Sci. Belgique, XXXI, 1871, pp. 316-324. Mém., ibid., XXXIX, 1872, iv+178 pp., 15 pls.) [Monticuliporoids, pp. 141-147.] [Carboniferous.]

**Young, J., and Armstrong, J.** On the Carboniferous fossils of the west of Scotland; their vertical range and distribution. Glasgow (published by the Geological Society), 1871, 103 pp. [Bryozoa, pp. 32-35.] [Also as supplement to Vol. III, 1871, Trans. Geol. Soc. Glasgow.] [Carboniferous.]

#### 1872.

**Meek, F. B.** Report on the paleontology of Eastern Nebraska, with some remarks on the Carboniferous rocks of that district. (Hayden's Final Report U. S. Geol. Surv. Nebraska and portions of adjacent territories. Washington, 1872. Part II. Paleontology, pp. 81-264.) [Bryozoa, pp. 141-158.] [Carboniferous.]

## 1873.

**Duncan, P. M.** On the genus *Palæocoryne* and its affinities. (Quar. Jour. Geol. Soc. London, XXIX, 1873, pp. 412-417, pl. xiv.)

[Carboniferous.

**Etheridge, R., Jun.** Memoirs of the Geological Survey, Scotland. Explanation of sheet 23. Lanarkshire: Central districts. Edinburgh, 1873. Palæontology, pp. 49-105. [Bryozoa, pp. 101-103.]

[Carboniferous.

——— On a new species of *Synocladia* from the Carboniferous limestone series of Midlothian. (Ann. Mag. Nat. Hist. [4], XII, 1873, pp. 189-193, pl. x.)

[Carboniferous.

——— Observations on *Chætetes tumidus*, Phillips. (Ann. Mag. Nat. Hist. [4], XIII, 1873, pp. 194-195, pl. xi, 1-3.)

[Carboniferous.

——— Description of *Carinella*, a new genus of Carboniferous Polyzoa. (Geol. Mag., X, 1873, pp. 433-434, pl. xv.) (In the Geol. Mag. [n. s.], Decade II, III, 1876, pp. 522-523, the name *Gonocladia* is proposed for *Carinella*, preoccupied.)

[Carboniferous.

**Koninck, L. G. de.** Recherches sur les animaux fossiles. Monographie des fossiles Carbonifères de Bleiberg en Carinthie. Bruxelles, 1873. [Bryozoa, pp. 10-14, pl. i.]

[Carboniferous.

**Young, J., and Armstrong, J.** The fossils of the Carboniferous strata of the west of Scotland. (Trans. Geol. Soc. Glasgow, IV, 1873, Part III, pp. 267-281.) [Bryozoa, pp. 274-275.]

[Carboniferous.

## 1874.

**Hall, J.** Descriptions of Bryozoa and Corals of the Lower Helderberg Group. (Twenty-sixth Ann. Rep. New York State Museum of Nat. Hist., 1874, pp. 93-115.)

[Silurian.

**Miller, S. A.** Observations upon *Stenopora fibrosa* and the genus *Chætetes*. (Cincinnati Quar. Jour. Sci., I, 1874, pp. 368-375.)

[Ordovician.

**Nicholson, H. A.** Summary of recent researches on the Palæontology of Ontario. (Canad. Jour. [n. s.], XIV, 1874, pp. 125-136.)

[Devonian.

——— Descriptions of two new genera and species of Polyzoa from the Devonian rocks. (Ann. Mag. Nat. Hist. [4], XIII, 1874, pp. 77-85.)

[Devonian.

——— Descriptions of species of *Chætetes* from the Lower Silurian rocks of North America. (Quar. Jour. Geol. Soc. London, XXX, 1874, pp. 499-515, pls. xxix, xxx.)

[Ordovician.

——— Report upon the Palæontology of the Province of Ontario. Toronto, 1874, 133 pp., 8 pls.

[Devonian.

——— and **Hinde, G. J.** Notes on the fossils of the Clinton, Niagara, and Guelph formations of Ontario, with descriptions of new species. (Canad. Jour. [n. s.], XIV, 1874, pp. 137-144.)

[Silurian.

- Young, J.** Notes accompanying two slides of Carboniferous Polyzoa from the fossiliferous shales of Hairmyres, near East Kilbride. (Trans. Edinburgh Geol. Soc., II, 1874, Part III, pp. 400-402.) [Carboniferous.]
- Young, J., and Young, J.** On Palæocoryne and other Polyzoal appendages. (Geol. Mag. [n. s.], Decade II, I, 1874, pp. 422-423.) (Quar. Jour. Geol. Soc. London, XXX, 1874, pp. 684-689, pls. xl-xliii.) [Carboniferous.]
- Note on the occurrence of *Polypora tuberculata* Prout in Scotland. (Geol. Mag. [n. s.], Decade II, I, 1874, pp. 285-289.) [Carboniferous.]
- New Carboniferous Polyzoa. (Quar. Jour. Geol. Soc. London, XXX, 1874, pp. 681-683, pls. xl-xli.) [Carboniferous.]
- On a new genus of Carboniferous Polyzoa. (Ann. Mag. Nat. Hist. [4], XIII, 1874, pp. 335-339, pl. xvi B.) [Carboniferous.]

