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GEOLOGICAL SOCIETY OF AMERICA  
SPECIAL PAPERS  
NUMBER 1

BIBLIOGRAPHIC INDEX  
OF  
PALEOZOIC OSTRACODA

BY  
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AND  
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1934

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## PREFACE

PROBABLY no group of fossil organisms except the Foraminifera has received more active study during the past decade than the Ostracoda, partly because of their scientific interest but mainly because of their importance in economic geology. The oil geologist finds the ostracods especially useful because their small size enables them to escape destruction by the drill, and the excellent preservation of the carapaces, with more or less distinctly marked surfaces, permits more certain specific identifications. Moreover, they are less subject to the influences of lithologic changes; the same fauna may persist in a formation whether it be limestone, shale, or sandstone. Again, many species have short ranges, so that each formation has its characteristic fauna. Some, indeed, are long ranged, but these are mainly the simple, smooth-shelled forms difficult of differentiation.

Since 1901 the senior writer has been engaged in the compilation of an illustrated bibliographic index and synonymic catalogue of fossil Ostracoda, primarily as an aid to his studies of this group of organisms. During a part of the time he had the efficient aid of Margaret Moodey, of the Department of Geology of the National Museum, whose work has been of great value in this as well as in other branches of paleontology. Through her assistance the catalogue of Ostracoda was kept fairly well up to date.

In 1928, while a graduate student at the University of Kansas, Betty Kellett, under the guidance of Raymond C. Moore, collected references to fossil Ostracoda and assembled all the titles upon this subject recorded in the "Zoological Index" and in the "International Index of Scientific Literature." Later, while a student at the Cushman Laboratory for Foraminiferal Research, at Sharon, Massachusetts, having access to the neighboring libraries of the Boston Society of Natural History and the Museum of Comparative Zoology, she brought her references fairly well up to date. In the summer of 1929 she visited Washington to continue this work, and here learned of the synonymic catalogue that had been assembled at the United States National Museum. Comparison of Miss Kellett's alphabetic set of references with the synonymic catalogue at the Museum suggested the combination of the two in the interest of science. The senior writer undertook the checking of the two. In addition, he rechecked much of the important literature, mainly with reference to the exact horizon and locality—information that previously had been recorded only in a general way—and worked out the synonymy in still more detail. The citations have been

brought up to date of January 1, 1934, although it is obvious that some of the more recent as well as some of the older publications may have been missed. At the last moment opportunity was found to include a few papers published early in 1934.

It was originally intended to issue this bibliographic index as a Bulletin of the United States National Museum, but owing to present economic conditions, there appeared to be likelihood of considerable delay in its appearance in that series. The thanks of the senior author are due to the Secretary of the Smithsonian Institution for permission to publish this volume.

Miss Kellett is particularly indebted to Dr. Joseph A. Cushman, Dr. Raymond C. Moore, and Dr. J. Brookes Knight for advice and encouragement, and to Dr. Charles Blake for assistance, particularly in working with the foreign literature. Both authors are much indebted to Miss Jessie G. Beach, of the Department of Geology of the National Museum, for her untiring efforts throughout the progress of the work. Without her aid in the arrangement of the references, the compilation of faunal lists, and the preparation of the manuscript in general, the work could not have been brought to the point of publication.

Preceding the bibliographic list proper, which comprises most of this volume, the authors have introduced several chapters, the first dealing with general morphology, methods of study, and criteria of classification of the Ostracoda, based largely upon Ulrich and Bassler's article in the Silurian volume of the Maryland Geological Survey. This is followed by a section on the classification and diagnosis of Paleozoic ostracod genera and by faunal lists of Paleozoic Ostracoda.

Under the bibliographic references the type locality is cited first, and in cases where a species occurs in several formations the name of the formation in parentheses follows the locality. The collections of the United States National Museum are so rich in types of Paleozoic Ostracoda that this index has included the register of these types. As in National Museum publications in paleontology, the type terms, *holotype*, *paratype*, and *cotype*, have been used for primary types, and *plesiotype* for all supplementary types. Specimens from the type locality are registered in some cases as *topotypes*.

It should be noted here that the various species of so-called Ostracoda from the Cambrian, described by G. F. Matthew and others, belong to the order Conchostraca of the Branchiopoda, and have been made the subject of a small monograph by Ulrich and Bassler.†

† E. O. Ulrich and R. S. Bassler: *Cambrian bivalved Crustacea of the order Conchostraca*, U. S. Nat. Mus., Pr. vol. 78, art. 4 (1931) 130 pages, 10 pls.

## ABBREVIATIONS

(The same abbreviation is used for variant forms and like terms in other languages.)

Abh.	Abhandlungen	Crust.	Crustaces, Crustaceen
Abstr.	Abstract	Dec.	Decade
Abt., Abtheil.	Abteilung, Abtheilung	Denksch.	Denkschriften
Acad.	Academie	Dept.	Department
Accad.	Accademia	Descr.	Description
Adv.	Advancement	Deutsch.	Deutschen
Afd.	Afdeeling	Dev.	Devonian
Afhand.	Afhandling	Dist.	District
Agr.	Agriculture	Doc.	Document
Akad.	Akademie	Ed.	Edition
Ala.	Alabama	Eng.	English
Am.	American	Entom.	Entomostraca
Anim.	Animalischen	Ergeb.	Ergebnisse
Ann.	Annals, Annual	Esth.	Esthland
Appd.	Appendix	Etrang.	Etrangers
Arch.	Archiv, Archivos	Europ.	Europe, European
Ark.	Arkansas	Exp.	Expedition, Exposition
Årsb.	Årsbok	Expl.	Explanation
Årsskr.	Årsskrift	Faltkl.	Faltklubb
Art.	Article	Fasc.	Fascicle
Assoc.	Association	Fig., Figs.	Figure, Figures
Avanc.	Avancement	Filos.	Filosofiska
Avd.	Avdelningen	Fis.	Fische, Fisica
Avh.	Avhandlingar	För., Fören.	Föreningens
Bd.	Band	Forh.	Forhandlingar
Beil.	Beilage	Form.	Formations, Formation- skunde
Beitr.	Beiträge	Foss.	Fossils
Belg.	Belgique	Franc.	Français
Ber.	Berichte	Fysiogr.	Fysiografiska
Berg.	Bergakademie	Ga.	Georgia
Biol.	Biological	Gask.	Gaskohle
Biv.	Bivalved	Gen.	General, Genootschap
Böhm.	Böhmischen	Geog.	Geography, Geognostica
Bros.	Brothers	Geogn.	Geognostisch
Bull.	Bulletin	Geol.	Geology, Geological, Geologischen
Bur.	Bureau	Ges., Gesamm.	Gesamante Gesellschaft, Geschiebe- forschung
C. R.	Compte Rendu	Graf.	Grafen
Cab.	Cabinet	Grossh.-Hess.	Grossherzoglich- Hessische
Can.	Canadian	Grundz.	Grundzüge
Carb.	Carboniferous	Handb.	Handbook
Cat.	Catalog	Handl.	Handlingar
Centr.	Centralblatt	Her.	Heraldisch
Chap.	Chapter	Herausg.	Herausgegeben
Char.	Characteristic	Herzog.	Herzogthümer
Circ.	Circular	Hist.	History
Cl.	Classe	Holst.	Holstein
Class.	Classification	Hydrol.	Hydrologie
Co.	County	Ill.	Illinois
Colo.	Colorado	Illus.	Illustrated
Com.	Comité	Imp.	Imperial
Comm.	Commission	Ind.	Indiana
Comp.	Comparative		
Congr.	Congress		
Contr.	Contributions		
Cour.	Couronnes		
Crit.	Critique		

Inst.	Institute	Naturw.	Naturwissenschaftliche
Int., Internat.	International		
Ist.	Istituto	Nebr.	Nebraska
Ital.	Italian, Italica	Neighb.	Neighborhood
Jahr., Jber.	Jahresbericht	Nev.	Nevada
Jahrb.	Jahrbuch	No., Nos.	Number, Numbers
Jahrg.	Jahrgang	Nom. Nud.	Nomen Nudum
Jour.	Journal	Nordost.	Nordosten
Kais.	Kaiseri, Kaiserlichen	Occ.	Occasional
Kalks.	Kalksteine	Öfv.	Öfversikt, Översigt
Kan.	Kansas	Okla.	Oklahoma
Kol.	Kolonien	Ökon.	Ökonomischen
K., Kongl.	Königlich	Oster.	Osterreich
Kreid.	Kreideformation	Ostrac.	Ostracoda
Ky.	Kentucky	P.	Page, Pages
Land, Landes.	Landesanstalt	Pa.	Pennsylvania
Laus.	Lautsitzisches	Pal.	Paleozoic, Paleontology
Lehrb.	Lehrbuch	Paleont.	Paleontology
Leth.	Lethaea	Palaeontogr.	Palaeontographical
Lit.	Literary	Pap.	Paper
Liv.	Livland, Livre	Perm.	Permian, Permformation
Mag.	Magazine		
Maj.	Majesté	Pet., Petref.	Petrefaktenkunde
Mat.	Matematiska, Matematische	Phil.	Philosophical
Mater.	Materialien	Phys.	Physical, Physikalisch
Man.	Manual	Pl., Pls.	Plate, Plates
Math.	Mathematisk	Polyt.	Polytechnic
Md.	Maryland	Pont.	Pontificia
Me.	Maine	Pr.	Proceedings
Meckl.	Mecklenburg	Pr.-Verb.	Procès-Verbaux
Med.	Mededeelingen, Medde- lande, Médicin	Pract.	Practical
Meddel.	Meddelelser	Prelim.	Preliminary
Mél.	Mélanges	Preuss.	Preussens, Preussischen
Mem.	Memoirs	Prof.	Professional
Mich.	Michigan	Prom.	Promotion
Mier.	Microscopical	Pt.	Part
Midl.	Midland	Publ.	Publication
Mijn.	Mijnbouwkundig	Quart.	Quarterly
Min.	Mineralogy, Mining	R.	Reale
Minn.	Minnesota	Rec.	Records
Mitt.	Mitteilungen	Ref.	Reference
Mo.	Missouri	Reichst.	Reichstalt
Mon.	Monograph	Rept.	Report
Ms., Mss.	Manuscript, Manuscripts	Republ.	Republished
Mts.	Mountains	Res.	Research, Resources
Mus.	Museum	Rev.	Review, Revue
N. J.	New Jersey	Rhein.	Rheinische
N. Mex.	New Mexico	Ross.	Rossica
N. S.	New Series	Roy.	Royal
N. Y.	New York	Russ.	Russlands
Nac.	Nacional	Sällsk.	Sällskapets
Narr.	Narrative	Sav.	Savants
Nat.	National, Natural, Nat- uralist, Naturveten- skapligae, Naturvi- denskabelig	Schles.	Schleswig
Naturf.	Naturforschenden	Schrift.	Schriften
Naturg.	Naturgeschichte	Sci.	Science
Naturk.	Naturkunde	Scotl.	Scotland
		Sec.	Section
		Selsk.	Selskabet
		Sen.	Senate
		Senck.	Senckenbergischen
		Ser.	Series
		Sess.	Session

Sil.	Siluriska, Silurian	Uberg.	Uebergang-Gebirges
Sitz.	Sitzungsberichte	Uherr.	Ueberreste
Skript.	Skrifter	Umgeb.	Umgebung
Soc.	Society	Unders.	Undersökning
Spec.	Special	Univ.	University, Universelle
St.	Saint		Universitets
Sta.	Station	Unt.	Unteren
Summ.	Summary	Va.	Virginia
Suppl.	Supplement	Var.	Variety
Surv.	Survey	Ver.	Verein
Sven.	Svenska	Verb.	Verbali, Verbreitung
Sver.	Sveriges	Verh.	Verhandlungen
Syn.	Synopsis	Versl.	Verslagen
Syst.	Système	Verst.	Versteinerungen
Techn.	Technical, Technology	Vet.-Akad.	Vetenskaps-Akademiens
Tenn.	Tennessee	Vid.	Videnskabs
Tert.	Tertiary	Vol.	Volume
Tex.	Texas	W. Va.	West Virginia
Textb.	Textbook	Wald.	Waldes
Thüring.	Thüringens	Wet.	Wetenschappen
Tosc.	Toscana	Wis.	Wisconsin
Tr.	Transactions	Wiss.	Wissenschaften
Trav.	Travaux	Wyo.	Wyoming
U. S. N. M.	United States National Museum	Zeitschr.	Zeitschrift
		Zool.	Zoology

In the catalogue of genera and species, beginning page 145, authors' names are set in large and small capital letters; numbers in bold face indicate volumes; formations and locations appear in smaller type.



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# General Considerations

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## MORPHOLOGY OF THE OSTRACODA

### ANATOMICAL FEATURES

THE minute bivalved crustaceans, known as Ostracoda, exist in countless numbers in both fresh and marine waters. Just as today, so in the past they were exceedingly prolific, certain rock strata being composed almost entirely of their shells and separated valves. The fossil forms, moreover, are constant in the lobing, surface ornamentation, and other features of their shells, so that they have become useful in identifying stratigraphic horizons.

The Ostracoda are small, generally minute, crustaceans, with the entire body inclosed in a horny or calcareous carapace, the right and left sides of which are separate and articulated along the dorsal edge so as to form a bivalved shell. The body is indistinctly segmented and has seven pairs of appendages of which the first two are antennae, which, like the others, are also adapted for creeping and swimming. These appendages, together with the caudal extremity of the abdomen, are protruded along the ventral margin of the carapace when the valves are opened.

Behind the first two pairs of appendages (antennules and antennae) is a pair of mandibles, followed by two pairs of maxillae, and finally by two pairs of slender legs. The abdomen is short and rudimentary, and its extremity may consist of a single spinous plate or may be bifurcated. The details of the anatomy of the animal are shown in Figure 1. With a single exception the fossil species preserve only the carapace valves (Fig. 1-1), so that the anatomy of the animal is known almost entirely from living species.

A small median eye and two large lateral eyes are commonly developed, the position of the latter being indicated on the exterior of the valves of certain fossil species by a small "eye tubercle," or ocular spot. A distinct heart is not developed. Respiration occurs through a number of respiratory plates fastened to the mouth parts, which by their motion keep a stream of fresh water pouring between the valves. The alimentary and the generative organs are generally well developed. Small animals and decaying vegetable matter form their food for the most part.

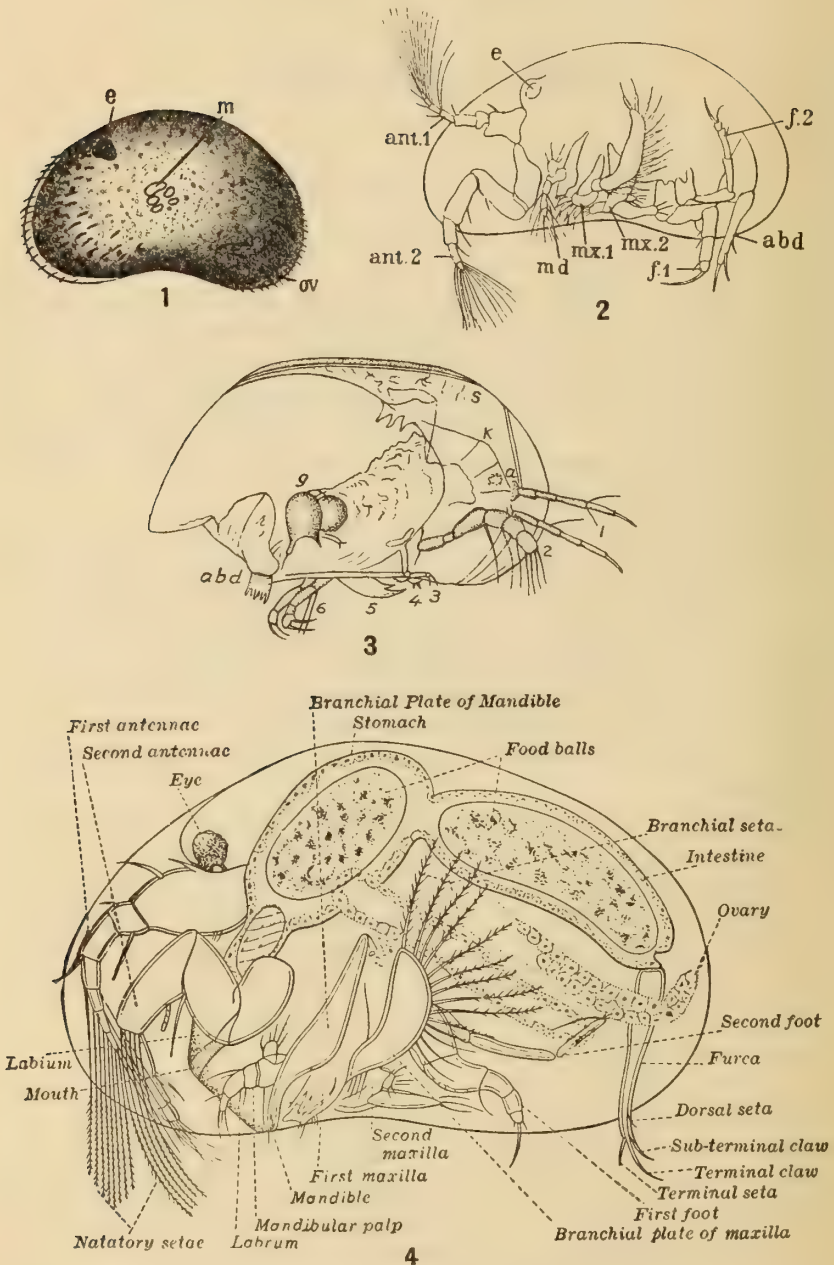


FIGURE 1.—Anatomy of the Ostracoda.

1. Left side of the translucent shell of a recent species of *Cypris*, magnified, showing eye spot (e), the position of the ovary (ov), and adductor muscle scars (m).

2. Sketch showing anatomy of the same species: median eye (e), abdomen (abd), antennule (ant. 1), antenna (ant. 2), thoracic feet (f. 1, f. 2), maxillae (mx. 1, mx. 2), mandible (md). (1, 2, after Gerstaecker).

3. Fossil ostracod (*Paleocypris edwardsi*, Carboniferous of France) preserving the internal structures which are silicified. Shell (s), incomplete behind, abdomen (abd), genital regions (g), antennulae (a), antenna (2), mandible (3), premaxillae (4), maxillae (5), thoracic appendages (6) (after Brongniart).

4. Detailed anatomy of the recent species *Cypris virens* Jurine (after Vavra). Ends of the adductor muscle are seen in the middle of the figure.

## SHELL CHARACTERS

The valves are closed by a subcentral adductor muscle, the attachment of which is marked on the inner sides by a tubercle, pit, or a number of small spots. The shell is compact in structure, commonly 0.5 millimeters to 4 millimeters in length, although in certain doubtful Paleozoic forms (*Leperditiidae*) sometimes exceeding 25 millimeters. The outer surface may be smooth and glossy, or granulose, pitted, reticulose, striate, hirsute, or otherwise marked, the effect being often quite ornamental. The two valves may be of equal size (*Primitiidae*) or more or less unequal with either the right or the left valve overlapping at the ventral border only (*Leperditia*) or at the dorsal border as well (*Bairdia*), or in some cases overlapping all around (*Cytherella*).

Among the fossil forms, particularly those of Paleozoic age, the valves are commonly lobed or sulcate or nodose, and variations in the number, position, and relation of these surface characters are important in segregating the seemingly endless number of species into genera and families. The student of the living forms depends for his taxonomic criteria almost entirely upon the characters of the soft parts of the animals, which are almost never preserved in the fossil state. However, as the lobing of the valves in the fossil forms is developed in similar manner, and often even more distinctly on their inner sides than on their exterior surfaces, it is evident that the varied lobing and sulcation of the valves, and the presence of large protuberances or nodes on the exterior, can be nothing but external manifestations of internal anatomical features of the animals themselves. Although, as a rule, it may be impossible to interpret the meaning of these shell characters, one may, nevertheless, appreciate and establish their respective values as taxonomic criteria by noting the relative persistence of each particular feature, both severally and in combination with other characters. If the same peculiarity is recognized in a number of otherwise similar, yet clearly distinguishable, species, one may reasonably infer that it represents some anatomical character of sufficient importance to the animal to require its maintenance and continued development through one or more diverging or parallel lines of genetically allied species. Obviously, too, the relative importance of any single character or any combination of characters is in proportion to its persistence in nature. It follows, also, that the taxonomic importance of a character is determined, not so much by extravagance in development, as by persistence.

Under the law of determining values by relative persistence, certain other features of the shell, that are less obviously connected with anatomical characters of the animals, and that occur mainly among Paleozoic representatives of the class, must also be counted as important. Reference is made here particularly to the false borders, which commonly project beyond, and hide, the true contact edges of the valves. Sometimes, as in the Eurychiliniinae, these form frill-like extensions of such great width that it seems impossible that the appendages of the animal could have been protruded beyond their outer edges. Often these frills are developed best or are only on the posterior half or two-thirds of the valves, and sometimes the concave area beneath them is broken up into loculi. Their purpose is doubtful, the only plausible explanation being that they served for the temporary lodgment and protection of broods of young.

As only the fossil shell of the Ostracoda is found, and as the major classification, determined from living forms, is based principally upon characters presented by the appendages, the relations of fossil to recent forms are necessarily more or less uncertain and in many instances probably must remain undetermined.

Most commonly the outline of the carapace is ovate or reniform, and it is always so when the valves overlap on the dorsal side. In many cases, however, either end—and rarely both—may be pointed or drawn out in the form of a beak; when the dorsum is straight, the ends usually join it angularly, the sharper of the two being the anterior. Although usually convex, the ventral margin is sometimes straight or gently concave. In fossil forms it is sometimes impossible to distinguish between the anterior and the posterior extremities of the shell, but as a rule the posterior half, even though of equal or less height than the anterior, is somewhat the thicker or blunter in dorsal views. Frequently in certain Middle Paleozoic genera a brood pouch is developed, thus clearly marking the posterior end. The hinge line may be straight or arcuate, the hinge itself being generally simple, although, among the Cytheridae, hinge teeth and corresponding sockets are often developed. Except in the large Leperditiiidae, which may be Phyllopoda rather than Ostracoda, the exterior of the valves only rarely gives any definite indication of either the small median or the two large lateral eyes found in many of the living species.

So far the rocks have revealed no trace of larval forms of Ostracoda. Indeed, the possibility that such may yet be found seems quite hopeless when one considers the altogether unusual conditions, referring especially to the suddenness and permanence of their original burial, that

would be required to insure the preservation of such delicate and readily decaying organisms. But the fossil forms are not entirely uncommunicative on so important a factor of reproduction as sex discrimination. There is at least one large group of fossil Ostracoda—in fact, the most important of the Paleozoic representatives of the class; namely, the Beyrichiacea—in which the individuals of species of many genera are separable by most conspicuous differences, into two kinds that can scarcely indicate anything other than fertilized females, on the one hand, and males and probably also unproductive females, on the other. In its simplest expression, as in the strongly convex carapaces of *Welleria* and *Plethobolbina*, the difference between the shells of the two sexes consists merely of the slightly greater obesity of the post ventral half of the individuals designated as females. In its most specialized development, as in the relatively emaciated carapaces of *Beyrichia*, the difference is much more conspicuous, the slight swelling of the surface being represented in these by a large semi-ovate or subglobular pouch, which covers most of the post ventral quarter of each valve. Between these two extremes in the many genera in which such differentiation of the sexes is known, the brood pouch, so called, affords a great variety of intermediate forms. In others, especially in the genus *Mastigobolbina*, the brood pouch is extremely large and capacious, covering the posterior two-fifths of the valves. In still others, as in *Mesomphalus*, it forms a long sausage-shaped swelling covering most of the ventral slope. In the genus *Zygosella*, it forms a narrow curved extra lobe, or rounded ridge, close to, and paralleling, the posterior edge.

As a rule, these pouches communicate directly with the inner cavity of the shell by means of a large opening just within the contact edges of the valves. As a rule, also, although their bases commonly spread to, or beyond, the outer edge of the border, the greater part lies on the convex part of the valves within the border. However, in a few Ordovician types, notably *Eurychilina ventrosa*, there is a similar swelling, with probably related functions, that is entirely confined to the border and that does not connect directly with the inner cavity of the shell. Another peculiar and entirely external development of the pouch occurs in *Primitiopsis*, in which it forms a large, simple, externally smooth, and obscurely offset, internally concave addition to one end of each valve. What may prove to be a transition from these external cavities toward the usual internally opening pouches is found in the Baltic Ordovician *Chilobolbina dentifera* Bonnema. In this species the inner third of the pouch lies on the ventral slope of the valve proper. Unfor-

tunately, it is not known whether it opens on the inner or the outer side of the contact edge.

It has been suggested that these pouches are abnormal—in fact, pathological swellings. But it is inconceivable that anything abnormal or of pathological origin could possibly have been developed with the constancy of form and position that characterizes these pouches. One would expect to find more or less unrelated irregularities in form, size, position, and surface-marking in any abnormal structure. On the contrary, comparison of many hundreds of these female examples—in some instances more than 200 of the pouched individuals of the same species—has resulted in absolute failure to discover any such irregularities in the development of the pouches. Indeed, no specific feature is more accurately reproduced in the individuals of a particular species than is the particular form of brood pouch which helps in characterizing it.

Most modern as well as ancient Ostracoda are of microscopic size, and for this reason, even though in individual development they probably exceed almost every other class, they must always remain an inconspicuous element of any fauna. Another, and more serious, difficulty, especially in the study of the fossil forms, lies in the simplicity of shell structure found in some of the families. Among the recent faunules, species, and even genera, particularly of the smooth-shelled families, are established on anatomical characters, the shell being practically disregarded. It is a fact that several distinct genera have shells with essentially the same outline and surface characters. The difficulty, if not the impossibility, of distinguishing such genera among fossil forms is obvious. For example, *Bythocypris cylindrica*, an abundant fossil in practically all the Middle and Upper Ordovician formations, is closely differentiated from associated Cypridae, yet the name possibly covers shells of a number of distinct species that were readily distinguishable by anatomical peculiarities. In fact, so far as one can see, the shell is practically duplicated in outline and general structure by those of living species belonging to widely separated genera. For stratigraphic purposes, therefore, most of the Cypridae have little value. However, this may be said only of these relatively characterless types.

The case is quite different with the much more characteristic Beyrichiacea, which comprise the bulk of the Paleozoic Ostracoda, and the Cytheracea, which are so common in the Mesozoic and the Cenozoic formations and in the seas of today. Nearly all these are separable into finely drawn and precisely identifiable species and varieties of relatively short duration. When one adds to these qualities the already



mentioned facts concerning their ready adaptability to all kinds of environment, and their exceeding abundance and wide geographic distribution, the high value of these remains as guide fossils in stratigraphy is clearly apparent. Moreover, because of their small size, this value is particularly manifest in determining the age of beds encountered in drilling deep wells.

### METHODS OF STUDY

As the fossil Ostracoda occur in all kinds of rock, ranging from unconsolidated sands or marls to dense hard limestone or sandstone, it is evident that the preparation of specimens for study varies with the matrix. Most of the Mesozoic and the Cenozoic Ostracoda occur in unconsolidated material from which, after the clay has been washed away, the specimens are easily picked under a hand lens or binocular microscope. Samples of rocks supposed to contain Ostracoda should be allowed to soak in water for some hours. The material may then be agitated, and the muddy water poured away. This process should be continued until the agitated water no longer becomes muddy; the residual mass is then set aside to dry. The débris when dried is ready for assorting, although passing it through several sieves of different mesh greatly facilitates the separation of the contained fossils. The Ostracoda in such débris may be concentrated at the surface to a considerable extent by gently tapping the containing vessel, because, being light and boat shaped, they have a tendency to rise to the surface. If such débris is immersed in a heavy liquid like carbon tetrachloride the light Ostracoda will float to the surface.

The frequent occurrence in Paleozoic rocks of a thin seam of shale on top of a fossiliferous limestone bed affords an opportunity to secure the Ostracoda as well as other fossils in greater abundance by washing quantities of the shale in the same manner as above described.

For species occurring in solid limestone the procedure is different. Specimens in hard clayey limestone may frequently be released from the matrix by the application of caustic potash in stick form, and the careful washing and sifting of the resulting muddy débris. Crystalline limestones best preserve the Ostracoda, but here the preparation is more difficult because the rock must be broken to expose the specimen, and the edges of the valve, as well as the surface features, must be carefully uncovered with a fine lithographic pick or needle. As the shell of the Ostracoda is frequently smooth or glossy, the specimens often pop out of the limestone when the latter is broken into small pieces. Such rock should be inclosed in a sack and pounded into comparatively small

fragments with a small mallet. The resulting débris may then be washed and sifted for Ostracoda.

In limestone in which weathering tends to silicify the fossils the Ostracoda, as well as other organisms, may be freed by treatment with dilute hydrochloric acid and then picked out of the resulting débris.

Frequently, as in the sandstones and sandy shales of the Clinton group, the shell has been dissolved away, leaving only the interior and

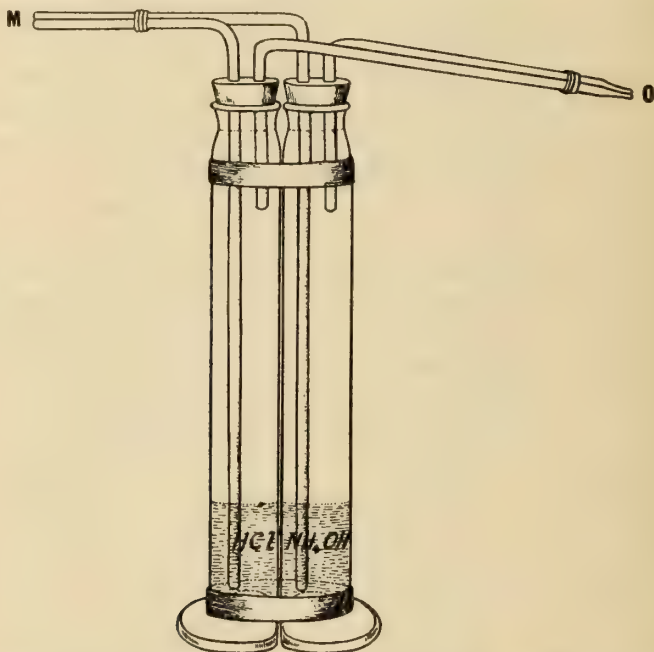


FIGURE 2.—Apparatus for whitening objects for study.

Blowing through the mouthpiece (M) the fumes of hydrochloric acid (HCl) and ammonia (NH<sub>4</sub>OH) unite at O and deposit a thin coating of white ammonium chloride upon the object held a few inches from this point.

the exterior molds of it. These molds often preserve details of structure and surface ornamentation that are seldom so well shown on limestone specimens exposed by natural weathering. Satisfactory replicas of either surface of the valve is procured by means of impressions made of gutta-percha or other plastic material.

The simplest way of preserving Ostracoda that have been freed from the matrix is to mount them upon cardboard slips, of sufficient size to receive the data concerning them but still small enough to be contained in glass vials, or upon suitable microscope slides with a central recep-

taele closed by a cover glass. For mounting specimens of micro-fossils, perhaps the best medium is a thick solution of gum tragacanth, dissolved in water, to which a few drops of oil of cloves have been added to prevent souring. To release specimens so mounted, it is necessary to use only a damp fine-pointed brush to soften the cement.

The shells of many fossil Ostracoda are of such a nature that the details of the surface structure upon which the criteria for determination depend are difficult to see and to interpret. This is particularly true in the Silurian forms, such as the numerous species of Kloedenellidae, whose black shells occur by the millions in certain strata. Again, the glasslike shells of most of the recent, and many fossil, species are difficult to study for the same reason. In all these cases the surface outlines and markings are brought out in great clearness and perfection by whitening the specimens with a film of ammonium chloride. A simple apparatus for this purpose is shown in Figure 2. The hydrochloric acid and ammonia used should be of great strength for the best results, and small quantities only should be employed, so that the bottles can be emptied and dried frequently, as the re-agents not only become weakened by the absorption of water but lose their strength in a day or two of use. The sublimate can be deposited upon the object in such a uniformly thin film, varying according to its thickness from light blue to ivory white, that all the details of structure are reproduced perfectly and can be viewed even under the microscope without exhibiting any crystalline structure of the ammonium chloride. The white film can be removed simply by breathing upon the object so coated.

#### ORIENTATION OF THE VALVES

IN THE study of fossil Ostracoda the question as to which of the two ends of the carapace is the anterior is the most troublesome and the one on which students have differed most. Jones and other authors commonly followed the rule of regarding the thicker, or blunter, end as the posterior. In the writer's experience Jones's rule proved much oftener true to nature than misleading, but there were too many exceptions; so it becomes necessary to seek other criteria which may prove less uncertain. Such other criteria were pointed out and discussed in an earlier revision of the Beyrichiidae.<sup>1</sup> Thorough study of these, together with all other Ostracoda likely to throw any light on this vexing question, resulted in the discovery of four other, more or less helpful, similarly trending, and together probably decisive means of solving it.

<sup>1</sup> E. O. Ulrich and R. S. Bassler: *New American Paleozoic Ostracoda; preliminary revision of the Beyrichiidae, with description of new genera*, U. S. Nat. Mus., Pr., vol. 35 (1908) p. 280.

These criteria concerned (1) relative width, position, and direction of the median furrow, or sulcus, which was found to be wider than either the anterior or the posterior sulcus, to lie almost always more or less behind the midlength of the valves, and when prolonged ventrally to curve more or less backward; (2) correlation and identification of the

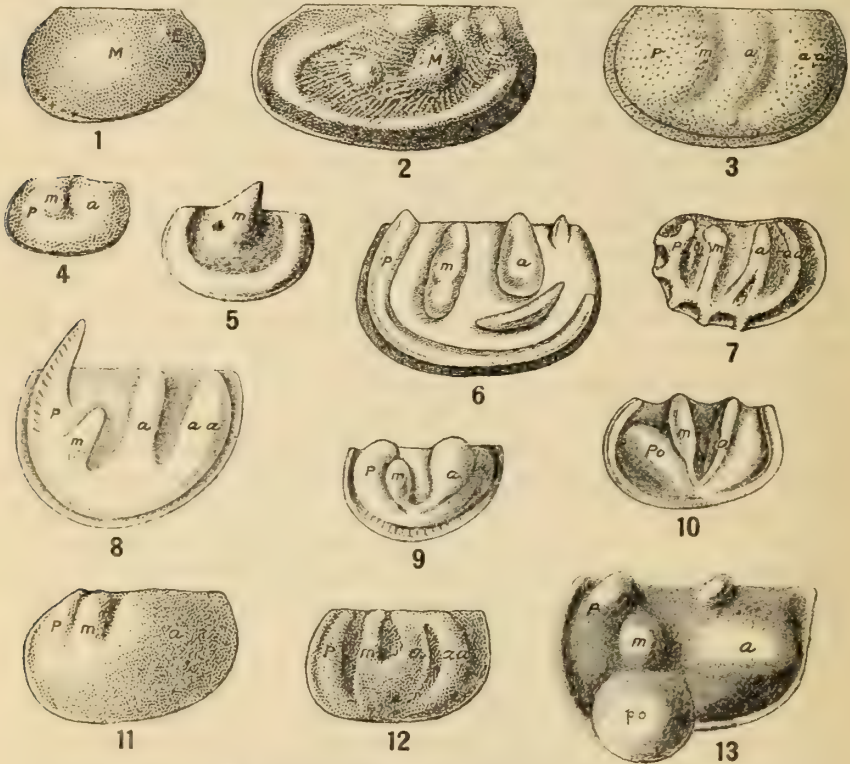


FIGURE 3.—Shell Characters of Paleozoic Ostracoda.

- 1, 2. Valves of *Leperditia* (1) and *Saffordellina* (2) showing muscle spot (M) and eye spot (E).
- 3-6. Valves of *Ctenobolbina* (3), *Primitia* (4), *Paraechmina* (5), and *Drepanella* (6), exhibiting the position of the anterior (a), median (m), and posterior (p) lobes.
- 7, 8. Two genera, *Tetradella* (7) and *Ceratopsis* (8) in which the anterior lobe is divided (a, aa).
9. Lobation in typical *Beyrichia*.
10. Right valve of female in *Zygobolba* showing brood pouch (po).
- 11, 12. *Kloedenella* (11) with lobation little developed and *Dizygopleura* (12), of the *Kloedenellidae* in which it reaches an extreme.
13. A Silurian species of *Beyrichia* with nodose development of lobes.

median and the posterior lobes, both of which lie behind the median sulcus and usually are distinctly separated by the posterior sulcus, although occasionally completely confluent, as in *Ctenobolbina ciliata*; (3) the outline of the valves, particularly in straight-hinged forms, which commonly are more or less oblique and widest behind, with a backward swing from the hinge, which suggests a parallelogram rather than

an oblong; and (4) the location of the brood pouch, which obviously should be associated with the posterior half of the carapace and, in fact, always lies, at least for its greater part, behind the anterior lobe. Another criterion that often is useful rests on the previously suggested purpose of the ventral prolongation of the posterior lobe as a lodging space for the incurved abdomen when the animal retreated to the inside of the shell and closed its valves. If this suggestion is based on fact, then it follows obviously that the more persistent end of the submarginal ridge must be posterior, and the other end, which may die out at any point between the middle of the ventral side and the anterodorsal angle, must be directly toward the front. The various features here discussed are illustrated in Figure 3.

In several articles on the orientation of the carapaces of Paleozoic Ostracoda, Bonnema insists that Jones, Ulrich and Bassler, Kummerow and others have reversed the anterior and the posterior ends in their description of many genera. Bonnema bases his opposite conclusions upon a comparison of living Ostracoda with Paleozoic species, and it must be admitted that in some instances he presents a good case. However, the writers feel that until his studies have been more firmly established by a review of additional Paleozoic genera it would be unwise for them to make the changes necessary in the present generic diagnoses.

#### CRITERIA IN CLASSIFYING FOSSIL OSTRACODA

THE criteria employed in the study and the separation of species of fossil Ostracoda refer entirely to the shell. They may be classified under the following headings:

1. *Differences in size, outline, convexity of valves, and location of greatest thickness.* Such distinctions vary greatly in value, being used in discriminating varieties, species, genera, and families, the values depending on relative persistence of occurrence.

2. *Nature of hinge.* It is essential to observe whether the hinge is straight, the two valves fitting evenly, or whether articulation is by overlap of the more or less rounded dorsal edge of one or the other.

3. *Modification of the hinge.* Modifications, such as internal denticles (Cytheridae) or external interlocking processes (Kloedenelliidae), are important and should be carefully noted.

4. *Overlap of edges.* In the study of entire carapaces, it should be observed whether the valves are unequal or equal, and when unequal, which valve overlaps the other and whether the overlap is mainly or wholly confined to the dorsal edge (which is rather rare), to the ventral

side (a more common occurrence), or takes in the entire circumference, one valve being set into the other. Such modifications are usually considered of generic and family importance.

5. *Surface characters of valves.* It should be observed whether the valves are simple, smoothly convex, or develop terminal spines or a border at the contact edge or a false border which overhangs the contact edges. The false border may be simple or developed into a broad, radially lined frill. This frill may be a simple flat plate or may be convexly bowed to form a marginal chamber beneath it, or it may be modified in various other ways.

6. *Lobation of valves.* Good generic characters are found in the lobation of the valve. In the simplest forms there is a small subcentral depression or pit (probably always indicating the attachment of the adductor muscles) which may be prolonged slit-like as a sulcus to the dorsal edge or extended toward the ventral margin. In other forms there is a node on each side of the pit, which may be modified into long lobes. The lobe posterior to the median sulcus is designated the median lobe. This may be defined on its posterior side by another sulcus, thus separating a posterior lobe. Anterior to the median sulcus is the anterior lobe, which is often divided by another sulcus. These three lobes are present in one form or another in practically all the Beyrichiacea, and variations in their development always afford good specific characters, and often distinguish genera. Any or all of these lobes may be prolonged dorsally into spines. The confluence of the lobes, their immersion in the general surface by an increase in convexity of the valves, and their breaking up into smaller nodes or ridges are all points to be noted and are of varying importance. Excellent examples of these features occur in the Kloedenellidae and Beyrichiidae.<sup>2</sup>

7. *Surface ornamentation.* As a rule, reticulation and other forms of surface ornament of the valves are not of generic importance but are always useful in specific determinations. Crestlike ribs traversing the surface irrespective of the lobes, or crowning them, as in *Steusloffia*, *Mastigobolbina*, and *Strepula*, are commonly regarded as of higher value.

8. *Sex characters.* The presence or absence of a separate pouchlike swelling, regarded as a brood chamber for the development and protection of the larvae in many of the Beyrichiacea, is considered as a generic character.

<sup>2</sup> E. O. Ulrich and R. S. Bassler: *op. cit.*, p. 277-340.

# Classification and Diagnosis

## Class CRUSTACEA

### Superorder OSTRACODA Latreille

### Superfamily LEPERDITACEA

#### Family LEPERDITIIDAE Jones (restricted)

Extinct, thick-shelled Ostracoda of considerable size (5–30 mm); shell smooth and glossy, of compact structure; valves more or less unequal, one overlapping the other on the ventral side, usually with eye tubercle, otherwise smooth or with two or three low nodes in the anterodorsal quarter; muscle spot reticulate, flat or elevated; hinge line straight; anterior and posterior ends obliquely truncated or rounded and neither gaping nor excised. (Fig. 4.)

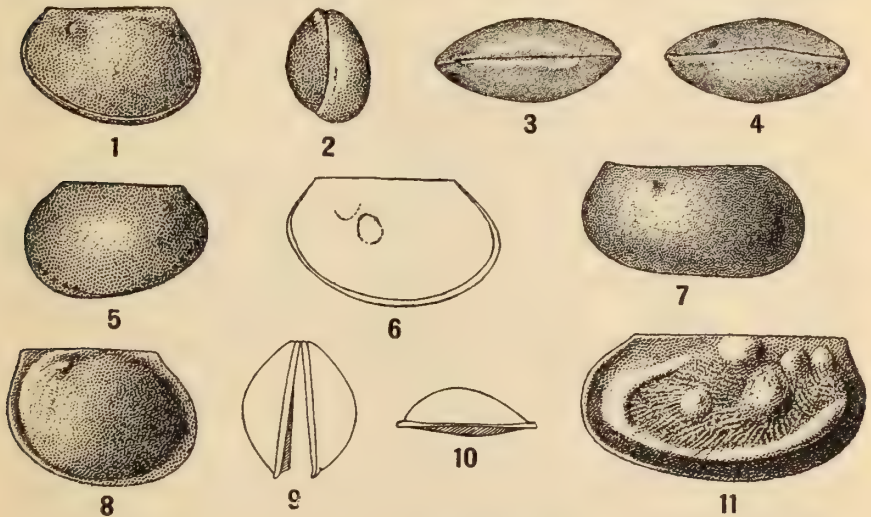


FIGURE 4.—Family Leperditiaidæ\*

1–5. *Leperditia* Rouault. (1) Left side of an entire carapace of *L. fabulites* Conrad,  $\times 2$ , illustrating the large size, the eye spot, and the characteristic overlapping ventral edge of the larger right valve. (2–4) Posterior, dorsal and ventral views of the same specimen. (5) Cast of the interior of the right valve,  $\times 2$ , showing impression of two sets of internal papillæ along the ventral margin. Their purpose is to prevent undue overlapping of the valves. Ordovician (Black River) limestone of Minnesota.

6. *Herrmannella* Kegel (subgenus of *Leperditia*). Left side of a complete shell of *Leperditia* (*Herrmannella*) *waldschmidti* Paeckelmann,  $\times 5$ . Lower Stringocephalus beds of Germany.

7. *Briartina* Kegel (subgenus of *Leperditia*). Left valve,  $\times 5$ , of *Leperditia* (*Briartina*) *quenstedti* Gmbel. Lower Stringocephalus beds of Germany.

8–10. *Isochilina* Jones. (8) Left valve of *I. jonesi* Wetherby,  $\times 1.3$ , showing eye spot, large size, and other resemblances to *Leperditia* but differing in that the two valves are nearly equal. (9) End view of two valves separated so as to show the overlap. (10) Ventral edge view of left valve, natural size, showing sloping area which is overlapped by the right valve. Ordovician (Trenton) limestone, Harrodsburg, Kentucky.

11. *Saffordellina* new name (*Saffordella*, Ulrich and Bassler, not Dunbar). Complete example of left valve of genotype, *S. muralis* Ulrich and Bassler. Mohawkian (Catheys limestone), Nashville, Tennessee.

(\*) Unless otherwise noted the illustrations are copied after the original authors or after Ulrich and Bassler.

## Genus LEPERDITIA Rouault

Shell suboblong with an oblique backward swing, usually large, commonly exceeding 8 mm in length. Ventral edge thick, formed by the overlap of the right valve. Valves strongly unequal, the right the larger and widely overlapping the ventral edge of the left; hinge simple. A small tubercle, or "eye-spot," is generally present on the anterodorsal fourth, while a large rounded subcentrally situated muscular imprint is a well-marked feature of the interior and is sometimes distinguishable even on the exterior.

*Genotype*.—*Leperditia britannica* Rouault. Canadian—early Devonian.

## Subgenus HERRMANNELLA Kegel

*Leperditia* with oblique axis (shell height on anterior dorsal angle distinctly less than behind) and without hinge swelling in the left valve. Closure taxodont.

*Subgenotype*.—*Leperditia (Herrmannella) waldschmidtii* Paeckelmann, 1922. Devonian.

## Subgenus BRIARTINA Kegel

Dorsal and ventral edges nearly parallel and anterior and posterior angles approximately equal.

*Subgenotype*.—*Leperditia quenstedti* Gümbel. Devonian.

## Genus ISOCHILINA Jones

Like *Leperditia* except that exteriorly the valves do not overlap but seem to be equal in every respect. In reality, within the left valve there is a sloping area that is overlapped by a corresponding beveled edge of the right valve. Surface sometimes lobulate or nodose.

*Genotype*.—*Isochilina ottawa* Jones. Canadian—Devonian.

Genus SAFFORDELLINA new name (*Saffordella* Ulrich and Bassler preoccupied).

Similar to *Isochilina* except that the surface is more nodose and has a long curved submarginal ridge.

*Genotype*.—*Saffordella muralis* Ulrich and Bassler. Middle Ordovician.

## Family LEPERDITELLIDAE Ulrich and Bassler

Leperditellidae Ulrich and Bassler, Proc. U. S. Nat. Mus., vol. 30, p. 149, 1906.

Aparchitidae Ulrich and Bassler, Maryland Geol. Survey, Silurian vol., p. 296, 1923.

Simple, unsulcated, smooth Ostracoda, usually larger than the average size (2–3 mm) with straight hinge line and thickened, often channeled, free edges, the edge of one valve sometimes slightly overlapping the other ventrally. Dorsal region often protruding over the hinge line. (Fig. 5.)

## Genus APARCHITES Jones

Shell not exceeding 3 mm in length, equivalved, subovate or oblong; hinge straight, ventral edge thickened, often beveled or channeled; surface convex, mostly in the ventral half, smooth.

*Genotype*.—*Aparchites whiteavesi* Jones. Ordovician—Devonian.

## Genus LEPERDITELLA Ulrich

Similar to *Aparchites*, but the left valve is larger and has a groove within its ventral border into which the simple edge of the right valve is received. A more or less obscure broad depression is generally present in the central part of the dorsal half. Length, 1 to 3 mm.

*Genotype*.—*Leperditia inflata* Ulrich. Ordovician—Devonian.



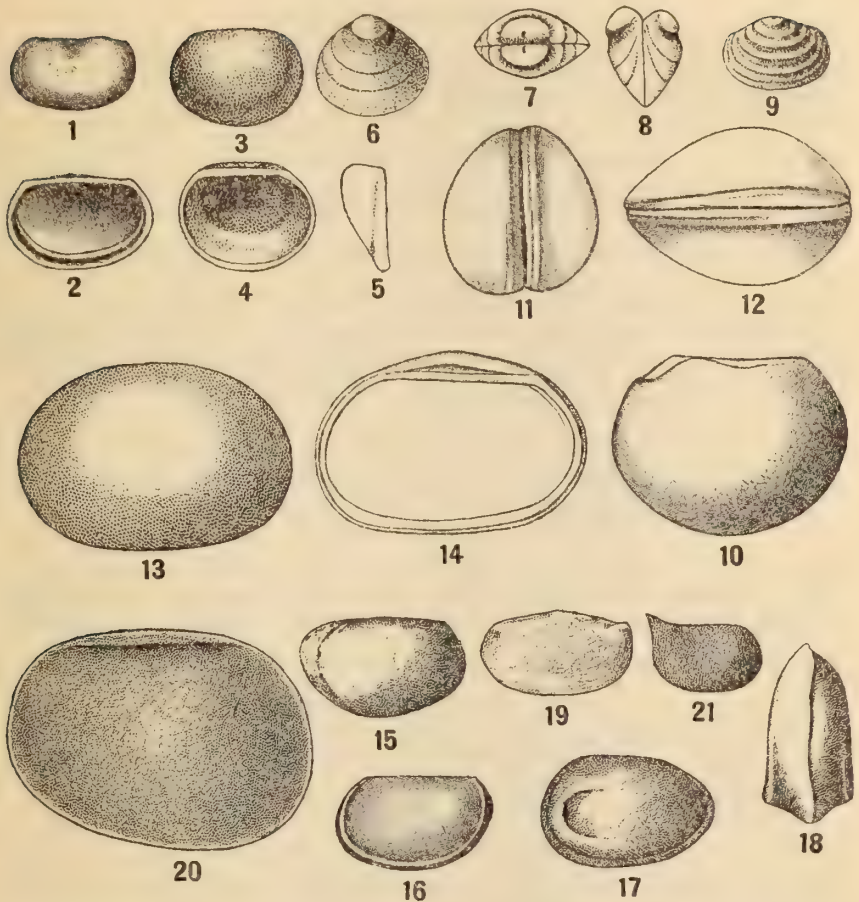


FIGURE 5.—Family Leperditellidae.

1, 2. *Leperditella* Ulrich. (1) Small left valve of *L. inflata* Ulrich,  $\times 10$ . (2) Interior of a large left valve of the same species,  $\times 10$ , showing the marginal groove into which the free edges of the right valve fit. Ordovician (Black River) limestone, High Bridge, Kentucky.

3-5. *Schmittella* Ulrich. (3) Exterior of right valve of the genotype, *S. crassimarginata* Ulrich,  $\times 10$ , showing the broad border and the gibbous dorsal region. (4, 5) Posterior edge view and interior of valve,  $\times 10$ , illustrating the same features. Ordovician (Black River) limestone of Wisconsin.

6-9. *Eridoconcha* Ulrich and Bassler. (6-8) *E. obolovites* Ulrich and Bassler. (6) One valve (right) of an entire specimen,  $\times 20$ . (7) Dorsal edge view of same, with minute sulcus in rostral parts of valves. (8) End view of same. Black River (Decorah) shales, St. Paul, Minnesota. (9) Valve of *E. rugosa* Ulrich and Bassler, the genotype,  $\times 20$ , distinguished by its transverse form and numerous slightly elevated concentric rings. Maysville (Corryville) division of the Ordovician at Cincinnati, Ohio.

10-12. *Aparchites* Jones. (10) Exterior of valve,  $\times 10$ . (11, 12) Anterior, end and ventral views of an entire example of the genotype, *A. whitewesi* Jones,  $\times 10$ , showing valves with thickened edge but not overlapping. Ordovician (Trenton) of Manitoba.

13, 14. *Paraparchites* Ulrich and Bassler. (13) Exterior of valve,  $\times 20$ , of the genotype, *P. humerosus* Ulrich and Bassler. (14) Interior of right valve,  $\times 20$ , showing a linear socket for reception of edges of opposite valve. Pennsylvanian of Kansas.

15, 16. *Sansabella* Roundy. (15) Left valve,  $\times 25$ , of the genotype, *S. amplexans* Roundy overlapping the right (16) along the ends and ventral edge. Mississippian (Marble Falls limestone), San Saba County, Texas.

17, 18. *Aurigerites* Roundy. The type species *A. texanus* Roundy. Right valve (17) and dorsal edge view (18),  $\times 25$ , showing the looplike ridge. Mississippian (Boone), San Saba County, Texas.

19. *Cyathus* Roth and Skinner. Right valve,  $\times 40$ , of the type species, *C. ulrichi* Roth and Skinner. Pennsylvanian (McCoy), McCoy, Eagle County, Colorado.

20. *Antiparaparchites* Coryell and Rogatz. Left valve,  $\times 45$ , of the type species, *A. reversus* Coryell and Rogatz. Permian, Tom Green County, Texas.

21. *Pseudoparaparchites* Kellelt. Left valve,  $\times 25$ , of the genotype, *P. kansensis* Kellelt. Pennsylvanian and Permian of Kansas.

## Genus SCHMIDTELLA Ulrich

Unsulcated shells, 2 mm or less in length, short, subovate, broadly umbonate, most convex in the dorsal region and pinched in ventral slope; right valve overlapping the left along the ventral margin.

*Genotype*.—*Schmidtella crassimarginata* Ulrich. Ordovician–Silurian.

## Genus ERIDOCONCHA Ulrich and Bassler

Small, apparently unequivalved carapaces with concentric, simple or rugose bands or rows of punctae, resembling an equilateral pelecypod or a brachiopod in shape and markings.

*Genotype*.—*Eridoconcha rugosa* Ulrich and Bassler. Ordovician–Devonian.

## Genus PARAPARCHITES Ulrich and Bassler

Like *Aparchites*, but the right valve has the ventral edge rabbeted so as slightly to overlap the simple beveled edge of the left, and the dorsal edge of the left valve overlaps the right. A smooth spine often present near anterodorsal angle.

*Genotype*.—*Paraparchites humerous* Bassler. Devonian–Permian.

## Genus ANTIPARAPARCHITES Coryell and Rogatz

Differs from *Paraparchites* in the reversal of orientation of the carapace, that is, the left valve overlaps the right along the free border.

*Genotype*.—*A. reversus* Coryell and Rogatz. Permian.

## Genus PSEUDOPARAPARCHITES Kellett

Like *Paraparchites*, but spine is hollow and a more integral part of the valve, and hinge is simpler with no dorsal depression along the hinge line and no apparent dentition or overlap.

*Genotype*.—*P. kansensis* Kellett. Pennsylvanian–Permian.

## Genus SANSABELLA Roundy

Carapace small, left valve overlapping the right along the ends and ventral margin. Hinge line straight, equal in both valves and slightly depressed below the dorsal margins giving channeled appearance.

*Genotype*.—*Sansabella amplexans* Roundy. Mississippian–Permian.

## Genus AURIGERITES Roundy

Like *Sansabella*, but with a looplike ridge pointed toward the anterior end, in the ventroposterior part of each valve.

*Genotype*.—*Aurigerites texanus* Roundy. Mississippian.

## Genus CYATHUS Roth and Skinner

Carapace small, canoe-shaped; valves with straight dorsal margin, marked along the hinge line by a V-shaped trough becoming a sharp ridge near the ends, with no pronounced overlap. Surface covered by concentric, faintly oscillating and bifurcating riblets.

*Genotype*.—*Cyathus ulrichi* Roth and Skinner. Pennsylvanian.

## Superfamily BEYRICHIACEA

## Family PRIMITIIDAE Ulrich and Bassler

## Subfamily PRIMITIINAE

Relatively simple Beyrichiacea with undefined to well-defined median sulcus or simple submedian pit. (Fig. 6.)

## Genus PRIMITIELLA Ulrich

Small, straight-backed, equivalved shells with a broad undefined median depression mainly in the dorsal half of the valves and with narrow border.

*Genotype.*—*Primitiella constricta* Ulrich. Ordovician-Devonian.

## Genus HAPLOPRIMITIA Ulrich and Bassler

Distinguished from *Primitia* by the absence of a border along the free edge of valves and by the occurrence of a simple slitlike furrow in the dorsal half.

*Genotype.*—*Haploprimitia (Primitia) minutissima* (Ulrich). Ordovician-Devonian.

## Genus PRIMITIA Jones and Holl

Distinguished from *Primitiella* by having a well-marked subcentral, usually curved sulcus with undefined swellings or low nodes on one or both sides of it instead of an undefined depression. As a rule also the valves are shorter, the outline being generally more ovate.

*Genotype.*—*Primitia mundula* Jones. Ordovician-Permian.

## Genus LACCOPRIMITIA Ulrich and Bassler

Valves with a border along the free edge, a single, simple subcircular pit a little above the midheight and without surface nodes. Otherwise as in *Primitia*.

*Genotype.*—*Laccoprimitia (Primitia) centralis* (Ulrich). Ordovician-Silurian.

## Genus EUPRIMITIA Ulrich and Bassler

Like typical *Primitia* except that the carapace has a simple sulcus, reticulate ornamentation, and an elevated false border around the free edge of the valve, making a bicanaliculate edge in the entire closed carapace.

*Genotype.*—*Euprimitia (Primitia) sanctipauli* (Ulrich). Ordovician-Silurian.

## Genus HALLIELLA Ulrich

Like *Euprimitia*, but with broader sulcus and very coarsely reticulate surface which rises to greatest height in anterodorsal quarter. Thick double border.

*Genotype.*—*Halliella retifera* Ulrich. Ordovician-Devonian.

## Genus PRIMITIOPSIS Jones

Oblong, strongly convex, borderless shells with a sharply defined but small, deep, subcentral pit and reticular ornament. In the female a rather wide internally concave and distinctly smooth area along the posterior side represents the brood pouch. Female, therefore, much longer than the male.

*Genotype.*—*Primitiopsis planifrons* Jones. Silurian-Devonian.

## Genus ULRICHIA Jones

Differs from *Primitia* by having a sharply defined node on each side of the sulcus, which in this case is scarcely impressed. Occasionally other nodes are present on the ventral half of the surface.

*Genotype.*—*Ulrichia conradi* Jones. Ordovician-Pennsylvanian.

## Genus BOLLIA Jones and Holl

Distinguished by a centrally situated looplike or horseshoe-shaped ridge, the free upper extremities of which are often bulbous; a more or less complete marginal ridge may be present or wanting.

*Genotype.*—*Bollia uniflexa* Jones and Holl. Ordovician-Devonian.

Genus JONESITES Coryell (*Placentula* Jones and Holl)

Probably related to *Bollia* but differing in having the "loop" generally in front of the center and close to the dorsal margin. As a rule a rimlike ridge parallels the outer border of the valves.

*Genotype.*—*Placentula excavata* Jones and Holl. Ordovician-Silurian.

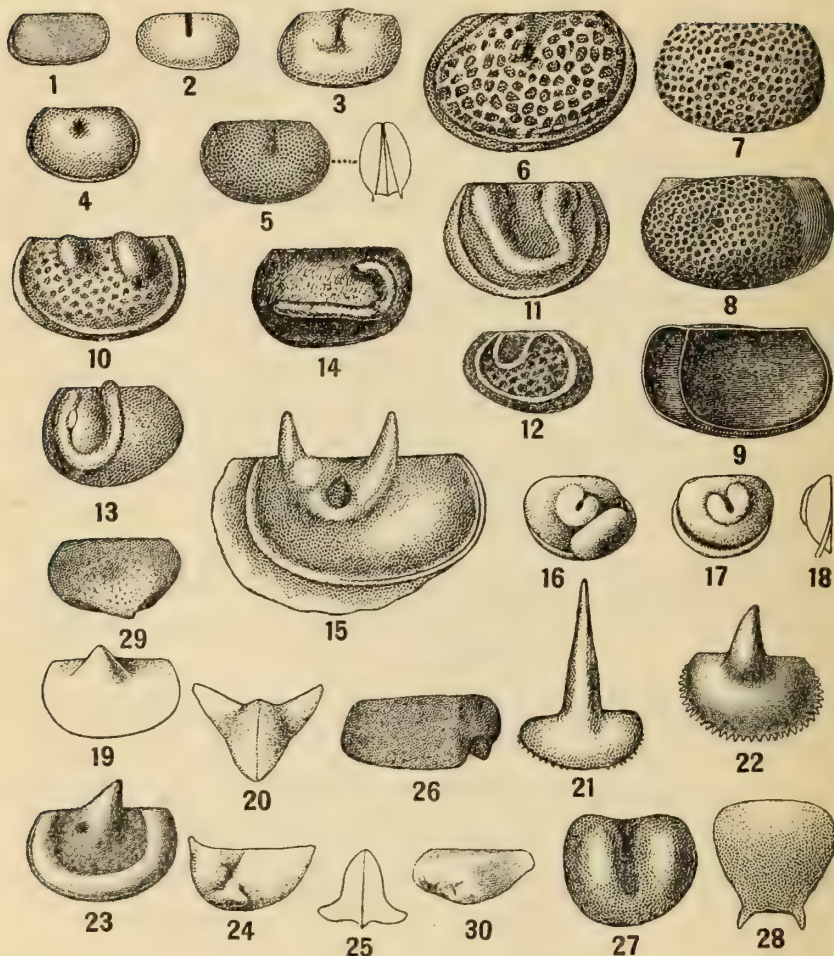


FIGURE 6.—Subfamily Primitiinae

1. *Primitiella* Ulrich. Right valve, of *P. constricta* Ulrich,  $\times 20$ , showing the characteristic broad undefined mesial depression. Black River (Decorah) shales, Minneapolis, Minnesota.
2. *Haploprimitia* Ulrich and Bassler. Left valve of *H. (Primitia) minutissima* Ulrich,  $\times 40$ , illustrating absence of border and occurrence of simple slitlike furrow in dorsal half. Black River (Decorah) shales, Fountain, Minnesota.
3. *Primitia* Jones and Holl. Right valve,  $\times 20$ , of *P. cincinnatiensis* Miller, a typical species of the genus with the low node indicated on the posterior side of the curved sulcus. Early Silurian (Richmond) shales of southwestern Ohio.
4. *Laccoprimitia* Ulrich and Bassler. Left valve,  $\times 20$ , of *L. (Primitia) centralis* Ulrich showing the characteristic single simple, subcircular pit a little above the midheight, and the border. Ordovician (Trenton limestone), West Covington, Kentucky.
5. *Euprimitia* Ulrich and Bassler. Right valve of the type species, *E. (Primitia) sanctipauli* Ulrich,  $\times 20$ , and end view of entire carapace, exhibiting the simple sulcus, the double border, and the reticulate ornament. Ordovician (Black River) shales, St. Paul, Minnesota.
6. *Halliella* Ulrich. Right valve,  $\times 20$ , of *H. retifera* Ulrich, the genotype, illustrating the coarsely reticulate surface, the broad sulcus, and the thick border. Devonian (Onondaga) limestone, Falls of the Ohio.
- 7-9. *Primitiopsis* Jones. Three views of the genotype, *P. planifrons* Jones,  $\times 20$ . (7) Male left valve,  $\times 20$ . (8, 9) Exterior and interior views of the female left valve,  $\times 20$ , showing form and position of brood pouch. Silurian, Island of Gotland.

## Genus JONESELLA Ulrich

Small oblong or subovate borderless Ostracoda distinguished by a horseshoe- or L-shaped ridge on the posterior two-thirds.

*Genotype*.—*Jonesella crepidiformis* Ulrich. Ordovician–Silurian.

## Genus DICRANELLA Ulrich

Distinguished from *Ulrichia* in having one or both nodes developed into long, hornlike, diverging prominences and usually with a broad frill-like border along the free edge of valves.

*Genotype*.—*Dicranella bicornis* Ulrich. Ordovician.

## Genus BOLBIBOLLIA Ulrich and Bassler

Like *Bollia*, but males and females distinct, the latter with brood pouch.

*Genotype*.—*Bolbibollia labrosa* Ulrich and Bassler. Early Silurian.

## Genus AECHMINA Jones and Holl

Straight-hinged, simply convex Ostracoda without pit or sulcus, and lobation confined to a single, sometimes enormously developed hornlike process.

*Genotype*.—*Aechmina bovina* Jones and Holl. Ordovician–Devonian.

## Genus PARAECHMINA Ulrich and Bassler

Differs from *Aechmina* in having a well-defined ridgelike elevation along the free edge of the valve and in the development of a pit on the posterior side of the base of the spine.

*Genotype*.—*Paraechmina (Aechmina) spinosa* (Hall). Silurian–Devonian.

## Genus ACRONOTELLA Ulrich and Bassler

Simple, unbordered Ostracoda with long hinge and produced dorsal extremities, crossed obliquely by a sharp sulcus dividing the larger, evenly convex anterior

## FIGURE 6.—Continued

10. *Ulrichia* Jones. Left valve, X30, of *U. conradi* Jones, showing a well-developed node on each side of a scarcely visible sulcus. Middle Devonian shales, Theford, Ontario.

11. *Bollia* Jones and Holl. Right valve, X20, of *B. bicollina* Jones and Holl, showing the central loop and the marginal ridge. Silurian at Wenlock, England.

12. *Jonesites* Coryell (*Placentula* Jones and Holl). Valve, enlarged, of *J. (Placentula) excavata* Jones and Holl, illustrating resemblance to *Bollia*, but the loop is smaller in front of the center. Silurian of England.

13, 14. *Jonesella* Ulrich. (13) Right valve, X18, of the genotype, *J. crepidiformis* Ulrich with characteristic curved ridge on the posterior portion. (14) left valve of *J. peliigera* Ulrich, X20. Ordovician (Eden) shales at Cincinnati, Ohio.

15. *Dicranella* Ulrich. Right valve, X20, of *D. bicornis* Ulrich. Ordovician (Black River) shales, Minneapolis, Minnesota.

16–18. *Bolbibollia* Ulrich and Bassler. Views of the genotype, *B. labrosa* Ulrich and Bassler, X20. (16) Left valve of female form showing the brood pouch. (17, 18) Right valve of male and edge view of same. Silurian (Anticostian–Jupiter River), Jumpers, Island of Anticosti.

19–22. *Aechmina* Jones and Holl. (19–20) Lateral and end views, X20, of *A. richmondensis*, Ulrich and Bassler, closely allied to *A. bovina* Jones. Early Silurian (Richmond–Elkhorn), Richmond, Indiana. (21) Left valve, X20, of *A. cuspidata* Jones and Holl, showing the extraordinary development of the spine. Devonian (Helderbergian) limestone of western Maryland. (22) Left valve of the genotype, *A. bovina* Jones, X30, with marginal row of spines well developed. Silurian (Wenlock) England.

23. *Paraechmina* Ulrich and Bassler. Right valve, X20, of *P. (Aechmina) spinosa* Hall, the genotype, illustrating the characteristic ridge along the free edge, the spine, and the pit near its base. Silurian (Rochester shale), Lockport, New York.

24–25. *Acronotella* Ulrich and Bassler. Lateral and end views of the genotype, *A. shideleri* Ulrich and Bassler, X20. Early Silurian (Richmond–Elkhorn), Richmond, Indiana.

26. *Mooreina* Harlton. Right valve, X43, of *M. johnsvalleyensis* Harlton, the genotype. Pennsylvanian (Johns Valley) shale of southern Oklahoma.

27. *Dilobolla* Ulrich. Valve, X20, *D. typa* Ulrich, illustrating the two large subequal lobes separated by a deep subcentral sulcus. Ordovician (Black River) shales, St. Paul, Minnesota.

28. *Bursulella* Jones. Valve of *B. triangularis* Jones, X30, possibly not an ostracode. Silurian, Island of Gotland.

29, 30. *Monoceratina* Roth. (29) Right valve, X20, of the type species, *M. ventrale* Roth. Pennsylvanian (Wapanucka limestone), Pontotoc County, Oklahoma. (30) Right valve, X25, of the genotype of *Triceratina*, *T. wrefordensis* Upson from the Permian of Nebraska, now considered a synonym of *Monoceratina lewisi* Harris and Lalicker.

part from the smaller, more compressed posterior side. A low node lies just beneath the middle of the sulcus, and beneath this and close to the ventral edge is a thick spine.

*Genotype*.—*Acronotella shideleri* Ulrich and Bassler. Early Silurian.

#### Genus DILOBELLA Ulrich

Subovate or somewhat reniform bilobed shells; lobes very large, subequal, and almost completely separated by a deep subcentral vertical or oblique sulcus.

*Genotype*.—*Dilobella tyta* Ulrich. Ordovician.

#### Genus BURSULELLA Jones

Small bivalved carapace (possibly not Ostracoda) with more or less triangular equilateral valves, which have one or more hornlike projections on the ventral edge of each valve.

*Genotype*.—*Bursulella triangularis* Jones. Silurian.

#### Genus MONOCERATINA Roth

Similar to *Aechmina*, but the spine projects ventrally and outward from the lower half of the valve. The left valve is grooved along the hinge to receive the hinge of the right valve.

*Genotype*.—*Monoceratina ventrale* Roth. Pennsylvanian-Permian.

#### Genus MOOREINA Harlton

Carapace small, subovate with straight hinge. Right valve probably slightly overlapping left ventrally. Surface finely granulated and pitted, with a winglike protuberance at the side and a dorso- and ventro-anterior node.

*Genotype*.—*Mooreina johnsvalleyensis* Harlton. Pennsylvanian.

### Subfamily EURYCHILININAE Ulrich and Bassler

Large Primitiidae with a broad frill along the free edge of the valves. (Fig. 7.)

#### Genus EURYCHILINA Ulrich

Oblong or semielliptical, long-hinged shells having a subcentral Primitian sulcus, the posterior edge of which is often raised into a small rounded node; free margins provided with a wide, usually radiately plicated, frill-like border curved on its under side so as to form a concave area around the true contact edge of the valves.

*Genotype*.—*Eurychilina reticulata* Ulrich. Ordovician-early Silurian.

#### Genus CRASPEDOBOLBINA Kummerow

Like *Eurychilina*, but it has an elliptical brood chamber.

*Genotype*.—*Craspedobolbina dietrichi* Kummerow. Ordovician.

#### Genus NEOCHILINA Matern

Differs from *Eurychilina* in the more swollen valves in which the sulcus is replaced by a central node.

*Genotype*.—*Neochilina binsenbachensis* Matern. Devonian.

#### Genus BROMIDELLA Harris

Differs from *Eurychilina* in its dorsal sulcus and posterior knob and possesses in addition a dorsal ridge and extreme spinosity.

*Genotype*.—*Bromidella reticulata* Harris. Ordovician.

#### Genus COELOCHILINA Ulrich and Bassler

Carapace similar to *Eurychilina* but with only a simple sulcus and lacking the node.

*Genotype*.—*Coelochilina (Eurychilina) aequalis* (Ulrich). Ordovician.

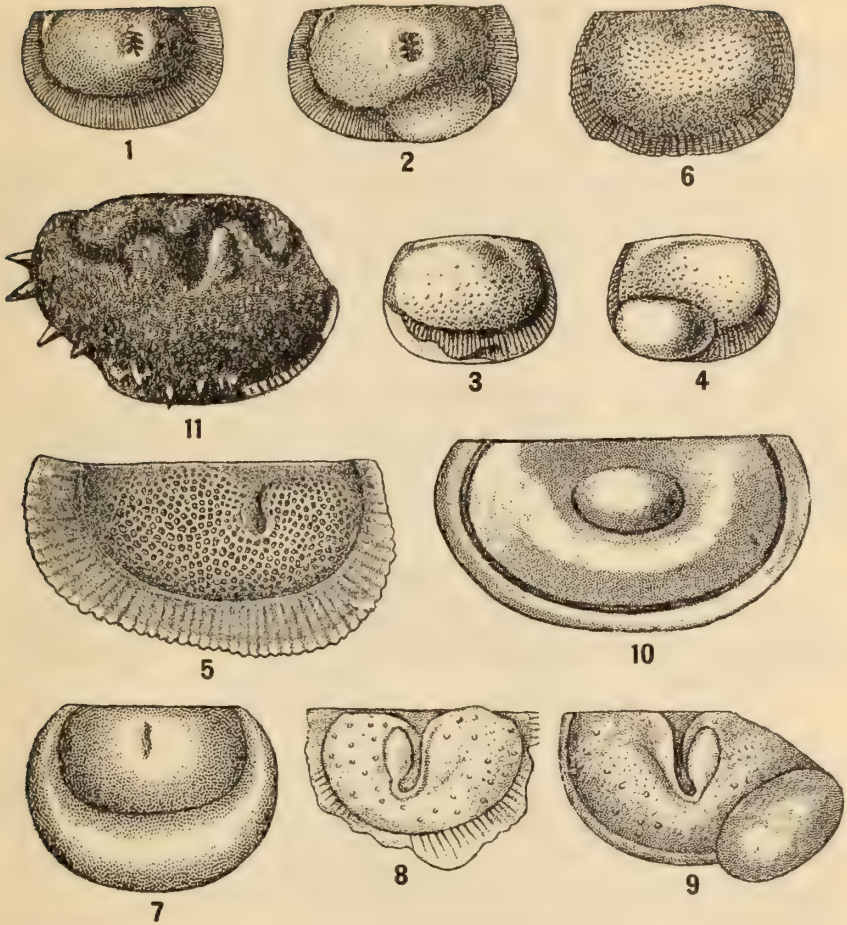


FIGURE 7.—Subfamily Eurychilinae.

1, 2. *Chilobolbina* Ulrich and Bassler. Left valve,  $\times 15$ , of the genotype, *C. (Primitia) dentifera* Bonnema, showing the male and female forms respectively. Ordovician (Kuckers formation), Kuckers, Estonia.

3, 4. *Apatobolbina* Ulrich and Bassler. (3) Male valve,  $\times 12$ , of the genotype, *A. granifera* Ulrich and Bassler, showing convex surface without sulcus. (4) Right valve of female form.  $\times 12$ , illustrating character of brood pouch. Upper Clinton (*Mastigobolbina typus* zone), near Hollidaysburg, Pennsylvania.

5. *Eurychilina* Ulrich. Left valve,  $\times 20$ , of the genotype, *E. reticulata* Ulrich, exhibiting the sulcus and node on the valve and the wide frill-like border. Ordovician (Black River-Decorah shales), Fillmore County, Minnesota.

6. *Apatochilina* Ulrich and Bassler. Left valve of the genotype, *A. (Eurychilina) obesa* Ulrich,  $\times 18$ , with sulcus and node wanting. Ordovician (Black River-Lowville limestone), High Bridge, Kentucky.

7. *Coelochilina* Ulrich and Bassler. Right valve of the genotype, *C. (Eurychilina) aequalis* Ulrich,  $\times 18$ , with simple sulcus developed. Ordovician (Stones River-Lebanon limestone), High Bridge, Kentucky.

8, 9. *Craspedobolbina* Kummerow. A right valve and a left of the type, *C. dietrichi* Kummerow,  $\times 30$ , illustrating the male and female forms respectively. Ordovician drift (Leptana limestone), Brandenburg, Germany.

10. *Neochilina* Matern. Right valve of *N. binsenbachensis* Matern,  $\times 22$ , exhibiting the central node in place of the sulcus. Upper Devonian, Binsensch, Germany.

11. *Bromidella* Harris. Left valve,  $\times 33$ , of *B. reticulata* Harris, the type species. Ordovician of the Arbuckle Mountains, Oklahoma.

## Genus CHILOBOLBINA Ulrich and Bassler

Like *Coelochilina* in many respects, but a long ovate brood pouch is developed in the posterior three fifths of the ventral part of the frill.

*Genotype*.—*Chilobolbina (Primitia) dentifera* (Bonnema). Ordovician–Silurian.

## Genus APATOCHILINA Ulrich and Bassler

Similar to *Eurychilina*, but the node is missing, the border is not incurved, and the sulcus is represented by a dorsal undefined depression, the surface of the valves being more evenly convex.

*Genotype*.—*Apatochilina (Eurychilina) obesa* (Ulrich). Ordovician.

## Genus APATOBOLBINA Ulrich and Bassler

Like *Apatochilina*, but an oval brood pouch is developed in the female on the post-ventral half of the frill and on a part of the adjacent convex area.

*Genotype*.—*Apatobolbina granifera* Ulrich and Bassler. Silurian.

## Family ZYGOBOLBIDAE Ulrich and Bassler

Beyrichiacea with lobate valves; lobes two, three, or four in number, the posterior the most unstable, the anterior lobe divided in the quadrilobate genera, the anterior and median ones commonly broadly or narrowly confluent below. Brood pouch present as an added lobe or undefined swelling along the posterior edge or on the postventral slope.

## Subfamily ZYGOBOLBINAE Ulrich and Bassler

Carapace having an emaciated appearance with narrow lobes and wide sulci, the posterior lobe weak and commonly obsolete, the anterior and median lobes uniting below to form a thin U-shaped ridge. (Fig. 8.)

## Genus ZYGOBOLBA Ulrich and Bassler

Posterior lobe present but weak and the brood pouch a well-defined, acuminate-ovate swelling on the outer two-thirds of the postventral quarter.

*Genotype*.—*Zygodolba (Beyrichia) decora* (Billings). Silurian–Devonian.

## Genus ZYGOBOLBINA Ulrich and Bassler

Like *Zygodolbina* but larger, the posterior lobe usually nearly or quite obsolete, and the brood pouch of the female unequally bilobed.

*Genotype*.—*Zygodolbina conradi* Ulrich and Bassler. Early Silurian.

## Genus ZYGOSELLA Ulrich and Bassler

Similar to *Zygodolba*, but the brood pouch is a narrow ridgelike elevation paralleling the posterior border.

*Genotype*.—*Zygosella vallata* Ulrich and Bassler. Early Silurian.

## Genus BONNEMAIA Ulrich and Bassler

Very large *Zygodolbinae*, with median sulcus short and the U-shaped lobe thick, its posterior limb often divided in its upper half by a short posterior sulcus and the anterior lobe usually crowned with a sigmoidally curved angular crest. Brood pouch large, indefinitely outlined on the inner side, situated as in *Zygodolba*, in the postventral quarter.

*Genotype*.—*Bonnemaia celsa* Ulrich and Bassler. Early Silurian.

## Subfamily KLOEDENINAE Ulrich and Bassler

Ventrally rather obese with relatively short narrow sulci and more or less confluent lobes, the posterior lobe usually large and thick. (Fig. 9.)



Genus PLETHOBOLBINA Ulrich and Bassler

Carapace large, obese, primitian in aspect, the lobes submerged with only the median sulcus remaining; curved crest on anterior lobe barely indicated. Females differing only in slightly greater fullness of postventral part.

*Genotype.*—*Plethobolbina typicalis* Ulrich and Bassler. Early Silurian.

Genus MASTIGOBOLBINA Ulrich and Bassler

Large trilobate Kloedeninae, with a narrow posterior lobe, a much larger and irregularly shaped anterior lobe and a pyriform median lobe, the latter tapering below and passing into a whiplash-like raised extension that turns obliquely forward and upward and then backward again across the anterior lobe. Brood pouch large, posterior in position, covering summit of posterior lobe, its inner side sharply defined by the posterior sulcus.

*Genotype.*—*Mastigobolbina typus* Ulrich and Bassler. Early Silurian.

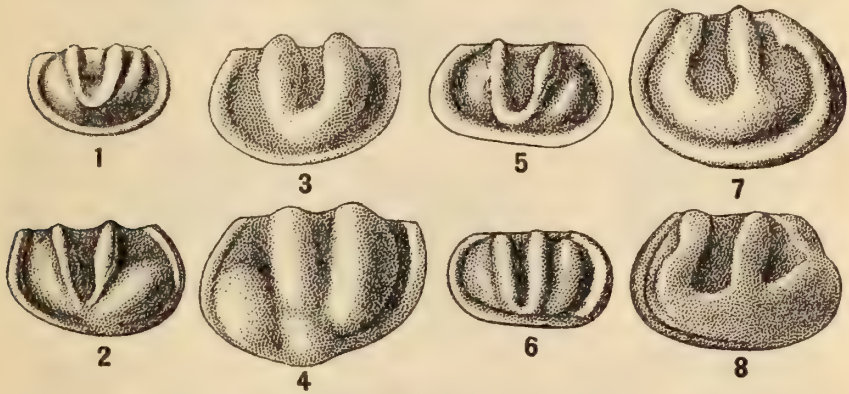


FIGURE 8.—Subfamily Zygobolbinae

1, 2. *Zygobolba* Ulrich and Bassler. (1) Male left valve,  $\times 8$ , of the genotype, *Z. (Beyrichia) decora* Billings, illustrating development of lobes. (2) Left valve, female of the same species,  $\times 8$ , showing the ovate brood pouch in the post ventral quarter. Silurian (Jupiter River formation), Island of Anticosti.

3, 4. *Zygobolbina* Ulrich and Bassler. Right valves of male and female forms of genotype,  $\times 8$  *Z. conradi* Ulrich and Bassler, the latter bearing the unequally bilobed brood pouch. Middle Clinton (*Mastigobolbina lata* zone), Armuchee, Georgia.

5, 6. *Zygosella* Ulrich and Bassler. (5) Left valve, male, of the genotype, *Z. vallata* Ulrich and Bassler,  $\times 8$ , from the Upper Clinton (*Mastigobolbina typus* zone) two miles east of Great Cacapon, West Virginia. (6) Left valve, female,  $\times 8$ , of *Z. macra* Ulrich and Bassler, exhibiting the narrow ridgelike brood pouch paralleling the posterior border. Upper Clinton (*Mastigobolbina typus* zone), north of Williamsville, Virginia.

7, 8. *Bonnaemaia* Ulrich and Bassler. Left valves, male,  $\times 8$ , and female,  $\times 6$ , of *B. rudis* Ulrich and Bassler. Upper Clinton (*Bonnaemaia rudis* zone), Powell Mountain, five miles northwest of Sneedville, Tennessee.

Genus KLOEDENIA Jones and Holl

Obese carapaces like *Plethobolbina* and approaching the simple forms of *Mastigobolbina* in having both median and posterior sulci and the median lobe partly separated as a rounded or subovate node; sulci short, confined to the dorsal half. Brood pouch well developed, large and rather distinctly outlined, projecting beyond the ventral edge and most of it behind the midlength of valves.

*Genotype.*—*Kloedenia wilckensiana* (Jones). Silurian-Devonian.

Genus WELLERIA Ulrich and Baassler

Similar to *Kloedenia*, but the brood pouch forms a low, broad, inwardly undefined swelling affecting the ventral half of two-thirds of the valves and projecting slightly beyond the edge.

*Genotype.*—*Welleria obliqua* Ulrich and Bassler. Late Silurian.

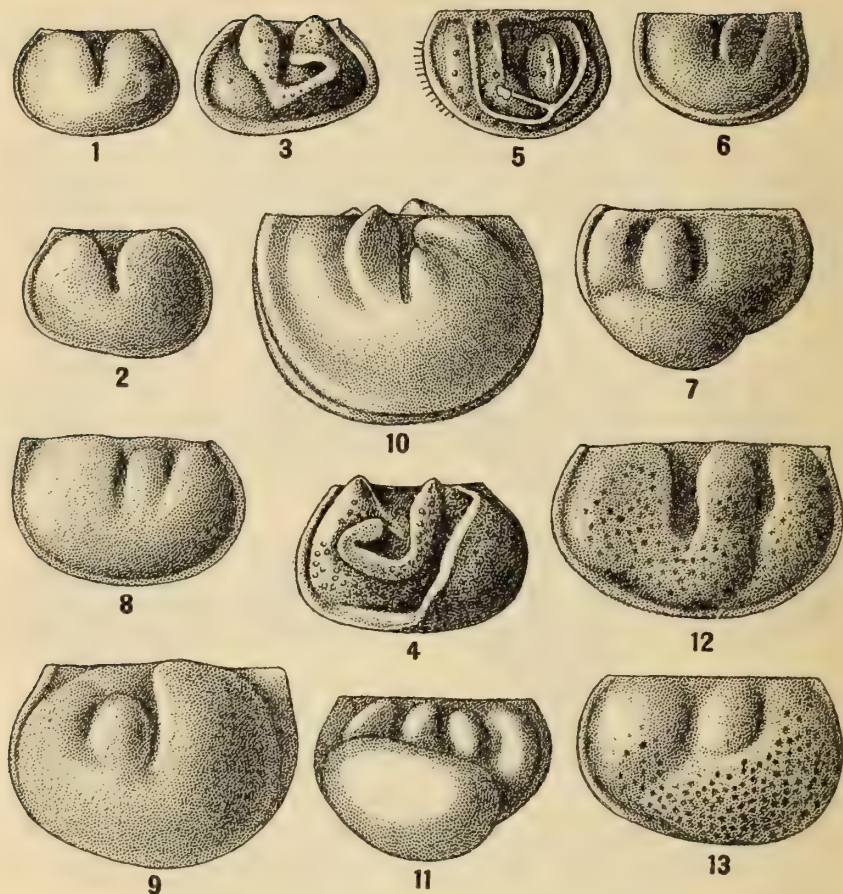


FIGURE 9.—Subfamily Kloedeninae.

1, 2. *Plethobolbina* Ulrich and Bassler. (1) Small perfect right valve,  $\times 6$ , of the genotype, *P. typicalis* Ulrich and Bassler. (2) Large left valve,  $\times 6$ , possibly representing the female. Upper Clinton (*Mastigobolbina typus* zone), Lakemont, Pennsylvania, and Great Cacapon, West Virginia.

3, 4. *Mastigobolbina* Ulrich and Bassler. (3) Male right valve,  $\times 6$ , of *M. typus angulata* Ulrich and Bassler. (4) Left valve of female,  $\times 8$ , of the genotype, *M. typus* Ulrich and Bassler. Upper Clinton (*Mastigobolbina typus* zone), Pennsylvania and Maryland.

5. *Steustoffia* Ulrich and Bassler. Left valve of the genotype *S. linnarssoni* (Krause),  $\times 20$ . Ordovician drift of northern Germany.

6, 7. *Kloedenia* Jones and Holl. (6) Left valve, male,  $\times 12$ , of *K. normalis* Ulrich and Bassler. (7) Right valve, female of same,  $\times 20$ , with brood pouch. Silurian (Wills Creek formation), Pinto, Maryland.

8, 9. *Welleria* Ulrich and Bassler. Left valve male and right valve female,  $\times 12$ , of the genotype *W. obliqua* Ulrich and Bassler. Silurian (Tonoloway limestone), western Maryland.

10, 11. *Kyammodes* Jones. (10) Valve of male, magnified, of *K. whidbornei* Jones, the genotype, from the Devonian of Devonshire, England. (11) Right valve, female,  $\times 10$ , of *K. (Kloedenia) kiesowi* (Krause) from the Silurian drift of northern Germany.

12, 13. *Zygobeyrichia* Ulrich. Male and female left valves,  $\times 12$ , of *Z. ventripunctata* Ulrich and Bassler. Silurian (Tonoloway limestone), Keyser, West Virginia.

## Genus KYAMMODES Jones

Similar to *Welleria* but having two additional short sulci produced by incipient division of the anterior and posterior lobes. Brood pouch strongly convex, sharply defined, very large, covering nearly half the valve and projecting beyond the border.

*Genotype*.—*Kyammodes whidbornei* Jones. Late Silurian–Devonian.

## Genus ZYGOBEYRICHIA Ulrich

Like *Kloedenia*, except that the sulci are larger and the posterior one extends to the ventral border, leaving the anterior and median lobes yoked together. The brood pouch also is undefined on its inner side and larger.

*Genotype*.—*Zygobeyrichia apicalis* Ulrich. Silurian–Devonian.

## Genus STEUSLOFFIA Ulrich and Bassler

Valves similar to *Kloedenia* and *Beyrichia*, but traversed by thin, elevated, crest-like ridges.

*Genotype*.—*Steusloffia (Beyrichia) linnarssoni* (Krause). Ordovician.

## Subfamily DREPANELLINEAE Ulrich and Bassler

Typically quadrilobate, the anterior lobe divided or broken up into lobes or nodes, the median lobe isolated, the posterior lobe narrow and prolonged as a sickle-shaped ridge around the ventral side; rarely the posterior lobe is completely submerged and the other two lobes reduced to small, rounded, subcentral nodes. Brood pouch elongate, confined to ventral side. (Fig. 10.)

## Genus DREPANELLA Ulrich

Depressed convex, suboblong valves with a more or less complete, often sickle-shaped, sharply elevated marginal ridge, within which the surface exhibits two or more usually isolated nodes; ventral edge thick; brood pouch unknown, probably wanting.

*Genotype*.—*Drepanella crassinoda* Ulrich. Ordovician–early Silurian.

## Genus DREPANELLINA Ulrich and Bassler

Similar to *Drepanella*, but the female is provided with a brood pouch that appears as an indefinite swelling over the ventrally confluent ridges.

*Genotype*.—*Drepanellina clarki* Ulrich and Bassler. Middle Silurian–Devonian.

## Genus POLYZYGIA Gürich

Apparently similar to *Drepanellina*, but the free edge of the valve is occupied by a continuous ridge.

*Genotype*.—*Polyzygia symmetrica* Gürich. Silurian–Devonian.

## Genus SCOFIELDIA Ulrich and Bassler

Like *Drepanella*, but with median lobe small and located near middle of dorsal edge, and the anterior and posterior lobes symmetrically arranged and irregularly triangular in form, near the ventral edge a thick, sharply elevated barlike ridge.

*Genotype*.—*Scofieldia (Drepanella) bilateralis* (Ulrich). Ordovician.

## Genus MESOMPHALUS Ulrich and Bassler

Carapace obese, the posterior lobe completely submerged, the median and anterior lobes reduced to small, rounded, closely approximated subcentrally situated nodes separated by a short pitlike sulcus. Brood pouch sausage-shaped, uncommonly prominent and well defined, located on the ventral slope.

*Genotype*.—*Mesomphalus hartleyi* Ulrich and Bassler. Early Devonian.

## Family BEYRICHIIDAE Jones

Valves trilobate or quadrilobate, deeply sulcated; brood pouch when present very prominent, subglobular or egg-shaped, on the ventral slope. (Fig. 11.)

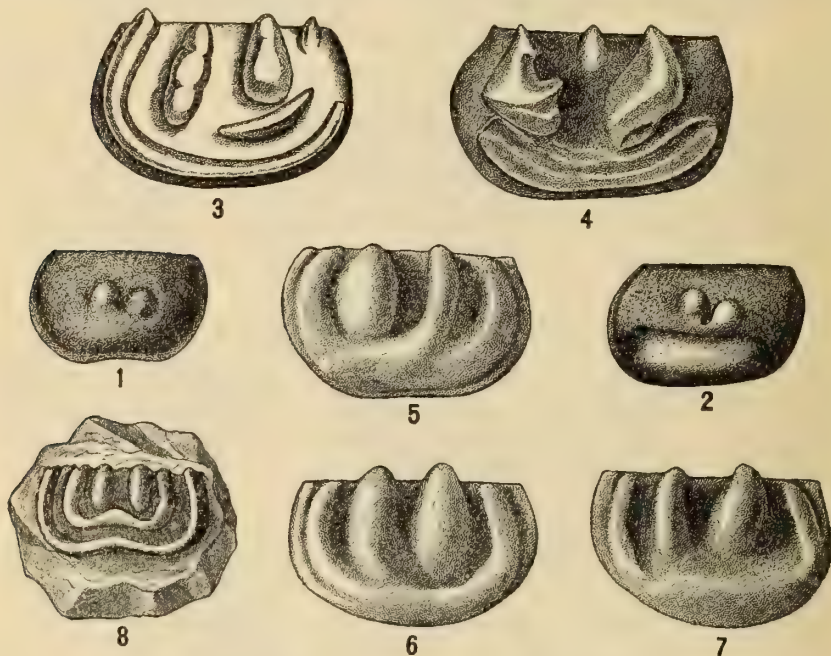


FIGURE 10.—Subfamily *Drepanellinae*.

- 1, 2. *Mesomphalus* Ulrich and Bassler. Right valves,  $\times 12$ , male and female of the genotype, *M. hartleyi* Ulrich and Bassler, the latter showing the brood pouch. Devonian (Helderbergian-Keyser member), Cumberland, Maryland.
3. *Drepanella* Ulrich. Right valve,  $\times 12$ , of the genotype, *D. crassinoda* Ulrich. Ordovician (Black River-Lowville limestone), High Bridge, Kentucky.
4. *Scofiella* Ulrich and Bassler. Right (?) valve,  $\times 12$ , of *S. (Drepanella) bilateralis* Ulrich, the genotype. Ordovician (Black River-Decorah shale), St. Paul, Minnesota.
- 5-7. *Drepanellina* Ulrich and Bassler. (5) Well-preserved right valve, male,  $\times 8$ , of the genotype, *D. clarki* Ulrich and Bassler. (6) Left valve, male,  $\times 8$ , showing the resemblance to *Drepanella*. (7) Left valve, female,  $\times 8$ , showing the ventral brood pouch. Upper Clinton (*Drepanellina clarki* zone), Cumberland, Maryland.
8. *Polyzygia* Gürich. Valve,  $\times 20$ , of the type and only species, *P. symmetrica* Gürich. Middle Devonian of Poland.

## Genus BEYRICHIA McCoy

Distinctly trilobate, the middle lobe smallest, rounded and commonly isolated, the posterior longer but also detached. Brood pouch subglobular or ovate, more or less posterior in position.

*Genotype*.—*Beyrichia kloedeni* McCoy. Silurian-Devonian.

## Genus TETRADELLA Ulrich

Valves marked by four or less curved vertical ridges ventrally united; one or both of the inner ridges sometimes duplex.

*Genotype*.—*Tetradella (Beyrichia) quadrilirata* (Hall and Whitfield). Ordovician-early Silurian.

## Genus CTENOBOLBINA Ulrich

Middle lobe more or less completely confluent with the posterior lobe, the composite lobe bulbous and sharply defined in front by a deep curved sulcus; the anterior lobe divided by an oblique furrow. Free edges with false border or frill.

*Genotype*.—*Ctenobolbina (Beyrichia) ciliata* (Emmons). Ordovician–Devonian.

## Genus CERATOPSIS Ulrich

Distinguished from *Tetradella* by the remarkable process that arises from the dorsal extremity of the posterior ridge. This may be straight and hornlike with one of the edges toothed, or expanded somewhat mushroomlike.

*Genotype*.—*Ceratopsis (Beyrichia) oculifera* (Hall). Ordovician–Silurian.

## Genus KIESOWIA Ulrich and Bassler

Like *Tetradella* except that the two anterior and the posterior lobes are each divided into two or three nodes.

*Genotype*.—*Kiesowia (Beyrichia) dissecta* (Krause). Ordovician.

## Genus AECHMINELLA Harlton

Carapace small, subquadrate, thickest in center; hinge line straight; valves probably unequal; surface reticulate, ornamented by three large spines on each valve and sometimes by an anterior and a posterior ventral ridge.

*Genotype*.—*Aechminella trispinosa* Harlton. Pennsylvanian.

## Genus HIPPA Barrande

Possibly allied to *Ctenobolbina*, but with lobation of surface little developed.

*Genotype*.—*Hippa latens* Barrande. Ordovician.

## Genus EOCONCHOECIA Moberg

Possibly a beyrichoid in which the anterior lobe has an anteriorly and a ventrally projecting spine.

*Genotype*.—*Eoconchoecia mucronata* Moberg. Silurian.

## Genus TETRASULCATA Matern

Equivalved, with long straight hinge line from which proceed four furrows curving ventrally and dividing the surface of valve into five elevated areas uniting in the ventral third.

*Genotype*.—*Tetrasulcata fluens* Matern. Upper Devonian.

## Genus HOLLINELLA Coryell

Like *Hollina*, but tapered edge of right valve fits into grooved hinge of left and protuberances near cardinal angles of right valve hinge with socket at their base, into which sockets the corners of the left valve fit.

Each species has three different forms, the first of which has a wide frill all along the margin except at the anterior, the second has a similar but narrower frill, and the third has only a row of granules or spines representing the frill.

*Genotype*.—*Hollinella dentata* Coryell. Devonian–Permian.

## Genus JANISCHEWSKYA Batalina

Probably a *Hollinella* in which the posterior lobe is prolonged ventrally into a spine.

*Genotype*.—*Janischewskya digitata* Batalina. Carboniferous.

## Genus CORNIGELLA Warthin

Valves equal; hinge line straight; surface with six to eight prominent spines on each valve, one extending above the hinge line. Like *Maurycella*, but lacks the reticulate surface and Kirkbyan pit.

*Genotype*.—*Cornigella minuta* Warthin. Pennsylvanian.

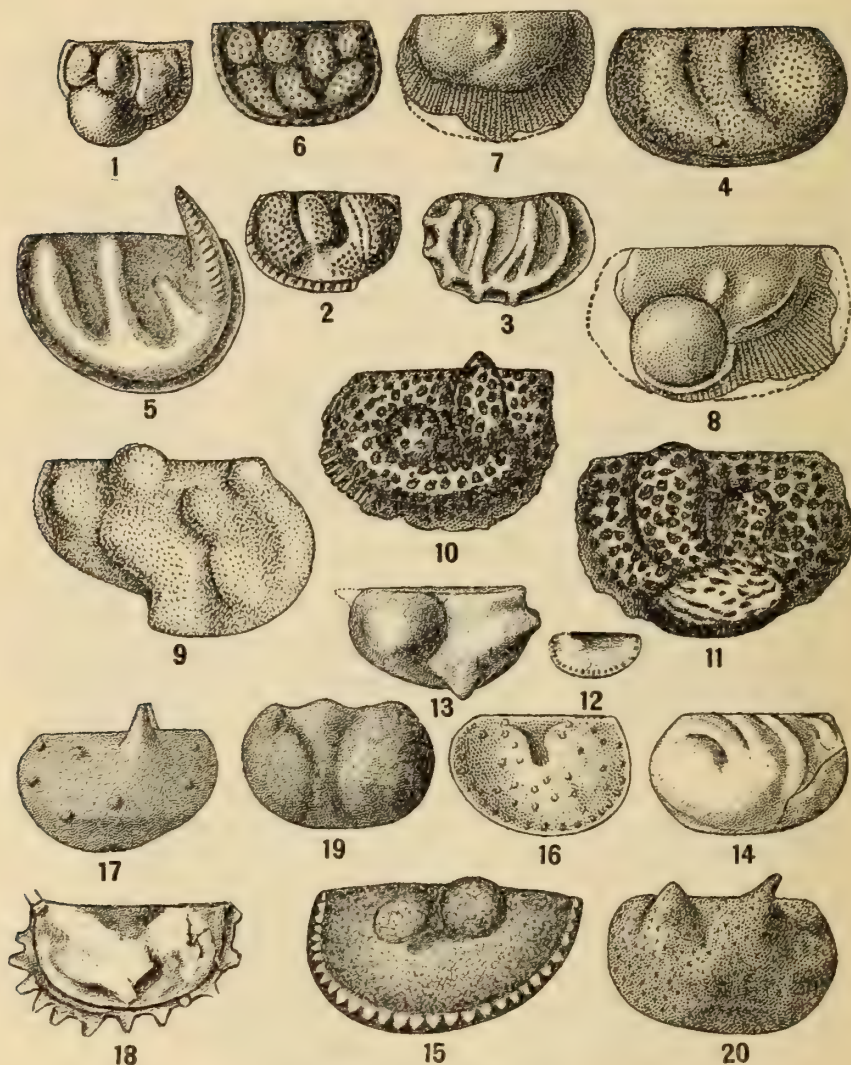


FIGURE 11.—Family Beyrichiidae.

- 1, 2. *Beyrichia* McCoy. Female and male valves,  $\times 12$ , of *B. veronica* Ulrich and Bassler, the former with the test in part removed. Upper Clinton (*Drepanellina clarki* zone), western Maryland.
3. *Tetradella* Ulrich. Right valve of the genotype, *T. (Beyrichia) quadrilirata* Hall and Whitfield. Ordovician (Black River-Decorah shale), Minneapolis, Minnesota.
4. *Ctenobolbina* Ulrich. Left valve,  $\times 15$ , of the genotype, *C. ciliata* (Emmons). Ordovician (Cincinnati-Eden shale), Cincinnati, Ohio.
5. *Ceratopsis* Ulrich. Left valve,  $\times 20$ , of the genotype, *C. chambersi* (Miller). Ordovician (Black River-Decorah shale), St. Paul, Minnesota.
6. *Kiesowia* Ulrich and Bassler. Left valve,  $\times 10$ , of the genotype, *K. (Beyrichia) dissecta* Krause. Ordovician drift of northern Germany.
- 7, 8. *Dibolbina* Ulrich and Bassler. Right valves,  $\times 20$ , male and female, of the genotype, *D. cristata* Ulrich and Bassler, showing the surface characters, broad frill, and, in the latter, the hemispherical, posterior brood pouch. Silurian (Tonoloway limestone), Keyser, West Virginia.
9. *Hollina* Ulrich and Bassler. Left valve,  $\times 20$ , of the genotype, *H. (Ctenobolbina) insolens* Ulrich. Devonian (Onondaga limestone), Falls of the Ohio River.

## Genus DIBOLBINA Ulrich and Bassler

Widely frilled Beyrichiidae, with trilobation of surface much obscured, only the middle lobe being definitely developed. Brood pouch nearly hemispheric, mainly posterior in position.

*Genotype*.—*Dibolbina cristata* Ulrich and Bassler. Late Silurian.

## Genus HOLLINA Ulrich and Bassler

Allied to *Ctenobolbina*, but the posterior lobe is commonly broken up into three or four nodes of which the inner one is the most pronounced and most persistent; the middle lobe terminates dorsally in a large rounded node and the anterior lobe is reduced to a small node or is obsolete. Marginal frill confined chiefly to the posterior two-thirds. Brood pouch not developed.

*Genotype*.—*Hollina (Ctenobolbina) insolens* (Ulrich). Devonian-Mississippian.

## Genus TREPOSELLA Ulrich and Bassler

Like *Beyrichia*, except that the posterior lobe is obsolete in the postdorsal quarter but well developed along the ventral side; the middle lobe is prominent and rounded, and the anterior lobe is reduced to a vertically elongated node. Between the latter two is a definite pit. Brood pouch near middle of ventral edge instead of distinctly posterior.

*Genotype*.—*Treposella (Beyrichia) lyoni* (Ulrich). Middle Devonian.

## Genus BEYRICHIANA Kellett

Subovate, straight-hinged Ostracoda; in side view with an oblique ventral margin, and a moderate backward swing. Surface of valve quadrilobate, partially divided by prominent, central Y-shaped system of sulci. Surface granulose.

*Genotype*.—*Beyrichiana permiana* Kellett. Permian.

Probably same as *Tribolbina*.

## Genus TRIBOLBINA Latham

Large subovate carapace. Dorsal margin long and straight. Two deep, long sulci are present, one extending from the anterodorsal margin to the posteroventral margin, the other running from slightly behind the center of the dorsal margin towards the anteroventral region. Valves divided into three lobes by the sulci. Surface covered with tubercles or punctae; valves equal with the free edges thick.

*Genotype*.—*Tribolbina carnegiei* Latham. Carboniferous.

## Family KLOEDENELLIDAE Ulrich and Bassler

Straight-hinged, more or less inequivalved small Ostracoda, usually the right valve overlapping the left around the free edges and provided with a small process in the postdorsal angle that fits into a corresponding depression in the opposite valve.

## FIGURE 11.—Continued

10, 11. *Treposella* Ulrich and Bassler. (10) Right valve, male,  $\times 20$ , of *T. (Beyrichia) lyoni* Ulrich. (11) Left valve, female,  $\times 20$ , of the same species, with the brood pouch near middle of ventral edge. Devonian (Onondaga limestone), Falls of the Ohio River.

12. *Hippa* Barrande. View of the type species, *H. latens* Barrande,  $\times 10$ . Ordovician of Bohemia.

13. *Eoconchoecia* Moberg. Copy of the original illustration of the type species, *E. mucronata* Moberg,  $\times 10$ . Silurian of Scania, Sweden.

14. *Tetrasulcata* Matern. A right valve,  $\times 34$ , of the genotype, *T. fluens* Matern. Upper Devonian of Belgium.

15, 16. *Hollinella* Coryell. (15) The original illustration of *H. dentata* Coryell,  $\times 40$ , the genotype. Pennsylvanian (Wewoka formation), Seminole County, Oklahoma. (16) Left valve,  $\times 40$ , of the genotype of *Hollites*, *H. papillosus* Coryell and Sample. Pennsylvanian of Texas. Based on young of *Hollinella*.

17. *Cornigella* Warthin. Side view of a valve of the type species, *C. minuta* Warthin,  $\times 75$ . Pennsylvanian (Marnaton), two miles west of Steedman, Oklahoma.

18. *Janischevskya* Batalina. Copy of the view of genotype, *J. digitata* Batalina, enlarged. Carboniferous of Novgorod, Russia.

19. *Beyrichiana* Kellett. Left valve,  $\times 25$ , of the type species, *B. permiana* Kellett. Permian (Wreford formation) of Kansas.

20. *Aechminella* Harlton. Left valve,  $\times 33$ , of the genotype, *A. trispinosa* Harlton from the Pennsylvanian of southern Oklahoma.

Valves shallowly unisulcate to deeply quadrilobate with practically complete transition from the one extreme to the other. (Fig. 12.)

Genus EUKLOEDENELLA Ulrich and Bassler

Surface of valves evenly convex or with only a median pit or sulcus and more rarely with a shallow depression in the ventral slope.

*Genotype.*—*Eukloedenella umbilicata* Ulrich and Bassler. Silurian.

Genus KLOEDENELLA Ulrich and Bassler

Surface of valves with a median and a posterior sulcus both usually confined to the postdorsal quarter; otherwise like *Eukloedenella*.

*Genotype.*—*Kloedenella pennsylvanica* (Jones). Silurian-Devonian.

Genus DIZYGOPLEURA Ulrich and Bassler

Distinguished from *Kloedenella* by the more or less distinct quadrilobation of the valves, the posterior sulcus being much longer, the median sulcus longer, and the anterior lobe more or less completely divided by another sulcus.

*Genotype.*—*Dizygopectura swartzii* Ulrich and Bassler. Silurian-Devonian.

Genus JONESINA Ulrich and Bassler

Characterized by a straight and obscurely denticulate hinge line, unequal valves, the left being the larger and a primitian sulcus somewhat behind the middle.

*Genotype.*—*Jonesina (Beyrichia) fastigiata* (Jones and Kirkby). Mississippian-Permian.

Genus KNOXINA Coryell and Rogatz

This genus differs from *Jonesina* in that it has one or more costae, and from *Glyptopleura* in that it has a sulcus.

*Genotype.*—*Knoxina lecta* Coryell and Rogatz. Pennsylvanian-Permian.

Genus OLIGANISUS Geis

Distinguished from *Jonesina* by its punctate surface, its nearly equal valves, its subcentral pit, and its posterior marginal furrows. The laterally constricted and sharp anterocardinal angle is characteristic.

*Genotype.*—*Oliganiscus sulcatus* Geis. Mississippian.

Genus KIRKBYINA Ulrich and Bassler

Carapace small, less than 1 mm in length, rather short, subovate to subquadrate, ventricose, thickest anteriorly, with a simple primitian sulcus about the middle of the dorsal half. Valves unequal, the right slightly larger and overlapping the edges of the left.

*Genotype.*—*Kirkbyina (Beyrichiella) reticosa* (Jones and Kirkby). Carboniferous.

Genus ELLIPSELLA Coryell and Rogatz

Carapace small, smooth, subquadrangular; right valve larger, producing hinge-ment which overlaps the left valve at the posterior cardinal angle and anterior dorsal slope, forming denticulations at these points; hinge line either straight or undulating as seen in dorsal view; dorsal margin slightly convex; posterior and anterior margin broadly rounded; ventral border convex.

*Genotype.*—*Ellipsella obliqua* Coryell and Rogatz. Permian.

Genus BERNIX Jones

Carapace equivalved, moderately convex with straight hinge line. Surface with a shallow furrow from hinge to center of valve and with radiating reticulations.

*Genotype.*—*Bernix tatei* Jones. Carboniferous.



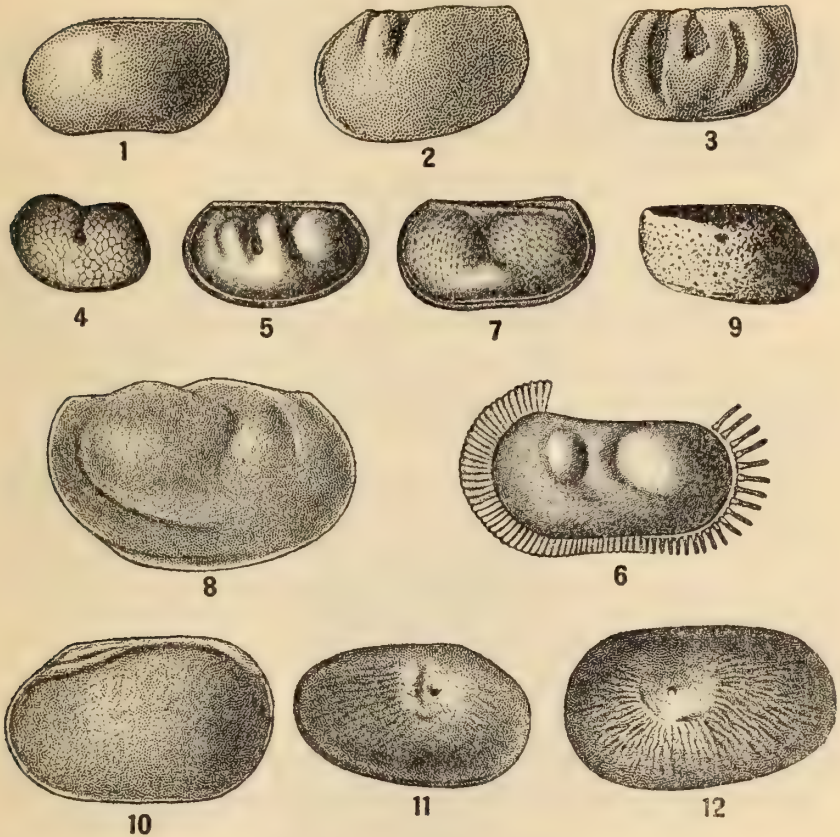


FIGURE 12.—Family Kloedenellidae.

1. *Eukloedenella* Ulrich and Bassler. Right side of a complete carapace,  $\times 16$ , of the genotype, *E. umblicata* Ulrich and Bassler, illustrating obsolete lobation of valves. Silurian (Cayugan-McKenzie formation), Flintstone, Maryland.
2. *Kloedenella* Ulrich and Bassler. Right valve,  $\times 20$ , of *K. obliqua* Ulrich and Bassler, exhibiting the characteristically short median and posterior sulci limited to the post dorsal quarter. Silurian (Cayugan-Tonoloway limestone), Cumberland, Maryland.
3. *Dizygopleura* Ulrich and Bassler. Right valve of *D. stosei* Ulrich and Bassler,  $\times 20$ , showing the typical quadrilobate surface. Silurian (Cayugan-McKenzie formation),  $1\frac{1}{2}$  miles east of Great Cacapon, West Virginia.
4. *Kirkbyina* Ulrich and Bassler. Left valve,  $\times 25$ , of the genotype, *K. (Beyrichiella) reticosa* Jones and Kirkby. Carboniferous of Great Britain.
5. *Jonesina* Ulrich and Bassler. Right valve,  $\times 25$ , of the genotype, *J. (Beyrichia) fastigiata* Jones and Kirkby. Carboniferous of Scotland.
6. *Beyrichiopsis* Jones and Kirkby. Apparently perfect right valve,  $\times 40$ , of the genotype, *B. fimbriata* Jones and Kirkby. Carboniferous of Scotland.
7. *Beyrichiella* Jones and Kirkby. Right valve,  $\times 20$ , of the genotype, *B. cristata* Jones and Kirkby. Carboniferous of Scotland.
8. *Knozina* Coryell and Rogatz. Left valve,  $\times 40$ , of *K. lecta* Coryell and Rogatz, the type species. Permian of Texas.
9. *Oliganisus* Geis. Right valve,  $\times 22$ , of *O. sulcatus* Geis. Mississippian of Indiana.
10. *Ellipsella* Coryell and Rogatz. Left valve,  $\times 45$ , of *E. obliqua* Coryell and Rogatz, the type species. Permian of Texas.
- 11, 12. *Bernix* Jones. Left and right valve of the type species, *B. latei* Jones. Carboniferous of England.

## Genus BEYRICHIELLA Jones and Kirkby

Carapace small, 1 mm or less in length, elongate subquadrate, thickest anteriorly, with a rather broad median sulcus giving the shell a bilobed aspect; a low, transverse ridge in the ventral part cuts off the sulcus and unites the lower parts of the two lobes. Valves unequal, the edge of the smaller right valve being set into the overlapping ventral and end parts of the large left valve.

*Genotype*.—*Beyrichiella cristata* Jones and Kirkby. Mississippian-Permian.

## Genus BEYRICHIOPSIS Jones and Kirkby

Like *Beyrichiella*, but lacking the transverse ridge and having a small rounded postmedian lobe. A wide, radiated, marginal fringe is present.

*Genotype*.—*Beyrichiopsis fimbriata* Jones and Kirkby. Devonian-Carboniferous.

## Family KIRKBYIDAE Ulrich and Bassler

Valves straight-hinged, joined together by a ridge or teeth in the left fitting into corresponding sockets on the right, essentially equal but with edge of right valve fitting into the slightly rabbeted edge of the left, the left valve thus slightly overlapping the right. Surface reticulate with several nodes and a subventral pit or muscle spot. (Fig. 13.)

## Genus KIRKBYA Jones

Valves straight-hinged, arc-shaped with angular cardinal extremities. Hinge marked by toothlike protuberance under the cardinal angles of the left valve, or a more or less prominent ridge which fit into sockets on the right. Surface with polygonal reticulations and a more or less prominent subcentral pit or muscle spot and often ornamented with nodes or ridges, the most prominent of which is the anterodorsal shoulder.

*Genotype*.—*Kirkbya permiana* Jones. Silurian-Permian.

## Genus AMPHISSITES Girty

Like *Kirkbya*, but carapace short and subrectangular and surface usually covered with nodes and shoulderlike elevations. Pit usually small and located near the anteroventral corner of the central node.

*Genotype*.—*Amphissites rugosus* Girty. Devonian-Permian.

## Genus KNIGHTINA Kellett

Distinguished from *Kirkbya* by its rounded cardinal angles and from *Amphissites* by its more elongate form and prominent anterior shoulder.

*Genotype*.—*Amphissites allerismoides* Knight. Pennsylvanian.

## Genus MAURYELLA Ulrich and Bassler

Like *Kirkbya*, except that valves have no false border and the surface bears five or six strongly elevated rounded nodes arranged without special order.

*Genotype*.—*Mauriyella mamillata* Ulrich and Bassler. Mississippian.

## Genus STREPULA Jones and Holl

Suboblong shells, valves slightly convex without sulcus, traversed by two or more concentric or twisted, thin crestlike ridges.

*Genotype*.—*Strepula concentrica* Jones and Holl. Ordovician-Devonian.

## Genus MACRONOTELLA Ulrich

Shell semicircular or semiovate with a long, nearly straight hinge; valves equal, inflated centrodorsally, without ridges or sulcus but exhibiting a smooth, subcentral spot where the reticular ornament is omitted.

*Genotype*.—*Macronoiella scofieldi* Ulrich. Ordovician-Devonian.

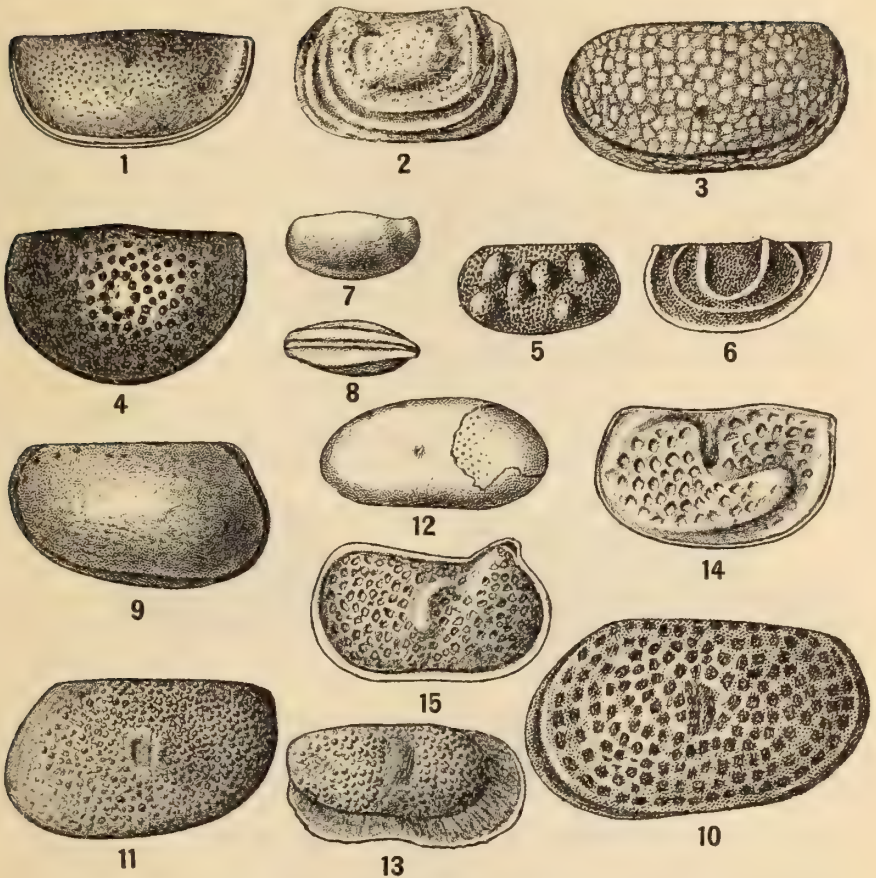


FIGURE 13.—Family Kirkbyidae.

1. *Kirkbya* Jones. Right valve,  $\times 20$ , of *K. permiana* Jones. Permian of Durham, England.
2. *Amphissites* Girty. Right valve of the genotype, *A. rugosus* Girty,  $\times 25$ . (After Roundy). Mississippian (Fayetteville shale), Arkansas.
3. *Knightina* Kellert. Left valve,  $\times 55$ , of the genotype, *Amphissites allerismoides* Knight. Pennsylvanian of Missouri.
4. *Macronotella* Ulrich. Valve (right?),  $\times 20$ , of the genotype, *M. scofieldi* Ulrich. Ordovician (Black River limestone), Cannon Falls, Minnesota.
5. *Mauryella* Ulrich and Bassler. Left valve of the genotype, *M. mammillata* Ulrich and Bassler,  $\times 20$ , showing the absence of a false border, and the presence of a subcentral pit, reticulate surface with six prominent rounded nodes. Mississippian (Kinderhook-Ridgetop shale), Mt. Pleasant, Maury County, Tennessee.
6. *Streptula* Jones and Holl. Right valve of the genotype, *S. concentrica* Jones and Holl,  $\times 20$ , with the characteristic crest-like ridges. Silurian of England.
- 7, 8. *Kelletella* Delo. Left valve,  $\times 20$ , and ventral edge view of the genotype, *K. naviculata* Delo. Pennsylvanian of Menard County, Texas.
9. *Graphiotactylus* Roth. Left side of a complete carapace,  $\times 25$ , of the type species, *G. arkansanus* Girty. Mississippian (Fayetteville shale), Fayetteville quadrangle, Arkansas.
10. *Savagella* Geis. Right valve of *S. lindahti* Ulrich,  $\times 20$ , the genotype, from the Mississippian of Illinois.
11. *Paracythere* Ulrich and Bassler. Right valve,  $\times 20$ , of *P. granopunctata* Ulrich and Bassler, the genotype. Mississippian (Ridgetop), Mt. Pleasant, Tennessee.
12. *Carbonia* Strand. Left valve of *C. (Carbonia) agnes* Jones,  $\times 25$ , showing the muscle spot. Coal Measures of England.
13. *Allostraca* Ulrich and Bassler. Left valve,  $\times 20$ , of the genotype, *A. fimbriata* Ulrich and Bassler. Mississippian (Ridgetop), Mt. Pleasant, Tennessee.
14. *Kirkbyella* Coryell and Booth. Right valve,  $\times 50$ , of *K. tyra* Coryell and Booth, the genotype. Pennsylvanian (Wayland shale) of Texas.
15. *Girtyites* Coryell and Booth. Right valve,  $\times 80$ , of the genotype *G. spinosus* Coryell and Booth. Pennsylvanian (Wayland shale) of Texas.

Genus *KELLETTTELLA* Delo

Carapace suboblong with anterior and posterior heights about equal; valves subequal, the right indistinctly overlapping the left and with a thick false keel along the ventral margin.

*Genotype*.—*Kellettella naviculata* Delo. Pennsylvanian.

Genus *CARBONITA* Strand (*Carbonia* Jones)

Equivalved Cytheridae(?) with the surface marked by a small round, central spotted muscle area hollow within and wrinkled by numerous small sinuous longitudinal ridges converging towards the ends.

*Genotype*.—*Carbonia agnes* Jones. Carboniferous-Permian.

Genus *ALLOSTRACA* Ulrich and Bassler

*Cythere*-like Ostracoda with a broad eye (or muscle) spot, granose surface, and prominent striated frill.

*Genotype*.—*Allostraca fimbriata* Ulrich and Bassler. Mississippian.

Genus *PARACYTHERE* Ulrich and Bassler

Similar in surface features to *Allostraca*, but the frill is lacking.

*Genotype*.—*Paracythere granopunctata* Ulrich and Bassler. Mississippian.

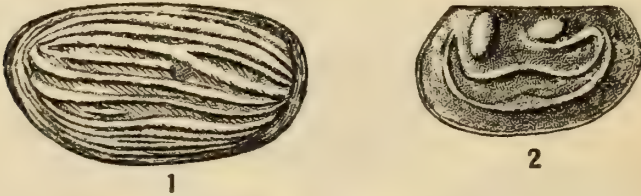


FIGURE 14.—Family Glyptoleuridae.

1. *Glyptoleura* Girty. View of a typical species, *G. perbella* Geis,  $\times 20$ . Mississippian (Warsaw limestone), Columbia, Illinois.
2. *Glyptoleurina* Coryell. Copy of the original figure of *G. montifera* Coryell, a right valve,  $\times 35$ . Pennsylvanian (Boggy shale), Seminole County, Oklahoma.

Genus *GRAPHIODACTYLUS* Roth

Valves small with straight hinge line, the right larger and overlapping the left ventrally and extending to the dorsocardinal angles; dorsal edge of right valve more prominent than the left. Surface ornamented with punctae arranged linearly like a finger print and an indistinct muscle spot near the middle of the shell.

*Genotype*.—*Graphiodactylus* (*Kirkbya*) *arkansanus* (Girty). Mississippian-Pennsylvanian.

Genus *GIRTYITES* Coryell and Booth

Differs from *Amphissites* in lacking the distinctly quadrangular outline, the secondary flange, interior ridges and median pit.

*Genotype*.—*Girtyites spinosus* Coryell and Booth. Pennsylvanian.

Genus *KIRKBYELLA* Coryell and Booth

Differs from *Kirkbya* in having a sulcus instead of a pit.

*Genotype*.—*Kirkbyella typa* Coryell and Booth. Pennsylvanian.

Genus *SAVAGELLA* Geis

Distinguished from *Amphissites* and *Kirkbya* in having an opposite overlap in the broad marginal band and coarse reticulation.

*Genotype*.—*Kirkbya lindahli* Ulrich. Mississippian.

## Family GLYPTOPLEURIDAE Girty

Small, subrectangular, straight-hinged Ostracoda, the left valve overlapping the right along the free margins and at the cardinal angles where there may be a prominent triangular flap or tooth on the left valve which overlaps the right. A very faint to distinct submedian sulcus present. Surface ornamented by inosculating costae or by nodes and inconspicuous marginal flanges. Surface rarely finely pitted or reticulate. (Fig. 14.)

## Genus GLYPTOPLEURA Girty

Shell subquadrate with straight hinge line, inequivalved, the left valve overlapping the right. Surface with median pit and sculptured with inosculating costae.

*Genotype*.—*Glyptopleura inopinata* Girty. Mississippian-Pennsylvanian.

## Genus GLYPTOPLEURINA Coryell

Like *Glyptopleura*, but has nodes and marginal flange.

*Genotype*.—*Glyptopleurina montifera* Coryell. Pennsylvanian.

## Family YOUNGIELLIDAE Kellett

Differing from Kirkbyidae in lacking its hinge and marginal structure, pit, and nodes. (Fig. 15.)



FIGURE 15.—Family Youngiellidae.

1, 2. *Youngiella* Jones and Kirkby. (1) Right valve of the genotype, *Y. (Youngia) rectidorsalis* Jones and Kirkby,  $\times 50$ . (2) Interior of valve, showing teeth along the hinge. Carboniferous of England.

3. *Moorea* Jones and Kirkby. Left valve of the genotype, *M. obesa* Jones and Kirkby, magnified. Carboniferous of England.

4. *Moorites* Coryell and Rogatz. Right valve,  $\times 43$ , of *M. hewetti* Coryell and Billings. Pennsylvanian of Texas.

## Genus YOUNGIELLA Jones and Kirkby

Simple, unadorned valve with long, straight, internally denticulated hinge.

*Genotype*.—*Youngiella (Youngia) rectidorsalis* (Jones and Kirkby). Carboniferous.

## Genus MOOREA Jones and Kirkby

Small, more or less oblong or ovate shells; valves compressed, convex, the free edges bounded by a raised marginal ridge, sometimes lacking along the ventral side; inner region flat or gently convex, without nodes, sulcus, or pit.

*Genotypes*.—*Moorea obesa* and *M. tenuis* Jones and Kirkby. Ordovician-Carboniferous.

## Genus MOORITES Coryell and Billings

Shell minute, laterally subrectangular with straight hinge line and valves meeting evenly. Surface with a slightly elevated marginal border and a low elongate loop-like costa, indistinct and branching in the postdorsal area. Surface finely pitted except on costa and border.

*Genotype*.—*Moorites hewetti* Coryell and Billings (= *M. minutus* Warthin) Pennsylvanian.

## Superfamily CYPRIDACEA

## Family THLIPSURIDAE Jones

Subreniform to subovate inequivalved shells less than 2 mm in length, the margin of one valve overlapping that of the other a little at least along the free edges. Dorsal margin arcuate, ventral sometimes straight or even slightly sinuate; surface with two or more definite pits. (Fig. 16.)

## Genus THLIPSURA Jones and Holl

Valves convex with the right overlapping the left and with the region bordering the anterior margin depressed to form a well-defined sunken area with one or two furrows opening from this area and extending back for some distance.

*Genotype.*—*Thlipsura corpulenta* Jones and Holl. Silurian-Devonian.

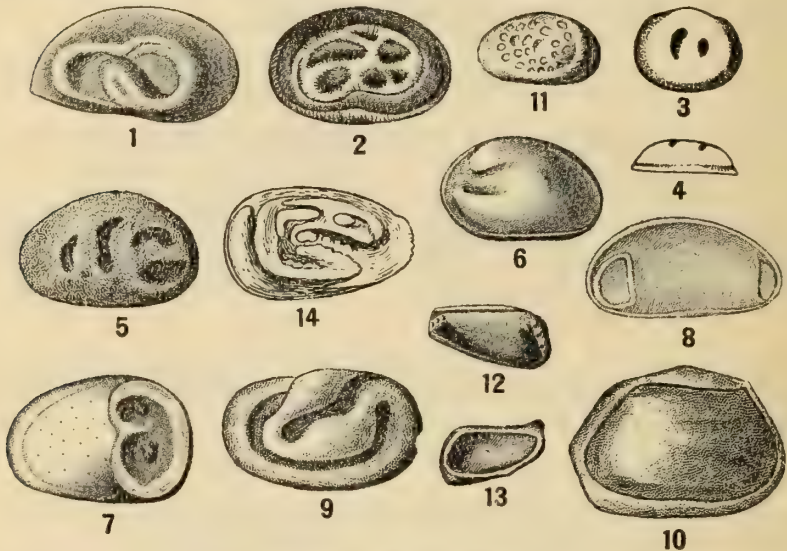


FIGURE 16—Family Thlipsuridae.

1-4. *Otonaria* Jones. (1) Left valve of the genotype, *O. octoformis* Jones, X20, showing the typical eight-shaped annular ridge. Silurian of England. (2) An American species, *O. ovata* Ulrich, X20, in which the eight-shaped ridge is more modified. Devonian (Onondaga limestone), Falls of the Ohio. (3, 4) The overlapping valve and edge view of same, X20, of a simple species, *Otonaria bicava* Ulrich and Baessler, distinguished by the two median cavities. Cincinnati (Southgate member of Eden shale), Covington, Kentucky.

5. *Thlipsurella* Swartz. Right valve of *T. ellipsoclesta* Swartz, the genotype, X29. Devonian of Pennsylvania.

6, 7. *Thlipsura* Jones and Holl. (6) Left valve of the genotype, *T. corpulenta* Jones and Holl, X20. Silurian, Woolhope, England. (7) Right valve of the genotype of *Craterellina*, *C. robusta* Ulrich and Baessler, X20. Devonian (Oriskany formation), Cash Valley, Maryland.

8. *Phreatura* Jones and Kirkby. Right valve of the type species, *P. concinna* Jones and Kirkby, X50. The shallow semicircular pit at each end and the compressed posterior end are characteristic. Carboniferous, Yoredale, England.

9. *Poloniella* Gürich. The genotype, *P. devonica* Gürich, X30. Middle Devonian of Poland.

10. *Phanassymetria* Roth. Left side of an entire example, X30, of the genotype, *P. triserata* Roth. Lower Devonian of Oklahoma.

11. *Hyphasma* Van Pelt. Right valve, X25, of genotype *H. textiliger* Van Pelt. Middle Devonian (Bell shale) of Michigan.

12, 13. *Roponellus* Van Pelt. Left valve of complete example and interior of left valve, X25, of *R. papillatus* Van Pelt, the type species. Middle Devonian (Bell shale) of Michigan.

14. *Euglyphella* Warthin. Right valve, X20, of *E. (Strepula) sigmoidalis* (Jones), the genotype. Middle Devonian of Michigan.

Genus *THLIPSURELLA* Swartz

Valves smaller than in *Thlipsura* with the right overlapping the left but with the surface most convex in front of the middle, usually with two longitudinal pits in the anterior half, a short subvertical furrow on or a little behind the middle of the valve and sometimes a pit behind this.

*Genotype*.—*Thlipsurella ellipsoclepta* Swartz. Silurian–Devonian.

Genus *OCTONARIA* Jones

Similar to *Thlipsurella* but distinguished by the tendency of left valve to overlap the right and by having the surface of the valves raised into a thin spiral or ringlike ridge, which in the more typical forms resemble the figure 8.

*Genotype*.—*Octonaria octoformis* Jones. Ordovician–Devonian.

Genus *PHREATURA* Jones and Kirkby

Distinguished from *Thlipsurella* by the strong compression of the posterior end of the shell; this end is further marked by a shallow, though clearly outlined, semicircular pit; a similar though smaller pit at the anterior extremity.

*Genotype*.—*Phreatura concinna* Jones and Kirkby. Carboniferous.

Genus *POLONIELLA* Gürich

Apparently similar to *Octonaria*, but the border of the valve also bears a ridge. A semicircular incision at the anterior end of the right valve, into which an extension of the left valve fits.

*Genotype*.—*Poloniella devonica* Gürich. Silurian–Devonian.

Genus *PHANASSYMETRIA* Roth

Valves decidedly asymmetrical, the right much larger and completely overlapping the left on all margins. Carapace smooth, but dorsal part of right valve has a sharp depression surrounded by a prominent shoulder on all sides but the anterior. The left valve has a shoulder in place of this depression and both valves have a shoulder along the ventral side. In addition the right valve has three shoulders parallel to the maximum length and the left valve two, all prominent in the anterior end and disappearing in the posterior.

*Genotype*.—*Phanassymetria triserrata* Roth. Devonian.

Genus *HYPHASMAPHORA* Van Pelt

Valve with reticulate surface and central pit but lacks the marginal ridge of *Amphissites*.

*Genotype*.—*Hyphasmaphora textiligera* Van Pelt. Devonian.

Genus *ROPOLONELLUS* Van Pelt

Carapace subrhomboidal, oblique, tumid, the right valve overlapping the left, with straight dorsum, and smooth surface. Posterior end of valve very wide and anterior end very narrow.

*Genotype*.—*Ropolonellus papillatus* Van Pelt. Devonian.

Genus *EUGLYPHELLA* Warthin

Differs from *Octonaria* in the narrow anterior end, the anterior spines, and the emphasis on carination rather than pitting.

*Genotype*.—*Strepula sigmoidalis* Jones. Devonian.

Family *BEECHERELLIDAE* Ulrich

Small inequivalved, ovate, subtriangular or boat-shaped Ostracoda having the posterior end of one or both valves drawn out into a spine. (Fig. 17.)

## Genus BEECHERELLA Ulrich

Shell elongate, boat-shaped, triangular in cross section, the ventrum being flat and carinated on its outer edges; ventral carinae prolonged at each end into spines, the anterior one short and small, the posterior much larger; hinge apparently simple and the ventral edge of the right valve seems to overlap the left sharply.

*Genotype*.—*Beecherella carinata* Ulrich. Lower Devonian.

## Genus ACANTHOSCAPHA Ulrich and Bassler

Similar to *Beecherella*, but the anterior end is spineless and rounded in outline, while the posterior spine is formed by a prolongation of the ventral edge instead of the outer carina, which may be wanting entirely. Within the posterodorsal region the true contact edge is set some distance within the outer edge of the valves.

*Genotype*.—*Acanthoscapha (Beecherella) navicula* (Ulrich). Lower Devonian.

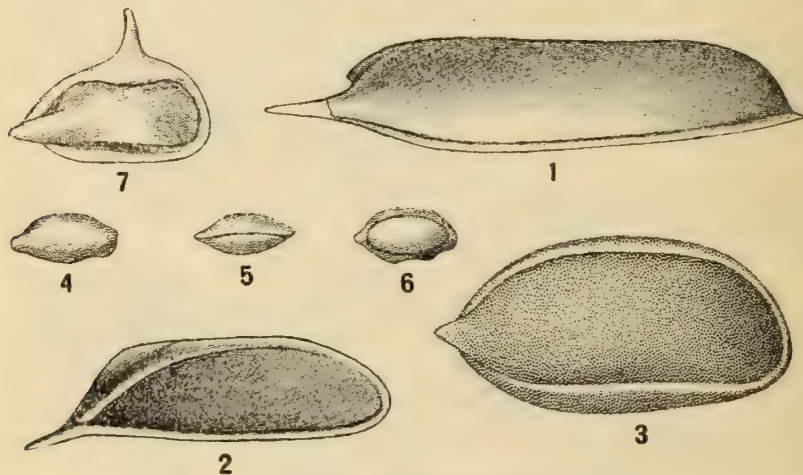


FIGURE 17.—Family Beecherellidae.

1. *Beecherella* Ulrich. A nearly perfect valve,  $\times 20$ , of the genotype, *B. carinata* Ulrich. Helderbergian (New Scotland), Albany County, New York.

2. *Acanthoscapha* Ulrich and Bassler. Interior view of valve of the genotype, *A. (Beecherella) navicula* Ulrich,  $\times 20$ , showing rounded instead of spinous anterior end and the formation of the posterior spine by a prolongation of the ventral edge. Helderbergian (New Scotland), Albany County, New York.

3. *Krausella* Ulrich. Right side of a complete carapace,  $\times 20$ , of the genotype, *K. inaequalis* Ulrich, showing the larger left valve, overlapping the right all around except at the acuminate posterior extension of the smaller valve. Ordovician (Black River) limestone of Illinois.

4-6. *Cooperia* Tolmachoff. Left and dorsal sides of an entire carapace and right side of another specimen,  $\times 10$ , of the type species, *C. granum* Tolmachoff. Devonian of Ellesmerland, Arctic America.

7. *Janusella* Roth. Right side of an entire carapace,  $\times 20$ , of *J. bicarinata* Roth, the type species. Lower Devonian of Oklahoma.

## Genus KRAUSELLA Ulrich

Similar to *Beecherella*, except that the valves are more unequal, the left overlapping the right both dorsally and ventrally, while but a single spine occurs, this being a prolongation of the posterior extremity of the smaller (right) valve.

*Genotype*.—*Krausella inaequalis* Ulrich. Ordovician-Silurian.

## Genus COOPERIA Tolmachoff

Similar to *Krausella* in shape, but the spine of the shell is formed by the prolongation of the left overlapping valve.

*Genotype*.—*Cooperia granum* Tolmachoff. Devonian.



## Genus JANUSELLA Roth

Carapace subovate with the left valve overlapping the right and bearing a spine as in *Aechmina*, while in the right valve the spine projects from the ventral posterior extremity.

*Genotype*.—*Janusella biceratina* Roth. Devonian.

## Family BAIRDIIDAE Lienenklaus

Minute, mostly reniform or elongate-ovate, corneo-calcareous shells with thin, more or less unequal valves, one overlapping the other either ventrally or dorsally, or both. (Fig. 18.)

## Genus BAIRDIA McCoy

Shell subtriangular or rhomboidal, with the greatest height near the middle, inequivalved, narrowly rounded anteriorly and more or less acuminate posteriorly, generally smooth; dorsal margin more or less strongly convex; hingement formed by strong overlap of the left valve over the right.

*Genotype*.—*Bairdia curta* McCoy. Silurian-Recent.

## Genus BAIRDIANELLA Harlton

Like *Bairdia* but has no dorsal overlap, and the ventral overlap is indistinct and occurs only near the middle of the shell.

*Genotype*.—*Bairdianella elegans* Harlton. Pennsylvanian-Permian.

## Genus BYTHOCYPRIS Brady

Shell smooth, reniform, ovate or elliptical; left valve larger than the right, overlapping it usually on both the dorsal and ventral margins; dorsal margin convex, the ventral edge straighter sometimes slightly concave.

*Genotype*.—*Bythocypris reniformis* Brady, a recent species. Ordovician-Recent.

## Subgenus BAIRDIOCYPRIS Kegel

Distinguished from *Bythocypris* in having a short straight edge along the dorsal side of the smaller right valve as in *Bairdia*.

*Subgenotype*.—*Bythocypris gerolsteinensis* Kegel. Devonian.

## Genus WAYLANDELLA Coryell and Billings

Similar to *Bythocypris* in overlap but differs in the presence of spines close to the posterior end. From *Healdia*, which also has posterior spines, it differs in the absence of the posterodorsal slope.

*Genotype*.—*Waylandella spinosa* Coryell and Billings. Pennsylvanian.

## Genus SEMINOLITES Coryell

Left valve overlaps right along entire margin. Surface marked by large circular pits and a curved ridge near each end.

*Genotype*.—*Seminolites truncatus* Coryell. Mississippian-Pennsylvanian.

## Genus HEALDIA Roundy

Left valve larger and with a distinct groove for the reception of the right, overlapping it on all sides, although only slightly on the dorsoposterior slope. Surface smooth or punctate with two backward-pointing spines, an elevated ridge or a shallow semicircular sinus on the posterior smooth area of each valve.

*Genotype*.—*Healdia simplex* Roundy. Mississippian-Permian.

## Genus PONTOCYPRIS Sars

Similar to *Bythocypris*, except that the shell is very delicate and the hinge simple without overlap.

*Genotype*.—*Pontocypris serrulata* Sars, a recent species. Silurian-Recent.

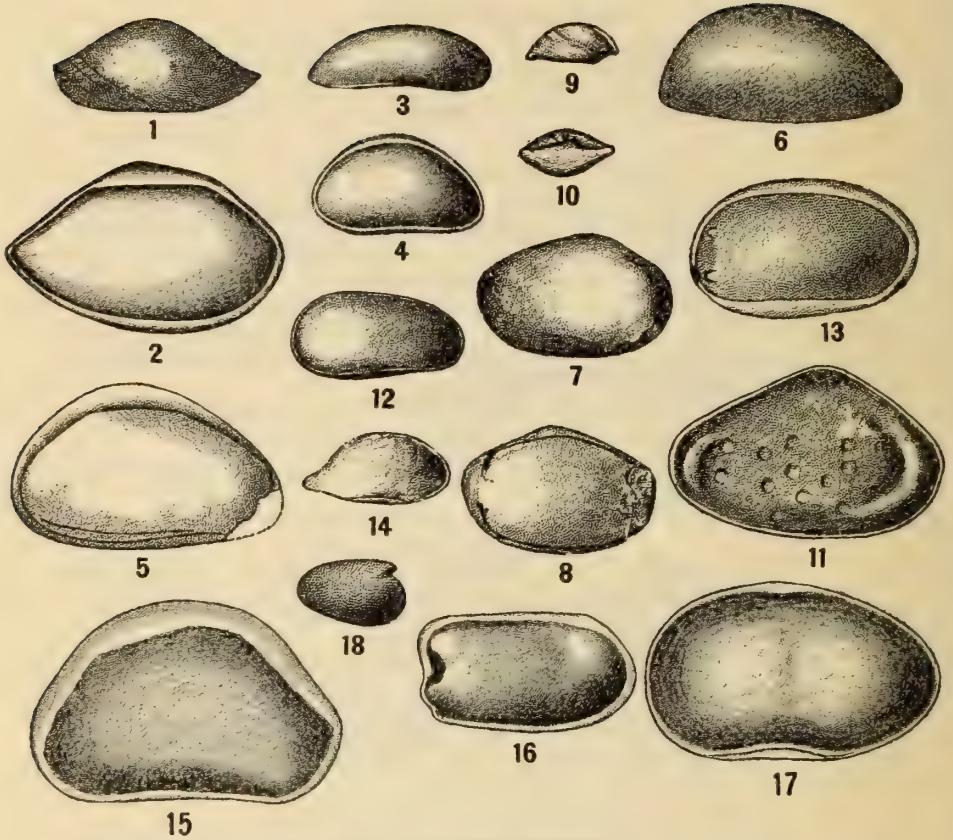


FIGURE 18.—Family Bairdiidae.

- 1, 2. *Bairdia* McCoy. (1) Left valve of the genotype, *B. curta* McCoy,  $\times 25$  (after Jones and Kirkby). Carboniferous limestone of Ireland. (2) Complete carapace of a typical Carboniferous species, *B. beedei* Ulrich and Bassler,  $\times 30$ . Pennsylvanian of Kansas.
3. *Macrocypris* Brady. Left valve of *M. vinei* Jones,  $\times 15$ , showing elongate shape and acuminate posterior end. Silurian, Island of Gotland.
4. *Bythocypris* Brady. Complete carapace of *B. phillipsiana* Jones and Holl, magnified, illustrating form of shell and overlap of valves. Silurian of England.
5. Subgenus *Bairdiocypris* Kegel. View of the right valve,  $\times 14$ , of the genotype, *B. gerolsteinensis* Kegel. Lower Stringocephalus beds near Gerolstein, Eifel, Germany.
6. *Pontocypris* Sars. Valve of *P. mawii* Jones,  $\times 30$ . Silurian, Island of Gotland.
- 7, 8. *Healdia* Roundy. Left and right valves of *H. simplex* Roundy, the genotype. Pennsylvanian (Graham formation), Stephens County, Texas.
- 9, 10. *Acratia* Delo. Right valve and ventral view,  $\times 20$ , of the type species, *A. typica* Delo. Pennsylvanian, Sutton County, Texas.
11. *Seminolites* Coryell. Valve,  $\times 60$ , of *S. truncatus* Coryell, the genotype. Pennsylvanian (Wewoka formation) of Oklahoma.
12. *Cytherellina* Jones. View of the genotype, *C. siliqua* Jones, enlarged. Silurian of England.
13. *Waylandella* Coryell and Billings. Right valve,  $\times 50$ , of the genotype, *W. waylandica* Coryell and Billings. Pennsylvanian of Texas.
14. *Bairdianella* Harlton. A complete carapace of *B. elegans* Harlton, the genotype,  $\times 25$ . Pennsylvanian (Graham formation), East Menard County, Texas.
15. *Silenites* Coryell and Booth. Right side of a complete carapace,  $\times 35$ , of *S. silenus* Coryell and Booth, the genotype. Pennsylvanian (Wayland shale) of Texas.
16. *Burtella* Coryell and Booth. Left valve of the genotype *B. pecanata* Coryell and Booth,  $\times 30$ . Pennsylvanian (Wayland shale) of Texas.
17. *Artifactella* Coryell and Booth. Left valve,  $\times 6$ , of the genotype *A. tomahawki* Coryell and Booth. Pennsylvanian (Wayland shale) of Texas.
18. *Ceratocypris* Poulsen. Left valve,  $\times 20$ , of the genotype *C. symmetrica* Poulsen. Silurian of North Greenland.

## Genus MACROCYPRIS Brady

Similar to *Bythocypris*, but as a rule more elongate, posteriorly more acuminate, and with the right instead of the left valve the larger; inner side of valve with a thin plate along the anterior ventral and posterior edges.

*Genotype*.—*Macrocypris minna* (Baird), a recent species. Ordovician–Recent.

## Genus ACRATIA Delo

Like *Macrocypris*, but differing in the more pointed anterior extremity, the abruptly upward bent ventral margin, and the reversed overlap.

*Genotype*.—*Acratia typica* Delo. Mississippian–Pennsylvanian.

## Genus CERATOCYPRIS Poulsen

Carapace with symmetrical valves with a spine at the dorsal margin.

*Genotype*.—*Ceratocypris symmetrica* Poulsen. Silurian.

## Family CYPRIDAE Zenker

Minute, mostly reniform or elongate-ovate or corneo-calcareous shells with thin somewhat unequal valves, one overlapping the other either ventrally or dorsally or both. (Fig. 19.)

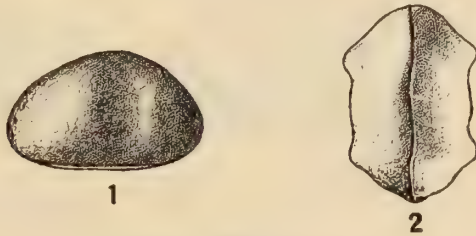


FIGURE 19.—Family Cypridae.

(See also figure 1.)

*Condracypris* Roth. (1, 2) Right valve and ventral view of an entire carapace, X20, of the genotype, *C. binoda* Roth. Lower Devonian of Oklahoma.

## Genus PALEOCYPRIS Brongniart

Shell 0.5 mm long, subovate, smaller posteriorly than in front; surface granulose and finely hirsute in dorsal region.

*Genotype*.—*Paleocypris edwardsi* Brongniart. Carboniferous.

## Genus CYPRIS Müller

Shell reniform or oval, thin, translucent, smooth or hirsute, often punctate; hinge edentulose, somewhat thickened; ventral margin often sinuate.

*Genotype*.—*Cypris pubera* Müller. Tertiary–Recent.

## Genus CANDONA Baird

Shell longer and narrower than in *Cypris*. A living genus distinguished by characters of the animal and probably not Paleozoic.

*Genotype*.—*Candona lucens* Baird (recent). Carboniferous–Recent.

## Genus CONDRACYPRIS Roth

Valves massive with no overlap except a slight one of the left valve over the right along the ventral margin. Surface ornament smooth but with two transverse ridges on each valve.

*Genotype*.—*Condracypris binodis* Roth. Devonian.

## Family CYTHERELLIDAE Sars

Shell small, inequivalved, thick, calcareous, not notched anteriorly. Family characters chiefly displayed by soft parts. (Fig. 20.)

## Genus CAVELLINA Coryell

Differs from *Cytherellina* (*Bythocypris*) in the presence of an interior partition and in the position of the greater thickness of the valves closer to the posterior margin. *Genotype*.—*Cavellina pulchella* Coryell. Mississippian-Permian.

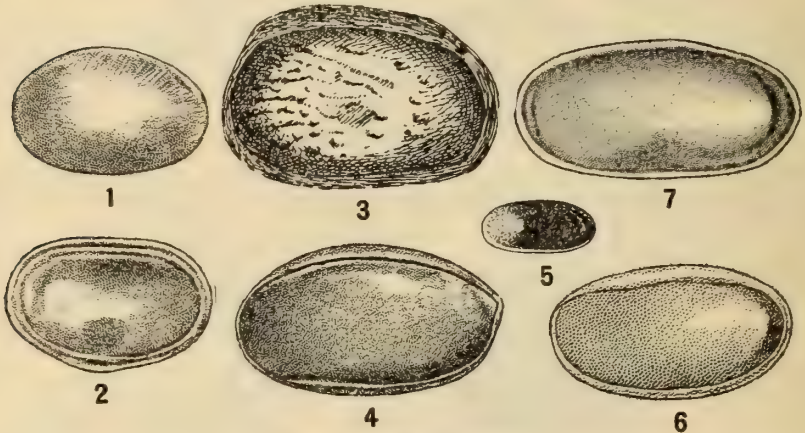


FIGURE 20.—Family Cytherellidae.

- 1, 2. *Cytherella* Jones. Exterior and interior views of valves of *C. ovata* Roemer, the genotype,  $\times 25$ . Cretaceous, Charing, England.
3. *Pachydomella* Ulrich. Right side of a complete carapace of *P. tumida* Ulrich,  $\times 28$ . Onondaga limestone, Falls of the Ohio.
4. *Cavellina* Coryell. A complete carapace,  $\times 20$ , of the genotype, *C. pulchella* Coryell. Pennsylvanian of Oklahoma.
5. *Microcheilina* Geis. Right valve,  $\times 22$ , of *M. distortus* Geis, the genotype. Mississippian of Indiana.
6. *Sulcella* Coryell and Sample. Left valve,  $\times 30$ , of the type species, *S. sulcata* Coryell and Sample. Pennsylvanian of Texas.
7. *Birdsallia* Coryell and Booth. Left valve,  $\times 35$ , of *B. simplex* Coryell and Booth. Pennsylvanian (Wayland shale) of Texas.

## Genus CYTHERELLA Jones

Shell oblong or subovate, compressed in front; surface generally smooth but sometimes undulating and meshed with pits and granules. Contact margin of the larger right valve grooved for reception of flangelike edge of smaller left valve.

*Genotype*.—*Cytherella ovata* (Roemer). Ordovician-Recent.

## Genus PACHYDOMELLA Ulrich

Shell extremely ventricose; valves thick, the left much the larger and overlapping the right on all sides. Dorsal side strongly arched, ventral edge more nearly straight, ends rounded. A faintly impressed subcentral pit.

*Genotype*.—*Pachydomella tumida* Ulrich. Ordovician-Devonian.

## Genus MICROCHEILINELLA Geis

Like *Pachydomella*, but valves are thinner with contact edges only slightly thickened and absence of pit. Differs from *Barychilina* in having thinner valves with the left valve the larger and no pit.

*Genotype*.—*Microcheilina* (*Microcheilus*) *distortus* (Geis). Silurian-Mississippian.

Genus *SULCELLA* Coryell and Sample

Carapace small, cytherelloid in outline and contact of valves; hinge line arched; right valve extending beyond the margin of the left all around except along the anterior; the anterior margin bordered by a distinct ridge separated from the regular convexity of the valve by a narrow groove. The surface smooth except for the shallow sulcus that extends from the dorsal margin to a pronounced submedian pit.

*Genotype*.—*Sulcella sulcata* Coryell and Sample. Pennsylvanian.

## Family ENTOMIDAE Jones

Shells equivalved, relatively short, convex, reniform to rounded quadrate, with a more or less well-marked depression near the middle of the dorsal region. Concentric or radiate surface sculpture usually present. (Fig. 21.)

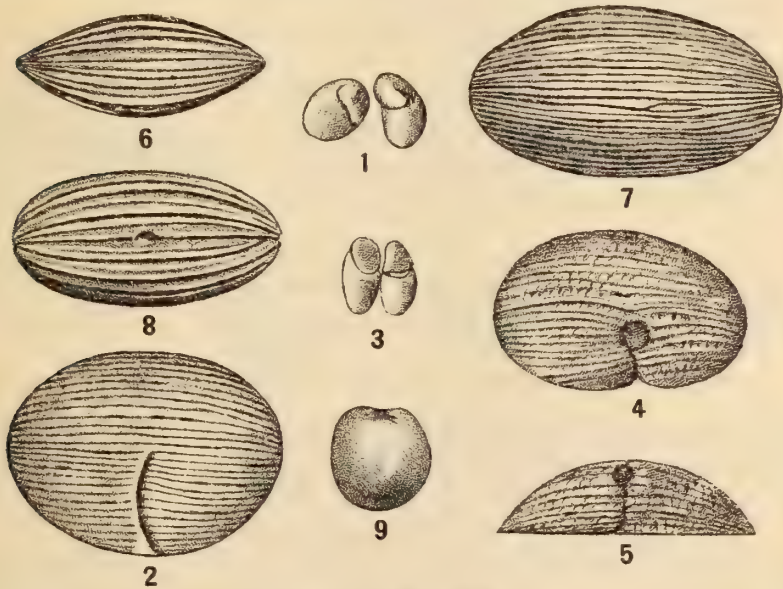


FIGURE 21.—Family Entomidae.

1, 2. *Entomis* Jones. (1) Two distorted valves of *E. tuberosa* Jones, the genotype,  $\times 2$ . Pentland Hills of Scotland. (2) A valve of the widespread *E. (Richterina) serratostrata* (Sandberger),  $\times 22.5$  (after Matern). Devonian of Germany.

3. *Entomidella* Jones. The illustration of *E. divisa* Jones, the species regarded by him at one time as the genotype. Upper Ludlow, Builth, Wales.

4, 5. *Nehdentomis* Matern. Side and edge views of *N. nehdensis* Matern,  $\times 22$ , illustrating the prominent pit and furrow. Upper Devonian of Germany.

6, 7. *Richterina* Gürich. Valve (6) of the genotype, *R. costata* (Richter),  $\times 22.5$ , and (7) of *R. striatula* (Richter),  $\times 45$ , exhibiting absence of pit and furrow (after Matern). Upper Devonian of Thuringia, Germany.

8. *Fossirichterina* Matern. Valve of the type species of this subgenus, *Richterina (Fossirichterina) intercostata* Matern,  $\times 22.5$  with central pit developed. Upper Devonian of Germany.

9. *Elpe* Barrande. View of the large ostracode, *E. inchoata* Barrande,  $\times 2$ . Devonian of Bohemia.

## Genus ENTOMIS Jones

Shell subovate or fabiform with surface smooth in the typical species and marked by raised concentric or transverse lines in the subgenus *Richterina*. Valves marked by a well-developed, slightly curved, submedian furrow extending from the ventral edge to the center or beyond.

*Genotype*.—*Entomis tuberosa* Jones. Silurian-Permian.

## Genus ENTOMIDELLA Jones

Like *Entomis*, but with furrow extending entirely across the valve to the dorsal edge (as based on *E. divisa* Jones).

*Genotypes*.—*Entomidella divisa* Jones and *E. buprestis* (Salter). Cambrian, Silurian, Devonian.

## Genus NEHDENTOMIS Matern

Like *Entomis* (*Richteria*) but has a pronounced pit and furrow.

*Genotype*.—*Nehdentomis nehdensis* Matern. Devonian.

## Genus RICHTERINA Gürich

Valves oval in outline, and with surface sculpture but with the pit little evident or absent and the furrow wanting.

*Genotype*.—*Richterina costata* (Richter). Devonian.

## Subgenus FOSSIRICHTERINA Matern

Like *Richterina* but with central pit.

*Subgenotype*.—*Richterina* (*Fossirichteria*) *intercostata* Matern. Devonian.

## Genus ELPE Barrande

Shell reniform, 3 to 7 mm long with depression just behind the middle of the dorsal slope; posterior half sometimes strongly inflated. Delicate radial ornament.

*Genotype*.—*Elpe inchoata* Barrande. Ordovician-Devonian.

## Genus ANTITOMIS Gürich

Possibly a member of the Entomidae, but illustrations and characters given by the author are insufficient for recognition.

*Genotype*.—*Antitomis bisulcata* Gürich. Silurian.

## Family CYPRIDINIDAE Sars

Shells equivalve, subelliptical to oblong, convex, smooth or punctate, and sometimes ribbed especially in posterior half. Anterior end with a notch and hooklike hood overhanging an opening left between edges of valves for protrusion of the lower antennae; posterior extremity frequently acuminate. (Fig. 22.)

## Genus CYPRIDINA Milne-Edwards

Shell generally acuminate, oviform, rarely oblong; anterodorsal edge projecting beaklike over the strongly defined notch; muscle spot large, subcentral, often visible on exterior.

*Genotype*.—*Cypridina reynaudi* Milne-Edwards. Ordovician-Recent.

## Genus CYPRIDINELLA Jones, Kirkby, and Brady

Like *Cypridina*, but pyriform and having the anteroventral region projecting somewhat prowlike and generally beyond the beak.

*Genotype*.—*Cypridinella cummingii* Jones, Kirkby, and Brady. Devonian-Carboniferous.

## Genus CYPRIDELLINA Jones, Kirkby, and Brady

Like *Cypridinella*, but bearing a tubercle or hump above the median line of the valve.

*Genotype*.—*Cypridellina clausa* Jones, Kirkby, and Brady. Carboniferous.

## Genus CYPRIDELLA Koninck

Like *Cypridellina*, but having a curved sulcus behind the tubercle.

*Genotype*.—*Cypridella cruciata* Koninck. Carboniferous.

Genus CYPRELLA Koninck

Shell much like *Cypridella*, but annulate.

*Genotype*.—*Cyprilla chrysalidea* Koninck. Devonian–Carboniferous.

Genus CYPROSIS Jones

A strong, broad, vertical sulcus crosses the hinder third of the valve.

*Genotype*.—*Cyprosis haswellii* Jones. Silurian.

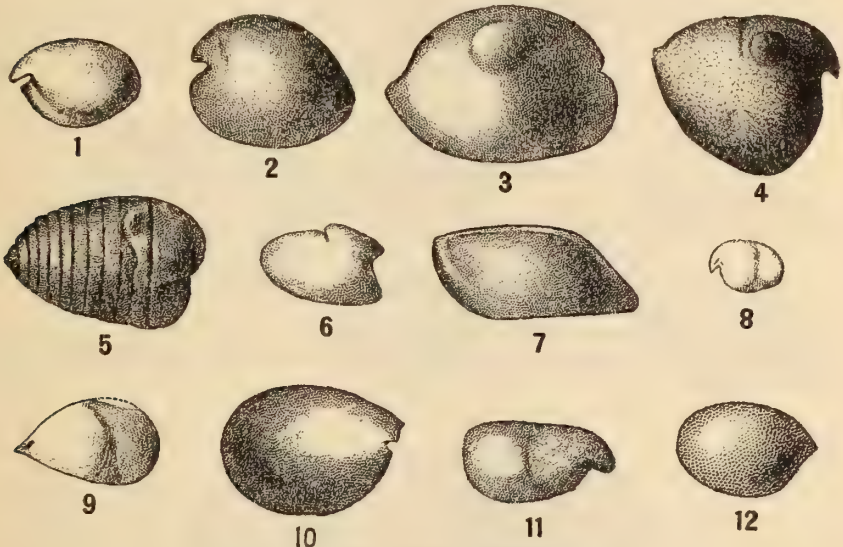


FIGURE 22.—Family Cypridinae.

1. *Cypridina* Milne-Edwards. Left valve of *C. primaeva* McCoy (after Jones). Carboniferous limestone of Ireland.
2. *Cypridina* Jones, Kirkby, and Brady. Left valve of *C. cummingii* Jones, Kirkby, and Brady, the type species,  $\times 4$ . Carboniferous, Isle of Man.
3. *Cypridellina* Jones, Kirkby, and Brady. Right valve of east of carapace of *C. clausa* Jones, Kirkby, and Brady, the type,  $\times 4$ . Carboniferous limestone, Cork, Ireland.
4. *Cypridella* Koninck. Valve of *C. koninckiana* Jones,  $\times 4$ . Carboniferous of Ireland.
5. *Cyprilla* Koninck. Right valve,  $\times 4$ , of *C. chrysalidea* Koninck, the genotype. Carboniferous of England.
6. *Sulcuna* Jones, Kirkby, and Brady. Right valve,  $\times 4$ , of *S. lepus* Jones, Kirkby, and Brady. Carboniferous limestone, Cork, Ireland.
7. *Rhombina* Jones, Kirkby, and Brady. Left valve,  $\times 4$ , of the genotype, *R. hibernica* Jones, Kirkby, and Brady. Carboniferous limestone, Cork, Ireland.
8. *Cyprosis* Jones. View, natural size, of the type *C. haswellii* Jones. Silurian of Scotland.
9. *Cyprosina* Jones. View of *C. whidbornei* Jones, the genotype, about natural size. Devonian of Devonshire, England.
10. *Bradycinetus* Sars. Right valve,  $\times 4$ , of *B. rankiniana* Jones and Kirkby. Carboniferous of West Scotland.
11. *Philomedes* Lilljeborg. View of right valve,  $\times 4$ , of *P. bairdiana* Jones, Kirkby, and Brady, a Carboniferous species referred to this recent genus. Carboniferous limestone, Cork, Ireland.
12. *Polycope* Sars. Right valve,  $\times 4$ , of *P. simplex* Jones and Kirkby (5, 10, and 12, after Jones, Kirkby, and Brady). Carboniferous of Ireland.

Genus CYPROSINA Jones

Beak small, a short, transverse, vertical sulcus at or near the middle of the ventral region.

*Genotype*.—*Cyprosina whidbornei* Jones. Devonian.

Genus RHOMBINA Jones, Kirkby, and Brady

Oblong shells with oblique ends; notch obsolete on the front slope.

*Genotype*.—*Rhombina hibernica* Jones, Kirkby, and Brady. Devonian–Carboniferous.

## Genus SULCUNA Jones, Kirkby, and Brady

Subovate, with a deep and oblique sulcus modifying the dorsal region; front truncate; notch obsolete.

*Genotype*.—*Sulcuna lepus* Jones, Kirkby, and Brady. Ordovician(?), Carboniferous.

## Genus BRADYCINETUS Sars

Valve oval, beak produced and truncate.

*Genotype*.—*Cypridina globosa* Lilljeborg. Carboniferous-Recent.

## Genus PHILOMEDES Lilljeborg

Valve oblong with notch deep and broad.

*Genotype*.—*Philomedes longicornis* Lilljeborg. Carboniferous-Recent.

## Genus POLYCOPE Sars (POLYCOPIDAE Brady)

Round or oval globose shells with only faint indication of the sinus and notch.

*Genotype*.—*Polycope orbicularis* Sars. Devonian, Carboniferous, Recent.

## Family ENTOMOCONCHIDAE Jones, Kirkby, and Brady

Shell strong, subglobose, more or less inequivalve; anterior edge truncate and with central portion of margin inturred so as to leave a simple or sinuate slit. Beak not developed. (Fig. 23.)



FIGURE 23.—Family Entomoconchidae.

1. *Entomoconchus* McCoy. Right valve,  $\times 2.5$ , of a small shell of *E. scouleri* McCoy (after Jones, Kirkby, and Brady). Carboniferous of Yorkshire, England.

2. *Offa* Jones, Kirkby, and Brady. Left valve,  $\times 1$ , of *O. barrandiana* Jones, Kirkby, and Brady. Carboniferous limestone, Cork, Ireland.

## Genus ENTOMOCONCHUS McCoy

Front edge truncate and modified by the margins being pressed inward and each forming a sinuous curve, leaving a long-oval opening below a short beak, and a narrower and shorter slit in the ventral region.

*Genotype*.—*Entomoconchus scouleri* McCoy. Carboniferous.

## Genus OFFA Jones, Kirkby, and Brady

Subglobose shells with front edge truncate and impressed by a nearly central slight inturning of the margins of the valves.

*Genotype*.—*Offa barrandiana* Jones, Kirkby, and Brady. Carboniferous.

## Family BARYCHILINIDAE Ulrich

Small, thick-valved, rhomboidal, inequivalved shells, the right overlapping the left. Surface striate or punctate. Pit present or absent. (Fig. 24.)



## Genus BARYCHILINA Ulrich

Carapace small, rhomboidal; valves thick the right overlapping the left except in the posterior half of the more or less convex dorsal edge. Surface of valves striate, except along edges where it is smooth. Sharply defined narrow or rounded pit.

*Genotype*.—*Barychilina punctostriata* Ulrich. Silurian-Devonian.

## Genus ELLESMERIA Tolmachoff

Carapace smooth, subovate, with valves thick, unequal, the right the larger and overlapping the left all around. Sculpture punctate.

*Genotype*.—*Ellesmeria ovata* Tolmachoff. Devonian.

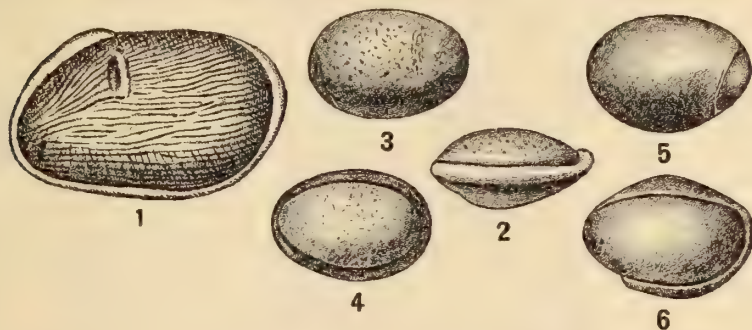


FIGURE 24.—Family Barychilinidae.

1. *Barychilina* Ulrich. Valve of *B. punctostriata* Ulrich, the genotype,  $\times 20$ . Devonian (Onondaga Falls of the Ohio).
- 2, 3, 4. *Ellesmeria* Tolmachoff. Dorsal edge view and right and left valves,  $\times 15$ , of *E. ovata* Tolmachoff, the genotype. Devonian of Ellesmereland, Arctic America.
- 5, 6. *Paleocythere* Tolmachoff. Right and left sides of a complete carapace,  $\times 13$ , of *P. tupa* Tolmachoff. Devonian of Ellesmereland, Arctic America.

## Genus PALEOCY THERE Tolmachoff

"In *Paleocythere*, the hinge line with teeth is confined to the left valve, the right valve is the largest and overlapping, in *Cythere* Müller respectively to the right one, and the left one." (Tolmachoff.)

*Genotype*.—*Paleocythere tupa* Tolmachoff. Devonian.

## Superfamily CYTHERACEA

## Family CYTHERIDAE Zenker

*Cythere* Müller and other post-Paleozoic genera.

ORDOVICIAN CORRELATION TABLE

England	North America	Cincinnati and Nashville Domes	Eastern New York and Champlain Valley	Appalachian Valley	Minnesota, Wisconsin, etc.	Arbuckle uplift Oklahoma	Easthonia
Ashgillian Ashgill sh. Staurocephalus ls.	Cincinnati Naysville (Leipers)	Mt. Auburn fm. Coryville fm. Bellevue fm. Fairmount fm. Mt. Hope fm.	Oswego ss. Pulaski sb.	Juniata sh.			Borkholm-F <sub>2</sub> Lyckholm-F <sub>1</sub>
	Eden	McMicken fm. Southgate fm. Economy fm.	Frankfort sh. Indian Ladder sh. Utica sb.	Eden "Martinsburg"			Wesenberg ls. E
Caradocian (Bala) Coniston ls.	Mohawkian Trenton	Fulton sh. Cynthiana (Cathcys) fm. Perryville ls. Fianagan (Canon) fm. Bigby ls. Wilmore fm. Hermitage (Logana) fm. Curdsville ls.	Schenectady sh. (Collingwood in Ontario) Canajoharie sb. Glen Falls ls. Snake Hill (Ryseudorphi)	Trenton ls. (Jacksonburg ls.)	Galena dol. (Stewartville dol. (Prosser ls.))	Viola ls.	Kegel ls. D <sub>2</sub> D <sub>3</sub> (Wassalem ls. D <sub>2</sub> ) Jewe ls. D <sub>1</sub> Itter ls. C <sub>3</sub>
	Black River	Decorah sb. Lowville ls. (Tyrone, Carters)	Amsterdam ls. Watertown ls. Leray ls. Lowville ls.	Moccasin ls. Lowville (Chambersburg, part)	Decorah sh. Plattville ls.	Simpson group Bromide fm. Criner fm. Cool Creek fm. Tulip Creek fm. McLish fm. Falls fm. Oil Creek fm. Joins fm.	Kuckers sb. C <sub>2</sub> Reval fm. (Upper Echinospherites ls. C <sub>1</sub> )
Llandellian. Borrowdale volcanics	Chazyan Blount group			Ottoese sh. Tellico ss. Athens sh. Holston marble			Duboviki fm. (Lower Echinospherites ls. C <sub>1</sub> )
Llanvirn	Stones River Buffalo River series	Lebanon ls. Ridley ls. Pierce fm. Murfreesboro ls.	Valcour ls. Pamela ls. (north-central New York) Crown Point ls. Day Point ls.	Lenoir ls. Mosheim ls. Murfreesboro ls.			Kunda fm. (Orthoceras ls. B <sub>3</sub> )
Skiddavian Arenig Tremadoc	Canadian	St. Peters ss. (in wells)	Beekmantown ls. (Tribes Hill ls.)	Beekmantown ls.	St. Peters ss. Shakopee dol.	Arbuckle ls.	Walchow fm. (Glauconite ls. B <sub>2</sub> ) (Glauconite ss. B <sub>1</sub> )

# Faunal Lists

## CANADIAN FAUNAS

QUEBEC GROUP (DIVISIONS F, H): NEWFOUNDLAND.