## 1875.

- Dollfus, G.** Observations critiques sur la classification des Polypiers paléozoïques. (Compt. Rend. Acad. Sci. Paris, t. 85, 1875, pp. 681-683.)
- Etheridge, R., Jun.** Note on a new provisional genus of Carboniferous Polyzoa. (Ann. Mag. Nat. Hist. [4], XV, 1875, pp. 43-45, pl. iv B.) [Carboniferous.]
- Observations on some Carboniferous Polyzoa. (Proc. Geol. Assoc., IV, 1875, pp. 116-122, 1 pl.) [Carboniferous.]
- James, U. P.** Catalogue of Lower Silurian fossils at Cincinnati, Ohio, and vicinity; with descriptions of some new species of Corals and Polyzoa. Cincinnati, 1875, 8 pp. [Ordovician.]
- Nicholson, H. A.** Report upon the Palæontology of the Province of Ontario. Toronto, 1875, 96 pp., 4 pls.
- Descriptions of species of *Hippothoa* and *Alecto* from the Lower Silurian rocks of Ohio, with a description of *Aulopora arachnoidea*. (Ann. Mag. Nat. Hist. [4], XV, 1875, pp. 123-127, pl. xi.) [Ordovician.]
- Descriptions of new species of Polyzoa from the Lower and Upper Silurian rocks of North America. (Ann. Mag. Nat. Hist. [4], XV, 1875, pp. 177-184, pl. xiv.)
- Descriptions of new species and of a new genus of Polyzoa from the Paleozoic rocks of North America. (Geol. Mag. [n. s.], Decade II, II, 1875, pp. 33-38, pl. ii.) [Devonian.]
- On some massive forms of *Chaetetes* from the Lower Silurian. (Geol. Mag. [n. s.], Decade II, II, 1875, pp. 175-177.) [Ordovician.]
- Description of the Corals of the Silurian and Devonian Systems. (Pal. Ohio, II, 1875, pp. 181-242, pls. xxi, xxii.) [Ordovician.]



**Nicholson, H. A.** Description of the Polyzoa from the Silurian formation. (Pal. Ohio, II, 1875, pp. 257-268, pl. xxv.)

[Ordovician, Silurian.]

**Toula, F.** Permo-Carbon-Fossilien von der Westküste von Spitzbergen. (Leonhard u. Bronn's Neues Jahrb., 1875, pp. 225-264, pls. v-x.) [Bryozoa, pp. 228-231.] [Permo-Carboniferous.]

—— Eine Kohlenkalk-Fauna von den Barents-Inseln. (Nowaja-Semlja N. W.) (Sitz. d. k. Akad. d. Wiss. Wien, LXXI, 1875, Abth. I, pp. 527-608, pls. i-vi.) [Bryozoa, pp. 562-574, 583-588, pls. iii-v.] [Carboniferous.]

**Young, J., and Young, J.** On new Carboniferous Polyzoa. (Ann. Mag. Nat. Hist. [4], XV, 1875, pp. 333-336, pls. ix, ix bis.)

[Carboniferous.]

—— New species of Glauconome from the Carboniferous limestone strata of the West of Scotland. (Proc. Nat. Hist. Soc. Glasgow, II, 1875, pp. 325-335, pls. ii-iv.) [Carboniferous.]

## 1876.

**Dybowski, W.** Beschreibung einer Permischen Koralle *Fistulipora lahuseni* n. sp. (Verh. d. R.-k. Mineral. Ges. St. Petersburg [2], X, 1876, pp. 178-186.) [Permian.]

**Etheridge, R. Jun.** Notes on some Upper Palæozoic Polyzoa from Queensland. (Trans. Proc. R. Soc. Victoria, XII, 1876, pp. 66-68, 1 pl.)

—— Notes on Carboniferous Mollusca. (Geol. Mag. [n. s.], Decade II, III, 1876, pp. 150-156, pl. vi.) [Carboniferous.]

**Hall, J.** The fauna of the Niagara group in Central Indiana. (Twenty-eighth Ann. Rep. New York State Mus. Nat. Hist., Doc. Ed., Albany, 1876, 32 pls.) [Silurian.]

**Koninck, L. G. de.** Recherches sur les fossils paléozoïques de la Nouvelle-Galles du Sud (Australie). (Mém. Soc. R. Sci. Liège [2], II, 1876-77.) [Bryozoa, pp. 168-185, pls. vii, viii.]

[Carboniferous.]

**Nicholson, H. A.** Notes on the Palæozoic Corals of the State of Ohio. (Ann. Mag. Nat. Hist., [4], XVIII, 1876, pp. 85-94, pl. v.) [Ordovician.]

**Tenison-Woods, J. E.** On the genus *Fenestella*. (Proc. R. Soc. Tasmania for 1875, 1876, pp. 46-50.) [Devonian.]

## 1877.

**Dollfus, G.** *Terebripora capillacea*. Bryozoaire nouveau du Terrain Dévonien du Cotentin. (Bull. Soc. Linn. Normandie, Caen [3], I, 1877, pp. 96-102, pl. i.) [Devonian.]

**Dybowski, W.** Ueber die Gattung *Stenopora* Lonsdale, mit besonderer Berücksichtigung der *Stenopora columnaris* Schlotheim sp. (Verh. d. R.-k. Mineral. Ges. St. Petersburg [2], XII, 1877, pp. 65-78, pl. iii.)

—— Die Chætetiden der Ostbaltischen Silur-Formation. (Verh. d. R.-k. Mineral. Ges. St. Petersburg [2], XIV, 1879, pp. 1-134, pls. i-iv.) [Separate, St. Petersburg, 1877, 134 pp., 4 pls.]

[Silurian.]

**Etheridge, R., Jun.** Notes on Carboniferous Polyzoa. (Ann. Mag. Nat. Hist. [4], XX, 1877, pp. 30-37, pl. ii A.) [Carboniferous.]

**Nicholson, H. A., and Etheridge, R., Jun.** On Ascodictyon, a new provisional and anomalous genus of Palæozoic fossils. (Ann. Mag. Nat. Hist. [4], XIX, 1877, pp. 463-468, pl. xix.)

[Devonian, Carboniferous.]

—— On *Prasopora* Grayæ, a new genus and species of Silurian Corals. (Ann. Mag. Nat. Hist. [4], XX, 1877, pp. 388-392.) [Silurian.]

**Vine, G. R.** Chapters on Carboniferous Polyzoa. (Hardwicke's Sci. Goss., XIII, 1877, pp. 108-110, 152-156, 220-222, 271-274.)

[Carboniferous.]

**Young, J.** A new method of fixing fronds of Carboniferous Polyzoa on a layer of asphalt to show the celluliferous face. (Proc. Nat. Hist. Soc. Glasgow, III, 1877, pp. 207-210.) [Carboniferous.]

**Young, J., and Young, J.** On a new species of *Sulcoretepora*. (Proc. Nat. Hist. Soc. Glasgow, III, 1877, pp. 166-168.) [Carboniferous.]

## 1878.

**Bigsby, J. J.** Thesaurus Devonico-Carboniferous. The Flora and Fauna of the Devonian and Carboniferous Periods. London, 1878, xii+448 pp. [Bryozoa, pp. 9, 12, 13, 28-30, 206-215, 260-267.]

[Devonian, Carboniferous.]

**Dollfus, G.** Sur le *Terebripora capillaris*. (Bull. Soc. Géol. France [3], VI, 1878, pp. 103-104.) [Devonian.]

**Etheridge R., Jun.** Palæontology of the coasts visited by the British Expedition under Capt. Sir George Nares. Bryozoa. (Quar. Jour. Geol. Soc. London, XXXIV, 1878, pp. 611-627.)

[Carboniferous.]

—— A Catalogue of Australian Fossils. London, 1878. [Bryozoa: Silurian, pp. 13, 18; Middle and Upper Paleozoic, pp. 38, 43-46.]

**Gastaldi, B.** Su alcuni fossili paleozoici delle Alpi marittime e dell'Apennino ligure studiati da G. Michelotti. (Atti R. Accad. Lincei, Roma [3], I, 1878, pp. 113-128.)

- James, U. P.** The Paleontologist, Cincinnati, Ohio. Issued irregularly. No. 1, July 2, 1878, pp. 1-8; No. 2, Sept. 14, 1878, pp. 9-16; No. 3, Jan. 15, 1879, pp. 17-24; No. 4, July 10, 1879, pp. 25-32; No. 5, June 10, 1881, pp. 33-44; No. 6, Sept. 12, 1882, pp. 45-56; No. 7, Apr. 16, 1883, pp. 57-59, pls. i, ii. [Ordovician, Silurian.]
- Miller, S. A., and Dyer, C. B.** Contributions to Paleontology. No. 2, Cincinnati, 1878, 11 pp., pls. iii, iv. (Published by the authors.) [Ordovician.]
- Vine, G. R.** The genus *Fenestella*; its history, development, and range in space and time. (Hardwicke's Sci. Goss., XIV, 1878, pp. 247-250, 274-276.)
- Waters, A. W.** Remarks on some *Fenestellidæ*. (Trans. Manchester Geol. Soc., XIV, 1878, pp. 461-464, pl. i.)
- Whitfield, R. P.** Preliminary descriptions of new species of fossils from the lower geological formations of Wisconsin. (Ann. Rep. Geol. Sur. Wisconsin for 1877, 1878, pp. 50-89.) [Bryozoa, pp. 67-72.] [Ordovician.]
- Young, J., and Young, J.** On two new species of Carboniferous Polyzoa. (Proc. Nat. Hist. Soc. Glasgow, III, 1878, pp. 354-356, pl. ii.) [Carboniferous.]

## 1879.

- Etheridge, R., Jun.** On the occurrence of the genus *Ramipora* (Toula) in the Caradoc Beds of the neighborhood of Corwen. (Geol. Mag. [n. s.], Decade II, VI, 1879, pp. 1-4, pl. vi.) [Ordovician.]
- Hall, J.** Descriptions of new species of fossils from the Niagara formation at Waldron, Ind. (Trans. Albany Inst., X, 1883, pp. 57-76.) [Extract distributed 1879.] [Silurian.]
- The fauna of the Niagara group in central Indiana. (Twenty-eighth Ann. Rep. New York State Mus. Nat. Hist., Museum Edition, Albany, 1879, pp. 99-203, 32 pls.) [Bryozoa, pp. 110-126, pls. v-xii.] [Silurian.]
- Nicholson, H. A.** On the structure and affinities of the "Tabulate Corals" of the Palæozoic period, with critical descriptions of illustrative species. Edinburgh, 1879, 342 pp., 15 pls. [Bryozoa, pp. 253-327, pls. xii-xv.]
- , and **Etheridge, R., Jun.** Descriptions of Paleozoic Corals from northern Queensland, with observations on the genus *Stenopora*. (Ann. Mag. Nat. Hist. [5], IV, 1879, pp. 216-226, 265-285, pl. xiv.) [Carboniferous.]
- Shrubsole, G. W.** A review of the British Carboniferous *Fenestellidæ*. (Quar. Jour. Geol. Soc. London, XXXV, 1879, pp. 275-284.) [Carboniferous.]