*Leperditia turgida* Billings.

BEEKMANTOWN LIMESTONE: GRENVILLE, ETC., QUEBEC.

*Isochilina ottawa* (Jones), *Leperditia anna* Jones, *L. canadensis* Jones, *L. nana* (Jones), *Primitia logani* (Jones), *P. logani leperditioides* (Jones), *P. logani reniformis* (Jones).

BEEKMANTOWN LIMESTONE: LAKE CHAMPLAIN (BALLS BAY, VERMONT, ETC.).

*Isochilina cristata* (Whitfield), *I. gregaria* (Whitfield), *I. seelyi* (Whitfield).

NUNATAMI FORMATION: GREENLAND.

*Isochilina arctica* Poulsen, *I. egressa* Poulsen, *I. perporosa* Poulsen, *I. sawvis* Poulsen.

BEEKMANTOWN LIMESTONE: WASHINGTON COUNTY, MARYLAND.

*Isochilina gregaria* (Whitfield), *I. seelyi* (Whitfield).

ARENIG, CAERNARVONSHIRE, WALES.

*Entomidella marri* Jones.

## ORDOVICIAN FAUNAS

BUFFALO RIVER SERIES, JOACHIM LIMESTONE MEMBER OF ST. PETER SANDSTONE:  
STE. GENEVIEVE COUNTY, ETC., MISSOURI.

*Leperditia sublaevis* (Shumard).

CHAZYAN SERIES, UPPER POGONIP: SCHELL CREEK RANGE, NEVADA.

*Leperditia bivia* White.

CHAZYAN SERIES (DIVISION L-N): POINT RICH, TABLE HEAD, ETC., NEWFOUNDLAND.

*Primitia?* (*Beyrichia*) *atlantica* Billings (L, M), *Leperditia concinnula* Billings (L, M), *L. ventralis* Billings (N).

STONES RIVER GROUP, RIDLEY LIMESTONE: HIGH BRIDGE, KENTUCKY.

*Coelochilina* (*Eurychilina*) *aequalis* Ulrich, *Ctenobolbina subcrassa* Ulrich, *Drepanella ampla* Ulrich, *D. elongata* Ulrich, *Eurychilina granosa* Ulrich, *Leperditia fabulites* (Conrad), *Leperditella aequilatera* (Ulrich), *L. inflata* (Ulrich), *L. mundula* (Ulrich).

STONES RIVER GROUP, LEBANON LIMESTONE: CENTRAL TENNESSEE.

*Coelochilina* (*Eurychilina*) *aequalis* Ulrich, *Drepanella elongata* Ulrich, *D. macra* Ulrich, *Eurychilina subradiata* Ulrich, *Leperditia fabulites* (Conrad).

LOWER CHAZYAN, LENOIR LIMESTONE: EAST TENNESSEE.

*Eurychilina latimarginata* Raymond, *Leperditia limatula* Raymond.

LOWER CHAZYAN, DAY POINT AND CROWN POINT LIMESTONES: LAKE CHAMPLAIN REGION, VERMONT.

*Eurychilina latimarginata* Raymond, *Leperditia limatula* Raymond, *L. nana?* Jones.

LOWER CHAZYAN, PAMELIA LIMESTONE: QUEBEC AND ONTARIO.

*Isochilina?* *clavigera* (Jones), *I. clavigera clavifracta* Jones, *Leperditia amygdalina* Jones, *L. balthica primaeva* Jones, *Leperditella?* *labellosa* (Jones), *Primitia logani* Jones.

## UPPER CHAZYAN (BLOUNT), VALCOUR LIMESTONE: NEW YORK.

*Eurychilina latimarginata* Raymond, *Schmiditella crassimarginata* Ulrich.

## UPPER CHAZYAN, AYLMEYER LIMESTONE: HAWKSBURY, ONTARIO, CANADA.

*Leperditia labrosa* Jones.

## UPPER CHAZYAN, LITTLE OAK LIMESTONE: NEAR PELHAM, ALABAMA.

*Leperditia ovalis* Butts.

## SIMPSON GROUP, ¼ mile west of Highway 77, Arbuckle Mountains, sec. 25, T. 2 S, R. 1 E., Oklahoma.

*Aparchites perforata* Harris (Oil Creek), *Bromidella reticulata* Harris (Bromide and Oil Creek), *Dicranella macrocarinata* Harris (Bromide), *Eridoconcha magna* Harris (Oil Creek), *E. simpsoni* Harris (Bromide), *Isochilina bulbosa* Harris (Oil Creek), *Krausella arcuata* Ulrich (Bromide), *Leperditella brookingi* Harris (Joins), *L. cooperi* Harris (Joins), *L. ? dekeri* Harris (Bromide), *Primitiopsis bassleri* Harris (Bromide), *Schmiditella affinis* Ulrich (Tulip Creek).

## BLACK RIVER GROUP, TYRONE MEMBER OF LOWVILLE LIMESTONE: HIGH BRIDGE, KENTUCKY.

*Apatochilina (Eurychilina) obesa* Ulrich, *Drepanella crassinoda* Ulrich, *D. nitida* (Ulrich), *Eurychilina longula* Ulrich, *Isochilina armata* (Walcott) *Krausella arcuata* Ulrich, *Leperditia fabulites* (Conrad), *Leperditella sulcata* (Ulrich), *L. sulcata ventricornis* Ulrich, *L. tumida* (Ulrich), *Macronotella scofieldi* Ulrich, *Primitiella constricta* Ulrich.

## BLACK RIVER GROUP, UPPER CHAMBERSBURG LIMESTONE (LOWVILLE): APPALACHIAN VALLEY OF PENNSYLVANIA AND MARYLAND.

*Drepanella macra* Ulrich, *Leperditia fabulites* (Conrad), *Leperditella tumida* (Ulrich), *Macronotella ulrichi* Ruedemann.

## BLACK RIVER GROUP, LERAY MEMBER OF LOWVILLE LIMESTONE: PAUQUETTES RAPIDS, OTTAWA RIVER, CANADA.

*Aparchites concinnus* (Jones), *Cytherella? rugosa* (Jones), *Leperditia canadensis pauquettiana* Jones, *L. fabulites* (Conrad), *Macrocypris? siliqua* (Jones).

## BLACK RIVER GROUP, DECORAH SHALE: MINNESOTA, ETC.

*Aparchites arrectus* Ulrich, *A. chatfieldensis* Ulrich, *A. ellipticus* Ulrich, *A. granilabiatatus* (Ulrich), *A. granilabiatatus neglectus* Ulrich, *A. millepunctatus* (Ulrich), *A. minutissimus trentonensis* Ulrich, *Bythocypris (?) curta* Ulrich, *B. granti* Ulrich, *Ceratopsis chambersi* (Miller), *Coelochilina (Eurychilina) subaequata* Ulrich, *Ctenobolbina crassa* (Ulrich), *C. fulcrata* Ulrich, *Cytherella rugosa* Jones, *C. subrotunda* Ulrich, *Dicranella bicornis*, Ulrich, *D. spinosa* Ulrich, *D. simplex* Ulrich, *D. marginata* Ulrich, *Dilobella typa* Ulrich, *Eridoconcha oboloidea* Ulrich and Bassler, *Eurychilina reticulata* Ulrich, *E. reticulata incurva* Ulrich, *Eurychilina subradiata* Ulrich, *Eurychilina symmetrica* Ulrich, *Kloedenia initialis* (Ulrich), *Krausella arcuata* Ulrich, *Krausella inequalis* Ulrich, *Leperditia fabulites* (Conrad), *Leperditella persimilis* Ulrich, *L. macra*, Ulrich, *Moorea angularis* Ulrich, *M. perplexa* Ulrich, *M. punctata* Ulrich, *Primitia celata* Ulrich, *P. duplicata* Ulrich, *P. mammata* Ulrich, *P. (Haploprimitia) minutissima* Ulrich, *P. (Euprimitia) sanctipauli* Ulrich, *Primitiella constricta* Ulrich, *P. fillmorensis* Ulrich, *P. limbata* Ulrich, *P. simulans* Ulrich, *Schmiditella brevis* Ulrich, *S. incompta* Ulrich, *S. subrotunda* Ulrich, *S. umbonata* Ulrich, *Scofieldia bilateralis* (Ulrich).

## BLACK RIVER GROUP, PLATTEVILLE LIMESTONE: ILLINOIS, MINNESOTA, AND WISCONSIN.

*Bythocypris (?) robusta* Ulrich (Illinois), *Drepanella bigeneris* Ulrich (Minnesota),

*Eurychilina reticulata* Ulrich, *E. subradiata* Ulrich, *Krausella arcuata* Ulrich (Wisconsin), (Illinois), *K. inequalis* Ulrich (Illinois), *Leperditia fabulites* (Conrad), *Leperditella canalis* Ulrich (Minnesota), *L. germana* (Ulrich) (Wisconsin), (Minnesota). *Macronotella scofieldi* Ulrich (Minnesota), *Primitiella constricta* Ulrich (Minnesota), *Schmidtella crassimarginata* Ulrich (Illinois), (Wisconsin).

TRENTON (RYSEDORPH CONGLOMERATE): RYSEDORPH HILL, NEW YORK.

*Aparchites minutissimus robustus* Ruedemann, *Apatochilina* (*Eurychilina*) *obliqua* Ruedemann, *Bollia cornucopiae* Ruedemann, *Bythocypris cylindrica* (Hall), *Coelochilina* (*Eurychilina*) *dianthus* Ruedemann, *Coelochilina* (*Eurychilina*) *solida* Ruedemann, *Eurychilina bulbifera* Ruedemann, *Eurychilina reticulata* Ulrich, *Eurychilina subradiata rennselaerica* Ruedemann, *Isochilina armata pygmaea* Ruedemann, *Leperditia fabulites* (Conrad), *Leperditia resplendens* Ruedemann, *Macronotella fragaria* Ruedemann, *Macronotella ulrichi* Ruedemann, *Primitia jonesi* (Ruedemann), *Schmidtella crassimarginata ventrilabiata* Ruedemann.

TRENTON (PROSSER LIMESTONE): MINNESOTA.

*Aparchites minutissimus trentonensis* Ulrich, *Bollia subaequata* Ulrich, *Bollia unguuloidea* Ulrich, *Bythocypris cylindrica* (Hall), *Ceratopsis chambersi* (Miller), *Ctenobolbina obliqua* Ulrich, *Cytherella rugosa* Jones, *Cytherella? rugosa arcta* Ulrich, *Eurychilina ventrosa* Ulrich, *Halliella labiosa* Ulrich, *Jonesella obscura* Ulrich, *Primitia mucila* Ulrich, *P. uphami* Ulrich, *Schmidtella affinis* Ulrich, *S. incompta subaequalis* Ulrich, *Tetradella lunatifera* Ulrich.

TRENTON (GALENA LIMESTONE): OGLE COUNTY, ILLINOIS.

*Leperditia titanica* Scott.

TRENTON (GLEN FALLS LIMESTONE): MONTGOMERY COUNTY, NEW YORK.

*Eurychilina subradiata* Ulrich.

TRENTON (SNAKE HILL SHALE): ALBANY AND SARATOGA COUNTIES, NEW YORK.

*Ctenobolbina ciliata* (Emmons), *C. ciliata cornuta* Ruedemann, *C. subrotunda* Ruedemann.

TRENTON (CANAJOHARIE SHALE): MONTGOMERY COUNTY, NEW YORK.

*Bythocypris cylindrica* (Ulrich), *Primitiella unicornis* Ulrich var., *Ulrichia? bivertex* Ulrich.

TRENTON (COLLINGWOOD SHALE): CANADA.

*Aparchites minutissimus* (Hall), *Elpe radiata* Ulrich, *Primitiella ulrichi* Jones.

TRENTON (JACKSONBURG LIMESTONE): NEAR ILIFFS POND, NEW JERSEY.

*Coelochilina* (*Eurychilina*) *jerseyensis* Weller, *C. (Eurychilina) oculifera* Weller, *Leperditella ornata* Weller.

TRENTON (FALLS OF LORETTE, QUEBEC, CANADA.

*Aparchites mundulus* Jones, *Ceratopsis? quadrifida* (Jones), *Isochilina amii* Jones, *I. whiteavesi* Jones, *Leperditella? obscura* (Jones), *Primitia mundula incisa* Jones.

TRENTON (MISCELLANEOUS): NEW YORK AND PENNSYLVANIA.

*Beyrichia bella* Walcott (Trenton Falls, New York), *Cytheropsis crenulata* (Emmons) (Middleville, New York), *Cytherina emmonsii* (Vogdes) (Middleville, New York), *C. subelliptica* Emmons (near Watertown, New York), *Leperditia ovata* Jones (Penns Valley, Pennsylvania), *Tetradella subquadrans* Ulrich (Upper Trenton, New York and Pennsylvania).

## TRENTON (MISCELLANEOUS): CANADA.

*Cypridina antiqua* Jones (drift, Ontario), *Isochilina gracilis* Jones (White Horse Rapids), *Isochilina gregaria ulrichiana* Jones (Ontario), *Leperditia canadensis louckiana* Jones (Castor River, Canada), *Primitia mundula effusa* Jones (Quebec City).

## TRENTON (CURDSVILLE LIMESTONE): CENTRAL KENTUCKY.

*Leperditia fabulites* (Conrad).

## TRENTON (HERMITAGE LIMESTONE): TENNESSEE AND KENTUCKY.

*Ceratopsis intermedia* Ulrich, *Eurychilina reticulata* Ulrich, *Kloedenia praenuntia* Ulrich and Bassler.

## TRENTON (PERRYVILLE LIMESTONE): CENTRAL KENTUCKY.

*Halliella sculptilis* (Ulrich), *Isochilina jonesi* Wetherby, *I. ? subnodosa* Ulrich, *Leperditia appressa* Ulrich, *L. caecigena frankfortensis* Ulrich, *L. linneyi* Ulrich, *L. tumidula* Ulrich, *Primitia nitida* Ulrich.

## TRENTON (CANNON LIMESTONE): CENTRAL TENNESSEE.

*Isochilina ampla* Ulrich, *I. saffordi* Ulrich, *I. columbina* Bassler.

## TRENTON (CATHEYS FORMATION): CENTRAL TENNESSEE.

*Bythocypris cylindrica* Hall, *Ceratopsis intermedia* Ulrich, *Ctenobolbina ciliata parva* Kirk, *Drepanella progressa* Kirk, *D. progressa reticulata* Kirk, *Isochilina apicalis* Ulrich and Bassler, *I. nelsoni* Ulrich and Bassler, *I. saffordi* Ulrich, *Leperditia pondi* Ulrich and Bassler, *Saffordellina muralis* Ulrich and Bassler.

## TRENTON (CYNTHIANA FORMATION): COVINGTON, KENTUCKY.

*Bythocypris cylindrica* (Hall), *Ceratopsis intermedia* Ulrich, *Primitia centralis* Ulrich, *P. perminima* Ulrich, *Dicranella bivertex* (Ulrich).

## TRENTON (FULTON SHALE): SOUTHWEST OHIO, ETC.

*Aparchites minutissimus* (Hall), *Bythocypris cylindrica* (Hall), *Ceratopsis chambersi* (Miller), *Dicranella ? byrnesi* (Miller), *Elpe radiata* (Ulrich), *Laccoprimitia centralis* Ulrich, *Primitiella claypolei* (Jones), *P. unicornis* (Ulrich), *P. whitfieldi* (Jones), *Ulrichia nodosa* (Ulrich).

## EDEN (ECONOMY MEMBER): SOUTHWESTERN OHIO, ETC.

*Aparchites minutissimus* (Hall), *Bollia persulcata* (Ulrich), *Bythocypris cylindrica* (Hall), *Ceratopsis chambersi* (Miller), *Ctenobolbina ciliata* (Emmons), *Jonesella crepidiformis* (Ulrich), *J. pedigera* Ulrich, *Jonesites inornatus* (Ulrich), *Laccoprimitia centralis* Ulrich, *Primitia rudis* Ulrich, *Primitiella claypolei* (Jones), *P. whitfieldi* (Jones), *Ulrichia nodosa* (Ulrich).

## EDEN (SOUTHGATE MEMBER): SOUTHWESTERN OHIO, ETC.

*Aparchites minutissimus* (Hall), *Bollia persulcata* Ulrich, *Bythocypris cylindrica* (Hall), *Ceratopsis chambersi* (Miller), *Ctenobolbina ciliata* (Emmons), *Jonesella crepidiformis* (Ulrich), *Laccoprimitia centralis* Ulrich, *Octonaria bicava* Ulrich and Bassler, *Ulrichia nodosa* Ulrich.

## EDEN (MCMICKEN MEMBER): SOUTHWESTERN OHIO, ETC.

*Aparchites minutissimus* (Hall), *Bollia persulcata* Ulrich, *Bythocypris cylindrica* Hall, *Ceratopsis chambersi* (Miller), *Ctenobolbina alata* Ulrich, *C. bispinosa* Ulrich, *C. ciliata* (Emmons), *C. curta* (Ulrich), *Laccoprimitia centralis* Ulrich, *Ulrichia nodosa* (Ulrich).

## UTICA (DEEP RIVER SHALE): MOUTH OF LORRAINE GULF, NEW YORK.

*Elpe radiata* Ulrich.

## UPPER UTICA SHALE: HOLLAND PATENT, NEW YORK.

*Bollia uticana* Ruedemann.

## EDEN (WHETSTONE GULF FOPMATION): NEAR ROME, ETC., NEW YORK.

*Aparchites minutissimus* (Hall), *Bollia pulchra* Ruedemann, *Bythocypris cylindrica* (Hall), *Dilobella lorrainensis* Ruedemann, *Jonesella pedigera* Ulrich, *Primitia centralis* Ulrich, *P. rudis* Ulrich, *Primitiella unicornis* Ulrich.

## EDEN (FRANKFORT SHALE): NEAR ROME, ETC., NEW YORK.

*Elpe radiata* Ulrich, *Primitia rudis* Ulrich.

## EDEN (INDIAN LADDER BEDS): ALBANY COUNTY, NEW YORK.

*Ceratopsis chambersi* (Miller).

## MAYSVILLE (CORRYVILLE BEDS): SOUTHWEST OHIO, ETC.

*Aparchites minutissimus* (Hall), *Bollia persulcata* (Ulrich), *Bythocypris cylindrica* (Hall), *Ceratopsis oculifera* (Hall), *Ctenobolbina duryi* (Miller), *Elpe cincinnatiensis* (Meek), *E. irregularis* (Miller), *Eridoconcha rugosa* Ulrich and Bassler, *Faberia anomala* (Miller), *Jonesites marginatus* Ulrich, *Laccoprimitia centralis* Ulrich, *Ulrichia nodosa* Ulrich.

## MAYSVILLE (MOUNT AUBURN BEDS): SOUTHWEST OHIO, ETC.

*Aparchites minutissimus* (Hall), *Bollia persulcata* Ulrich, *Bythocypris cylindrica* (Hall), *Laccoprimitia centralis* Ulrich, *Ulrichia nodosa* Ulrich.

## MAYSVILLE (ALL DIVISIONS): SOUTHWEST OHIO, ETC.

*Aparchites minutissimus* (Hall), *Bollia persulcata* (Ulrich), *Bythocypris cylindrica* (Hall), *Laccoprimitia centralis* Ulrich, *Ulrichia nodosa* Ulrich.

## MAYSVILLE (PULASKI BEDS): NEAR PULASKI, NEW YORK.

*Bythocypris cylindrica* (Hall), *Ceratopsis oculifera* (Hall).

## ORDOVICIAN (BALA-CARADOC): CHAIR OF KILDARE, LEINSTER, IRELAND.

*Bairdia griffithiana* Jones and Holl, *B. munchisoniana* Jones and Holl, *B. salteriana* Jones and Holl, *Cythere?? bailyana* Jones and Holl, *C.?? harknessiana* Jones and Holl, *C. ? wrightiana* (Jones), *Leperditella maccoyii* (Salter), *Pachydomella wrightii* (Jones), *Pontocypris aldensis* (McCoy), *P. jukesiana* (Jones and Holl), *Primitia sanctipatricii* Jones and Holl.

## ORDOVICIAN (LOWER BALA): ALDENS, AYRSHIRE, SCOTLAND.

*Cythere?? wrightiana* Jones and Holl, *Leperditella maccoyii* (Salter), *Pontocypris aldensis* (McCoy).

## ORDOVICIAN (MIDDLE BALA): GIRVAN, AYRSHIRE, SCOTLAND.

*Aparchites leperditioides* Jones, *A. ? subovatus* Jones, *Beyrichia impar* Jones, *B. infecta*, Jones, *Cypridina grayae* Jones, *Primitia? girvanensis* Jones, *P. grayae* Jones, *P. krausei* Jones, *P. mundula fimbriata* Jones, *P. mundula kloedeniana* Jones, *P. ulrichiana* Jones, *Primitiella elongata nuda* Jones, *Sulcuna praecurrens* Jones, *Ulrichia girvanensis* Jones.

## ORDOVICIAN (BALA): WESTMORELAND, ETC., ENGLAND.

*Aechmina obtusa* Jones, *Aparchites leperditioides* Jones, *A. ? subovatus* Jones, *A. subtruncatus* Jones, *Bythocypris semicircularis* (Jones and Holl), *Ceratopsis duftonensis* Reed, *Ctenobolbina superciliata* (Reed), *Cytherella subparallela* Jones, *Dicranella marrii* (Jones), *D. nicholsoni* (Jones), *Laccoprimitia centralis* (Ulrich), *Leperditella maccoyii* (Salter), *Primitia (Ulrichia?) bicornis* (Jones), *P. matutina* Jones and Holl, *P. mundula longa* Jones, *P. mundula producta* Jones, *P. nana* Jones and Holl, *P. (?Eurychilina) strangulata* (Salter), *Tetradella? affinis* (Jones), *T. complicata* (Salter), *T. turnbulli* Reed.

## ORDOVICIAN (BALA): WALES.

*Bairdia griffithiana* Jones and Holl, *B. munchisoniana* Jones and Holl, *B. salteriana* Jones and Holl, *Cythere bailyana* Jones and Holl, *C. ? harknessiana* Jones

and Holl, *C. wrightiana* Jones and Holl, *Leperditella maccoyii* (Salter), *Pontocypris aldensis* (McCoy), *Primitia mundula cambrica* Jones, *P. salteriana* Jones and Holl, *P. sanctipatricii* Jones and Holl, *P. semicordata* Jones and Holl, *P. (Eurychilina) strangulata* (Salter), *Primitiella humilior* (Jones), *P. unicornis* (Ulrich), *Tetradella? affinis* (Jones), *T. complicata* Salter, *T. complicata decorata* (Jones), *Ulrichia morgani* (Jones).

ORDOVICIAN (LLANDEILO): NORTH WALES.

*Ctenobolbina barrandiana* (Jones), *Ulrichia bipunctata* Jones and Holl.

ORDOVICIAN OF SWEDEN.

*Beyrichia? nanella* Moberg and Segerberg (Fogelsang), *Bollia triplicata* Troedsson, *Primitia carinata* Hadding, *P. conchoides* Hadding, and *P. tolli* Bonnema (Lower Dicollograptus shale); *P. ostrogothia* Moberg and Segerberg (Ostergotland).

CERATOPYGE LIMESTONE: TOIEN, NORWAY.

*Beyrichia? nana* Brögger.

EXPANSUS BEDS AND ORTHOCERAS LIMESTONE: CHRISTIANIA REGION, NORWAY.

*Isochilina? socialis* Brögger.

ORDOVICIAN (D1-D5): BOHEMIA, CZECHOSLOVAKIA.

*Beyrichia? barbara* Barrande (D5), *Ceratopsis hastata* (Barrande) (D3-5), *Cythere?? bohemia* Barrande (D3), *Cytheropsis derelicta* Barrande, *C. (?Bythocypris) melonica* Barrande (D4), *C. (Bythocypris?) testis* Barrande, *Entomis rara* Barrande, *Hippa latens* Barrande (D2-D4), *Leperditella erratica* (Krause), *Leperditia fragilis* Barrande (D4), *Primitia (?Bythocypris) fugax* Barrande (D5), *P. gregaria* Barrande (D5), *P. prunella* Barrande (D3), *P. timida* Barrande (D3), *P. transiens* Barrande (D1), *Tetradella bohemia* (Barrande) (D4), *Ulrichia perforata* (Barrande) (D1).

ORDOVICIAN: PIN VALLEY, SPITI, INDIA.

*Eurychilina monticuloides* Reed, *Krausella shianensis* Reed, *Leperditella? himalaica* Reed, *Primitia everesti* Reed, *P. gerardi* Reed.

ORDOVICIAN (KUCKERS-C2): KUCKERS, ESTONIA.

*Beyrichia granulifera* Ulrich and Bassler, *B. (?Ceratopsis) obliquejugata* Schmidt, *Bursulella quadrispina* (Krause), *Bythocypris jonesii* (Bonnema), *B. krausei* (Bonnema), *B. ruedemanni* (Bonnema), *B. ulrichi* (Bonnema), *Ceratopsis cornuta* (Krause), *C. schmidti* Bonnema, *Chilobolbina dentifera* (Bonnema), *C. kapteyni* (Bonnema), *C. kuckersiana* (Bonnema), *Ctenobolbina carinata* (Krause), *C. minor kuckersiana* (Bonnema), *C. oblonga kuckersiana* (Bonnema), *C. ornata* (Krause), *C. ornata latimarginata* (Bonnema), *C. rossica* (Bonnema), *C. variolaris* (Bonnema), *Dilobella (Ctenobolbina?) obliqua kuckersiana* (Bonnema), *Eurychilina decumana* (Bonnema), *E. esthonica* (Bonnema), *E. flabellifera* (Krause), *Leperditia (?Bythocypris) ovulum* (Eichwald), *Macronotella kuckersiana* Bonnema, *Primitia (?Barychilina) molli* Bonnema, *P. tolli* Bonnema, *Primitiella kuckersiana* Bonnema, *Tetradella calkeri* Bonnema, *T. calkeri convexa* Bonnema, *T. kuckersiana* (Bonnema) *T. kuckersiana acuta* (Bonnema), *Ulrichia bidens* (Krause), *U. kuckersiana* Bonnema.

ORDOVICIAN DRIFT OF HOLLAND AND NORTHERN GERMANY.

[A=Algal limestone; B=Ordovician *Beyrichia* limestone; Ba=Bachstein kalk; C=*Ceratopsis rostrata* limestone; G=Glauconite limestone; K=Kuckers limestone; L=*Leptaena* limestone; M=*Macrouva* limestone; O=*Orthoceras* limestone; Ost=Ostsee kalk.]



*Aparchites canaliculatus* (Krause) (C), *A. cuneatus* Kummerow (A), *A. marchicus* Kummerow (A), *Apatochilina plana* (Krause) (L), *A. plana tuberculata* (Krause) (C), *A.?* *simplex* Kummerow (O), *Bairdia cuneata* Steusloff (Ost, A), *Beyrichia granulifera* Ulrich and Bassler (L), *B. plicata* (Krause), *B. trilobata* (Krause), *Bollia duplex* Krause, *B. plicatula* Krause (C), *Bursulella quadrispina* (Krause) (C), *Bythocypris incurva* Kummerow (A), *B. jonesii* (Bonnema) (K), *B. strombiformis* Kummerow (Ost. A), *B. robusta* Kummerow (A, L), *B. ruedemanni* (Bonnema) (K), *B. subreniformis* Kummerow (A), *Ceratopsis cornuta* (Krause), *C. rostrata* (Krause) (C), *C. schmidtii* Bonnema (K), *Chilobolbina dentifera* (Bonnema) (O), *C. kapteyni* (Bonnema), *C. kuckersiana* (Bonnema), *Coelochilina distans* (Krause) (A, L, Ost), *Craspedobolbina dietrichi* Kummerow (L), *Ctenobolbina carinata* (Krause) (C), *C. impressa* (Steusloff) (O), *C. latisulcata* (Steusloff) (O), *C. major* (Krause) (C), *C. minor* (Krause) (C, Ba), *C. oblonga* (Steusloff) (M), *C. oblonga kuckersiana* (Bonnema) (Ba), *C. ornata* (Krause) (Ba), *C. ornata latimarginata* (Bonnema) (K), *C. rossica* (Bonnema) (Ba), *C. sigma* (Krause) (O), *C. sigma antiquata* (Krause), *C. sigma ornata* (Krause), *C. umbonata* (Steusloff) (O), *Dilobella auricularis* (Krause) (C), *D. obliqua* (Krause), *D. simplex* (Krause), *Entomis* (?*Dilobella imperfecta* (Krause), *Eurychilina bursa* (Krause) (G, A, L), *E.* (?*Chilobolbina cincta* (Krause), *E. decumana* (Bonnema) (K), *E. esthonica* (Bonnema) (K), *E. excavata* (Krause), *E. flabellifera* (Krause) (C), *E. intermedia* (Krause), *E. reticulata* (Steusloff) (O), *E. schmidtii* (Krause), *E. schmidtii ornata* (Krause) *E.* (*Coelochilina umbonata* (Krause) (C), *Isochilina frequens* Steusloff (A, L), *Jonesites jonesii* (Krause), *Kiesowia dissecta* (Krause), *K. mamillosa* (Krause) (Ba), *K. radians* (Krause) (C), *Krausella spinata* Kummerow (L), *Kyammodos globosa* (Krause) (L), *Leperditia ordoviciana* Kummerow, *L. phaseolus praecursor* Kummerow (L), *Leperditella baltica* Kummerow, *L. erratica* (Krause) (G), *L. maccoyii* (Salter), *L. vandolica* Kummerow, *Macronotella elliptica* Kummerow, *M. kiesowii* (Steusloff) (L), *M. krausei* (Steusloff) (L), *M. lenticularis* Kummerow (A, L), *Primitia*?*angulata* Steusloff (B), *P. concinna* Steusloff (O), *P. curva* Steusloff (B), *P. elongata semicircularis* Steusloff (L), *P. excelsa* Steusloff (O), *P. jonesii* Krause, *P.*? (*Chilobolbina labrosa* Krause, *P. papillata* Krause (C), *P. parva* Kummerow (L), *P. plicata* Krause (C), *P. sulcata* Krause, *P. tolli* Bonnema (O), *P. umbilicata* Kummerow, *Primitiella cornuta* Kummerow (O), *P. corrugata* (Krause) (A), *P. elongata* (Krause) (A), *P. glauconitica* Kummerow (G), *P. kuckersiana* Bonnema (O, L), *P. procera* Kummerow (O), *P. umbilicata* Kummerow, *Steusloffia acuta* (Krause) (G), *S. antiqua* (Steusloff) (O), *S. lineata* (Krause) (O), *S. lineata granulosa* (Steusloff) (B), *S. lineata separata* (Steusloff), *S. linnarssoni* (Krause) (O), *S. reticulata* (Krause) (O, Ba), *S. signata* (Krause), *Streptula constans* Steusloff (B), *S. elliptica* Steusloff (K), *Tetradella calkeri* Bonnema (K), *T. digitata* (Krause) (O), *T. digitata separata* (Steusloff) (O), *T. erratica* (Krause) (O), *T. erratica granulosa* (Krause) (G), *T. harpa* (Krause) (C), *T. krausei* (Steusloff) (M), *T. marchica* (Krause) (O), *T. marchica angustata* (Krause), *T. palmata* (Krause) (O), *Ulrichia bidens* (Krause) (C), *Zyggolba v-scripta* (Krause) (O), *Z. v-scripta complanata* Krause.

#### ORDOVICIAN (MISCELLANEOUS).

Australia (Knowsley, Victoria): *Leperditia knowsleyensis* Chapman.

China (Northern Shan States): *Bollia alexanderi* Reed, *Kloedenella birmanica* Reed, *Krausella arcuata* Ulrich, *Primitiella?* *orientalis* Reed.

SILURIAN CORRELATION TABLE

	Appalachian Valley (Pennsylvania, Maryland)	Ohio Valley E. of Cincinnati	Ohio Valley W. of Cincinnati	Island of Anticosti	Michigan and SW Ontario	England
Cayuga Upper	Western New York	Tonoloway ls.	Hillsboro ss.		Raisin River dol. Put-in-Bay dol. Tymochtee dol. Greenfield dol. Saline sh.	England  Ledbury sh. Downton ss. Upper Ludlow beds.
	Lower Manlius Cobleskill ls.					
Lower	Bertie ls. Camilus sh. Syracuse sh. Canton sh. Pittsford sh.	Greenfield ls.	Kokomo ls.			
Niagara Lockport	Wills Creek sh. (Bloomsburg) McKenzie fm.	Cedarville ls. Springfield, ls. West Union ls.	Louisville ls. Waldron sh. Laurel ls.	Chicotte fm.	Guelph dol. Lockport dol. Byron dol.	Aymestry ls. Lower Ludlow beds Shale over Wenlock ls. Wenlock ls. Upper Wenlock sh. (Tickwood) Middle Wenlock sh. (Coalbrook Dale) Lower Wenlock sh. (Buildwas) Woolhope ls.
Upper Clinton	Rochester sh.	Bisher dol.	Osgood ls.	Jupiter fm.		
	Keefe ss.	Alger fm.				
	Mastigobolbina tybus zone Bonnemaisia rudis zone	Indian Fields fm.			Mayville dol. Dyer Bay dol.	
Middle Clinton.	Zygosella postica zone Mastigobolbina lata zone Zygobolbina emaciata zone.					
Lower Clinton	Zygobolba decora zone Zygobolba anti-costiensis zone Zygobolba erecta zone.	Dayton ls.				Upper Llandoverly Tarannon sh. May Hill ss. Lower Llandoverly
	Tuscarora ss.	Brassfield ls.	Brassfield ls.	Gun River fm. Beesie River fm.	Cataract fm.	
Alexan- drian.	Juniata sh.	Elkhorn fm. Whitewater fm. Liberty fm. Waynesville fm. Arnheim fm.	Elkhorn fm. Whitewater fm. Liberty fm. Waynesville fm. Arnheim fm.	Ellis Bay fm. Vernal fm. English Head fm.	Queenston sh.	
Richmond.						

France (Brittany): *Ctenobolbina guillieri* (Tromelin).

Germany (Thuringia): *Beyrichia excavata* Richter, *Tetradella affinis* (Jones).

Podolia: *Primitia minuta* (Eichwald).

Portugal (Serra de Bussaco near Coimbra): *Primitia simplex* (Jones).

Russia (Gouvernement St. Petersburg): *Isochilina punctata* Eichwald, *Tetradella bussacensis* (Jones), *T. ribeiriana* (Jones).

Russia (Glauconite beds, Wolchow River): *Beyrichia* (*Bollia*?) *grewingkii* Bock.

Sardinia: *Beyrichia*? *reticulata* Bornemann.

Spain (near Almaden): *Tetradella bussacensis hispanica* (Born).

Spain (Cantabrian Mountains): *Primitia cantabrica* Barrande and Verneuil.

### SILURIAN FAUNAS

#### RICHMOND GROUP OF SOUTHWESTERN OHIO, ETC. (ALL DIVISIONS).

*Aparchites minutissimus* (Hall), *Bollia persulcata* (Ulrich), *Bythocypris cylindrica* (Hall), *Ceratopsis robusta* (Ulrich), *Tetradella lunatifera* Ulrich, *T. quadrilirata* (Hall and Whitfield), *T. simplex* Ulrich.

#### RICHMOND (ARNHEIM FORMATION): SOUTHWESTERN OHIO, ETC.

*Aparchites minutissimus* (Hall), *A. oblongus* Ulrich, *Drepanella tumida* Ulrich (Moreland, Kentucky, perhaps Saluda), *Bollia persulcata* (Ulrich), *B. regularis* (Emmons), *Bythocypris cylindrica* (Hall), *Ceratopsis robusta* (Ulrich), *Ctenobolbina hammelli* (Miller and Faber), *Jonesella digitata* Ulrich (Marion County, Kentucky), *Primitia cincinnatiensis* (Miller), *Ulrichia nodosa* Ulrich.

#### RICHMOND (WAYNESVILLE FORMATION): SOUTHEASTERN OHIO, ETC.

*Aparchites minutissimus* (Hall), *Bollia persulcata* Ulrich, *B. pumila* Ulrich, *Bythocypris cylindrica* (Hall), *Ceratopsis robusta* (Ulrich), *Ctenobolbina hammelli* (Miller), *Primitia cincinnatiensis* (Miller), *P. ? medialis* Ulrich, *P. milleri* Ulrich, *Tetradella lunatifera* Ulrich, *T. quadrilirata* (Hall and Whitfield), *T. simplex* Ulrich, *Ulrichia nodosa* Ulrich.

#### RICHMOND (WHITEWATER FORMATION): SOUTHEASTERN INDIANA, ETC.

*Aparchites minutissimus* Hall, *Beyrichia ? parallela* (Ulrich), *Bollia persulcata* Ulrich, *Bythocypris cylindrica* (Hall), *Ceratopsis robusta* (Ulrich), *Coelochilina* (*Eurychilina*) *striatomarginata* (Miller), *Drepanella richardsoni* (Miller), *Entomis madisonensis* Ulrich, *Leperditia caecigena* Miller, *Leperditella? glabra* (Ulrich), *L. (Primitia) lativia* Ulrich, *Tetradella lunatifera* Ulrich, *T. simplex* Ulrich, *T. quadrilirata* (Hall and Whitfield), *Ulrichia nodosa* Ulrich.

#### RICHMOND (ELKHORN DIVISION): SOUTHEASTERN INDIANA.

*Acronotella shideleri* Ulrich and Bassler, *Aechmina richmondensis* Ulrich and Bassler, *Bythocypris cylindrica* (Hall), *Ceratopsis robusta* (Ulrich), *Tetradella lunatifera* Ulrich, *T. quadrilirata* (Hall and Whitfield), *T. simplex* Ulrich.

#### RICHMOND (QUEENSTON SHALE): NEAR MEAFORD, ETC., CANADA.

*Bythocypris cylindrica* (Hall), *Drepanella canadensis* Ulrich, *Coelochilina striatomarginata* (Miller), *Leperditia caecigena* (Miller), *Leperditella (Primitia) lativia* Ulrich.

#### RICHMOND (MAQUOKETA SHALE): MINNESOTA AND ILLINOIS.

*Aparchites fimbriatus* (Ulrich) (Minnesota), *Ceratopsis chambersi robusta* Ulrich (Minnesota), *Ctenobolbina emaciata* (Ulrich) (Illinois), *Leperditella (Primitia) dorsicornis* (Ulrich) (Illinois), *Primitia gibbera* Ulrich (Minnesota), *P. impressa* Ulrich (Illinois), *P. tumidula* Ulrich (Minnesota), *Pontocypris? illinoisensis* Ulrich (Illinois).

## RICHMOND (STONY MOUNTAIN FORMATION): MANITOBA, CANADA.

*Aparchites minutissimus* (Hall), *Beyrichia? parallela* (Ulrich), *Eurychilina manitobensis* Ulrich, *Leperditia subcylindrica* Ulrich, *Leperditella? (Primitia) lativia* Ulrich, *Tetradella lunatifera* (Ulrich), *T. simplex* (Ulrich).

## RICHMOND, ENGLISH HEAD (E) AND VAUREAL (V): ISLAND OF ANTICOSTI.

*Aparchites minutissimus* (Hall) (V), *Beyrichia parallela* Ulrich (V), *Bollia semilunata* Jones (V), *Bythocypris cylindrica* (Hall) (V), *B. lindstroemi* Jones (E, V), *B. obtusa* Jones (E, V), *Ctenobolbina hammelli* (Miller and Faber) (E), *Isochilina vaurealensis* Twenhofel (V), *Krausella anticostiensis* (Jones) (E, V), *Macrocypris? subcylindrica* Jones (E), *Leperditella (Primitia) lativia* Ulrich (E), *Primitiella canadensis* Bassler (V), *Schmidtella sublenticularis* (Jones) (E, V), *Tetradella lunatifera* Ulrich (V), *T. simplex* (Ulrich) (V), *Ulrichia nodosa* (Ulrich) (E, V).

## RICHMOND: LITTLE BLACK ISLAND, LAKE WINNIPEG, CANADA.

*Aparchites parvulus* Jones, *A. tyrrelli* Jones, *A. whiteavesi* Jones.

## RICHMOND: NORTH SIDE FROBISHER BAY, BAFFIN LAND.

*Drepanella symmetrica* (Emerson), *Eurychilina frobisheri* (Emerson).

## UPPER MEDINAN: WESTERN NEW YORK, ETC.

*Leperditia cylindrica* (Hall).

## GAMACHIAN (ELLIS BAY FORMATION): ISLAND OF ANTICOSTI.

*Bollia semilunata* Jones, *Bythocypris lindstroemi* Jones.

## ANTICOSTIAN (BECSIE RIVER FORMATION): ISLAND OF ANTICOSTI.

*Leperditia selwyni* Jones.

## ANTICOSTIAN (GUN RIVER FORMATION): ISLAND OF ANTICOSTI.

*Chilobolbina billingsi* (Jones), *Leperditia selwyni* Jones.

## ANTICOSTIAN (JUPITER RIVER—ZYGOLBA DECORA AND Z. ANTICOSTIENSIS ZONES): ISLAND OF ANTICOSTI.

*Apatobolbina acuta* Ulrich and Bassler, *A. granifera* Ulrich and Bassler, *Beyrichia? diffusa* Jones, *Bolbibollia labrosa* Ulrich and Bassler, *Chilobolbina billingsi* (Jones), *C. punctata* Ulrich and Bassler, *Leperditia anticostiana* (Jones), *L. frontalis* Jones, *L. selwyni* Jones, *Zygodolba anticostiensis* Ulrich and Bassler, *Z. decora* Billings, *Z. excavata* Ulrich and Bassler, *Z. inflata* Ulrich and Bassler, *Z. inflata recurva* Ulrich and Bassler, *Z. intermedia* Ulrich and Bassler, *Z. rectangula* Ulrich and Bassler, *Z. robusta* Ulrich and Bassler, *Z. twenhofeli* Ulrich and Bassler.

## UPPER MEDINAN (BRASSFIELD LIMESTONE): OHIO.

*Elpe ulrichi* Foerste.

## UPPER MEDINAN (CHANNAHON LIMESTONE): WILL COUNTY, ILLINOIS.

*Leperditia illinoisensis* Savage.

## LOWER CLINTON (TOP OF DYER BAY DOLOMITE): CLAY CLIFFS, 2 MILES WEST OF CABOT HEAD, LAKE HURON, ONTARIO, CANADA.

*Chilobolbina billingsi* (Jones), *C. punctata* Ulrich and Bassler, *Leperditia ulrichi* Troedsson, *Zygodolba williamsi* Ulrich and Bassler.

## LOWER CLINTON (DYER BAY DOLOMITE): SOUTHEAST BRANCH OF BLANCH RIVER, NORTH OF COBALT, ONTARIO, CANADA.

*Chilobolbina punctata* Ulrich and Bassler, *Leperditia ulrichi* Troedsson, *Zygodolba williamsi* Ulrich and Bassler.

## LOWER CLINTON (BEAR CREEK SHALE): ZYGOLBA ANTICOSTIENSIS ZONE, ROCHESTER, NEW YORK.

*Zygobolba excavata* Ulrich and Bassler, *Z. inflata* Ulrich and Bassler, *Z. proliza* Ulrich and Bassler, *Z. rectangula* Ulrich and Bassler.

LOWER CLINTON (TRUE SODUS SHALE = ZYGOBOLBA DECORA ZONE): NEAR MOUTH OF SECOND CREEK, 1 MILE NORTH OF ALTON, NEW YORK.

*Zygobolba intermedia* Ulrich and Bassler, *Z. decora* (Billings), *Z. robusta* Ulrich and Bassler.

LOWER CLINTON (ZYGOBOLBA DECORA ZONE): TUSCARORA MOUNTAIN, SOUTHEAST OF HONEY GROVE, JUNIATA COUNTY, PENNSYLVANIA.

*Zygobolba carinifera* Ulrich and Bassler, *Z. decora* (Billings), *Z. elongata* Ulrich and Bassler, *Z. cfr. erecta* Ulrich and Bassler, *Z. intermedia* Ulrich and Bassler, *Z. robusta* Ulrich and Bassler, *Zygobolbina carinata* Ulrich and Bassler.

LOWER CLINTON (ZYGOBOLBA RECTA ZONE): SOUTHWEST SLOPE OF TUSSEY MOUNTAIN IN MINE TUNNEL, 1 MILE NORTH OF MARKLESBURG, PENNSYLVANIA.

*Euprimitia buttsi* Ulrich and Bassler, *Zygobolba carinifera* Ulrich and Bassler, *Z. elongata* Ulrich and Bassler, *Z. erecta* Ulrich and Bassler, *Z. limbata* Ulrich and Bassler, *Z. parifinita* Ulrich and Bassler, *Z. reversa* Ulrich and Bassler.

LOWER CLINTON (TOP OF LOWER OR NEAR BASE OF MIDDLE CLINTON—ZYGOBOLBINA EMACIATA ZONE OR ZYGOBOLBA DECORA ZONE): TOP FRANKSTOWN ORE BED, ½ MILE NORTHWEST OF FRANKSTOWN, PENNSYLVANIA.

*Apatobolbina? appressa* Ulrich and Bassler, *Kloedenia obscura* Ulrich and Bassler, *Mastigobolbina incipiens* Ulrich and Bassler, *M. producta* Ulrich and Bassler, *M. retifera* Ulrich and Bassler, *Zygobolba buttsi* Ulrich and Bassler, *Z. obsoleta* Ulrich and Bassler, *Z. pulchella* Ulrich and Bassler, *Z. rustica* Ulrich and Bassler, *Zygobolbina carinata* Ulrich and Bassler, *Z. conradi latimarginata* Ulrich and Bassler, *Z. emaciata?* Ulrich and Bassler, *Z. panda* Ulrich and Bassler.

LOWER CLINTON (57 FEET ABOVE BASE = *Z. ANTICOSTIENSIS* ZONE): CUMBERLAND, MARYLAND.

*Aparchites? variolata* Ulrich and Bassler, *Beyrichia emaciata* Ulrich and Bassler, *Plethobolbina cribraria* Ulrich and Bassler, *Zygobolba anticostiensis* Ulrich and Bassler, *Z. curta* Ulrich and Bassler, *Z. excavata* Ulrich and Bassler, *Z. minima* Ulrich and Bassler, *Z. oblonga* Ulrich and Bassler, *Z. rectangula* Ulrich and Bassler, *Z. twenhofeli* Ulrich and Bassler.

LOWER CLINTON (ZYGOBOLBA ANTICOSTIENSIS ZONE): HAGANS, VIRGINIA.

*Zygobolba anticostiensis* Ulrich and Bassler, *Z. curta* Ulrich and Bassler, *Z. excavata* Ulrich and Bassler, *Z. inflata* Ulrich and Bassler, *Z. inflata recurva* Ulrich and Bassler, *Z. oblonga* Ulrich and Bassler, *Z. proliza* Ulrich and Bassler, *Z. rectangula* Ulrich and Bassler.

LOWER CLINTON (*Z. EMACIATA* OR *Z. DECORA* ZONE, 200 FEET ABOVE BASE OF CLINTON): GATE CITY, VIRGINIA.

*Zygobolba arcta* Ulrich and Bassler, *Z. decora* (Billings), *Zygobolbina emaciata* Ulrich and Bassler.

LOWER CLINTON (ZYGOBOLBA DECORA OR *Z. EMACIATA* ZONE): 8 MILES SOUTH OF BIG STONE GAP, VIRGINIA.

*Zygobolba arcta* Ulrich and Bassler, *Zygobolbina emaciata* Ulrich and Bassler.

BASE OF MIDDLE CLINTON (ZYGOBOLBINA EMACIATA ZONE): TUSCARORA MOUNTAIN, COVE GAP, 4½ MILES NORTHWEST OF MERCERSBURG, PENNSYLVANIA.

*Mastigobolbina declivis* Ulrich and Bassler, *M. lata nana* Ulrich and Bassler, *M. virginia* Ulrich and Bassler, *Paraechmina postmuralis* Ulrich and Bassler, *Plethobolbina sulcata* Ulrich and Bassler, *Zygobolba bimuralis* Ulrich and

Bassler, *Zygobolbina emaciata* Ulrich and Bassler, *Zygosella brevis* Ulrich and Bassler, *Z. gracilis* Ulrich and Bassler, *Z. limula* Ulrich and Bassler, *Z. postica* Ulrich and Bassler.

BASE OF MIDDLE CLINTON (ZYGOLBOLBINA EMACIATA ZONE = CRESAPTOWN IRON SANDSTONE): CUMBERLAND, MARYLAND.

*Zygobolbina emaciata* Ulrich and Bassler.

MIDDLE CLINTON (MASTIGOLBOLBINA LATA ZONE): NEW HARTFORD, NEW YORK.

*Chilobolbina hartfordensis* Ulrich and Bassler, *Mastigobolbina clarkei* Ulrich and Bassler, *M. lata* (Hall), *M. lata nana* Ulrich and Bassler, *M. vanuxemi* Ulrich and Bassler, *Zygobolbina conradi* Ulrich and Bassler, *Z. conradi latimarginata* Ulrich and Bassler.

MIDDLE CLINTON (MASTIGOLBOLBINA LATA ZONE): GAP, 1½ MILES NORTHWEST OF WARM SPRINGS, VIRGINIA.

*Mastigobolbina lata* (Hall), *M. modesta* Ulrich and Bassler, *M. virginia* Ulrich and Bassler, *Zygobolba bimuralis* Ulrich and Bassler, *Zygosella mimica* Ulrich and Bassler.

MIDDLE CLINTON (MASTIGOLBOLBINA LATA ZONE): ARMUCHEE, GEORGIA. (EAST END OF LAVENDER MOUNTAIN).

*Mastigobolbina lata* (Hall), *Zygobolbina conradi* Ulrich and Bassler, *Z. conradi latimarginata* Ulrich and Bassler.

MIDDLE CLINTON (MASTIGOLBOLBINA LATA ZONE): GATE CITY, VIRGINIA.

*Bonnemaia notha* Ulrich and Bassler, *Mastigobolbina lata* Ulrich and Bassler, *Zygobolbina conradi* Ulrich and Bassler.

MIDDLE CLINTON (MASTIGOLBOLBINA LATA ZONE): CUMBERLAND GAP, TENNESSEE.

*Mastigobolbina lata* (Hall), *M. lata nana* Ulrich and Bassler, *M. vanuxemi* Ulrich and Bassler, *Zygobolba bimuralis* Ulrich and Bassler, *Z. conradi* Ulrich and Bassler.

MIDDLE CLINTON (MASTIGOLBOLBINA LATA ZONE, 120 FEET ABOVE BASE OF CLINTON): CUMBERLAND, MARYLAND.

*Chilobolbina billingsi* (Jones), *C. punctata brevis* Ulrich and Bassler, *Mastigobolbina clarkei* Ulrich and Bassler, *M. lata* (Hall), *M. vanuxemi* Ulrich and Bassler, *Zygobolba arcta* Ulrich and Bassler, *Z. bimuralis* Ulrich and Bassler, *Zygobolbina conradi* Ulrich and Bassler, *Z. conradi latimarginata* Ulrich and Bassler, *Zygosella brevis* Ulrich and Bassler.

MIDDLE CLINTON (ZYGOSSELLA POSTICA ZONE): CUMBERLAND, MARYLAND.

*Mastigobolbina modesta* Ulrich and Bassler, *Zygobolba bimuralis* Ulrich and Bassler, *Zygosella brevis* Ulrich and Bassler, *Z. gracilis* Ulrich and Bassler, *Z. postica* Ulrich and Bassler.

MIDDLE CLINTON (ZYGOSSELLA POSTICA ZONE): 1 MILE WEST OF NARROWS, VIRGINIA.

*Zygosella gracilis* Ulrich and Bassler, *Z. postica* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, BONNEMAIA RUDIS ZONE): TUSCARORA MOUNTAIN, SOUTHEAST OF HONEY GROVE, JUNIATA COUNTY, PENNSYLVANIA.

*Bonnemaia fissa* Ulrich and Bassler, *B. longa* Ulrich and Bassler, *B. rudis* Ulrich and Bassler, *Mastigobolbina bifida* Ulrich and Bassler, *Zygosella vallata* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, BONNEMIA RUDIS ZONE): CUMBERLAND, MARYLAND.

*Bonnemia longa* Ulrich and Bassler, *B. obliqua* Ulrich and Bassler, *B. pulchella*

Ulrich and Bassler, *B. rudis* Ulrich and Bassler, *Mastigobolbina virginia* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, BONNEMAIA RUDIS ZONE, 102 FEET BELOW KEEFER SANDSTONE): SIX MILE HOUSE, MARYLAND.

*Bonnemaia rudis* Ulrich and Bassler, *Mastigobolbina micula* Ulrich and Bassler, *M. ultima* Ulrich and Bassler, *Zygosella vallata nodifera* Ulrich and Bassler.

UPPER CLINTON (BONNEMAIA RUDIS ZONE): BIG STONE GAP, VIRGINIA.

*Bonnemaia rudis* Ulrich and Bassler, *Zygosella alta* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, BONNEMAIA RUDIS ZONE): WILLIAMSVILLE, VIRGINIA.

*Bonnemaia rudis* Ulrich and Bassler, *Zygosella vallata nodifera* Ulrich and Bassler.

UPPER CLINTON, (LAKEMONT FORMATION, BONNEMAIA RUDIS ZONE): MULBERRY GAP, POWELL MOUNTAIN, 5 MILES NORTHWEST OF SNEEDVILLE, TENNESSEE.

*Bonnemaia fissa* Ulrich and Bassler, *B. longa* Ulrich and Bassler, *B. obliqua* Ulrich and Bassler, *B. pulchella* Ulrich and Bassler, *B. rudis* Ulrich and Bassler, *B. transitia* Ulrich and Bassler, *B. transitia transversa* Ulrich and Bassler, *Mastigobolbina bifidus* Ulrich and Bassler, *M. typus praenuntia* Ulrich and Bassler, *Zygosella alta* Ulrich and Bassler, *Z. vallata nodifera* Ulrich and Bassler.

UPPER CLINTON (MASTIGOBOLBINA TYPUS ZONE, SOFT SHALE ABOVE OOLITE IRON ORE, PALEOCYCLUS ROTULOIDES ZONE): CLINTON, NEW YORK.

*Mastigobolbina punctata* Ulrich and Bassler, *M. trilobata* Ulrich and Bassler, *M. typus* Ulrich and Bassler, *Plethobolbina typicalis* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, MASTIGOBOLBINA TYPUS ZONE): LAKE-MONT, PENNSYLVANIA.

*Beyrichia kirki* Ulrich and Bassler, *B. lakemontensis* Ulrich and Bassler, *Dizygopleura loculata* Ulrich and Bassler, *D. symmetrica* (Hall), *Eridoconcha rotunda* Ulrich and Bassler, *Mastigobolbina arctilimbata* Ulrich and Bassler, *M. arguta* Ulrich and Bassler, *M. glabra* Ulrich and Bassler, *M. intermedia* Ulrich and Bassler, *M. punctata* Ulrich and Bassler, *M. trilobata* Ulrich and Bassler, *M. triplicata* Ulrich and Bassler, *M. typus* Ulrich and Bassler, *Plethobolbina typicalis* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION MASTIGOBOLBINA TYPUS ZONE): 2 MILES WEST OF HOLLIDAYSBURG, PENNSYLVANIA.

*Apatobolbina granifera* Ulrich and Bassler, *Beyrichia kirki* Ulrich and Bassler, *B. lakemontensis* Ulrich and Bassler, *Bonnemaia celsa* Ulrich and Bassler, *B. crassa* Ulrich and Bassler, *Dizygopleura loculata* Ulrich and Bassler, *D. minima* Ulrich and Bassler, *D. symmetrica* (Hall), *Mastigobolbina arctilimbata* Ulrich and Bassler, *M. arguta* Ulrich and Bassler, *M. glabra* Ulrich and Bassler, *M. intermedia* Ulrich and Bassler, *M. punctata* Ulrich and Bassler, *M. trilobata* Ulrich and Bassler, *M. triplicata* (Foerste), *M. typus* Ulrich and Bassler, *Paraechmina crassa* Ulrich and Bassler, *P. punctata* Ulrich and Bassler, *Plethobolbina ornata* Ulrich and Bassler, *P. typicalis* Ulrich and Bassler, *Zygosella vallata* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, MASTIGOBOLBINA TYPUS ZONE): TUSCARORA MOUNTAIN, SOUTHEAST OF HONEY GROVE, JUNIATA COUNTY, PENNSYLVANIA.

*Bonnemaia celsa* Ulrich and Bassler, *B. crassa* Ulrich and Bassler, *B. longa* Ulrich and Bassler, *B. obliqua* Ulrich and Bassler, *B. perlonga* Ulrich and

Bassler, *Mastigobolbina punctata* Ulrich and Bassler, *M. triplicata* Foerste, *M. typus* Ulrich and Bassler, *Plethobolbina typicalis* Ulrich and Bassler, *Zygosella nodifera alta* Ulrich and Bassler, *Z. vallata* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, MASTIGOBOLBINA TYPUS ZONE): CUMBERLAND, MARYLAND.

*Bonnemaia celsa* Ulrich and Bassler, *B. crassa* Ulrich and Bassler, *Dizygopleura symmetrica* (Hall), *Mastigobolbina triplicata* Ulrich and Bassler, *M. typus* Ulrich and Bassler, *M. virginia* Ulrich and Bassler, *Plethobolbina cornigera* Ulrich and Bassler, *P. typicalis* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, MASTIGOBOLBINA TYPUS ZONE, 29' BELOW KEEFER SS): SIR JOHNS RUN, DEVILS NOSE, MARYLAND.

*Bonnemaia longa* Ulrich and Bassler, *B. oblonga* Ulrich and Bassler, *B. transita grandis* Ulrich and Bassler, *Mastigobolbina typus* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, MASTIGOBOLBINA TYPUS ZONE): 1 MILE WEST OF STONE CABIN GAP, BEAR POND MOUNTAIN, WILLIAMSPORT QUADRANGLE, MARYLAND.

*Bonnemaia celsa* Ulrich and Bassler, *B. crassa* Ulrich and Bassler, *B. longa* Ulrich and Bassler, *B. perlonga* Ulrich and Bassler, *Mastigobolbina typus* Ulrich and Bassler, *Zygosella vallata* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, MASTIGOBOLBINA TYPUS ZONE): SIX MILE HOUSE, MARYLAND.

*Bonnemaia celsa* Ulrich and Bassler, *Dizygopleura macra* Ulrich and Bassler, *Mastigobolbina typus* Ulrich and Bassler, *M. typus angulata* Ulrich and Bassler, *M. virginia* Ulrich and Bassler, *Plethobolbina typicalis* Ulrich and Bassler, *Zygosella cristata* Ulrich and Bassler, *Z. vallata* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION—MASTIGOBOLBINA TYPUS ZONE): NORTH OF WILLIAMSVILLE, VIRGINIA.

*Bonnemaia celsa* Ulrich and Bassler, *B. longa* Ulrich and Bassler, *Mastigobolbina typus* Ulrich and Bassler, *Zygosella macra* Ulrich and Bassler, *Z. vallata* Ulrich and Bassler.

UPPER CLINTON (MASTIGOBOLBINA TYPUS ZONE): BIG STONE GAP, VIRGINIA.

*Bonnemaia celsa* Ulrich and Bassler, *B. crassa* Ulrich and Bassler, *B. oblonga* Ulrich and Bassler, *Mastigobolbina arguta* Ulrich and Bassler, *M. typus* Ulrich and Bassler, *M. virginia* Ulrich and Bassler, *Plethobolbina typicalis* Ulrich and Bassler.

UPPER CLINTON (MASTIGOBOLBINA TYPUS ZONE): GATE CITY, VIRGINIA.

*Mastigobolbina arguta* Ulrich and Bassler, *M. typus* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, MASTIGOBOLBINA TYPUS ZONE): 1½ MILES EAST OF GREAT CACAPON, WEST VIRGINIA.

*Beyrichia lakemontensis* Ulrich and Bassler, *Bonnemaia crassa* Ulrich and Bassler, *Dizygopleura loculata* Ulrich and Bassler, *Mastigobolbina arctilimbata* Ulrich and Bassler, *M. arguta* Ulrich and Bassler, *M. intermedia* Ulrich and Bassler, *M. rotunda* Ulrich and Bassler, *M. trilobata* Ulrich and Bassler, *M. triplicata* (Foerste), *M. typus* Ulrich and Bassler, *Paraechmina crassa* Ulrich and Bassler, *Plethobolbina typicalis* Ulrich and Bassler, *Zygosella vallata* Ulrich and Bassler.

UPPER CLINTON (ALGER FORMATION—ESTILL CLAY MEMBER = MASTIGOBOLBINA TYPUS ZONE): LEWIS COUNTY, KENTUCKY.

*Mastigobolbina arguta* Ulrich and Bassler, *M. glabra* Ulrich and Bassler, *M. triplicata* Foerste, *M. trilobata* Foerste, *M. typus* Ulrich and Bassler, *Plethobolbina* sp., *Zygosella vallata* Ulrich and Bassler.



UPPER CLINTON (ALGER FORMATION = MASTIGOBOLBINA TYPUS ZONE): ADAMS COUNTY, OHIO.

*Mastigobolbina arguta* Ulrich and Bassler, *M. modesta* Ulrich and Bassler, *M. punctata* Ulrich and Bassler, *M. trilobata* Ulrich and Bassler, *M. triplicata* Foerste, *M. typus* Ulrich and Bassler, *Plethobolbina typicalis* Ulrich and Bassler, *Zygosella vallata* Ulrich and Bassler.

UPPER CLINTON (WACO LIMESTONE): PANOLA, ETC., KENTUCKY.

*Isophilina panolensis* Foerste.

UPPER CLINTON (ROCHESTER SHALE): LOCKPORT, ETC., NEW YORK; ONTARIO, CANADA.

*Ctenobolbina punctata* Ulrich, *Kloedenella symmetrica* (Hall), *Microcheilinella punctulata niagarensis* (Ulrich), *Otonaria curta* Ulrich, *Paraechmina abnormis* Ulrich, *Paraechmina spinosa* (Hall).

UPPER CLINTON (IRONDEQUOIT LIMESTONE): 8 MILES EAST OF LOCKPORT, NEW YORK.

*Beyrichia hartnageli* Ulrich and Bassler, *Dizygopleura intermedia cornuta* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, DREPANELLINA CLARKI ZONE): MCKEES, 7 MILES WEST OF LEWISTON, PENNSYLVANIA.

*Aechmina simplex* Ulrich and Bassler, *Beyrichia normalis* Ulrich and Bassler, *B. veronica* Ulrich and Bassler, *Dizygopleura cranei* Ulrich and Bassler, *D. lacunosa* Ulrich and Bassler, *Drepanellina clarki* Ulrich and Bassler, *Eukloedenella abrupta* Ulrich and Bassler, *Kloedenia longula* Ulrich and Bassler, *Otonaria cranei* Ulrich and Bassler, *Paraechmina altimuralis* Ulrich and Bassler, *Paraechmina intermedia* Ulrich and Bassler, *P. postica* Ulrich and Bassler, *P. spinosa* (Hall), *Primitiella equilateralis* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, DREPANELLINA CLARKI ZONE): LAKE-MONT, PENNSYLVANIA.

*Drepanellina clarki* Ulrich and Bassler, *D. simplex* Ulrich and Bassler, *Kloedenella cornuta praenuntia* Swartz, *Kloedenia cacaponensis* Ulrich and Bassler, *Paraechmina postica* Ulrich and Bassler, *P. spinosa* (Hall).

CLINTON (LAKEMONT FORMATION, DREPANELLINA CLARKI ZONE): PINTO, MARYLAND.

*Dizygopleura pricei* Ulrich and Bassler, *Drepanellina clarki* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, DREPANELLINA CLARKI ZONE): 2 MILES WEST OF HOLIDAYSBURG, PENNSYLVANIA.

*Beyrichia veronica* Ulrich and Bassler, *Dizygopleura lacunosa* Ulrich and Bassler, *D. symmetrica* (Hall), *Drepanellina clarki* Ulrich and Bassler, *D. modesta* Ulrich and Bassler, *Kloedenia cacaponensis* Ulrich and Bassler, *Paraechmina postica* Ulrich and Bassler, *P. spinosa* (Hall).

UPPER CLINTON (LAKEMONT FORMATION, DREPANELLINA CLARKI ZONE): 1½ MILES EAST OF GREAT CACAPON, MARYLAND.

*Dizygopleura lacunosa* Ulrich and Bassler, *Drepanellina clarki* Ulrich and Bassler, *Kloedenella intermedia antecedens* Ulrich and Bassler, *Kloedenia cacaponensis* Ulrich and Bassler, *Leperditia alta cacaponensis* Ulrich and Bassler.

UPPER CLINTON (LAKEMONT FORMATION, DREPANELLINA CLARKI ZONE): 34 FEET ABOVE KEEFER SANDSTONE, ROSE HILL, MARYLAND.

*Drepanellina clarki* Ulrich and Bassler, *Paraechmina abnormis* Ulrich.

UPPER CLINTON (LAKEMONT FORMATION, 5 FEET BELOW TOP, DREPANELLINA CLARKI ZONE): CUMBERLAND, MARYLAND.

*Aparchites alleghaniensis* Ulrich and Bassler, *Beyrichia veronica* Ulrich and

Bassler, *Dizygopleura asymmetrica* Ulrich and Bassler, *D. proutyi* Ulrich and Bassler, *D. symmetrica* (Hall), *Drepanellina clarki* Ulrich and Bassler, *D. modesta* Ulrich and Bassler, *Laccoprimitia resseri* Ulrich and Bassler, *Paraechmina abnormis* (Ulrich), *P. cumberlandica* Ulrich and Bassler, *P. postica* Ulrich and Bassler, *P. spinosa* (Hall).

UPPER CLINTON (BISHER DOLOMITE, DREPANELLINA CLARKI ZONE): ADAMS AND HIGHLAND COUNTIES, OHIO.

*Dizygopleura asymmetrica* Ulrich and Bassler, *D. lacunosa* Ulrich and Bassler, *D. loculosa* Ulrich and Bassler, *D. symmetrica* (Hall), *Paraechmina spinosa* (Hall), *Primitiella aequilateralis* Ulrich and Bassler.

CLINTON: JUNIATA COUNTY, PENNSYLVANIA.

*Drepanellina ventralis* Ulrich and Bassler.

NIAGARAN (WALDRON SHALE): WALDRON, INDIANA, ETC.

*Beyrichia granulosa* Hall, *B. waldronensis* Ulrich and Bassler, *Bythocypris holti* Jones, *Entomis waldronensis* Ulrich, *Leperditia faba* Hall, *Paraechmina waldronensis* W. Berry, *Primitia obliquipunctata* Jones.

NIAGARAN (GUELPH DOLOMITE): DURHAM, ETC., ONTARIO, CANADA.

*Leperditia balthica guelphica* Jones, *L. phaseolus guelphica* Jones.

NIAGARAN (BYRON BEDS): FOND DU LAC, WISCONSIN.

*Leperditia fonticola* Hall.

NIAGARAN: SASKATCHEWAN RIVER, CANADA.

*Leperditia arctica* (Jones), *L. caeca* Jones, *L. hisingeri egena* Jones, *L. phaseolus* (Hisinger), *L. whiteavesi* Jones.

NIAGARAN: LAKE WINNEPEGOSIS, CANADA.

*Aparchites billingsi* (Jones), *Isochilina latimarginata* (Jones), *Leperditia hisingeri* Schmidt, *L. hisingeri fabulina* Jones, *L. hisingeri gibbera* Jones, *L. marginata* Schmidt.

LISSATRYPA PHOCA FAUNA: BEECHY ISLAND, ARCTIC AMERICA.

*Beyrichia clathrata* Jones, *B. plagosa* Jones, *Halliella seminulum* (Jones), *Leperditia gibbera* Jones, *L. arctica* Jones, *L. hisingeri* Schmidt, *Primitia muta* Jones and Holl, *P. rugulifera* (Jones), *P. sigillata* (Jones).

CAYUGAN (MCKENZIE FORMATION): PENNSYLVANIA.

*Dizygopleura brevisulcata* Swartz (Middle), *D. conjugata* Swartz (Lower), *D. hymenifera* Swartz (Middle), *D. perrugosa* Ulrich and Bassler (Upper), *D. reticulata* Swartz (Lower), *D. swartzi* Ulrich and Bassler (Middle, Upper), *Eukloedenella sinuata* Ulrich and Bassler (Upper), *E. sulcifrons* Ulrich and Bassler (Lower), *Kloedenella cornuta* (Ulrich and Bassler) (Basal), *K. gibberosa* Ulrich and Bassler (Upper), *K. intermedia* Ulrich and Bassler (Lower), *K. nitida* Ulrich and Bassler (Middle).

CAYUGAN (LOWER MCKENZIE FORMATION 30 FEET ABOVE BASE): FLINTSTONE, MARYLAND.

*Dizygopleura concentrica subquadrata* Ulrich and Bassler, *D. micula* Ulrich and Bassler, *D. pinquis* Ulrich and Bassler, *D. subdivisa* Ulrich and Bassler, *Eukloedenella indivisa* Ulrich and Bassler, *E. primitioides* Ulrich and Bassler, *E. primitioides minor* Ulrich and Bassler, *E. umbonata* Ulrich and Bassler, *E. umbilicata* Ulrich and Bassler, *Kloedenella intermedia* Ulrich and Bassler, *K. transitans* Ulrich and Bassler, *Leperditia alta* (Conrad).

CAYUGAN (LOWER MCKENZIE FORMATION, 20 FEET ABOVE BASE): 1½ MILES EAST OF GREAT CACAPON, WEST VIRGINIA.

*Beyrichia moodeyi* Ulrich and Bassler, *Bythocypris pergracilis* Ulrich and Bassler,

*Dizygopleura falcifera* Ulrich and Bassler, *D. stosei* Ulrich and Bassler, *Eukloedenella brevis* Ulrich and Bassler, *E. bulbosa* Ulrich and Bassler, *E. foveolata* Ulrich and Bassler, *E. longulata* Ulrich and Bassler, *E. similis* Ulrich and Bassler, *E. simplex* Ulrich and Bassler, *E. sinuata* Ulrich and Bassler, *E. sinuata proclivis* Ulrich and Bassler, *E. sulcata* Ulrich and Bassler, *Kloedenella cacaponensis* Ulrich and Bassler, *K. cornuta* Ulrich and Bassler, *K. intermedia* (Ulrich and Bassler), *Paraechmina bimuralis* Ulrich and Bassler.

CAYUGAN (LOWER MCKENZIE FORMATION): CUMBERLAND, MARYLAND.

*Kloedenella intermedia* (Ulrich and Bassler).

CAYUGAN (MIDDLE MCKENZIE FORMATION): PINTO, MARYLAND.

*Beyrichia moodeyi* Ulrich and Bassler (237 feet below top), *Dizygopleura concentrica* Ulrich and Bassler, (100 feet below top), *Kloedenella gibberosa* Ulrich and Bassler (100 feet below top).

CAYUGAN (MIDDLE MCKENZIE FORMATION): CUMBERLAND, MARYLAND.

*Beyrichia moodeyi* Ulrich and Bassler, *Bythocypris obesa* Jones, *Dizygopleura ferrugosa* Ulrich and Bassler, *Kloedenella immersa* Ulrich and Bassler, *K. nitida* Ulrich and Bassler, *K. scapha brevicula* Ulrich and Bassler, *Leperditia alta* (Conrad), *Paraechmina depressa* Ulrich and Bassler.

CAYUGAN (UPPER MCKENZIE FORMATION): CUMBERLAND, MARYLAND.

*Dizygopleura acuminata* Ulrich and Bassler, *D. carinata* Ulrich and Bassler, *D. swartzi* Ulrich and Bassler, *Eukloedenella punctilosa* Ulrich and Bassler, *Leperditia alta* (Conrad).

CAYUGAN (UPPER MCKENZIE FORMATION): FLINTSTONE, MARYLAND.

*Beyrichia mesleri* Ulrich and Bassler, (77 and 82 feet below top), *Bythocypris phillipsiana* Jones and Holl (82 feet below top), *Dizygopleura acuminata* Ulrich and Bassler (24 feet below top), *D. acuminata prolapsa* Ulrich and Bassler (24 feet below top), *D. bulbifrons* Ulrich and Bassler (77 feet below top), *D. gibba* Ulrich and Bassler (82 feet below top), *D. stosei* Ulrich and Bassler (62 feet below top), *D. swartzi* Ulrich and Bassler, *D. unipunctata* Ulrich and Bassler (77 feet below top), *Eukloedenella dorsata* Ulrich and Bassler, *E. sinuata* Ulrich and Bassler (77 feet below top), *E. sinuata angulata* Ulrich and Bassler (77 feet below top), *E. sinuata proclivis* Ulrich and Bassler, *Kloedenella gibberosa* Ulrich and Bassler (82 feet below top), *K. subovata* Ulrich and Bassler, *Kyammodos tricornis* Ulrich and Bassler (77-82 feet below top), *Leperditia alta* (Conrad) Jones, *Paraechmina inaequalis* Ulrich and Bassler (77-82 feet below top), *Zygobeyrichia ventricornis* Ulrich and Bassler.

CAYUGAN (UPPER MCKENZIE FORMATION): BIG STONE GAP, VIRGINIA.

*Dizygopleura bulbifrons* Ulrich and Bassler, *D. virginica* Ulrich and Bassler.

CAYUGAN (LOWER WILLS CREEK SHALE): PINTO, MARYLAND.

*Bollia immersa* Ulrich and Bassler (45 feet above base), *B. nitida* Ulrich and Bassler (45 feet above base), *B. pulchella* Ulrich and Bassler (125 feet above base), *Bythocypris pergracilis* Ulrich and Bassler, *Eukloedenella umbilicata curta* Ulrich and Bassler, *Halliella subequata* Ulrich and Bassler (45 feet above base), *Kloedenia kenziensis* Ulrich and Bassler (100 feet below top), *K. normalis* Ulrich and Bassler (45 feet above top), *Leperditia alta* (Conrad), *L. alta brevicula* Ulrich and Bassler (182 feet below top), *L. elongata willsensensis* Ulrich and Bassler (48 feet above base), *Zygobeyrichia incipiens* Ulrich and Bassler (45 feet above base), *Z. ventricornis* Ulrich and Bassler (45 feet above base).

CAYUGAN (LOWER WILLS CREEK SHALE): FLINTSTONE, MARYLAND.

*Kloedenia longula* Ulrich and Bassler.

CAYUGAN (MIDDLE WILLS CREEK SHALE): CEDAR BLUFF, MARYLAND.

*Leperditia elongata willsensii* Ulrich and Bassler (172 feet above base).

CAYUGAN (MIDDLE WILLS CREEK SHALE, 182 FEET ABOVE BASE): FLINTSTONE, MARYLAND.

*Leperditia altoides marylandica* Ulrich and Bassler, *Kloedenia normalis* Ulrich and Bassler, *K. normalis appressa* Ulrich and Bassler.

CAYUGAN (UPPER WILLS CREEK SHALE): GRASSHOPPER RUN, NEAR HANCOCK, MARYLAND.

*Dizygopleura affinis* Ulrich and Bassler (90 feet below top), *Zygobeyrichia ventricornis obsoleta* Ulrich and Bassler (187 feet above base).

CAYUGAN (UPPER WILLS CREEK SHALE): CUMBERLAND, MARYLAND.

*Leperditia alta* (Conrad), *L. elongata willsensii* Ulrich and Bassler (235 feet above base).

CAYUGAN (BASE OF TONOLOWAY LIMESTONE): CUMBERLAND, MARYLAND.

*Kloedenella obliqua* Ulrich and Bassler.

CAYUGAN (BASE OF TONOLOWAY LIMESTONE): KEYSER, WEST VIRGINIA.

*Aparchites? punctilosa* Ulrich and Bassler, *Bythocypris phaseolina* Ulrich and Bassler, *Dizygopleura halli obscura* Ulrich and Bassler, *D. simulans* Ulrich and Bassler, *D. simulans limbata* Ulrich and Bassler, *Halliella? triplicata* Ulrich and Bassler, *Leperditia scalaris praecedens* Ulrich and Bassler, *Welleria obliqua* Ulrich and Bassler, *W. obliqua brevis* Ulrich and Bassler, *W. obliqua longula* Ulrich and Bassler.

CAYUGAN (BASE OF TONOLOWAY LIMESTONE): PINTO, MARYLAND.

*Halliella? triplicata* Ulrich and Bassler, *Leperditia alta* (Conrad), *L. scalaris praecedens* Ulrich and Bassler, *Welleria obliqua* Ulrich and Bassler and varieties.

CAYUGAN (LOWER TONOLOWAY LIMESTONE, 128 FEET ABOVE BASE): GRASSHOPPER RUN NEAR HANCOCK, MARYLAND.

*Beyrichia tonolowayensis* Ulrich and Bassler, *Dibolbina producta* Ulrich and Bassler, *Dizygopleura halli* (Jones), *Kyammodes swartzii* Ulrich and Bassler, *Leperditia mathewsi* Ulrich and Bassler, *Welleria obliqua* Ulrich and Bassler and varieties, *Zygobeyrichia modesta* Ulrich and Bassler.

CAYUGAN (TOP OF TONOLOWAY LIMESTONE): KEYSER, WEST VIRGINIA.

*Aparchites? obliquatus* Ulrich and Bassler, *Bythocypris? keyserensis* Ulrich and Bassler, *B. phaseolus* Jones, *Dibolbina cristata* Ulrich and Bassler, *Dizygopleura costata* Ulrich and Bassler, *Dizygopleura halli* Ulrich and Bassler, *D. subovalis* Ulrich and Bassler, *Halliella fissurella* Ulrich and Bassler, *Leperditia alta* (Conrad), *Octonaria muricata* Ulrich and Bassler, *Paraechmina? dubia* Ulrich and Bassler, *Zygobeyrichia regina* Ulrich and Bassler, *Z. tonolowayensis* Ulrich and Bassler, *Z. ventricornis* Ulrich and Bassler, *Z. ventripunctata* Ulrich and Bassler.

CAYUGAN (COBLESKILL WATERLIME): SCHOHARIE, NEW YORK.

*Leperditia jonesi* Hall, *L. scalaris* (Jones).

CAYUGAN (PITTSFORD SHALE): PITTSFORD, NEW YORK.

*Leperditia scalaris* Jones.

CAYUGAN (MANLIUS LIMESTONE): HERKIMER COUNTY, ETC., NEW YORK.

*Dizygopleura clarkei* (Jones), *D. halli* (Jones), *D. planata* Ulrich and Bassler, *Kloedenella rectangularis* Ulrich and Bassler, *Zygobeyrichia regina* Ulrich and Bassler, *Z. ventripunctata* Ulrich and Bassler.

CAYUGAN (LOWER MONROAN-GREENFIELD DOLOMITE): GREENFIELD, OHIO.

*Leperditia angulifera* Whitfield, *L. ohioensis* Bassler.

CAYUGAN (LOWER MONROAN-RAISIN RIVER DOLOMITE): NEWPORT, MICHIGAN.

*Kloedenia monroensis* Grabau.

CAYUGAN (KOKOMO LIMESTONE): KOKOMO, INDIANA.

*Isochilina musculosa* Foerste, *Kloedenia kokomoensis* Foerste.

CAYUGAN (VERNON SHALE): SYRACUSE, NEW YORK.

*Kloedenia normalis* Ulrich and Bassler, *Dizygopleura acuminata* Ulrich and Bassler.

SILURIAN (DENNY'S FORMATION): EASTPORT QUADRANGLE, MAINE.

*Beyrichia maccoyana* Jones var., *B. spinulosa* Boll var., *Bollia bicollina* Jones, *Cytherella concinna* Jones, *C. concinna ovalis* Jones.

SILURIAN: MOUNT WISSICK, TEMISCOUTA LAKE, QUEBEC, CANADA.

*Drepanellina confluens* Ulrich and Bassler.

SILURIAN: CAPE BON AMI, NEW BRUNSWICK, CANADA.

*Isochilina labrosa* Jones, *Primitia aequalis* Jones and Holl.

SILURIAN: ARISAIG, NOVA SCOTIA.

*Beyrichia equilatera* Hall, *B. noellingi* (Reuter), *B. pustulosa* Hall, *B. tuberculata* (Kloeden), *B. tuberculata strictispiralis* Jones, *Leperditia sinuata* Hall

SILURIAN (GOTLANDIAN) OF THE ISLAND OF GOTLAND.

[Lower (L), Middle (M) and Upper (U) divisions designated when possible.]

*Aechmina bovina* Jones (M), *A. cuspidata* Jones and Holl (M), *A. punctata* Krause (M), *Aparchites decoratus* Jones (L), *A. grandis* (Jones) (M), *A. lindstroemi* Jones (L), *A. simplex* Jones (L), *Beyrichia antiquata* (Jones) (M), *B. bicuspis* (Kiesow) (M), *B. buchiana* Jones (M, U), *B. buchiana lata* Reuter, *B. buchiana nutans* Kiesow (M), *B. clavata* Kolmodin (M), *B. cuspidata* Gronwall, *B. gotlandica* Kiesow (M), *B. grandis* Kolmodin, *B. granulata* (Jones and Holl) (M), *B. jonesii* Boll (M), *B. kochii* Boll, *B. lauensis* Kiesow (M), *B. lindstroemi* Kiesow (M), *B. lunata* Kolmodin, *B. maccoyana* Jones (M, U), *B. muldensis* Chapman (M), *B. nodulosa* Boll (M, U), *B. nodulosa expansa* Kiesow (M), *B. obsoleta* Gronwall, *B. protuberans* Boll (M), *B. salteriana* Jones, *B. scanensis* Kolmodin, *B. spinigera* Boll (M), *B. steusloffii* Krause (M), *B. torosa* (Jones), *B. tuberculata* (Kloeden), *B. tuberculata foliosa* Jones (M), *B. tuberculata lineato-tuberculata* Chapman (M), *B. tuberculata spicata* Jones (M), *B. umbonata* (Reuter) (M), *B. verruculosa* (Jones) (M), *Bursulella semiluna* Jones (M), *B. triangularis* Jones (U), *B. unicornis* Jones (M, U), *Bythocypris caudalis* Jones (L), *B. concinna* Jones (M), *B. hollii* Jones (M), *B. hollii oblonga* Jones (L, M), *B. obesa* (Jones) (L, M), *B. phaseolus* Jones (M), *B. phaseolus elongata* Jones (L), *B. phillipsiana* (Jones and Holl) (L, M), *B. phillipsiana gotlandica* Jones (L), *B. pusilla* (Jones) (L), *B. semicircularis* (Jones and Holl) (U), *B. siliqua* (Jones) (M, U), *B. symmetrica* Jones (L, M), *B. triangularis* Gronwall, *Colpos insignis* Moberg (M), *Ctenobolbina auricularis* (Jones) (M), *Cythere?? subquadrata* Jones (M), *C.??(Primitiella?) vinei* Jones (M), *Cytherella smithii* Jones (M), *Cytheropsis bisulcata* Kolmodin, *Entomis angelini* Jones, *E. inaequalis* (Jones) (M), *E. lindstroemi* Jones (U), *E. migrans* Barrande (M), *E. reniformis* (Kolmodin), *Halliella seminulum* (Jones) (M), *Kloedenia concinna* (Jones and Holl), *K. gotlandica* Chapman (M), *K. tuberculata* (Salter) (M), *K. wilkensisiana* (Jones), *Kyammodos apiculata* (Jones) (M), *K. kiesowi* (Krause), *Leperditia bathica* (Hisinger) (M), *L. grandis* (Schrenk) (M), *L. hisingeri* Schmidt (L), *L. inaequalis*

Gronwall, *L. marginata* (Keyserling), *L. nitens* Kolmodin, *L. phaseolus* (Hisinger) (M, U), *L. tuberculata* Kolmodin, *Macrocypris siliquoides* Jones (M), *M. vinei* Jones (M), *Pontocypris mawii* Jones (M), *P. mawii breviata* Jones (L), *P. mawii divergens* Jones (L), *P. mawii proxima* Jones (L), *P. smithii* Jones (M), *Primitia cristata* Jones and Holl (M), *P. fabulina* Jones and Holl (M), *P. humilis* Jones and Holl (M), *P. mundula* (Jones) (M, U), *P. ornata* Jones and Holl (M), *P. punctata* Jones (M), *P. reticristata* Jones (L, M), *P. valida* Jones and Holl (L, M), *P. valida angustata* Jones and Holl (M), *P. valida breviata* Jones and Holl, *Primitiella elongata* (Krause), *P. lævis* (Jones) (M), *P. stricta* (Jones) (M), *Primitiopsis obsoletus* (Jones and Holl) (U), *P. planifrons* Jones (M), *P. planifrons ventrosa* Jones (M), *Strepula costata* Linnarsson, *Thlipsurella plicata unipunctata* (Jones) (M), *T. tetragona* (Krause) (U), *T. v-scripta discreta* (Jones) (M), *Ulrichia molengraaffi* Kuiper (M).