- Ulrich, E. O.** Descriptions of new genera and species of fossils from the Lower Silurian about Cincinnati. (Jour. Cincinnati Soc. Nat. Hist., II, 1879, pp. 9-30, pl. vii.) [Ordovician.]
- Description of a new genus and some new species of Bryozoans from the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., II, 1879, pp. 119-131, pl. xii.) [Ordovician.]
- Vine, G. R.** Physiological characters of *Fenestella*. (Hardwicke's Sci. Goss., XV, 1879, pp. 50-54.)
- On *Palæocoryne* and its development of *Fenestella*. (Hardwicke's Sci. Goss., XV, 1879, pp. 225-229, 247-249.) [Carboniferous.]
- On Carboniferous Polyzoa and *Palæocoryne*. (Brit. Assoc. Rep., XLIX, 1879, pp. 350-351.) [Carboniferous.]

## 1880.

- Etheridge, R., Jun.** On a collection of fossils from the Bowen River coal field and the limestone of the Fanning River, north Queensland. (Proc. R. Phys. Soc. Edinburgh, V, 1880, pp. 263-328, pls. vii-xvii.) [Bryozoa, pp. 273-280.] [Carboniferous.]
- Hall, J.** Corals and Bryozoans of the Lower Helderberg group. (Thirty-second Ann. Rep. New York State Mus. Nat. Hist., Albany, 1879 [1880], pp. 141-176, pls. vii-xxii.) [Silurian.]
- Nicholson, H. A.** On the minute structure of the recent *Heteropora neozelanica* Busk, and on the relations of the genus *Heteropora* to *Monticulipora*. (Ann. Mag. Nat. Hist. [5], VI, 1880, pp. 329-338.) [Ordovician.]
- Shrubsole, G. W.** A review and description of the various species of British Upper Silurian *Fenestellidæ*. (Quar. Jour. Geol. Soc. London, XXXVI, 1880, pp. 241-254, pl. xi.) [Silurian.]
- Vine, G. R.** Report of the committee appointed for the purpose of reporting on the Carboniferous Polyzoa. (Brit. Assoc. Rep., L, 1880, pp. 76-87.) (Geol. Mag. [n. s.], Decade II, VII, 1880, pp. 501-512.) [Carboniferous.]
- Young, J.** Notes on a Carboniferous species of *Glauconome*. (Proc. Nat. Hist. Soc. Glasgow, IV, 1880, pp. 257-259.) [Carboniferous.]

## 1881.

- Claypole, E. W.** On the occurrence of an Archimedeform *Fenestellid* in the Upper Silurian rocks of Ohio. (Proc. Amer. Assoc. Adv. Sci., XXX, 1881, p. 191.) [Silurian.]
- Etheridge, R.** On the analysis and distribution of the British Palæozoic fossils. Anniversary Address of the President. (Quar. Jour. Geol. Soc. London, XXXVII, 1881, pp. 37-235.) [Contains notes regarding the geologic distribution and occurrence of Bryozoa.]

- Hall, J.** Bryozoans of the Upper Helderberg and Hamilton groups. (Trans. Albany Inst., X, 1883, pp. 145-197.) [Extracts separately paged distributed in 1881.] [Devonian.]
- Longe, F. D.** On some specimens of Diastopora and Stomatopora from the Wenlock limestone. (Quar. Jour. Geol. Soc. London, XXXVII, 1881, Proc. p. 239.) [Silurian.]
- Nicholson, H. A.** On the structure and affinities of the genus Monticulipora and its subgenera, with critical descriptions of illustrative species. Edinburgh, 1881, 240 pp., 6 pls. (Reviewed in Ann. Mag. Nat. Hist. [5], VIII, 1881, pp. 61-63.)
- Schlüter, C.** Ueber Callopora eifeliensis. (Verh. d. Naturh. Ver. d. preuss. Rheinlande u. Westphalens, XXXVIII, 1881, Sitzb., pp. 72-75, figs. 1, 2.) [Devonian.]
- Shrubsole, G. W.** Further notes on the Carboniferous Fenestellidæ. (Quar. Jour. Geol. Soc. London, XXXVII, 1881, pp. 178-189.) [Carboniferous.]
- Vine, G. R.** Second report of the committee appointed for the purpose of reporting on fossil Polyzoa. (Brit. Assoc. Rep., LI, 1881, pp. 161-176.) [Silurian.]
- Silurian uniserial Stomatopora and Ascodictya. (Quar. Jour. Geol. Soc., XXXVII, 1881, pp. 613-619.) [Silurian.]
- Notes on the Carboniferous Polyzoa of north Yorkshire. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], VII, 1881, pp. 329-341.) [Carboniferous.]
- Young, J.** Remarks on the genus Synocladia and other allied forms, with description of a new species. (Proc. Nat. Hist. Soc. Glasgow, V, 1881, pp. 30-35.) [Carboniferous.]

## 1882.

- Buel, I. M.** The Corals of Delafield. (Trans. Wisconsin Acad. Sci., V, 1882, pp. 185-193.) [Ordovician.]
- Hall, J.** Descriptions of the species of fossils found in the Niagara group at Waldron, Indiana. (Indiana, Dept. Geol. Nat. Hist., Eleventh Ann. Rep., 1882, pp. 217-345, pls. iv-xi.) [Silurian.]
- Miller, S. A.** Notice of a work by Professor Nicholson on the genus Monticulipora. (Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 25-33.)
- Shrubsole, G. W.** Thamniscus: Permian, Carboniferous, and Silurian. (Quar. Jour. Geol. Soc. London, XXXVIII, 1882, pp. 341-346.)
- On the occurrence of a new species of Phyllopora in the Permian limestone. (Quar. Jour. Geol. Soc. London, XXXVIII, pp. 347-349.) [Permian.]
- and **Vine, G. R.** The Silurian species of Glauconome and a suggested classification of the Palæozoic Polyzoa. (Geol. Mag. [n. s.], Decade II, IX, 1882, pp. 381-382.) (Quar. Jour. Geol. Soc. London, XXXVIII, 1882, Proc. p. 245.) (Quar. Jour. Geol. Soc. London, XL, 1884, pp. 329-332.)