#### WENLOCK OF SHROPSHIRE, ENGLAND.

B=Buildwas beds (Lower Wenlock shale); C=Coalbrook-Dale beds (Middle Wenlock shale); S=shales over Wenlock limestone; T=Tickwood beds (Upper Wenlock shales); W=Wenlock shale (undifferentiated); Wl.=Wenlock limestone; Woo=Woolhope limestone.

*Aechmina bovina* Jones (C, T), *A. brevicornis* Jones (T), *A. clavulus* Jones and Holl (Wl), *A. cuspidatus* Jones and Holl (T, C), *A. depressicornis* Jones (T), *Aparchites ovatus* (Jones and Holl) (W), *Beyrichia admixta* Jones and Holl (W), *B. granulata* (Jones and Holl) (W), *B. intermedia* (Jones) (T, S), *B. intermedia subspissa* (Jones and Holl) (W), *B. (Zygobolba) interrupta* (Jones) (B), *B. jonesii* Boll (Wl), *B. kloedeni nuda* Jones and Holl (T, S), *B. maccoyana* Jones (T, C), *B. subtorosa* (Jones) (T), *B. torosa* (Jones) (W), *B. tuberculata* (Kloeden) (W), *B. tuberculata gibbosa* Reuter (W), *Bollia bicollina* Jones and Holl (B), *B. colwallensis* (Jones) (Woo), *B. uniflexa* Jones and Holl (T), *B. vinei* Jones and Holl (B), *B. vinei mitis* Jones (B), *Bythocypris acina* Jones (W), *B. botelloides* Jones (W), *B. concinna* Jones (W), *B. concinna ovalis* Jones (W), *B. grandis* (Jones and Holl) (Woo), *B. hollii* Jones (T), *B. phaseolus* Jones (B), *B. phillipsiana* (Jones and Holl) (W), *B. phillipsiana major* Jones (T), *B. pustulosa* Jones (W), *B. reniformis* Jones (T), *B. ?seminulum* Jones (W), *B. siliqua* (Jones) (W, Woo), *B. siliqua ovata* (Jones and Holl) (W), *B. siliqua teres* (Jones and Holl) (Wl), *B. symmetrica* Jones (T, B), *B. testacella* Jones (T), *Ctenobolbina auricularis* (Jones) (W), *Cythere (Cytherella?) grindrodiana* Jones and Holl (Woo), *C. ?? hollii* Jones (W, Woo), *C. subquadrata* Jones (B), *C. (?Primitiella) vinei* Jones (B, T), *Cytherella smithii* Jones (Woo), *Entomis tuberosa* Jones (W), *Halliella seminulum* (Jones) (W), *Jonesites excavatus* (Jones and Holl) (T, Woo), *Kloedenia concinna* (Jones and Holl) (W), *K. intermedia marginata* Jones and Holl (B), *K. tuberculata* (Salter) (B, T), *K. tuberculata clausa* (Jones and Holl) (S), *K. wilckensiana* (Jones) (W), *Leperditia balthica contracta* Jones (W), *Macrocypris? alta* Jones (W), *M. ?crassula* Jones (Wl), *M. elegans* Jones (B), *M. siliquoides* Jones (B, S), *M. symmetrica* Jones (Woo), *M. vinei* Jones (B, W), *Microcheilnella corbuloides* (Jones and Holl), *Moorea? smithii* Jones (W), *Octonaria octoformis* Jones (T), *O. octoformis bipartita* Jones (S), *O. octoformis informis* Jones (T), *O. octoformis intorta* Jones (Woo), *O. octoformis monticulata* Jones (S), *O. octoformis persona* Jones (S), *O. octoformis simplex* Jones (T), *O. paradoxa* Jones (B), *O. undosa* Jones (W), *Pontocypris mawii* Jones (B, T), *P. mawii gibbera* Jones (B), *P. smithii* Jones (W, Woo), *Primitia cristata* Jones and

Holl (T), *P. (?Ulrichia) diversa* Jones and Holl (B), *P. fabulina* Jones and Holl (B), *P. (Ctenobolbina) furcata* Jones and Holl (W), *P. humilis* Jones and Holl (Woo, W), *P. ?? lenticularis* Jones and Holl (W, Woo), *P. mundula* (Jones) (W), *P. obliquipunctata* Jones (Woo), *P. ornata* Jones and Holl (Woo, T), *P. paucipunctata* (Jones and Holl) (T, Woo), *P. ?punctata* Jones (B, S), *P. pusilla* Jones and Hol. (W), *P. renulina* Jones and Holl (Wl), *P. roemeriana* Jones and Holl (W, Wl), *P. tersa* Jones and Holl (W), *P. trigonalis* Jones and Holl (W), *P. umbilicata* Jones and Holl (T), *P. valida* Jones and Holl (T, S), *P. valida angustata* Jones and Holl (S), *P. valida breviata* Jones and Holl (S), *P. variolata* Jones and Holl (S), *Steusloffia beyrichioides* (Jones and Holl) (T), *Strepula concentrica* Jones and Holl (W), *S. irregularis* Jones and Holl (T), *Tetradella? lacunata* (Jones and Holl) (T), *Thlipsura corpulenta* Jones and Holl (Woo, Wl, W), *Thlipsurella angulata* (Jones) (S), *T. plicata* (Jones) (S), *T. plicata bipunctata* (Jones) (S), *T. plicata unipunctata* (Jones) (S), *T. tuberosa* (Jones and Holl) (T), *T. v-scripta* (Jones and Holl) (W, Wl), *Ulrichia aequalis* (Jones and Holl) (W), *U. (Kloedenia?) cornuta* (Jones and Holl) (B).

#### SILURIAN (LUDLOW) OF ENGLAND.

L=Lower; U=Upper.

*Beyrichia antiquata* (Jones) (L), *B. kloedeni pauperata* (Jones and Holl) (U), *B. torosa* (Jones) (U), *Bolbozoe divisa* (Jones) (L), *Bythocypris concinna* Jones, *Entomis depressa* Jones (U), *E. marstoniana* Jones (L), *E. reniformis* (Kolmodin) (L), *Kirkbya fibula* Jones and Holl (U), *Kloedenia intermedia* (Jones and Holl), *Leperditia balthica contracta* Jones, *L. marginata* (Keyserling) (Downtonian), *Moorea silurica* Jones and Holl (U), *Primitia umbilicata* Jones and Holl.

#### SILURIAN OF THURINGIA, GERMANY.

*Beyrichia subcylindrica* Richter, *B. torosa* (Jones), *Kloedenia intermedia* (Jones and Holl), *K. wilckensiana* (Jones), *Primitia? armata* Richter, *P. cylindrica* (Richter).

#### SILURIAN OF WALES.

*Beyrichia antiquata* (Jones), *B. (Bollia) comma* Jones, *B. gibba* Salter, *B. impendens* Jones, *Bolbozoe divisa* (Jones), *Bythocypris semicircularis* (Jones and Holl), *Entomis globulosa* Jones, *Halliella seminulum* (Jones), *Kloedenia wilckensiana* (Jones).

#### SILURIAN OF SCOTLAND.

[A=Ayrshire; P=Peeblesshire; Pen=Pentland Hills.]

*Bairdia? browniana* Jones (P), *Beyrichia? (Bollia) comma* Jones (A), *B.? impendens* Jones (A, P), *B. impendens tuberosa* Jones (P), *Bolbozoe scotica* Jones (Pen), *Cyprosis haswellii* Jones (Pen), *Entomis aciculata* Jones (P), *E. globulosa* Jones (A, Pen), *E. haswelliana* Jones (Pen), *E. impendens* Haswell (Pen), *E. tuberosa* Jones (Pen), *Kloedenia scotica* (Jones and Holl) (A), *Pontocypris aldensis major* Jones (A), *P. grayana* (Jones) (A), *Primitia barrandiana* Jones (A), *P. protenta* Jones (P), *Ulrichia grayae* Jones (A).

#### SILURIAN DRIFT OF HOLLAND, NORTH GERMANY, AND BALTIC PROVINCES.

B=Beyrichia limestone; Bo=Borkholm limestone; E=Encrinurus limestone; G=Graptolite beds; L=Leperditia limestone.

*Aechmina bovina* Jones (E), *A. molengraffi* Botke, *A. punctata* (Krause) (G), *Aparchites inaequalis* Kummerow (B), *A. ovatus* (Jones and Holl) (B, E), *A. simplex* Jones (E), *Apatobolbina platygaster* Kummerow (E), *Bairdia elongata* Kummerow (L), *B. tumida* Kummerow, *Barychilina substriatula*

Kummerow (B), *Beyrichia acutiloba* Kummerow (B), *B. antiquata* (Jones), *B. baueri* Reuter (B), *B. baueri tripartita* Reuter, *B. bolliana* Reuter, *B. borussica* Kiesow (B), *B. bronni* Reuter (B), *B. buchiana* Jones (B), *B. buchiana angustata* Reuter, *B. buchiana incisa* Reuter, *B. buchiana lata* Reuter (B), *B. buchiana-tuberculata* Reuter (B), *B. cincta* Boll, *B. clavata* Kolmodin (E), *B. dalmaniana* Jones (B), *B. elegans* Boll, *B. gedanensis* (Kiesow) (B), *B. gotlandica* (Kiesow) (E), *B. jonesii* Boll (E), *B. kloedeni nuda* Jones and Holl, *B. Kochii* Boll (B), *B. lindstromi* Kiesow, *B. maccoyiana* Jones (B), *B. maccoyiana lata* Reuter (B), *B. maccoyiana sulcata* Reuter (B), *B. nodulosa* Boll (B), *B. nodulosa expansa* (Kiesow) (E), *B. noellingi* Reuter (B), *B. noellingi conjuncta* Reuter (B), *B. nuda* (Jones) (B), *B. obliqua* Kummerow (G), *B. primitiva* Verworn (E), *B. protuberans* Boll (B), *B. pustulosa* Hall, *B. reuteri* Krause (G), *B. salteriana* Jones (B), *B. scanensis* Kolmodin (B), *B. spinigera* Boll (E), *B. spinulosa* Boll, *B. steusloffi* Krause (B), *B. tuberculata* (Kloeden), *B. tuberculata antiquata* Jones (B), *B. tuberculata bigibbosa* Reuter, *B. tuberculato-buchiana* Reuter (B), *B. tuberculata gibbosa* Reuter (B), *B. tuberculato-kochiana* Reuter (B), *B. umbonata* (Reuter) (E), *Beyrichiella bifurcata* Kummerow (B), *Bollia rotundata* Krause (E), *B. semicircularis* Krause (E), *B.? sinuata* Krause (E), *B. tricollina* Kummerow (B), *Bythocypris? cornuta* Krause (E), *B. hollii* Jones (E), *B. humeralis* Kummerow (B), *B. phillipsiana* (Jones and Holl) (E, B), *B. reniformis* Jones, *B. rostrata* (Krause) (E), *B. semicircularis* (Jones and Holl) (B, E), *B. siliqua* (Jones) (B, E, G), *Ctenobolbina diensti* Kummerow (G), *Cytherella minima* Kummerow (B), *Dizygopleura hieroglyphica* (Krause) (B), *Euprimitia compta* Kummerow (B), *Halkiella seminulum* (Jones), *H. umbonata* Kummerow (B), *Jonesites auricularis* (Kummerow) (B), *Kirkbya minima* Kummerow (B), *Kloedenia cribrata* Kummerow (B), *K. globifera* (Krause), *K. wilckensiana* (Jones) (B), *K. wilckensiana plicata* (Jones) (B), *Krausella spinata* Kummerow (E), *Kyammodes kiesowi* (Krause) (B), *Laccoprimitia borussica* Kummerow (L), *Leperditia balthica* (Hisinger), *L. balthica contracta* Jones, *L. balthica formosa* Chmielewski, *L. brachynotus* Schmidt, *L. chmielewskii* Schmidt, *L. conspersa* Kiesow, *L. dossi* Chmielewski, *L. eichwaldi* Schmidt, *L. grandis* (Schrenk), *L. grandis poniewieshensis* Chmielewski, *L. gregaria* Kiesow, *L. gregaria arcticoidea* Kiesow, *L. gregaria ardua* Kiesow, *L. gregaria coccinella* Chmielewski, *L. gregaria conoidea* Chmielewski, *L. gregaria semigallensis* Chmielewski, *L. gregaria tumulosa* Chmielewski, *L. hisingeri* Schmidt, *L. hisingeri abbreviata* Schmidt, *L. hisingeri angulata* Lebedoff, *L. keyserlingi* Schmidt, *L. lithuanica* Chmielewski, *L. lithuanica intermedia* Chmielewski, *L. marginata* Keyserling, *L. obesa* Kummerow (L), *L. pectinata* Schmidt, *L. phaseolus* (Hisinger) (B), *L. phaseolus lata* Chmielewski, *L. phaseolus subpentagona* Kiesow, *L. pustulosa* Kummerow (L), *L. schellwieni* Chmielewski, *L. tyraica* Schmidt, *L. vandatica* Kummerow, *Macrocypis vinei* Jones (B), *Macronotella praelonga* (Steusloff) (Bo), *Octonaria bifasciata* Krause (E), *O. bollii* Steusloff (B), *O. elliptica* Krause (E), *O. perplexa* Kummerow (B), *O. simplex* (Krause) (B, E), *Pontocypris mawii* Jones (E), *Primitia bassleri* Kummerow (E), *P. (Primitiella?) beyrichiana* Jones and Holl, *P. binodis* Krause, *P. canaliculata* Steusloff (Bo), *P. carinata* Jones and Holl, *P. (?Eurychilina) elongata obliqua* Steusloff (Bo), *P. limbata* Kummerow (B), *P. mundula* (Jones) (B), *P. obliquipunctata* Jones, *P. ornata* Jones and Holl (B), *P. par-*



*allela* Kummerow (B), *P.?* *praerupta* Steusloff (B), *P. punctata* Steusloff (B), *P. reticristata* Jones, *P.?* *rugosa* Steusloff (Bo), *P.?* *striata* Krause (E), *P. umbilicata* Jones and Holl, *P. valida* Jones and Holl, *Primitiopsis oblongus* (Jones and Holl) (B), *P. obsoletus* (Jones and Holl) (B), *Steusloffia simplex* (Krause), *Strepula?* *costata* (Linnarsson) (B), *Tetradella marchica lata* (Krause), *Thlipsura triloba* Kummerow (B), *Thlipsurella personata* (Krause) (E), *T. tetragona* (Krause) (B, E), *T. v-scripta discreta* (Jones) (B, E), *Welleria primitioides* Kummerow (L), *Zygobolba damesii* (Krause) (E).

#### SILURIAN OF BALTIC PROVINCES.

*Leperditia brachynotus* Schmidt (Borkholm), *L. hisingeri* Schmidt (zone G), *L. obliqua* Schmidt (Borkholm), *L. ornata* Eichwald (Oesel), *L. phaseolus* (Hisinger) (Oesel), *Primitia strangulata crenulata* Schmidt (Borkholm).

#### SILURIAN OF BOHEMIA, CZECHOSLOVAKIA.

*Beyrichia bilczensis* Alth, *B. idonea* Venukoff, *B. inclinata* Venukoff, *B. (?Kloedenia) inornata* Alth, *B. (?Bollia) podolica* Alth, *B. reussi* Alth, *B. salteriana* Jones, *Bolbozoe anomala* Barrande (E2), *B. bohémica* Barrande (E2), *Entomis dimidiata* Barrande (E2, F2), *E. migrans* Barrande (E2), *E. reniformis* Venukoff, *E. tuberosa* Jones (F2), *Hippa rediviva* Barrande (E2), *Isochilina? formosa* Barrande (E2), *Kloedenia wilckensiana* (Jones), *Leperditia rarissima* Barrande (E2), *L. solitaria* Barrande (E2), *L. tyraica* Schmidt, *Primitia muta* Jones and Holl, *P. rectangularis* Alth.

#### SILURIAN OF YUN-NAN, CHINA.

*Cytherella(?) mientiensis* Grabau, *Entomis corduroides* Grabau, *Leperditia changyiensis* Grabau, *L. miaokensis* Grabau, *L. subscalaris* Grabau, *L. tingi* Grabau.

#### SILURIAN OF NORWAY.

*Leperditia balthica* (Hisinger) (Island of Malmo, Bay of Christiania), *L. hisingeri* Schmidt (Island of Malmo), *L. norvegica* Kiaer, *L. phaseolus* (Hisinger).

#### SILURIAN OF PODOLIA.

*Bairdia protracta* Eichwald, *Beyrichia bilczensis* Alth, *B. idonea* Venukoff, *B. inclinata* Venukoff, *B. (?Kloedenia) inornata* Alth, *B. (Bollia?) podolica* Alth, *B. reniformis* Venukoff, *B.?* *reussi* Alth, *Bythocypris concinna* Jones, *Primitia muta* Jones and Holl, *P. rectangularis* Alth, *Primitiopsis oblonga* Jones and Holl, *P. obsoletus* Jones and Holl.

#### SILURIAN OF POLAND.

*Antitomis bisulcata* Gürich, *Aparchites lindstroemii* Jones, *Beyrichia salteriana* Jones, *Cypridina polonica* (Gürich), *Entomis migratoria* Gürich, *Kloedenia wilckensiana* (Jones).

#### SILURIAN (CARDIOLA LIMESTONE): SARDINIA.

*Aparchites grecoi* Canavari, *A. pygmaeus* Canavari, *Bolbozoe bohémica* Barrande, *B.?* *capellinii* Canavari, *B.?* *italica* Canavari, *B.?* *lanceolata* Canavari, *Cypridina tyrrhenica* Canavari, *Entomis amygdaloides* Canavari, *E. dimidiata* Barrande, *E. ichnusae* Canavari, *E. lamarmorai* Canavari, *E. meneghini* Canavari, *E. migrans* Barrande, *E. parvula* Canavari, *E. pteroides* Canavari, *E. subreniformis* Canavari, *E. tuberosa* Jones, *E. zoppii* Canavari, *Kloedenia lovisatoi* Canavari.

#### SILURIAN (POSIDONOMYA SKIFFER): SCANIA, SWEDEN.

*Colpos insignis* Moberg, *Cypridina? obtusa* Moberg, *C. tosterupi* Moberg, *Eoconchoecia? imbecilis* Moberg, *E. mucronata* Moberg.

## SILURIAN (DALMANITES BEDS): ROSTANGA, SCANIA, SWEDEN.

*Aechmina gronwalli* Troedsson, *Bollia biplicata* Troedsson, *B. harparum* Troedsson, *Ctenobolbina rara* Troedsson, *C. sexpapillosa* Troedsson, *Eurychilina bursa scanensis* (Troedsson), *Jonesina rectangularis* Troedsson, *Primitia biloba* Troedsson, *P. conica* Troedsson, *P. harparum* Troedsson, *Primitiella tenera* (Linnarfsson),

SILURIAN (CAPE SCHUCHERT FORMATION): CAPE SCHUCHERT, NORTH GREENLAND.  
*Ceratocypris symmetrica* Poulsen.

## SILURIAN: VICTORIA, AUSTRALIA (MISCELLANEOUS).

*Beyrichia kilmoriensis* Chapman, *B. ligatura* Chapman, *B. maccoyiana australis* Chapman, *B. wooryallockensis* Chapman.

## SILURIAN: NEW SOUTH WALES, AUSTRALIA.

*Beyrichia tuberculata* (Kloeden), *Eniomis tuberosa* Jones, *Kloedenia australis* Chapman, *K. fifieldensis* Chapman, *K. tuberculata* (Salter), *Leperditia shearsbii* Chapman, *Primitiella elongata parallela* Chapman.

## SILURIAN (YERINGIAN): CAVE HILL, LILYDALE, VICTORIA, AUSTRALIA.

*Aechmina jonesi* Chapman, *Aparchites subovatus* Jones, *Bythocypris acuta?* (Jones and Kirkby), *B. caudalis* Jones, *B. hollii* Jones, *B. phaseolus elongata* Jones, *B. semicircularis* Jones and Holl, *Isochilina labrosa* Jones, *Macrocypris flexuosa* Chapman, *M. vinei* Jones, *Pachydomella wrightii oblonga* Chapman, *Primitia halli* Chapman, *P. matutina* Jones and Holl, *P. paucipunctata* (Jones and Holl), *P. punctata* Jones, *P. reticristata* Jones, *P. semicultrata* Chapman, *P. striata* Krause, *P. subtrigonalis* Chapman, *P. trigonalis* Jones and Holl, *Primitiella elongata nuda* Jones, *P. unicornis?* Ulrich, *Primitiopsis obsoletus* (Jones and Holl), *Xestoleberis holliana* Chapman, *X. lilydalensis* Chapman.

## SILURIAN OF PETSCHORA LAND AND TIMAN, RUSSIA.

*Leperditia balthica* (Hisinger), *L. marginata* (Keyserling), *L. marginata rotundata* Schmidt, *L. hisingeri angulata* Lebedoff, *L. subparallela* (Schmidt), *L. timanica* Lebedoff.

## SILURIAN OF WAIGATSCH ISLAND, ARCTIC SEA, RUSSIA.

*Leperditia lindstroemi* Schmidt, *L. lindstroemi mutica* Schmidt, *L. nordenskjoldi* Schmidt, *L. waigatschensis* Schmidt.

## SILURIAN OF KOTELNY ISLAND, SIBERIA.

*Leperditia arctica* Jones, *L. czesskii* Boll, *L. keyserlingi* Schmidt, *L. kotelnyensis* Boll, *L. sannikowi* Boll.

## SILURIAN OF RUSSIA (MISCELLANEOUS).

*Isochilina maakii* Schmidt (East Siberia), *Leperditia foveolata* Eichwald (Talkhof), *L. grandis uralensis* Schmidt (Urals), *L. parallela* Schmidt (East Siberia), *L. tyraica* Schmidt (Galicia), *L. wiluensis* Schmidt (East Siberia).

## SILURIAN (MISCELLANEOUS).

Bolivia (Mount Illampu): *Beyrichia?forbesii* Jones.

Brazil (Rio Trombetas): *Beyrichia brasiliensis* (Clarke).

England (Westmoreland): *Primitia protenta* Jones.

France: *Cytheropsis subtestis* Tromelin and Lebesconte.

Greenland (Cape Calhoun beds, Cape Calhoun): *Leperditia ulrichi* Troedsson.

Ireland (Upper Llandoverly, County Galway): *Beyrichia kloedeni* McCoy.

Wales (Llandoverly, Montgomeryshire): *Jonesella hemidiscus* (Wade).

## DEVONIAN FAUNAS

## HELDERBERGIAN (KEYSER FORMATION): WESTERN MARYLAND AND KEYSER, WEST VIRGINIA.

*Aparchites gordonii* Ulrich and Bassler, *Bythocypris punctulata arctata* Ulrich and Bassler, *Ctenobolbina denticulata* Ulrich and Bassler, *C.?* *dubia* Ulrich and Bassler, *Halliella? seminulum longa* Ulrich and Bassler, *H. triplicata* Ulrich and Bassler, *Kloedenella clarkei* (Jones), *K. clarkei paupera* Ulrich and Bassler, *K. pennsylvanica* (Jones), *K. turgida* Ulrich and Bassler, *K. turgida ventrosa* Ulrich and Bassler, *Kloedenia barretti* (Weller). *K. centricornis* Ulrich and Bassler, *K. fimbriata* Ulrich and Bassler, *K. kummelli* (Weller), *K. nearpassi* (Weller), *K. sussexensis* (Weller), *Leperditia alta* (Conrad), *L. altoides* Weller, *L. elongata* Weller, *L. gigantea* Weller, *Mesomphalus hartleyi* Ulrich and Bassler, *M. submarginata* Ulrich and Bassler, *Octonaria altoonensis* Swartz (Pennsylvania), *O. angulata* Ulrich and Bassler, *O. inaequalis* Ulrich and Bassler, *O. simplex* (Krause), *Pachydomella longula* Ulrich and Bassler, *Pontocypris arcuata* Ulrich and Bassler, *P. mawi breviata* Jones, *Primitia cumberlandica* Ulrich and Bassler, *Strepula irregularis* Jones and Hall.

## HELDERBERGIAN (KEYSER FORMATION—MANLIUS MEMBER): MANLIUS, NEW YORK.

*Kloedenia barretti* Weller, *K. kummelli* Weller, *K. sussexensis* Weller, *Leperditia jonesi* Hall, *L. parvula* Hall.

## HELDERBERGIAN (DECKER FERRY ZONE): DALHOUSIE, NEW BRUNSWICK, CANADA.

*Kloedenia manliensis* (Weller), *K. marginalis* Ulrich and Bassler, *K. punctilosa* Ulrich and Bassler, *K. retifera* Ulrich and Bassler, *K. sussexensis* (Weller).

## HELDERBERGIAN (MANLIUS—RONDOUT = KEYSER): 2 MILES SOUTH OF TRISTATES, NEW YORK.

*Kloedenella halli* (Jones), (Herkimer County, New York), *K. trisulcata* (Hall), (Herkimer County, New York). *Kloedenia fimbriata* Ulrich and Bassler (Herkimer County, New York), *K. kummelli* (Weller), *K. manliensis* (Weller), *K. montaguensis* (Weller), *K. notata* (Hall) (Herkimer County, New York), *K. smocki* (Weller) *K. wallpackensis* (Weller). *Leperditia alta* Weller, *L. altoides* Weller, *L. elongata* Weller, *L. gigantea* Weller.

## HELDERBERGIAN (DECKER FERRY = KEYSER): 2 MILES SOUTH OF TRISTATES, NEW YORK.

*Bythocypris nearpassi* Weller, *Kloedenia barretti* (Weller), *K. jerseyensis* (Weller), *K. manliensis deckerensis* (Weller), *K. nearpassi* (Weller), *K. sussexensis* (Weller), *Leperditia altoides* Weller.

## HELDERBERGIAN: PERRY COUNTY, PENNSYLVANIA.

*Bythocypris oviformis* Jones, *Leperditia subquadrata* Jones.

## HELDERBERGIAN (NEW SCOTLAND SHALE): ALBANY COUNTY, NEW YORK.

*Acanthoscapha angularis* Ulrich, *A. cristata* Ulrich, *A. navicula* Ulrich, *A. ovata* Ulrich, *A. subtumida* Ulrich, *A. subtumida intermedia* Ulrich, *Aechmina bovina* Jones, var., *A. cuspidata* Jones and Holl, *Beecherella carinata* Ulrich, *Bythocypris caudalis* Jones, *B. cornuta* Krause, *B. holli* Jones, *B. phillipsiana* Jones and Holl, *B. symmetrica* Jones, *B. testacella*, Jones, *Ctenobolbina granosa* Ulrich, *Kloedenia parasitica* (Holl) (Herkimer County, New York), *Kyamodes notata ventricosa* (Hall), *Macrocypris vinei* Jones.

## HELDERBERGIAN (NEW SCOTLAND SHALE): WEST MARYLAND AND WEST VIRGINIA.

*Aechmina cuspidata* Jones and Holl, *Bollia irregularis* Ulrich and Bassler.

DEVONIAN CORRELATION TABLE

New York	Tennessee, Oklahoma, etc.	Ohio Valley	Bohemia	Eifel, Harz Saurland, etc.	South Devon
<p>Chautauquan Chemung—Catskill Portage beds (Naples—Ithaca) Wiscoy sh. Nunda ss. Gardeau sh. Hatch sh. Rhinstreet sh. Cashaqua sh. Middlesex sh. West River sh. Genundewa ls. Genesee black sh. Tully ls.</p>		<p>New Albany sh. (Lower part)</p>		<p>Cypridina beds Clymenia beds Nendener beds Adorfer ls. Büdasheim beds Cuboides beds</p>	<p>Entomis beds  Lummaton shell beds, etc. Torquay ls.</p>
<p>(Upper Devonian)</p>			<p>Stringocephalus beds (H<sub>1</sub>H<sub>2</sub>) Cephalopod ls. (G<sub>2</sub>) Tentaculite sh. (G<sub>2</sub>) Mnenian ls. (G<sub>1</sub>)</p>	<p>Stringocephalus beds (Givetian)  Calecia beds (Eifelian)  Cultrijugatus beds</p>	<p>Hopes Nose ls.  Daddy Hole ls.</p>
<p>Hamilton Moscow sh. Menteth ls. (Enocrinal ls.) Ludlowville sh. (includ- ing Tichenor ls. and Centerfield ls.) Skaneateles sh. (Staff- ord ls. at base) Marcellus sh. Onondaga ls. Schoharre grit Decewille ls.</p>	<p>Pegram ls.  Clear Creek chert (Camden)  Linden (Haragan)</p>	<p>Sellersburg ls. Silver Creek dol. Jeffersonville ls. (Columbus ls.)</p>	<p>Koniepruss ls. (F<sub>3</sub>)</p>	<p>Coblenzian beds (Kahleburg ss.) Hunsrück beds Tanus quartzite (Gédinnian beds)</p>	<p>Meadfoot beds Dartmouth slate</p>
<p>Oriskanian  Lower Helder- bergian (Lower Devonian)</p>					
<p>Esopus grit Oriskany ss. (Shriver) Port Ewen ls. Alsen ls. Becraft ls. New Scotland ls. Kalkberg ls. Coeymans ls. Keyser ls. (Upper Manlius)</p>					

**HELDERBERGIAN (HARAGAN SHALE): PONTOTOC AND MURRAY COUNTIES, OKLAHOMA.**

*Aechmina geneae* Roth, *A. inequalis* Roth, *Aparchites variolatus huntensis* Roth, *Amphissites primaevus* Roth, *A. retiferus* Roth, *Beyrichia fittsi* Roth, *Bollia haraganensis* Roth, *Bythocypris simplex* Roth, *B. transversa* Roth, *Condacypris binoda* Roth, *C. simplex* Roth, *Cytherella quaesita* Roth, *Dizygopleura landesi* Roth, *D. obliqua* Roth, *D. recta* Roth, *Janusella biceratina* Roth, *Octonaria inaequalis* Ulrich and Bassler, *O. punctata* Roth, *Paraechmina ambigua* Roth, *Phanassymetrica quadrupla* Roth, *P. triserrata* Roth, *Pontocypris smithi magna* Roth, *Thlipsurella curvistriata* (Roth), *T. fossata* (Roth), *T. furca* (Roth), *T. moorei* (Roth), *T. muricurvea* (Roth), *T. parallela* (Roth), *T. primitiva* (Roth), *T. striatopunctata* (Roth).

**HELDERBERGIAN (COEYMANS LIMESTONE): NEW YORK:**

*Leperditia hudsonica* Hall (Hudson, N. Y.); *Kloedenia oculina* (Hall) (Schoharie County, New York).

**ORISKANY (SHRIVER CHERT): 21ST BRIDGE, NEAR KEYSER, WEST VIRGINIA.**

*Aechmina cuspidata* (Jones and Holl), *Bollia americana* Ulrich and Bassler, *B. curta* Ulrich and Bassler, *B. jugalis* Ulrich and Bassler, *B. ungula* Jones, *Primitia concentrica* Ulrich and Bassler, *P. posturgida* Ulrich and Bassler, *Primitiella variolata*, *Thlipsura multipunctata* Ulrich and Bassler, *T. oblonga* (Ulrich and Bassler), *T. robusta* (Ulrich and Bassler), *Ulrichia affinis*, new name.

**ORISKANY (SHRIVER CHERT): HOLLIDAYSBURG, ETC., PENNSYLVANIA.**

*Octonaria deltilsulcata* Swartz, *O. dorsosulcata* Swartz, *Thlipsura confluens* Swartz, *T. robusta* Ulrich and Bassler, *T. robusta tricornis* Swartz, *Thlipsurella crateriformis* Swartz, *T. curtinensis* Swartz, *T. ellipsocefta* Swartz, *T. oblonga* (Ulrich and Bassler), *T. orthocefta* Swartz, *T. secoclefta* Swartz.

**ONONDAGA LIMESTONE (MISCELLANEOUS).**

*Beyrichia pennsylvanica* Jones (Barre Forge, Pennsylvania). *Leperditia cayuga* Hall (near Cayuga, New York), *L. spinulifera* Hall.

**ONONDAGA LIMESTONE: ONTARIO COUNTY, NEW YORK.**

*Beyrichia kloedeni* McCoy var., *Bollia bilobata* Jones, *B. subquadrata* (Jones), *Moorea kirkbyi* Jones, *Primitia clarkei* Jones.

**ONONDAGA (JEFFERSONVILLE LIMESTONE): FALLS OF THE OHIO, LOUISVILLE, KENTUCKY.**

*Aechmina marginata* Ulrich, *Barychilina oblonga* Ulrich, *B. pulchella* Ulrich, *B. puncto-striata* Ulrich, *B. puncto-striata curta* Ulrich, *Bollia obesa* Ulrich, *B. ungula* Jones, *Bythocypris devonica* Ulrich, *B. indianensis* Ulrich, *Ctenobolbina papillosa* Ulrich, *Halliella retifera* Ulrich, *Hollina antespinosa* (Ulrich), *H. armata* (Ulrich), *H. cavimarginata* (Ulrich), *H. informis* (Ulrich), *H. insolens* (Ulrich), *H. kolmodini* (Jones), *H. spiculosa* Ulrich, *Kirkbya cymbula* Ulrich, *K. germana* Ulrich, *K. parallela* Ulrich, *K. semimuralis* Ulrich, *K. subquadrata* Ulrich, *Macronotella? rectangularis* (Ulrich), *Microcheilinella punctulata* (Ulrich), *Octonaria clavigera* Ulrich, *O. linnarssoni* Jones, *O. ovata* Ulrich, *O. stigmata* Ulrich, *O. stigmata loculosa* Ulrich, *O. stigmata oblonga* Ulrich, *Pachydomella tumida* Ulrich, *Paraparchites subrotunda* (Ulrich), *Primitiella inornata* Ulrich, *Treposeella lyoni* Ulrich.

**TRAVERSE GROUP OF MICHIGAN.**

(Bell shale = B; Thunder Bay series = T; Gravel Point stage = G; Long Lake series = L).

*Amphissites diadematus* Van Pelt (B), *A. subquadratus* (Ulrich) (B, T), *A. tenuis* Warthin (G), *Cytherella quaesita* Roth (B), *Dizygopleura euglypha*

Warthin (G), *D. oblonga* Warthin (L), *D. trisinuata* Van Pelt (B), *Entomis rugatulus* Van Pelt (B), *Euglyphella sigmoidalis* (Jones) (G), *E. sigmoidalis primitiva* Warthin (B), *Graphiodactylus catenulatus* Van Pelt (B), *Halliella bellipuncta* (Van Pelt) (B, T), *Hollina devoniana* Van Pelt (B), *Hyphasma-phora textiliger* Van Pelt (B, G), *Monoceratina casei* Warthin (T), *Octonaria crescentiformis* Van Pelt (B, G), *O. nucleolata* Warthin (B), *O. quadricostata* Van Pelt (B, G), *O. singularis* Van Pelt (B), *Poloniella cingulata* Warthin (G), *Primitiopsis unicornis* Van Pelt (B), *Ropolonellus papillatus* Van Pelt (B), *Tetradella cicatricosa* Warthin (T), *Thlipsurella ehlersi* Warthin (G), *T. swartzi* Warthin (L), *Ulrichia conradi* Jones (T), *Welleria aptonensis* Warthin (Upper Traverse).

HAMILTON (MARCELLUS): NEAR BLOOMFIELD, PERRY COUNTY, PENNSYLVANIA.

*Bollia ungula* Jones, *Bythocypris favulosa* Jones, *Primitia pennsylvanica* (Jones).

HAMILTON: ONTARIO COUNTY, NEW YORK.

*Leperditia seneca* Hall.

HAMILTON: DELPHI FALLS, CAZENOVIA, NEW YORK.

*Cypridina buprestis* Rolle.

HAMILTON (LUDLOWVILLE-WIDDER): THEDFORD AND ARKONA, ONTARIO, CANADA.

*Amphissites subquadratus* Ulrich, *Barychilina walcotti* (Jones), *Bollia abnormis* Ulrich, *B. obesa* Ulrich, *Hollina kolmodini* (Jones), *Moorea bicornuta* Ulrich, *Primitiopsis punctulifera* Hall, *Ulrichia conradi* Jones, *U. fragilis* Warthin.

HAMILTON (LUDLOWVILLE SHALE): CANANDAIGUA LAKE, NEW YORK.

*Amphissites parallela* Ulrich, *Halliella retifera* Ulrich, *Hollina kolmodini* Jones, *Isochilina lineata* Jones, *Leperditia punctulifera* Hall, *Moorea bicornuta* Ulrich, *Octonaria stigmata* Ulrich, *Primitiella fabacea* (Jones), *Strepula sigmoidalis* Jones.

HAMILTON (LUDLOWVILLE-WANAKAH SHALE): 18-MILE CREEK, NEW YORK.

*Aechmina marginata* Ulrich, *Bairdia leguminoides* Ulrich, *Barychilina rhomboidea* Jones, *Beyrichia hamiltonensis* Jones, *Bollia hindei* Jones, *Ctenobolbina minima* Ulrich, *Euglyphella sigmoidalis* Jones, *Halliella seminulum* (Jones) var., *Hollina tricollina* (Ulrich), *Moorea bicornuta* Ulrich, *Primitiella fabacea* (Jones), *Primitiopsis punctulifera* Hall.

DEVONIAN: LAKE WINNEPEGOSIS, CANADA.

*Aparchites billingsi* (Jones), *Isochilina dawsoni* Jones, *Leperditia(?) exigua* Jones.

DEVONIAN: GREAT SLAVE LAKE, BRITISH COLUMBIA, CANADA.

*Primitia scitula* Jones.

DEVONIAN: HAY RIVER, CANADA.

*Isochilina bellula* Jones, *Primitia scitula* Jones.

DEVONIAN: ATHABASCA RIVER, CANADA.

*Primitiella mitis* Jones.

DEVONIAN (SILICA SHALE): NEAR SILICA, LUCAS COUNTY, OHIO.

*Bythocypris indianensis* Ulrich, *Cytherella? bispinulata* Stewart, *Isochilina scapha* Stewart, *Paraparchites subrotunda* (Ulrich).

GENESEE SHALE: MOSCOW, NEW YORK.

*Beyrichia dagon* Clarke.

TULLY LIMESTONE: CANANDAIGUA LAKE, NEW YORK.

*Entomis prosephina* Loomis.

DEVONIAN (NAPLES SHALE): UNION COUNTY, ETC., NEW YORK.

*Entomis (Richteria) serratostratus* Sandberger, *Primitia (Barychilina) variostriata* Clarke.

## UPPER DEVONIAN, KINGS MILL, PERRY COUNTY, PENNSYLVANIA.

*Kloedenia simplex* Jones.

## DEVONIAN: WHITE PINE DISTRICT, NEVADA.

*Beyrichia occidentalis* Walcott, *Leperditia rotundata* Walcott.

## DEVONIAN (PORTAGE-SIMPSON SHALE): MACKENZIE RIVER, 5 MILES ABOVE RABBIT-SKIN RIVER, CANADA.

*Entomis brookei* Kindle, *E. (Richteria) serratostrata* Sandberger, *Primitia (Barychilina) variostrata* (Clarke).

## DEVONIAN (KILN SHALE): ALBERTA, CANADA.

*Entomis nodosa* Burgess, *Primitia (Barychilina) variostrata* (Clarke).

## LOWER DEVONIAN: CAMPBELLTOWN, NEW BRUNSWICK.

*Primitia scaphoides* Jones.

## DEVONIAN: CAPE BON AMI, NOVA SCOTIA.

*Beyrichia* (?*Kloedenia*) *acadica* (Jones).

## DEVONIAN: ELLESMERELAND, ARCTIC AMERICA.

*Beyrichia sverdrupi* Tolmachoff, *Bollia bulbosa* Tolmachoff, *B. papillata* Tolmachoff, *B. protuberata* Tolmachoff, *Bythocypris devonica* Urich, *B. ovoida* Tolmachoff, *B. ventricosa* Tolmachoff, *Cooperia granum* Tolmachoff, *Ctenobolbina reversa* Tolmachoff, *Ellesmeria cylindrica* Tolmachoff, *E. ovata* Tolmachoff, *Kirkbya dubia* Tolmachoff, *Leperditella minuta* Tolmachoff, *Leperditia brevis* Tolmachoff, *L. minuta* Tolmachoff, *L. symmetrica* Holtedahl, *Palaeocythere typa* Tolmachoff, *Primitia arctica* Holtedahl, *P. oblonga* Tolmachoff, *P. ventricosa* Tolmachoff.

## LOWER DEVONIAN (GEDINNIAN): BELGIUM.

*Beyrichia richteri* Koninck, *Kloedenia (Gibba) spinosa* (Fuchs), *Primitia? jonesii* Koninck.

## MIDDLE DEVONIAN (GIVETIEN): BELGIUM.

*Leperditia (Briartina) quenstedti* Gumbel, *L. consobrina* Jones, *L. (?Briartina) obtusa* (Jones), *Paraparchites okeni gracilis* (Jones).

## UPPER DEVONIAN: LES ABANNETS, ETC., BELGIUM.

*Bollia belgica* Matern, *Dizygopleura neodevonica* Matern, *Drepanellina? laqueus* Matern, *Entomis (Richteria) calcarata* (Richter), *E. (Richteria) serratostrata* (Sandberger), *Eridoconcha materni* new name, *Haploprimitia concentrica* Matern, *H. concentrica inflata* Matern, *Nehdentomis tenera* (Gurich), *Primitia sandbergeri* Matern, *Tetrasulcata fluens* Matern.

## DEVONIAN: BOSPORUS.

*Beyrichia roemeri* (Keyser), *Zygobeyrichia devonica* (Jones and Woodward).

## DEVONIAN (F, G.): BOHEMIA, CZECHOSLOVAKIA.

*Bolbozoe jonesi* Barrande (G1), *Cythere?? paradoxa* Barrande (G1), *Elpe inchoata* Barrande (F2), *E. (?Offa) pinguis* (Barrande) (G2), *Leperditia? desiderata* Barrande (G2), *Primitia consobrina* Barrande, *P. debilis* Barrande (F2), *P. fusus* Barrande (F2), *P. ?modesta* Barrande (F2), *P. monas* Barrande (G1), *P. socialis* Barrande (F2), *P. tarda* Barrande (F2).

## MIDDLE DEVONIAN: CELECHOWITZ, MORAVIA, CZECHOSLOVAKIA.

*Aparchites aulax* Kegel, *Bythocypris eifelensis moravica* Kegel, *B. olmutiana* Kegel, *Macrocypris remesiana* Kegel.

## UPPER DEVONIAN: NEAR BRÜNN, MORAVIA, CZECHOSLOVAKIA.

*Richterina (Fossirichterina) gyrata* (Richter), *R. (Fossirichterina) intercostata* Matern, *R. (Fossirichterina) moravica* (Rzehak), *R. (Fossirichterina) semen* (Jones).

## DEVONIAN: DEVONSHIRE, ENGLAND.

*Aparchites lindstroemi excellens* Whidborne, *Beyrichiopsis ruperti* Whidborne, *Cypridinella caeca* Whidborne, *Cyprosina whidbornei* Jones, *Entomis peregrina* Whidborne, *E. richteri* Jones, *E. (Richteria) serratostrata* (Sandberger), *Kloedenia bursaeformis* Whidborne, *Kyammodos whidbornei* Jones, *K. whidbornei elliptica* Jones, *K. whidbornei obsolescens* Jones, *Polycope devonica* Jones, *P. devonica concinna* Whidborne, *P. devonica major* Whidborne, *P. devonica obliqua* Whidborne, *P. hughesiae* Whidborne, *Primitia bovisfrons* Whidborne, *P. sparsinodosa* Whidborne, *P. vestita* Whidborne, *Richteria (Fossirichteria) gyrata* (Richter), *Ulrichia interserta* Whidborne, *Zygobeyrichia devonica* (Jones and Woodward).

## LOWER DEVONIAN (TAUNUS QUARTZITE): VOLKERSBERG, ETC., GERMANY.

*Beyrichia nassoviensis* Kegel, *B. roemeri* Kayser, *Kloedenia kayseri* Kegel.

## LOWER DEVONIAN: DILLINGBERG, NASSAU, GERMANY.

*Beyrichia? (Bollia) strictisulcata* Jones, *Bollia varians* Jones, *Cypridina? subfusiformis* Sandberger, *Hollina serotina* (Jones), *Primitia mundula sacculus* Jones, *Strepula? (?Polyzygia) annulata* (Sandberger).

## LOWER DEVONIAN: NEAR HESSEN, GERMANY.

*Cypridina fallax* Kegel, *Entomis phalanga* (Kegel), *Primitia? (?Entomis) contursa* Maurer, *P. fabula* Maurer, *P. leviter* Maurer, *P. (?Entomis) pila* Maurer.

## LOWER DEVONIAN (COBLENZIAN): GERMANY.

*Beyrichia montana* Spriestersbach, *B. montana confluenta* Spriestersbach, *B. tetrapleura* Fuchs, *Entomis patella* Spriestersbach, *Kloedenia? incompta* Dahmer, *Zygobeyrichia devonica* (Jones and Woodward).

## MIDDLE DEVONIAN (STRINGOCEPHALUS BEDS): SLATE MOUNTAINS, GERMANY.

*Bythocypris bergica* Kegel, *B. eifelensis* Kegel, *B. (Bairdiocypris) clava* Kegel, *B. (Bairdiocypris) gerolsteinensis* Kegel, *B. (Bairdiocypris) rhenana* Kegel, *Leperditia (Herrmannella) consobrina* Jones, *L. (Herrmannella) curva* Kegel, *L. (Herrmannella) fastigata* Kegel, *L. (Briartina) hassiaca* Kegel, *L. (Briartina) librata* Kegel, *L. (Herrmannella) lotzi* Kegel, *L. (Briartina) obtusa* (Jones), *L. (Herrmannella) perobliqua* Kegel, *L. (Briartina) quenstedti* (Gümbel), *L. (Herrmannella) subobliqua* Kegel, *L. (Herrmannella) strigosa* Kegel, *L. (Herrmannella) waldschmidti* (Paeckelmann).

## MIDDLE DEVONIAN (UPPER CALCEOLA BEDS): SLATE MOUNTAINS, GERMANY.

*Bythocypris (Bairdiocypris) ürheimensis* Kegel, *Leperditia (Herrmannella) calceolae* Kegel.

## MIDDLE DEVONIAN (CULTRIUGATUS BEDS): SLATE MOUNTAINS, GERMANY.

*Bythocypris (Bairdiocypris) clava antecedens* Kegel.

## UPPER DEVONIAN: RHEIN SLATE MOUNTAINS, GERMANY (Barmen, Donsbach, Nehden, Wildungen, etc. See Matern, 1929, for detailed list).

*Chilobolbina rhenana* (Paeckelmann), *Entomidella angusta* Matern, *Entomis brevispinata* Matern, *E. (Richteria) calcarata* (Richter), *E. (Richteria) globulus* (Richter), *E. (Richteria) latesulcata* Paeckelmann, *E. (Richteria) oblonga* Matern, *E. (Richteria) serrato-striata* (Sandberger), *E. (Richteria) taeniata* (Richter), *E. (Richteria) torleyi* Matern, *Haploprimitia concentrica* Matern, *H. concentrica inflata* Matern, *H. kayseri* (Waldschmidt), *H. paeckelmanni* Matern, *Kloedenia dillensis* Matern, *Nehdentomis elliptica* (Paeckelmann), *N. nehdensis* (Matern), *N. pseudorichteria* (Matern), *N. schmidti* (Matern), *N. tenera* (Gurich), *N. tenuistriata* (Matern), *Neochilina binsenbachensis* Matern, *N. parvula* (Paeckelmann), *Primitia hattingensis* Matern, *P. (Bary-*



*chilina sandbergeri* Matern, *P. (Barychilina) splendens* (Waldschmidt), *P. (Barychilina) variostrata* (Clarke), *P. (Barychilina) wildungensis* Matern, *Primitiella cicatricosa* Matern, *P. intermedia* Matern, *P. kegeli* Matern, *P. reichi* Matern, *Richterina costata* (Richter), *R. dichotoma* Paeckelmann, *R. exornata* Matern, *R. (Fossirichterina) gyrata* (Richter), *R. hemispherica* (Richter), *R. (Fossirichterina) intercostata* Matern, *R. (Fossirichterina) moravica* (Rzehak), *R. (Fossirichterina) semen* (Jones), *R. striatula* (Richter).

UPPER DEVONIAN (CLYMENIA BEDS, ETC.): SAINT-JULIEN-DE-VAUVANTES, ARMORICAIN MASSIF, FRANCE.

*Bairdia rostrata* Péneau, *Cyprella bureaui* Péneau, *Entomis (Richteria) calcarata* (Richter), *E. (Richteria) serratostrata* (Sandberger), *Primitia fischeri* Oehlert, *Rhombina devonica* Péneau, *Richterina costata* (Richter), *R. hemispherica* (Richter), *R. moravica* (Rzehak), *R. scabra* (Gürich), *R. semen* (Jones), *R. striatula* (Richter).

UPPER DEVONIAN: THURINGIA, GERMANY.

*Beyrichia aurita* Richter, *B. (?Healdia) nitidula* Richter, *Bollia thuringensis* Matern, *Cypridina?? awa* Richter, *C. digitalis* Richter, *C. scrobiculata* Richter, *C.?? tenella* Richter, *C. villosa* Richter, *Cytherella richteriana* Jones, Kirkby and Brady, *Entomis barrandei* (Richter), *E. (Richteria) calcarata* (Richter), *E. (Richteria) globulus* (Richter), *E. patella* Spriestersbach, *E. (Richteria) sandbergeri* (Richter), *E. (Richteria) serratostrata* (Sandberger), *E. (Richteria) taeniata* (Richter), *Kloedenia saalfeldensis* Matern, *Leperditia?? dorsalis* (Richter), *Nehdentomis elliptica* (Paeckelmann), *N. nehdensis* (Matern), *N. tenera* (Gürich), *Primitia (Barychilina) variostrata* (Clarke), *Primitiella cicatricosa* Matern, *Richterina costata* (Richter), *R. dichotoma* (Paeckelmann), *R. (Fossirichterina) gyrata* (Richter), *R. labyrinthica* (Richter), *R. (Fossirichterina) moravica* (Rzehak), *R. striatula* (Richter).

DEVONIAN OF GERMANY (MISCELLANEOUS).

*Beyrichia embryoniformis* Spriestersbach (Whipperforth), *Bythocythere eifelensis* Chapman (Paffrath), *Entomis (Richteria) fragilis* (Roemer) (Weissenbach schiefer of Harz), *E. (Richteria) goslariensis* Kegel (Weissenbach schiefer, Goslar), *E. gigantea* (Trenkner) (Northwest Harz), *E. (Richteria) torta* Kegel (Laasphe), *E. (Richteria) imitatrix* Kegel (Harz), *Laccoprimitia osterodensis* Matern (Cypridina beds of Harz), *Leperditia? rhenania* Maurer (Orthoceras schiefer, Rupbachthal, Rhineland), *Nehdentomis tenera* (Gürich), *Primitia? nitida* (Roemer) (Harz), *Richterina (Fossirichterina) scabra* (Gürich) (Linderhausen), *Zygobolba corbis* (Dahmer) (Oberharz).

DEVONIAN OF POLAND.

*Bairdia devonica* Gürich, *Beyrichia (?Otonaria) trigonata* Gürich (Upper), *Bythocypris polaris* Gürich (Middle), *Entomis laevior* Gürich (Humboldt kalk), *E. (Richteria) serratostrata* (Sandberger), *Leperditia amphiporae* Gürich (Amphipora kalk), *Nehdentomis tenera* (Gürich) (Upper), *Poloniella devonica* Gürich (Middle), *Polyzygia symmetrica* Gürich (Middle), *Primitia calceolae* (Gürich) (Middle), *P. fabaeformis* Gürich (Middle), *P. humiliformis* Gürich (Middle), *P. (Barychilina) entomidella* Gürich (Upper-Intumescens kalk), *P. lentiformis* Gürich (Middle), *P. nitida* Roemer, *P. obliqua* Gürich, *P. ornatissima* Gürich (Middle), *P. plana* Gürich (Middle), *P. ubiqua* Gürich (Middle), *Primitiopsis pisciformis* Gürich (Middle), *Richterina (Fossirichterina) gyrata* (Richter), *R. (Fossirichterina) scabra* (Gürich), *R. striatula* (Richter), *R. vittata* Gürich (Humboldt kalk).

MISSISSIPPIAN (LOWER CARBONIFEROUS) CORRELATION TABLE

	East Mississippi Valley	Arkansas	Oklahoma	Scottish Lowlands
Chester	Clore ls. (Pennington sh.) Palestine ss. Menard ls. Okaw (Glen Dean ls.) Cypress ss. Paint Creek fm. Bethel ss. Renault fm. Aux Vases ss. Ste. Genevieve ls. (Pella ls. Fre- domia ls. Ohara ls.)	Pitkin ls. Fayetteville sh.  Batesville ss.	Pitkin ls. Fayetteville sh.	Carboniferous Limestone series (Bernician)  Upper limestone group Edge Coal group Lower limestone group Carbonaceous group and Midlothian oil shale
Meramec	St. Louis ls. Spargen (Salem) ls. Warsaw ls.	Moorefield sh.	Caney sh.	
Osage	Keokuk ls (Rosewood sh.) Ft. Payne chert Burlington ls. (New Providence sh.) Fern Glen fm.	Boone ls. St. Joe ls.	Boone ls. St. Joe ls.	Calcareous Sandstone series (Tuedian)  Upper series Cement stone group
Kinderhook	Chouteau ls. Hannibal sh. Glen Park ls. Louisiana ls. Ridgetop sh.		Sycamore ls.	
Chattanooga	Sunbury sh. Berea grit Bedford sh. Cleveland and Chattanooga sh. (Upper New Albany sh.) Hardin ss.	Chattanooga sh. Sylamore ss.	Woodford fm.	

## DEVONIAN: CHATEAUPANNE, BASSE-LOIRE, FRANCE.

*Acronotella? depressa* Péneau, *Cypridina subfusiformis?* Sandberger, *Primitiopsis ornatus* Péneau.

## LOWER DEVONIAN: EAST SIDE OF URALS, RUSSIA.

*Cypridina postsilurica* Tschernyschew, *Entomis gebaueri* Tschernyschew, *Primitia? globosa* Tschernyschew, *P. uralica* Tschernyschew.

## DEVONIAN: WEST SLOPE OF URALS, RUSSIA.

*Entomis amygdaloides* Tschernyschew, *Isochilina biensis* (Grünewaldt), *Leperditia barbotana* Schmidt, *L. moelleri* Schmidt, *L. moelleri laevigata* Schmidt.

## DEVONIAN: RUSSIA (MISCELLANEOUS).

*Bairdia devonica* Gürich, *Cythere? tulensis* Semenow and Moller, *Cytherella granum* Wenjukoff, *Leperditia elongata* Peetz, *L. salairico* Peetz, *Nehdentomis tenera* Gürich, *Richterina (Fossirichterina) gyrata* (Richter); *R. (Fossirichterina) scabra* (Gürich).

## DEVONIAN (MISCELLANEOUS).

Argentina: *Beyrichia argentina* Thomas.

Armenia (Arpatzchai Valley-Cuboides zone): *Aparchites reticulatus* Jones, *Primitia laevigata* Jones.

Buchan: *Primitia cuneus* Chapman.

Bolivia: *Beyrichia argentina* Thomas.

France (Montpellier): *Entomis (Richterina) serratostrata* (Sandberger).

France (Brittany and Normandy): *Leperditia brittanica* Rouault.

France (Manche): *Beyrichia hardouiniana* Rouault.

France (south): *Richterina costata* (Richter).

France (Mayenne): *Primitia fischeri* Oehlert.

Spitzbergen (schistose sandstone): *Leperditia isochilinoidea* Jones.

Tonkin, Indo-China: *Entomis tuberosa* Jones, *E. rara correcta* Patte.

## MISSISSIPPIAN (LOWER CARBONIFEROUS) FAUNAS

## KINDERHOOK (RIDGETOP SHALE): MT. PLEASANT, TENNESSEE.

*Aechmina longicornis* Ulrich and Bassler, *Allostraca fimbriata* Ulrich and Bassler, *Barychilina lineata* Ulrich and Bassler, *Beyrichiopsis modesta* Ulrich and Bassler, *B. pulchra* Ulrich and Bassler, *Ctenobolbina loculata* Ulrich, *Mauryella mammillata* Ulrich and Bassler, *Monoceratina tennesseense* (Ulrich and Bassler), *Paracythere cornuta* Ulrich and Bassler, *P. granopunctata* Ulrich and Bassler, *Ulrichia tenuimuralis* Ulrich and Bassler.

## KINDERHOOK (BASE OF LOUISIANA LIMESTONE): LOUISIANA, MISSOURI.

*Ctenobolbina loculata* Ulrich.

## WARSAW LIMESTONE: COLUMBIA, ILLINOIS.

*Beyrichiella confusus* Ulrich, *Cytherella glandella* Whitfield, *Glyptopleura costata* (McCoy), *Paraparchites carbonaria* (Hall), *P. nicklesi* (Ulrich), *Savagella lindahli* Ulrich.

## SPERGEN LIMESTONE: ELIZABETHTOWN, KENTUCKY.

*Hollinella granifera* Ulrich.

## ST. LOUIS LIMESTONE(?): NEAR WEBSTER CITY, HAMILTON COUNTY, IOWA.

*Cythere (Cytherella) simplex* White and St. John.

## SALEM (SPERGEN) LIMESTONE: SPERGEN HILL, ETC., INDIANA.

*Acratia deloi* Geis, *Amphissites altanodosus* Geis, *A. centronotoidea* Geis, *A. mimicus* Geis, *A. nodosulcatus* Geis, *A. planoventralis* Geis, *A. reticulatus*

Geis, *A. rotundus* Geis, *A. vannaie* Geis, *Bairdia permagna* Geis, *B. salemensis* Geis, *B. bedfordensis* Geis, *B. compacta* Geis, *B. compressa* Geis, *B. depressa* Geis, *B. subaequalis* Geis, *Bythocypris marginifera* Geis, *B. norrisensis* Geis, *B. lydeae* Geis, *Cavellina glandella* (Whitfield), *Cytherella savagei* Geis, *C. emaciata* Geis, *C. spergenensis* Geis, *Glyptopleura carinata* Geis, *G. elegantis* Geis, *G. karli* Geis, *G. parvacostata* Geis, *G. perbella* Geis, *G. salemensis* Coryell and Brackmier, *Healdia variolosa* Geis, *Jonesina oblonga* Geis, *J. sinuodorsata* Geis, *Kellettella incarinata* Geis, *Kirkbya dorsoconvexa* Geis, *K. rothi* Geis, *K. welleri* Geis, *Microcheilinella distorta* Geis, *M. spinosa* Geis, *Oliganisus punctatus* Geis, *O. sulcatus* Geis, *Paraparchites carbonarius* (Hall), *P. subcircularis* Geis, *Pontocypris coryelli* Geis, *P. billingsella* Geis, *Sansabella inflata* Geis, *Savagella lindahli* (Ulrich).

WAVERLYAN (NEW PROVIDENCE SHALE): OHIO.

*Cypridina herzeri* Ulrich (Richfield), *Cythere ohioensis* Herrick, (Newark), *Cytherella unioniformis* Herrick, (Scioto County), *Pontocypris(?) acuminata* Ulrich (near Granville).

MARSHALL GROUP: BATTLE CREEK, ETC., MICHIGAN.

*Cythere crassimarginata* Winchell.

CHESTER (GLEN DEAN LIMESTONE): CHESTER, ILLINOIS.

*Amphissites oblongus* Ulrich, *Bairdia cestriensis* Ulrich, *Hollinella simulatrix* (Ulrich), *Primitia cestriensis* Ulrich, *P. simulans* Ulrich.

CHESTER (STE. GENEVIEVE LIMESTONE): PELLA, IOWA.

*Beyrichia lithofactor* White and St. John, *B. lithofactor velata* White and St. John.

CHESTER (GLEN DEAN LIMESTONE): NEAR GRAYSON SPRINGS, KENTUCKY.

*Amphissites tricollina* (Jones and Kirkby), *Bairdia cestriensis* Ulrich, *Cytherella ovatiformis* Ulrich, *Glyptopleura venosa* (Ulrich), *Hollinella cestriensis* Ulrich, *H. simulatrix* Ulrich, *Moorea granosa* Ulrich, *Paraparchites nicklesi* (Ulrich), *Primitia granimarginata* Ulrich, *Ulrichia emarginata* Ulrich.

CHESTER (CLORE LIMESTONE): CALDWELL COUNTY, KENTUCKY.

*Hollinella radiata* Jones and Kirkby, *Primitia cestriensis caldwellensis* Ulrich, *P. subaequata* Ulrich.

MISSISSIPPIAN (BARNETT SHALE): SAN SABA COUNTY, TEXAS.

*Amphissites chappellensis* Roundy, *Graphiodactylus arkansanus* (Girty), *Microcheilinella subcorbuloides* (Jones and Kirkby), *Sansabella sulcata* Roundy, *Savagella lindahli* (Ulrich).

MISSISSIPPIAN (LIMESTONE UNDER BARNETT SHALE): SAN SABA COUNTY, TEXAS.

*Aurigerites texanus* Roundy, *Graphiodactylus arkansanus* Girty, *Healdia ampla* Roundy, *Microcheilinella ? subcorbuloides* Jones and Kirkby.

MISSISSIPPIAN (MARBLE FALLS LIMESTONE): SAN SABA COUNTY, TEXAS.

*Sansabella amplexens* Roundy.

MISSISSIPPIAN (MOORFIELD SHALE): BATESVILLE QUADRANGLE, ARKANSAS.

*Bairdia attenuata* Girty, *Paraparchites nicklesi* Ulrich, *Primitia moorfieldiana* Girty.

MISSISSIPPIAN (BATESVILLE SANDSTONE): NORTHERN ARKANSAS.

*Cavellina glandella* Whitfield, *Paraparchites nicklesi* Ulrich, *Primitia fayettesvillensis* Girty, *P. seminalis* Girty, *Savagella rhomboidalis* (Girty).

MISSISSIPPIAN (FAYETTVILLE SHALE): OKLAHOMA.

*Amphissites rugosus* Girty, *Bairdia granireticulata* Harlton, *B. lanulata* Harlton, *B. submucronata* (Jones and Kirkby), *B.? subrotundata* Harlton, *Graphio-*

*dactylus arkansanus* (Girty), *Healdia vinitaensis* Harlton, *Jonesina reticulata* Harlton, *J. vinitaensis* Harlton, *Seminolites conspicua* Harlton.

MISSISSIPPIAN (FAYETTEVILLE SHALE): ARKANSAS.

*Amphisites oblongus transversus* (Girty), *A. reflexus* (Girty), *A. rugosus* Girty, *A. simplex* (Girty), *Bairdia attenuata* Girty, *B. cestriensis granulosa* Girty, *Bythocypris fayettevillensis* Harlton, *Glyptopleura angulata* Girty, *G. inopinata* Girty, *Graphiodactylus arkansana* (Girty), *Halliella?* *retiformis* Girty, *Healdia fayettevillensis* Harlton, *Mauryella quincollina* Harlton, *Paraparchites nicklesi* (Ulrich), *P. nicklesi cyclopea* Girty, *Primitia fayettevillensis* Girty, *P. seminalis* Girty.

CARBONIFEROUS LIMESTONE: VISÉ, BELGIUM.

*Bythocypris bilobata* (Munster), *Cyprella annulata* Koninck, *C. chrysalidea* Koninck, *Cypridella cruciata* Koninck, *C. edwardsiana* (Koninck), *C. quadrata* Jones, Kirkby and Brady, *C. wrightii* Jones, Kirkby and Brady, *Cypridellina alta* Jones, Kirkby and Brady, *C. bosquetii* Jones, Kirkby and Brady, *C. elongata* Jones, Kirkby and Brady, *Cypridina brevimentum* Jones, Kirkby and Brady, *C. phillipsiana* Jones, *C. pruniformis* Jones, Kirkby and Brady, *Cypridinella bosquetii* Jones, Kirkby and Brady, *C. monitor* Jones, Kirkby and Brady, *Cythere??* (*?Cypridina*) *phillipsiana* (McCoy), *Entomis concentrica* (Koninck), *Entomoconchus scouleri* McCoy, *Paraparchites?* *dewalquei* (Jones and Kirkby), *P. inflata* (Münster), *P. okeni* (Münster), *Rhombina belgica* Jones, Kirkby, and Brady, *Schmidella?* *belgica* Jones (Paire-Clavier).

CARBONIFEROUS OF FRANCE.

*Carbonita fabulina* (Jones and Kirkby) (northern France), *C. pungens* (Jones and Kirkby) (northern France), *C. rankiniana* (Jones and Kirkby) (northern France), *Cyprella annulata* Koninck (Herault), *Palaeocypris edwardsii* Brongnart (St. Etienne).

CARBONIFEROUS (MOUNTAIN LIMESTONE): NEAR HOF, BAVARIA, GERMANY.

*Bairdia elongata* (Münster), *B. hisingeri* (Münster), *B. subcylindrica* (Münster), *Bythocypris bilobata* (Münster), *Carbonita intermedia* (Münster), *C. muensteriana* (Jones and Kirkby), *Paraparchites acutus* (Jones and Kirkby), *P. inflata* (Münster), *P. oblongus* (Jones and Kirkby), *P. okeni* (Münster), *P. parallelus* (Jones and Kirkby), *P. suborbiculatus* (Münster).

CARBONIFEROUS LIMESTONE, ISLE OF MAN.

*Aechmina carbonifera* Smith, *Bairdia elongata* Münster, *B. elongata* Münster, *B. geinitziana* (Jones), *B. murchisonia* Jones and Kirkby, *B. nitida* Jones and Kirkby, *B. subelongata* Jones and Kirkby, *Bradycinetus rankiniana* (Jones and Kirkby), *Bythocypris thraso* Jones, *B. aequalis* Jones and Kirkby, *B. pyrula* Jones) and Kirkby, *Cyprella chrysalidea* Koninck, *Cypridella cyprelloides* Jones, Kirkby and Brady, *C. koninckiana* Jones, *Cypridellina burrovi* Jones, Kirkby, and Brady, *C. intermedia* Jones, Kirkby, and Brady, *Cypridina brevimentum* Jones, Kirkby, and Brady, *C. grossartiana* Jones and Kirkby, *C. hunteriana* Jones, Kirkby, and Brady, *C. pruniformis* Jones, Kirkby, and Brady, *C. phillipsiana* Jones, *C. primaeva* McCoy, *C. scoriacea* Jones and Kirkby, *C. youngiana* Jones, Kirkby, and Brady, *Cypridinella clausa* Jones, Kirkby, and Brady, *C. cummingi* Jones, Kirkby, and Brady, *C. superciliosa* Jones, Kirkby, and Brady, *C. vomer* Jones, Kirkby, and Brady, *Cytherella benniei* Jones Kirkby, and Brady, *C. murchisonia* Jones and Kirkby, *C. valida* Jones, Kirkby, and Brady, *Entomoconchus globosus* Jones, Kirkby, and

Brady, *E. orbicularis* Jones, Kirkby, and Brady, *E. scouleri* McCoy, *Glyptopleura costata* (McCoy) *Macrocypris carbonica* Jones and Kirkby, *Moorea obesa* Jones and Kirkby, *Offa barrandiana* Jones, Kirkby, and Brady, *Paraparchites inflata* (Münster), *P. obtusa* (Jones and Kirkby), *P. parallela* (Jones and Kirkby), *Philomedes bairdiana* Jones, Kirkby, and Brady, *Polycope burrovi* Jones, Kirkby, and Brady, *P. simplex* (Jones and Kirkby), *P. youngiana* Jones and Kirkby, *Pontocypris siliquoides* Jones and Kirkby, *Rhombina belgica* Jones, Kirkby, and Brady, *Sulcuna cuniculus* Jones, Kirkby, and Brady, *S. lepus* Jones, Kirkby, and Brady.

#### CARBONIFEROUS LIMESTONE OF ENGLAND AND SCOTLAND.

[C occurs also in calciferous sandstone.]

*Amphissites centronotus* (Ulrich and Bassler) (C), *A. oblongus* (Jones and Kirkby), *A. permianus* (Jones and Kirkby), *A. reticulosus* (Jones and Kirkby), *A. tricollina* (Jones and Kirkby), *A. umbonatus* (Eichwald), *A. umbonatus radiatus* (Jones and Kirkby), *A. urei* (Jones) (C), *Bairdia ampla* Reuss (C), *B. amputata* (Kirkby) (C), *B. brevis* Jones and Kirkby (C), *B. circumcisa* Jones and Kirkby, *B. curta* McCoy (C), *B. curta bicornis* Jones and Kirkby, *B. curta deformis* Jones and Kirkby, *B. curta terebra* Jones and Kirkby, *B. elongata* (Münster), *B. grandis* Jones and Kirkby, *B. hisingeri* (Münster) (C), *B. hisingeri contracta* Jones and Kirkby (C), *B. legumen* Jones and Kirkby, *B. mucronata* Reuss, *B. nitida* Jones and Kirkby, *B. plebeia* Reuss (C), *B. plebeia alta* Jones and Kirkby (C), *B. praecisa* Jones and Kirkby, *B. subcylindrica* (Münster) (C), *B. subelongata* Jones and Kirkby (C), *B. subelongata major* Jones and Kirkby, *B. subgracilis* Geinitz, *B. submucronata* (Jones and Kirkby) (E), *Bernix tatei* (Jones), *Beyrichia* (?*Hollinella*) *colliculus* Eichwald, *Beyrichiana* ? *gigantea* Jones and Kirkby, *Beyrichiella annectens* (Jones and Kirkby), *B. annectens bipartita* (Jones and Kirkby), *B. cristata* Jones and Kirkby (C), *Beyrichiopsis cornuta* Jones and Kirkby, *B. crinita* (Jones and Kirkby), *B. fimbriata* Jones and Kirkby, *B. fortis* Jones and Kirkby, *B. fortis glabra* Jones and Kirkby, *B. granulata* (Jones and Kirkby) (C), *B. simplex* Jones and Kirkby, *B. subdentata* Jones and Kirkby, *Bradycinetus rankiniana* (Jones and Kirkby), *Bythocypris acuta* (Jones and Kirkby), *B. aequalis* Jones and Kirkby, *B. bilobata* (Münster), *B.?* *breviata* Jones and Kirkby, *B. cypridiformis* (Jones and Kirkby), *B. lunata* (Jones and Kirkby) *B.?* *moorei* Jones and Kirkby, *B. phillipsiana carbonica* Jones and Kirkby, *B. (?) pyrula* Jones and Kirkby, *B. sublunata* Jones and Kirkby, *B. thraso* (Jones), *Bythocythere antiqua* Jones and Kirkby, *B. youngiana* Jones and Kirkby, *Candona tateana* Jones, *Carbonita bairdioides* (Jones and Kirkby) *C. fabulina* (Jones and Kirkby) (C), *C. intermedia* (Münster), *C. pungens* (Jones and Kirkby), *C. rankiniana* (Jones and Kirkby), *C. secans* (Jones and Kirkby) (C) *C. subula* (Jones and Kirkby) (C), *C. wardiana* Jones and Kirkby, *Cornigella tuberculospinosa* (Jones and Kirkby), *Ctenobolbina loculata* Ulrich, *Cyprilla annulata* Koninck, *C. chrysalidea* Koninck, *C. chrysalidea subannulata* Jones, *Cypridella edwardsiana* (Koninck), *C. edwardsiana septentrionalis* Jones, Kirkby, and Brady, *C. obsoleta* Jones, Kirkby, and Brady, *C. koninckiana* Jones, *C. wrightii* Jones, Kirkby, and Brady, *Cypridellina burrovi* Jones, Kirkby, and Brady, *C. burrovi longnorien-sis*, Jones, Kirkby, and Brady, *C. intermedia* Jones, Kirkby, and Brady, *Cypridina brevementum* Jones, Kirkby, and Brady, *C. grossartiana* Jones and Kirkby, *C. hunteriana* Jones, Kirkby, and Brady, *C. phillipsiana* Jones,

*C. primaeva* (McCoy) *C. scoriacea* Jones and Kirkby, *C. youngiana* Jones, Kirkby, and Brady, *C. thomsoniana* Jones and Kirkby, *Cypridinella cummingii* Jones, Kirkby, and Brady, *C. monitor* Jones, Kirkby, and Brady, *C. vomer* Jones, Kirkby, and Brady, *C. superciliosa* Jones, Kirkby and Brady, *Cytherella aequalis* Jones, Kirkby, and Brady, *C. attenuata* (Jones and Kirkby) (C), *C. benniei* Jones, Kirkby, and Brady (C), *C. brevis* Jones, *C. concinna* Jones, Kirkby, and Brady, (C) *C. extuberata* (Jones and Kirkby) (C), *C. foveolata* Wright, *C. intercalaris* Jones and Kirkby, *C. lunata* Stoddard, *C. obesa* Jones, Kirkby, and Brady, *C. obliquata* Jones, Kirkby, and Brady, *C. ovalis* (Stoddard), *C. recta* Jones, Kirkby, and Brady, *C. rotundata* Jones, Kirkby, and Brady, *C. scrobiculata* Jones, Kirkby, and Brady, *C. simplex* Jones, Kirkby, and Brady, *C. tatei* Jones, *C. valida* Jones, Kirkby, and Brady, *C. valida affiliata* Jones and Kirkby, *Darwinula berniciana* (Jones), *Entomis* (*Richteria*) *biconcentrica* Jones, *E. (Richteria) burrovi* Jones, Kirkby, and Brady, *E. (Richteria) koninckiana* Jones, *E. obscura* Jones, Kirkby, and Brady, *Entomoconchus globosus* Jones, Kirkby, and Brady, *E. scouleri* McCoy, *Glyptopleura costata* (McCoy) (C), *G. costata mooreana* (Jones and Kirkby), *G. guardia* Coryell and Brackmier, *G. plicata* (Jones and Kirkby) (C), *G. scotica* (Jones and Kirkby), *G. spinosa* (Jones and Kirkby), *G. spiralis* (Jones and Kirkby) (C), *Graphiodactylus gyripunctata* (Jones and Kirkby), *Hollinella avonensis* (Latham), *H. longispina* (Jones and Kirkby), *H. radiata* (Jones and Kirkby) (C), *Janischewskya digitata* Batalina, *Jonesina arcuata* (Bean) (C), *J. bradyana* Jones and Kirkby, *J. craterigera* Jones and Kirkby, *J. fastigiata* (Jones and Kirkby), *J. fodicata* (Jones and Kirkby), *J. multiloba* (Jones and Kirkby), *J. subarcuata* (Jones), *J. varicosa* Jones and Kirkby, *Kirkbya eichwaldiana* Jones and Kirkby, *K. permiana* (Jones), *K. rigida* (Jones and Kirkby), *K. (Beyrichiopsis?) variabilis* Jones and Kirkby, *Kirkbyina reticosa* (Jones and Kirkby), *K. ventricornis* (Jones and Kirkby), *Kloedenella bicaesa* (Jones and Kirkby), *Macrocypris carbonica* Jones and Kirkby, *M. jonesiana* (Kirkby), *M. kirkbyana* (Jones), *Microcheilinella subcorbuloides* Jones and Kirkby, *Moorea obesa* Jones and Kirkby, *M. tenuis* Jones and Kirkby, *Paraparchites acutus* (Jones and Kirkby), *P. armstrongianus* (Jones and Kirkby) (C), *P. bosquetianus* (Jones and Kirkby), *P. compressus* (Jones and Kirkby), *P. inflatus* (Murchison) (C), *P. inornatus* (McCoy) (C), *P. lovicensis* (Jones and Kirkby), *P. obesus* (Jones and Kirkby), *P. oblongus* (Jones and Kirkby), *P. obtusus* (Jones and Kirkby), *P. okeni* (Münster) (C), *P. okeni obliquus* (Jones and Kirkby), *P. parallelus* (Jones and Kirkby), *P. scotoburdigalensis* (Hibbert) (C), *P. suborbiculatus* (Münster), *P. subrectus* (Portlock), *P. superbus* (Jones and Kirkby), *P. youngianus* (Jones and Kirkby), *Phreatura concinna* Jones and Kirkby, *Polycopse burrovi* Jones, Kirkby and Brady, *P. simplex* (Jones and Kirkby), *P. youngiana* (Jones and Kirkby), *Pontocypris siliquoides* (Jones and Kirkby), *Primitia? holliana* Jones and Kirkby, *Tribolbina carnegiei* Latham (C), *Ulrichia bituberculata* (McCoy), *Waylandella cornigera* (Jones and Kirkby), *W. cornigera robusta* (Jones and Kirkby), *W. cuneola* (Jones and Kirkby) (C), *Youngiella elongata* (Jones and Kirkby), *Y. rectidorsalis* (Jones and Kirkby).

CARBONIFEROUS LIMESTONE OF CORK, ETC., IRELAND.

*Amphissites permianus* (Jones and Kirkby), *Bairdia arcuata* (McCoy), *B. brevis* Jones and Kirkby, *B. curta* McCoy, *B. gracilis* McCoy, *B. hisingeri* (Münster), *B. plebeia* Reuss, *B. subelongata* Jones and Kirkby, *B. submucronata*

(Jones and Kirkby), *Beyrichiana gigantea* (Jones, Kirkby, and Brady), *Beyrichiella annectens* (Jones and Kirkby), *B. annectens confusa* (Jones and Kirkby), *Beyrichiopsis fimbriata* Jones and Kirkby, *B. fortis* Jones and Kirkby, *B. simplex* Jones and Kirkby, *Bythocypris aequalis* Jones and Kirkby, *B. phillopsiana carbonica* Jones and Kirkby, *B. sublunata* Jones and Kirkby, *Cyrella annulata* Koninck, *C. chrysalidea subannulata* Jones, *Cypridella cyprellodes* Jones, Kirkby, and Brady, *C. edwardsiana* (Koninck), *C. edwardsiana septentrionalis* Jones, Kirkby, and Brady, *C. koninckiana* Jones, *C. obsoleta* Jones, Kirkby, and Brady, *C. wrightii* Jones, Kirkby, and Brady, *Cypridellina alta* Jones, Kirkby, and Brady, *C. clausa* Jones, Kirkby, and Brady, *C. elongata hibernica* Jones, Kirkby, and Brady, *C. galea* Jones, Kirkby and Brady, *C. vomer* Jones, Kirkby, and Brady, *C. vomer cultrata* Jones, Kirkby, and Brady, *C. vomer uncinata* Jones, Kirkby, and Brady, *Cypridina bradyana* Jones, Kirkby, and Brady, *C. brevimentum* Jones, Kirkby, and Brady, *C. elongata* (McCoy), *C. oblonga* Jones, Kirkby, and Brady, *C. phillipsiana* Jones, *C. primaeva* (McCoy), *C. pruniformis* Jones, Kirkby, and Brady, *C. wrightiana* Jones, Kirkby, and Brady, *Cypridinea bosqueti* Jones, Kirkby, and Brady, *C. clausa* Jones, Kirkby, and Brady, *C. maccoyana* Jones, Kirkby, and Brady, *C. superciliosa* Jones, Kirkby, and Brady, *C. vomer* Jones, Kirkby, and Brady, *Cythere?? cornuta* McCoy, *C. excavata* McCoy, *C. gibberula* McCoy, *C. impressa* McCoy, *C. ?? oblonga* McCoy, *C.?? orbicularis* McCoy, *C.?? (Cypridina) phillipsiana* (McCoy), *C.?? pusilla* McCoy, *C.?? scutulum* McCoy, *C. spinigera* McCoy, *Cytherella attenuata* Jones and Kirkby, *C. extuberata* (Jones and Kirkby), *C. hibernica* Jones, Kirkby, and Brady, *C. incurvescens* Jones and Kirkby, *C. recta* Jones, Kirkby, and Brady, *C. simplex* Jones, Kirkby, and Brady, *C. valida* Jones, Kirkby, and Brady, *Entomis (Richteria) biconcentrica* Jones, *Entomoconchus globosus* Jones, Kirkby, and Brady, *E. orbicularis* Jones, Kirkby, and Brady, *E. scouleri* McCoy, *E. scouleri ovalis* Jones, Kirkby, and Brady, *Glyptopleura costata* (McCoy), *G. plicata* Jones and Kirkby, *G. spiralis* (Jones and Kirkby), *Hollinella hibernica* (Jones and Kirkby), *Jonesina craterigera* Jones and Kirkby, *Krithe?? subreniformis* Jones and Kirkby, *K.?? subreniformis elongata* Jones and Kirkby, *Macrocypris jonesiana* (Kirkby) *Maurycella trituberculata* (McCoy), *Offa barrandiana* Jones, Kirkby, and Brady, *Paraparchites acutus* (Jones and Kirkby), *P. amygdalina* (McCoy), *P. arcuatus* (McCoy), *P. compressus* (Jones and Kirkby), *P. hibbertii* (McCoy), *P. inflatus* (McCoy), *P. inornatus* (McCoy), *P. okeni* (Münster), *P. rhombicus* (Jones and Kirkby), *P. scotoburdigalensis* (Hibbert) *P. suborbiculatus* (Münster), *P. subrectus* (Portlock), *P. wrightianus* (Jones and Kirkby), *Philomedes bairdiana* Jones, Kirkby, and Brady, *Polycope simplex* (Jones and Kirkby), *Rhombina hibernica* Jones, Kirkby, and Brady, *Sulcuna cuniculus* Jones, Kirkby, and Brady, *S. lepus* Jones, Kirkby, and Brady, *Ulrichia bituberculata* (McCoy).

#### CARBONIFEROUS OF YUN-NAN, CHINA.

*Bairdia elongata* (Münster) *B. mucronata* Reuss, *Cytherella intumescens* Reed, *Leperditia subaequalis* Reed, *L. (?Paraparchites) subquadrata* Reed, *L. viator* Reed, *Primitia bicollina* Reed.

#### CARBONIFEROUS OF MONGOLIA.

*Bairdia ampla* Reuss, *B. amputata* (Kirkby), *B. brevis* Jones and Kirkby, *B. curta* McCoy, *B. grandis* Jones and Kirkby, *B. hisingeri* (Münster), *B. hisin-*



*geri mongoliensis* Jones and Kirkby, *B. plebeia* Reuss, *B. subelongata* Jones and Kirkby, *Bythocypris bilobata* Jones and Kirkby, *B. cuneola* (Jones and Kirkby), *Paraparchites inornatus* (McCoy), *P. okeni* (Münster).

#### CARBONIFEROUS LIMESTONE OF RUSSIA.

*Amphissites umbonatus* (Eichwald), *A. urei* (Jones), *Bairdia aequalis* Eichwald, *B. ampla* Reuss, *B. curta* McCoy, *B. distracta* Eichwald, *B. ovata* Eichwald (not Bosquet), *B. plebeia* Reuss, *B. plebeia munda* Jones and Kirkby, *B. qualeni* Eichwald, *Beyrichia* (*Hollinella*)? *colliculus* Eichwald, *B.* (?*Hollinella*) *gibberosa* Eichwald, *Bythocypris bilobata* (Münster), *Cytherella attenuata* Jones and Kirkby, *C. munchisoniana* Jones and Kirkby, *Glyptopleura eichwaldi* (Jones and Kirkby), *Hollinella stepanovi* (Batalina), *Janischewskya digitata* Batalina, *Kirkbya kirkbyana* Jones, *K. cornuta* Yanichevsky, *K. striolata* (Eichwald), *Paraparchites inornatus* (McCoy), *P. ?laevigatus* (Eichwald), *P. laevigatus nigrescens* (Jones and Kirkby), *P. microphthalma* (Eichwald), *P. okeni* (Münster), *P. okeni obliquus* (Jones and Kirkby), *Ulrichia bituberculata* (McCoy).

#### CARBONIFEROUS OF NOVA SCOTIA.

*Beyrichia? jonesii* Dawson, *B. novascotica* Jones and Kirkby, *Candona? elongata* Jones and Kirkby, *Carbonita bairdioides* Jones and Kirkby, *Paraparchites acutus* (Jones and Kirkby), *P. okeni* (Münster).

#### CARBONIFEROUS OF NOVA SCOTIA.

*Beyrichia? jonesii* Dawson, *B. novascotica* Jones and Kirkby, *Candona? elongata* Jones and Kirkby, *Carbonita bairdioides* Jones and Kirkby, *Paraparchites acutus* (Jones and Kirkby), *P. okeni* (Münster).

#### CARBONIFEROUS OF NOVA ZEMBLA.

*Bairdia curta* McCoy, *Paraparchites inflata* (Münster).

#### CARBONIFEROUS: SOSIO RIVER, PALERMO, SICILY.

*Cypridella granulifera* Gemmellaro, *C. jonesii* Gemmellaro, *Cypridina adrianaensis* Gemmellaro, *C. elliptica* Gemmellaro, *C. marginata* Gemmellaro, *Cypridinnella cypridellopsis* Gemmellaro, *C. inflata* Gemmellaro, *C. rostrata* Gemmellaro, *Entomis aequilobata* Gemmellaro, *E. polita* Gemmellaro, *Entomoconchus elongatus* Gemmellaro, *Philomedes* (*Cypridina?*) *acanthoides* Gemmellaro.

#### CARBONIFEROUS: ASTURIAS, SPAIN.

*Entomis grandeuryi* Bairois.

#### CARBONIFEROUS OF WALES.

*Bairdia subelongata* Jones and Kirkby, *B. submucronata* (Jones and Kirkby), *Primitia? holliana* Jones and Kirkby.

## PENNSYLVANIAN FAUNAS

#### COAL MEASURES OF IOWA.

*Beyrichia foetidea* White and St. John (Page County), *Cytherella gloria* Coryell and Sample *C. iowensis* Jones, Kirkby, and Brady, *C. concinna* Jones, Kirkby, and Brady, *C. impressa* Jones, Kirkby, and Brady, *C. regularis* Jones, Kirkby, and Brady, *C. subreniformis* Jones, Kirkby, and Brady.

#### PENNSYLVANIAN (SPRINGER FORMATION) OKLAHOMA.

*Cytherella benniei* Jones, Kirkby, and Brady, *Healdia caneyensis* Harlton, *H. denisoni* Harlton, *H. marginata* Harlton, *H. squamosa* Harlton, *Sansabella unicornis* (Girty).

PENNSYLVANIAN CORRELATION TABLE\*

Kansas, Nebraska, Missouri	North Oklahoma	S. Central Oklahoma Arkansas	Ardmore Basin, Oklahoma	Texas
West Point sh., Falls City ls., Aspinwall sh., Brownville ls., Pony Creek sh., Dover ls., Table Creek sh., Maple Hill ls., Pierson Point sh., Tarkio ls., Willard sh., Emporia ls., Auburn sh., Wakarusa ls., Soldier Creek sh., Burlingame ls.	Grayhorse ls., etc. Stonebreaker ls. Cryptozoan ls.	Pontotoc group Kanawha fm. Stratford fm.	Pontotoc group	Thrifty fm.  (Cisco group-Thrifty and Graham)
Scranton sh., Howard ls., Scary sh., Topeka ls., Cathouse sh., Deer Creek ls., Tecumseh sh., Leocompton ls., Kanawka sh.	Bird Creek ls., etc. Turkey Run ls. Little Hominy ls. Deer Creek ls. Plummer ls., Okay ls. Leocompton ls., Elgin ss.	Vanass fm.  Ada fm.		Graham fm.
Oread ls. Lawrence sh. Haskell ls. Stranger ss.	Oread ls. Wynona ss. Bigheart, Torpedo and other ss. Labadie, Wildhorse ls. Iatan ls. Weston sh.	Vamoosa fm.		
Iatan ls. Weston sh.	Red ls. Vilas sh. Avant ls. Bonner Springs, etc.			Caddo creek fm.
Stanton ls. Vilas sh. Plattsburg ls. Bonner Springs sh. Farley ls. Island Creek sh. Argentine ls.				(Canyon group-Caddo Creek- Palo Pinto)
Lane sh., Iola ls. Chanute sh., Drum (Cement City?) Quivira sh., DeKalb ls. Cherryvale sh., Winterset ls., Galesburg sh., Reethany Falls ls. Ladore sh., Hetha ls.	Chanute sh. DeWey ls. Nellie Hly fm. Hogshooter ls. Coffeyville fm.	Belle City ls. Francis fm. Seminole congl.	Hoxbar fm.	Brad fm.  Graford fm.
Pleasanton sh.	Dawson coal. Lenapah ls. Nowata sh. Altamont ls. Bandera sh. Lawnee ls. Labelle sh. F. C. Scott ls.	Holdenville sh. Wewoka fm. Wetumka sh.		Palo Pinto ls.
Altamont ls. Bandera sh. Lawnee ls. Labelle sh. F. C. Scott ls.	Verdigris ls. Chelsea ss. Blue Jacket ss. Little Cabin ss.	Calvin ss. Senora fm., Stuart fm. Thurman ss., Boggy sh. (Ark.) Savanna ss. (Ark.) McAlester fm. (Ark.) Hartsborne ss. (Ark.) Atoka fm. (Ark.)	Upper Deese Devils Kitchen congl. Lower Deese Upper Dornick Hills Bostwick congl.	Strawn group Upper Mineral wells Brazos River congl. Lower Mineral Wells Millsap fm.
Verdigris ls. Mineral coal Wier-Pittsburg coal. Bartlesville ss., etc.	Morrow fm.	Morrow fm. (Ark.)	Lower Dornick Hills Jalliff ls. Otterville ls. Springer fm.	Smithwick sh. Marble Falls ls.
Bend group				

\* Prepared from a correlation chart by R. C. Moore issued in connection with the Fifth Annual Field Conference of the Kansas Geological Society, Sept., 1931.

## PENNSYLVANIAN (DORNICK HILLS FORMATION): CARTER COUNTY, OKLAHOMA.

*Bairdia ardmorensis* Harlton, *B. dornickhillensis* Harlton, *Bythocypris tomlin-soni* Harlton, *Monoceratina ardmorensis* (Harlton).

## PENNSYLVANIAN (WAPANUCKA LIMESTONE): OKLAHOMA.

*Amphissites costatus* Roth, *A. marginiferus* Roth, *A. nodosus* Roth, *A. simplus* Roth, *A. wapanuckaensis* Harlton, *Bairdia ardmorensis* Harlton, *B. conilata* Harlton, *Healdia overbrookensis* Harlton, *Kirkbya inornata* Roth, *K. magna* Roth, *Kirkbyina spinosa* Harlton, *Monoceratina ardmorensis* (Harlton), *M. ventrale* Roth, *Paraparchites wapanuckaensis* Harlton, *Seminolites subtriangularis* Harlton.

## PENNSYLVANIAN (ATOKA FORMATION): SOUTHEAST OKLAHOMA.

*Amphissites centronotus* (Ulrich and Bassler), *A. simplicissimus* Knight, *Bairdia auricula* Knight, *B. haworthi* Knight.

## PENNSYLVANIAN (BOGGY SHALE): OKLAHOMA.

*Cavellina equalis* Coryell, *C. reversa* Coryell, *C. subovata* Coryell, *C. subpulchella* Coryell, *Glyptopleurina montifera* Coryell, *Healdia glennensis* Harlton, *Hollinella recurva* (Moore).

## PENNSYLVANIAN (GLENN): CARTER AND LOVE COUNTIES, OKLAHOMA.

*Amphissites dattonensis* Harlton, *Bairdia glennensis* Harlton, *B. oklahomaensis* Harlton, *B. hozbarensis* Harlton, *Cytherella incurvescens* Jones and Kirkby, *Glyptopleura costata* (McCoy), *Healdia boggyensis* Harlton, *H. glennensis* Harlton, *H. oklahomaensis* Harlton, *Hollinella grahamensis* (Harlton), *H. radlerae?* (Harlton), *Jonesina arcuata* (Bean) *J. bradyina* (Jones and Kirkby), *J. craterigera* (Jones and Kirkby), *J. gregaria* (Ulrich and Bassler), *Monoceratina ardmorensis* (Harlton).

## PENNSYLVANIAN (HOLDENVILLE FORMATION): SOUTHEASTERN OKLAHOMA.

*Amphissites centronotus* (Ulrich and Bassler), *A. dattonensis* Harlton, *A. geneae* Roth, *A. girtyi* Knight, *A. simplicissimus*, Knight, *Bairdia altifrons* Knight, *B. beedei* Ulrich and Bassler, *B. crassa* Harlton, *B. grahamensis* Harlton, *B. hozbarensis* Harlton, *B. nitida* Harlton, *B. oklahomensis* Harlton, *B. perarcuata* Warthin, *B. pompilioides* Harlton, *Bairdianella elegans* Harlton, *Bythocypris pediformis* Knight, *B. sasakwaensis* Warthin, *Cavellina lata* Coryell, *C. minima* Coryell, *C. subpulchella* Coryell, *Cornigella minuta* Warthin, *Cytherella gloria* Coryell and Sample, *Glyptopleurina? minuta* Warthin, *Healdia ciscoensis* Harlton, *H. longa* Knight, *Hollinella bassleri* Knight, *H. limbata* Moore, *H. ulrichi* Knight, *Jonesina ampla* Warthin, *Paraparchites cuneatus* Warthin, *P. latidorsatus* Warthin.

## PENNSYLVANIAN (SEMINOLE FORMATION): SOUTHEASTERN OKLAHOMA.

*Amphissites dattonensis* Harlton, *A. geneae* Roth, *Bairdia beedei* Ulrich and Bassler, *B. hozbarensis* Harlton, *B. oklahomaensis* Harlton, *Bythocypris pediformis* Knight, *Cavellina lata* Coryell, *Cavellina pulchella* Coryell, *Cytherella gloria* Coryell and Sample, *Glyptopleurina? minuta* Warthin, *Paraparchites latidorsatus* Warthin.

## PENNSYLVANIAN (FRANCIS FORMATION): PONTOTOC COUNTY, ETC., OKLAHOMA.

*Amphissites geneae* Roth, *Hollinella obsita* Moore, *H. ovata* Coryell, *H. regularis* Coryell, *Paraparchites latidorsatus* Warthin, *Seminolites compressus* Coryell, *S. extensus* Coryell.

## PENNSYLVANIAN (CONTACT HOGSHOOTER LIMESTONE AND NELLIE BLY FORMATION):

TULSA COUNTY, OKLAHOMA.

- Amphissites centronotus transversus* Roth, *Kirkbya arcuata* Roth, *K. distenta* Roth, *K. permiana varica* Roth, *K. tumida* Roth.

## PENNSYLVANIAN (JOHNS VALLEY SHALE), SOUTHERN OKLAHOMA.

- Aechminella buchmanii* Harlton, *A. trispinosa* Harlton, *Amphissites bushi* Harlton, *A. marginiferus* Roth, *A. miseri* Harlton, *A. nodosus* Roth, *A. rugosus* Girty, *A. wapanuckensis* Harlton, *Bairdia ardmoresis* Harlton, *Bythocypris tomlinsoni* Harlton, *Cavellina lata* Coryell, *C. subovata* Coryell, *Cornigella pushmatahensis* Harlton, *Healdia caneyensis* Harlton, *H. simplicissima* Harlton, *Kirkbya bendisensis* Harlton, *Monoceratina ardmoresis* Harlton, *M. ventralis* Roth, *Mooreina johnsvalleyensis* Harlton, *Paraparchites wapanuckensis* Harlton, *Seminolites kosomensis* Harlton, *S. perforatus* Harlton, *S. pushmatahensis* Harlton, *Youngiella wapanuckensis* Harlton.

## PENNSYLVANIAN (MIDDLE PORTION OF THE DRUM GROUP): TULSA COUNTY, OKLAHOMA.

*Monoceratina ventrale magnum* Roth.

## PENNSYLVANIAN (HOKBAR FORMATION): CARTER COUNTY, ETC., OKLAHOMA.

- Aechmina?* *gibberosa* Knight, *Amphissites centronotus* (Ulrich and Bassler), *Bairdia hoxbarensis* Harlton, *B. nitida* Harlton (not Jones and Kirkby), *B. pompilioides* Harlton, *Healdia ciscoensis* Harlton, *Hollinella ulrichi* (Knight), *H. recurva* (Moore), *Kirkbyina inflata* Harlton.

## PENNSYLVANIAN (BELLE CITY LIMESTONE): PONTOTOC COUNTY, OKLAHOMA.

- Amphissites centronotus* (Ulrich and Bassler), *A. dattonensis* Harlton, *A. geneae* Roth, *Bairdia beedei* Ulrich and Bassler, *Cytherella gloria* Coryell and Sample, *Glyptopleurina?* *minuta* Warthin, *Hollinella harltoni* Kellett, *H. oklahomensis* (Harlton), *H. radlerae* (Harlton), *Kirkbya punctata* Kellett, *Knightina perplexa* (Roth).

## PENNSYLVANIAN (WETUMKA AND WEWOKA FORMATIONS): SOUTHEASTERN OKLAHOMA.

[We=Wetumka; Wo=Wewoka]

- Amphissites centronotus* (Ulrich and Bassler) (We, Wo), *A. dattonensis* Harlton (We, Wo), *A. girtyi* Knight (We, Wo), *A. roundyi* Knight (Wo), *A. simplicissimus* Knight (We, Wo), *A. wewokaensis* Warthin (Wo), *Bairdia altifrons* Knight (Wo), *B. auricula* Knight (We, Wo), *B. hoxbarensis* Harlton (We, Wo), *B. oklahomensis* Harlton (Wo), *Bairdianella elegans* Harlton (We), *Bythocypris pediformis* Knight (We, Wo), *B. rotundata* Warthin (We, Wo), *Cavellina reversa* Coryell (We), *C. subpulchella* Coryell (We, Wo), *Cornigella minuta* Warthin (We), *Cytherella intermedia* Jones and Kirkby (Wo), *C. wewokiana* Warthin (Wo), *H. ciscoensis* Harlton (Wo), *H. elegans* Warthin (We, Wo), *H. limbata* Moore (Wo), *H. limicoidea* Knight (Wo), *H. longa* Knight (Wo), *H. nucleolata* Knight (We, Wo), *Hollinella bassleri* (Knight) (We, Wo), *Jonesina* (?) *acuneata* Warthin (We), *J. gregaria* (Ulrich and Bassler) (Wo), *Kirkbyina laevis* Warthin (Wo), *Moorites minutus* (Warthin) (We, Wo), *Paraparchites cuneatus* Warthin (Wo), *P. latidorsatus* Warthin (We, Wo), *Seminolites elongatus* Coryell (Wo), *S. truncatus* Coryell (We, Wo), *Sulcella warthini* Coryell and Sample (Wo), *Ulrichia montosa* Knight (We, Wo), *Waylandella bythocyproidea* (Warthin) (We, Wo).

## PENNSYLVANIAN (CANYON-NOWATA SHALE): HUGHES QUARRY, 2 MILES NORTHEAST OF TULSA, OKLAHOMA.

- Acratia magna* Delo, *Amphissites centronotus* (Ulrich and Bassler) *A. girtyi*

Knight, *Bairdia auricula* Knight, *B. blakei* Harlton, *B. citrifomis* Knight, *B. crassa* Harlton, *B. hozbarensis* Harlton, *B. menardensis* Harlton, *B. moorei* Knight, *B. peracuta* Warthin, *B. pompilioides* Harlton, *Bythocypris faba* Coryell and Osirio, *B. fabulites* Warthin, *B. gallowayi* Coryell and Osirio, *B. pediformis* Knight. *Cytherella calcar* Harlton, *Healdia arcuata* Coryell and Osirio, *H. elegans* Warthin, *H. limacoidea* Knight, *H. tulsacensis* Coryell and Osirio, *Hollinella inflata* Coryell and Osirio, *H. nowatensis* Coryell and Osirio, *Kirkbya clarocarinata* Knight, *Macrocypris menardensis* Harlton, *Seminolites elongatus* Coryell, *S. extensus* Coryell, *S. truncatus* Coryell, *Ulrichia montosa* Knight.

PENNSYLVANIAN (KANSAS CITY FORMATION): KANSAS CITY, MISSOURI.

*Jonesina gregaria* (Ulrich and Bassler).

PENNSYLVANIAN (HENRIETTA—FORT SCOTT LIMESTONE): ST. LOUIS COUNTY, MISSOURI.

*Amphissites centronotus* (Ulrich and Bassler), *A. girtyi* Knight, *A. geneae* Roth, *A. roundyi* Knight, *A. simplicissimus* Knight, *Bairdia altifrons* Knight, *B. glennensis* Harlton, *B. haworthi* Knight, *B. hozbarensis* Harlton, *B. moorei* Knight, *B. oklahomaensis* Harlton, *B. seminalis* Knight, *Bythocypris parallela* Knight, *B. pediformis* Knight, *Cytherella missouriensis* Knight, *Healdia leguminoides* Knight, *H. limacoidea* Knight, *H. longa* Knight, *H. nucleolata* Knight, *Hollinella bassleri* (Knight), *H. kellestae* (Knight), *Jonesina arcuata* (Bean), *J. gregaria* (Ulrich and Bassler), *Kirkbya clarocarinata* Knight, *K. laciniata* Knight, *K. scaphula* Knight, *K. voluta* Knight, *Knightina allerismoides* (Knight), *Paraparchites laudensis* Knight, *Ulrichia montosa* Knight.

PENNSYLVANIAN (HENRIETTA—PAWNEE LIMESTONE): ST. LOUIS COUNTY, MISSOURI.

*Aechmina? gibberosa* Knight, *Bairdia citrifomis* Knight, *B. subcitriformis* Knight, *B. pompilioides* Harlton, *Bairdianella? rostrata* (Knight), *Carbonita lenticularis* (Knight), *Paraparchites claytonensis* Knight.

PENNSYLVANIAN: WELL AT 4100 FEET DEPTH, N. W. CORNER SEC. 5, T. 26 S., R. 41 W., HAMILTON COUNTY, KANSAS.

*Amphissites koehleri* Delo, *A. pinguis* (Ulrich and Bassler), *Bairdia crassa* Harlton, *Cytherella gloria* Coryell and Sample, *Glyptopleura irregularis* Delo, *G. spinosa* Harlton, *Jonesina gregaria* (Ulrich and Bassler), *Paraparchites humerosus* Ulrich and Bassler, *P. inornata* McCoy.

PENNSYLVANIAN OF EASTERN KANSAS.

*Aechmina? gibberosa* Knight (Lansing), *Amphissites centronotus* (Ulrich and Bassler), (Marmaton-Wabaunsee), *A. daltonensis* Harlton (Kansas City-Howard), *A. pinguis* (Ulrich and Bassler), (Shawnee-Wabaunsee), *A. simplicissimus* Knight (Marmaton-Wabaunsee), *Bairdia beedei* Ulrich and Bassler (Marmaton-Wabaunsee), *B. beedei abrupta* Ulrich and Bassler (Marmaton-Wabaunsee) *B. hozbarensis* Harlton (Missouri Series to Wabaunsee), *Cyathus ulrichi* Roth and Skinner (Missouri Series), *Cypridina subovata* Ulrich and Bassler (Lawrence), *Ellipsella distenta* Kellett (Howard-Wabaunsee), *Hollinella burlingamensis* Kellett (Burlingame), *H. crassimarginata* Kellett (Wabaunsee), *H. cushmani* Kellett (Deer Creek), *H. gibbosa* Kellett (Wabaunsee), *H. shauneensis* Kellett (Howard and Deer Creek), *J. bolliiformis* (Ulrich and Bassler) (Wabaunsee), *J. howardensis* Kellett (Howard and Scranton), *Kirkbya canyonensis* Harlton (Stanton-Wabaunsee), *K. clarocarinata* Knight (Stanton), *K. firma* Kellett (Stanton), *K. pergrandis* Kellett (Stanton and Deer Creek), *K. punctata* Kellett (Stanton, Howard, and Bur-

lingame), *Knighitina ampla* Kellett (Deer Creek), *K. harltoni* Kellett (Stanton), *K. minuta?* (Harris and Lalicker) (Stanton, Deer Creek, Burlingame), *Moorites minutus* (Warthin) (Stanton, Deer Creek and Howard), *Paraparchites humerosus* Ulrich and Bassler (Wabaunsee), *P. magnus* Kellett (Deer Creek), *P. perminutus* Kellett (Missouri Series Shawnee).

PENNSYLVANIAN (GRAHAM FORMATION): EAST MENARD COUNTY, TEXAS.

*Aechmina?* *gibberosa* Knight, *Amphissites ciscoensis* Harlton, *A. dattonensis* Harlton, *A. simplicissimus* Knight, *Bairdia crassa* Harlton, *B. grahamensis* Harlton, *B. hexensis* Harlton, *B. hispida* Harlton, *B. hozbarensis* Harlton, *B. macdonelli* Harlton, *B. menardvillensis* Harlton, *B. menardensis* Harlton, *B. blakei* Harlton, *B. oklahomaensis* Harlton, *B. pompilioides* Harlton, *B. recta* Harlton, *B. subelongata* Jones and Kirkby, *Bairdianella elegans* Harlton, *B. oblongata* Harlton, *Bythocypris* (?) *texana* Harlton, *Cytherella calcar* Harlton, *C. ovoidiformis* Harlton, *Glyptopleura menardensis* Harlton, *G. coryelli* Harlton, *G. texana* Harlton, *Glyptopleurina powersi* Harlton, *Hollinella grahamensis* (Harlton), *H. menardensis* Harlton, *H. oklahomaensis* (Harlton), *H. radlerae* (Harlton), *H. ulrichi* (Knight), *Jonesina texana* Harlton, *Kirkbya clarocarinata* Knight, *K. canyonensis* Harlton, *K. kellettae* Harlton, *K. knighiti* Harlton, *Kirkbyina inflata* Harlton, *Knighitina hexensis* (Harlton), *K. menardensis* Harlton, *K. texana* (Harlton), *Macrocypris menardensis* Harlton.

PENNSYLVANIAN (GRAHAM FORMATION): YOUNG COUNTY, ETC., TEXAS.

*Bairdia grahamensis* Harlton, *Cytherella calcar* Harlton, *C. ovoidiformis* Harlton, *Healdia simplex* Roundy, *H. torquata* Harlton.

PENNSYLVANIAN (GRAHAM—SOUTH BEND SHALE): 1 MILE WEST OF GRAHAM, TEXAS.

*Hollinella limata* (Moore), *H. pulchra* (Moore), *H. recurva* Moore, *H. regularis* (Moore), *H. verrucula* (Moore).

PENNSYLVANIAN (CISCO GROUP): TEXAS.

*Amphissites ciscoensis* Harlton (Shackleford County), *A. texana* (Harlton), (Eastland County), *Bairdia ciscoensis* Harlton (Coleman County), *B. hispida* Harlton (Eastland County), *B. texana* Harlton (Coleman County), *Healdia ciscoensis* Harlton (Coleman County), *Paraparchites inornatus* (McCoy) (near Coleman).

PENNSYLVANIAN: MUSTANG CREEK, EAST OF BALLINGER, ETC., TEXAS.

*Jonesina bolliiformis* (Ulrich and Bassler), *Paraparchites humerosus* Ulrich and Bassler.

PENNSYLVANIAN (MINERAL WELLS—EAST MOUNTAIN SHALE): MINERAL WELLS, TEXAS.

*Amphissites centronotus* Ulrich and Bassler, *A. dattonensis* Harlton, *A. girtyi* Knight, *A. irregularis* Coryell and Sample, *A. pinguis* (Ulrich and Bassler), *Bairdia auricula* Knight, *B. ciscoensis* Harlton, *B. hispida* Coryell and Sample, *B. oklahomaensis* Harlton, *B. pennata* Coryell and Sample, *B. rogatzi* Coryell and Sample, *B. seminalis* Coryell and Sample, *Bythocypris centralis* Coryell and Billings, *B. palopintoensis* Coryell and Sample, *B. parallela* Knight, *B. pediformis* Knight, *B. semicirculus* Coryell and Sample, *B. texensis* Coryell and Sample, *Cavellina jejuna* Coryell and Sample, *C. lintris* Coryell and Sample, *C. pulchella* Coryell, *C. reversa* Coryell, *Cornigella longispina* Coryell and Sample, *C. minuta* Warthin, *Cytherella gloria* Coryell and Sample, *C. proxima* Coryell and Sample, *C. tongia* Coryell and Sample, *C. watkinsi* Coryell and Sample, *C. wewokena* Warthin, *Healdia alba* Coryell and Billings, *H. cuneata* Coryell and Billings, *H. glennensis* Harlton, *H. limacoidea*

Knight, *H. longa* Knight, *H. oklahomaensis* Harlton, *H. simplex* Roundy, *Hollinella bulbosa* Coryell and Sample, *H. ulrichi* Knight, *H. harltoni* Kellett, *Hollites papillosus* Coryell and Sample, *Jonesina acuneata* Warthin, *J. ampla* Warthin, *J. texana* Harlton, *Kirkbyina laevis* Warthin, *Moorea elongata* Coryell and Sample, *Moorites minutus* (Warthin), *M. parallela* Coryell and Sample, *Paraparchites brazoensis* Coryell and Sample, *P. latidorsatus* Warthin, *P. oblongus* Coryell and Sample, *P. palopintoensis* Coryell and Sample, *P. thomasi* Coryell and Sample, *Sulcella sulcata* Coryell and Sample, *S. warthini* Coryell and Sample.

PENNSYLVANIAN (CISCO GROUP-WAYLAND SHALE OF GRAHAM FORMATION): 5 MILES EAST AND 2000 FEET NORTH OF CISCO, TEXAS.

*Amphissites centronotus* (Ulrich and Bassler), *A. dattonensis* Harlton, *A. simplicissimus* Knight, *Bairdia hozbarensis* Harlton, *B. moorei* Knight, *B. oklahomaensis* Harlton, *B. subveva* Coryell and Billings, *B. summa* Coryell and Billings, *Bythocypris centralis* Coryell and Billings, *B. procera* Coryell and Billings, *B. scapha* Coryell and Billings, *B. tomlinsoni* Harlton, *Cavellina pulchella* Coryell, *Healdia absentia* Coryell and Billings, *H. alba* Coryell and Billings, *H. cincta* Coryell and Billings, *H. compressa* Coryell and Billings, *H. cuneata* Coryell and Billings, *H. miranda* Coryell and Billings, *H. quadri-spinosa* Coryell and Billings, *H. simplex* Roundy, *Hollinella bassleri* (Knight), *Kirkbya clarocarinata* Knight, *Moorites minutus* (Warthin), *Seminolites compressus* Coryell, *S. elongatus* Coryell, *S. truncatus* Coryell, *Waylandella fornicata* Coryell and Billings, *W. spinosa* Coryell and Billings, *W. waylandica* Coryell and Billings.

PENNSYLVANIAN (WAYLAND SHALE), GRAHAM, TEXAS.

*Amphissites centronotus* (Ulrich and Bassler), *A. dattonensis* Harlton, *Artifactella tomahawki* Coryell and Booth, *Bairdia acetalata* Coryell and Billings, *B. pinnula* Coryell and Booth, *B. hurwitzii* Coryell and Booth, *B. samplei* Coryell and Booth, *B. scholli* Coryell and Booth, *Birdsallella simplex* Coryell and Booth, *Burllella pecanata* Coryell and Booth, *Bythocypris pediformis* Knight, *Cavellina subpulchella* Coryell, *Cytherella footei* Coryell and Booth, *Dilobella texana* Coryell and Booth, *Girtyites spinosus* Coryell and Booth, *Healdia colonyi* Coryell and Booth, *H. masoni* Coryell and Booth, *H. simplex* Roundy, *Hollinella kellestae* Knight, *Jonesina grahamensis* Coryell and Booth, *Kirkbyella typa* Coryell and Booth, *Silenites silenus* Coryell and Booth, *Waylandella cuyleri* Coryell and Booth.

LOWER PENNSYLVANIAN, MCCOY FORMATION: MCCOY, EAGLE COUNTY, COLORADO.

*Amphissites centronotus* (Ulrich and Bassler), *Bairdia ardmorensis* Harlton, *B. citriformis* Knight, *B. dormickhillensis* Harlton, *B. glennensis* Harlton, *B. hozbarensis* Harlton, *B. pompilioides* Harlton, *B. coryelli* Roth and Skinner, *Cyathus ulrichi* Roth and Skinner, *Healdia leguminoidea* Knight, *Hollinella bassleri* (Knight), *Jonesina mccoysi* Roth and Skinner, *Paraparchites inornata* (McCoy), *Ulrichia binoda* Roth and Skinner.

PENNSYLVANIAN (PHOSPHATE BEDS OF PARK CITY FORMATION): WYOMING.

*Cytherella benniei* Jones, Kirkby, and Brady, *Hollinella occidentalis* (Girty), *Jonesina carbonifera* Girty.

PENNSYLVANIAN (MANZANO GROUP, YESO FORMATION): RIO GRANDE VALLEY, NEW MEXICO.

*Bairdianella occidentalis* (Girty), *Cytherella constricta* Delo, *Hollinella herrickana* Girty, *Sansabella shumardiana* (Girty).

- PENNSYLVANIAN AND PERMIAN: KINGWOOD SUGGS WELL, IRON COUNTY, TEXAS.  
*Bairdia irionensis* Delo, *Hollinella herrickana* (Girty) (depth, 1382–1386 feet);  
*Hollinella australis* Delo (depth, 1525 feet); *Argilloecia regularis* Delo (depth,  
1527–1545 feet).
- SUN TANKERSLEY WELL 1, IRION COUNTY, TEXAS.  
*Jonesina prolata* Delo (depth, 892–906 feet), *Hollinella occidentalis* (Girty)  
(depth, 960–970 feet).
- WHITTMER PROPERTY TRUSTEES (CASH DOLLAR) WELL, IRION COUNTY, TEXAS.  
*Paraparchites ornatus* Delo (depth, 1850–1865 feet).
- FORT MCKAVETT, TISDALL WELL 1, SCHLEICHER COUNTY, TEXAS.  
*Bairdia crassa* (?) Harlton (depth, 1510–1515 feet), *Glyptopleura spinosa*  
Harlton (depth, 2270–2290 feet).
- TRANSCONTINENTAL BLACKSTONE WELL 1, PECOS COUNTY, TEXAS.  
*Bairdia pecosensis* Delo (depth, 1032–1038 feet); *Acratia typica* Delo, *Bairdia*  
*shideleri* Delo, *Bairdianella elegans* Harlton, *Cytherella constricta* Delo, *Glypto-*  
*pleura emarginata* Delo, *Macrocypris menardensis* Harlton, *Paraparchites*  
*binammatus* Delo, *Seminolites ovatus* Delo (depth, 1365–1375 feet).
- CROMWELL WINSLOW WELL 1, MENARD COUNTY, TEXAS.  
*Jonesina subquadrata* Delo, *Paraparchites humerosus texanus* Delo (depth, 600–  
620 feet); *Amphissites?* *simplicissimus* Knight, *Kellettella novicula* Delo  
(depth, 760–790 feet); *Bairdia menardensis* Harlton, (depth, 775 feet).
- SOUTHERN CRUDE OIL PURCHASING COMPANY, ALLISON WELL 1, SUTTON COUNTY,  
TEXAS.  
*Acratia magna* Delo (depth, 600–606 feet); *Bairdia seligi* Delo (depth, 950–961  
feet); *Healdia ackersi* Delo, *H. concinna* Delo, *H. obsolens* Delo (depth, 985–  
999 feet); *H. lentiformis* Delo, *H. subangularis* Delo (depth, 992–1001 feet).
- COAL MEASURES OF NOVA SCOTIA.  
*Cardona?* *elongata* Jones and Kirkby, *Carbonita elongata* (Jones and Kirkby),  
*C. fabulina* (Jones and Kirkby), *C. fabulina altilis* (Jones and Kirkby),  
*Jonesina arcuata* (Bean).
- COAL MEASURES: SCOTLAND AND ENGLAND.  
*Carbonita bairdoides* (Jones and Kirkby), *C. fabulina* (Jones and Kirkby), *C.*  
*fabulina humilis* (Jones and Kirkby), *C. fabulina inflata* (Jones and Kirkby),  
*C. fabulina subangulata* (Jones and Kirkby), *C. pungens* (Jones and Kirkby),  
*C. rankiniana* (Jones and Kirkby), *C. roederiana* (Jones and Kirkby), *C.*  
*salteriana* (Jones), *C. scalpellus* (Jones and Kirkby), *C. secans* (Jones and  
Kirkby), *C. wardiana* (Jones and Kirkby), *Cypridina radiata* Jones, Kirkby,  
and Brady, *Glyptopleura spiralis* (Jones and Kirkby), *Jonesina arcuata*  
(Beau), *J. subarcuata* (Jones), *Philomedes elongata* Jones, Kirkby, and Brady.
- COAL MEASURES OF SOUTH WALES.  
*Carbonita agnes* (Jones), *C. agnes rugulosa* (Jones), *C. agnes subrugulosa* (Jones),  
*C. evelinae* (Jones).
- COAL MEASURES (MISCELLANEOUS).  
Australia (Queensland): *Jonesina varicosa* (Jones and Kirkby).  
Bohemia: *Carbonita salteriana* (Jones).  
North France: *Carbonita scalpellus* (Jones and Kirkby), *Cypridina radiata* Jones,  
Kirkby, and Brady.  
Thuringia, Germany: *Cythere spinosa* Richter.  
Ireland: *Philomedes interpunctata* Jones.



## PERMIAN FAUNAS

## LUEDER LIMESTONE: BAYLOR COUNTY, TEXAS.

*Bairdia bulleta* Harris and Lalicker.

## CLEAR FORK-ARROYO: TOM GREEN COUNTY, TEXAS.

*Antiparaparchites reversus* Coryell and Rogatz, *Cavellina arcuata* Coryell and Rogatz, *Cytherella molaris* Coryell and Rogatz, *Ellipsella gilei* Coryell and Rogatz, *E. obliqua* Ulrich and Rogatz, *Knoxina elliptica* Coryell and Rogatz, *K. incurvata* Coryell and Rogatz, *K. indistincta* Coryell and Rogatz, *K. lecta* Coryell and Rogatz, *Paraparchites oviformis* Coryell and Rogatz.

## PERMIAN OF EASTERN KANSAS AND NEBRASKA.

*Amphissites centronotus* (Ulrich and Bassler) (Americus-Winfield), *A. pinguis* (Ulrich and Bassler) (Americus-Wreford), *A. simplicissimus* Knight, (Elmdale-Winfield), *Bairdia beedei* Ulrich and Bassler (Americus-Winfield), *B. beedei abrupta* Ulrich and Bassler (Americus-Winfield), *B. eissensis* Upson (Garrison), *B. florenaensis* Upson (Garrison), *B. garrisonensis* Upson (Garrison), *B. maxeyi* Harris and Lalicker (Garrison), *B. reussiana* Kirkby (Chase), *Beyrichiana permiana* Kellett (Wreford), *Bythocypris johnsoni* Upson (Garrison), *B. tumidus* Upson (Garrison), *B. tumidus magnus* Upson (Garrison), *Cavellina winfieldensis* Upson (Chase), *Cornigella binoda* Kellett (Cottonwood, Wreford, and Ft. Riley), *C. parva* Knight (Fort Riley and Winfield), *Cytherella nebrascensis* (Geinitz), *Ellipsella distenta* Kellett (Elmdale-Winfield), *Glyptopleura triserata* Harris and Lalicker (Wreford), *Healdia winfieldensis* Upson (Winfield), *Hollinella crassimarginata* Kellett (Americus-Ft. Riley), *H. emaciata* (Ulrich and Bassler) (Cottonwood-Ft. Riley), *H. gibbosa* Kellett (Americus-Ft. Riley), *H. nevensis* Kellett (Neva), *H. ulrichi* Knight (Cottonwood-Wreford), *Jonesina bolliiformis* (Ulrich and Bassler) (Americus-Winfield), *J. papillosa* Harris and Lalicker (Foraker), *J. papillosa inflata* Harris and Lalicker (Foraker), *J. primitioides* Harris and Lalicker (Neva), *J. uncialis* Harris and Lalicker (Garrison), *Kirkbya canyonensis* Harlton (Elmdale, Neva), *K. moorei* Kellett (Wreford), *K. valida* Kellett (Elmdale), *K. wymani* Kellett (Neva-Winfield), *Knightina bassleri* Kellett (Neva, Ft. Riley), *K. incurva* Kellett (Wreford and Winfield), *K. minuta* (Harris and Lalicker) (Garrison), *K. texana* (Harlton) (Elmdale-Winfield), *Knoxina nebrascensis* Upson (Cottonwood-Wreford), *Macrocypris garrisonensis* Upson (Garrison), *Monoceratina lewisi* Harris and Lalicker (Fort Riley), *Paraparchites gibbosus* Upson (Garrison), *P. humerosus* (Ulrich and Bassler) (Elmdale-Ft. Riley), *Pseudoparaparchites kansensis* Kellett (Elmdale, Cottonwood), *Sulcella edmistonae* Harris and Lalicker (Garrison), *Ulrichia robusta* Kellett (Wreford).

## PERMIAN (DUNKARD): NEAR FROSTBURG, MARYLAND.

*Primitia frostburgensis* Jodes.

## MAGNESIAN LIMESTONE: ENGLAND.

*Bairdia acuta* Jones, *B. ampla* Reuss, *B. amputata* (Kirkby), *B. berniciensis* Kirkby, *B. brevicauda* (Jones), *B. caudata* Kirkby, *B. geinitziana* (Jones), *B. gracilis* McCoy, *B. grandis* Jones and Kirkby, *B. hisingeri* (Münster), *B. kingii* Reuss, *B. kingii compressa* (Kirkby), *B. mucronata* Reuss, *B. plebeia* Reuss, *B. plebeia amygdalina* Kirkby, *B. plebeia elongata* Kirkby, *B. plebeia neptuni* Kirkby, *B. plebeia reussiana* (Kirkby), *B. plebeia rhombica* (Jones), *B. plebeia ventricosa* (Kirkby), *B. rhomboidea* Kirkby, *B. submucronata* (Jones and Kirkby), *Carbonita intermedia* (Münster), *Cythere* (*Cytherella*?)

PERMIAN CORRELATION TABLE

Kansas, Nebraska, Missouri	Oklahoma	Texas	Germany
<p>Cimarron</p> <p>Big Basin ss. Hackberry sh. Day Creek dol. Woodward fm. Cave Creek fm. Enid fm. Harpers ss.</p>	<p>Quaternaster fm. Cloud Chief gypsum Day Creek dol. Whitehorse ss. Dog Creek sh. Blaine gypsum Chickasha fm. Duncan ss. Hennessey sh. Garber fm. Wellington sh.</p>	<p>Quaternaster fm. Cloud Chief gypsum  Whitehorse ss. Dog Creek sh. Blaine gypsum Chickasha fm. San Angelo fm. Clear Fork fm.  Arroyo fm. Leuders fm. Clyde fm. Belle Plains fm. Admiral fm.  Putnam fm. Moran fm. Pueblo fm. Harpersville fm.</p>	<p>Zechstein Upper clay with gypsum and dolomite  Fetid beds and Great Dolomite Zechstein ls.  Kupferschiefer Zechstein conglomerate</p>
<p>Summer</p> <p>Wellington fm. Herington ls. Enterprise sh. Luta ls.</p>	<p>Wellington sh.</p>	<p>Arroyo fm. Leuders fm. Clyde fm. Belle Plains fm. Admiral fm.</p>	
<p>Chase</p> <p>Winfield ls. Doyle sh. F. C. Riley ls. Florence flint Machell sh. Wreford ls.</p>	<p>Stillwater fm.</p>	<p>Putnam fm. Moran fm. Pueblo fm. Harpersville fm.</p>	<p>Rotliegende Kreuznach red ss. Wozning ruddle shales Waldern metapyre Sötern porphyry conglomerate Lebach ss. and black shales with coal seams</p>
<p>Council Grove</p> <p>Garrison sh. Cottonwood ls. Eskridge sh. Neva ls. Elmdale ls. Americus ls.</p>	<p>Neva ls. Elmdale ls. Foraker ls.</p>		<p>Cusel sandstones and shales</p>

*biplicata* Jones, *C. (?Bairdia) kutorgiana* Jones, *C. ?? (Bythocypris?) morrisiana* Jones, *Cytherella nuciformis* (Jones), *Kirkbya glypta* (Jones), *K. inornata* Roth, *K. permiana* (Jones), *Macrocypris jonesiana* (Kirkby), *Paraparchites inornatus* McCoy.

ZECHSTEIN: THURINGIA, GERMANY

*Bairdia ampla* Reuss, *B. berniciensis* Kirkby, *B. brevicauda* (Jones), *B. caudata* Kirkby, *B. curta* McCoy, *B. drupacea* (Richter), *B. frumentum* Reuss, *B. geinitziana* (Jones), *B. kingii* Reuss, *B. mucronata* Reuss, *B. plebeia* Reuss, *B. plebeia reussiana* (Kirkby), *B. subgracilis* Geinitz, *Cythere (?Bairdia) dorsalis* Richter, *C. (Bairdia) kutorgiana* Jones, *C. parmula* Richter, *C. subgracilis* Geinitz, *Cytherella nuciformis* (Jones), *C. richteriana* Jones and Kirkby, *C. tyronica* (Jones), *Healdia bituberculata* (Reuss) (Wetterau), *Kirkbya collaris* Richter, *K. permiana* (Jones), *K. richteriana* (Jones), *K. roessleri* (Reuss) (Wetterau), *Macrocypris gracillima* (Richter), *M. jonesiana* (Kirkby), *M. leptura* (Richter), *M. marginata* (Richter), *M. ?piscis* (Richter), *M. regularis* (Richter), *M. subelongata* (Geinitz).

PERMIAN: PINEGA RIVER, ETC., RUSSIA.

*Amphissites grapta* (Keyserling), *A. sticta* (Keyserling), *Bairdia cyclus* (Keyserling), *B. plebeia rhombica* (Jones), *B. scapha* Eichwald, *Cytherina eos* Eichwald, *Jonesina pyrrhae* (Eichwald), *Kirkbya (?Ulrichia) schrenkii* (Keyserling), *Leperditia (Bairdia) recta* (Keyserling).

PERMIAN: NEW SOUTH WALES, AUSTRALIA.

*Bairdia affinis* Morris, *Carbonita australis* (Etheridge), *Cythere?? impressa* McCoy, *Entomis? jonesi* Koninck, *Jonesina etheridgei* Chapman, *Leperditia?? (Jonesina) prominens* Chapman, *Primitia? dunnei* Chapman.

PERMIAN (MISCELLANEOUS).

Bohemia: *Bythocypris (?) mytiloides* Fritsch, *Candona elongata* (Goldenberg).

Saarbrücken coal field: *Candona elongata* (Goldenberg).

Central India: *Candona kotahensis* Jones.

Ireland: *Cytherella tyronica* (Jones).

PALEOZOIC (MISCELLANEOUS).

Alps (Bellerophon bed): *Kirkbya alpina* Guembel.

Island of Borkum, North Sea: *Kirkbya? loriei* Bonnema.

Devonshire, England (Paleozoic quartzite pebbles in Triassic conglomerates):

*Cypridina raisiniae* Jones.

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# Catalogue of Genera and Species

## ACANTHOSCAPHA Ulrich and Bassler (Beecherellidae)

Genotype: *Beecherella navicula* Ulrich

*Acanthoscapha* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 319.  
*Beecherella* (in part) of authors.

***Acanthoscapha angularis*** (Ulrich) Devonian  
*Beecherella angularis* ULRICH, Am. Geol., 8 (1891) p. 204, pl. 2, figs. 10–12 (*B. angulata* on plate).

Helderbergian (New Scotland): Albany County, N. Y.

***Acanthoscapha cristata*** (Ulrich) Devonian  
*Beecherella cristata* ULRICH, Am. Geol., 8 (1891) p. 202, pl. 2, figs. 16–19.

Helderbergian (New Scotland): Albany County, N. Y.  
Holotype.—U.S.N.M.<sup>1</sup> No. 41816.

***Acanthoscapha navicula*** (Ulrich) Devonian  
*Beecherella navicula* ULRICH, Am. Geol., 8 (1891) p. 203, pl. 2, figs. 8, 9.—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 318, text fig. 24 (fig. 2).

Helderbergian (New Scotland): Albany County, N. Y.

***Acanthoscapha ovata*** (Ulrich) Devonian  
*Beecherella ovata* ULRICH, Am. Geol., 8 (1891) p. 202, pl. 2, figs. 13, 14.

Helderbergian (New Scotland): Albany County, N. Y.

***Acanthoscapha subtumida*** (Ulrich) Devonian  
*Beecherella subtumida* ULRICH, Am. Geol., 8 (1891) p. 200, pl. 2, figs. 5–7.

Helderbergian (New Scotland): Albany County, N. Y.  
Holotype.—U.S.N.M. No. 41817.

***Acanthoscapha subtumida intermedia*** (Ulrich) Devonian  
*Beecherella subtumida intermedia* ULRICH, Am. Geol., 8 (1891) p. 201, pl. 2, fig. 15.

Helderbergian (New Scotland): Albany County, N. Y.  
Holotype.—U.S.N.M. No. 41818.

## ACRATIA Delo (Bairdiidae)

Genotype: *A. typica* Delo

*Acratia* DELO, Jour. Pal., 4 (1930) p. 174.

***Acratia deloi*** Geis Mississippiian  
*Acratia deloi* GEIS, Jour. Pal., 6, no. 2 (1932) p. 183, pl. 26, figs. 3a, b.

Salem (Spergen) limestone: Harrodsburg, etc., Ind.

***Acratia magna*** Delo Pennsylvanian  
*Acratia magna* DELO, Jour. Pal., 4 (1930) p. 175, pl. 13, fig. 13—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 38.

Deep well, Sutton County, Texas; Tulsa County, Okla. (Nowaka shale).  
Holotype.—U.S.N.M. No. 81779.

<sup>1</sup> U.S.N.M.—United States National Museum.

**Acratia typica** Delo

Pennsylvanian

*Acratia typica* DELO, Jour. Pal., 4 (1930) p. 175, pl. 13, fig. 12.Deep well, Pecos County, Texas.  
Holotype.—U.S.N.M. No. 81780.**ACRONOTELLA** Ulrich and Bassler (Primitiidae)Genotype: *A. shideleri* Ulrich and Bassler*Acronotella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, 302.**Acronotella? depressa** (Peneau)

Devonian

*Acronotella? depressa* PENEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 7 (1927) p. 112, pl. 3, fig. 5.

Tentaculites beds: Chateaupanne, Bass-Loire, France.

**Acronotella shideleri** Ulrich and Bassler

Early Silurian

*Acronotella shideleri* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text. fig. 15 (figs. 25-27).Richmond (Elkhorn): Richmond, Ind.  
Holotype.—U.S.N.M. No. 66954.**Acronotella? depressa** Peneau = **Acronotella? depressa****AECHMINA** Jones and Holl (Primitiidae)Genotype: *A. cuspidata* Jones and Holl*Aechmina* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 217—ZITTEL, Handb. Pal., 2 (1885) p. 557—VOGDES, New York Acad. Sci., Ann. 5 (1889) p. 4, pl. 2, fig. 6—MILLER, North American geol. pal. (1892) appendix 1, p. 704—KOKEN, Die Leitfossilien (1896) p. 40—GRABAU, Buffalo Soc. Nat. Sci., Bull. 6 (1899) p. 308—ULRICH, Zittel-Eastman Textb. Pal., 1 (1900) p. 644—GRABAU, N. Y. State Mus., Bull. 45, no. 9 (1901) p. 220; Buffalo Soc. Nat. Sci., Bull. 7 (1901) p. 220—GRABAU and SHIMER, North American index fossils, 2 (1910) p. 345—BASSLER, Zittel-Eastman Textb. Pal., ed. 2 (1913) p. 738; U. S. Nat. Mus., Bull. 92 (1915) p. 18—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 21-27—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 302—KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 234. (Most of the references prior to 1923 refer in part to *Paraechmina*.)**Aechmina abnormis** Ulrich = **Paraechmina abnormis****Aechmina bovina** Jones

Silurian

*Aechmina bovina* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 412, pl. 13, figs. 5, 6; Sil. Ostrac. Gothland (1887) p. 7; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 409, pl. 22, fig. 8—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 153—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 22, 24, 28, figs. 1-4—HEDE, Sver. Geol. Unders., ser. C, no. 281, 11, no. 2 (1917) p. 25, 29; Geol. För. Stockholm Förh., 41 (1919) p. 141, pl. 6, fig. 4; Sver. Geol. Unders., ser. C, 14, no. 7 (1920-1921) p. 41, 49, 98—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (fig. 23) p. 302.

Shropshire, England (Upper and Middle Wenlock shale—Tickwood and Coalbrook Dale); Fröjel, Mulde, etc., Gotland (Middle Gotlandian); Mark Brandenburg, Germany (Drift-Encrinurus limestone).]

**Aechmina bovina punctata** Krause = **Aechmina punctata****Aechmina brevicornis** Jones

Silurian

*Aechmina brevicornis* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 413, pl. 13, fig. 8—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 27, 28.

Upper Wenlock shale (Tickwood beds): Shropshire, England.

**Aechmina byrnesi** (Miller) Jones = **Dicranella** (?) **byrnesi**

**Aechmina carbonifera** Smith

Carboniferous

*Aechmina carbonifera* SMITH, Geol. Soc. Glasgow, Tr. 14 (1911) p. 148, pl. 26 fig. 19.

Balladoole, Isle of Wight.

**Aechmina clavulus** Jones and Holl

Silurian

*Aechmina clavulus* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 218, text fig. 3—JONES, *ibid.*, ser. 5, 19 (1887) p. 411—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 21, 28.

Wenlock limestone: West Malvern, England

**Aechmina cuspidata** Jones and Holl

Silurian and Lower Devonian

*Aechmina cuspidata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 218, text fig. 2, pl. 14, fig. 8—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 6; Geol. Mag., n. s., dec. 2, 8 (1881) p. 73, 74; Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 411, pl. 13, figs. 2-4, 9—VOGDÉS, New York Acad. Sci., Ann. 5 (1889) pl. 2, fig. 6—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 521, pl. 95, figs. 19-21—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 21, 23, 28—VOGDÉS, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 6—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (fig. 22).

Malvern, etc., Shropshire, England (Upper and Middle Wenlock shale—Tickwood, Coalbrook Dale); 21st Bridge, near Keyser, W. Va. (Helderbergian—New Scotland).  
Plesiotypes.—U.S.N.M. No. 53291.

**Aechmina depressicornis** Jones

Silurian

*Aechmina depressicornis* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 413, pl. 13, fig. 7—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 22, 28.

Upper Wenlock shales (Tickwood): Shropshire, England.

**Aechmina geneae** Roth

Devonian

*Aechmina geneae* ROTH, Jour. Pal., 3, no. 4 (1929) p. 336, pl. 35, fig. 4.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80648.

**Aechmina?** **gibberosa** Knight

Pennsylvanian

*Aechmina* (?) *gibberosa* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 235, pl. 31, figs. 9a, b.

St. Louis County, Mo. (Henrietta—Pawnee); Leavenworth, Kan. (Lansing); Near Ardmore; Okla. (Hoxbar); East Menard County, Texas (Graham).

**Aechmina grönwalli** Troedsson

Silurian

*Aechmina grönwalli* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15, no. 3 (1918-1919) p. 87, 93, pl. 2, figs. 14, 15.

Dalmanites beds: Röstånga, Scania, Sweden.

**Aechmina inequalis** Roth

Devonian

*Aechmina inequalis* ROTH, Jour. Pal., 3, no. 4 (1929) p. 335, pl. 35, figs. 3 a-c.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80647.

**Aechmina jonesi** Chapman

Silurian

*Aechmina jonesi* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 308, pl. 13, fig. 11—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 23, 27, 28.

Yeringian: Cave Hill, Lilydale, Victoria, Australia.

***Aechmina longicornis*** Ulrich and Bassler Mississippian  
*Aechmina longicornis* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 33  
 (1932) pl. 27, fig. 6.

Kinderhook (Ridgetop shale): Mt. Pleasant, Tenn.  
 Holotype.—U.S.N.M. No. 41537.

***Aechmina marginata*** Ulrich Devonian  
*Aechmina marginata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 184,  
 pl. 16, fig. 5—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 308, text fig. 251—  
 GRABAU and SHIMER, North American index fossils, 2 (1910) p. 346, text fig. 1660k—  
 BOTKE, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3 (1916) p. 22, 28.

Eighteen Mile Creek, N. Y. (Hamilton-Ludlowville); Falls of the Onio (Onondaga).  
 Holotype.—U.S.N.M. No. 41371.

***Aechmina molengraffi*** Botke Silurian  
*Aechmina molengraffi* BOTKE, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3  
 (1916) p. 23, 26, 28, pl. 2, figs. 9–12.

Drift: Noordlaren, Holland.

***Aechmina obtusa*** Jones Ordovician  
*Aechmina obtusa* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 294, pl. 12,  
 figs. 17, 18—BOTKE, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3 (1916) p. 22, 28.

Bala (Dufton shale): Pusgill, Westmoreland, England.

***Aechmina punctata*** Krause Silurian  
*Aechmina bovina punctata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p.  
 397, pl. 22, fig. 18—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 153—  
 BOTKE, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3 (1916) p. 25, 28, pl. 2, figs.  
 5–8—HEDE, Sver. Geol. Unders., ser. C. no. 281, 11, no. 2 (1917) p. 25, 29; *ibid.*,  
 no. 305, 14 (1920–1921) p. 98—KUMMEROW, Preuss. Geol. Landes., Jahrb., 44 (1923–  
 1924) p. 408.

Drift, Northern Germany (graptolite beds) and Middle Gotlandian, Mulde, Island of Gotland.

***Aechmina richmondensis*** Ulrich and Bassler Early Silurian  
*Aechmina richmondensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 299, fig. 15, no. 19–21.

Richmond (Elkhorn): near Richmond, Ind.  
 Holotype.—U.S.N.M. No. 82410.

***Aechmina simplex*** Ulrich and Bassler Silurian  
*Aechmina simplex* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 512, pl. 38, fig. 20.

Clinton (Drepanellina clarki zone): 7 miles west of Lewiston, Pa.  
 Holotype.—U.S.N.M. No. 63704.

***Aechmina spinosa*** Hall = ***Paraechmina spinosa***

***Aechmina ventralis*** Ulrich and Bassler, Md. Geol. Surv., Silurian vol. (1923)  
 p. 65. (Nomen nudum).<sup>2</sup>

#### AECHEMINELLA Harlton (Beyrichiidae)

Genotype: *A. trispinosa* Harlton

*Aechminella* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 19.

***Aechminella buchanani*** Harlton Pennsylvanian  
*Aechminella buchanani* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 20, pl. 7, figs. 1a, b.

Johns Valley shale: Southern Oklahoma.  
 Cotypes.—U.S.N.M. No. 85545.

<sup>2</sup> By accident some manuscript names not employed in the descriptive part of the Maryland Silurian volume were left in faunal lists printed in the earlier pages of the publication.

**Aechminella trispinosa** Harlton Pennsylvanian  
*Aechminella trispinosa* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 20, pl. 6, figs. 9a, b.

Johns Valley shale: Southern Oklahoma.  
 Holotype.—U.S.N.M. No. 85544.

**Aglaiia? cypridiformis** Jones and Kirkby = **Bythocypris cypridiformis**.

**Agnostus tuberculatus** (Salter) Murchison = **Kloedenia tuberculata**.

**Albanella** Harris and Lalicker = **Amphissites**.

**Albanella gouldi** Harris and Lalicker = **Amphissites centronatus**

**ALLOSTRACA** Ulrich and Bassler (Kirkbyidae)

Genotype: *A. fimbriata* Ulrich and Bassler

*Allostraca* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) p. 236.

**Allostraca fimbriata** Ulrich and Bassler Mississippian

*Allostraca fimbriata* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 27, fig. 5.

Kinderhook (Ridgetop shale): Mt. Pleasant, Tenn.  
 Holotype.—U.S.N.M. No. 80504.

**Aluta** Matthew, a Cambrian branchiopod

**AMPHISSITES** Girty (Kirkbyidae)

Genotype: *A. rugosus* Girty

*Amphissites* GIRTY, New York Acad. Sci., Ann., 20 (1910) p. 235—ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 7—KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 246, 252, 254, 258, pl. 30—ROTH (subgenus), Wagner Free Inst. Sci., Publ., 1 (1929) p. 31–36; Jour. Pal., 3, no. 4 (1929) p. 346—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 63—GEIS, Jour. Pal., 6, no. 2 (1932) p. 162—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 30—LATHAM, Roy. Soc. Edinburgh, Tr. 57, pt. 2 (1932) p. 369—KELETT, Jour. Pal., 7, no. 1 (1933) p. 93—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 41.

*Albanella* HARRIS and LALICKER, Am. Midl. Nat. 13, no. 6 (1932) p. 397.

**Amphissites allerismoides** Knight = **Knightina allerismoides**

**Amphissites altanodosus** Geis Mississippian

*Amphissites altanodosus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 166, pl. 24, figs. 4a-f.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Amphissites bellipunctus** Van Pelt = **Halliella bellipuncta**

**Amphissites bushi** Harlton Pennsylvanian

*Amphissites bushi* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 24, pl. 6, figs. 10a-d.

Johns Valley shale: Southern Oklahoma.  
 Cotype.—U.S.N.M. No. 85554.

**Amphissites centronotoides** Geis Mississippian

*Amphissites centronotoides* GEIS, Jour. Pal., 6, no. 2 (1932) pl. 165, pl. 24, figs. 3a-d.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Amphissites centronotus** Ulrich and Bassler

Lower Pennsylvanian through Permian

*Kirkbya centronota* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 159, pl. 11, figs. 16, 17—GRABAU and SHIMER, North American index fossils, 2 (1910) p. 361, text fig. 166, k, k'.

*Amphissites centronota* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 207, pl. 32, figs. 10a, b—KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 259, pl. 32, figs. 6a-e; pl. 34, fig. 2—

ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 9, 10, 48, 54—DELO, Jour. Pal., 4 (1930) p. 160, pl. 12, fig. 9—ROTH and SKINNER, Jour. Pal., 4, no. 3 (1930) p. 334—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 66, pl. 5, fig. 4—CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 184, pl. 18, fig. 9—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 258, pl. 25, fig. 1—CORYELL and OSORIO, *ibid.*, 13, no. 2 (1932) p. 30—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 370, text fig. 17—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 95, pl. 16, figs. 16–22—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 42, pl. 3, figs. 7a–c—CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 260, pl. 3, figs. 1–2.

*Albanella gouldi* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 397, pl. 36, figs. 2a, b.

Two miles east of Cottonwood Falls, etc., Kan. (Cottonwood shales, type formation, but range Marmaton–Wabaunsee, Americus–Ureford); Carter County, etc., Okla. (Atoka–Belle City, Nowata); St. Louis County, Mo. (Fort Scott limestone and Labette shale); deep well, Schleicher County and Graham, etc., Texas (Wayland); McCoy, Eagle County, Colo. (McCoy formation); Scotland (Calcareous sandstone and Lower Limestone).  
Holotype.—U.S.N.M. No. 35628.

**Amphissites centronotus transversus** Roth Pennsylvanian  
*Amphissites centronota transversa* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 52, pl. 3, figs. 17 a–c.

Contact Hogshooter limestone and Nellie Bly formation: Tulsa County, Okla.  
Holotype.—U.S.N.M. No. 80196.

**Amphissites chappelenis** Roundy Mississippian  
*Amphissites chappelenis* ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 7, pl. 1, fig. 2—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 10.

Barnett shale: San Saba County, Texas.

**Amphissites ciscoensis** Harlton Pennsylvanian  
*Amphissites ciscoensis* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 134, pl. 21, figs. 5 a, b; Univ. Texas, Bull. 1902 (1929) p. 150, pl. 1, fig. 10.

Menard County (Graham) and Shackelford County, Texas (Cisco).  
Holotype.—U.S.N.M. No. 72237.

**Amphissites costatus** Roth Pennsylvanian  
*Amphissites costatum* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 32, 37, 39, 47, pl. 2, figs. 10 a–c.

Wapanucka limestone: Pontotoc County, Okla.  
Holotype.—U.S.N.M. No. 80182.

**Amphissites dattonensis** Harlton Pennsylvanian  
*Amphissites dattonensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 206, pl. 32, figs. 9 a, b—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 10—HARLTON, Univ. Texas, Bull. 2901 (1929) p. 149, pl. 1, figs. 9 a, b—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 64, pl. 4, fig. 15—CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 184, pl. 18, fig. 8—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 260, pl. 25, fig. 2—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 93, pl. 14, figs. 40–42—CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 260, pl. 3, fig. 3.

East Hoxbar, Carter County, Okla. (Upper Glenn); Menard County, etc., Texas (Graham formation—Wayland); Southeastern Oklahoma (Wetumka to Holdenville); Leavenworth County, Kan. (Kansas City to Howard).  
Holotype and plesiotype.—U.S.N.M. Nos. 71406, 80568.

**Amphissites diadematus** Van Pelt Devonian  
*Amphissites diadematus* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 329, pl. 39, figs. 8–15.

Belle shale: Rogers City, Mich.

**Amphissites geneae** Roth Pennsylvanian  
*Amphissites pinquis* KNIGHT (not Ulrich and Bassler), Jour. Pal., 2 (1928) p. 263, pl. 32, fig. 9, pl. 34, fig. 3.



*Amphissites geni* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 42, pl. 2, figs. 12-12 c.

*Amphissites geneae* ROTH (corrected name), Jour. Pal., 3, no. 3 (1929) p. 292—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 64, pl. 5, fig. 2.

*Amphissites minutus* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 31-35, 44, 45, pl. 2, figs. 13a-c.

Pontotoc County, Okla. (Francis); Southeastern Oklahoma (Holdenville—Belle City).  
Holotype.—U.S.N.M. No. 80191.

**Amphissites girtyi** Knight

Pennsylvanian

*Amphissites girtyi* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 260-262, pl. 32, figs. 7 a, b; pl. 34, fig. 1—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 65, pl. 5, fig. 3—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 3 (1932) p. 30—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 259, pl. 25, fig. 4.

*Amphissites mesacosta* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 48, pl. 3, fig. 15.

St. Louis, Mo. (Upper Fort Scott); Eastern Oklahoma (Wetumka, Holdenville, and Nowata); Mineral Wells, Texas (East Mountain shale).  
Metatype.—U.S.N.M. No. 83961.

**Amphissites grapta** Keyserling

Permian

*Cythere grapta* KEYSERLING, in Schrenk, Reise Nordost. Europ. Russlands, 2 (1854) p. 112, pl. 4, fig. 39—EICHWALD, Soc. Imp. Nat. Moscou, Bull., 39 (1857) p. 312 (*Cypridina grapta* p. 308)—GEINITZ, Anim. Ueber. Dyas (1861) p. 38.

*Leperditia? grapia* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438.

*Beyrichia grapta* EICHWALD, Leth. Ross., 1 (1860) p. 1350.

*Kirkbya Permiana grapta* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 136—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225; *ibid.*, ser. 5, 15 (1885) p. 174, 177.

Pinega River, Russia.

**Amphissites gregeri** Delo. = *A. pinguis*

**Amphissites hextensis** Harlton = *Knightina hextensis*

**Amphissites irregularis** Coryell and Sample

Pennsylvanian

*Amphissites irregularis* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 261, pl. 25, fig. 5.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Amphissites koehleri** Delo

Pennsylvanian

*Amphissites koehleri* DELO, Washington Univ. Studies, n. s., Sci. and Tech., no. 5 (1931) p. 45, pl. 4, fig. 6.

Deep well, Hamilton County, Kan.

**Amphissites lindahli** Roth = *Savagella lindahli*.

**Amphissites marginiferus** Roth

Pennsylvanian

*Amphissites marginifera* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 45, 47 pl. 3, fig. 14—HARLTON, Jour. Pal., 7, no. 1 (1933) p. 23, pl. 6, figs. 3a, b.

Pontotoc County (Wapanucka limestone) and southern Oklahoma (Johns Valley shale).  
Holotype.—U.S.N.M. No. 80193.

**Amphissites? menardensis** Harlton = *Knightina menardensis*

**Amphissites mesocostus** Roth = *A. girtyi* Knight

**Amphissites mimicus** Geis

Mississippian

*Amphissites mimicus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 164, pl. 23, figs. 12a-c.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Amphissites minutus** Roth = *A. geneae*

**Amphissites minutus** Upson = **A. pinguis****Amphissites miseri** Harlton

Pennsylvanian

*Amphissites miseri* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 24, pl. 6, fig. 7.

Johns Valley shale: Southern Oklahoma.

Holotype.—U.S.N.M. No. 85553.

**Amphissites nodosulcatus** Geis

Mississippian

*Amphissites nodosulcatus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 167, pl. 24, figs. 7a-c.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Amphissites nodosus** Roth

Pennsylvanian

*Amphissites nodosus* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 8, 50, 52, pl. 3, figs. 16a-c—HARLTON, Jour. Pal., 7, no. 1 (1933) p. 23, pl. 6, fig. 4.

Pontotoc County (Wapanucka limestone) and Southern Oklahoma (Johns Valley shale).

Holotype.—U.S.N.M. No. 80195.

**Amphissites oblongus** (Jones and Kirkby)

Carboniferous

*Kirkbya oblonga* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 221—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 181, pl. 3, fig. 3; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, table p. 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 453, 454—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 315—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—YANICHEVSKY, Comm. Geol. Leningrad, Bull., 46 (1927) p. 1023.*Amphissites oblonga* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 8.*Kirkbya oblonga* var. *JONES* and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 181, pl. 3, figs. 4-6—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 206, pl. 18, figs. 4, 5.

Lower and upper limestones: East and West Scotland; Yoredale of Yorkshire, England; Russia.

Variety in Chester of Kentucky and Illinois.

Plesiotypes.—U.S.N.M. Nos. 41354, 41355.

**Amphissites oblongus transversus** (Girty)

Mississippian

*Kirkbya oblonga transversa* GIRTY, New York Acad. Sci., Ann., 20 (1901) p. 234—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 9.

Fayetteville shale: Arkansas.

**Amphissites parallelus** (Ulrich)

Devonian

*Kirkbya parallela* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 192, pl. 15, figs. 2a, b—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 173.*Amphissites parallela* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 7.

Falls of the Ohio, Louisville, Ky. (Onondaga); Canandaigua Lake, N. Y. (Hamilton).

Holotype.—U.S.N.M. No. 41351.

**Amphissites permianus** (Jones and Kirkby)

Carboniferous

*Kirkbya permiana* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 129, pl. 8a, figs. 1a-c (not 2, 3, 5 = *Kirkbya permiana*).*Amphissites permiana* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 5.

Carboniferous limestone and Yoredale rocks of Yorkshire, England.

**Amphissites pinguis** (Ulrich and Bassler)

Pennsylvania, Permian

*Kirkbya pinguis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 159, pl. 11, figs. 13-15.*Amphissites pinguis* DELO, Washington Univ. Studies, n. s., Sci. and Tech., no. 5 (1931) p. 46, pl. 4, fig. 7—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 2 (1932)

p. 260, pl. 25, fig. 3—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 94, pl. 15, figs. 12-22, 41—UPSON, Nebr. Geol. Surv., Bull., 8 (1933) p. 43, pl. 3, figs. 11a, b.

*Amphissites gregeri* DELO, Washington Univ. Studies, n. s., Sci. and Tech., no. 5, (1931) p. 48, pl. 4, fig. 8.

*Amphissites minutus* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 43, pl. 3, figs. 12a-b.

*Cythere haworthi* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 160, pl. 11, fig. 12, (early molt).

Two miles east of Cottonwood Falls (Cottonwood shales) etc., Kan. (Range, Shawnee-Wabaunsee Americus Wreford); Nebraska (Eiss limestone); Mineral Wells, Texas (East Mountain shale). Holotype.—U.S.N.M. No. 35629.

**Amphissites pinguis** Knight = **Amphissites geneae**

**Amphissites planoventralis** Geis

Mississippian

*Amphissites planoventralis* GEIS, Jour. Pal., 6, no. 2 (1932) p. 165, pl. 24, figs. 2a-b.

Salem (Spergen) limestone: Harrodsburg, etc., Ind.

**Amphissites primaevus** Roth

Devonian

*Amphissites primaevus* ROTH, Jour. Pal., 3, no. 3 (1929) p. 346, pl. 36, fig. 10a.

Helderbergian (Haragan): Pontotoc County, Okla.

Holotype.—U.S.N.M. No. 80658.

**Amphissites radiatus** (Jones and Kirkby)

Carboniferous

*Kirkbya umbonata radiata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 180, pl. 3, fig. 2.

*Kirkbya radiata* McPHAIL, Geol. Soc. Glasgow, Tr., 3 (1871) p. 268.

*Aphissites radiatus* LATHAM, Roy Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 371, text fig. 18.

Limestone: Scotland and England.

**Amphissites reflexus** (Girty)

Mississippian

*Kirkbya reflexa* GIRTY, New York Acad. Sci., Ann., 20 (1910) p. 235.

*Amphissites reflexa* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 9.

Fayetteville shale: Arkansas.

**Amphissites reticulatus** Geis

Mississippian

*Amphissites reticulatus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 168, pl. 24, figs. 5a-b.

Salem (Spergen) limestone: Harrodsburg, etc., Ind.

**Amphissites? reticulosa** (Jones and Kirkby)

Carboniferous

*Cytherella? reticulosa* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 540; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 262, pl. 8, fig. 22; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Northumberland, etc., England (Yoredale); West Scotland (Lower and Upper limestone).

**Amphissites retiferus** Roth

Devonian

*Amphissites retiferus* ROTH, Jour. Pal., 3, no. 4 (1929) p. 348, pl. 36, fig. 11a.

Helderbergian (Haragan): White Mound, Murray County, Okla.

Holotype.—U.S.N.M. No. 80659.

**Amphissites rotundus** Geis

Mississippian

*Amphissites rotundus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 162, pl. 23, figs. 11a-b.

Salem (Spergen) limestone: Spergen Hill, Ind.

**Amphissites roundyi** Knight

Pennsylvanian

*Amphissites roundyi* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 262, 263, pl. 32, figs. 8a-b, pl. 34, fig. 5—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 63, pl. 4, fig. 14.

St. Louis County, Mo. (Fort Scott); Southeastern Oklahoma (Wewoka).

Metatypes.—U.S.N.M. No. 83958.

- Amphissites rugosus** Girty Mississippian, Pennsylvanian  
*Amphissites rugosus* GIRTY, New York Acad. Sci., Ann., **20** (1910) p. 236—ROUNDY, U. S. Geol. Surv., Prof. Pap. **146** (1926) p. 7, pl. 1, figs. 1a-c.—ROTH, Wagner Free Inst. Sci., Publ., **1** (1929) p. 9, 35, 36—HARLTON, Jour. Pal., **7**, no. 1 (1933) p. 22, pl. 6, figs. 5a-d.  
*Amphissites weaveri* ROTH, Wagner Free Inst. Sci., Publ., **1** (1929) p. 9, 36, 39, pl. 2, figs. 11a-c.  
 Arkansas and Mayes County, Okla. (Fayetteville shale); Southern Oklahoma (Johns Valley shale).
- Amphissites semimuralis** (Ulrich) Devonian  
*Kirkbya semimuralis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1891) p. 193, pl. 15, figs. 3 a, b, 4a-c.  
*Amphissites semimuralis* ROTH, Wagner Free Inst. Sci., Publ., **1** (1929) p. 7.  
 Onondaga limestone: Falls of the Ohio, Louisville, Ky.  
 Cotypes.—U.S.N.M. No. 41700.
- Amphissites simplex** (Girty) Mississippian  
*Kirkbya simplex* GIRTY, New York Acad. Sci., Ann., **20** (1910) p. 235.  
*Amphissites simplex* ROTH, Wagner Free Inst. Sci., Publ., **1** (1929) p. 9.  
 Fayetteville shale: Arkansas.
- Amphissites simplexus** Roth = **Amphissites simplex**
- Amphissites simplicissimus** Knight Pennsylvanian and Permian  
*Amphissites simplicissimus* KNIGHT, Jour. Pal., **2**, no. 3 (1928) p. 266, 267, pl. 32, figs. 11 a-d; pl. 34, fig. 6—HARLTON, Univ. Texas, Bull. **2901** (1929) p. 151, pl. 1, figs. 13 a-c—DELO, Jour. Pal., **4** (1930) p. 158, pl. 12, fig. 8—WARTHIN, Okla. Geol. Surv., Bull. **53** (1930) p. 67, pl. 5, fig. 1—KELLETT, Jour. Pal., **7**, no. 1 (1933) p. 97, pl. 15, fig. 18—UPSON, Nebr. Geol. Surv., Bull. **8** (1933) p. 41, pl. 3, fig. 6a.  
*Amphissites simplicissimus* CORYELL and BILLINGS, Am. Midl. Nat., **13**, no. 4 (1932) p. 183, pl. 18, fig. 10.  
 St. Louis County, Mo. (Henrietta-Fort Scott); Menard County, etc., Texas (Graham and in deep well); Southeastern Oklahoma (Wetumka-Holdenville); Eastern Kansas (Marmaton-Waubunsee, Elmdale-Wreford).  
 Plesiotype and metatypes.—U.S.N.M. Nos. 80572, 83957.
- Amphissites simplissimus** Coryell and Billings = **A. simplicissimus**
- Amphissites simplus** Roth Pennsylvanian  
*Amphissites simplus* ROTH, Wagner Free Inst. Sci., Publ., **1** (1929) p. 36, 39, 43, pl. 2, figs. 9 a-b.  
*Amphissites simplus* (corrected name) ROTH, Jour. Pal., **3**, no. 3 (1929) p. 292.  
 Wapanucka limestone: Pontotoc County, Okla.  
 Holotype.—U.S.N.M. No. 80188.
- Amphissites sticta** (Keyserling) Permian  
*Cythere sticta* KEYSERLING, in Schrenk, Reise Nordost. Europ. Russlands (1854) p. 112, pl. 4, fig. 28—GEINITZ, Anim. Ueberr. Dyas (1861) p. 38.  
*Cypridina sticta* EICHWALD, Soc. Imp. Nat. Moscou, Bull., **30** (1857) p. 308.  
*Leperditia? sticta* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, **2** (1858) p. 436, 438.  
*Kirkbya permiana sticta* JONES, Tyneside Nat. Field Club, Tr., **4** (1860) p. 136—JONES and KIRKBY, *ibid.*, **4** (1860) p. 136—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, **3** (1869) p. 225.  
*Beyrichia sticta* EICHWALD, Leth. Ross., **1** (1860) p. 1350.  
*Kirkbya sticta* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., **4** (1860) p. 136; Ann. Mag. Nat. Hist., ser. 5, **15** (1885) p. 174, 176, 177.  
 Pinega River, Russia.
- Amphissites subquadratus** (Ulrich) Devonian  
*Kirkbya subquadrata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1891) p. 192, pl. 15, figs. 1 a-c—GRABAU and SHIMER, North American index fossils (1910) p. 391,

text fig. 1666 i, j, k'—BASSLER, in Cleland, Wis. Geol. Nat. Hist. Surv., Bull., sci. ser., 21, no. 6 (1911) p. 144—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 315, text fig. 22 (fig. 5).

*Amphissites subquadrata* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 7, 9, 10—VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 331, pl. 39, figs. 18–20—WARTHIN, Univ. Mich., Contr. Mus. Pal., 4, no. 12 (1934) p. 214, fig. 12.

Falls of the Ohio, Louisville, Ky. (Onondaga); Milwaukee, Wis.; Thedford, Ontario; Rogers City, Mich. (Bell shale and Thunder Bay series).  
Holotype.—U.S.N.M. No. 41352.

**Amphissites tenuis** Warthin Devonian

*Amphissites tenuis* WARTHIN, Univ. Michigan, Contr. Mus. Pal., 4, no. 12 (1934) p. 215, pl. 1, fig. 13.

Traverse (Upper Gravel Point stage): Charlevoix County, Mich.

**Amphissites texanus** Harlton = **Knightina texana**

**Amphissites tricollina** (Jones and Kirkby) Carboniferous

*Kirkbya tricollina* JONES and KIRKBY, Geol. Mag., dec. 3, 2 (1885) p. 540; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 261, pl. 8, fig. 19; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 207, pl. 18, figs. 8 a, b—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 315—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 155, 160.

*Amphissites tricollina* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 8.

Westmoreland, etc., England (Carboniferous limestone); Kentucky (Chester).  
Plesiotypes.—U.S.N.M. No. 41357.

**Amphissites umbonatus** (Eichwald) Carboniferous

*Beyrichia umbonata* EICHWALD, Soc. Imp. Nat. Moscou, Bull., 30 (1857) p. 312; Leth. Ross., 7 (1860) p. 1347, pl. 52, fig. 10.

*Kirkbya umbonata* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 221—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 29—JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 29; Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 53—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 8 (1884) p. 237, 239, pl. 12, fig. 13; Naturalist, 10 (1885) p. 100—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536–541; Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 174, 177, 179, 180; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, et seq and table p. 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—JONES and KIRKBY, Ann., Mag. Nat. Hist., ser. 6, 16 (1895) p. 452; British Assoc. Handb. Glasgow (1901) p. 490.

Sloboda, Toula, Russia; East and West Scotland (Carboniferous limestone and Calciferous sandstone); Yorkshire and Northumberland, England (Carboniferous limestone and Yoredale).

**Amphissites urei** (Jones) Carboniferous

*Kirkbya urei* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 136—JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 220—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 15—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 29—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 189, pl. 3, fig. 19; Geol. Mag., n. s., dec. 3, 2 (1885) p. 536–541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Canada Micro-Pal., pt. 3 (1891) p. 96—VOGDEN, New York Acad. Sci., Ann., 5 (1891) pl. 2, figs. 15a, b—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 454; British Assoc. Handb. Glasgow (1901) p. 490—VOGDEN, San Diego Soc. Nat. Hist., Tr., ser. 3, no. 1 (1917) pl. 5, fig. 15—BATALINA, Bull. Com. Geol., 43, no. 10 (1924) p. 1329, 1336, pl. 22, figs. 17–19; pl. 23, figs. 15–17.

*Amphissites urei* LATHAM, Roy Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 369, text fig. 16.

East and West Scotland (Calciferous sandstone and Lower limestone); North England (Yoredale); Russia.

**Amphissites vanniae** Geis Mississippian  
*Amphissites vanniae* GEIS, Jour. Pal., 6, no. 2 (1932) p. 163, pl. 24, figs. 1a-c.

Salem (Spergen) limestone: Harrodsburg, Ind.

**Amphissites wapanuckaensis** Harlton Pennsylvanian  
*Amphissites wapanuckaensis* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 257, pl. 1, figs. 4a, b—HARLTON, Jour. Pal., 7, no. 1 (1933) p. 23, pl. 6, fig. 8.

South of Hartshorne, Pittsburg County (Wapanucka limestone) and Southern Oklahoma (Johns Valley shale).  
 Holotype.—U.S.N.M. No. 79359.

**Amphissites weaveri** Roth = **A. rugosus**

**Amphissites wewokanus** Warthin Pennsylvanian  
*Amphissites wewokanus* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 65, pl. 5, fig. 5.

Wewoka formation: 6 miles east of Ada, Okla.

#### ANTIPARAPARCHITES Coryell and Rogatz (Leperditellidae)

Genotype: *A. reversus* Coryell and Rogatz

*Antiparaparchites* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 387.

**Antiparaparchites reversus** Coryell and Rogatz Permian  
*Antiparaparchites reversus* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 388, pl. 35, figs. 3, 4.

Clear Fork (Arroyo): Tom Green County, Texas.

#### ANTITOMIS Gürich (Entomidae)

Genotype: *A. bisulcata* Gürich

*Antitomis* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 379.

**Antitomis bisulcata** Gürich Silurian  
*Antitomis bisulcata* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 379, pl. 10, fig. 16.

Interrupta schiefer: Brzezinki, Poland.

#### APARCHITES Jones (Leperditellidae)

Genotype: *A. whiteavesi* Jones

*Aparchites* JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 384; *ibid.*, ser. 6, 4 (1889) p. 271—MILLER, North American geol. pal. (1889) p. 529—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 182—KOKEN, Die Leitfossilien (1896) p. 431—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 643; Zittel-Eastman Textb. Pal., I (1900) p. 644—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 277—GRABAU and SHIMER, North American index fossils, 2 (1910) p. 343—BASSLER, Zittel-Eastman Textb. Pal., ed. 2 (1913) p. 737; U. S. Nat. Mus., Bull. 92 (1915) p. 52—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 296—RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 138.

**Aparchites alleghaniensis** Ulrich and Bassler Silurian  
*Aparchites alleghaniensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 504, pl. 36, fig. 22.

Clinton (*Drepanellina clarki* zone): Cumberland, Md.  
 Holotype.—U.S.N.M. No. 63703.

**Aparchites? andersoni** Wiman = **Indiana andersoni**, a Cambrian branchiopod.

**Aparchites arrectus** Ulrich

Ordovician

*Aparchites arrectus* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 646, pl. 43, figs. 35, 36—  
BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53.

Black River (Decorah shale); St. Paul, Minn.  
Holotype.—U.S.N.M. No. 41836.

**Aparchites aulax** Kegel

Middle Devonian

*Aparchites aulax* KEGEL, Preuss. Geol. Landes., Jahrb., 48 (1927–1928) p. 654,  
pl. 33, fig. 2.

Celechowitz, Moravia.

**Aparchites billingsii** (Jones)

Devonian or Silurian

*Leperditia billingsii* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 345, pl. 20,  
fig. 9.

*Aparchites billingsii* WHITEAVES, Canada Geol. Surv., Paleozoic Fossils, 3, pt. 3  
(1897) p. 231—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53.

Lake Winnepegosis, Canada.

**Aparchites canaliculatus** (Krause)

Ordovician

*Isochilina canaliculata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 385,  
pl. 21, figs. 1 a, b—KOKEN, Die Leitfossilien (1896) p. 383—KUMMEROW, Preuss.  
Geol. Landes., Jahrb., 44 (1923–1924) p. 440—ANDERSSON, Öfv. Kongl. Vet.-Akad.  
Förh., no. 2 (1893) p. 125—WHIDBORNE, Dev. fauna England, 3, pt. 1, Palaeontogr.  
Soc. (1896) p. 15, pl. 2, figs. 13–15, pl. 31, figs. 1, 2.

*Isochilina* cf. *canaliculata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896)  
p. 932, pl. 25, fig. 15.

Drift: Müggelheim, etc., Germany (Ceratopsis rostrata limestone); Holland.

**Aparchites chatfieldensis** Ulrich

Ordovician

*Aparchites chatfieldensis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 646, pl. 43, figs.  
37, 38—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53.

Black River (Decorah shale): Chatfield, Minn.  
Holotype.—U.S.N.M. No. 41829.

**Aparchites concinnus** (Jones)

Ordovician

*Cytheropsis concinna* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 249, pl. 10,  
figs. 3, 4; Geol. Surv. Canada, dec. 3, 1 (1858) p. 99.

*Primitia concinna* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 424.

*Aparchites concinnus* JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Canada  
Micro-Pal., pt. 3 (1891) p. 99; Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 60—  
BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53—WILSON, Canada Dept. Mines, Bull.  
33, geol. ser., no. 40 (1921) p. 39, 44.

Black River (Leray): Pauquettes Rapids, Allumette Island, Ottawa River, Canada.

**Aparchites cuneatus** Kummerow

Ordovician

*Aparchites cuneatus* KUMMEROW, Preuss. Geol. Landes., Jahrb., 44 (1923–1924) p.  
417, pl. 20, fig. 7 a, b.

Drift (algal limestone): Near Brandenburg, Germany.  
Topotypes.—U.S.N.M. No. 82335.

**Aparchites decoratus** Jones

Silurian

*Aparchites decoratus* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 272, pl. 15,  
figs. 12 a–c.

Gotlandian (lowest beds): Near Wisby, Gotland.

**Aparchites ellipticus** Ulrich

Ordovician

*Aparchites ellipticus* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 644, pl. 43, figs. 15–17  
—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53.

Black River (Decorah): Minneapolis, Minn.  
Cotypes.—U.S.N.M. No. 41832.

**Aparchites? fennicus** Wiman = **Bradoria fennicus**, a Cambrian branchiopod.

**Aparchites fimbriatus** (Ulrich)

Early Silurian

*Leperditia fimbriata* ULRICH, Am. Geol., 10 (1892) p. 268, pl. 9, figs. 34–36.

*Aparchites fimbriatus* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 645, pl. 45, figs. 10–12—GRABAU and SHIMER, North American index fossils (1910) p. 343, text fig. 1657 b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53—LADD, Iowa Geol. Surv., 34 (1928–1930) p. 39.