**Ulrich, E. O.** American Paleozoic Bryozoa. (Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 121-175, pls. vi-viii; pp. 232-257, pls. x, xi.)

**Vine, G. R.** Notes on the Polyzoa of the Wenlock shales, Wenlock limestone, and shales over the Wenlock limestone. (Quar. Jour. Geol. Soc. London, XXXVIII, 1882, pp. 44-68.) [Silurian.]

**Whitfield, R. P.** Paleontology. (Geol. Wisconsin, IV, 1882, pp. 163-349, pls. i-xxvii.) (Bryozoa, pp. 248-258, pls. xi, xii.) [Ordovician.]

**Young, J.** Remarks on some of the external characters which distinguish *Fenestella plebeia* McCoy from *F. tuberculocarinata* Eth., Jun. (Trans. Geol. Soc. Glasgow, VI, 1882, pp. 182-188.) [Carboniferous.]

—— Notes on the perfect condition of the cell pores and other points of structure in certain species of Carboniferous Polyzoa from western Scotland. (Trans. Geol. Soc. Glasgow, VI, 1882, pp. 211-217.) [Carboniferous.]

—— On the identity of *Ceramopora* (Berenicea) megastoma McCoy with *Fistulipora minor* McCoy. (Ann. Mag. Nat. Hist. [5], X, 1882, pp. 427-431.) [Carboniferous.]

### 1883.

**Claypole, E. W.** On *Helicopora*, a new spiral genus (with three species) of North American *Fenestellids*. (Quar. Jour. Geol. Soc. London, XXXIX, 1883, pp. 30-38, pl. iv.)

**Foord, A. H.** Contributions to the Micro-Palæontology of the Cambro-Silurian rocks of Canada. (Geol. Nat. Hist. Sur. Canada, Ottawa, 1883, 26 pp, 7 pls.) [Ordovician.]

**Hall, J.** Discussion upon the manner of growth, variation of form and characters of the genus *Fenestella*, and its relations to *Hemitrypa*, *Polypora*, *Retepora*, *Cryptopora*, etc. (Report of the State Geologist [of New York] for the year 1882. Albany, 1883, pp. 5-16, 36 figs.)

—— Fossil Corals and Bryozoans of the Upper Helderberg group. 25 plates with explanation sheets. (Report of the State Geologist [of New York] for the year 1882. Albany, 1883, pls. vii-xxxiii.) [Devonian.]

**Hudleston, W. H.** Notes on a collection of fossils and of rock specimens from Western Australia, north of the Gascogne River. (Quar. Jour. Geol. Soc. London, XXXIX, 1883, pp. 582-595, pl. xxiii.) [Carboniferous.]

**Nicholson, H. A.** Contributions to Micro-Palæontology: On *Stenopora* Howsii, Nicholson, with notes on *Monticulipora* ? *tumida* Phillips, and remarks on *Tabulipora* Urii, Young. (Ann. Mag. Nat. Hist. [5], XII, 1883, pp. 285-297, pl. x.) [Carboniferous.]

- Ulrich, E. O.** American Paleozoic Bryozoa (continuation). (Jour. Cincinnati Soc. Nat. Hist., VI, 1883, pp. 82-92 pl. i; pp. 148-168, pls. vi, vii; pp. 245-279, pls. xii-xiv.)
- Vine, G. R.** Further notes on new species and other Yorkshire Carboniferous Fossil Polyzoa described by Prof. John Phillips. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], VIII, 1883, pp. 93-108.) [Carboniferous.]
- Fourth report of the committee appointed for the purpose of reporting on fossil Polyzoa. (Brit. Assoc. Rep., LIII, 1883, pp. 175-209.)
- Notes on the Carboniferous Polyzoa of west Yorkshire and Derbyshire. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], VIII, 1883, pp. 161-174.) [Carboniferous.]
- Young, J.** On Ure's "Millepore," *Tabulipora* (*Cellepora*) *Urii*, Flem. (Ann. Mag. Nat. Hist. [5], XII, 1883, pp. 154-158.) [Carboniferous.]
- Notes on Ure's "Millepore," *Tabulipora Urii*, J. Young (*Cellepora Urii* Flem.). (Trans. Geol. Soc., Glasgow, VII, 1883, pp. 264-272.) [Carboniferous.]

## 1884.

- Foord, A. H.** On three new species of Monticuliporoid Corals. (Ann. Mag. Nat. Hist. [5], XIII, 1884, pp. 338-342, pl. xii.) [Ordovician.]
- Hall, J.** Descriptions of the Bryozoans of the Hamilton group. (Report of the State Geologist [of New York] for the year 1883. Albany, 1884, pp. 5-61.) [Devonian.]
- Bryozoa (*Fenestellidae*) of the Hamilton group. (Thirty-sixth Ann. Rep. New York State Mus. Nat. Hist., Albany, 1884, pp. 57-72.) [Devonian.]
- James, U. P.** Descriptions of three species of fossils. (Jour. Cincinnati Soc. Nat. Hist., VII, 1884, pp. 21-24.) [Ordovician.]
- Descriptions of four new species of fossils from the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., VII, 1884, pp. 137-139, pl. vii.) [Ordovician.]
- Nicholson, H. A.** Contributions to Micro-Palæontology. Notes on some species of monticuliporoid corals from the Upper Silurian rocks of Britain. (Ann. Mag. Nat. Hist. [5], XIII, 1884, pp. 117-127, pl. vii.) [Silurian.]
- Shrubsole, G. W., and Vine, G. R.** The Silurian species of *Glaucome*, and a suggested classification of the Palæozoic Polyzoa. (Quar. Jour. Geol. Soc. London, XL, 1884, pp. 329-332.)
- Ulrich, E. O.** American Paleozoic Bryozoa (continuation). (Jour. Cincinnati Soc. Nat. Hist., VII, 1884, pp. 24-51, pls. i-iii.)
- Bull. 173—42

**Vine, G. R.** Notes on species of Ascodictyon and Rhopalonaria from the Wenlock shales. (Ann. Mag. Nat. Hist. [5], XIV, 1884, pp. 77-89.) [Silurian.]