Richmond (Maquoketa): Spring Valley, Minn.; Iowa.  
Holotype.—U.S.N.M. No. 41834.

**Aparchites frequens** Kummerow = **Isochilina frequens**

**Aparchites gordonii** Ulrich and Bassler

Devonian

*Aparchites gordonii* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 515, pl. 95, figs. 1–3—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53.

Helderbergian (Keyser): Cumberland, Md.  
Holotype.—U.S.N.M. No. 53283.

**Aparchites grandis** (Jones)

Silurian

*Primitia grandis* JONES, Notes Sil. Ostrac., Gothland (1887) p. 4; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 405, pl. 22, fig. 14.

Middle Gotlandian: Fröjel, Gotland.

**Aparchites granilabiatus** (Ulrich)

Ordovician

*Leperditia granilabiatus* ULRICH, Am. Geol., 10 (1892) p. 267, pl. 9, figs. 31–33.

*Aparchites granilabiatus* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 644, pl. 45, figs. 21–23—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53.

Black River (Decorah): St. Paul, Minn.  
Holotype.—U.S.N.M. No. 41828.

**Aparchites granilabiatus neglectus** Ulrich

Ordovician

*Aparchites granilabiatus neglectus* ULRICH, Geol. Minn. 3, pt. 2 (1894) p. 645—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 53.

Black River (Decorah): Minneapolis, Minn.  
Cotypes.—U.S.N.M. No. 41835.

**Aparchites grecoi** Canavari

Silurian

*Aparchites grecoi* CANAVARI, Pal. Ital., 5 (1899–1900) p. 192, pl. 26 (fig. 11), figs. 7–9.

Cardiola limestone: Sardinia.

**Aparchites inaequalis** Kummerow

Silurian

*Aparchites inaequalis* KUMMEROW, Preuss. Geol. Landes., Jahrb., 44 (1923–1924) p. 417, pl. 20, figs. 8 a, b.

Drift (Beyrichia limestone): Gräningen near Rathenow, Germany.  
Topotypes.—U.S.N.M. No. 82236.

**Aparchites inornatus** Ulrich = **Primitiella (Optonaria) inornata**

**Aparchites leperditioides** Jones

Ordovician

*Aparchites leperditioides* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 292, pl. 12, figs. 10 a–c; pl. 13, figs. 1–3.

Bala: Puggill, Westmoreland, England; Girvan, Ayrshire, Scotland.

**Aparchites lindstroemii** Jones

Silurian

*Aparchites lindstroemii* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 272, pl. 15, fig. 14.

*Aparchites* cfr. *lindstroemi* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 385.

Gotlandian (lowest beds): Near Wisby, Gotland; Lower Paleozoic of Poland.



- Aparchites lindstroemi excellens** Whidborne Devonian  
*Aparchites lindstroemi excellens* WHIDBORNE, Dev. fauna England, 3, pt. 1, Palaeontogr. Soc. (1896) p. 16, pl. 3, figs. 3, 3a.  
 Kingdons, Shirwell, South England.
- Aparchites maccoyii** Jones = **Leperditella maccoyii**
- Aparchites marchicus** Kummerow Ordovician  
*Aparchites marchicus* KUMMEROW, Preuss. Geol. Landes, Jahrb., 44 (1923-1924 p. 417, pl. 20, fig. 6.  
 Drift (algal limestone): Near Brandenburg, Germany.
- Aparchites millepunctatus** (Ulrich) Ordovician  
*Leperditia millepunctata* ULRICH, Am. Geol., 10 (1892) p. 268, pl. 9, figs. 37-39.  
*Aparchites millepunctatus* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 645, pl. 45, figs. 16-18—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 54.  
 Black River: Fountain, Minn. (Decorah); Dixon, Ill. (Platteville).  
 Holotype.—U.S.N.M. No. 41837.
- Aparchites minutissimus** (Hall) Ordovician and Early Silurian  
*Leperditia (Isochilina) minutissima* HALL, N. Y. State Cab. Nat. Hist., 24th ann. rept. (1872) p. 231, pl. 8, fig. 13 (adv. sheet 1871, p. 7)—HALL and WHITFIELD, Geol. Surv. Ohio, Rept. Pal., 2 (1875) p. 102, pl. 4, fig. 4.  
*Leperditia minutissima* MILLER, Cincinnati Quart. Jour. Sci., 1 (1874) p. 122—WALCOTT, Albany Inst., Tr., 10 (1876) p. 23.  
*Aparchites minutissimus* ULRICH, Geol. and Nat. Hist. Surv. Canada, Contr. Canada Micro-Pal., pt. 2 (1889) p. 49, pl. 9, fig. 5—WHITEAVES, Pal. Foss., *ibid.*, 3, pt. 2 (1895) p. 126—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 54; Md. Geol. Surv., Cambrian and Ordovician vol. (1919) p. 169, 182, 366, pl. 55, fig. 33—RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 138, pl. 23, figs. 1, 2—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 341.  
 Eden-Richmond: Cincinnati, Ohio, and vicinity; New York; Manitoba; Anticosti, etc.  
 Topotypes.—U.S.N.M. No. 82394, etc.
- Aparchites minutissimus robustus** Ruedemann Ordovician  
*Aparchites minutissimus robustus* RUEDEMANN, N. Y. State Mus., Bull. 49 (1901-1902) p. 74, pl. 7, figs. 6-11—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 54.  
 Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.
- Aparchites minutissimus trentonensis** Ulrich Ordovician  
*Aparchites minutissimus trentonensis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 646 pl. 43, figs. 18-20—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 54.  
 Black River (Decorah) and Trenton (Prosser): Fountain, Cannon Falls, etc., Minn.  
 Cotypes.—U.S.N.M. Nos. 41302, 41303.
- Aparchites mitis** Jones = **Primitiella mitis**
- Aparchites mundulus** Jones Ordovician  
*Aparchites mundulus* JONES, Geol. Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 62, pl. 10, figs. 12a, 12b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 54.  
 Mohawkian (Trenton): Falls of the Lorette, Quebec, Canada.
- Aparchites (?) obliquatus** Ulrich and Bassler Silurian  
*Aparchites (?) obliquatus* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 503, pl. 36, fig. 23.  
 Cayugan (Tonoloway): Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 63702.

**Aparchites oblongus Krause = Primitiopsis oblongus****Aparchites oblongus Ulrich**

Early Silurian

*Aparchites oblongus* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1890) p. 137, pl. 10, figs. 10a-10c—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 54.

Richmond (Arnheim): Middletown, Ohio.  
Holotype.—U.S.N.M. No. 41811.

**Aparchites obsoletus Jones and Holl = Primitiopsis obsoletus****Aparchites ovatus (Jones and Holl)**

Silurian

*Primitia ovata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, **16** (1865) p. 423, pl. 13, figs. 13 a-c; *ibid.*, ser. 4, 3 (1869) p. 219—KRAUSE, Deutsch. Geol. Ges., Zeitschr., **29** (1877) p. 37—VINE, Geol. Soc. London, Quart. Jour., **38** (1882) p. 48—KIESOW, Schrift. Nat. Ges. Danzig, n. s., **6** (1884) p. 229, 276—ROEMER, Pal. Abh., **2**, pt. 5 (1885) p. 110 (fig. 357)—JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 552—AMI, Nova Scotian Inst., Pr. Tr., **8** (1 of ser. 2) (1893) p. 191.

*Aparchites ovatus* JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 384—KRAUSE, Deutsch. Geol. Ges., Zeitschr., **43** (1891) p. 492, pl. 29, fig. 9—KOKEN, Die Leitfossilien (1896) p. 431—SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, **19** (1906) p. 220 (fig. 48).

North Germany (drift-Beyrichia and Encrinurus limestones); Shropshire, England (Wenlock); Bohemia.  
Topotypes.—U.S.N.M. No. 82392.

**Aparchites parvulus Jones**

Ordovician or Early Silurian

*Aparchites parvulus* JONES, Geol. Surv. Canada, Paleozoic Fossils, **3**, pt. 3 (1897) p. 230, pl. 22, figs. 4a-c—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 54.

Black River or Richmond: Little Black Island, Lake Winnipeg, Canada.

**Aparchites perforatus Harris**

Ordovician

*Aparchites perforatus* HARRIS, Okla. Geol. Surv., Bull. **33** (1931) p. 87, pl. 5, fig. 4a, b.

Simpson (Oil Creek): A quarter mile west of Highway 77, Arbuckle Mts., Sec. 25, T. 2 S., R. 1 E., Okla.

**Aparchites (?) punctiliosa Ulrich and Bassler**

Silurian

*Aparchites (?) punctiliosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 503, pl. 36, fig. 21.

Cayugan (Tonoloway): Keyser, W. Va.  
Holotype.—U.S.N.M. No. 63701.

**Aparchites pygmaeus Canavari**

Silurian

*Aparchites pygmaeus* CANAVARI, Pal. Ital., **5** (1899-1900) p. 191, pl. 26 (fig. 11), fig. 6.

Cardiola limestone: Sardinia.

**Aparchites reticulatus Jones**

Upper Devonian

*Aparchites reticulatus* JONES, Ann. Mag. Nat. Hist., ser. 6, **15** (1895) p. 60, pl. 7, fig. 4.

Cuboides zone: Arpatschai Valley, Armenia.

**Aparchites (?) robustus Matthew = Indiana (?) robusta, a Cambrian branchiopod****Aparchites secundus Matthew = Indiana secunda, a Cambrian branchiopod****Aparchites ? seneca Hall**

Devonian

*Leperditia seneca* HALL, N. Y. State Cab. Nat. Hist., 15th ann. rept. (1862) p. 112 (advance sheets Sept., 1861, p. 84).

*Leperditia? seneca* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 23, pl. 1, figs. 13, 14.

Hamilton: Ontario County, N. Y.

**Aparchites simplex** Jones

Silurian

*Aparchites simplex* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 272, pl. 15, fig. 13a-c—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 491, pl. 29, fig. 8—KOKEN, Die Leitfossilien (1896) p. 431.

Gotlandian (lowest beds): Near Wisby, Gotland; Drift (Encrinurus limestone): Northern Germany. Topotypes.—U.S.N.M. No. 82391.

**Aparchites sinuatus** Hall

Silurian

*Leperditia sinuata* HALL, Canadian Nat. Geol., 5 (1860) p. 158—DAWSON, Acadian Geol., ed. 2 (1868) p. 609—JONES, Geol. Mag., n. s., dec. 2, 3 (1881) p. 344; Geol. Soc. London, Quart. Jour., 46 (1890) p. 24, pl. 1, figs. 12 a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 705.

Arisaig: Arisaig, Nova Scotia.

**Aparchites? subovatus** Jones

Ordovician ? Silurian

*Aparchites subovatus* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 292, pl. 12, figs. 7, 8; *ibid.*, p. 297, pl. 13, figs. 4, 5—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 299, pl. 14, figs. 10 a-c.

Westmoreland, England (Bala-Dufton shale and Staurocephalus limestone); Girvan, Ayrshire, Scotland; Lilydale, Victoria (Yeringian).

**Aparchites? subtruncatus** Jones

Ordovician

*Aparchites subtruncatus* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 292, pl. 12, fig. 9.

Bala: Pusgill, Westmoreland, England.

**Aparchites tyrrellii** Jones

Ordovician or Early Silurian

*Aparchites tyrrellii* JONES, Geol. Surv. Canada, Contr. Canada Micro-Pal., pt. 3 (1891) p. 62, pl. 13, figs. 14 a-c—WHITEAVES, Geol. Surv. Canada, Paleozoic Fossils, 3, pt. 3 (1897) p. 242—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 54.

Black River or Richmond: Black Island, Lake Winnipeg, Canada.

**Aparchites unicornis** Ulrich = **Primitiella unicornis** and **P. canadensis**

**Aparchites (?) variolatus** Ulrich and Bassler

Silurian

*Aparchites (?) variolatus* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 504, pl. 36, fig. 20.

Lower Clinton: Cumberland, Md. Holotype.—U.S.N.M. No. 63700.

**Aparchites variolatus huntonensis** Roth

Devonian

*Aparchites variolatus huntonensis* ROTH, Jour. Pal., 3, no. 4 (1929) p. 332, pl. 35, figs. 1 a, b.

Helderbergian (Haragan): Pontotoc County, Okla. Holotype.—U.S.N.M. No. 80654.

**Aparchites whiteavesi** Jones

Ordovician or Early Silurian

*Aparchites whiteavesi* JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 384, text figs. 5, 6, pl. 17, fig. 10—WHITEAVES, Geol. Surv. Canada, Paleozoic Fossils, 3, pt. 3 (1897) p. 230—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 54—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 296, text fig. 14 (figs. 10-12).

Black River or Richmond: Lower Fort Garry, St. Andrew, Manitoba.

**APATOBOLBINA** Ulrich and Bassler (Primitiidae-Eurychiliniinae)Genotype: *A. granifera* Ulrich and Bassler*Apatobolbina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 304, 521.**Apatobolbina acuta** Ulrich and Bassler Silurian*Apatobolbina acuta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 523—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 345.Anticostian (Jupiter): Jumpers, Anticosti.  
Holotype.—U.S.N.M. No. 63698.**Apatobolbina (?) appressa** Ulrich and Bassler Silurian*Apatobolbina (?) appressa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 523, pl. 37, figs. 15, 16.Top of Lower Clinton: Half a mile northwest Frankstown, Pa.  
Cotypes.—U.S.N.M. No. 63697.**Apatobolbina granifera** Ulrich and Bassler Silurian*Apatobolbina granifera* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 522, pl. 37, figs. 17–19—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 345.Upper Clinton (*Mastigobolbina typus* zone): Two miles west Holidaysburg, Pa.  
Anticostian (Jupiter): Jumpers, Anticosti.  
Cotypes.—U.S.N.M. Nos 63597, 63699.**Apatobolbina platygaster** Kummerow Silurian*Apatobolbina platygaster* KUMMEROW, Preuss. Geol. Landes, Jahrb., 44 (1923–1924) p. 428, pl. 21, figs. 29–31.

Drift (Encrinurus limestone): Rattey, Mecklenburg, Germany.

**APATOCHILINA** Ulrich and Bassler (Primitiidae-Eurychiliniinae)Genotype: *Eurychilina obesa* Ulrich*Apatochilina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 304 521.**Apatochilina obesa** (Ulrich) Ordovician*Eurychilina obesa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 129, pl. 9, fig. 13—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 516.*Apatochilina obesa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 303, text fig. 16 (fig. 6).Black River (Lowville): High Bridge, Ky.  
Holotype.—U.S.N.M. No. 41624.**Apatochilina obliqua** (Ruedemann) Ordovician*Eurychilina obliqua* RUEDEMANN, N. Y. State Mus., Bull. 49 (1901) p. 79, pl. 5, figs. 10–12—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 516.*Apatochilina obliqua* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 521 (gen. ref.).

Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.

**Apatochilina plana** (Krause) Ordovician*Primitia plana* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 5, pl. 1, fig. 1; *ibid.*, 44 (1892) p. 384;—KOKEN, Die Leitfossilien (1896) p. 39, text fig. 26c—KUMMEROW, Preuss. Geol. Landes, Jahrb., 44 (1923–1924) p. 440.*Apatochilina plana* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 521 (gen. ref.).Drift (Leptaena limestone): North Germany.  
Topotype.—U.S.N.M. No. 82333.

**Apatochilina plana tuberculata** (Krause) Ordovician  
*Primitia plana tuberculata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892)  
 p. 385, 399, pl. 21, fig. 8—ANDERSSON, Ofv. Kongl. Vet.-Akad. Förh., no. 2 (1893)  
 p. 128.

Drift (Ceratopsis rostrata limestone): Müggelheim, North Germany.

**Apatochilina? simplex** Kummerow Ordovician  
*Apatochilina? simplex* KUMMEROW, Preuss. Geol. Landes., Jahrb., 44 (1923–1924)  
 p. 428, pl. 21, fig. 1.

Drift (Orthoceras limestone): Voigtsdorf, Mecklenburg, Germany.

**ARGILLOECIA** Sars (Cypridae)

Genotype: *A. cylindrica* (Sars) (Recent)

*Argilloecia* Sars, Ofversigt of Norges Marine Ostracodes.

**Argilloecia acuta** Chapman = **Bythocypris acuta**

**Argilloecia aequalis** Jones and Kirkby = **Bythocypris aequalis**

**Argilloecia (?Bythocypris) aequalis acuta** Jones and Kirkby = **Bythocypris acuta**

**Argilloecia regularis** Delo Pennsylvanian, Permian  
*Argilloecia regularis* DELO, Jour. Pal., 4 (1930) p. 174, pl. 13, fig. 11—UPSON,  
 Nebr. Geol. Surv., Bull. 8 (1933) p. 27, pl. 3, fig. 4a, b.

Deep well, Irion County, Texas (Pennsylvanian); one mile southeast of Bennett, Nebr. (Permian—Lower Garrison.)  
 Holotype.—U.S.N.M. No. 81782.

**Argilloecia subelliptica** Upson = **Bythocypris pediformis**

**ARTIFACTELLA** Coryell and Booth (Bairdiidae)

Genotype: *A. tomahawki* Coryell and Booth

*Artifactella* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 269.

**Artifactella tomahawki** Coryell and Booth Pennsylvanian  
*Artifactella tomahawki* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933)  
 p. 269, pl. 5, fig. 1.

Wayland shale: Graham, Texas.

**AURIGERITES** Roundy (Leperditellidae)

Genotype: *A. texanus* Roundy

*Aurigerites* ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 6.

**Aurigerites texanus** Roundy Mississippian  
*Aurigerites texanus* ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 6, pl. 1,  
 figs. 8–10.

Boone: San Saba County, Texas.

**BAIRDIA** McCoy, 1846 (Bairdiidae)

Genotype: *B. curta* McCoy

*Bairdia* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 164—  
 JONES, Mon. Entomostraca Cretaceous formation England, Palaeontogr. Soc.  
 (1849) p. 22—BOSQUET, Acad. Roy. Belgique, Mém. Cour. Mém. Sav. Étrang.,  
 24 (1852) p. 18–21; Mon. Crust. Foss., Crétace de Limbourg (1854) p. 63—PICTET,  
 Traité Pal., 2 (1854) p. 530—BORNEMANN, Deutsch. Geol. Ges., Zeitschr., 7 (1855)  
 p. 356, 357—ROEMER, Bronn's Leth. Geog., 1, pt. 2 (1851–1856) p. 530—JONES,  
 Mon. Tertiary Entomostraca England, Palaeontogr. Soc., 9 (1856) p. 2, 9, 10, 22,

51—EICHWALD, Soc. Imp. Nat. Moscou, Bull., 30 (1857) p. 310—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 320—322—EICHWALD, Leth. Ross., 1 (1860) p. 1337—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 582—BRADY, Intellectual Observer, London, 12 (1867) p. 119—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 139—JONES, Monthly Micr. Jour., 10 (1873) p. 77—BRADY, CROSSKEY, and ROBERTSON, Post-Tert. Entomostraca Scotland, Palaeontogr. Soc. (1874) p. 138, table p. 111—REUSS, Palaeontographica, 20, pt. 2 (1872—1875) p. 139—TERQUEM, Soc. Géol. France, Mém., ser. 3, 1, pt. 3 (1878) p. 85, 89, 90—BRADY, Zool. Soc. London, Tr., 10 (1878) p. 383—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 565—567—VINE, Yorkshire Geol. Polytechn. Soc., Pr., n. s., 8 (1884) p. 230—TERQUEM, Soc. Géol. France, Mém., ser. 3, 4, mem. 1 (1885) p. 8; *ibid.*, mem. 2 (1886) p. 91, 92—JONES and KIRKBY, Geol. Assoc. London, Pr., 9 (1886) p. 511—KAFKA, in Fritsch and Kafka, Crust. Bohm. Kreid (1887) p. 13—MILLER, North Am. geol. pal., appendix 1 (1892) p. 704—HEJJAS, Ertesito, 2, Nat. Abtheil., 15, pt. 2 (1892) p. 162; *ibid.*, 19, pt. 1 (1894) p. 53—LIENENKLAUS, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 167—KOKEN, Die Leitfossilien (1896) p. 38—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 310—LIENENKLAUS, Deutsch. Geol. Ges., Zeitschr., 52 (1900) p. 509—NAMIAS, Pal. Ital., Mem. Pal., 6 (1900—1901) p. 89—LIENENKLAUS, Ber. Senck. Nat. Ges. Frankfurt am Main (1905) p. 29—GRABAU and SHIMER, North American index fossils, 2 (1910) p. 364—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317—STRAND, Arch. Naturg., 92, pt. A, no. 8 (1926—1928) p. 41—NEVIANI, Pont. Acad. Sci., Mem., Nouvi Lincei, 1927, 11, Sess. 1 (1928) p. 27—ALEXANDER, Univ. Texas, Bull. 2907 (1929) p. 60—WARTHIN, Okla. Geol. Survey, Bull. 53 (1930) p. 68—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 32—UPSON, Nebr. Geol. Surv., Bul. 8 (1933) p. 16.

**Bairdia acetalata** Coryell and Billings and Upson = **B. hoxbarensis**

**Bairdia acuta** Jones

Permian

*Cythere (Bairdia?) acuta* JONES, in King, Mon. Permian Foss. (1850) p. 63, pl. 18, fig. 10—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 163, pl. 11, fig. 16—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581, pl. 6, fig. 38.

*Cythere acuta* RICHTER, Deutsch. Geol. Ges., Zeitschr., 7 (1855) p. 530—GEINITZ, Anim. Ueber. Dyas (1861) p. 37, text fig. 2 (fig. 15).

*Bairdia acuta* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 579.

Middle and Upper Magnesian limestone: near Sunderland, Durham, England.

**Bairdia aequalis** Eichwald

Carboniferous

*Bairdia aequalis* EICHWALD, Soc. Imp. Nat. Moscou, Bull., 30, no. 4 (1857) p. 311; Leth. Ross., 1 (1860) p. 1340, pl. 52, fig. 6—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 56, pl. 6, fig. 4; Geol. Soc. London, Quart. Jour., 35 (1879) p. 579; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 264.

Limestone: Toulva, Russia.

**Bairdia affinis** Morris

Permo-Carboniferous

*Bairdia affinis* MORRIS, Phys. descr. New South Wales and Van Dieman's Land (Strzelecki) (1845) p. 291, pl. 18, fig. 10—ETHERIDGE, Catalogue Australian fossils, (1878) p. 41—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 578, 579—ETHERIDGE, Geol. Surv. New South Wales, Mem., Pal., no. 5 (1893) p. 124.

Australia and New South Wales.

**Bairdia altifrons** Knight

Pennsylvanian

*Bairdia altifrons* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 324, pl. 43, figs. 6, 6a—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 70, pl. 5, fig. 10.

Fort Scott limestone: St. Louis County, Mo.

**Bairdia ampla** Reuss

Carboniferous and Permian

*Bairdia ampla* REUSS, Wetterauer Ges. Nat. Hanau, Jahrb., 1851-1853 (1854) p. 68, figs. 7a, b—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438—JONES and KIRKBY, *ibid.*, ser. 4, 15 (1875) p. 56, pl. 6, fig. 5; Geol. Soc. London, Quart. Jour., 35 (1879) p. 571, pl. 28, figs. 20-23; pl. 29, fig. 3; pl. 32, figs. 17, 18—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et. seq. and table p. 513—VENUKOFF, Soc. Belge Geol., Pal., Hydrol., Bull., Pr.-Verb., 2 (1888) p. 301—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 305, pl. 16, fig. 11—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—BOLTON, Geol. Soc. London, Quart. Jour., 67 (1911) p. 321, 325, pl. 27, fig. 4—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 379.

*Cythere (Bairdia) ampla* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 162, 166, pl. 11, figs. 14 a-c, 19 a-f—KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581, pl. 6, fig. 39.

*Cythere ampla* GEINITZ, Anim. Uberr. Dyas (1861) p. 35, text fig. 2 (figs. 11a, b)—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 231, pl. 5, fig. 27; *ibid.*, 21 (1869) p. 429.

Zechstein of Wetterau and Thuringia, Germany; Carboniferous limestone and Permian of England and Scotland; Russia; Mongolia.

**Bairdia amputata** (Kirkby)

Carboniferous and Permian

*Bairdia truncata* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 433, pl. 11, figs. 4, 4a—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 576.

*Cythere (Bairdia) amputata* KIRKBY (new name for *B. truncata* preoccupied), in JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 155, pl. 10, fig. 4—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581.

*Cythere amputata* GEINITZ, Anim. Uberr. Dyas (1861) p. 37, text fig. 2—JONES, in Jones and Kirkby, Tyneside Nat. Field Club, Tr., 4 (1860) p. 156, pl. 11, figs. 22a-d—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27.

*Bairdia amputata* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 576, pl. 31, figs. 15-18; Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513—VENUKOFF, Soc. Belge Geol., Pal., Hydrol., Bull., Pr.-Verb., 2 (1888) p. 301—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 305, pl. 16, fig. 10—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 454—LOCZY, Wiss. Ergeb. Reise Graf. Béla Széchenyi Ostasien, 1870-1880, 3 (1889) p. 193—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 1898, 7 (1899) p. 437—JONES and KIRKBY, British Assoc. Handb., Glasgow (1901) p. 490—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 379.

Carboniferous limestone of North England, Scotland, Mongolia, etc. Permian of Durham, England.

**Bairdia angulata** Coryell and Sample = **Bairdia pennata**

**Bairdia anticostiensis** Jones = **Krausella anticostiensis**

**Bairdia arcuata** (McCoy)

Carboniferous

*Cythere arcuata* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 165, pl. 23, fig. 9—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1862) p. 48, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 406; *ibid.*, 18 (1866) p. 42, 46.

Ireland.

**Bairdia ardmorensis** Harlton

Pennsylvanian

*Bairdia ardmorensis* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 267, pl. 2, fig. 11—ROTH and SKINNER, Jour. Pal., 4, no. 3 (1930) p. 334—HARLTON, Jour. Pal., 7, no. 11 (1933) p. 25, pl. 7, fig. 8.

Carter County (Dornick Hills) and southern Oklahoma (Johns Valley shale); McCoy, Eagle County, Colo. (McCoy).  
Holotype—U.S.N.M. No. 79371.

**Bairdia attenuata** Girty

Mississippian

*Bairdia attenuata* GIRTY, New York Acad. Sci., Ann., **20**, no. 3, pt. 2 (1910) p. 237; U. S. Geol. Surv., Bull. **439** (1911) p. 106—ROTH, Okla. Geol. Surv., Circ. **18** (1929) chart.

Fayetteville and Moorefield shales: Fayetteville and Batesville quadrangles, Ark.

**Bairdia auricula** Knight

Pennsylvanian

*Bairdia auricula* KNIGHT, Jour. Pal., **2**, no. 4 (1928) p. 319, pl. 43, fig. 3—WARTHIN, Okla. Geol. Surv., Bull. **53** (1930) p. 68, pl. 5, fig. 7—CORYELL and OSORIO, Am. Midl. Nat., **13**, no. 2 (1932) p. 34—CORYELL and SAMPLE, Am. Midl. Nat., **13**, no. 5 (1932) p. 263, pl. 25, fig. 6.

*Bairdia dornickhillensis* HARLTON (*B. pottsvillensis* in explanation of pl. 2), Am. Jour. Sci., ser. 5, **18**, no. 105 (1929) p. 268, pl. 2, fig. 12—ROTH and SKINNER, Jour. Pal., **4**, no. 3 (1930) p. 334.

St. Louis County, Mo. (Fort Scott limestone); Carter County, etc., Okla. (Dornick Hills, Wetumka and Holdenville formations); McCoy, Eagle County, Colo. (McCoy); Mineral Wells, Texas (East Mountain shale).

Cotypes (*B. dornickhillensis*).—U.S.N.M. No. 79372.

**Bairdia bedfordensis** Geis

Mississippian

*Bairdia bedfordensis* GEIS, Jour. Pal., **6**, no. 2 (1932) p. 176, pl. 25, fig. 9.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Bairdia beedei** Ulrich and Bassler

Pennsylvanian, Permian

*Bairdia beedei* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **30** (1906) p. 161, pl. 11, figs. 19, 20—GRABAU and SHIMER, North American index fossils (1910) p. 364, text fig. 1666p, p'—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 320, text. fig. 25 (fig. 3)—WARTHIN, Okla. Geol. Surv., Bull. **53** (1930) p. 69, pl. 5, fig. 9—UPSON, Nebr. Geol. Surv., Bull. **8** (1933) p. 16, pl. 1, figs. 4a-c.

*Bairdia wrefordensis* UPSON, Nebr. Geol. Surv., Bull. **8** (1933) p. 22, pl. 2, figs. 5a, b.

Two miles east of Cottonwood Falls, etc., Kan. (Cottonwood but ranges from Marmaton-Wabaunsee, Americus to Winfield); Southeastern Oklahoma (Holdenville). See *B. hispida* Harlton and *B. moorei* Knight for probable synonyms.

Holotype.—U.S.N.M. No. 35364.

**Bairdia beedei abrupta** Ulrich and Bassler

Pennsylvanian, Permian

*Bairdia beedei abrupta* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **30** (1906) p. 162, pl. 11, figs. 21, 22.

Cottonwood (but ranges from Marmaton-Wabaunsee, Americus to Winfield); Two miles east of Cottonwood Falls, etc., Kan.

Holotype.—U.S.N.M. No. 35365.

**Bairdia berniciensis** Kirkby

Permian

*Bairdia?* *berniciensis* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, **2** (1858) p. 330, pl. 10, figs. 15, 15a; Tyneside Nat. Field Club, Tr., **4** (1860) p. 149, pl. 9, fig. 15, text fig. 13.

*Cythere berniciensis* GEINITZ, Anim. Ueber. Dyas (1861) p. 36—RICHTER, Deutsch. Geol. Ges., Zeitschr., **19** (1867) p. 235, pl. 5, figs. 15-17—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **35** (1879) p. 579.

*Cythere* (*Bairdia*) *berniciensis* SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 681.

Durham, England (Magnesian limestone); Thuringia, Germany (Zechstein).

**Bairdia bilobata** Jones and Kirkby = **Silenites bilobata****Bairdia blakei** Harlton

Pennsylvanian

*Bairdia nitida* HARLTON (not Jones, 1879), Jour. Pal., **2**, no. 2 (1928) p. 139, pl. 21, fig. 12; Univ. Tex., Bull. **2901** (1929) p. 155, pl. 3, figs. 3a, b—WARTHIN, Okla. Geol. Surv., Bull. **53** (1930) p. 72, pl. 6, fig. 3.



*Bairdia blakei* HARLTON, Jour. Pal., 5, no. 2 (1931) p. 163—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 34—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 21, pl. 2, figs 1a-b.

Love County, etc., Okla. (Hoxbar and Holdenville); East Menard County, Texas (Graham); Tulsa County, Okla. (Nowata).

**Bairdia brevicauda** (JONES)

Permian

*Cythere* (*Bairdia*) *curta* JONES, in King, Mon. Perm. foss. (1850) p. 61, pl. 18, figs. 3a-c.

*Cythere* (*Bairdia*) *plebeia brevicauda* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 161, pl. 11, figs. 9a-c.

*Cythere* (*Bairdia*) *brevicauda* SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581, pl. 6, fig. 36.

*Cythere brevicauda* GEINITZ, Anim. Ueber. Dyas (1861) p. 35, text fig. 2 (figs. 12 a-b)—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 229, pl. 5, fig. 34; *ibid.*, 21 (1869) p. 429.

Near Sunderland, Durham, England; Thuringia, Germany (Zechstein).

**Bairdia brevis** Jones and Kirkby

Carboniferous

*Bairdia brevis* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 221—MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 494—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 25—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 575, pl. 31, figs. 1-8—KIRKBY, *ibid.*, 36 (1880) p. 563, table, p. 587—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 3 (1884) p. 233, 239, pl. 12, figs. 4, 4a—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541—VINE, Naturalist, 10 (1885) p. 99—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, table p. 513—VENUKOFF, Soc. Belge. Geol., Pal., Hydrol., Bull., Pr.-Verb., 2 (1888) p. 301—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 305, pl. 16, fig. 9—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 458; Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 199—ŁOĆZY, Wiss. Ergeb. Reise Graf Béla Széchenyi Ostasien, 1870-1880, 3 (1899) p. 193—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 1898, 7 (1899) p. 437—JONES and KIRKBY, British Assoc. Handb., Glasgow (1901) p. 490—LATHAM, Roy. Soc. Edinburgh, Tr., 57 (1932) p. 377, pl. 2.

Cumberland, etc., England (Limestone); Lanarkshire, etc., Scotland (Califerous sandstone and Lower limestone) Ireland; Mongolia.

**Bairdia ? browniana** Jones

Silurian

*Bairdia browniana* JONES, Edinburgh Geol. Soc., Tr., 2, pt. 3 (1874) p. 321; Geol. Mag., dec. 2, 1 (1874) p. 51, text fig. 1—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 579.

Peeblesshire, Scotland.

**Bairdia bulleta** Harris and Lalicker

Permian

*Bairdia bulleta* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 404, pl. 37, fig. 7.

Lueder limestone: Two miles southeast Seymour, Baylor County, Texas.

**Bairdia caudata** Kirkby

Permian

*Bairdia mucronata* KIRKBY (not Reuss), Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 327, pl. 10, figs. 9, 10.

*Bairdia plebeia caudata* KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 143, text figs. 2-4, pl. 9, figs. 9, 10, 12—GEINITZ, Anim. Ueber. Dyas (1861) p. 35.

*Cythere* (*Bairdia*) *plebeia caudata* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 166, pl. 11, figs. 17, 18a-c.

*Cythere caudata* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 230, pl. 5, figs. 30-33; *ibid.*, 19 (1867) p. 218, 220, 223; *ibid.*, 21 (1869) p. 429.

Near Sunderland, Durham, England; Thuringia, Germany (Zechstein).

- Bairdia cestriensis** Ulrich Chester  
*Bairdia cestriensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 210, pl. 17, figs. 6 a-c, 7 a, b—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 118—GIRTY, U. S. Geol. Surv., Prof. Pap. 16, ser. C (1903) p. 478—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 161—GRABAU and SHIMER, North American index fossils (1910) p. 364, text fig. 1667 g-i—GIRTY, U. S. Geol. Surv., Bull. 595 (1915) p. 39, pl. 11, fig. 10.  
 Chester: Chester, Ill.; Grayson Springs, Ky., etc.; "Boone" chert of Arkansas.  
 Cotypes.—U.S.N.M. Nos. 41789, 41790.
- Bairdia cestriensis granulosa** Girty Mississippian  
*Bairdia cestriensis granulosa* GIRTY, New York Acad. Sci., Ann., 20 (1910) p. 237.  
 Fayetteville shale: Arkansas.
- Bairdia circumcisa** Jones and Kirkby Carboniferous  
*Bairdia circumcisa* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 578, pl. 32, figs. 13-16; *ibid.*, 42 (1886) p. 496, table p. 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312.  
 Limestone: Lillithgowshire, etc., East and West Scotland.
- Bairdia ciscoensis** Harlton Pennsylvanian  
*Bairdia ciscoensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 210, pl. 33, fig. 8—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 265, pl. 25, fig. 8.  
 Coleman County (Cisco group) and Mineral Wells (East Mountain shale), Texas.  
 Cotypes.—U.S.N.M. No. 71719.
- Bairdia citriformis** Knight Pennsylvanian  
*Bairdia citriformis* KNIGHT, Jour. Pal., 2, no. 4, (1928) p. 321, pl. 43, figs., 4 a, e—ROTH and SKINNER, Jour. Pal., 4, no. 3 (1930) p. 334—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 34.  
 St. Louis County, Mo. (Pawnee limestone); Eagle County, Colo. (McCoy); Tulsa County, Okla. (Nowata).  
 Metatypes.—U.S.N.M. No. 83966.
- Bairdia compacta** Geis Mississippian  
*Bairdia compacta* GEIS, Jour. Pal., 6, no. 2 (1932) p. 177, pl. 25, fig. 14.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Bairdia compressa** Geis Mississippian  
*Bairdia compressa* GEIS, Jour. Pal., 6, no. 2 (1932) p. 178, pl. 25, fig. 8.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Bairdia conilata** Harlton Pennsylvanian  
*Bairdia conilata* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 268, pl. 2, fig. 13.  
 Shale near base Wapanucka limestone: Pittsburgh County, Okla.  
 Holotype.—U.S.N.M. No. 79373.
- Bairdia coryelli** Roth and Skinner Pennsylvanian  
*Bairdia ventricosa* ROTH and SKINNER (not Kirkby), Jour. Pal., 4, no. 4 (1930) p. 334, 352, pl. 28, figs. 12-14.  
*Bairdia coryelli* ROTH and SKINNER, Jour. Pal., 5, no. 1 (1931) p. 48.  
 McCoy formation: McCoy, Eagle County, Colo.
- Bairdia crassa** Harlton Pennsylvanian  
*Bairdia crassa* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 158, pl. 4, figs. 3a-c—DELO, Jour. Pal., 4, no. 2 (1930) p. 164, pl. 12, fig. 15—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 71, pl. 6, fig. 1—DELO, Washington Univ. Studies, n. s., Sci. and

Tech., no. 5 (1931) p. 49, pl. 4, fig. 9—CORYELL and OSORIO, *Am. Midl. Nat.*, **13**, no. 2 (1932) p. 33.

East Menard County, Texas (Graham); Southeastern Oklahoma (Holdenville); deep well, Hamilton County, Kan.  
 Cotypes.—U.S.N.M. No. 80589.

**Bairdia cuneata** Kummerow = **Primitia cuneata**

**Bairdia cuneata** Steusloff

Ordovician

*Primitia cuneata* STEUSLOFF, *Deutsch. Geol. Ges., Zeitschr.*, **46** (1895) p. 782, pl. 58, fig. 5.

*Bairdia* (?) *cuneata* KUMMEROW, *Preuss. Geol. Landes., Jahrb.*, **44** (1923–1924) p. 435, 442, pl. 21, figs. 17 a, c.

Drift (Gray limestone, Ostseekalk and Algal limestone): Neue-Brandenburg, Germany (Borkholm limestone according to Steusloff).  
 Topotype.—U.S.N.M. No. 82340.

**Bairdia curta** McCoy

Carboniferous? Permian

*Bairdia curta* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 164, pl. 23, fig. 6; *Ann. Mag. Nat. Hist.*, ser. 1, **20** (1847) p. 229—RICHTER, *Deutsch. Geol. Ges., Zeitschr.*, **7** (1855) p. 530, pl. 26, figs. 13–15—ROEMER, *Bronn's Leth. Geog.*, **30** (1857) p. 311—EICHWALD, *Soc. Imp. Nat. Moscou, Bull.*, **1**, pt. 2 (1856) p. 530, pl. 9, figs. 12 a–c—KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 3, **2** (1858) p. 324, 325—EICHWALD, *Leth. Ross.*, **1** (1860) p. 1338, pl. 52, figs. 17, 18—JONES and KIRKBY, *Tyneside Nat. Field Club, Tr.*, **4** (1860) p. 142, 151, 158, 161, 162—GEINITZ, *Anim. Ueber. Dyas* (1861) p. 35—JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 3, **18** (1866) p. 33, 41, 42, 46; *Geol. Soc. Glasgow, Tr.*, **2** (1867) p. 221—JONES, *Monthly Micr. Jour.*, **4** (1870) p. 185, pl. 61, fig. 1—CRAIG, *Geol. Soc. Glasgow, Tr.*, **3** (1871) p. 291—JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 4, **15** (1875) p. 53, 56—ETHERIDGE, *Catalogue Australian fossils* (1878) p. 41—JONES and KIRKBY, *Geol. Soc. London, Quart. Jour.*, **35** (1879) p. 567, 579, pl. 28, figs. 1, 8; *ibid.*, **35** (1879) p. 567, pl. 28, figs. 1–3—VINE, *Yorkshire Geol. Polyt. Soc., Pr.*, n. s., **8** (1884) p. 231, 239—JONES and KIRKBY, *Geol. Mag.*, n. s., dec. 3, **2** (1885) p. 536–541; *Geol. Soc. London, Quart. Jour.*, **42** (1886) p. 496 et seq., and table p. 513—VENUKOFF, *Soc. Belge. Geol., Pal., Hydrol., Bull., Pr.-Verb.*, **2** (1888) p. 301—PRESTWICH, *Geology*, **2** (1888) p. 102, 103, text fig. 50c (not d)—VOGDEN, *New York Acad. Sci., Ann.*, **5** (1889) pl. 2, figs. 1a, b—JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 6, **9** (1892) p. 304, pl. 16, fig. 5—YOUNG, *Geol. Soc. Glasgow, Tr.*, 1888–1892, **9** (1893) p. 312—ETHERIDGE, *Geol. Surv. New South Wales, Mem., Pal.*, **5** (1893) p. 124—JONES and KIRKBY, *Roy. Dublin Soc., Sci. Tr.*, ser. 2, **6** (1898) p. 196, pl. 12, figs. 21a, b—LOCZY, *Wiss. Ergeb. Reise Graf. Béla Széchenyi Ostasien, 1870–1880*, **3** (1899) p. 193—JONES and KIRKBY, *British Assoc. Handb. Glasgow* (1901) p. 490—LEE, *Roy. Soc. Edinburgh, Tr.*, 1908–1911, **47**, pt. 1 (1909) p. 179—VOGDEN, *San Diego Soc. Nat. Hist., Tr.*, **3**, no. 1 (1917) pl. 5, fig. 1—CHAPMAN, *Roy. Micr. Soc., Jour.*, pt. 4 (1921) p. 330, p. 8, fig. 11—LATHAM, *Roy. Soc. Edinburgh, Tr.*, **57**, pt. 2 (1932) p. 374.

County Longford, Ireland; Cumberland, Yorkshire, etc., England; Lanarkshire and Edinburghshire, Scotland (Califerous sandstone and Lower limestone); Thuringia; Russia; Australia (Dunvegan shale); Mongolia; Nova Zembla; ? Devonian of Germany (Chapman).

**Bairdia curta bicornis** Jones and Kirkby

Carboniferous

*Bairdia curta bicornis* JONES and KIRKBY, *Geol. Soc. London, Quart. Jour.*, **35** (1879) p. 568, pl. 28, fig. 7—LATHAM, *Roy. Soc. Edinburgh, Tr.*, **57**, pt. 2 (1932) p. 375.

Lower Limestone: West Broadstone, Ayrshire, Scotland.

**Bairdia curta deformis** Jones and Kirkby

Carboniferous

*Bairdia curta deformis* JONES and KIRKBY, *Geol. Soc. London, Quart. Jour.*, **35** (1879) p. 568, pl. 28, fig. 8.

Steeraway, Salop, England.

- Bairdia curta terebra** Jones and Kirkby Carboniferous  
*Bairdia curta terebra* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **35** (1879) p. 565, pl. 28, fig. 5.  
 Wyebourne, Cumberland, England.
- Bairdia cyclas** (Keyserling) Permian  
*Cythere cyclas* KEYSERLING, in Schrenk, Reise Nordost. Europ. Russland (1854) p. 112, pl. 4, figs. 42, 43—GEINITZ, Anim. Ueber. Dyas (1861) p. 32—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 580.  
*Bairdia cyclas* EICHWALD, Leth. Ross., **1** (1860) p. 580, 1345.  
 Orrenbourg and Pinega River, Russia.
- Bairdia depressa** Geis Mississippian  
*Bairdia depressa* GEIS, Jour. Pal., **6**, no. 2 (1932) p. 178, pl. 25, fig. 12.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Bairdia devonica** Gürich Devonian  
*Bairdia devonica* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, **32** (1896) p. 391, pl. 14, figs. 4 a-e—SOBOLEW, Mater. Geol. Russlands, **24** (1909) p. 369.  
 Kielce, Poland, and Russia.
- Bairdia devonica** Grabau and Shimer = **Bythocypris devonica**
- Bairdia distracta** Eichwald Carboniferous  
*Bairdia distracta* EICHWALD, Soc. Imp. Nat. Moscou, Bull., **30** (1857) p. 311; Leth. Ross., **1** (1860) p. 1341, pl. 52, fig. 12—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, **15** (1875) p. 53; Geol. Soc. London, Quart. Jour., **35** (1879) p. 579.  
 Limestone: Novgorod, Russia.
- Bairdia dornickhillensis** Harlton = **B. auricula**
- Bairdia drupacea** (Richter) Permian  
*Cythereis drupacea* RICHTER, Deutsch. Geol. Ges., Zeitschr., **7** (1855) p. 529, pl. 26, figs. 10, 11—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, **2** (1858) p. 438—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 579.  
*Bairdia drupacea* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., **4** (1860) p. 161; Geol. Soc. London, Quart. Jour., **35** (1879) p. 579.  
 Zechstein: Thuringia, Germany.
- Bairdia elongata** Vine = **Macrocypris vinei**
- Bairdia eissensis** Upson Permian  
*Bairdia eissensis* UPSON, Nebr. Geol. Surv., Bull. **8** (1933) p. 20, pl. 1, figs. 9a-c.  
 Garrison (Eiss limestone): Kansas-Nebraska line, southeast corner southeast quarter of Sec. 34, T. 1 N., R. 13 E.
- Bairdia elongata** (Münster) Carboniferous  
*Cythere elongata* MÜNSTER, Jahrb. Min. (1830) p. 65—JONES, in King's Mon. Perm. fossils (1850) p. 62, pl. 18, fig. 5; Tyneside Nat. Field Club, Tr., **4** (1860) p. 159, pl. 11, fig. 2—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, **10** (1862) p. 205.  
*Bairdia elongata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 2, **15** (1865) p. 405, 408, pl. 20, figs. 14 a-c; Geol. Soc. London, Quart. Jour., **35** (1879) p. 579—VINE, *ibid.*, **38** (1882) p. 48—KUMMEROW, Preuss. Geol. Landes., Jahrb., **44** (1923-1924) p. 435, 442, pl. 21, fig. 16.  
*Bairdia* cf. *elongata* REED, Pal. Indica, n. s., **10**, mem. 1 (1927) p. 74.  
 Near Hof, Bavaria, etc., Germany; England; Yun-Nan, China.

**Bairdia elongata** Kummerow (not Münster or Lienenklaus) Silurian  
*Bairdia elongata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 44 (1923-1924) p. 435, 442, pl. 21, fig. 16.

Drift (Leperditia limestone): Sensburg, East Prussia, Germany.

**Bairdia excisa** Eichwald = **Silenites bilobata**

**Bairdia florenaensis** Upson Permian  
*Bairdea florenaensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 22, pl. 2, figs. 4a-b.

Garrison (Florena shale): South line of southwest quarter, Sec. 34, T. 1 N., R. 14 E., Nebraska.

**Bairdia frumentum** Reuss Permian

*Bairdia frumentum* REUSS, Wetterauer Ges. Nat. Hanau, Jahrb., 1851-1853 (1854) p. 68, pl. fig. 7—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438.

*Cythere frumentum* GEINITZ, Anim. Uberr. Dyas (1861) p. 34, text fig. 2 (fig. 7)—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 232, pl. 5, fig. 25; *ibid.*, 21 (1869) p. 429.

*Cythere (Bairdia) frumentum* SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581, pl. 6, fig. 18.

Zechstein: Thuringia, Germany.

**Bairdia garrisonensis** Upson Permian

*Bairdia garrisonensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 20, pl. 1, figs. 10a-c.

Garrison (Florena shale): Kansas-Nebraska line, southwest quarter of Sec. 34, T. 1 N., R. 14 E.

**Bairdia geinitziana** (Jones) Permian

*Cythere geinitziana* JONES, in King's Mon. Perm. fossils (1850) p. 62, pl. 6, fig. 46; pl. 18, figs. 4a-c—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438—JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 152, pl. 11, figs. 4a-c—GEINITZ, Anim. Uberr. Dyas, 4 (1861) p. 34, text fig. 2 (fig. 8)—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 232, 235.

*Cythere (Bairdia) geinitziana* SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581.

*Bairdia geinitziana* REUSS, Wetterauer Ges. Nat. Hanau, Jahrb., 1851-1853 (1854) p. 66, pl. fig. 1—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 161.

Humbleton, etc., England; Zechstein of Germany.

**Bairdia geinitziana** Richter = **B. plebeia**

**Bairdia glennensis** Harlton Pennsylvanian

*Bairdia glennensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 210, pl. 33, fig. 10—KNIGHT, *ibid.*, 2, no. 4 (1928) p. 325, pl. 43, figs. 8a, b—HARLTON, *ibid.*, 3 (1929) p. 308—ROTH and SKINNER, *ibid.*, 4, no. 3 (1930) p. 334.

Carter County, Okla. (Upper Glenn); St. Louis County, Mo. (Henrietta—Fort Scott); Eagle County, Colo. (McCoy).

**Bairdia gracilis** McCoy Carboniferous, Permian

*Bairdia gracilis* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 164, pl. 23, fig. 7—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 409; Tyneside Nat. Field Club, Tr., 4 (1860) p. 151; Geol. Soc. London, Quart. Jour., 35 (1879) p. 575.

*Cythere gracilis* GEINITZ, Anim. Uberr. Dyas (1861) p. 34—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 221.

Carboniferous limestone of Ireland. Permian of Durham, England.

**Bairdia gracilis** Jones, etc. (not McCoy) = **Macrocypris jonesiana**

**Bairdia grahamensis** Harlton

Pennsylvanian

*Bairdia grahamensis* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 139, pl. 31, fig. 11; Univ. Texas, Bull. 2901 (1929) p. 156, pl. 3, fig. 4—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 70, pl. 51, fig. 12.

East Menard and Young counties, Texas (Graham, below Gunsight limestone); Southeast Oklahoma. (Holdenville).

Cotypes.—U.S.N.M. No. 72243.

**Bairdia grandis** Jones and Kirkby

Carboniferous, Permian

*Cythere (Bairdia) curta* JONES, in King's Mon. Permian fossils (1850) p. 64, pl. 17, figs. 21, 22.

*Cythere (Bairdia) plebeia grandis* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 162, pl. 11, figs. 13a, b.

*Bairdia grandis* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 223—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 25—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 572, pl. 29, figs. 1, 2; *ibid.*, 42 (1886) p. 496, 513—VENUKOFF, Soc. Belg. Geol., Pal., Hydrol., Bull., Pr.-Verb., 2 (1888) p. 301—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 305, pl. 16, fig. 11—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 457.

Carboniferous limestone and Magnesian limestone (Permian) of Scotland and North England; Mongolia.

**Bairdia granireticulata** Harlton

Mississippian

*Bairdia granireticulata* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 267, pl. 2, figs. 10 a, b.

Fayetteville shale: Craig County, Okla.

Cotype.—U.S.N.M. No. 79370.

**Bairdia griffithiana** Jones and Holl

Ordovician

*Bairdia griffithiana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 58, pl. 7, fig. 10—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 579—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, appendix (1881) p. 409.

Caradoc: Kildare, Ireland; North Wales.

**Bairdia haworthi** Knight

Pennsylvanian

*Bairdia haworthi* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 325, pl. 43, figs. 7a, b—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 72, pl. 6, fig. 4. Probably synonym of *Bairdia hozbarensis* Harlton.

Fort Scott limestone: St. Louis County, Mo.

Metatypes.—U.S.N.M. No. 83963.

**Bairdia hexensis** Harlton

Pennsylvanian

*Bairdia hexensis* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 157, pl. 3, fig. 9.

Graham formation: East Menard County, Texas.

Holotype.—U.S.N.M. No. 80586.

**Bairdia hisingeri** (Münster)

Carboniferous and Permian

*Cythere hisingeri* MÜNSTER, Jahrb. Min. (1830) p. 65—HISINGER, Bidrag till Sveriges Geognosie (1831) p. 110; Lethaea Sveicica (1837) p. 9.

*Bairdia hisingeri* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 408, pl. 20, figs. 12a-c; Geol. Soc. Glasgow, Tr., 2 (1867) p. 221—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 26—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 570, pl. 29, figs. 4-10—KIRKBY, *ibid.*, 36 (1880) p. 563, 576, table p. 587—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31, no. 5 (1883) p. 4, 7, 8—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 8 (1884) p. 231, 239, pl. 12, figs. 2, 2a; Naturalist, 10 (1885) p. 98—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893)

p. 312—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 1898, 7 (1899) p. 437—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 491—KIRKBY, Edinburgh Geol. Soc., Tr., 1898–1905, 8 (1905) p. 74—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 378.

*Bairdia hisingeri* var. VENUKOFF, Soc. Belge. Geol., Pal., Hydrol., Bull., Pr.-Verb., 2 (1888) p. 301—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 453, pl. 21, fig. 1; Roy. Soc. Dublin, Tr., ser. 2, 6 (1898) p. 195—LOCZY, Wiss. Ergeb. Reise Graf. Béla Széchenyi Ostasien, 1870–1880, 3 (1899) p. 193.

*Bairdia schaurothiana* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 329, pl. 10, fig. 14—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 147, pl. 9, fig. 14.

*Cythere schaurothiana* GEINITZ, Anim. Ueber. Dyas (1861) p. 36.

*Cythere (Bairdia) schaurothiana* KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308; Ann. Mag. Nat. Hist., ser. 3, 10 (1862) p. 203, pl. 4, figs. 1–12—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581.

Near Hof, Bavaria (Mountain limestone); North England (Yoredale); South England (limestone); East and West Scotland (Calcareous sandstone, Lower and Upper limestone); Carland, Ireland; Mongolia. Permian of Durham, England, etc.

***Bairdia hisingeri contracta* Jones and Kirkby** Carboniferous

*Bairdia hisingeri contracta* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 457, pl. 21, fig. 7—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 378.

Calcareous sandstone and Lower limestone: Yorkshire, England; Scotland.

***Bairdia hisingeri mongoliensis* Jones and Kirkby** Carboniferous

*Bairdia hisingeri mongoliensis* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 306, pl. 16, fig. 13.

River Bardun, South Mongolia.

***Bairdia hispida* Harlton** Pennsylvanian

*Bairdia hispida* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 140, pl. 21, fig. 14; Univ. Texas, Bull. 2901 (1929) p. 155, pl. 3, figs. 2a, b—DELO, Jour. Pal., 4 (1930) p. 163, pl. 12, fig. 14—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 262, pl. 25, fig. 10. Probably a synonym of *B. beedei*.

East Menard County (Graham), Eastland County (Cisco) and Mineral Wells (East Mountain shale), Texas.

Cotypes and pleisotype.—U.S.N.M. Nos. 72246, 80580.

***Bairdia hozbarensis* Harlton** Pennsylvanian

*Bairdia hozbarensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 211, pl. 33, fig. 12; Jour. Pal., 3 (1929) p. 308—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 33.

*Bairdia nebraskensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 18, pl. 1, figs. 6a, b.

*Bairdia subelongata* HARLTON (not Jones and Kirkby), Univ. Texas, Bull. 2901 (1929) p. 157, pl. 3, fig. 6—KNIGHT, Jour. Pal., 1, no. 3 (1927) p. 210, pl. 33, fig. 11; *ibid.*, 2, no. 4 (1928) p. 236, pl. 43, fig. 9.

*Bairdia acetalata* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 173, pl. 17, fig. 5—CORYELL and BOOTH, *ibid.*, 15, no. 3 (1933) p. 263, pl. 3, figs. 10, 11—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 17, pl. 1, fig. 5a.

Carter County, etc., Okla. (Hoxbar, Wewoka, Nowata, and Holdenville); Eastern Kansas (Missouri series to Wabaunsee); Eagle County, Colo. (McCoy); Graham, Texas (Wayland).

Holotype and pleisotype.—U.S.N.M. Nos. 71408, 80579.

***Bairdia hurwitzi* Coryell and Booth** Pennsylvanian

*Bairdia hurwitzi* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 262, pl. 3, figs. 8, 9.

Wayland shale: Graham, Texas.

**Bairdia hoxbarendis** Harlton, 1929 = **B. texana**

**Bairdia irionensis** Delo

Pennsylvanian

*Bairdia irionensis* DELO, Jour. Pal., 4 (1930) p. 165, pl. 12, fig. 18.

Deep well, Irion County, Texas.  
Holotype.—U.S.N.M. No. 81783.

**Bairdia jonesiana** Kirkby = **Macrocypris jonesiana**

**Bairdia kingi** Reuss

Permian

*Bairdia kingi* REUSS, Wetterauer Ges. Nat. Hanau, Jahrb., 1851–1853 (1854) p. 67, pl. fig. 4—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 327, pl. 10, figs. 8, 8a; Tyneside Nat. Field Club, Tr., 4 (1860) p. 148, text fig. 11, pl. 9, fig. 8—GEINITZ, Anim. Ueber. Dyas (1861) p. 34, text fig. 2 (figs. 10a, b)—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 579.

*Cythere (Bairdia) kingi* SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581, pl. 6, figs. 32, 33.

Bleichenbach, Wetterau and Thuringia, Germany (Zechstein); Durham, England (Magnesian limestone).

**Bairdia kingi compressa** (Kirkby)

Permian

*Bairdia plebeia compressa* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 325, pl. 10, figs. 7, 7a—GEINITZ, Anim. Ueber. Dyas (1861) p. 36.

*Cythere (Bairdia) plebeia compressa* KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308.

*Bairdia kingii compressa* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 148, pl. 9, fig. 7, woodcut 12.

Durham and South Yorkshire, England.

**Bairdia kingiana** (Richter)

Permian

*Cythere kingiana* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 234, pl. 5, fig. 18; *ibid.*, 21 (1869) p. 429.

Zechstein: Thuringia, Germany.

**Bairdia laevigata** Eichwald = **Paraparchites laevigata**

**Bairdia laevigata nigrescens** Eichwald = **Paraparchites laevigata nigrescens**

**Bairdia lanulata** Harlton

Mississippian

*Bairdia lanulata* HARLTON, Am. Jour. Sci., ser. 5, 13, no. 105 (1929) p. 269, pl. 2, fig. 16.

Fayetteville shale; Craig County, Okla.  
Holotype.—U.S.N.M. No. 79375.

**Bairdia legumen** Jones and Kirkby

Carboniferous

*Bairdia legumen* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 540; Ann. Mag. Nat. Hist., ser. 5, 13 (1885) p. 266, pl. 9, fig. 13; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 312; British Assoc. Handb. Glasgow (1901) p. 491.

Lancashire, England (Yoredale); East and West Scotland (Lower limestone).

**Bairdia leguminoides** Ulrich

Devonian

*Bairdia leguminoides* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 197, pl. 17, figs. 5a–c—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 310, text fig. 254—GRABAU and SHIMER, North American index fossils (1910) p. 364, text fig. 1667 d–f.

Hamilton (Ludlowville): Eighteen Mile Creek, N. Y.  
Holotype.—U.S.N.M. No. 41788.



- Bairdia macdonelli** Harlton Pennsylvanian  
*Bairdia macdonelli* HARLTON, Univ. Texas, Bull. **2901** (1929) p. 157, pl. 3, figs. 7 a, b.  
 Graham formation: East Menard County, Texas.  
 Cotypes.—U.S.N.M. No. 80585.
- Bairdia marginata** Harlton = **B. menardvillensis**
- Bairdia maxeyi** Harris and Lalicker Permian  
*Bairdia maxeyi* HARRIS and LALICKER, Am. Midl. Nat., **13**, no. 6 (1932) p. 405, pl. 37, fig. 9.  
 Garrison shale (Crouse limestone): Cowley County, Texas.
- Bairdia matfieldensis** Upson = **B. plebeia reussiana**
- Bairdia menardensis** Harlton Pennsylvanian  
*Bairdia menardensis* HARLTON, Univ. Texas, Bull. **2901** (1929) p. 158, pl. 4, figs. 1 a-d—DELO, Jour. Pal., **4** (1930) p. 164, pl. 12, fig. 16—CORYELL and OSORIO, Am. Midl. Nat., **13**, no. 2 (1932) p. 33.  
 East Menard County, Texas (Graham); Tulsa County, Okla. (Nowata).  
 Cotypes.—U.S.N.M. No. 80587.
- Bairdia menardvillensis** Harlton Pennsylvanian  
*Bairdia marginata* HARLTON (not Bosquet), Univ. Texas, Bull. **2901** (1929) p. 158, pl. 4, fig. 2.  
*Bairdia menardvillensis* HARLTON, Jour. Pal., **5**, no. 2 (1931) p. 163.  
 Graham formation: East Menard County, Texas.  
 Holotype.—U.S.N.M. No. 80588.
- Bairdia moorei** Knight Pennsylvanian  
*Bairdia moorei* KNIGHT, Jour. Pal., **2**, no. 4 (1928) p. 318, 319, pl. 43, figs. 1a-c—CORYELL and OSORIO, Am. Midl. Nat., **13**, no. 2 (1932) p. 33—CORYELL and BILLINGS, *ibid.*, **13**, no. 4 (1932) p. 173, pl. 17, fig. 4. Probably a synonym of *B. beedei*.  
 St. Louis County, Mo. (Henrietta-Ft. Scott limestone); northeast of Cisco, Texas (Wayland shale); Tulsa County, Okla. (Nowata).  
 Metatypes.—U.S.N.M. No. 83964.
- Bairdia mucronata** Reuss Permian and Carboniferous  
*Bairdia mucronata* REUSS, Wetterauer Ges. Na. Hanau, Jahrb., 1851–1853 (1854) p. 67, pl. 1, fig. 6—RICHTER, Deutsch. Geol. Ges., Zeitschr., **7** (1855) p. 531, pl. 26, figs. 18, 19—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., **4** (1860) p. 138, 143, 145—GEINITZ, Anim. Ueberr. Dyas (1861) p. 37, fig. 2 (fig. 14)—JONES and KIRKBY, Geol. Soc. Glasgow, Tr., **2** (1867) p. 221—RICHTER, Deutsch. Geol. Ges., Zeitschr., **19** (1867) p. 228, pl. 5, figs. 39, 40; *ibid.*, **21** (1869) p. 429—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, **15** (1875) p. 53; Geol. Soc. London, Quart. Jour., **35** (1879) p. 572, pl. 29, fig. 11; *ibid.*, **42** (1886) p. 496, 513—REED, Pal. Indica, n. s., **10**, mem. 1 (1927) p. 73.  
*Cythere* (*Bairdia*) *mucronata* SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 580, pl. 6, fig. 4.  
 Permian: Wetterau and Thuringia, Germany (Zechstein); England and Scotland. Carboniferous of England (Yoredale); Yun-Nan, China.
- Bairdia mucronata?** Kirkby (not Reuss) = **Bairdia caudata** and **B. plebeia amygdalina**
- Bairdia mucronata submucronata** Jones and Kirkby = **Bairdia submucronata**
- Bairdia purchisoniana** Jones and Holl Ordovician  
*Bairdia purchisoniana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, **2** (1868) p. 58, pl. 7, fig. 9—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **35** (1879)

p. 579—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, ed. 2, appendix (1881) p. 409,

Caradoc: Kildare, Ireland; North Wales.

**Bairdia nebraskensis** Upson = **B. hoxbarensis**

**Bairdia nitida** Jones and Kirkby Carboniferous

*Bairdia nitida* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 577, pl. 32, figs. 9–12—KIRKBY, *ibid.*, 36 (1880) p. 570, table p. 587—JONES and KIRKBY, *ibid.*, 42 (1886) p. 496, 513.

Calcareous sandstone: Anstruther, Scotland.

**Bairdia nitida** Harlton = **B. blakei**

**Bairdia occidentalis** Girty = **Bairdianella occidentalis**

**Bairdia oklahomaensis** Harlton Pennsylvanian

*Bairdia oklahomaensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 209, pl. 33, fig. 7; Univ. Texas, Bull. 2901 (1929) p. 156, pl. 3, figs. 5a, b—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 69, pl. 5, fig. 8—CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 172, pl. 17, fig. 3—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 264, pl. 25, fig. 9.

Carter County, etc., Okla. (Upper Glenn, but ranges from Upper Wewoka to Seminole); East Menard County, etc., Texas (Graham).  
Holotype and plesiotypes.—U.S.N.M. Nos. 71409, 80583.

**Bairdia ovata** Eichwald (not Bosquet) Carboniferous

*Cythere pyrhræ* Keyserling, SCHRENK, Reise Nordost. Europ. Russlands, 2 (1854) p. 112, pl. 4, fig. 21 (not Eichwald).

*Cytherina ovata* EICHWALD, Soc. Imp. Nat. Moscou, Bull., 30, no. 4 (1857) p. 308.  
*Bairdia ovata* EICHWALD, Leth. Ross., 1 (1860) p. 1345.

Orrenbourg, Russia.

**Bairdia pecosensis** Delo Pennsylvanian

*Bairdia pecosensis* DELO, Jour. Pal., 4 (1930) p. 166, pl. 13, fig. 1—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 23, pl. 2, figs. 6a–d.

Deep well, Pecos County, Texas; 3½ miles east of Home City, Kan. (Permian-Four mile).  
Holotype.—U.S.N.M. No. 81784.

**Bairdia pennata** Coryell and Sample Pennsylvanian

*Bairdia angulata* CORYELL and SAMPLE (not Brady, 1870), Am. Midl. Nat., 13, no. 5 (1932) p. 262, pl. 25, fig. 61.

*Bairdia pennata* CORYELL and SAMPLE, Am. Midl. Nat., 14, no. 2 (1933) p. 187.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Bairdia peracuta** Warthin Pennsylvanian

*Bairdia peracuta* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 71, pl. 6, fig. 2—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 33.

Three miles east of Ada (Holdenville) and Tulsa County, Okla. (Nowata).

**Bairdia permagna** Geis Mississippian

*Bairdia permagna* GEIS, Jour. Pal., 6, no. 2 (1932) p. 175, pl. 25, fig. 11.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Bairdia philippiana** Jones and Holl = **Bythocypris philippiana**

**Bairdia pinnula** Coryell and Booth Pennsylvanian

*Bairdia pinnula* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 263, pl. 3, fig. 14.

Wayland shale: Graham, Texas.

**Bairdia plebeia** Reuss

Carboniferous and Permian

*Bairdia plebeia* REUSS, Wetterauer Ges. Nat. Hanau, Jahrb., 1851-1853 (1854) p. 67, fig. 5—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 324, pl. 10, figs. 1-7; Tyneside Nat. Field Club, Tr., 4 (1860) p. 141, text figs. 1a-c, pl. 9, figs. 1, 2, 7—TERQUEM and PIETTE, Soc. Géol. France, Mém., ser. 2, 8, mem. 1 (1865) p. 119—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 42—MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 494, 524—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 56, pl. 6, figs. 6, 7; Geol. Soc. London, Quart. Jour., 35 (1879) p. 569, pl. 28, figs. 9-19—KIRKBY, *ibid.*, 36 (1880) p. 561, 563, 576, 587—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 8 (1884) p. 231, 239, pl. 12, figs. 3, 5, 5a; Naturalist, 10 (1885) p. 99—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513—VENUKOFF, Soc. Belge. Geol., Pal., Hydrol., Bull., Pr.-Verb., 2 (1888) p. 301—PRESTWICH, Geology, 2 (1888) p. 136—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 304, pl. 16, figs. 6, 7—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 458, 459; Roy. Dublin Soc., Tr., ser. 2, 6 (1898) p. 197, 199—ŁOČZY, Wiss. Ergeb. Reise Graf. Béla Széchenyi Ostasien, 1877-1880, 3 (1899) p. 193—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 1898, 7 (1899) p. 437—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 491—KIRKBY, Edinburgh Geol. Soc., Tr., 1898-1905, 8 (1905) p. 74—GIRTY, U. S. Geol. Surv., Prof. Pap. 58 (1908) p. 510, pl. 25, figs. 16, 16a—MEHES, Pal. Umgeb. Balatonsees, 3 (1911) p. 19, 34, pl. 2, figs. 1-4—CHAPMAN, Roy. Micr. Soc., Jour., pt. 4 (1921) p. 331—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 375.

*Cythere (Bairdia) plebeia* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 161, 166, pl. 11, figs. 8, 17, 18—KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308; Ann. Mag. Nat. Hist., ser. 3, 10 (1862) p. 203, pl. 4, figs. 5-10.

*Bairdia geinitziana* RICHTER, Deutsch. Geol. Ges., Zeitschr., 7 (1855) p. 530, pl. 26, fig. 12.

*Cythere plebeia* GEINITZ, Anim. Uberr. Dyas (1861) p. 35, text fig. 2 (figs. 13 a, b)—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581, pl. 6, fig. 26—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 234, pl. 5, fig. 19.

Permian of Wetterau, Germany (Zechstein); Permian and Carboniferous of England; Scotland; Ireland; Russia; Texas; Mongolia.

**Bairdia plebeia alta** Jones and Kirkby

Carboniferous

*Bairdia plebeia alta* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 16 (1895) p. 457, pl. 21, fig. 6—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 376.

Calcareous sandstone and limestone: Dowgill, Yorkshire, England.

**Bairdia plebeia amygdalina** Kirkby

Permian

*Bairdia mucronata?* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 327, pl. 10 fig. 11.

*Bairdia plebeia amygdalina* KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 145, pl. 9, fig. 11, text fig. 5—GEINITZ, Anim. Uberr. Dyas (1861) p. 36.

Near Sunderland, Durham, England.

**Bairdia plebeia caudata** Kirkby = **Bairdia caudata**

**Bairdia plebeia compressa** Kirkby = **Bairdia kingi compressa**

**Bairdia plebeia elongata** Kirkby

Permian

*Bairdia plebeia elongata* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 325, pl. 10, figs. 4, 4a; Tyneside Nat. Field Club, Tr., 4 (1860) p. 145, text fig. 6, pl. 9, fig. 4—GEINITZ, Anim. Uberr. Dyas (1861) p. 36—KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308.

Tunstall Hill, Durham, and Yorkshire, England.

**Bairdia plebeia munda** Jones and Kirkby

Carboniferous

*Bairdia plebeia munda* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 57, pl. 6, fig. 7.

Likhwine, Russia.

**Bairdia plebeia neptuni** Kirkby

Permian

*Bairdia plebeia neptuni* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 325, pl. 10, figs. 5, 5a; Tyneside Nat. Field Club, Tr., 4 (1860) p. 145, text fig. 7, pl. 9, fig. 5—GEINITZ, Anim. Uberr. Dyas (1861) p. 36.

*Cythere (Bairdia) plebeia neptuni* KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308.

Tunstall Hill, Durham, and South Yorkshire, England.

**Bairdia plebeia reussiana** (Kirkby)

Permian

*Bairdia reussiana* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 326, pl. 10, figs. 6, 6a—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 19, pl. 2, fig. 2a.

*Bairdia plebeia reussiana* KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 146, text fig. 8, pl. 9, fig. 6.

*Cythere reussiana* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 229, pl. 5, fig. 35; *ibid.*, 21 (1869) p. 429.

*Cythere plebeia reussiana* GEINITZ, Anim. Uberr. Dyas (1861) p. 36.

*Bairdia matfieldensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 18, pl. 1, figs. 7a, b.

Durham, England; Thuringia, Germany (Zechstein); Gage County, etc., Kan. (Chase); Ohio (Dunkard).

**Bairdia plebeia rhombica** (Jones)

Permian

*Cythere (Bairdia) plebeia rhombica* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 162, pl. 11, figs. 10–12b.

*Bairdia plebeia rhombica* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 56, pl. 6, fig. 6.

Near Sunderland, Durham, England; Sloboda, Russia.

**Bairdia plebeia ventricosa** (Kirkby)

Permian

*Bairdia ventricosa* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 326, pl. 10, figs. 3, 3a—GEINITZ, Anim. Uberr. Dyas (1861) p. 36.

*Bairdia plebeia ventricosa* KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 146, text fig. 9, pl. 9, fig. 3.

*Cythere (Bairdia) plebeia ventricosa* KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308.

Tunstall Hill, Durham and Yorkshire, England.

**Bairdia pompilioides** Harlton

Pennsylvanian

*Bairdia pompilioides* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 140, pl. 21, fig. 13; Univ. Tex., Bull. 2901 (1929) p. 153, pl. 2, fig. 7; pl. 3, fig. 8—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 70, pl. 5, fig. 11—ROTH and SKINNER, Jour. Pal., 4, no. 3 (1930) p. 334—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 33.

Carter County, etc., Okla. (Hoxbar, Nowata, Holdenville); East Menard County, Texas (Graham); McCoy, Eagle County, Colo. (McCoy).

Holotype and pleistotypes.—U.S.N.M. Nos. 72245, 80578.

**Bairdia pottsvillensis** Harlton = **B. auricula****Bairdia praecisa** Jones and Kirkby

Carboniferous

*Bairdia praecisa* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 577, pl. 32, figs. 1–6—KIRKBY, *ibid.*, 36 (1880) p. 576, 582, table p. 587—JONES and KIRKBY, *ibid.* 42 (1886) p. 496 et seq., and table p. 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 312—KIRKBY, Edinburgh Geol. Soc., Tr., 1898–1905, 8 (1905) p. 74.

Califerous sandstone: Fife, Scotland. Lower limestone of West Scotland.

**Bairdia protracta** Eichwald

Silurian

*Bairdia protracta* EICHWALD, Leth. Ross., 1 (1860) p. 1338, pl. 52, fig. 19—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1860) p. 213—ALTH, Abh. Geol. Reichst.,

7, pt. 1 (1874) p. 71—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 579.

Coral limestone: Kamenetz-Podolsk, Russia.

**Bairdia pyrrrhae** Eichwald = **Jonesina pyrrrhae**

**Bairdia qualeni** Eichwald Carboniferous

*Bairdia qualeni* EICHWALD, Soc. Imp. Nat. Moscou, Bull., 30 (1857) p. 311—EICHWALD, Leth. Ross., 1 (1860) p. 1339, pl. 52, figs. 4a-c—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 53; Geol. Soc. London, Quart. Jour., 35 (1879) p. 579.

Limestone: Orrenbourg, Russia.

**Bairdia recta** Harlton Pennsylvanian

*Bairdia recta* HARLTON, Univ. Tex., Bull. 2901 (1929) p. 159, pl. 4, figs. 4a-c.

Graham formation: East Menard County, Texas.

Cotypes.—U.S.N.M. No. 80590.

**Bairdia reniformis** Kirkby = **Carbonita intermedia**

**Bairdia Reussiana** Kirkby = **B. plebeia reussiana**

**Bairdia rhomboidea** Kirkby Permian

*Bairdia rhomboidea* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 433, pl. 11, figs. 3, 3a; Tyneside Nat. Field Club, Tr., 4 (1860) p. 149, pl. 10, fig. 3, text fig. 14—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 579.

*Cythere rhomboidea* GEINITZ, Anim. Uberr. Dyas (1861) p. 37, text fig. 2 (fig. 16).

*Cythere (Bairdia) rhomboidea* SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 580, pl. 6, fig. 7.

Magnesian limestone: Durham and South Yorkshire, England.

**Bairdia rogatzii** Coryell and Sample Pennsylvanian

*Bairdia rogatzii* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 264, pl. 25, fig. 7.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Bairdia rostrata** Péneau Upper Devonian

*Bairdia rostrata* PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8 (1928-1929) p. 178, pl. 9, fig. 8, pl. 11, fig. 6.

Clymenia beds: Saint-Julien-de-Vouvantes, Armorica Massif, France.

**Bairdia samplei** Coryell and Booth Pennsylvanian

*Bairdia samplei* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 264, pl. 3, figs. 12, 13.

Wayland shale: Graham, Texas.

**Bairdia salemensis** Geis Mississippian

*Bairdia salemensis* GEIS, Jour. Pal., 6, no. 2 (1932) p. 176, pl. 25, fig. 10.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Bairdia salteriana** Jones and Holl Ordovician

*Bairdia salteriana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 58, pl. 7, fig. 11—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 579—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, ed. 2, appendix (1881) p. 409.

Caradoc: Kildare, Ireland, and North Wales.

- Bairdia scapha** Eichwald Permian  
*Bairdia scapha* EICHWALD, Leth. Ross., 1 (1860) p. 1343, pl. 52, figs. 15 a, b.  
 Orrenbourg, Russia.
- Bairdia Schauerothiana** Kirkby = **B. hisingeri**
- Bairdia scholli** Coryell and Booth Pennsylvanian  
*Bairdia scholli* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 264, pl. 4, figs. 3, 4.  
 Wayland shale: Graham, Texas.
- Bairdia seligi** Delo Pennsylvanian  
*Bairdia seligi* DELO, Jour. Pal., 4 (1930) p. 165, pl. 12, fig. 17.  
 Deep well, Sutton County, Texas.  
 Holotype.—U.S.N.M. No. 81785.
- Bairdia seminalis** Knight Pennsylvanian  
*Bairdia seminalis* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 320, 321, pl. 43, figs. 2a-d  
 —CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 262, pl. 25, fig. 14.  
*Bairdia tumida* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 21, pl. 2, figs. 3a-c.  
 St. Louis County, Mo. (Henrietta formation, Fort Scott limestone); 3 miles west of Mineral Wells,  
 Texas (East Mountain shale); 2 miles southeast of Stockdale, Kan.  
 Metatypes.—U.S.N.M. No. 83965.
- Bairdia shideleri** Delo Pennsylvanian  
*Bairdia shideleri* DELO, Jour. Pal., 4 (1930) p. 167, pl. 13, fig. 2.  
 Deep well, Pecos County, Texas.  
 Holotype.—U.S.N.M. No. 81786.
- Bairdia siliquoides** Jones and Kirkby = **Pontocypris siliquoides**
- Bairdia subaequalis** Geis Mississippian  
*Bairdia subaequalis* GEIS, Jour. Pal., 6, no. 2 (1932) p. 178, pl. 25, fig. 13.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Bairdia subcitriformis** Knight Pennsylvanian  
*Bairdia subcitriformis* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 322, pl. 43, fig. 5.  
 Probably a synonym of *Bairdia pompilioides* Harlton.  
 Henrietta (Pawnee limestone): St. Louis County, Mo.
- Bairdia subcylindrica** Jones and Kirkby, 1867 = **B. subelongata**
- Bairdia subcylindrica** (Münster) Carboniferous  
*Cythere subcylindrica* MÜNSTER, Jahrb. Min. (1830) p. 65.  
*Bairdia subcylindrica* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865)  
 p. 409, pl. 20, figs. 13a, 13b—SANDBERGER, Neues Jahrb. Min., Geol., Pal. (1866)  
 p. 41—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 33; Geol. Soc.  
 Glasgow, Tr., 2 (1867) p. 221—SANDBERGER, Verh. Geol. Reichs. (1868) p. 191—  
 GÜMBEL, Jahrb. Geol. Reichs., 19 (1869) p. 182, 183—McPHAIL, Geol. Soc. Glasgow,  
 Tr., 3 (1871) p. 268—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879)  
 p. 573, 578, 579—KIRKBY, *ibid.*, 36 (1880) p. 576—VINE, Yorkshire Geol. Polytechn.  
 Soc., Pr., n. s., 8 (1884) p. 231—JONES and KIRKBY, Roy. Dublin Soc., Sci. Tr.,  
 ser. 2, 6 (1896-1898) p. 198; British Assoc. Handb. Glasgow (1901) p. 491.  
 Limestone: Near Hof, Bavaria; Scotland; England.
- Bairdia subelongata** Harlton = **B. hoxbarensis**
- Bairdia subelongata** Jones and Kirkby Carboniferous  
*Bairdia subcylindrica* JONES and KIRKBY (not Münster), Geol. Soc. Glasgow,  
 Tr., 2 (1867) p. 221—ARMSTRONG, in Young's Cat. Carboniferous fossils west  
 Scotland, Geol. Soc. Glasgow, Tr., 3, suppl. (1871).

*Bairdia subelongata* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 573, pl. 30, figs. 1-11, 16—KIRKBY, *ibid.*, 36 (1880) p. 563, table p. 587—VINE, Yorkshire Geol. Polytechn. Soc., Pr., n. s., 8 (1884) p. 231, 239, pl. 12, figs. 1, 1a; Naturalist, 10 (1885) p. 99—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 513—JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 397—VENUKOFF Soc. Belge. Geol., Pal., Hydrol., Bull., Pr.-Verb., 2 (1888) p. 301—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 304, pl. 16, fig. 6—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 454; Roy. Dublin Soc., Sci. Tr., ser. 2, 6 (1898) p. 199; JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898-1899) p. 437—ŁOĆZY, Wiss. Ergeb. Reise Graf. Béla Széchenyi Ostasien, 1877-1880, 3 (1899) p. 193—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 491—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 377.

Scotland (Calceiferous sandstone and limestone series); North Wales; Ireland; Mongolia.

***Bairdia subelongata major* Jones and Kirkby** Carboniferous

*Bairdia subelongata major* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 267, pl. 9, fig. 14; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table, p. 513.

Yoredale: Northumberland, England.

***Bairdia subgracilis* Geinitz** Permian and Carboniferous

*Bairdia subgracilis* GEINITZ, Anim. Ueber. Dyas (1861) p. 34, figs. 9a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 575, pl. 30, fig. 17; *ibid.*, 42, (1886) p. 496, 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312.

*Bairdia gracilis* JONES (part) (not McCoy), in King's Mon. Permian fossils (1850) p. 63, pl. 18, fig. 7—REUSS, Wetterauer Ges. Nat. Hanau, Jahrb., 1851-1853 (1854) p. 65, fig. 2—RICHTER, Deutsch. Geol. Ges., Zeitschr., 7 (1855) p. 530, pl. 26, figs. 16, 17.

*Cythere (Bairdia) gracilis* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 162, pl. 11, fig. 15—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 10 (1862) p. 205.

Permian of Thuringia, Germany; Carboniferous limestone of West Scotland.

***Bairdia submucronata* (Jones and Kirkby)** Carboniferous, Permian

*Bairdia mucronata submucronata* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 222.

*Bairdia submucronata* ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 26—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 572, pl. 29, figs. 12-18—VINE, Naturalist, 10 (1885) p. 99—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table, p. 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1898) p. 198; British Assoc. Handb. Glasgow (1901) p. 491—HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 268, pl. 2, fig. 14—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 377.

Carboniferous limestones and calciferous sandstone of England, Ireland, Scotland, North Wales; Permian (Upper Magnesian) limestone of England, etc.; Fayetteville shale of Craig County, Okla.

***Bairdia subreniformis* Kirkby = *Carbonita intermedia***

***Bairdia* (?) *subrotundata* Harlton** Mississippian

*Bairdia subrotundata* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 268, pl. 2, fig. 14.

Fayetteville shale: 3 miles east Vinita, Craig County, Okla.  
Holotype.—U.S.N.M. No. 79374.

***Bairdia subvexa* Coryell and Billings** Pennsylvanian

*Bairdia subvexa* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 172, pl. 17, fig. 2.

Graham (Wayland shale): Northeast of Cisco, Texas.

**Bairdia summa** Coryell and Billings Pennsylvanian  
*Bairdia summa* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 170,  
 pl. 17, fig. 1.

Graham (Wayland shale): Northeast of Cisco, Texas.

**Bairdia texana** Harlton Pennsylvanian  
*Bairdia texana* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 210, pl. 33, fig. 9.  
*Bairdia hoxbarendsis* HARLTON, Univ. Texas, Bull. 2901 (1929) [not 1927] p. 154,  
 pl. 3, figs. 1a-d.

Cisco group: Coleman and Menard counties, Texas.  
 Holotype.—U.S.N.M. No. 71720.

**Bairdia truncata** Kirkby = **B. amputata**

**Bairdia tumida** Kummerow Silurian  
*Bairdia tumida* KUMMEROW, Preuss. Geol. Landes, Jahrb., 1927, 48 (1928) p. 42,  
 pl. 2, figs. 18a, b.

Drift: Brandenburg, Germany.

**Bairdia tumida** Upson = **B. seminalis**

**Bairdia ventricosa** Kirkby = **B. plebeia ventricosa**

**Bairdia ventricosa** Roth and Skinner = **B. coryelli**

**Bairdia wrefordensis** Upson = **B. beedei**

#### BAIRDIANELLA Harlton (Bairdiidae)

Genotype: *B. elegans* Harlton

*Bairdianella* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 160.

**Bairdianella elegans** Harlton Pennsylvanian  
*Bairdianella elegans* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 160, pl. 4, fig. 5—  
 DELO, Jour. Pal., 4, no. 2 (1930) p. 167, pl. 13, fig. 3—WARTHIN, Okla. Geol. Surv.,  
 Bull. 53 (1930) p. 73.

East Menard County (Graham formation) and deep well, Pecos County, Texas; southeast Okla-  
 homa (Wetumka-Holdenville).  
 Holotype: U.S.N.M. No. 80591.

**Bairdianella oblongata** Harlton Pennsylvanian  
*Bairdianella oblongata* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 160, pl. 4,  
 fig. 6.

Graham formation: East Menard County, Texas.  
 Holotype.—U.S.N.M. No. 80592.

**Bairdianella occidentalis** (Girty) Permian  
*Bairdia occidentalis* GIRTY, U. S. Geol. Surv., Bull. 389 (1909) p. 116, pl. 8, fig. 6.  
 Yeso formation: San Andreas, N. M.

**Bairdianella rostrata** (Knight) Pennsylvanian  
*Bythocypris* (?) *rostrata* KNIGHT, Jour. Pal., 2 (1928) p. 328, pl. 44, figs. 1 a-c.

Henrietta formation (Pawnee limestone): St. Louis County, Mo.  
 Metatypes.—U.S.N.M. No. 83967.

**Bairdiocypris** Kegel = **Bythocypris**

#### BARYCHILINA Ulrich (Barychilinidae)

Genotype: *B. punctostriata* Ulrich

*Barychilina* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 198—MILLER,  
 North American geol. pal., appendix 1 (1892) p. 704—GRABAU and SHIMER, North  
 American index fossils (1910) p. 361.



**Barychilina costata** McCoy = **Glyptopleura costata**

**Barychilina lineata** Ulrich and Bassler

Mississippian

*Barychilina lineata* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 27, figs. 2, 3.

Kinderhook (Ridgetop shale): Mt. Pleasant, Tenn.  
Cotypes—U.S.N.M. No. 80505.

**Barychilina pulchella** Ulrich

Devonian

*Barychilina pulchella* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 199, pl. 13, figs. 4 a-d.

Onondaga limestone: Falls of the Ohio, Louisville, Ky.  
Holotype.—U.S.N.M. No. 41821.

**Barychilina punctostriata** Ulrich

Devonian

*Barychilina punctostriata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 199, pl. 13, figs. 1 a-e, 2 a-c—GRABAU and SHIMER, North American index fossils (1910) p. 361, text figs. 1665 u-x.

Onondaga limestone: Falls of the Ohio, Louisville, Ky.  
Cotypes.—U.S.N.M. No. 41819.

**Barychilina punctostriata curta** Ulrich

Devonian

*Barychilina punctostriata curta* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 199, pl. 13, figs. 3 a-c.

Onondaga limestone: Falls of the Ohio, Louisville, Ky.  
Holotype.—U.S.N.M. No. 41820.

**Barychilina rhomboidea** (Jones)

Devonian

*Entomis rhomboidea* JONES, Geol. Soc. London, Quart. Jour., 41 (1890) p. 10, pl. 2, figs. 9, 10 a, b—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 304, text fig. 244—GRABAU and SHIMER, North American index fossils (1910) p. 363, fig. 1667 t, u.

*Barychilina rhomboidea* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 107, 199.

Hamilton (Ludlowville): Eighteen Mile Creek and Seneca Lake, N. Y.

**Barychilina semen** Jones = **Richterina** (**Fossirichterina**) **semen**

**Barychilina substriatula** Kummerow

Silurian

*Barychilina substriatula* KUMMEROW, Preuss. Geol. Landes., Jahrb., 44 (1923-1924) p. 439, pl. 21, fig. 24.

Drift (Beyrichia limestone): Brandenburg, Germany.  
Topotype.—U.S.N.M. No. 82338.

**Barychilina walcotti** (Jones)

Devonian

*Primitia* (?) *walcotti* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 543, text fig. 1.

*Kirkbya* (?) *walcotti* JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 96, pl. 11, figs. 12a, b.

*Barychilina walcotti* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 199 (gen. ref.)—WHITEAVES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., 1, pt. ii (1898) p. 409—BASSLER, in Cleland, Wis. Geol. Nat. Hist. Surv., Bull. 21, sci. ser., no. 6 (1911) p. 144, pl. 44, figs. 7, 8.

*Glyptopleura* ? *walcotti* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 8.

Hamilton group: Thedford, Ontario; Milwaukee, Wis.

**BASSLERIA** Harlton = **GRAPHIODACTYLUS**

**Bassleria arkansana** Harlton = **Graphiodactylus arkansanus**

**Bassleria fayettevillensis** Harlton = **Graphiodactylus arkansanus**

**BASSLERINA** Moore = **HOLLINELLA****Basslerina buehleri** (Knight) = **Hollinella bassleri****Basslerina fortscottensis** (Knight) = **Hollinella bassleri****Basslerina limata** Moore = **Hollinella limata****Basslerina limbata** Moore = **Hollinella limbata****Basslerina pulchra** Moore = **Hollinella pulchra****Basslerina recurva** Moore = **Hollinella recurva****Basslerina regularis** Moore = **Hollinella regularis****Basslerina verrucula** Moore = **Hollinella verrucula****Battus tuberculatus** Kloeden = **Beyrichia tuberculatus**, **B. wilckensiana**, and **B. buchiana****BEECHERELLA** Ulrich (Beecherellidae)Genotype: *B. carinata* Ulrich*Beecherella* ULRICH, Am. Geol., 8 (1891) p. 198—MILLER, North American geol. pal., appendix 1 (1892) p. 705—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 691—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 318.**Beecherella angularis** Ulrich = **Acanthoscapha angularis****Beecherella carinata** Ulrich

Devonian

*Beecherella carinata* ULRICH, Am. Geol., 8 (1891) p. 199, pl. 2, figs. 1-4—MILLER, North American geol. pal., appendix 1 (1892) p. 705, text fig. 1262—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 318, text fig. 24 (fig. 1).

Helderbergian (New Scotland): Albany County, N. Y.

**Beecherella cristata** Ulrich = **Acanthoscapha cristata****Beecherella navicula** Ulrich = **Acanthoscapha navicula****Beecherella ovata** Ulrich = **Acanthoscapha ovata****Beecherella subtumida** Ulrich = **Acanthoscapha subtumida****Beecherella subtumida intermedia** Ulrich = **Acanthoscapha subtumida intermedia****BERNIX** Jones (Kloedenellidae)Genotype: *Beyrichia tatei* Jones*Bernix* JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 319—JONES and KIRKBY, Geol. Assoc., London, Pr., 9 (1886) p. 505.**Bernix tatei** (Jones)

Carboniferous

*Beyrichia tatei* JONES, Berwickshire Nat. Club, Pr. (1864) p. 87-89, fig. 3; *ibid.*, 10 (1884) p. 316, pl. 2, figs. 5, 6—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, table p. 513.*Primitia tatei* JONES, Ann. Mag. Nat. Hist., ser. 5, 10 (1882) p. 359.*Bernix tatei* JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 316.

Limestone: Brunton, Northumberland, England.

**BEYRICHIA** McCoy (Beyrichiidae)Genotype: *B. kloedeni* McCoy*Beyrichia* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 57—BELL and FORBES, in Burmeister's Organization of the trilobites, suppl. appendix (1846) p. 124—BOLL, Palaeontographica, 1 (1847) p. 127—MCCOY, in Sedgwick's Synopsis classification British Palaeozoic rocks (1851) p. 153; British

Palaeozoic rocks and fossils, *Contr.* (1854) p. 135—JONES, *Ann. Mag. Nat. Hist.*, ser. 2, 16 (1855) p. 85 (history)—ROEMER, *Bronn's Leth. Geog.*, 1851-1856, 1, pt. 2 (1856) p. 534—EICHWALD, *Soc. Imp. Nat. Moscou, Bull.*, 30 (1857) p. 312; *Leth. Ross.*, 1 (1860) p. 1345—HALL, *Nat. Hist. N. Y., pal.*, 3 (1859-1861) p. 377—JONES, *Monthly Micr. Jour.*, 4 (1870) p. 191—BARRANDE, *Syst. Sil. Centre Bohême*, 1, suppl. (1872) p. 490—MILLER, *Cincinnati Quart. Jour. Sci.*, 1 (1874) p. 118—ALTH, *Abh. Geol. Reichs.*, 7, pt. 1 (1874) p. 62—ZITTEL, *Handb. Pal.*, 2 (1885) p. 553—REUTER, *Deutsch. Geol. Ges., Zeitschr.*, 37 (1885) p. 628—JONES and HOLL, *Ann. Mag. Nat. Hist.*, ser. 5, 17 (1886) p. 338-345—JONES and KIRKBY, *Geol. Assoc., London, Pr.*, 1885-1886, 9 (1886) p. 505—VERWORN, *Deutsch. Geol. Ges., Zeitschr.*, 39 (1887) p. 27, 28—MILLER, *North American geol. pal.* (1889) p. 534—VOGDÉS, *New York Acad. Sci., Ann.*, 5 (1889) p. 8, pl. 2, figs. 19-21—KRAUSE, *Sitz. Ges. Nat. Freunde Berlin* (1889) p. 11-16; *Deutsch. Geol. Ges., Zeitschr.*, 41 (1889) p. 17—ULRICH, *Cincinnati Soc. Nat. Hist., Jour.*, 13 (1890) p. 114—VOGDÉS, *New York Acad. Sci., Ann.*, 5 (1889) p. 8—ULRICH, *Zittel-Eastman Textb. Pal.*, 1 (1895) p. 644—GÜRICH, *Russ. Kais. Min. Ges. St. Petersburg, Verh.*, ser. 2, 32 (1896) p. 385—KOKEN, *Die Leitfossilien* (1896) p. 40, text fig. 26, B, p. 431—ULRICH, *Geol. Minn.*, 3, pt. 2 (1894) p. 657—GRABAU, *Buffalo Soc. Nat. Sci., Bull.*, 6 (1899) p. 306—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, 30 (1906) p. 151; *U. S. Nat. Mus., Pr.*, 35 (1908) p. 283, 284—MOBERG and GRONWALL, *Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Amnen*, 5 (1909)—GRABAU and SHIMER, *North American index fossils* (1910) p. 354—BASSLER, *Zittel-Eastman Textb. Pal.*, ed. 2 (1913) p. 738—BONNEMA, *Sci. Akad. Wet., Pr.*, 16 (1913) p. 67-74, 8 text figs.—BASSLER, *U. S. Nat. Mus., Bull.*, 92 (1915) p. 120—CHAPMAN, *Geol. Surv. New South Wales, Rec.*, 9, pt. 2 (1920) p. 101—ULRICH and BASSLER, *Md. Geol. Surv., Silurian vol.* (1923) p. 311—KUMMEROW, *Preuss. Geol. Landes., Jahrb.*, 44 (1923-1924) p. 413—MATERN, *Preuss. Geol. Landes., Abh., n. s.*, 118 (1929) p. 39. (Most of the above citations refer to *Beyrichia* in a broad sense.)

***Beyrichia* (?*Kloedenia*) *acadica*** (Jones) Devonian  
*Beyrichia kloedeni acadica* JONES, *Ann. Mag. Nat. Hist.*, ser. 6, 3 (1889) p. 379, pl. 17, figs. 3-6, 8, 9—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, 35 (1908) p. 285—MOBERG and GRONWALL, *Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Amnen, n. s.*, 5 (1909) p. 61—CLARKE, *N. Y. State Mus., Mem.*, 9, pt. 2 (1909) p. 13, 19.

Cape Bon Ami, Nova Scotia.

***Beyrichia acutiloba*** Kummerow Silurian  
*Beyrichia acutiloba* KUMMEROW, *Preuss. Geol. Landes., Jahrb.*, 44 (1923-1924) p. 430, pl. 21, fig. 7.

Drift (*Beyrichia* limestone): Woldegk, Mecklenburg, Germany.

***Beyrichia admixta*** Jones and Holl Silurian  
*Beyrichia admixta* JONES and HOLL, *Ann. Mag. Nat. Hist.*, ser. 5, 17 (1886) p. 359, pl. 12, fig. 5—SMITH, *Nat. Hist. Soc. Glasgow, Tr.*, n. s., 3 (1892) table p. 158—CHAPMAN, *Ann. Mag. Nat. Hist.*, ser. 7, 7 (1901) p. 151—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, 35 (1908) p. 285.

Wenlock shales: Woolhope, England.

***Beyrichia aequilatera*** Hall = *B. equilatera*

***Beyrichia affinis*** Jones = *Tetradella affinis*

***Beyrichia* ?? *americana*** Shumard Upper Coal Measures  
*Cythere (Beyrichia) americana* SHUMARD, *Acad. Sci. St. Louis, Tr.*, 1 (1858) p. 227.  
*Beyrichia americana* MILLER, *North American geol. pal.* (1889) p. 534.  
*Cythere americana* WELLER, *U. S. Geol. Surv., Bull.* 153 (1898) p. 211.

Valley of the Verdigris River, Kan.

***Beyrichia angelini*** Barrande = *Polyphyma angelini*, a Cambrian branchiopod

***Beyrichia angelini armata*** Grönwall = *Polyphyma armata*, a Cambrian branchiopod

**Beyrichia (Strepula) annulata** Sandberger = **Strepula annulata**

**Beyrichia antiqua** Steusloff = **Steusloffia antiqua**

**Beyrichia antiquata** (Jones)

Silurian

*Beyrichia kloedeni antiquata* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 167, pl. 6, fig. 8—KOLMODIN, Öfv. Kon. Vet.-Akad. Förh., 36, no. 9 (1879) p. 137—JONES, Geol. Mag., dec. 2, 8 (1881) p. 345, pl. 10, fig. 11—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 641—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 351—JONES, Sil. Ostrac. Gothland (1887) p. 2; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 401—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

Montgomery, Wales, and near Ludlow, etc., England (Lower Ludlow); Ostergarn, Island of Gotland (Middle Gotlandian); drift, Northern Germany.

**Beyrichia arcuata** (Bean) Jones and Kirkby = **Jonesina arcuata**

**Beyrichia argentina** Thomas

Devonian

*Beyrichia argentina* THOMAS, Deutsch. Geol. Ges., Zeitschr., 57 (1905) p. 250, pl. 11, fig. 4—KNOD, Neues Jahrb. Min., Geol., Pal., 25 (1908) p. 502.

Argentina; Bolivia.

**Beyrichia (?Leperditia) armata** Richter = **Primitia armata**

**Beyrichia ?? atlantica** Billings

Ordovician

*Beyrichia atlantica* BILLINGS, Geol. Surv. Canada, Paleozoic fossils, 1 (1865) p. 300—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 120.

Chazyan (Quebec, L, M): Point Rich and Table Head, Newfoundland.

**Beyrichia aurita** Richter

Devonian

*Beyrichia aurita* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 775, pl. 21 figs. 15, 16—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 296.

Thuringia, Germany.

**Beyrichia?? barbara** Barrande

Ordovician (d. 5)

*Beyrichia? barbara* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 500, pl. 27, figs. 9a, 9b.

Near Koenigshof, Bohemia.

**Beyrichia barrandeana** Jones = **Ctenobolbina barrandeana**

**Beyrichia barretti** Weller = **Kloedenia barretti**

**Beyrichia baueri** Reuter

Silurian

*Beyrichia baueri* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 640, pl. 25, fig. 7a, b—KRAUSE, Sitz. Ges. Nat. Freunde Berlin (1889) p. 16—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 76—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518—KOKEN, Die Leitfossilien (1896) p. 432—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 291, fig. 22.

Drift (Beyrichia limestone): East Prussia and Mark Brandenburg, Germany.  
Topotypes.—U.S.N.M. No. 82262.

**Beyrichia baueri tripartita** Reuter

Silurian

*Beyrichia baueri tripartita* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 639—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

Drift: East Prussia.

**Beyrichia (Ctenobolbina?) bella** Walcott

Ordovician

*Beyrichia bella* WALCOTT, Descr. new species Trenton Group (1883) p. 7, pl. 17, fig. 11; N. Y. State Cab. Nat. Hist., 35th Rept. (1884) p. 213, pl. 17, figs. 11, 11a—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 120.

Trenton: Trenton Falls, N. Y.

**Beyrichia (Steusloffia) beyrichioides** Ulrich and Bassler = **Steusloffia beyrichioides**

**Beyrichia? bicaesa** Jones and Kirkby = **Kloedenella bicaesa**

**Beyrichia bicornis** Miller = **Dicranella bicornis**

**Beyrichia bicornis** Jones = **Primitia bicornis**

**Beyrichia bicuspis** (Kiesow) Silurian

*Beyrichia Kloedeni bicuspis* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 11, pl. 2, figs. 6, 7—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

Middle Gotlandian: Slite, Island of Gotland.

**Beyrichia (Ulrichia?) bidens** Krause = **Ulrichia bidens**

**Beyrichia bilczensis** Alth Silurian

*Beyrichia bilczensis* ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 63, pl. 5, fig. 22—SIEMIRADSKI, Beitr. Pal. Geol., Oster-Ungarns, Mitt. Geol. Pal. Inst. Univ. Wien, 19 (1906) p. 219 (fig. 47).

Podolia, Russia, and Bohemia.

**Beyrichia bipunctata** Salter = **Ulrichia bipunctata**

**Beyrichia bituberculata** Jones and Kirkby = **Ulrichia bituberculata**

**Beyrichia bohémica** Barrande = **Tetradella bohémica**

**Beyrichia bolliana** Reuter Silurian

*Beyrichia kloedeni* JONES (part), Ann. Mag. Nat. Hist., ser. 2, 16 (1885) p. 165, pl. 6, figs. 7, 9? (*vide* Reuter).

*Beyrichia bolliana* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 645, pl. 26, fig. 20—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 348—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 501—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285, 287.

Drift: East Prussia.

**Beyrichia bolliana umbonata** Reuter = **Beyrichia umbonata**

**Beyrichia borussica** Kiesow Silurian

*Beyrichia borussica* KIESOW, Preuss. Geol. Landes., Jahrb., 1889 (1892) p. 101, pl. 24, figs. 10–14—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 237—MOBERG and GRÖNWALL, Lunds Univ. Årsskr. Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5, no. 1 (1909) p. 61—KUMMEROW, Preuss. Geol. Landes., Jahrb., 44 (1923–1924) p. 431.

Drift (Beyrichia limestone): West Prussia, Germany.  
Topotypes.—U.S.N.M. No. 82374.

**Beyrichia bradyana** Jones and Kirkby = **Jonesina bradyana**

**Beyrichia brasiliensis** (Clarke) Silurian

*Bollia lata brasiliensis* CLARKE, Mus. Nac. Rio de Janeiro, Arch., 10, author's English ed. (1900) p. 22, pl. 2, figs. 30, 31—KATZER, Grundz. Geol. Amazonas (1903) pl. 16, fig. 18a, b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 129.

Rio Trombetas, Brazil.

**Beyrichia bronni** Reuter Silurian

*Beyrichia tuberculata* ROEMER, in Bronn, Leth. Geog., atlas (1856) pl. 9, figs. 9a–d; Leth. Pal., atlas (1876) pl. 19, figs. 9a–d—HOERNES, Paleontologie (1883) p. 378, figs. 525 c, d.

*Beyrichia bronni* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 638, pl. 25, figs. 6 a, b—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 75—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518—

KOKEN, Die Leitfossilien (1896) p. 432—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 281, 285, 289.

*Beyrichia tuberculata bronni* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 552.

Drift (Beyrichia limestone): Mark Brandenburg and East Prussia, Germany.  
Topotypes.—U.S.N.M. No. 82261.

### **Beyrichia buchiana** Jones

Silurian

*Battus tuberculatus* KLÖDEN (part), Verst. Mark Brandenburg (1834) p. 115, pl. 1, fig. 20.

*Beyrichia buchiana* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 86, pl. 5, figs. 1-3—BOLL, Deutsch. Geol. Ges., Zeitschr., 8 (1856) p. 321; Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 128, pl. 1, fig. 5—ROEMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 602—KARSTEN, Verst. Uberg. Gerölln Herzogthümer Schleswig and Holstein (1869) p. 32, pl. 1, fig. 14—LUNDGREN, Lunds Univ. Årsskr., Med., Mat., Nat., 9 (1872) p. 9—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 32, pl. 1, fig. 14 a, b—KOLMODIN, Öfv. Kon. Vet.-Akad. Förh., 36, no. 9 (1879) p. 137—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 277—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 642, pl. 26, fig. 13a—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 109 (fig. 356), pl. 8 (fig. 31), figs. 17a-c—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 342—KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 3, 7, pl. 1, fig. 10—KRAUSE, Sitz. Ges. Nat. Freunde Berlin (1889) p. 16; Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514-521—KOKEN, Die Leitfossilien (1896) p. 433—GÜRICH, Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 386—VENUKOFF, Herausg. Kais. Min. Ges., 19 (1899) p. 206, pl. 6, fig. 11 (fig. 6 in text)—SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, 19 (1906) p. 218 (fig. 46)—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 288, text fig. 15, pl. 37, fig. 11—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, n. s., 5 (1909) p. 55, 81, 86, pl. 4, fig. 9—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 58, etc.

Drift of Mark Brandenburg, East Prussia, etc., Germany (Beyrichia limestone); Fardham, etc., Gotland (Middle and Upper Gotlandian); Podolia; Bohemia.  
U.S.N.M. No. 82259.

### **Beyrichia buchiana** Jones, 1890 = **Bollia persulcata**

*Beyrichia buchiana* Schmidt, 1859 (not Jones) and Krause, 1877 (part) = *Beyrichia lindströmi*

### **Beyrichia buchiana angustata** Reuter

Silurian

*Beyrichia buchiana angustata* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 641, pl. 26, figs. 11a, b—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 37, fig. 12—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 55, 56.

Drift: East Prussia, Germany.

### **Beyrichia buchiana incisa** Reuter

Silurian

*Beyrichia buchiana incisa* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 641, pl. 26, figs. 12a, b—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 55, 56.

Drift: East Prussia.

### **Beyrichia buchiana lata** Reuter

Silurian

*Beyrichia klödeni* BOLL, Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 128. *Beyrichia buchiana lata* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 641, pl. 25, fig. 10—KRAUSE, *ibid.*, 43 (1891) p. 518—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285

—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 55, 56.

Mark Brandenburg and East Prussia (drift—Beyrichia limestone); Gotland: Baltic Provinces. Topotypes.—U.S.N.M. No. 82257.

**Beyrichia buchiana nutans** Kiesow

Silurian

*Beyrichia buchiana nutans* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 7, pl. 1, figs. 11–14—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) 55, 56.

Middle Gotlandian: Fordhem and Ostergarn, Island of Gotland.

**Beyrichia buchiano-tuberculata** Reuter

Silurian

*Beyrichia buchiano-tuberculata* REUTER, Deutsch. Geol. Ges., Zeitschr., 38 (1885) p. 640, pl. 25, figs. 9a, b—KRAUSE, *ibid.*, 43 (1891) p. 518—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 289.

Drift (Beyrichia limestone): East Prussia and Mark Brandenburg, Germany.

**Beyrichia bussacensis** Jones = **Tetradella bussacensis**

**Beyrichia bussacensis hispanica** Born = **Tetradella bussacensis hispanica**

**Beyrichia (Tetradella) carinata** Krause = **Tetradella carinata**

**Beyrichia chambersi** Hall and Whitfield = **Ceratopsis chambersi** and **C. robusta**

**Beyrichia ciliata** Emmons = **Ctenobolbina ciliata**

**Beyrichia cincinnatiensis** Miller = **Primitia cincinnatiensis**

**Beyrichia cincta** Boll

Silurian

*Beyrichia cincta* BOLL, Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 123, pl. 1, fig. 4—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 432—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 58.

Drift: North Germany.

**Beyrichia clarkei** Jones = **Dizygopleura clarkei**

**Beyrichia? clathrata** Jones

Silurian

*Beyrichia clathrata* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 242, pl. 9, fig. 1—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 121.

Lissatrypa phoca fauna: Beechey Island, Arctic America.

**Beyrichia clavata** Kolmodin

Silurian

*Beyrichia clavata* KOLMODIN, Sver. Sil. Ostrac. (1869) p. 18, fig. 10—KOLMODIN, Ofv. Kon. Vet.-Akad. Förh., 36 no. 9, (1879–1880) p. 138—JONES, Sil. Ostrac. Gotland (1887) p. 2; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 399, pl. 21, figs. 6–9—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 152—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, fig. 5; p. 294, fig. 31; p. 299, fig. 50; pl. 37, fig. 16—HEDE, Geol. För. Stockholm Förh., 41 (1919–1920) p. 132.

*Beyrichia jonesii clavata* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 15, pl. 2, fig. 13—KRAUSE, *ibid.*, 43 (1891) p. 518—BONNEMA, Sci. Akad. Wet., Pr., 16 (1913) p. 73, figs. 6–17—HEDE, Geol. För. Stockholm Förh., 41 (1919) p. 132.

Middle Gotlandian: Eksta, Fröjel and Mulde, Island of Gotland.

Drift (Encrinurus limestone): Mark Brandenburg, Germany.

Topotypes.—U.S.N.M. No. 82265.

**Beyrichia clavigera** Jones = **Isochilina clavigera**

**Beyrichia clavigera clavifracta** Jones = **Isochilina clavigera clavifracta**

**Beyrichia (Hollinella?) colliculus** Eichwald Carboniferous

*Beyrichia colliculus* EICHWALD, Soc. Imp. Nat. Moscou, Bull., 30 (1857) p. 313; Leth. Ross., 1 (1860) p. 1348, pl. 52, figs. 1a, b—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 26—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table, p. 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888—1892, 9 (1893) p. 311.

Kalonga, Russia; West Scotland (limestone).

**Beyrichia colwallensis** Holl = **Bollia colwallensis****Beyrichia? (Bollia?) comma** JonesSilurian

*Beyrichia comma* JONES, in Nicholson and Etheridge, Mon. Sil. Fossils Girvan Dist. (1880) p. 219, pl. 15, fig. 9; in Salter and Etheridge, Geol. Surv. Great Britain, Mem., and Mus. Pract. Geol., ed. 2, 3, appendix (1881) p. 409—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 362—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 301, 305.

Thrave Glen, Ayrshire, Scotland; North Wales.

**Beyrichia complicata** Salter = **Tetradella complicata****Beyrichia complicata** Schmidt = **Tetradella calkeri****Beyrichia complicata decorata** Jones = **Tetradella complicata decorata****Beyrichia concinna** Jones and Holl = **Kloedenia concinna****Beyrichia consimilis** Ulrich and Bassler, Md. Geol. Surv., Silurian vol. (1923) p. 88 (nomen nudum).**Beyrichia costata** Linnarsson = **Strepula costata****Beyrichia craterigera** Jones and Kirkby = **Jonesina craterigera****Beyrichia crinita** Jones = **Beyrichiopsis crinita****Beyrichia cuspidata** GrönwallSilurian

*Beyrichia cuspidata* GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 210, etc.—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Amnen, 5 (1909) p. 56, 57, pl. 4, fig. 6; pl. 6, fig. 2.

Gotlandian; Island of Gotland.

**Beyrichia cylindrica** Richter = **Primitia? cylindrica****Beyrichia? dagon** ClarkeDevonian

*Beyrichia dagon* CLARKE, U. S. Geol. Surv., Bull. 16 (1885) p. 29, pl. 2, figs. 5—7—LESLEY, Geol. Surv. Pa., Rept. P 4 (1889) p. 81, 3 text figs. only—LOOMIS, N. Y. State Mus., Bull. 69, pal. 9 (1903) p. 918, pl. 5, figs. 12—14.

Genesee; Bristol Center, Ontario County, Livonia Salt shaft, Canandaigua Lake, and Moscow, N. Y.

**Beyrichia dalmaniana** JonesSilurian

*Beyrichia dalmaniana* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 88, pl. 5, fig. 13—EICHWALD, Leth. Ross., 1 (1860) p. 1346—ROEMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 602—BOLL, Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 127, pl. 1, fig. 15—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 278—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 644, 649—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 342, 357.

Drift (Beyrichia limestone): near Breslau, North Germany.

**Beyrichia damesii** Krause = **Zygobolba damesii****Beyrichia deckerensis** Weller = **Kloedenia manliensis deckerensis****Beyrichia decora** Billings = **Zygobolba decora**



**Beyrichia devonica** Jones and Woodward = **Zygebeyrichia devonica**

**Beyrichia diffusa** Jones

Silurian

*Beyrichia diffusa* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 546, pl. 21, fig. 7—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 36 (1908) p. 285—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 121; *in* Twenhofel, Geol. Surv. Canada, Mem. 154 (1927) p. 343.

Anticostian (Jupiter): Jupiter River, Anticosti.

**Beyrichia digitata** Krause = **Tetradella ? digitata**

**Beyrichia digitata separata** = **Tetradella digitata separata**

**Beyrichia dissecta** Krause = **Kiesowia dissecta**

**Beyrichia distincta** Ulrich and Bassler, Md. Geol. Surv., Silurian vol. (1923) p. 99 (nomen nudum).

**Beyrichia dorsalis** Richter = **Leperditia? dorsalis**

**Beyrichia dubia** Reuter = **Beyrichia nodulosa**

**Beyrichia (Ceratopsis) duftonensis** Reed = **Ceratopsis duftonensis**

**Beyrichia duryi** Miller = **Ctenobolbina duryi**

**Beyrichia? elegans** Boll

Silurian

*Beyrichia elegans* BOLL, Arch. Ver. Freunde Nat. Mecklenburg (1862) p. 135, pl. 1, fig. 10—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 31—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 342, 343—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 58.

Drift: North Germany.

**Beyrichia emaciata** Ulrich and Bassler

Silurian

*Beyrichia emaciata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 651, pl. 63, fig. 28.

Lower Clinton: Wills Creek, Cumberland, Md.  
Holotype.—U.S.N.M. No. 63710.

**Beyrichia? emaciata** Ulrich and Bassler, 1906 = **Hollinella emaciata**

**Beyrichia embryoniformis** Spriestersbach

Devonian

*Beyrichia embryoniformis* SPRIESTERSBACH, Abh. Geol. Landes, n. f., 53 (1909) p. 111—LEIDHOLD, Centr. min., geol., pal. (1917) p. 164–167—SPRIESTERSBACH, Preuss. Geol. Landes., Jahrb., 45 (1924–1925) p. 402, pl. 10, fig. 8.

Whipperföth, Germany.

**Beyrichia equilatera** Hall

Silurian

*Beyrichia equilatera* HALL, Canadian Nat. Geol. (1860) p. 158, text fig. 20—DAWSON, Acadian Geol., ed. 2 (1868) p. 609, fig. 217—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 344; Geol. Soc. London, Quart. Jour., 46 (1890) p. 18, pl. 2, fig. 6, p. 552; Geol. and Nat. Hist. Surv. Canada, Contr. Canada Micro-Pal., pt. 3 (1891) p. 72, pl. 11, fig. 6—AMI, Nova Scotia Inst., Pr. Tr., ser. 1, 8, ser. 2, 1 (1893) p. 191—WHIDBORNE, Mon. Dev. Fauna South England, 3, Paleontogr. Soc. (1896) p. 20, pl. 3, fig. 15—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 121.

Arisaig, Nova Scotia (Arisaig); ? South England.  
Plastotype.—U.S.N.M. No. 82277.

**Beyrichia erratica** Krause = **Tetradella? erratica**

**Beyrichia erratica acuta** Krause = **Steusloffia acuta**

**Beyrichia erratica granulosa** Krause = **Tetradella? erratica granulosa**

- Beyrichia excavata** Richter Ordovician  
*Beyrichia excavata* RICHTER, Deutsch. Geol. Ges., Zeitschr., **24** (1872) p. 72.  
 Thuringia, Germany.
- Beyrichia fastigiata** Jones and Kirkby = **Jonesina fastigiata**
- Beyrichia fittsi** Roth Devonian  
*Beyrichia fittsi* ROTH, Jour. Pal., **3**, no. 4 (1929) p. 340, pl. 35, figs. 6 a-d.  
 Helderbergian (Harsagan): Pontotoc County, Okla.  
 Holotype.—U.S.N.M. No. 80655.
- Beyrichia fodicata** Jones and Kirkby = **Jonesina fodicata**
- Beyrichia** (?**Hollinella**) **foetoidea** White and St. John Upper Coal Measures  
*Beyrichia foetoidea* WHITE and ST. JOHN, Chicago Acad. Sci., Tr., **1** (1867) p. 126, text fig. 11—WELLER, U. S. Geol. Surv., Bull. **153** (1898) p. 147.  
 Union and Page counties, Iowa.
- Beyrichia?** **forbesii** Jones Silurian  
*Beyrichia forbesii* JONES, Geol. Soc. London, Quart. Jour., **17** (1861) p. 67, pl. 4, figs. 13 a-c—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 121.  
 Mt. Illampu, Bolivia.
- Beyrichia gedanensis** (Kiesow) Silurian  
*Beyrichia tuberculata gedanensis* KIESOW, Schrift. Nat. Ges. Danzig, n. s., **6** (1884) p. 277, pl. 3, fig. 5.  
*Beyrichia gedanensis* KRAUSE, Deutsch. Geol. Ges., Zeitschr., **43** (1891) p. 518—KIESOW, Preuss. Geol. Landes., Jahrb., 1889 (1892) p. 93, pl. 24, figs. 1-4.  
 Drift (Beyrichia limestone): East Prussia and Mark Brandenburg, Germany.  
 Topotypes.—U.S.N.M. No. 82252.
- Beyrichia gedanensis pustulosa** Krause = **Beyrichia pustulosa**
- Beyrichia gibba** Salter Silurian  
*Beyrichia gibba* SALTER, Geol. Surv. Great Britain, Mem., and Mus. Pract. Geol., **2**, pt. 1 (1848) p. 352, pl. 8, figs. 17, 18—McCoy, in Sedgwick's Synopsis classification British Palaeozoic rocks (1851) p. 135—ROEMER, in Bronn's Leth. Geog., 1851-1856, **1**, pt. 2 (1856) p. 536—HUXLEY and ETHERIDGE, Cat. fossils Mus. Pract. Geol. (1865) p. 53—LERICHE, Mus. Roy. Hist. Nat., Belg., Mém., **6** (1912) p. 43.  
*Beyrichia gibbosa* JONES, Geol. Mag., n. s., dec. 2, **8** (1881) p. 345.  
 Montgomeryshire, Wales.
- Beyrichia** (?**Hollinella**) **gibberosa** Eichwald Carboniferous  
*Beyrichia gibberosa* EICHWALD, Soc. Imp. Nat. Moscou, Bull., **30** (1857) p. 312; Leth. Ross., **1** (1860) p. 1349, pl. 52, figs. 11 a-c—BATALINA, Com. Geol., Bull., **43**, no. 10 (1924) p. 1331, 1336, pl. 22, figs. 21-23.  
 Sloboda, Toula, Russia.
- Beyrichia gosleriensis** Dahmer Devonian  
*Beyrichia gosleriensis* DAHMER, Preuss. Geol. Landes., Jahrb., **40**, pt. 2 (1921) p. 211, pl. 6, figs. 2-4.  
 Bärweg, etc., Germany.
- Beyrichia ? gigantea** Jones, Kirkby, and Brady = **Beyrichiana ? gigantea**
- Beyrichia gotlandica** (Kiesow) Silurian  
*Beyrichia tuberculata gotlandica* KIESOW, Deutsch. Geol. Ges., Zeitschr., **40** (1888) p. 4, pl. 1, fig. 1.

*Beyrichia gotlandica* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 516—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 208.

Ötsergarn, Island of Gotland (Middle Gotlandian); Müggellheim, Mark Brandenburg, Germany (drift-Enerinurus limestone).

**Beyrichia grandis** Kolmodin

Silurian

*Beyrichia grandis* KOLMODIN, Öfv. Kon. Vet.-Akad. Förh., 36 (1879) p. 138, fig. 3.—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 342, 343—JONES, Sil. Ostrac. Gothland (1887) p. 8—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

Gotlandian: Island of Gotland.

**Beyrichia granulata** Hall = **Kloedenia granulata**

**Beyrichia granulata** (Jones and Holl)

Silurian

*Beyrichia kloedeni granulata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 350, pl. 12, fig. 2—JONES, Sil. Ostrac. Gothland (1887) p. 2; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 400—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 15, pt. 2 (1903) p. 110, pl. 16, fig. 8.

*Beyrichia tuberculata granulata* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 13.

Dudley Castle, etc., England (Wenlock); Fröjel, etc., Island of Gotland (Middle Gotlandian); Australia.

**Beyrichia granulifera** Ulrich and Bassler

Ordovician

*Bollia granulosa* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 14, pl. 2, figs. 1, 2; *ibid.*, 43 (1891) p. 494, 516—KOKEN, Die Leitfossilien (1896) p. 383—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 63, pl. 4, figs. 12–18—KUMMEROW, Preuss. Geol. Landes., Jahrb. (1923–1924) p. 409.

*Beyrichia granulifera* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285 (new name, *B. granulosa* preoccupied by Hall, 1877); p. 294, fig. 32, pl. 38, fig. 7—CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920) p. 100—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 533—KUMMEROW, Preuss. Geol. Landes., Jahrb. (1923–1924) p. 441.

Drift (Leptaena limestone): Mark Brandenburg, Germany. Kuckers formation (C 2): Esthonia. Topotypes.—U.S.N.M. Nos. 58380, 82263.

**Beyrichia granulosa** Hall

Silurian

*Beyrichia granulosa* HALL, N. Y. State Mus. Nat. Hist., 28th Rept., doc. ed. 1875, (1877) pl. 32, fig. 4; Mus. ed. (1879) p. 186, pl. 32, fig. 4; Ind. Dept. Geol. Nat. Res., 11th Ann. Rept. (1882) p. 331, pl. 34, fig. 4—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 37, fig. 15—GRABAU and SHIMER, North American index fossils (1910) p. 355, text fig. 1663a—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 121.

Niaganan (Waldron): Waldron, Ind. Plesiotype.—U.S.N.M. No. 82278.

**Beyrichia grapta** Eichwald = **Amphissites grapta**

**Beyrichia (?Bollia) grewingkii** Bock

Ordovician

*Beyrichia grewingkii* BOCK, Neues Jahrb. Min., Geol., Pal. (1867) p. 594—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 504.

Glauconite: Wolchow River, Russia.

**Beyrichia guillieri** Tromelin = **Ctenobolbina guillieri**

**Beyrichia halli** Jones = **Dizygopleura halli**

**Beyrichia hammelli** Miller and Faber = **Ctenobolbina hammelli**

**Beyrichia hamiltonensis** Jones = **Hollina hamiltonensis**

- Beyrichia hardouiniana** Rouault Devonian  
*Beyrichia hardouiniana* ROUAULT, Soc. Géol. France, Bull., 1850-1851, ser. 2, 8 (1851) p. 377—JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 83.  
 Manche, France.
- Beyrichia (Tetradella) harpa** Krause = **Tetradella harpa**
- Beyrichia hartnageli** Ulrich and Bassler Silurian  
*Beyrichia hartnageli* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 656, fig. 27, 3-5.  
 Clinton (Irondequoit): near Lockport, N. Y.  
 Cotypes.—U.S.N.M. No. 63709.
- Beyrichia hastata** Barrande = **Ceratopsis hastata**
- Beyrichia hians** Boll = **Beyrichia maccoyiana**
- Beyrichia? hibernica** Jones and Kirkby = **Hollinella hibernica**
- Beyrichia hieroglyphica** Krause = **Dizygopleura hieroglyphica**
- Beyrichia hollii** Jones, 1881 = **Aluta hollii**, a Middle Cambrian branchiopod
- Beyrichia idonea** Venukoff Silurian  
*Beyrichia idonea* VENUKOFF, Mater. Geol. Russlands, Herausg. Kais. Min. Ges., 19 (1899) p. 206, pl. 6, fig. 9—SIEMIRADSKI, Beitr. Pal. Geol. Öster.-Ungarns, 19 (1906) p. 219 (fig. 46).  
 Podolia and Bohemia.
- Beyrichia impar** Jones Ordovician  
*Beyrichia impar* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 303, pl. 14, fig. 5.  
 Middle Bala: Girvan, Ayrshire, Scotland.
- Beyrichia ? impendens** Jones Silurian  
*Beyrichia impendens* JONES, Geol. Assoc., Pr. (1869) p. 11, figs. 4a, 4b; Edinburgh Geol. Soc., Tr., 2 (1874) p. 321; Geol. Mag., n. s., dec. 2, 1 (1874) p. 2, text fig. 2a, 2b—HARKNESS and NICHOLSON, Geol. Soc. London, Quart. Jour., 33 (1877) p. 468—JONES, in Nicholson and Etheridge, Mon. Sil. foss. Girvan (1880) p. 219, pl. 15, fig. 10—SALTER and ETHERIDGE, Geol. Surv. Great Britain, Mem., and Mus. Pract. Geol., 3, appendix (1881) p. 408—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 342, 356—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 285, 300.  
 Girvan, Ayrshire, and Peeblesshire, Scotland; North Wales.
- Beyrichia impendens tuberosa** Jones Silurian  
*Beyrichia impendens tuberosa* JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 511-522, woodcut fig. 2b; Edinburgh Geol. Soc., Tr., 2 pt. 3 (1874) p. 321, 322.  
 Peeblesshire, Scotland.
- Beyrichia impressa** Jones = **Cythere?? impressa**
- Beyrichia inclinata** Venukoff Silurian  
*Beyrichia inclinata* VENUKOFF, Mater. Geol. Russlands, Her. Kais. Min. Ges., 19 (1899) p. 206, pl. 6, fig. 8—SIEMIRADSKI, Beitr. Pal. Geol. Öster.-Ungarns., 19 (1906) p. 219 (fig. 47).  
 Podolia and Bohemia.
- Beyrichia infecta** (Jones) Ordovician  
*Beyrichia kloedeni infecta* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 301, pl. 14, fig. 2—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.  
 Middle Bala: Girvan, Ayrshire, Scotland.

**Beyrichia initialis** Ulrich = **Kloedenia initialis**

**Beyrichia** (? **Kloedenia**) **inornata** Alth Silurian

*Beyrichia inornata* ALTH, Abh. Geol. Reichst., 7, pt. 1 (1874) p. 64, pl. 5, fig. 23—  
VENUKOFF, Mater. Geol. Russlands, Herausg. Kais. Min. Ges., 19 (1899) p. 205—  
SIEMIRADSKI, Beitr. Pal. Geol. Oster-Ungarns, 19, pt. 4 (1906) p. 218 (fig. 46).

Podolia, Russia, and Bohemia.

**Beyrichia intermedia** Jones and Holl = **Kloedenia intermedia**

**Beyrichia intermedia** (Jones) Silurian

*Beyrichia kloedeni intermedia* JONES, Geol. Assoc., Pr. (1869) p. 12, 14, fig. 9;  
Geol. Mag., n. s., dec. 2, 8 (1881) p. 73—JONES and HOLL, Ann. Mag. Nat. Hist.,  
ser. 5, 17 (1886) p. 352, pl. 12, fig. 4—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3  
(1892) table p. 158—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285—  
LERICHE, Mus. Roy. Hist. Nat. Belgique, Mém., 6 (1912) p. 44.

Upper Wenlock shales and shales over Wenlock limestone: Woolhope, Wenlock, etc., Shropshire,  
England.

**Beyrichia intermedia subspissa** (Jones and Holl) Silurian

*Beyrichia kloedeni intermedia subspissa* JONES and HOLL, Ann. Mag. Nat. Hist.,  
ser. 5, 17 (1886) p. 352, pl. 12, fig. 3—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3  
(1892) table p. 158—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

Wenlock shales: Woolhope, Shropshire, England.

**Beyrichia (Zygobolba) interrupta** (Jones) Silurian

*Bollia interrupta* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 408, pl. 12,  
fig. 14—ULRICH and BASSLER U. S. Nat. Mus., Pr., 35 (1908) p. 285, 299, fig. 47,  
pl. 38, fig. 6.

Lower Wenlock shales (Buildwas): Shropshire, England.  
Topotype.—U.S.N.M. No. 82415.

**Beyrichia jerseyensis** Weller = **Kloedenia jerseyensis**

**Beyrichia** ?? **jonesii** Dawson Carboniferous

*Beyrichia jonesii* DAWSON, Acadian Geol., ed. 2 (1868) p. 312, text fig. 132—  
WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 147.

Windsor, Nova Scotia.

**Beyrichia jonesii** Boll Silurian

*Beyrichia jonesii* BOLL, Deutsch. Geol. Ges., Zeitschr., 8 (1856) p. 322, figs. 1, 2;  
Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 134, fig. 8—KOLMODIN, Öfv.  
Kon. Vet.-Akad. Förh., 36 (1879) p. 137—KIESOW, Schrift. Nat. Ges. Danzig, n. s.,  
6 (1884) p. 223—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 131 (fig. 378) pl. 10 (fig. 33)  
figs. 17a, b—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 359,—KIESOW,  
Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 13, pl. 2, figs. 10-12; KRAUSE, *ibid.*, 41  
(1889) p. 10; Sitz. Ber. Ges. Nat. Freunde Berlin (1889) p. 15, 61; Deutsch. Geol.  
Ges., Zeitschr., 43 (1891) p. 514-521—KOKEN, Die Leitfossilien (1896) p. 432—CHAP-  
MAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 151—ULRICH and BASSLER, U. S.  
Nat. Mus., Pr., 35 (1908) pl. 37, fig. 17—MOBERG and GRÖNWALL, Lunds Univ.  
Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 57—HEDE, Sver.  
Geol. Unders., ser. C, Geol. För Stockholm Förh., 41 (1919) p. 132, pl. 5, fig. 8; no.  
281, 11, no. 2 (1917) p. 24, 29; Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-  
1921) p. 36, etc., table opposite p. 82—KUMMEROW, Centr. Min., Geol., Pal., Jahr.  
1933, Äbt. B., no. 1 (1933) p. 50, fig. 11

? *Beyrichia verrucosa* KOLMODIN, Sver. Sil. Ostrac. (1869) p. 19, fig. 12; Öfv.  
Kon. Vet. Akad. Förh., 36, no. 9 (1879) p. 137.

Drift of North Germany (Encrinurus limestone); Eastnor Park, England (Wenlock limestone);  
Mulde, etc., Gotland (Middle Gotlandian).

Topotypes. U.S.N.M. No. 82247.

***Beyrichia jonesii clavata* Kiesow = *Beyrichia clavata******Beyrichia kilmoriensis* Chapman**

Silurian

*Beyrichia kilmoriensis* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 15, pt. 2 (1903) p. 112, 113, fig. 10.

East of Kilmore, Victoria, Australia.

***Beyrichia ? kirkbyana* Jones = *Kirkbya kirkbyana******Beyrichia kirki* Ulrich and Bassler**

Silurian

*Beyrichia kirki* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 652, pl. 63, figs. 29, 30.Lower Clinton (*Mastigobolbina typus* zone): Lakemont, Pa.  
Cotypes: U.S.N.M. No. 82276.***Beyrichia kloedeni* McCoy**

Silurian

*Beyrichia kloedeni* MCCOY, Synopsis Silurian fossils Ireland (1846) p. 58—BELL and FORBES, in Burmeister's Organization of the trilobites, with suppl. appendix (1846) p. 125—SALTER, Geol. Surv. Great Britain, Mem., and Mus. Pract. Geol., 2, pt. 1 (1848) p. 352—MCCOY in Sedgwick's Synopsis classification British Palaeozoic rocks (1851) p. 135, pl. 1e, fig. 2—JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 165, pl. 6, figs. 7, 9 (9 = var. *tuberculata*)—ROEMER, in Bronn's Leth. Geog., 1, pt. 2 (1851–1856) p. 536—JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 243—EICHWALD, Leth. Ross., 1 (1860) p. 1347—SCHMIDT, Arch. Nat. Liv.-Ehst-und Kurlands, 1858–1861, ser. 1, 2 (1861) p. 160, 162—ROEMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 601—RICHTER, *ibid.*, 15 (1863) p. 674, pl. 19, figs. 7–11—HUXLEY and ETHERIDGE, Cat. fossils Mus. Pract. Geol. (1865) p. 53, 59—RICHTER, Deutsch. Geol. Ges., Zeitschr., 17 (1865) p. 364, pl. 10, fig. 6; *ibid.*, 21 (1869) p. 369—HEIDENHAIN, *ibid.*, 21 (1869) p. 171, pl. 1, fig. 12 (= *Beyrichia jonesii*)—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 20—FEISTMANTEL, Lotos. Zeitschr. Nat., 24 (1874) p. 224—BAILY, Fig. char. British fossils, 1 (1875) p. xlv, xlvii, lv, 69, pl. 23, fig. 9—HAUPT, Neues Laus. Mag., 54 (1878) p. 103, pl. 5, fig. 9 (= *B. jonesii*)—KOLMODIN, Öfv. Kon. Vet.-Akad. Förh., 36, no. 9 (1879–1880) p. 136—JONES, in Nicholson and Etheridge, Mon. Sil. fossils Girvan (1880) p. 218, pl. 15, fig. 8—SALTER and ETHERIDGE, Geol. Surv. Great Britain, Mem., and Mus. Pract. Geol., 3, appendix (1881) p. 409, 429, 447, 450—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73, 343, 345, 346, pl. 10, figs. 1, 2, 12, 13—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 278,—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 132 (fig. 378) and 108 (fig. 355)—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 641, 645, 649, etc.—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 349—JONES, Sil. Ostrac. Gothland (1887) p. 2—PRESTWICK, Geology, 2 (1888) p. 58, text fig. 31e—KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 9, pl. 2, fig. 3—JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 400, 410—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 25—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 538, pl. 21, figs. 1a, b—KAYSER, Lehrb. Geol. Form., 2 (1891) p. 54—VOGDES, New York Acad. Sci., Ann., 5 (1891) pl. 2, fig. 20—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 302, pl. 14, figs. 3, 4—KOKEN, Die Leitfossilien (1896) p. 433—GÜRICH, Verh. Russ. Kais. Min. Ges. St. Petersburg, ser. 2, 32 (1896) p. 386—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 15, pt. 2 (1903) p. 109—THOMAS, Deutsch. Geol. Ges., Zeitschr., 57 (1905) p. 250—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 283, text fig. 11—KIAER, Skrift. Vid. Selsk. Christiania, 1906, Math.-nat. Klasse, 2 (1908) p. 594—LERICHE, Soc. Belge. Geol. Pal., Hydrol., Bull., 25, fasc. 1, Pr.-Verb. (1911) p. 329; Mus. Roy. Hist. Nat. Belgique, Mém., 6 (1912) p. 43—LEIDHOLD, Centr. Min., Geol., Pal. (1917) p. 164–167—VOGDES, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 20—STRAW, Manchester Lit., Philos. Soc., Mém. Pr., 72 (1927–1928) p. 197–203, pl. 1, figs. 1–4.

Upper Llandoverly: County Galway, Ireland; Malvern, England. Straw's study of topotypes shows that this species is restricted to the Upper Llandoverly and that most of the above citations refer to other species.

***Beyrichia kloedeni* Boll, 1862 = *B. buchiana***

- Beyrichia kloedeni** Jones (part) = **B. bolliana**  
**Beyrichia kloedeni** Krause, 1877 and 1889 = **B. protuberans**  
**Beyrichia kloedeni acadica** Jones = **B. acadica**  
**Beyrichia kloedeni antiquata** Jones = **B. antiquata**  
**Beyrichia kloedeni bicuspis** Kiesow = **B. bicuspis**  
**Beyrichia kloedeni granulata** Jones and Holl = **B. granulata**  
**Beyrichia kloedeni infecta** Jones = **B. infecta**  
**Beyrichia kloedeni intermedia** Jones = **B. intermedia**  
**Beyrichia kloedeni intermedia subspissa** Jones and Holl = **B. intermedia subspissa**

**Beyrichia kloedeni nodulosa** Kiesow = **B. nodulosa**

**Beyrichia kloedeni nuda** Jones and Holl Silurian

*Beyrichia kloedeni nuda* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 351—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

Wenlock shales (Tickwood beds) and shales over Wenlock limestone, Dudley, etc., Shropshire, England; Drift, East Prussia.

**Beyrichia kloedeni pauperata** Jones and Holl = **B. pauperata**

**Beyrichia kloedina pauperata** (Jones and Holl) Silurian

*Beyrichia kloedeni pauperata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 349, 350—LERICHE, Mus. Roy. Hist. Nat. Belgique, Mém., 6 (1912) p. 44, 45.

Upper Ludlow; Aymestry Common, England.

**Beyrichia kloedeni protuberans** Boll = **B. protuberans**

**Beyrichia kloedeni scotica** Jones and Holl = **Kloedenia scotica**

**Beyrichia kloedeni subtorosa** Jones = **B. subtorosa**

**Beyrichia kloedeni torosa** Jones = **B. torosa**

**Beyrichia kloedeni tuberculata** Jones = **Kloedenia tuberculata**

**Beyrichia kloedeni tuberculata clausa** Jones and Holl = **Kloedenia tuberculata clausa**

**Beyrichia kloedeni verruculosa** Jones = **B. verruculosa**

**Beyrichia kochii** Boll Silurian

*Beyrichia tuberculata nuda* (part) JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 87, fig. 11.

*Beyrichia kochii* BOLL, Arch. Ver. Freunde Mat. Mecklenburg (1862) p. 121, pl. 1, fig. 2—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 33, pl. 1, fig. 15—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 229, 277,—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 643, pl. 26, fig. 15—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 109 (fig. 336)—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 353—KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 3—KRAUSE, *ibid.*, 43 (1891) p. 514—521—KIESOW, Preuss. Geol. Landes., Jahrb., 1889 (1892) p. 100, pl. 24, figs. 7—9—KOKEN, Die Leitfossilien (1896) p. 432,—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 220, 224, 238—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 281—MÖBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 57, 81, 86, pl. 4, fig. 7, pl. 6, fig. 3—BOTKE, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3 (1916) p. 26—CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920) p. 101.

Drift (Beyrichia limestone): Mark Brandenburg and East Prussia, Germany. Gotlandian: Island of Gotland.

**Beyrichia kolmodini** Jones = **Hollinella kolmodini**

**Beyrichia krausei** Steusloff = **Tetradella krausei**

**Beyrichia kummeli** Weller = **Kloedenia kummeli**

**Beyrichia lacunata** Jones = **Tetradella ? lacunata**

**Beyrichia lakemontensis** Ulrich and Bassler Silurian

*Beyrichia lakemontensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 652, pl. 63, fig. 25.

Upper Clinton (*Mastigobolbina typus* zone): Lakemont, etc., Pa.; Great Cacapon, Md.  
Holotype.—U.S.N.M. No. 82269.

**Beyrichia lata** Hall = **Mastigobolbina lata**

**Beyrichia lata** Ulrich and Bassler 1908 = **Mastigobolbina clarkei**

**Beyrichia lata triplicata** Foerste = **Mastigobolbina arguta** and **M. triplicata**

**Beyrichia lauensis** Kiesow Silurian

*Beyrichia lauensis* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 8, pl. 2, figs. 1, 2—GRÖNWALL, Geol. För. Stockholm. Förh., 19 (1897) p. 204, 207, 237—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 289, pl. 37, fig. 13—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 59, 97, tabie opposite p. 82—STRAW, Manchester Lit. Philos. Soc., Pr., 72 (1927-1928) p. 200, pl. 1, fig. 2.

Middle Gotlandian: Lau, Island of Gotland.

**Beyrichia ligatura** Chapman Silurian

*Beyrichia ligatura* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 15, pt. 2 (1903) p. 112, pl. 16 (pl. 1, in text), fig. 10.

Woori-Yallock River, east of Melbourne, Australia.

**Beyrichia lindstromi** Kiesow Silurian

*Beyrichia Buchiana* SCHMIDT, Arch. Nat. Liv.-Ehst-und Kurlands, ser. 1, 2 (1859-1861) p. 448—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 33.

*Beyrichia lindstromi* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 5, pl. 1, figs. 2-6—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 37, fig. 7—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 60.

Middle Gotlandian: Ostergarn, Island of Gotland; drift, North Germany.

**Beyrichia lindstromi expansa** Kiesow = **B. nodulosa expansa**

**Beyrichia linnarssoni** Krause = **Steusloffia linnarssoni**

**Beyrichia? lithofactor** White and St. John Mississippian

*Beyrichia lithofactor* WHITE and ST. JOHN, State Geol. Surv. Iowa, Prelim. not. new genera and species fossils (1867) p. 2—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 147.

*Beyrichia petrifactor* WHITE and ST. JOHN, Chicago Acad. Sci., Tr., 1 (1867) p. 125.

Chester (Ste. Genevieve): Pella, Iowa.

**Beyrichia ? lithofactor velata** White and St. John Mississippian

*Beyrichia lithofactor velata* WHITE and ST. JOHN, State Geol. Surv. Iowa, Prelim. not. new genera and species fossils (1867) p. 3—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 147.

*Beyrichia petrifactor velata* WHITE and ST. JOHN, Chicago Acad. Sci., Tr., 1 (1868) p. 126.

Chester (Ste. Genevieve): Pella, Iowa.

**Beyrichia logani** Jones = **Primitia logani**



***Beyrichia logani leperditoides* Jones = *Primitia logani leperditoides***

***Beyrichia logani reniformis* Jones = *Primitia logani reniformis***

***Beyrichia longispina* Jones and Kirkby = *Hollinella longispina***

***Beyrichia lunata* Kolmodin**

Silurian

*Beyrichia lunata* KOLMODIN, Akad. Afhand. Filos. Faultetens Upsala (1869) p. 17, figs. 8, 9—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 342.

Island of Gotland.

***Beyrichia lyoni* Ulrich = *Treposella lyoni***

***Beyrichia maccoyiana* Jones**

Silurian

*Beyrichia maccoyiana* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 88, pl. 5, fig. 14—BOLL, Deutsch. Geol. Ges., Zeitschr., 8 (1856) p. 321–323—ROEMER, *ibid.*, 14 (1862) p. 602—BOLL, Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 134, pl. 1, fig. 9—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 422—HEIDENHAIN, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 171, pl. 1, fig. 13 (= *B. jonesii*)—JONES, Geol. Soc. London, Quart. Jour., 26 (1870) p. 492—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 34, pl. 1, fig. 16—HAUPT, Neues Laus. Mag., 54 (1878) p. 103—KOLMODIN, Öfv. Kon. Vet.-Akad. Förh., 36 (1879) p. 133—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 344—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 278, pl. 4, fig. 6—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 109 (fig. 356), 131 (fig. 378), pl. 8 (fig. 31), figs. 15 a–c—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 643, pl. 26, fig. 16—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 357, pl. 12, figs. 11–13—KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 13—JONES, Am. Geol., 4 (1889) p. 340—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514–521—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—KOKEN, Die Leitfossilien (1896) p. 432—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, etc.—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 281—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 58, 81, 86, pl. 4, fig. 8, pl. 6, figs. 4, 5—WILLIAMS, U. S. Geol. Surv., Geol. Atlas, Eastport folio (no. 192) (1914) p. 4, pl. 16, figs. 22, 26—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 26—HEDE, Geol. För. Stockholm Förh., 41 (1919–1920) p. 133, pl. 5, fig. 9; Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920–1921) p. 58, 59, 61, 64, 65, 76, 77, 78, 98—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 655.

*Beyrichia hians* BOLL, Deutsch. Geol. Ges., Zeitschr., 8 (1856) p. 323, fig. 4; Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 136, pl. 1, fig. 11—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Nu Följd., Avd. 1, Med. Mat. Nat. Ämnen, n. s., 5 (1909) p. 59, 62 (*vide* Jones and Holl).

Island of Gotland (Middle and Upper Gotlandian); Coalbrook Dale, Wenlock, Ironbridge, etc., Shropshire, England (Wenlock, Tickwood beds, etc.); drift of Mark Brandenburg and East Prussia, Germany (*Beyrichia* limestone).  
Topotypes.—U.S.N.M. No. 82249.

***Beyrichia maccoyiana* Jones, 1858 = *B. pennsylvanica***

***Beyrichia maccoyiana australis* Chapman**

Silurian

*Beyrichia maccoyiana australis* CHAPMAN, Roy. Soc. Victoria, Pr., 15, n. s., pt. 2 (1903) p. 111, pl. 16, fig. 7.

Woori-Yallock River, east of Melbourne, Australia.

***Beyrichia maccoyiana lata* Reuter**

Silurian

*Beyrichia maccoyiana lata* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) table, p. 644, 649, etc., pl. 26, fig. 18a, b, c—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, n. s., 5 (1909) p. 58.

Drift (*Beyrichia* limestone): East Prussia.

**Beyrichia maccoyiana sulcata** Reuter Silurian

*Beyrichia maccoyiana sulcata* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) table p. 644, 649, etc., pl. 26, figs. 17 a, b—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285, pl. 37, figs. 5, 6—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Föjld., Avd. 1, Med. Mat. Nat. Ämnen, n. s., 5 (1909) p. 53.

Drift (Beyrichia limestone): East Prussia.

**Beyrichia mamillosa** Krause = **Kiesowia mamillosa****Beyrichia manliensis** Weller = **Kloedenia manliensis****Beyrichia marchica** Krause = **Tetradella marchica****Beyrichia marchica angustata** Krause = **Tetradella marchica angustata****Beyrichia marchica lata** = **Tetradella marchica lata****Beyrichia marginata** Miller = **Dicranella marginata****Beyrichia mesleri** Ulrich and Bassler Silurian

*Beyrichia mesleri* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 653, pl. 63, figs. 17–20.

Cayugan (McKenzie, 82 feet below top): Flintstone, Md.

Cotypes.—U.S.N.M. No. 82274.

**Beyrichia montaguensis** Weller = **Kloedenia montaguensis****Beyrichia montana** Spriestersbach Lower Devonian

*Beyrichia montana* SPRIESTERSBACH, Abh. Geol. Landes., n. s., 58 (1909) p. 48, pl. 7, fig. 11; pl. 8, fig. 1—FUCHS, *ibid.*, n. s., 79 (1915) pl. 18, fig. 13—LEIDHOLD, Centr. Min., Geol., Pal. (1917) p. 164–167—DAHMER, Jahrb. Geol. Landes., 40, pt. 2 (1921) p. 216, pl. 6, fig. 15.

Lower Coblenzian: Bärweg, etc., Germany.

**Beyrichia montana confluens** Spriestersbach Devonian

*Beyrichia montana confluens* SPRIESTERSBACH, Preuss. Geol. Landes., Jahrb., 45 (1924–1925) p. 402, pl. 10, fig. 9.

Upper Coblenzian: Wurdighausen, Germany.

**Beyrichia moodeyi** Ulrich and Bassler Silurian

*Beyrichia moodeyi* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285, pl. 37, fig. 8—GRABAU and SHIMER, North American index fossils (1910) p. 355, text fig. 1663d—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 122—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 655, pl. 63, fig. 27.

Cayugan (McKenzie): 1½ miles east of Great Cacapon, W. Va.; Cumberland, etc., Md.

Cotypes.—U.S.N.M. No. 53936.

**Beyrichia ? muldensis** Chapman Silurian

*Beyrichia muldensis* CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 150, pl. 3 fig. 10—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285—KUIPER, Verh. Geol. Mij. Gen. Nederland Kol., geol. ser., 3 (1916) p. 121—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920–1921) p. 49.

Middle Gotlandian: Mulde, Gotland.

**Beyrichia multiloba** Jones and Kirkby = **Jonesina multiloba****Beyrichia mundula** Jones = **Primitia mundula****Beyrichia? nana** Brögger Ordovician

*Beyrichia nana* BRÖGGER, Die Silurischen Étagen 2 und 3, im Kristiania gebeit (1882) p. 55, pl. 12, fig. 15—MOBERG and SEGERBERG, Med. Lunds Geol. Fältkl., ser. B, no. 2 (1906) p. 75.

Ceratopyge limestone: Toien, Norway.

**Beyrichia? nanella** Moberg and Segerberg Ordovician

*Beyrichia nanella* MOBERG and SEGERBURG, Med. Lunds Geol. Fältkl., ser. B, no. 2 (1906) p. 76, pl. 3, figs. 27, 28.

Fogelsang, Sweden.

**Beyrichia nassoviensis** Kegel Lower Devonian

*Beyrichia nassoviensis* KEGEL, Kön. Preuss. Geol. Landes., Abh., n. s., 76 (1913-1914) p. 39, pl. 2, fig. 11—LEIDHOLD, Centr. Min., Geol., Pal. (1917) p. 164, 167.

Taunus quartzite: Volkensberg, etc., Germany.

**Beyrichia nearpassi** Weller = **Kloedenia nearpassi**

**Beyrichia (?Healdia) nitidula** Richter Devonian

*Beyrichia nitidula* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 775, pl. 21, fig. 14—JONES, Neues Jahrb. Min., Geol., Pal. (1874) p. 180.

Thuringia, Germany.

**Beyrichia nodulosa** Boll Silurian

*Beyrichia nodulosa* BOLL, Deutsch. Geol. Ges., Zeitschr., 8 (1856) p. 323, fig. 3; Arch. Ver. Freunde Nat. Mecklenburg (1862) p. 131, pl. 1, fig. 6—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 358—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 500, pl. 32, fig. 11—KOKEN, Die Leitfossilien (1896) p. 433—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 210, 217, 237—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, n. s., 5, no. 1 (1909) p. 60, 81, 86, pl. 4, fig. 10—HEDE, Geol. För. Stockholm Förh., 41 (1919-1920) p. 134, pl. 5, fig. 10; Sver. Geol. Unders., ser. C, no. 305, 14 (1920-1921) no. 7, p. 58, 59, 61, 64, 68, 74, 76, 77, 78, 98—KUMMEROW, Preuss. Geol. Landes., Jahrb. (1923-1924) p. 431.

*Beyrichia dubia* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 648, pl. 26, fig. 22—JONES, Sil. Ostrac. Gothland (1887) p. 3—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, n. s., 5 (1909) p. 60.

*Beyrichia klödeni nodulosa* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 17, pl. 2, figs. 8, 9.

*Tetradella? nodulosa* ULRICH, Geol. Minn. 3, pt. 2 (1894) p. 679.

Drift (Beyrichia limestone): Mark Brandenburg and East Prussia, Germany.  
Middle and Upper Gotlandian: Slite, etc., Island of Gotland.

**Beyrichia nodulosa expansa** (Kiesow) Silurian

*Beyrichia lindströmi expansa* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 6, pl. 1, figs. 7-9—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, n. s., 5 (1909) p. 60.

*Beyrichia nodulosa expansa* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 495—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286.

Middle Gotlandian: Ostergarn, Island of Gotland.

Drift (Ennerinus limestone): Mark Brandenburg and East Prussia, Germany.  
Topotypes.—U.S.N.M. No. 82253.

**Beyrichia noetlingi** Reuter Silurian

*Beyrichia noetlingi* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 637, pl. 25, figs. 5a-5c—KRAUSE Sitz. Ges. Nat. Freunde Berlin (1889) p. 16—KIESOW, Preuss. Geol. Landes., Jahrb., 1889 (1892) p. 93-96—KOKEN, Die Leitfossilien (1896) p. 432—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 391, fig. 21, pl. 37, fig. 4.

*Beyrichia tuberculata noetlingi* JONES, Geol. Surv. Canada, Contr. Micro.-Pal., pt. 3 (1891) p. 78, pl. 11, figs. 4a, b, 5—AMI, Nova Scotia Inst., Pr., Tr., ser. 1, 8, ser. 2, 1 (1893) p. 191—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 124.

East Prussia (Drift-Beyrichia limestone); Arisaig, Nova Scotia (Arisaig).

**Beyrichia noetlingi conjuncta** Reuter Silurian

*Beyrichia tuberculata gedanensis* KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 277, pl. 3, fig. 5.

*Beyrichia noetlingi conjuncta* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 636, pl. 25, fig. 4—KIESOW, Preuss. Geol. Landes., Jahrb., 1889 (1892) p. 93—96—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286.

Drift (Beyrichia limestone): East Prussia.

**Beyrichia normalis** Ulrich and Bassler Silurian

*Beyrichia normalis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 657, fig. 27, 1, 2.

Upper Clinton (*Drepanellina clarki* zone): 7 miles west of Lewiston, Pa.  
Cotypes.—U.S.N.M. No. 63708.

**Beyrichia notata** Hall = **Kyammodes notata****Beyrichia notata ventricosa** Hall = **Kyammodes notata ventricosa****Beyrichia** (? *Hollinella*) **novascotica** Jones and Kirkby Carboniferous

*Beyrichia* sp. DAWSON, Acadian Geol., ed. 2 (1868) p. 256, fig. 78c.

*Beyrichia novascotica* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 1 (1884) p. 358, pl. 12, figs. 5, 6—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 544; *ibid.* 49 (1893) p. 303—DAWSON, Canadian Rec. Sci., 7 (1897) p. 319, text fig. 2—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 147.

Horton Bluff, Joggins, Nova Scotia.

**Beyrichia nuda** (Jones) Silurian

*Beyrichia tuberculata nuda* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 87, pl. 5, fig. 10 (not 11 = *B. kochii*)—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 31—REUTER, *ibid.*, 37 (1885) p. 634—KRAUSE, *ibid.*, 43 (1891) p. 516.

Drift (Beyrichia limestone): near Breslau, etc., Northern Germany.

**Beyrichia obliqua** Kummerow Silurian

*Beyrichia obliqua* KUMMEROW, Preuss. Geol. Landes., Jahrb. (1923–1924) p. 430, pl. 21, figs. 5, 6.

Drift (Graptolite beds): Brandenburg, Northern Germany.  
Topotypes.—U.S.N.M. No. 82337.

**Beyrichia** (*Bollia*) **obliqua** Sandberger = **Zygobeyrichia devonica****Beyrichia** (? *Ceratopsis*) **obliquejugata** Schmidt Ordovician

*Beyrichia obliquejugata* (Schmidt) EICHWALD, Leth. Ross., 1 (1860) p. 1347—SCHMIDT, Arch. Nat. Liv.-Ehst-und Kurlands, ser. 1, 2 (1858–1861) p. 193—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 383.

Brandschiefer (Kuckers-C2): Kuckers, Esthonia.

**Beyrichia obsoleta** Grönwall Silurian

*Beyrichia obsoleta* GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 213, etc.—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, n. s., 5 (1909) p. 61, 81, 86, pl. 4, figs. 11, 12.

Gotlandian: Island of Gotland.

**Beyrichia occidentalis** Walcott Devonian

*Beyrichia* (*Primitia*) *occidentalis* WALCOTT, U. S. Geol. Surv., Mon., 8 (1884) p. 204, pl. 17, figs. 4, 4a—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 382.

White Pine District, Nev.  
Cotype.—U.S.N.M. No. 14006.

**Beyrichia oculifera** Hall = **Ceratopsis oculifera**

**Beyrichia oculina** Hall = **Kloedenia oculina**

**Beyrichia palmata** Krause = **Tetradella palmata**

**Beyrichia** (**Kloedenella?**) **parallela** (Ulrich) Early Silurian

*Primitia?* (*?Beyrichia*) *parallela* ULRICH, Geol. Surv. Canada, Contr. Micro-Pal., pt. 2 (1889) p. 51, pl. 9, figs. 7, 7a.

*Beyrichia* (*?Primitia*) *parallela* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890-1891) p. 125, pl. 10, figs. 15, 15a-c.

*Primitia parallela* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 300.

*Beyrichia parallela* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 319, fig. 64—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 122; Geol. Surv. Canada, Mem. 154 (1927) p. 343—LADD, Iowa Geol. Surv., Ann. Rept. 1928, 34 (1930) p. 370.

Richmond: Stony Mountain, Manitoba (Stony Mountain); Anticosts (Vaureal); Richmond, Ind., Oxford, Ohio, etc. (Whitewater); Iowa (Maquoketa).  
Plesiotypes.—U.S.N.M. Nos. 41134, 41435

**Beyrichia parasitica** (Hall) Jones = **Kloedenia parasitica**

**Beyrichia pennsylvanica** Jones Devonian

*Beyrichia pennsylvanica* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 253, pl. 10, figs. 16-18—JONES, in Rogers, Geol. Pa., 2, pt. 2 (1858) p. 834, text fig. 696—JONES, Am. Geol., 4 (1889) p. 340.

*Beyrichia maccoyiana* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) pl. 10, fig. 15—JONES, in Rogers, Geol. Pa., 2, pt. 2 (1858) p. 834, text fig. 695.

Onondaga: Near Barre Forge, Pa.

**Beyrichia pennsylvanica** Lesley = **Kloedenella pennsylvanica**

**Beyrichia perinflata** Weller = **Kloedenia sussexensis**

**Beyrichia persulcata** Ulrich = **Bollia persulcata**

**Beyrichia petrifactor** White and St. John = **B. lithofactor**

**Beyrichia petrifactor velata** White and St. John = **B. lithofactor velata**

**Beyrichia** (**?Kloedenia**) **plagosa** Jones Silurian

*Beyrichia plagosa* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 243, pl. 9, fig. 2—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 122.

Lissatrypa phoca fauna: Beechey Island, Arctic America.

**Beyrichia ? plicata** (Krause) Ordovician

*Entomis plicata* KRAUSE, Deutsch Geol. Ges., Zeitschr., 44 (1892) p. 390, pl. 22, fig. 8—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286, p. 293, fig. 28.

Drift: Mügellheim, North Germany.

**Beyrichia plicatula** Krause = **Bollia plicatula**

**Beyrichia** (**? Bollia**) **podolica** Alth Silurian

*Beyrichia podolica* ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 62, pl. 5, fig. 20—STEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, Mitt. Geol. Pal. Inst. Univ. Wien, 19 (1906) p. 219 (fig. 47).

Podolia, Russia; Bohemia.

**Beyrichia postulata** Ulrich and Bassler, Md. Geol. Surv., Silurian vol. (1923) p. 88 (nomen nudum).

**Beyrichia? primaeva** Matthew = *Bradoria primaeva*, a Cambrian branchiopod

**Beyrichia primitiva** Verworn Silurian

*Beyrichia primitiva* VERWORN, Deutsch. Geol. Ges., Zeitschr., 39 (1887) p. 27-31, pl. 3, figs. 1-7, 9, 11—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 382—KRAUSE,

Sitz. Ges. Nat. Freunde Berlin (1889) p. 16; Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518.

Drift (Encrinurus limestone): Mark Brandenburg, North Germany.

**Beyrichia protenta Jones = Primitia protenta**

**Beyrichia protuberans BOLL**

Silurian

*Beyrichia protuberans* BOLL, Arch. Ver. Freunde Nat. Mecklenburg (1862) p. 122, pl. 1, fig. 3—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 343—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 516—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 390—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 237—BONNEMA, Sci. Akad. Wet., Pr., 13 (1910) p. 140; *ibid.* (1913) p. 72, fig. 4; *ibid.*, 16 (1914) p. 1106, 1108, 1109—BONNEMA, Jour. Pal., 4 (1930) p. 118, fig. 13.

*Beyrichia klodeni protuberans* KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 10, pl. 2, figs. 4, 5—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

*Beyrichia klodeni* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 36; Sitz. Ges. Nat. Freunde Berlin (1889) p. 16.

Mark Brandenburg, etc., North Germany (drift-Beyrichia limestone); Lau, Island of Gotland (Middle Gotlandian).

Topotypes.—U.S.N.M. No. 82244.

**Beyrichia proutyi** Ulrich and Bassler, Md. Geol. Surv., Silurian vol. (1923) p. 88 (nomen nudum).

**Beyrichia punctulifera Hall = Primitiopsis punctulifera**

**Beyrichia pustulosa Hall**

Silurian

*Beyrichia pustulosa* HALL, Canadian Nat. Geol. (1860) p. 157, text fig. 19—DAWSON, Acadian Geol., ed. 2 (1868) p. 608, text fig. 216—JONES, Geol. Soc. London, Quart. Jour., 26 (1870) p. 492; Geol. Mag., n. s., dec. 2, 8 (1881) p. 344—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286, 289—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 123.

*Beyrichia tuberculata pustulosa* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 18, pl. 2, fig. 1a-c; Geol. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 76, pl. 11, fig. 2—AMI, Nova Scotia Inst., Pr., Tr., ser. 1, 8; ser. 2, 1 (1893) p. 191.

*Beyrichia gedanensis pustulosa* KIESOW, Preuss. Geol. Landes., Jahrb., 1889 (1892) p. 98, pl. 24, figs. 5, 6.

Arisaig, Nova Scotia (Arisaig); West Germany (drift).

Topotypes.—U.S.N.M. No. 82273.

**Beyrichia pyrhae Eichwald = Jonesina pyrhae**

**Beyrichia quadrifida Jones = Ceratopsis quadrifida**

**Beyrichia quadrilirata Hall and Whitfield = Tetradella quadrilirata**

**Beyrichia radians Krause = Kiesowia radians**

**Beyrichia? radiata Jones and Kirkby = Hollinella radiata**

**Beyrichia radiata Ulrich and Bassler = Hollinella ulrichi**

**Beyrichia radiata cestriensis Ulrich = Hollinella cestriensis**

**Beyrichia regularis Emmons = Bollia regularis**

**Beyrichia regularis Miller = Tetradella quadrilirata**

**Beyrichia reticosa Jones and Kirkby = Kirkbyina reticosa**

**Beyrichia? reticulata Bornemann**

?Ordovician

*Beyrichia reticulata* BORNEMANN, Suppl. à la Paléontologie de l'Île de Sardegna (1860) pl. 1, figs. 2-4—TROMELIN and LEBESCONTE, Soc. Géol. France, Bull., ser. 3, 1875-1876 (1876) p. 588—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 539—CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr.-Verb., 11, art 5 (1899) p. 150.

Sardinia.

**Beyrichia reticulata** Ulrich and Bassler = **Steusloffia reticulata**

**Beyrichia retzii** Eichwald

Silurian

*Beyrichia retzii* EICHWALD, Beitr. Geol. Pal. Russl. Moskova (1854) p. 30; Leth. Ross., 1 (1860) p. 1346.

Island of Gotland.

**Beyrichia? reussi** Alth

Silurian

*Beyrichia reussi* ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 63, pl. 5, fig. 21—VENUKOFF, Mater. Geol. Russlands, 19 (1899) p. 207—SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, 19 (1906) p. 219 (fig. 47).

Podolia, Russia; Bohemia.

**Beyrichia reuteri** Krause

Silurian

*Beyrichia reuteri* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 304, pl. 32, fig. 6—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 293, fig. 29.

Drift (Graptolite beds): Mark Brandenburg, North Germany.

**Beyrichia ribeirana** Jones = **Tetradella ribeirana**

**Beyrichia richardsoni** Miller = **Drepanella richardsoni**

**Beyrichia richteri** Koninck = **Bollia richteri**

**Beyrichia rigida** Jones and Kirkby = **Kirkbya rigida**

**Beyrichia (Zygobolba?) roemeri** Kayser

Devonian

*Beyrichia roemeri* KAYSER, Pal. Geol. Oster.-Ungarns und Orients, 12 (1900) p. 35, pl. 1, figs. 9?, 10—LEIDHOLD, Centr. Min. Geol., Pal. (1912) p. 719-721; Centr. Min. Geol., Pal. (1917) p. 164-167—KEGEL, Preuss. Geol. Landes., Abh., n. s., 76 (1913-1914) p. 40, pl. 2, fig. 12—LEIDHOLD, Deutsch. Geol. Ges., Zeitschr. (1917-1918) p. 310, pl. 13, fig. 7.

Bosporus; Volkersberg, Germany (Taunus quartzite).

**Beyrichia (Ctenobolbina) rostrata** Krause = **Ceratopsis rostrata**

**Beyrichia rugulifera** Jones = **Primitia rugulifera**

**Beyrichia salteriana** Jones

Silurian

*Beyrichia salteriana* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 89, pl. 5, figs. 15, 16—SCHMIDT, Arch. Nat. Liv.-Ehst-und Kurlands, ser. 1, 1858-1861, 2 (1861) p. 443, 445, 448, 455—ROEMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 662—BOLL, Arch. Ver. Freunde Nat. Mecklenburg (1862) p. 135, pl. 1, fig. 12—LUNDGREN, Lunds Univ. Årsskr., Mat. Nat., 9 (1872) p. 12—FEISTMANTEL, Lotos Zeitschr. Nat., 24 (1874) p. 225—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 35, pl. 1, fig. 17—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 229, 277—ROEMER, Pal. Abh. 2, pt. 5 (1885) p. 109 (fig. 356)—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 645, pl. 26, fig. 19 A, B—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 342, 348—VERWORN, Deutsch. Geol. Ges., Zeitschr., 39 (1887) p. 31, pl. 3, figs. 8, 10—KIESOW, *ibid.*, 40 (1888) p. 3—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 382—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514-521—MOBERG, Sver. Geol. Unders., ser. C, no. 156 (1895) p. 7, 14—KOKEN, Die Leitfossilien (1896) p. 432—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 386—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 207, 208, 217, 218, 226, 227, 238, 240—SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, 19 (1906) p. 219 (fig. 47)—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, text fig. 9, p. 293, fig. 30, p. 304, fig. 53, pl. 37, fig. 14—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 62—BOTKE, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3 (1916) p. 26.

Bohemia; near Breslau, North Germany (drift-Beyrichia limestone); Island of Gotland (Gotlandian); Baltic Provinces.

Topotypes.—U.S.N.M. No. 82254.

**Beyrichia scanensis** Kolmodin

Silurian

*Beyrichia scanensis* KOLMODIN, Sver. Sil. Ostrac. (1869) p. 19, fig. 11—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 503, pl. 32, figs. 4, 5—STEUSLOFF, *ibid.*, 46 (1894) p. 786—KOKEN, Die Leitfossilien (1896) p. 432—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 207, 208, 210, 217, 238, 240—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 62.

Island of Gotland (Gotlandian); Mark Brandenburg, Germany (drift, Beyrichia limestone).

**Beyrichia schrenkii** Eichwald = **Kirkbya schrenkii****Beyrichia seminulum** Jones = **Halliella seminulum****Beyrichia sigillata** Jones = **Primitia sigillata****Beyrichia signata** Krause = **Steusloffia signata****Beyrichia siliqua** Jones = **Bythocypris siliqua****Beyrichia simplex** Emmons

Not recognized

*Beyrichia simplex* EMMONS (not Jones, 1853), Am. Geol., 1, pt. 2 (1855) p. 218, fig. 74a—LESLEY, Geol. Surv. Pa., Rept. P 4 (1889) p. 91, fig.

Blue limestone: Ohio.

**Beyrichia simplex** Jones = **Primitia simplex****Beyrichia simplex** Miller = **Dicranella? simplex****Beyrichia (Steusloffia) simplex** Ulrich and Bassler = **Steusloffia simplex****Beyrichia simulatrix** Ulrich = **Hollinella simulatrix****Beyrichia smocki** Weller = **Kloedenia smocki****Beyrichia spinigera** Boll

Silurian

*Beyrichia spinigera* BOLL, Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 133, pl. 1, fig. 7—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 36—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 279—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 358—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 501, pl. 31, figs. 19, 20—KOKEN, Die Leitfossilien (1896) p. 433—BONNEMA (in Dutch), Versl. Wis.-Nat. Afd. Akad. Wet., 9 (1901); (in English) Sci. Akad. Wet., Pr., 3 (1901) p. 140—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 57—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 32, 36, 37, 41, 42, 49, 98.

Mark Brandenburg, etc., Germany (drift-Encrinurus limestone); Island of Gotland (Lower and Middle Gotlandian).  
Topotypes—U.S.N.M. No. 82248.

**Beyrichia spinosa** (Hall) = **Paraechmina spinosa****Beyrichia (Gibba) spinosa** Fuchs = **Kloedenia (Gibba) spinosa****Beyrichia spinulosa** Boll

Silurian

*Beyrichia spinulosa* BOLL, Deutsch. Geol. Ges., Zeitschr., 8 (1856) p. 323, text fig. 3—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 358—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 500—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 60—WILLIAMS, U. S. Geol. Surv., Geol. Atlas, Eastport folio (no. 192) (1914) p. 4, pl. 16, fig. 27.

North Germany (drift); Duck Harbor, Me. (Dennys formation).

**Beyrichia steusloffii** Krause

Silurian

*Beyrichia steusloffii* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 505, pl. 22, figs. 6-9—STEUSLOFF, *ibid.*, 46 (1894) p. 786—MOBERG, Sver. Geol. Unders., ser. C, no. 156 (1895) p. 7, 14—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204,



etc.—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 63, 81, 86, pl. 4, figs. 14, 15—BOTKE, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3 (1916) p. 26—HEDE, Geol. För. Stockholm Förh., 41 (1919–1920) p. 135, pl. 5, fig. 11; Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920–1921) p. 59, 65, 86, 98.

Mark Brandenburg, Germany (Drift-Beyrichia limestone); Island of Gotland (Middle Gotlandian) Topotypes.—U.S.N.M. No. 82260.

**Beyrichia sticta** Eichwald = **Amphissites sticta**

**Beyrichia strangulata** Salter = **Primitia strangulata**

**Beyrichia strangulata** Salter var. a = **Primitia strangulata**

**Beyrichia strangulata** var. b = **Primitia salteriana** and **P. semicordata**

**Beyrichia strangulata** var. r Jones = **Primitia nana**

**Beyrichia strangulata crenulata** Schmidt = **Primitia strangulata crenulata**

**Beyrichia striatomarginata** Miller = **Coelochilina striatomarginata**

**Beyrichia?** (**Bollia**) **strictisulcata** Jones Lower Devonian

*Beyrichia strictisulcata* SANDBERGER, Nassauischen Ver. Nat., Jahrb., 42 (1889) p. 33—JONES, Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 65, pl. 7, fig. 11—WALTHER, Neues Jahrb. Min., Geol., Pal., 17 (1903) p. 34—MEYER, Centr. Min., Geol., Pal. (1914) p. 504—LEIDHOLD, *ibid.* (1917) p. 164–167.