—— Micro-Palæontology of the northern Carboniferous shales. II. Polyzoa of the Redesdale shales, Northumberland. (The Naturalist, a monthly journal of natural history for the north of England, London [n. s.], X, 1884, No. 111, pp. 61-66.) III. The Ostracoda, Monticulipora, and miscellaneous forms: Redesdale shales, Northumberland. (Ibid., No. 113, pp. 97-103.) IV. Polyzoa, Entomostraca, Gasteropoda, and miscellaneous organisms of the Skelley Gate shales: Northumberland. (Ibid., No. 117, 1885, pp. 207-212.) [Carboniferous.]

### 1885.

**Hall, J.** On the mode of growth and relations of the Fenestellidæ. (Report of the State Geologist [of New York] for the year 1884. Albany, 1885, pp. 35-46, pls. i, ii.)

**Nicholson, H. A., and Foord, A. H.** On the genus *Fistulipora*, McCoy, with descriptions of several species. (Ann. Mag. Nat. Hist. [5], XVI, 1885, pp. 496-517, pls. xv-xviii.)

**Shrubsole, G. W.** Note on the *Glaucanome disticha* from the Bala beds of Glyn Ceiriog. (Proc. Chester Soc. Nat. Sci., No. 3, 1885, pp. 98-100.) [Ordovician.]

**Vine, G. R.** Notes on the Yoredale Polyzoa of north Lancashire. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], IX, 1885, pp. 70-98, pl. x.) [Carboniferous.]

—— Notes on the Polyzoa of the Wenlock shales. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], IX, 1885, pp. 179-201, pl. xii.) [Silurian.]

—— Notes on the Palæontology of the Wenlock shales of Shropshire. (Mr. Maw's washings, 1880). (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], IX, 1885, pp. 225-248.) [Silurian.]

**Waagen, W., and Pichl, J.** Salt Range fossils. (Memoirs Geol. Surv. India. Palæontologica Indica, Ser. XIII, Calcutta, 1885.) [Bryozoa, pp. 771-834, pls. lxxxvii-xcvi.] [Carboniferous.]

**Young, John.** On the identity of *Ceramopora* (Berenicea) megastoma with *Fistulipora minor*, McCoy. (Trans. Geol. Soc. Glasgow, VII, 1885, Part II, pp. 244-250.) [Carboniferous.]

### 1886.

**Etheridge, R.** Fossils of the British Islands stratigraphically and zoologically arranged. Vol. I. Palæozoic. Oxford, 1886, 468 pp. [Bryozoa: Cambrian and Silurian, pp. 71-73, 411-412; Devonian, pp. 147-148; Carboniferous, pp. 245-250, 457-458; Permian, pp. 358-359.]



- Hall, J.** Bryozoa of the Upper Helderberg group. Plates and Explanations. (Fifth Ann. Rep. State Geologist [of New York] for the year 1885. Albany, 1886, 14 pls.) [Devonian.]
- Nicholson, H. A., and Etheridge R., Jun.** On the Tasmanian and Australian species of the genus *Stenopora*, Lonsdale. (Ann. Mag. Nat. Hist. [5], XVII, 1886, pp. 173-187, pls. iii-iv.) [Carboniferous.]
- Ulrich, E. O.** Descriptions of new Silurian and Devonian fossils. (Contrib. Amer. Pal., I, 1886, pp. 3-35, pls. i-iii.) [Bryozoa, pp. 3-25, pls. i, ii.]
- Report on the Lower Silurian Bryozoa, with preliminary descriptions of some of the new species. (Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, 1886, pp. 57-103.) [Ordovician.]
- Waagen, W., and Wentzel, J.** Salt Range fossils. (Memoirs Geol. Surv. India. Palæontologica Indica, Ser. XIII, Calcutta, 1886. [Coelenterata (Bryozoa in part), pp. 854-892, 904-924, pls. cii-cxv. Supplement to Bryozoa, pp. 963-966.] [Carboniferous.]

## 1887.

- Foerste, A. F.** Flint Ridge Bryozoa. (Bull. Scient. Lab. Denison Univ., II, 1887, pp. 71-88, pls. vii, viii.) [Carboniferous.]
- The Clinton group of Ohio. Part III. (Bull. Scient. Lab. Denison Univ., II, 1887, pp. 149-176.) [Silurian.]
- Recent methods in the study of the Bryozoa. (Science, X, 1887, pp. 225-226.)
- Hall, J.** Descriptions of Fenestellidæ of the Hamilton group of New York. (Sixth Ann. Rep. State Geologist [of New York] for the year 1886. Albany, 1887, pp. 43-70, pls. i-viii.) [Devonian.]
- and **Simpson, G. B.** Palæontology of New York. Vol. VI. Corals and Bryozoa: Containing descriptions and figures of species from the Lower Helderberg, Upper Helderberg, and Hamilton groups. Albany, 1887, xxvi+298 pp., 67 pls. [Silurian, Devonian.]
- James, U. P., and James, J. F.** On the Monticuliporoid Corals of the Cincinnati group, with a critical revision of the species. (Jour. Cincinnati Soc. Nat. Hist., X, 1887, pp. 118-141; *ibid.*, X, 1888, pp. 154-184; *ibid.*, XI, 1888, pp. 15-47.) [Ordovician.]
- Rominger, C.** Description of a new form of Bryozoa. (Proc. Acad. Nat. Sci. Philadelphia, 1887, p. 11, pl. i.) [Devonian.]
- Stuckenberg, A.** [Corals and Bryozoa of the Upper Carboniferous limestone of Middle Russia.] [Russian.] (Trudui Kazan Univ. Protok., 1886-7; No. 92, 3 pp.) [Carboniferous.]
- Young, J.** Note on a new family of the Polyzoa, Cystodictyonidæ (E. O. Ulrich), with notice of three Carboniferous species. (Trans. Edinburgh Geol. Soc., V, 1887, Part III, pp. 461-466.) [Carboniferous.]

## 1888.

- Barrois, C.** Les Bryozoaires dévoniens de l'Etat de New York, d'après M. James Hall. (Ann. Soc. Géol. Nord, Lille, XV, 1888, pp. 123-130.) [Devonian.]
- Hall, J.** Description of new species of Fenestellidæ of the Lower Helderberg, with explanations of plates illustrating species of the Hamilton group, described in the Report of the State Geologist for 1886. (Report of the State Geologist [of New York] for the year 1887, pp. [393-394], pls. viii-xv.) [This report is also bound with the Forty-first Ann. Rep. New York State Museum, 1888.] [Silurian, Devonian.]
- James, J. F.** Monticulipora, a coral and not a polyzoon. (Amer. Geol., I, 1888, pp. 386-392.) [Ordovician.]
- Oehlert, D. P.** Descriptions de quelques espèces dévoniennes du département de la Mayenne. (Bull. Soc. d'Études Scient. d'Angers, XVII, 1888, pp. 65-120, pls. vi-x.) [Bryozoa, pp. 104-109.] [Devonian.]
- Stuckenberg, A.** Anthozoen und Bryozoen des oberen mittellrussischen Kohlenkalks. (Mém. Com. Géol., V, No. 4, 1888, 54 pp., 4 pls.) [Carboniferous.]
- Ulrich, E. O.** A list of the Bryozoa of the Waverly group in Ohio; with descriptions of new species. (Bull. Denison Univ., IV, 1888, pp. 62-96, pls. xiii, xiv.) [Carboniferous.]
- On Sceptropora, a new genus of Bryozoa, with remarks on Helopora, Hall, and other genera of that type. (Amer. Geol., I, 1888, pp. 228-234.) [Ordovician.]
- Vine, G. R.** Notes on the classification of the Palæozoic Polyzoa. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], XI, 1888, pp. 20-44.)
- A monograph of Yorkshire Carboniferous and Permian Polyzoa. Part I. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], XI, 1888, pp. 68-85, pls. iii, iv.) [Carboniferous, Permian.]
- Young, J.** On the structure of *Fistulipora incrustans* Phill. (F. minor McCoy). (Ann. Mag. Nat. Hist. [6], I, 1888, pp. 237-247.) [Carboniferous.]

## 1889.

- Barrois, C.** Faune du Calcaire d'Erbray (Loire-Inférieure): Contribution à l'étude du terrain Dévonien de l'ouest de la France. (Mém. Soc. Géol. Nord, Lille, III, 1889, 348 pp., 17 pls.) (Mém. Soc. Agric. Arts, Lille [4], XVII, 1889. [Bryozoa, pp. 57-59.] [Devonian.]
- Miller, S. A.** North American Geology and Paleontology. Cincinnati, 1889, 664 pp., 1194 figs. [Bryozoa, pp. 289-330, figs. 448-531.] First Appendix, 1892, pp. 665-718, figs. 1195-1265. [Bryozoa, pp. 684-685.]

- Ulrich, E. O.** Contributions to the Micro-Palæontology of the Cambro-Silurian rocks of Canada. Part II. (Geol. Nat. Hist. Sur. Canada, Montreal, 1889, pp. 27-57, pls. viii, ix.) [Ordovician.]
- Vine, G. R.** Monograph of Yorkshire Carboniferous and Permian Polyzoa. Part II. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], XI, 1889, pp. 184-200, pl. vii.) [Carboniferous, Permian.]

## 1890.

- Hinde, G. J.** Notes on the Palæontology of Western Australia, Corals and Polyzoa. (Geol. Mag. [n. s.], Decade III, VII, 1890, pp. 194-204, pls. viii, viii a.) [Bryozoa, pp. 199-204.] [Carboniferous.]
- Nickles, J. M.** Studies on Monticulipora. (Amer. Geol., VI, 1890, pp. 396-399.) [Ordovician.]
- Rominger, C.** Studies on Monticulipora. (American Geologist, VI, 1890, pp. 102-121.) [Ordovician.]
- Ulrich, E. O.** Paleozoic Bryozoa. (Geol. Sur. Illinois, VIII, 1890, pp. 285-688, pls. xxix-lxxviii.)
- New Lower Silurian Bryozoa. (Jour. Cincinnati Soc. Nat. Hist., XII, 1890, pp. 173-198, 22 figs.) [Ordovician.]

## 1891.

- Hall, J.** Continuation of descriptions of Bryozoa not printed in volume VI, Palæontology of New York, for the Report of the State Geologist, 1890. (Tenth Ann. Rep. State Geologist [of New York] for the year 1890. Albany, 1891, pp. 37-57.) (Forty-fourth Ann. Rep. New York State Museum, 1891, pp. 67-87.) [Devonian.]
- Vine, G. R.** British Palæozoic Ctenostomatous Polyzoa. (Proc. Yorkshire Geol. Polyt. Soc. [n. s.], XII, 1891, pp. 74-93, pls. iii, iv.)

## 1892.

- Etheridge, R., Jun.** Palæontology. In Geology and Palæontology of Queensland and New Guinea, Brisbane, 1892. [Bryozoa (Permo-Carboniferous), pp. 217-225.]

## 1893.

- Cole, G. A. J.** On Hemitrypa hibernica, McCoy. (Scient. Proc. R. Dublin Soc. [n. s.], VIII, pp. 132-144, pl. viii.) [Carboniferous.]
- James, J. F.** Manual of the Paleontology of the Cincinnati group. Part IV. (Jour. Cincinnati Soc. Nat. Hist., XV, 1893, pp. 144-159.) [Ordovician.]
- Ulrich, E. O.** On Lower Silurian Bryozoa of Minnesota. (Geol. Minnesota, III, Part I, Minneapolis, 1895, pp. 96-332, pls. i-xxviii.) [Ordovician.]

## 1894.

- James, J. F.** Manual of the Paleontology of the Cincinnati group. Part V. (Jour. Cincinnati Soc. Nat. Hist., XVI, 1894, pp. 178-208.) [Ordovician.]
- Keyes, C. R.** Paleontology of Missouri, Part II. (Missouri Geol. Sur.) Jefferson City, 1894. 266 pp., 24 pls. [Bryozoa, pp. 13-37, pls. xxxiii, xxxiv.] [Carboniferous.]
- Počta, P.** Bryozoaires, etc. [from the Silurian of Bohemia]. Système Silurien du centre de la Bohême par J. Barrande, VIII, tome I, Prague, 1894. [Bryozoa, pp. 3-132, pls. i, ii, vii-xvii.] [Silurian.]

## 1895.

- Ami, H. M.** Notes on Canadian fossil Bryozoa. (Canad. Rec. Sci., VI, 1895, pp. 222-229.) [Ordovician.]
- Cole, G. A. J.** On the Fenestellidæ, with reference to Irish Carboniferous strata. (Irish Nat., IV, 1895, pp. 100-104.) [Carboniferous.]
- James, J. F.** Manual of the Paleontology of the Cincinnati group (continuation). (Jour. Cincinnati Soc. Nat. Hist., XVIII, 1895, pp. 67-88.) [Ordovician.]
- Simpson, G. B.** A discussion of the different genera of Fenestellidæ. (Thirteenth Ann. Rep. State Geologist [of New York] for the year 1893. Albany, 1894 (1895), pp. 687-727.) (Forty-seventh Ann. Rep. New York State Museum, 1894 (1895), pp. 881-921.)
- Whidborne, G. F.** A monograph of the Devonian fauna of the south of England. (Palæontogr. Soc. Publ.) [Bryozoa, Vol. II, Part IV, pp. 161-188, pls. xviii-xx.] [Devonian.]

## 1896.

- James, J. F.** Manual of the Paleontology of the Cincinnati group (continuation). Jour. Cincinnati Soc. Nat. Hist., XVIII, 1896, pp. 115-140.) [Ordovician.]
- Ulrich, E. O.** Bryozoa. In Zittel's Textbook of Palæontology (English edition), London and New York, 1896. [Bryozoa, I, pp. 257-291, figs. 411-488.]

## 1897.

- Paalzow, Richard.** Eine neue Bryozoe aus dem Zechsteinriff von Poessneck. (Abh. Nat. Ges. Nürnberg, XI, 1897, pp. 46-47.) [Permian.]
- Simpson, G. B.** A Handbook of the genera of the North American Palæozoic Bryozoa. With an introduction upon the structure of living species. (Fourteenth Annual Report of the State Geologist [of New York] for the year 1894. Albany, 1895 [1897], pp. 407-608, pls. A-E, i-xxv.) [This Report of the State Geologist is also bound in with the Forty-eighth Ann. Rep. New York State Museum.]

## 1898.

- Koninck, L. G. de.** Descriptions of the Palæozoic fossils of New South Wales (Australia). Trans. from the French [of 1876-77]. (Mem. Geol. Sur. New South Wales, Palæontology, No. 6, Sydney, 1898, xiii+298 pp., 24 pls.) [Bryozoa, pp. 128-140, pl. viii.]  
[Carboniferous.]

## 1899.

- Diener, C.** Himalayan Fossils. Vol. I, Part II. Arthracolithic fossils of Kashmir and Spiti. (Palæontologica Indica, Series XV, 1899, pp. 1-95, pls. i-viii.) [Bryozoa, pp. 83-86, pls. vii, viii.]  
[Permo-Carboniferous.]

- Grabau, A. W.** Geology and Paleontology of Eighteenmile Creek and the Lake Shore sections of Erie County, New York. Part II. Paleontology. (Bull. Buffalo Soc. Nat. Sci., VI, 1899, pp. 98-403, 263 figs.) [Bryozoa, pp. 136-139, 158-179, figs. 47-77 A.]  
[Devonian.]

## 1900.

- Rogers, A. F.** New Bryozoans from the Coal Measures of Kansas and Missouri. (Kans. Univ. Quar. [A], IX, 1900, pp. 1-12, pls. i-iv.)  
[Carboniferous.]

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“Multum adhuc restat operis, multumque restabit, nec ulli nato post mille secula præcludetur occasio aliquid adjiciendi.”

—Seneca.