Öffdillen, Nassau, Germany.

**Beyrichia striolata** Eichwald = **Kirkbya striolata**

**Beyrichia subarcuata** Jones = **Jonesina subarcuata**

**Beyrichia subcylindrica** Richter Silurian

*Beyrichia subcylindrica* RICHTER, Deutsch. Geol. Ges., Zeitschr., 15 (1863) p. 674, pl. 19, figs. 12–15; *ibid.*, 17 (1865) p. 365, pl. 10, fig. 7; *ibid.*, 21 (1869) p. 369—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 407.

Thuringia, Germany.

**Beyrichia subquadrata** Jones = **Bollia subquadrata**

**Beyrichia subtorosa** (Jones)

Silurian

*Beyrichia kloedenia subtorosa* JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 353, pl. 12, figs. 6, 7—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

Upper Wenlock shales (Tickwood beds): Ironbridge, Woolhope, etc., Shropshire, England.

**Beyrichia superciliata** Reed = **Ctenobolbina superciliata**

**Beyrichia sussexensis** Weller = **Kloedenia sussexensis**

**Beyrichia sverdrupi** Tolmachoff

Devonian

*Beyrichia sverdrupi* TOLMACHOFF, Rept. 2nd Arctic Exp. *Fram* 1898–1902, no. 38 (1926) p. 28, pl. 1, figs. 20, 21.

Ostre Borgen, Ellesmereland, Arctic America.

**Beyrichia symmetrica** Emerson = **Drepanella symmetrica**

**Beyrichia symmetrica** Hall = **Dizygopleura symmetrica**

**Beyrichia tatei** Jones = **Bernix tatei**

**Beyrichia tetrapleura** Fuchs

Devonian

*Beyrichia tetrapleura* FUCHS, Preuss. Geol. Landes., Abh., n. s., 79 (1915) p. 77, pl. 18, figs. 11–13—LEIDHOLD, Centr. Min., Geol., Pal. (1917) p. 164–167.

Coblentzian: Lorelei district, Rhine area, Germany.

**Beyrichia tonolowayensis** Ulrich and Bassler Silurian  
*Beyrichia tonolowayensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 654, pl. 63, fig. 26.

Cayuga (Tonoloway): near Hancock, Md.  
 Holotype.—U.S.N.M. No. 82275.

**Beyrichia torosa** (Jones) Silurian

*Beyrichia kloedeni torosa* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 167, pl. 6, figs. 10–12—SCHMIDT, Arch. Nat. Liv.-Ehst-und Kurlands, ser. 1, 2, 1858–1861 (1861) p. 193—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 343—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 354—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

*Beyrichia torosa* BOLL, Arch. Freunde Nat. Mecklenburg, 16 (1862) p. 129, 147.

Stapleton, Dudley Castle, etc., England (Upper Ludlow and Wenlock): Gotland; Thuringia, Germany.

**Beyrichia triceps** Matthew = **Beyrichona triceps**, a Cambrian branchiopod

**Beyrichia tricollina** Ulrich = **Hollinella tricollina**

**Beyrichia** (?**Octonaria**) **trigonata** Gürich Upper Devonian

*Beyrichia* (?) *trigonata* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 386; Neues Jahrb. Min., Geol., Pal., 13 (1900) p. 366, pl. 15, fig. 12—SOBOLEW, Mater. Geol. Russlands, Her. Kais. Min. Ges., 24 (1909) p. 394.

Podolia, Russia.

**Beyrichia trilobata** (Krause) Ordovician

*Entomis trilobata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 391, pl. 22, fig. 11—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286.

Drift: Müggelheim, North Germany.

**Beyrichia trisulcata** Hall = **Kloedenella trisulcata**

**Beyrichia tuberculata** (Klößen) Silurian

*Battus tuberculatus* KLÖDEN, Verst. Mark Brandenburg (1834) p. 115–117, pl. 1, figs. 21–23—BOLL, Palaeontographica, 1 (1851) p. 127—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 32–37.

*Cytherina tuberculata* BEYRICH, Ueber einige bohmische Trilobiten (1845) p. 47.

*Agnostus tuberculatus* QUENSTEDT, Petrefaktenkunde (1852) p. 302, pl. 23, figs. 25–28.

*Beyrichia tuberculata* BELL and FORBES, in Burmeister's Organization of the Trilobites, with suppl. appendix (1846) p. 124, 125—McCoy, Synopsis Silurian fossils Ireland (1846) p. 58—BOLL, Palaeontographica, 1 (1851) p. 127—McCoy, in Sedgwick's Synopsis classification British Palaeozoic rocks (1851) p. 135—MURCHISON, Siluria, ed. 1 (1854) p. 236, pl. 34, fig. 21, text fig. 45, fig. 4—BRONN and ROEMER, Leth. geog., 1 (1854) p. 536, pl. 10, figs. 9 a-d—JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 86, pl. 5, figs. 4-9b—BOLL, Deutsch. Geol. Ges., Zeitschr., 8 (1856) p. 321–324—ROEMER, Neues Jahrb. Min., Geol., Pal. (1858) p. 270—EICHWALD, Leth. Ross., 1 (1860) p. 1346—GREWINGK, Arch. Nat. Liv.-Ehst-und Kurlands, ser. 1, 2, pt. 3 (1861) p. 571—SCHMIDT, *ibid.*, ser. 1, 1858–1861, 2 (1861) p. 193, 448, 455, 461–463—ROEMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 601, 603—BOLL, Arch. Ver. Freunde Nat. Mecklenburg, 16 (1862) p. 119, pl. 1, figs. 1a, b—KARSTEN, Beitr. Land. Herzog Schles. Holst., ser. 1, pt. 1 (1869) p. 57, pl. 20, figs. 3 a-c—HEIDENHAIN, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 182, pl. 1, fig. 14—JONES, Geol. Soc. London, Quart. Jour., 26 (1870) p. 492—FEISTMANTEL, Lotus. Zeitschr. Nat., 24 (1874) p. 224–227—ROEMER, Leth. Pal. (1876) pl. 19, figs. 9 a-d—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 30, pl. 1, figs. 12a, b, and var. 13—MARTIN, Nied. Nordw. Sed. (1878) p. 45—HAUPT, Neues Laus. Mag., 54 (1878) p. 103, pl. 5, fig. 10 (= *B. jonesii*)—KOLMODIN, Ofv. Kon. Vet.-Akad.

Förh., 36, no. 9 (1879) p. 136—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 344, pl. 10, figs. 8–10, and p. 74; Nova Scotian Inst. Nat. Sci., Pr. Tr., 5 (1881) p. 313—HOERNES, Palaeontologie (1884) p. 379, figs. 525 c, d—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 226, 227, 229—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 641, pl. 25, fig. 1—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 108 (fig. 355), pl. 7 (fig. 30), figs. 10a, b—ZITTEL, Handb. Pal., 2 (1885) p. 553, fig. 739—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 347—VERWORN, Deutsch. Geol. Ges., Zeitschr., 39 (1887) p. 31, pl. 3, fig. 12—KIESOW, *ibid.*, 40 (1888) p. 2, 12—JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 402, pl. 21, fig. 12—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 25; Sitz. Ges. Nat. Freunde Berlin (1889) p. 11, 14, 16—DAMES, Sitz. Kön. Preuss. Akad. Wiss. Berlin, pt. 2 (1890) p. 1129—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 552; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 73, 74, pl. 11, fig. 3—KAYSER, Lehr. Geol. Form., 2 (1891) p. 56, 70, pl. 7, fig. 6—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514–521—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém. Geol. Pal. Bull., 1, pt. 1 (1892) p. 136—KIESOW, Preuss. Geol. Landes., Jahrb., 1889 (1892) p. 97, 98—AMI, Nova Scotian Inst. Nat. Sci., Pr. Tr., 8, ser. 2, 1 (1893) p. 191—KOKEN, Die Leitfossilien (1896) p. 432—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 386, 387—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 36 (1908) p. 282, text fig.; p. 290, fig. 16; p. 291, fig. 20; pl. 37, figs. 1, 2—BONNEMA, Sci. Akad. Wet., Pr., 16 (1913) p. 67–74, figs. 3, 5, 6; p. 116—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 123—BONNEMA, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3 (1916) p. 16, pl. 1, figs. 3, 4—BOTKE, Verh. Geol. Mij. Gen. Nederland, geol. ser., 3 (1916) p. 26—CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920) p. 101—STRAW, Manchester Lit. Philos. Soc., Pr., Mem., 1927–1928, 72 (1928) p. 201, 202—BONNEMA, Jour. Pal., 4 (1930) p. 118, figs. 9, 14; Zeitschr. Geschiebe forschung, 9, pt. 1 (1933) p. 30, figs. 10, 11.

*Beyrichia tuberculata gedanensis* KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 277, pl. 4, fig. 5 (not pl. 3, fig. 5 = *B. gedanensis*).

Mark Brandenburg, Northern Germany (drift); Island of Gotland (Gotlandian); Arisaig, Nova Scotia (Arisaig); Shropshire, England (Wenlock); ? New South Wales; Russia; Baltic Provinces. Topotypes.—U.S.N.M. No. 82245.

***Beyrichia tuberculata* Bronn, 1856, Roemer, 1876, and Hoernes, 1883 = *B. bronni***

***Beyrichia tuberculata* Salter = *Kloedenia tuberculata***

***Beyrichia tuberculata antiquata* Jones Silurian**

*Beyrichia tuberculata antiquata* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 87, pl. 5, fig. 12—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 31; *ibid.*, 43 (1891) p. 518.

Drift (*Beyrichia* limestone): Near Breslau, Northern Germany.

***Beyrichia tuberculata bigibbosa* Reuter Silurian**

*Beyrichia tuberculata bigibbosa* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 635, pl. 25, fig. 3—KRAUSE, *ibid.*, 43 (1891) p. 518—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 37, fig. 3.

Drift: East Prussia.

***Beyrichia tuberculato-buchiana* Reuter Silurian**

*Beyrichia tuberculato-buchiana* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 640, pl. 25, fig. 8a, b—KRAUSE, *ibid.*, 43 (1891) p. 518—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, text fig. 10.

Drift (*Beyrichia* limestone): Mark Brandenburg and East Prussia, Germany. Topotypes.—U.S.N.M. No. 82246.

***Beyrichia tuberculata foliosa* Jones Silurian**

*Beyrichia tuberculata foliosa* JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 403, pl. 21, figs. 15–17—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286.

Middle Gotlandian: Slite, Island of Gotland.

**Beyrichia tuberculata gedanensis** Kiesow (part) = **B. gedanensis**, **B. tuberculata** and **B. noetlingi-conjuncta**

**Beyrichia tuberculata gibbosa** Reuter

Silurian

*Beyrichia tuberculata gibbosa* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 634, pl. 25, fig. 2a, b—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 349, pl. 12, figs. 1a, b—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 552; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 75—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Mark Brandenburg and East Prussia, Germany (Drift, *Beyrichia* limestone); Dudley Castle, England (Wenlock).

**Beyrichia tuberculata gotlandica** Kiesow = **B. gotlandica**

**Beyrichia tuberculato-kochiana** Reuter

Silurian

*Beyrichia tuberculato-kochiana* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 643, pl. 26, fig. 14—KRAUSE, *ibid.*, 43 (1891) p. 518—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286, 287.

Drift (*Beyrichia* limestone): East Prussia and Mark Brandenburg, Germany.

**Beyrichia tuberculata lineato-tuberculata** Chapman

Silurian

*Beyrichia tuberculata lineato-tuberculata* CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 151, pl. 3, fig. 11.

Middle Gotlandian: Mulde, Gotland.

**Beyrichia tuberculata noetlingi** Jones = **B. noetlingi**

**Beyrichia tuberculata nuda** Jones = **B. nuda**

**Beyrichia tuberculato-pustulosa** Jones = **B. pustulosa**

**Beyrichia tuberculata spicata** Jones

Silurian

*Beyrichia tuberculata spicata* JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 402, pl. 21, figs. 13, 14—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286.

Middle Gotlandian: Slite, Island of Gotland.

**Beyrichia tuberculata strictispiralis** Jones

Silurian

*Beyrichia tuberculata strictispiralis* JONES, Geol. Nat. Hist. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 77, pl. 11, fig. 1—AMI, Nova Scotian Inst. Nat. Sci., Pr. Tr., 8, ser. 2, 1 (1893) p. 191—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 124.

Arisaig: Arisaig, Nova Scotia.

**Beyrichia tuberculo-spinosa** Jones and Kirkby = **Cornigella tuberculospinosa**

**Beyrichia tumida** Ulrich = **Drepanella tumida**

**Beyrichia tumifrons** Hall = **Ctenobolbina ciliata**

**Beyrichia** (*Tetradella*) **turnbulli** Reed = **Tetradella turnbulli**

**Beyrichia umbonata** Eichwald = **Amphissites umbonatus**

**Beyrichia umbonata** (Reuter)

Silurian

*Beyrichia bolliana umbonata* REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 646, pl. 26, fig. 21—VERWORN, *ibid.*, 39 (1887) p. 28—JONES, Sil. Ostrac. Gotland (1887) p. 3; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 401, pl. 21, figs. 10, 11—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 516—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 152—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 4951, 5497.

*Beyrichia umbonata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286.

East Prussia and Mark Brandenburg, Germany (Drift-Ennerinus limestone); Fröjel and Mulde, Island of Gotland (Middle Gotlandian).  
Topotypes.—U.S.N.M. No. 82258.

**Beyrichia varicosa** Jones and Kirkby = **Jonesina varicosa**

- Beyrichia ventricornis** Jones and Kirkby = **Kirkbyina ventricornis**  
**Beyrichia venusta** Billings = **Zygobolba decora**  
**Beyrichia veronica** Ulrich and Bassler Silurian  
*Beyrichia veronica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 654, pl. 63, figs. 21-24.  
 Upper Clinton (*Drepanellina clarki* zone): Cumberland, Md.; Hollidaysburg, etc., Pa.  
 Cotypes.—U.S.N.M. No. 63506, 82268.
- Beyrichia verrucosa** Kolmodin = **Beyrichia jonesii**  
**Beyrichia verruculosa** (Jones) Silurian  
*Beyrichia Kloedeni verruculosa* JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 400—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.  
 Middle Gotlandian: Eksta and Fröjel, Gotland.
- Beyrichia v-scripta** (Krause) = **Zygobolba v-scripta**  
**Beyrichia waldronensis** Ulrich and Bassler Silurian  
*Beyrichia waldronensis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286, pl. 27, figs. 9, 10—GRABAU and SHIMER, North American index fossils (1910) p. 355, text fig. 1663 b, c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 124.  
 Niagaran (Waldron): Waldron, Ind.  
 Cotypes.—U.S.N.M. No. 41660.
- Beyrichia wallpackensis** Weller = **Kloedenia wallpackensis**  
**Beyrichia wilkensisiana** Jones = **Kloedenia wilckensisiana**  
**Beyrichia wilkensisiana plicata** Jones = **Kloedenia wilckensisiana plicata**  
**Beyrichia wooryallockensis** Chapman Silurian  
*Beyrichia wooryallockensis* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 15, pt. 2 (1903) p. 110, pl. 16, fig. 6.  
 Wooryallock River, east of Melbourne, Australia.

**BEYRICHIANA** Kellett (Beyrichiidae)

Genotype: *B. permiana* Kellett

*Beyrichiana* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 73.

- Beyrichiana ? gigantea** (Jones, Kirkby, and Brady) Carboniferous  
*Beyrichia gigantea* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontog. Soc., pt. 1 (1874) pl. 4, fig. 28; *ibid.* (1884) p. 88—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892 (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Sci. Tr., ser. 2, 6 (1896) p. 187; British Assoc. Handb. Glasgow (1901) p. 490.  
*Beyrichiana ? gigantea* KELLETT, Jour. Pal., 7, no. 1, p. 74 (1933) (gen. ref.).  
*Tribolbina gigantea* Latham, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 359.  
 Limestone and Calciferous sandstone: Cork, Ireland; Derbyshire, England, and Carluke, Scotland.

- Beyrichiana permiana** Kellett Permian  
*Beyrichiana permiana* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 74, pl. 13, figs. 21, 22.  
 Wreford formation: Chase Co., Kan.  
 Holotype.—U.S.N.M. No. 85428.

**BEYRICHIELLA** Jones and Kirkby (Kloedenellidae)

Genotype: *B. cristata* Jones and Kirkby

- Beyrichiella* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 3 (1886) p. 438; Geol. Assoc., London, Pr., 9 (1886) p. 506—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 322—GRABAU and SHIMER, North American index fossils (1910) p. 359

—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 314—LATHAM Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1892) p. 363.

↳ *Synaphe* JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 190 (Genotype, *Kirkbya annectens* Jones and Kirkby)—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 152.

*Kirkbyia* COSSMAN, Rev. Crit. Paleozoologie, 3 (1899) p. 45 (proposed for *Synaphe*, preoccupied).

**Beyrichiella annectens** (Jones and Kirkby) Carboniferous

*Kirkbya annectens* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 42; Geol. Soc. Glasgow, Tr., 2 (1867) p. 220—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 28—WRIGHT, Belfast Nat. Field Club, 9th Ann. Rept. (1872) p. 35—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 182, pl. 3, fig. 7; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892 (1893) p. 311—LAMPLAUGH, Geol. country around Belfast, Geol. Surv. Ireland, Mem. (1904) p. 13.

*Synaphe annectens* JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 190, pl. 12, figs. 8–10, 12, 13, 15, 16.

*Beyrichiella annectens* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 322.

Lower and upper limestones: Lanarkshire, etc., Scotland; Cultra, County Down, Londonderry, etc., Ireland.

**Beyrichiella annectens bipartita** (Jones and Kirkby) Carboniferous

*Kirkbya bipartita* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—VINE, Yorkshire Geol. Polytechn. Soc., Pr., n. s., 8 (1884) p. 237, 239, pl. 12, fig. 14; Naturalist, 10 (1885) p. 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 452.

*Kirkbya annectens bipartita* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 182, pl. 3, fig. 8.

*Synaphe annectens bipartita* JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 190, pl. 12, fig. 11, 14.

Yorkshire and Northumberland, England; Scotland.

**Beyrichiella annectens confusa** (Jones and Kirkby) Carboniferous

*Synaphe annectens confusa* JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 199, pl. 12, figs. 11, 14.

Cultra shale: Cultra, Ireland.

**Beyrichiella bifurcata** Kummerow Silurian

*Beyrichiella bifurcata* KUMMEROW, Preuss. Geol. Landes., Jahrb. (1923–1924) p. 431, 441, pl. 21, fig. 9.

Drift (Beyrichia limestone): Gröningen, near Rathenow, North Germany.  
Topotype.—U.S.N.M. No. 82339.

**Beyrichiella bolliiformis** Ulrich and Bassler = *Sansabella* (?) *bolliiformis*

**Beyrichiella bolliiformis tumida** Ulrich and Bassler = *Sansabella bolliiformis tumida*

**Beyrichiella confluens** (Ulrich) Mississippian

*Ulrichia* (?) *confluens* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 203, pl. 12, figs. 11a, b—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 638—JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 199.

*Beyrichiella confluens* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 323, pl. 43, fig. 21—GRABAU and SHIMER, North American index fossils (1910) p. 359, text fig. 1663t.

Warsaw limestone: Columbia, Ill. (not Grayson Springs, Ky.).

**Beyrichiella cristata** Jones and Kirkby Carboniferous

*Beyrichiella cristata* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 438, pl. 12, fig. 6—KIRKBY, Edinburgh Geol. Soc., Tr., 1898–1905, 8 (1905) p. 63, 64, 73—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 322, pl. 43, figs. 19, 20;

Md. Geol. Surv., Silurian vol. (1923) p. 313, 314, text fig. 21 (fig. 7)—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 364.

*Beyrichiopsis cristata* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 507.

Calcareous sandstone: Scotland.

**Beyrichiella gregaria** Ulrich and Bassler = **Jonesina gregaria**

**Beyrichiella ? reticosa** Jones and Kirkby = **Kirkbyina reticosa**

**Beyrichiella ? ventricornis** Jones and Kirkby = **Kirkbyina ventricornis**

**BEYRICHIOPSIS** Jones and Kirkby (Kloedenellidae)

Genotype: *B. fimbriata* Jones and Kirkby

*Beyrichiopsis* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 434, pl. 11, figs. 3–10a; Geol. Assoc., London, Pr., 9 (1886) p. 506; Geol. Soc. London, Quart. Jour., 42 (1886) p. 506—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 152; *ibid.*, 35 (1908) p. 323—Md. Geol. Surv., Silurian vol. (1923) p. 314—LATHAM, Roy. Soc. Edinburgh, Pr., 57, pt. 2 (1932) p. 364.

**Beyrichiopsis cornuta** Jones and Kirkby

Carboniferous

*Beyrichiopsis cornuta* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 436, pl. 11, fig. 11; Geol. Soc. London, Quart. Jour., 42 (1886) p. 507—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 323, pl. 43, fig. 29—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 365.

Lower and Upper limestone: Linlithgowshire and Fifeshire, Scotland; Northumberland, England

**Beyrichiopsis crinita** (Jones and Kirkby)

Carboniferous

*Beyrichia crinita* KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 567, table p. 587—JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 322, pl. 2, figs. 10, 11—VINE, Naturalist, 10 (1885) p. 98—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 511.

*Beyrichiopsis crinita* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 436.

Redesdale shale: Northumberland, England.

**Beyrichiopsis cristata** Jones and Kirkby = **Beyrichiella cristata**

**Beyrichiopsis fimbriata** Jones and Kirkby

Carboniferous

*Beyrichiopsis fimbriata* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 434, pl. 11, figs. 3–10; pl. 12, fig. 5; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 506, 511; Geol. Assoc., Pr., 1885–1886, 9 (1887) p. 507, text figs. 1, 2—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Sci. Tr., ser. 2, 6 (1896) p. 189—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898–1899) p. 437—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 1898–1905, 3 (1905) p. 64—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 323, pl. 43, figs. 22–24; Md. Geol. Surv., Silurian vol. (1923) p. 313, 314, text fig. 21 (fig. 6).

Fifeshire, etc., Scotland (Calcareous sandstone); Cultra, Ireland; Northumberland, etc., England (Carboniferous limestone).

**Beyrichiopsis fortis** Jones and Kirkby

Carboniferous

*Beyrichiopsis fortis* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 435, pl. 12, fig. 3; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Sci. Tr., ser. 2, 1896–1898, 6 (1896) p. 190; British Assoc. Handb. Glasgow (1901) p. 490—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 323.

Roxburghshire, Scotland (Calcareous sandstone); Carland, Ireland.

**Beyrichiopsis fortis glabra** Jones and Kirkby

Carboniferous

*Beyrichiopsis fortis glabra* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 435, pl. 12, figs. 1, 2.

Calcareous sandstone; Roxburghshire, Scotland.

**Beyrichiopsis granulata** (Jones and Kirkby) Carboniferous

*Beyrichiopsis fortis granulata* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 435, pl. 12, fig. 3.

*Beyrichiopsis granulata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 324, pl. 43, figs. 26, 27—LATHAM, Roy. Soc. Edinburgh, Tr., 52, pt. 2 (1932) p. 364.

Calceiferous sandstone: Roxburghshire, Scotland.

**Beyrichiopsis modesta** Ulrich and Bassler Mississippian

*Beyrichiopsis modesta* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 27, fig. 10.

Kinderhook (Ridgetop shale): Mt. Pleasant, Tenn.  
Holotype.—U.S.N.M. No. 41662.

**Beyrichiopsis pulchra** Ulrich and Bassler Mississippian

*Beyrichiopsis pulchra* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 27, fig. 1.

Kinderhook (Ridgetop shale): Mt. Pleasant, Tenn.  
Holotype.—U.S.N.M. No. 80502.

**Beyrichiopsis ruperti** Whidborne Devonian

*Beyrichiopsis ruperti* WHIDBORNE, Dev. Fauna England, 3, pt. 1, Palaeontogr. Soc. (1896) p. 22, pl. 3, fig. 17.

Pilton, South England.

**Beyrichiopsis simplex** Jones and Kirkby Carboniferous

*Beyrichiopsis simplex* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 437, pl. 12, fig. 4—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 154; *ibid.*, 35 (1908) pl. 43, fig. 28.

Northumberland, etc., England; Fifeshire, etc., Scotland; Cultra, Ireland.

**Beyrichiopsis subdentata** Jones and Kirkby Carboniferous

*Beyrichiopsis subdentata* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 457, pl. 11, figs. 1, 2; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 323, pl. 43, fig. 25.

Calceiferous sandstone: Northumberland, England.

**BEYRICHONA** Matthew, a genus of Cambrian branchiopods**BIRDSALLELLA** Coryell and Booth (Bairdiidae)

Genotype: *B. simplex* Coryell and Booth

*Birdsallella* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 271.

**Birdsallella simplex** Coryell and Booth Pennsylvanian

*Birdsallella simplex* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 271, pl. 5, fig. 6.

Wayland shale: Graham, Texas.

**BOLBIBOLLIA** Ulrich and Bassler (Primitiidae)

Genotype: *B. labrosa* Ulrich and Bassler

*Bolbibollia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299.

**Bolbibollia labrosa** Ulrich and Bassler Silurian

*Bolbibollia labrosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, figs. 15, 16—18—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 343.

Anticostian (Jupiter): Jumpers, Island of Anticosti.  
Cotypes.—U.S.N.M. No. 82406.



**BOLBOZOE** Barrande

Genotype: *B. anomala* Barrande

*Bolbozoe* BARRANDE, Syst. Silurien Centre Bohême, 1, suppl. (1872) p. 500, pl. 24—ZITTEL, Handb. Pal., 2 (1885) p. 552. Not considered an ostracod but introduced for comparison with Cypridina and its allies.

***Bolbozoe anomala*** Barrande Silurian (E2)  
*Bolbozoe anomala* BARRANDE, Syst. Silurien Centre Bohême, 1, suppl. (1872) p. 501, pl. 24, figs. 27–30.

Lochkow, Bohemia.

***Bolbozoe bohémica*** Barrande Silurian (E2)  
*Bolbozoe bohémica* BARRANDE, Syst. Silurien Centre Bohême, 1, suppl. (1872) p. 502, pl. 27, figs. 14–20—CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr.-Verb., 11 (1899) p. 152; Pal. Ital., 5 (1899–1900) p. 205, pl. 26 (fig. 11), fig. 15.

Wiscocilka, Kozel, etc., Bohemia; Cardiola limestone of Sardinia.

***Bolbozoe* (?) *capellinii*** Canavari Silurian  
*Bolbozoe* (?) *capellinii* CANAVARI, Palaeontogr. Ital., 5 (1899–1900) p. 208, pl. 26, fig. 19.

Cardiola limestone: Sardinia.

***Bolbozoe* ? *italica*** Canavari Silurian  
*Bolbozoe* (?) *italica* CANAVARI, Palaeontogr. Ital., 5 (1899–1900) p. 208, pl. 26 (fig. 11), figs. 16–18.

Cardiola limestone: Sardinia.

***Bolbozoe divisa*** (Jones) Silurian  
*Entomis divisa* JONES, Geol. Surv. Great Britain, Mem. (1861) p. 137 (Edinburgh, map 32), p. 137; Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 12—VOGDÉS, New York Acad. Sci., Ann., 5 (1891) pl. 2, fig. 12; San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 12.

*Entomidella divisa* JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 416.

*Bolbozoe divisa* JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 401, pl. 15, fig. 4.

Builth, Wales; Ludford, England (Lower Ludlow).

***Bolbozoe jonesi*** Barrande Devonian (G1)  
*Bolbozoe jonesi* BARRANDE, Syst. Silurien Centre Bohême, 1, suppl. (1872) p. 503, pls. 27, fig. 8; pl. 31, figs. 4–6.

Branik, Bohemia.

***Bolbozoe* (?) *lanceolata*** Canavari Silurian  
*Bolbozoe* (?) *lanceolata* CANAVARI, Palaeontogr. Ital., 5 (1899) p. 209, pl. 26, fig. 20.

Cardiola limestone: Sardinia.

***Bolbozoe polonica*** Gürich = *Cypridina polonica*

***Bolbozoe scotica*** Jones Silurian  
*Bolbozoe scotica* JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 400, pl. 15, figs. 15–17.

Mud stone: Pentland Hills, Scotland.

**BOLLIA** Jones and Holl (Primitiidae)

Genotype: *B. bicollina* Jones and Holl

*Bollia* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 360—JONES, *ibid.*, ser. 5, 19 (1887) p. 407—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 13—MILLER, North American geol. pal., appendix 1 (1892) p. 705—SMITH, Nat.

Hist. Soc. Glasgow, Tr., n s., 3 (1892) table p. 158, p. 139—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 388, 389—KOKEN, Die Leitfossilien, (1896) p. 40, text fig. 26D—ULRICH, Geol. Surv. Minn., 3, pt. 2 (1894) p. 668—ULRICH, in Zittel-Eastman Textb. Pal., 1 (1900) p. 644—GRABAU, N. Y. State Mus., Bull. 9, no. 45 (1901) p. 219; Buffalo Soc. Nat. Hist., Bull. 7 (1901) p. 219—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 277, 309, 312, 319, 320—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 57—GRABAU and SHIMER, North American index fossils (1910) p. 351—BASSLER, in Zittel-Eastman Textb. Pal., ed. 2 (1913) p. 738; U. S. Nat. Mus., Bull. 92 (1915) p. 128—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 301—RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 140—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 29.

**Bollia alexanderi** Reed

Lower Paleozoic

*Bollia alexanderi* REED, Pal. Indica, n. s., 6, mem. no. 1 (1915) p. 84, pl. 12, figs. 23–25.

Panghsa-pye beds: Northern Shan States.

**Bollia americana** Ulrich and Bassler

Devonian

*Bollia americana* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 525, pl. 96, figs. 13–15.

Oriskany (Shriver): 21st Bridge, near Keyser, W. Va.

**Bollia auricularis** Jones = **Ctenobolbina auricularis**

Upper Devonian

**Bollia belgica** Matern

*Bollia belgica* MATERN, Preuss. Geol. Landes., n. s., Abh., 118 (1929) p. 30, pl. 2, fig. 22 a–c.

Les Abannets, Belgium.

**Bollia bicollina** Jones and Holl

Silurian

*Bollia bicollina* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 361, pl. 12, figs. 14–16—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—WILLIAMS, U. S. Geol. Surv., Geol. Atlas, Eastport folio, no. 192 (1914) p. 4, pl. 16, fig. 28—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (fig. 11).

Shropshire, England (Lower Wenlock shale-Buildwas beds); Duck Harbor, Me. (Dennys).  
Topotypes.—U.S.N.M. No. 82416.

**Bollia bilobata** Jones

Devonian

*Bollia bilobata* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 540, pl. 20, fig. 12.

Onondaga limestone: Ontario County, N. Y.

**Bollia biplicata** Troedsson

Silurian

*Bollia biplicata* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15 (1919) p. 55, pl. 2, figs. 21, 22 (no. 3, 1918).

Dalmanites beds: Röstånga, Scania, Sweden.

**Bollia bulbosa** Tolmachoff

Devonian

*Bollia bulbosa* TOLMACHOFF, Rept. 2nd Arctic Exp. *Fram*, 1898–1902, no. 38 (1926) p. 30, pl. 2, figs. 7, 8.

Ostre Borgen, Ellesmereland, Arctic America.

**Bollia clarkei** Ulrich = **Dizygopleura clarkei****Bollia colwallensis** (Jones)

Silurian

*Beyrichia colwallensis* (Holl Ms.) JONES, Geol. Mag., dec. 2, 8 (1881) p. 346, pl. 10, fig. 14a, b.

*Bollia colwallensis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 362.

Woolhope limestone: Malvern, England.

- Bollia cornucopiae** Ruedemann Ordovician  
*Bollia cornucopiae* RUEDEMANN, N. Y. State Mus., Bull. 49 (1901) p. 82, pl. 6, figs. 1, 2—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 129.  
 Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.
- Bollia curta** Ulrich and Bassler Devonian  
*Bollia curta* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 526, pl. 96, figs. 16, 17.  
 Oriskany (Shriver): 21st Bridge, near Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 53297.
- Bollia duplex** Krause ? Ordovician  
*Bollia duplex* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 392, pl. 21, fig. 7—KOKEN, Die Leitfossilien (1896) p. 383.  
 Drift: Mügellheim, North Germany.
- Bollia granifera** Ulrich = **Hollinella granifera**
- Bollia granulosa** Krause = **Beyrichia granulifera**
- Bollia halli** (Jones) = **Dizygopleura halli**
- Bollia haraganensis** Roth Devonian  
*Bollia haraganensis* ROTH, Jour. Pal., 3, no. 4 (1929) p. 334, pl. 35, figs. 2a-d.  
 Helderbergian (Haragan): White Mound, Murray County, Okla.  
 Holotype.—U.S.N.M. No. 80651.
- Bollia harparum** Troedsson Silurian  
*Bollia harparum* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15 (1919) p. 55, 94, pl. 2, figs. 19, 20 (no. 3, 1918).  
 Dalmanites beds: Röstånga, Scania, Sweden.
- Bollia hindei** Jones Devonian  
*Bollia hindei* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 540, pl. 20, fig. 5; Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 65.  
 Hamilton (Ludlowville): Eighteen Mile Creek, N. Y.
- Bollia immersa** Ulrich and Bassler Silurian  
*Bollia immersa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 513, pl. 37, fig. 24.  
 Cayugan (Wills Creek): Pinto, Md.  
 Holotype.—U.S.N.M. No. 63695.
- Bollia interrupta** Jones = **Beyrichia** (? **Zygodolba**) **interrupta**
- Bollia irregularis** Ulrich and Bassler Devonian  
*Bollia irregularis* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 527, pl. 96, fig. 18.  
 Helderbergian (New Scotland): 21st Bridge, near Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 53293.
- Bollia jugalis** Ulrich and Bassler Devonian  
*Bollia jugalis* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 527, pl. 96, fig. 19.  
 Oriskany (Shriver): 21st Bridge, near Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 53295.
- Bollia lata** Jones, 1889 = **Mastigobolbina lata**
- Bollia lata** Jones, 1890 = **Dizygopleura symmetrica**

**Bollia lata brasiliensis** Clarke = **Beyrichia brasiliensis**

**Bollia major** Krause = **Ctenobolbina major**

**Bollia minor** Krause = **Ctenobolbina minor**

**Bollia minor kuckersiana** Bonnema = **Ctenobolbina minor kuckersiana**

**Bollia minor ornata** Krause = **Ctenobolbina ornata**

**Bollia minor robusta** Bonnema = **Ctenobolbina minor robusta**

**Bollia nitida** Ulrich and Bassler

Silurian

*Bollia nitida* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 514, pl. 37, fig. 25.

Cayugan (Wills Creek): Pinto, Md.

Holotype.—U.S.N.M. No. 63694.

**Bollia obesa** Ulrich

Devonian

*Bollia obesa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 189, pl. 14, figs. 5a-c—GRABAU and SHIMER, North American index fossils (1910) p. 352, text fig. 1665a-c—KINDLE, U. S. Geol. Surv., Bull. 508 (1912) p. 114, pl. 9, fig. 8—ULRICH and BASSLER, Md. Geol. Surv., Middle and Upper Devonian (1913) p. 55, 58, 91, 108, 112, 337.

Onondaga: Falls of the Ohio, Louisville, Ky.; Maryland; Pennsylvania.

Holotype and plesiotype.—U.S.N.M. Nos. 41331, 62125.

**Bollia ornata** Bonnema = **Ctenobolbina ornata**

**Bollia ornata latimarginata** Bonnema = **Ctenobolbina ornata latimarginata**

**Bollia papillata** Tolmachoff

Devonian (Db)

*Bollia papillata* TOLMACHOFF, Rept. 2nd Arctic Exp. *Fram*, 1898–1902, no. 38 (1926) p. 27, pl. 1, figs. 4, 5.

Ostre Borgen, Ellesmereland, Arctic America.

**Bollia permarginata** Foerste = **B. regularis**

**Bollia persulcata** (Ulrich)

Ordovician, Early Silurian

*Beyrichia persulcata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 2 (1879) p. 12, pl. 7, fig. 6.

*Bollia persulcata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 116, text figs. 3a-d—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 288—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 129.

††† *Beyrichia buchiana* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 16, pl. 3, fig. 25.

Eden, Maysville, and Richmond: Cincinnati, Ohio, and vicinity.

Holotype.—U.S.N.M. No. 41524 (Eden shale).

**Bollia ? plicatula** (Krause)

Ordovician

*Beyrichia plicatula* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 394, 399, pl. 22, fig. 13.

Drift (Ceratopsis rostrata limestone): MÜGELHEIM, Northern Germany.

**Bollia protuberata** Tolmachoff

Devonian (Db)

*Bollia protuberata* TOLMACHOFF, Rept. 2nd Arctic Exp. *Fram*, 1898–1902, no. 38 (1926) p. 30, pl. 2, fig. 6.

Ostre Borgen, Ellesmereland, Arctic America.

**Bollia pulchella** Ulrich and Bassler

Silurian

*Bollia pulchella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 513, pl. 37, figs. 26, 27.

Cayugan (Wills Creek): Pinto, Md.

Cotypes.—U.S.N.M. No. 63696.

**Bollia pulchra** Ruedemann

Ordovician

*Bollia pulchra* RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 141, pl. 23, figs. 9-12, p. 142.

Lower Lorraine: Near Martinsburgh (Whetstone Gulf), and near Rome, N. Y. (Frankfort shale).

**Bollia pumila** Ulrich

Early Silurian

*Bollia pumila* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 117, pl. 12, figs. 1a, 1b—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1042, pl. 53, figs. 12, 12a—GRABAU and SHIMER, North American index fossils (1910) p. 351, text fig. 1660—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 129.

Richmond (Waynesville): Near Weisburg, etc., Ind.; Waynesville, etc., Ohio.  
Holotype.—U. S. N. M. No. 41601.

**Bollia regularis** (Emmons)

Early Silurian

*Beyrichia regularis* EMMONS, Am. Geol., 1, pt. 2 (1855) p. 219, text fig. 74b—WALCOTT, U. S. Geol. Surv., Mon., 8 (1884) p. 88—LESLEY, Geol. Surv. Pa., Rept. P 4 (1889) p. 91, text fig.—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 13.

*Bollia regularis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 669—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 288, text fig. 12-14—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 129—FOERSTE, Ottawa Nat., 31 (1918) p. 124.

*Bollia permarginata* FOERSTE, Ottawa Nat., 31 (1918) p. 124, 126, pl. 4, figs. 33a-c.

*Tetradella regularis* HUSSEY, Mus. Geol. Univ. Mich., Contr., 21, no. 8 (1926) p. 131, 183, pl. 2, figs. 14, 15.

Richmond (Arnheim, Waynesville): Waynesville, etc., Ohio; Indiana; Kentucky; Northern Michigan.  
Plesiotypes.—U.S.N.M. Nos. 41416, etc.  
Cotypes of *B. permarginata*.—U.S.N.M. No. 78473.

**Bollia richteri** (Koninck)

Devonian

*Beyrichia richteri* KONINCK, Soc. Géol. Belg., Ann., 3, mém. 2 (1876) p. 30, pl. 1, fig. 17—LERICHE, Soc. Belge., Géol., Pal., Hydrol., Bull., 25, Pr.-Verb., fasc. 1 (1911) p. 329; Mus. Roy. Hist. Nat. Belg., Mém., 9 (1912) p. 44.

*Beyrichia kloedeni* LERICHE, Mus. Roy. Hist. Nat. Belg., Mém., 6 (1912) p. 43.

*Bollia richteri* BARROIS, Pruvost, and Dubois, Soc. Géol. Nord, Mém. ser. 2, 6 (1922) p. 108, pl. 15, figs. 29-33; pl. 17, figs. 10, 11—ASSELBERGHS, Mus. Roy. Hist. Nat. Belg., Mém., 41 (1930) p. 56.

Gedinnian: Mondrepuits, etc., Belgium.

**Bollia rotundata** Krause

Silurian

*Bollia rotundata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 497, pl. 31, fig. 10.

Drift (Encrinurus limestone): Mark Brandenburg, Northern Germany.

**Bollia semicircularis** Krause

Silurian

*Bollia semicircularis* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 497, pl. 31, figs. 8, 9.

Drift (Encrinurus limestone): Mark Brandenburg, Northern Germany.  
Topotype.—U.S.N.M. No. 82417.

**Bollia semilunata** Jones

Early Silurian

*Bollia semilunata* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 548, pl. 21, figs. 9a, 9b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 129; Geol. Surv. Canada, Mem. 154 (1927) p. 346.

Richmond (Vaureal and Ellis Bay): South of Junction Cliff, etc., Anticosti.

**Bollia ? sinuata** Krause

Silurian

*Bollia (?) sinuata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 498, pl. 31, fig. 11.

Drift (Encrinurus limestone): Mark Brandenburg, Northern Germany.

- Bollia subaequata** Ulrich Ordovician  
*Bollia subaequata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 669, pl. 46, figs. 26–29—  
 BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 129.  
 Trenton (Prosser): Cannon Falls, St. Paul, etc., Minn.  
 Cotypes.—U.S.N.M. Nos. 41519, 41520.
- Bollia subquadrata** (Jones) Devonian  
*Beyrichia subquadrata* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 537,  
 pl. 20, fig. 4—  
*Bollia subquadrata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 669 (gen. ref.).  
 Onondaga limestone: Ontario County, N. Y.
- Bollia symmetrica** (Hall) = *Dizygopleura symmetrica*  
**Bollia thuringensis** Matern Upper Devonian  
*Bollia thuringensis* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 30,  
 pl. 2, fig. 23 a–c.  
 Saalfeld, Thuringia, Germany.
- Bollia tricollina** Kummerow Silurian  
*Bollia tricollina* KUMMEROW, Preuss. Geol. Landes., Jahrb. (1923–1924) p. 426  
 pl. 20, fig. 25.  
 Drift (Beyrichia limestone): Gräningen, near Rathenow, Northern Germany.
- Bollia triplicata** Troedsson Ordovician  
*Bollia triplicata* TROEDSSON, Lunds Univ. Årssrk., Ny Följd., Avd. 2, 15, no. 3  
 (1918–1919) p. 55, 95, pl. 2, figs. 21, 22.  
 Sweden.
- Bollia typa** Miller = *Dilobella typa*
- Bollia unguia** Jones Devonian  
*Bollia unguia* (Claypole Ms.) JONES, Am. Geol., 4 (1889) p. 338—ULRICH, Cin-  
 cinnati Soc. Nat. Hist., Jour., 13 (1891) p. 188, pl. 14, figs. 6a, b—ULRICH and BASS-  
 LER, U. S. Nat. Mus., Pr., 35 (1908) p. 288—GRABAU and SHIMER, North American  
 index fossils (1910) p. 352, text fig. 1665, d, e—BASSLER, in Cleland, Wis. Geol.  
 Nat. Hist. Surv., Bull. 21 (1911) p. 143, pl. 44, fig. 5—KINDLE, U. S. Geol. Surv.,  
 Bull. 508 (1912) p. 113, pl. 9, figs. 9, 10—ULRICH and BASSLER, Md. Geol. Surv.,  
 Lower Devonian vol. (1913) p. 528, pl. 96, figs. 20–22; Middle and Upper Devonian  
 vol. (1913) p. 108, 336; Silurian vol. (1923) p. 299, text fig. 15 (fig. 12).  
 Perry County, Pa. (Marcellus); Maryland (Onondaga and Oriskany); West Virginia; Falls of the  
 Ohio, Louisville, Ky. (Onondaga); New York and Ontario (Onondaga and Hamilton).  
 Plesiotypes.—U.S.N.M. Nos. 41330, 53296.
- Bollia unguuloidea** Ulrich Ordovician  
*Bollia unguuloidea* ULRICH, Geol. Minn., 3, pt. 2 (1897) p. 669, pl. 46, figs. 23–25—  
 GRABAU and SHIMER, North American index fossils (1910) p. 351, text fig. 1658x—  
 BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 130.  
 Trenton (Prosser): Goodhue County, Minn.
- Bollia uniflexa** Jones and Holl Silurian  
*Bollia uniflexa* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 361,  
 pl. 12, figs. 17a, b—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158  
 —ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 301.  
 Upper Wenlock shale (Tickwood beds): Shropshire, England.
- Bollia uticana** Ruedemann Ordovician  
*Bollia uticana* RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 140, pl. 23,  
 fig. 8 (not fig. 9).  
 Cincinnati (Upper Utica): Holland Patent, N. Y.

**Bollia varians** Jones Lower Devonian  
*Bollia varians* (Sandberger Ms.) JONES, Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 65, pl. 7, figs. 8–10—WALTHER, Neues Jahrb. Min., Geol., Pal., 17 (1903) p. 35—MEYER, Centr. Min., Geol., Pal. (1914) p. 504—LEIDHOLD, *ibid.* (1917) p. 164–167.

Dillenburg, Nassau, Germany.

**Bollia vinei** Jones and Holl Silurian  
*Bollia vinei* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 406, pl. 13, fig. 14—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Lower Wenlock shale (Buildwas beds): Woolhope, Shropshire, England.

**Bollia vinei mitis** Jones and Holl Silurian  
*Bollia vinei mitis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 406, pl. 13, fig. 13—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Lower Wenlock shale (Buildwas beds): Shropshire, England.

**Bollia v-scripta** Krause = *Zygobolba v-scripta*

**BONNEMAIA** Ulrich and Bassler (*Zygobolbidae-Zygobolbinae*)

Genotype: *B. celsa* Ulrich and Bassler

*Bonnemaia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 305.

**Bonnemaia celsa** Ulrich and Bassler Silurian  
*Bonnemaia celsa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 581, pl. 46, figs. 1–6.

Upper Clinton (*Mastigobolbina typus* zone): Flintstone, Md.; near Great Cacapon, W. Va.  
 Cotypes.—U.S.N.M. Nos. 63540, 63541.

**Bonnemaia crassa** Ulrich and Bassler Silurian  
*Bonnemaia crassa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 582, pl. 46, figs. 7–9; pl. 48, fig. 19 (?).

Upper Clinton (*Mastigobolbina typus* zone): 1½ miles east Great Cacapon, W. Va.; Cumberland, etc., Md.; Virginia.  
 Holotype.—U.S.N.M. No. 63545.

**Bonnemaia fissa** Ulrich and Bassler Silurian  
*Bonnemaia fissa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 585, pl. 47, figs. 7–9,

Upper Clinton (*Bonnemaia rudis* zone): 5 miles northwest of Sneedville, Tenn.  
 Cotypes.—U.S.N.M. No. 63550.

**Bonnemaia longa** Ulrich and Bassler Silurian  
*Bonnemaia longa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 591, pl. 47, figs. 10, 11, 12 (?).

Upper Clinton (*Bonnemaia rudis* zone): Cumberland, etc., Md.; Williamsville, Va.; Tennessee.  
 Cotypes and paratypes.—U.S.N.M. Nos. 63539, 63498.

**Bonnemaia notha** Ulrich and Bassler Silurian  
*Bonnemaia notha* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 594, pl. 48, figs. 5–7.

Middle Clinton (*Mastigobolbina lata* zone): Gate City Gap, Va.  
 Cotypes.—U.S.N.M. No. 63487.

**Bonnemaia obliqua** Ulrich and Bassler Silurian  
*Bonnemaia obliqua* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 584, pl. 46, figs. 10–15.

Upper Clinton (*Bonnemaia rudis* zone): 5 miles northwest of Sneedville, Tenn.; Cumberland, etc., Md.  
 Cotypes and paratypes.—U.S.N.M. Nos. 63543, 63500.

**Bonnemaia oblonga** Ulrich and Bassler Silurian  
*Bonnemaia oblonga* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 583, pl. 48, figs. 14-18,

Upper Clinton (*Mastigobolbina typus* zone): Sir Johns Run, Md.; 1 mile southeast of Big Stone Gap, Va.  
 Cotypes.—U.S.N.M. Nos. 63547, 63497.

**Bonnemaia perlonga** Ulrich and Bassler Silurian  
*Bonnemaia perlonga* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 593, pl. 46, figs. 16-18.

Upper Clinton (*Mastigobolbina typus* zone): 1 mile west of Stone Cabin Gap, Md.; near Narrows, Va.  
 Cotypes.—U.S.N.M. No. 63496.

**Bonnemaia pulchella** Ulrich and Bassler Silurian  
*Bonnemaia pulchella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 587, pl. 48, figs. 1-4.

Upper Clinton (*Bonnemaia rudis* zone): Cumberland, Md.; 5 miles northwest of Sneedville, Tenn.  
 Holotype and paratype.—U.S.N.M. Nos. 63494, 63573.

**Bonnemaia rudis** Ulrich and Bassler Silurian  
*Bonnemaia rudis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p.  
 586, pl. 47, figs. 1-6.

Upper Clinton (*Bonnemaia rudis* zone): 5 miles northwest of Sneedville, Tenn.; Big Stone Gap, Va.  
 Cotypes.—U.S.N.M. No. 63551.

**Bonnemaia transita** Ulrich and Bassler Silurian  
*Bonnemaia transita* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 588, pl. 48, figs. 8-11.

Upper Clinton (*Bonnemaia rudis* zone): 5 miles northwest of Sneedville, Tenn.  
 Cotypes.—U.S.N.M. No. 63549.

**Bonnemaia transita grandis** Ulrich and Bassler Silurian  
*Bonnemaia transita grandis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 588, pl. 48, figs. 12, 13.

Upper Clinton: Sir Johns Run, Md.  
 Holotype.—U.S.N.M. No. 63544.

**Bonnemaia transita transversa** Ulrich and Bassler Silurian  
*Bonnemaia transita transversa* ULRICH and BASSLER, Md. Geol. Surv., Silurian  
 vol. (1923) p. 588, pl. 47, fig. 13.

Upper Clinton (*Bonnemaia rudis* zone): 5 miles northwest of Sneedville, Tenn.  
 Holotype.—U.S.N.M. No. 63552.

**BRADORIA** Matthew, a genus of Cambrian branchiopods

**BRADORONA** Matthew = **Bradoria**

#### BRADYCINETUS Sars (Cypridinidae)

Genotype: *Cypridina globosa* Lilljeborg (Recent)

*Bradycinetus* SARS, Oversigt af Norges Marine Ostracoder (1865)—JONES, KIRKBY, and BRADY, Mon. British Foss. Biv. Entomostraca Carb. Form., Palaeontogr. Soc. (1884) p. 4, 42—ZITTEL, Handb. Pal., 2 (1885) p. 555—JONES and KIRKBY, Geol. Assoc., London, Pr., 9 (1886) p. 500—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

**Bradycinetus rankiniana** (Jones and Kirkby) Carboniferous  
*Cypridina rankiniana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p.  
 218—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 27.

*Bradycinetus rankinianus* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p.  
 411; Monthly Micr. Jour., 10 (1873) p. 75—JONES, KIRKBY, and BRADY, Mon.



British Foss. Biv. Entomostraca Carb. Form., Palaeontogr. Soc. (1884) p. 42, pl. 2, figs. 21, 22, pl. 5, fig. 5—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—YOUNG, Geol. Soc. Glasgow, Tr., 9, 1888-1892 (1893) p. 310—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 343, pl. 16, fig. 6—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Limestone: Gare, Carluke, West Scotland.

**BROMIDELLA** Harris (Primitiidae)

Genotype: *B. reticulata* Harris

*Bromidella* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 93.

**Bromidella reticulata** HARRIS Ordovician

*Bromidella reticulata* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 93, pl. 14, figs. 6a, b.

Simpson (Bromide):  $\frac{1}{4}$  mile west of Highway 77, Arbuckle Mts., sec. 25, T. 2 S., R. 1 E., Okla.

**BURLELLA** Coryell and Booth (Bairdiidae)

Genotype: *B. pecanata* Coryell and Booth

*Burlella* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 268.

**Burlella pecanata** Coryell and Booth Pennsylvanian

*Burlella pecanata* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 268, pl. 4, fig. 13.

Wayland shale: Graham, Texas.

**BURSULELLA** Jones (Primitiidae)

Genotype: *B. triangularis* Jones

*Bursulella* JONES, Sil. Ostrac. Gothland (1887) p. 7; Ann. Mag. Nat. Hist., ser., 1 (1888) p. 409—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 302.

**Bursulella quadrispina** (Krause) Ordovician

*Entomis* (*Bursulella*?) *quadrispina* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 391, pl. 22, fig. 6.

*Entomis quadrispina* ANDERSSON, Öfv. Kong. Vet.-Akad. Förh., no. 2 (1893) p. 127—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 71, pl. 5, figs. 17, 18.

Müggelheim, North Germany (Drift, *Ceratopsis rostrata* limestone); Esthonia (Kuckers).

**Bursulella rostrata** Krause = **Bythocypris rostrata**

**Bursulella semiluna** Jones Silurian

*Bursulella semiluna* JONES, Sil. Ostrac. Gothland (1887) p. 7; Ann. Mag. Nat. Hist., ser. 6, 1 (1887) p. 409, pl. 22, figs. 5, 6.

Middle Gotlandian: Lau, Island of Gotland.

**Bursulella? tennesseensis** Ulrich and Bassler = **Monoceratina tennesseensis**

**Bursulella triangularis** Jones Silurian

*Bursulella triangularis* JONES, Sil. Ostrac. Gothland (1887) p. 7, text fig.; Ann. Mag. Nat. Hist. ser. 6, 1 (1888) p. 409, pl. 22, figs. 5, 6—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (29), p. 302.

Upper Gotlandian: Samsuga and Slite, Island of Gotland.

**Bursulella unicornis** Jones Silurian

*Bursulella unicornis* JONES, Sil. Ostrac. Gothland (1887) p. 7; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 410, pl. 22, fig. 7.

Middle and Upper Gotlandian: Fröjel, Samsuga and Slite, Island of Gotland.

**BYTHOCYPRIS** Brady (Bairdiidae)Genotype: *B. reniformis* Brady (Recent)

*Bythocypris* BRADY, Challenger Exp. Rept. Ostracoda (1880) p. 45—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 250; Geol. Assoc., Pr., 9 (1887) p. 510—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 184—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 196—JONES and HINDE, Mon. Cret. Entom. Pal. Soc., suppl. (1890) p. 11—MILLER, North American geol. pal., appendix 1 (1892) p. 706—ULRICH, Geol. Minn., 3, pt. 2 (1894); Zittel-Eastman Textb. Pal. (1900) p. 646—NAMIAS, Pal. Ital., Mem. Pal., 6 (1900-1901) p. 88—GRABAU and SHIMER, North American index fossils (1910) p. 365—BASSLER, Zittel-Eastman Textb. Pal., ed. 2 (1913) p. 740; U. S. Nat. Mus., Bull. 92 (1915) p. 149—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 320—NEVIANI, Pont. Acad. Sci. Nouvi Lincei, Mem., 11, sess. 1 (1927-1928) p. 30—ALEXANDER, Univ. Texas, Bull. 2907 (1929) p. 64—CORVELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 34—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 381—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 24.

*Cytherellina* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 215 (Genotype *Beyrichia siliqua* Jones)—JONES, Monthly Micr. Jour., 10 (1873) p. 76—VOGDÉS, New York Acad. Sci., Ann., 5 (1891) p. 14, pl. 2, fig. 5; *ibid.*, 5 (1891) p. 14—MILLER, North American geol. pal., appendix 1 (1892) p. 707—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 72.

*Bairdiocypris* (subgenus) KEGEL, Preuss. Geol. Landes., Jahrb., 1931, 52 (1931) p. 246 (Genotype: *B. gerolsteinensis* Kegel).

In view of the uncertain generic relationship of the Paleozoic species referred to the recent genus *Bythocypris* and the doubtful position of *Cytherellina*, the two sets of species are here combined under the probably erroneous heading of *Bythocypris*.

**Bythocypris acina** Jones

Silurian

*Bythocypris acina* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 189, pl. 6, figs. 10a, b—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Wenlock shale: Ironbridge, Shropshire, England.

**Bythocypris acuta** (Jones and Kirkby)

Carboniferous, ? Silurian

*Argillacia acuta* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 309, pl. 15, figs. 6.

*Argillacia* (*Bythocypris*?) *aequalis acuta*, JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 457, pl. 21, fig. 8.

Limestone: Dowgill, Yorkshire, and Lake District, England.

? Yeringian (Silurian): Lilydale, Victoria, Australia.

**Bythocypris aequalis** (Jones and Kirkby)

Carboniferous

*Cythere aequalis* JONES and KIRKBY (Ms.), Geol. Soc. London, Quart. Jour., 36 (1880) p. 573.

*Argillacia aequalis* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 540; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 263, pl. 9, figs. 6a, 6b; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq. and table p. 512—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 8 (1893) p. 312—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 456; Roy. Dublin Soc., Sci. Tr., ser. 2, 6 (1896) p. 193—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898-1899) p. 437—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 1898-1905, 8 (1905) p. 15, 16.

Limestone: Yorkshire, etc., England (Yoredale); Fifeshire, Ayrshire, etc., Scotland; Cultra, Ireland.

**Bythocypris bergica** Kegel

Devonian

*Bythocypris bergica* KEGEL, Preuss. Geol. Landes., Jahrb., 1931, 52 (1931) 245, pl. 13, fig. 1.

Upper Stringocephalus beds: Barmen-Ritterhausen, Germany.

**Bythocypris bilobata** Jones and Kirkby = **Silenites bilobata**

**Bythocypris ? botelloides** Jones

Silurian

*Bythocypris ? botelloides* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 185, pl. 7, fig. 2—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.

Wenlock shale: Benthall Edge, Ironbridge, Shropshire, England.

**Bythocypris ? breviata** Jones and Kirkby

Carboniferous

*Bythocypris ? breviata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 457, pl. 21, fig. 9.

Limestone: Dowgill, Yorkshire, England.

**Bythocypris caudalis** Jones

Silurian

*Bythocypris caudalis* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 270, pl. 15, figs. 2, 3—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 311, pl. 15, fig. 7.

Near Wisby, Gotland (Gotlandian—lowest beds); Cave Hill, Lilydale, Victoria, Australia (Yerri-gian).

**Bythocypris centralis** Coryell and Billings

Pennsylvanian

*Bythocypris centralis* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 174, pl. 17, fig. 11—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 265, pl. 25, fig. 12.

Northeast of Cisco (Graham-Wayland shale) and Mineral Wells (East Mountain shale), Texas.

**Bythocypris (Bairdiocypris) clava** Kegel

Devonian

*Bythocypris (Bairdiocypris) clava* KEGEL, Preuss. Geol. Landes., Jahrb., 1931, 52 (1931) p. 246, pl. 13, fig. 2.

Lower Stringocephalus beds: Prümer Mulde, Eifel, Germany.

**Bythocypris (Bairdiocypris) clava antecedens** Kegel

Devonian

*Bythocypris (Bairdiocypris) clava antecedens* KEGEL, Preuss. Geol. Landes., Jahrb., 1931, 52 (1931) p. 247, pl. 13, fig. 3.

Cultrijugatus beds: Prümer Mulde, Eifel, Germany.

**Bythocypris concinna** Jones

Silurian

*Bythocypris concinna* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 186, pl. 5, figs. 6a-c; Sil. Ostrac. Gotland (1887) p. 6; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 397; *ibid.*, ser. 6, 4 (1889) p. 271, pl. 15, fig. 11—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 49, 98.

*Primitia concinna* ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 62, pl. 5, fig. 26.

Near the Craven Arms, etc., Shropshire (Wenlock shale) and Ledbury, England (Aymestry); Ostergarn, Wisby, etc., Gotland (Middle Gotlandian); Podolia.

**Bythocypris concinna ovalis** Jones

Silurian

*Bythocypris concinna ovalis* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 186, pl. 5, fig. 7—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Wenlock shale: Ironbridge, Shropshire, England.

**Bythocypris cornigera** Jones and Kirkby = **Waylandella cornigera**

**Bythocypris cornigera robusta** Jones and Kirkby = **Waylandella cornigera robusta**

**Bythocypris ? cornuta** Krause

Silurian

*Bythocypris cornuta* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 510 pl. 33, figs. 3a-c.

Drift (Encrinurus limestone): Mark Brandenburg, North Germany.

**Bythocypris cuneola** Jones and Kirkby = **Waylandella cuneola****Bythocypris ? curta** Ulrich

Ordovician

*Bythocypris* (?) *curta* ULRICH, Geol. Minn. 3, pt. 2 (1897) p. 689, pl. 44, figs. 36-38—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 149.

Black River (Decorah): St. Paul, Minn.  
Holotype.—U.S.N.M. No. 41794.

**Bythocypris cylindrica** (Hall)

Ordovician, Early Silurian

*Leperditia* (*Isochilina*) *cylindrica* HALL, Descr. new species foss. Cincinnati, Ohio (1871) p. 7, pl. 4, fig. 12; N. Y. State Cab. Nat. Hist., 24th Ann. Rept. (1872) p. 231, pl. 8, fig. 12—HALL and WHITFIELD, Geol. Surv. Ohio, Rept., Pal., 2 (1875) p. 101, pl. 4, fig. 5.

*Leperditia cylindrica* MILLER, Cincinnati Quart. Jour., 1 (1874) p. 122, 353; *ibid.*, 2 (1875) p. 353—WALCOTT, Albany Inst., Tr., 10 (1876) p. 23—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 2 (1879) p. 11.

*Bythocypris cylindrica* ULRICH, Geol. and Nat. Hist. Surv. Canada, Contr. Micro-Pal., pt. 2 (1889) p. 48, pl. 9, fig. 6; Geol. Minn., 3, pt. 2 (1894) p. 687, pl. 44, figs. 29-35—RUEDEMANN, N. Y. State Mus., Bull. 49 (1901-1902) p. 86, pl. 7, figs. 26, 28—GRABAU and SHIMER, North American index fossils (1910) p. 365, text fig. 1666 q, q', r—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 149; Md. Geol. Surv., Cambrian and Ordovician vol. (1919) p. 169, 182, 381, pl. 55, figs. 28-31, pl. 52, figs. 14-16—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 280—MERRETT, Geol. Mag., 6 (1924) p. 231—FOERSTE, Geol. Surv. Canada, Mem. 138 (1924) p. 255, pl. 46, fig. 2—RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 144—HUSSEY, Mus. Geol. Univ. Mich., Contr., 2, no. 8 (1926) p. 183—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 350.

*Primitia minuta* (part) JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 7, pl. 3, figs. 18, 19 (not figs. 21-23).

Trenton to Richmond: Cincinnati, Ohio, and vicinity; Indiana; Kentucky; New York; Anticosti; Manitoba; etc.  
Plesiotypes.—U.S.N.M. Nos. 41795, 41796.

**Bythocypris cypridiformis** (Jones and Kirkby)

Carboniferous

*Cythere cypridiformis* KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 588.  
*Aglæa* (?) *cypridiformis* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 264, pl. 9, figs. 7a, 7b; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512; British Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 1898-1905, 8 (1905) p. 15, 16.

Fifeshire, etc., East Scotland (Calcareous sandstone); Northumberland, England (Carboniferous limestone).

**Bythocypris devonica** Ulrich

Devonian

*Bythocypris devonica* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 196, pl. 17, figs. 1a-c—TOLMACHOFF, 2nd Arctic Exp. *Fram* 1898-1902, no. 38 (1926) p. 27, pl. 1, figs. 30-32—KEGEL, Preuss. Geol. Landes., n. s., Abh., 100 (1926) p. 7, fig. 2.

*Bairdia devonica* GRABAU and SHIMER, North American index fossils (1910) p. 364, text fig. 1667.

Falls of the Ohio (Onondaga); Vestre Borgen, Ellesmereland, Arctic America; ? Germany.  
Holotype.—U.S.N.M. No. 41822.

**Bythocypris devonica borealis** Warthin

Devonian

*Bythocypris devonica borealis* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 221, pl. 1, fig. 23.

Traverse (Thunder Bay Series): Thunder Bay River, Mich.

**Bythocypris eifelensis** Kegel

Middle Devonian

*Bythocypris eifelensis* KEGEL, Preuss. Geol. Landes., Jahrb., 1927, 48 (1928) p. 655, pl. 33, fig. 7.

**Bythocypris eifelensis moravica** Kegel Middle Devonian  
*Bythocypris eifelensis moravica* KEGEL, Preuss. Geol. Landes., Jahrb., 1927, 48  
 (1928) p. 657, pl. 33, fig. 1.

Celechowitz, Moravia.

**Bythocypris faba** Coryell and Osorio = **Silenites faba**

**Bythocypris fabulites** Warthin Pennsylvanian  
*Bythocypris rotunda* WARTHIN (not Vanderpool, 1928), Okla. Geol. Surv., Bull.  
 53 (1930) p. 74, pl. 6, fig. 7.  
*Bythocypris fabulites* WARTHIN, in Coryell and Osorio, Am. Midl. Nat., 13, no. 2  
 (1932) p. 35.

Seven miles east Okemah (Wewoka) and Tulsa County, Okla. (Nowata).

**Bythocypris favulosa** Jones Devonian  
*Bythocypris favulosa* JONES, Am. Geol., 4 (1889) p. 338, pl., figs. 1, 2a-c—CLAY-  
 POLE, Am. Geol., 32 (1903) p. 247—KINDLE, U. S. Geol. Surv., Bull. 508 (1912)  
 p. 114, pl. 9, figs. 13-15.

Onondaga: Near Bloomfield, Perry County, Pa.  
 Pleistotypes.—U.S.N.M. No. 62130.

**Bythocypris fayettevillensis** Harlton Mississippian  
*Bythocypris fayettevillensis* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929)  
 p. 269, pl. 2, fig. 15.

Fayetteville shale: Fayetteville, Ark.  
 Holotype.—U.S.N.M. No. 79376.

**Bythocypris gallowayi** Coryell and Osorio = **Silenites gallowayi**

**Bythocypris (Bairdiocypris) gerolsteinensis** Kegel Devonian  
*Bythocypris (Bairdiocypris) gerolsteinensis* KEGEL, Preuss. Geol. Landes., Jahrb.,  
 1931 (1931) p. 249, pl. 13, fig. 5.

Lower Stringocephalus beds: near Gerolstein, Eifel, Germany.

**Bythocypris grandis** (Jones and Holl) Silurian  
*Cytherellina siliqua grandis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869)  
 p. 217, 227, pl. 14, fig. 1.

*Bythocypris grandis* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 185.

Woolhope beds: Malvern, England.

**Bythocypris granti** Ulrich Ordovician  
*Bythocypris granti* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 689, pl. 44, figs. 39-42—  
 BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 150.

Black River (Decorah): St. Paul and Minneapolis, Minn.  
 Cotypes.—U.S.N.M. No. 41793.

**Bythocypris hollii** Jones Silurian  
*Bythocypris hollii* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 184, pl. 5, figs.  
 1, 2, pl. 6, figs. 3, 4; Sil. Ostrac. Gothland (1887) p. 6—KRAUSE, Deutsch. Geol. Ges.,  
 Zeitschr., 43 (1891) p. 511, pl. 33, fig. 5—SMITH, Nat. Hist. Soc. Glasgow Tr., n.  
 s., 3 (1892) p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 155; Roy.  
 Soc. Victoria, Pr., n. s., 17 (1904) p. 310, pl. 14, fig. 9, pl. 16, figs. 1, 2—HEDE, Sver.  
 Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 49, 51, 98.

Dudley Tunnel, etc., Shropshire, England (Wenlock shale—Tickwood); Fröjel and Mulde, Gotland  
 (Middle Gotlandian); Victoria, Australia (Yeringian); North Germany (Drift—Eacrinurus  
 limestone).

- Bythocypris hollii oblonga** Jones Silurian  
*Bythocypris hollii oblonga* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 270, pl. 15, fig. 1—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 155.  
 Gotlandian (lowest beds and middle division): Near Wisby, etc., Gotland.
- Bythocypris humeralis** Kummerow Silurian  
*Bythocypris humeralis* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 347, 442, pl. 21, figs. 21a, b.  
 Drift (Beyrichia limestone): Brandenburg, Germany.  
 Topotype.—U.S.N.M. No. 82341.
- Bythocypris incurvata** Kummerow Ordovician  
*Bythocypris incurvata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 436, pl. 2, figs. 19a, b.  
 Drift (Algal limestone): Brandenburg, Germany.  
 Topotype.—U.S.N.M. No. 82344.
- Bythocypris indianensis** Ulrich Devonian  
*Bythocypris indianensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 197, pl. 16, figs. 11a-c—JONES, Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 60—STEWART, Ohio Jour. Sci., 30 (1930) p. 58, pl. 1, fig. 13.  
 Falls of the Ohio, Louisville, Ky. (Onondaga limestone); Lucas County, Ohio (Silica).  
 Holotype.—U.S.N.M. No. 43157.
- Bythocypris johnsoni** Upson Permian  
*Bythocypris johnsoni* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 25, pl. 2, fig. 12a.  
 Garrison (Funston limestone): 4 miles east of Home City, Kan.
- Bythocypris jonesii** (Bonnema) Ordovician  
*Cytherellina jonesii* BONNEMA, Mitt. Geol. Inst. Groningen, 2 (1909) p. 76, pl. 8, figs. 16-23; pl. 1, figs. 15-17—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 442.  
 Kuckers, Esthonia (Kuckers—C2); Northern Germany (Drift—Kuckers).
- Bythocypris ? keyserensis** Ulrich and Bassler Silurian  
*Bythocypris ? keyserensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 703, pl. 63, figs. 1, 2.  
 Cayugan (Tonoloway): Keyser, W. Va.  
 Cotypes.—U.S.N.M. No. 83039.
- Bythocypris krausei** (Bonnema) Ordovician  
*Cytherellina krausei* BONNEMA, Mitt. Geol. Inst. Groningen, 2 (1909) p. 76, pl. 8, figs. 10-15.  
 Kuckers (C2): Kuckers, Esthonia.
- Bythocypris ? lindstroemii** Jones Early Silurian  
*Bythocypris ? lindstroemii* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 548, pl. 21, figs. 11a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 150; Geol. Surv. Canada, Mem. 154 (1927) p. 350.  
 Richmond (English Head, Vaureal, and Ellis Bay formations): South of Junction Cliff, Island of Anticosti.
- Bythocypris lunata** (Jones and Kirkby) Carboniferous  
*Cythere ? lunata* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 507, 496, 513.  
*Bythocypris lunata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 253, pl. 6, fig. 15.  
 Limestone: Somerset, England.

- Bythocypris lydeae** Geis Mississippian  
*Bythocypris lydeae* GEIS, Jour. Pal., 6, no. 2 (1932) p. 180, pl. 26, fig. 1.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Bythocypris marginifera** Geis Mississippian  
*Bythocypris marginifera* GEIS, Jour. Pal., 6, no. 2 (1932) p. 179, pl. 26, fig. 2.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Bythocypris ? moorei** Jones and Kirkby Carboniferous  
*Bythocypris* (?) *moorei* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 252, pl. 6, figs. 12a-c.  
 Limestone: Weston-super-Mare, Somerset, England.
- Bythocypris (?) mytiloides** Fritsch Permian  
*Bythocypris mytiloides* FRITSCH, Fauna Gask. Kalks. Perm. Böhmens, 4, pt. 3 (1901) p. 76, pl. 161, fig. 7.  
 Bohemia.
- Bythocypris nearpassi** Weller Devonian  
*Bythocypris nearpassi* WELLER, Geol. Surv. N. J., Palaeozoic faunas, 3 (1903) p. 257, pl. 23, fig. 12—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 150.  
 Helderbergian (Decker Ferry): Nearpass Quarry, 2 miles south of Tristates, N. Y.  
 Topotype.—U.S.N.M. No. 83035.
- Bythocypris norrisensis** Geis Mississippian  
*Bythocypris norrisensis* GEIS, Jour. Pal., 6, no. 2 (1932) p. 180, pl. 25, fig. 16.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Bythocypris obesa** (Jones) Silurian  
*Bythocypris symmetrica obesa* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 270, pl. 15, fig. 7—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 155.  
*Bythocypris obesa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 702, pl. 63, fig. 8.  
 Wisby, etc., Gotland (Lowest beds and Middle division of Gotlandian); Cumberland, Md. (Cayugan-McKenzie).  
 Plesiotype.—U.S.N.M. No. 83033.
- Bythocypris ? obtusa** Jones Early Silurian  
*Bythocypris ? obtusa* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 459, pl. 21, figs. 4a, b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 150; Geol. Surv. Canada, Mem. 154 (1927) p. 350.  
 Richmond (English Head and Vaureal): English Head, Island of Anticosti.
- Bythocypris olmutiana** Kegel Middle Devonian  
*Bythocypris olmutiana* KEGEL, Preuss. Geol. Landes., Jahrb., 48 (1927-1928) p. 658, pl. 33, fig. 3.  
 Celechowitz, Moravia.
- Bythocypris oviformis** Jones Devonian  
*Bythocypris oviformis* JONES, Am. Geol., 4 (1889) p. 340, pl. figs. 3a-3c.  
 Helderbergian (Lewiston shaly limestone): Perry County, Pa.
- Bythocypris ovoida** Tolmachoff Devonian  
*Bythocypris ovoida* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898-1902, no. 38 (1926) p. 32, figs. 33-35.  
 Ostre Borgen, Ellesmereland, Arctic America.

- Bythocypris palopintoensis** Coryell and Sample Pennsylvanian  
*Bythocypris palopintoensis* CORYELL and SAMPLE, Am. Midl. Nat., vol. 13, no. 5 (1932) p. 267, pl. 25, fig. 17.  
 Mineral Wells (East Mountain shale): Mineral Wells, Texas.
- Bythocypris parallela** Knight Pennsylvanian  
*Bythocypris parallela* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 320, pl. 44, figs. 2a, b.  
 St. Louis County, Mo. (Upper Fort Scott); Mineral Wells, Texas (East Mountain shale).  
 Metatypes.—U.S.N.M. No. 83968.
- Bythocypris pediformis** Knight Pennsylvanian, Permian  
*Bythocypris pediformis* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 326, pl. 44, figs. 3a-e  
 —WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 74, pl. 6, fig. 6—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 35—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 267, pl. 25, fig. 18—CORYELL and BOOTH, Am. Midl. Nat. 15, no. 3 (1933) p. 266, pl. 4, fig. 5.  
*Argilloecia subelliptica* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 26, pl. 3, figs. 3a-c.  
 St. Louis County, Mo. (Upper Fort Scott); Southeast Oklahoma (Wetumka-Seminole); Mineral Wells (East Mountain shale) and Graham, Texas (Wayland shale); Nebraska (Permian).  
 Metatypes.—U.S.N.M. No. 83968.
- Bythocypris pergracilis** Ulrich and Bassler Silurian  
*Bythocypris pergracilis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 703, pl. 63, figs. 3, 4.  
 Cayugan (McKenzie): 1½ miles east of Great Cacapon, W. Va.  
 Cotypes.—U.S.N.M. No. 83031.
- Bythocypris phaseolina** Ulrich and Bassler Silurian  
*Bythocypris phaseolina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 703, pl. 63, fig. 7.  
 Cayugan (Tonoloway): Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 83038.
- Bythocypris phaseolus** Jones Silurian  
*Bythocypris phaseolus* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 189, pl. 7, figs. 11 12—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 155—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 49, 99—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 702, fig. 63, figs. 5, 6.  
 Shropshire, England (Lower Wenlock shale—Buildwas beds); Mulde, etc., Gotland (Middle Gotlandian); Keyser, W. Va. (Tonoloway).  
 Pleisotype.—U.S.N.M. No. 63590.
- Bythocypris phaseolus elongata** Jones Silurian  
*Bythocypris phaseolus elongata* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 271, pl. 15, fig. 8—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 311, pl. 15, fig. 5.  
 Near Wisby, Gotland (Gotlandian-lowest beds); Cave Hill, Lilydale, Victoria, Australia (Yeringian).
- Bythocypris phillipsiana** (Jones and Holl) Silurian  
*Bairdia phillipsiana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 213, pl. 14, figs. 7a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 579.  
*Bythocypris phillipsiana* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 13 (1886) p. 250—JONES, *ibid.*, ser. 5, 19 (1887) p. 187, pl. 5, fig. 4—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 510, pl. 3, fig. 4—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921)



p. 32, 49—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 702, pl. 63, fig. 9, text fig. 25, p. 320.

Ironbridge, etc., England (Wenlock limestone); Gotland (Lower and Middle Gotlandian); Drift of North Germany (Encrinurus and Beyrichia limestones); Flintstone, Md. (Cayugan-McKenzie). Plesiotype.—U.S.N.M. No. 83034.

**Bythocypris phillipsiana carbonica** Jones and Kirkby Carboniferous

*Bythocypris phillipsiana carbonica* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536–541; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 250, pl. 6, figs. 1, 2; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892 (1893) p. 312—JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 193; British Assoc. Handb. Glasgow (1901) p. 490—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 381, text fig. 25.

Westmoreland, etc., England (Yoredale); Lanarkshire, etc., East and West Scotland (Lower and Upper limestone); Cultra, Ireland.

**Bythocypris phillipsiana gothlandica** Jones Silurian

*Bythocypris phillipsiana gothlandica* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 271, pl. 15, fig. 9.

Gotlandian (lowest beds): near Wisby, Gotland.

**Bythocypris phillipsiana major** Jones Silurian

*Bythocypris phillipsiana major* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 187, pl. 5, fig. 3.

Upper Wenlock shale (Tickwood beds): Ironbridge, Shropshire, England.

**Bythocypris polaris** Gürich Middle Devonian

*Bythocypris polaris* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 391, pl. 14, figs. 5a–c—SOBOLEW, Mater. Geol. Russlands, 24 (1909) p. 161.

Dobrowa, Poland.

**Bythocypris polita** Steusloff = **Lepiditta polita**, a Cambrian branchiopod

**Bythocypris procera** Coryell and Billings Pennsylvanian

*Bythocypris procera* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 174, pl. 17, fig. 12.

Graham (Wayland shale): Northeast of Cisco, Texas.

**Bythocypris punctulata** Ulrich = **Microcheilinella punctulata**

**Bythocypris punctulata niagarensis** Ulrich = **Microcheilinella punctulata niagarensis**

**Bythocypris pusilla** (Jones) Silurian

*Macrocypris? pusilla* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 268, pl. 15, fig. 19.

Gotlandian (Lowest beds): Wisby, Gotland.

**Bythocypris pustulosa** Jones Silurian

*Bythocypris pustulosa* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 188, pl. 7, fig. 13—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Wenlock shale: Stoke Saye, near Craven Arms, and Ironbridge, England.

**Bythocypris (?) pyrula** Jones and Kirkby Carboniferous

*Bythocypris (?) pyrula* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 252, pl. 6, figs. 10, 11; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513; *ibid.*, 42 (1886) p. 507; British Assoc. Handb. Glasgow (1901) p. 490.

Limestone: Westmoreland and Somerset, England; West Scotland.

**Bythocypris reniformis** Jones (not Brady) Silurian

*Bythocypris ? reniformis* JONES, Ann. Mag. Nat. Hist., ser. 5, **19** (1887) p. 185, pl. 6, figs. 1, 2—? KRAUSE, Deutsch. Geol. Ges., Zeitschr., **43** (1891) p. 511, pl. 33, fig. 7—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., **3** (1892) table p. 158.

Shropshire, England (Upper Wenlock shale—Tickwood beds); Drift of North Germany.  
Topotypes.—U.S.N.M. No. 83037.

**Bythocypris (Bairdiocypris) rhenana** Kegel Devonian

*Bythocypris (Bairdiocypris) rhenana* KEGEL, Preuss. Geol. Landes., Jahrb., 1931, **52** (1931) p. 248, pl. 13, fig. 4.

Lower Stringocephalus beds: Prümer Mulde, Eifel, Germany.

**Bythocypris robusta** (Kummerow) Ordovician

*Xestoleberis* cfr. *wrightii* KRAUSE, Deutsch. Geol. Ges., Zeitschr., **43** (1891) p. 512, pl. 33, fig. 9.

*Cytherellina robusta* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 438, pl. 21, figs. 23a, b.

Drift (gray limestone, algal and Leptaena limestone): Northern Germany.  
Topotypes.—U.S.N.M. No. 82347.

**Bythocypris (?) robusta** Ulrich Ordovician

*Bythocypris (?) robusta* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 690, text figs. 52a–52d—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 150.

*Bythocypris (?) (Cytherellina?) robusta* GRABAU and SHIMER, North American index fossils (1910) p. 365, text fig. 1667, 1, m, n.

Black River (Platteville): Dixon, Ill.  
Holotype.—U.S.N.M. No. 41728.

**Bythocypris rostrata** Knight = **Bairdianella rostrata****Bythocypris rostrata** (Krause) Silurian

*Bursulella (?) rostrata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., **43** (1891) p. 512, pl. 33, fig. 10.

Drift (? Encrinurus limestone): Mark Brandenburg, Northern Germany.  
Topotype.—U.S.N.M. No. 82407.

**Bythocypris rotunda** Warthin = **B. fabulites****Bythocypris ruedemanni** (Bonnema) Ordovician

*Cytherellina ruedemanni* BONNEMA, Mitt. Min. Geol. Inst. Groningen, **2** (1909) p. 76, pl. 8, figs. 1–9—KUMMEROW, Preuss. Geol. Landes., Jahrb. (1923–1924) p. 442.

Kuckers, Esthonia (Kuckers—C2); Northern Germany (Drift—Kuckers).

**Bythocypris sasakwanensis** Warthin Pennsylvanian

*Bythocypris sasakwanensis* WARTHIN, Okla. Geol. Surv., Bull. **53** (1930) p. 73, pl. 6, fig. 5.

Holdenville (Sasakwa limestone): Sasakwa, Okla.

**Bythocypris scapha** Coryell and Billings Pennsylvanian

*Bythocypris scapha* CORYELL and BILLINGS, Am. Midl. Nat., **13**, no. 4 (1932) p. 174, pl. 17, fig. 10.

Graham (Wayland shale): Northeast of Cisco, Texas.

**Bythocypris semicircularis** (Jones and Holl) Silurian.

*Primitia semicircularis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, **16** (1865) p. 424, pl. 13, figs. 10a–c—HARKNESS and NICHOLSON, Geol. Soc. London, Quart. Jour., **33** (1877) p. 463—KRAUSE, Deutsch. Geol. Ges., Zeitschr., **29** (1877) p. 37—JONES, SALTER, and ETHERIDGE, Geol. Surv. Great Britain Mem., and Mus. Pract.

Geol., 3, ed. 2 (1881) p. 410—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 229, 276—NICHOLSON and MARR, Geol. Soc. London, Quart. Jour., 47 (1891) p. 505, 510—JONES, *ibid.*, 49 (1893) p. 289, 290—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17, pt. 1 (1904) p. 306, pl. 15, fig. 4.

*Bythocypris semicircularis* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 509, pl. 33, figs. 1, 2—STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 736—HEDE, Sver. Geol. Unders., ser. C, No. 305, 14, no. 7 (1920–1921) p. 76–78.

*Aparchites semicircularis* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 297.

Mark Brandenburg, North Germany (Drift—Encrinurus and Beyrichia limestone): Lilydale, Australia (Yeringian); Gotland (Upper Gotlandian); Northern England (Dufton shale); North Wales.

**Bythocypris semicirculus** Coryell and Sample Pennsylvanian

*Bythocypris semicirculus* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 267, pl. 25, fig. 15.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Bythocypris ? seminulum** Jones Silurian

*Bythocypris? seminulum* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 188, pl. 6, fig. 9—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Wenlock shale: Ironbridge, Shropshire, England.

**Bythocypris siliqua** (Jones) Silurian

*Beyrichia siliqua* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1885) p. 90, pl. 5, fig. 22—ROEMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 602—BOLL, Arch. Ver. Freunde Mecklenburg, 16 (1862) p. 136, pl. 1, fig. 13—HUXLEY and ETHERIDGE, Fossils Mus. Pract. Geol. Catalogue (1865) p. 44.

*Cytherellina siliqua* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 216, pl. 14, figs. 1–6—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 5—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 37—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 229, 276—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 109 (fig. 356)—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 348—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518—VOGDES, New York Acad. Sci., Ann., 5 (1891) pl. 2, figs. 5a, b, d—GRÖNWALL, Geol. Förh., Stockholm Förh., 19, (1897) p. 204, 207, 208, 210, 217, 218, 240—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Afd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 68, 81, 86, pl. 4, figs. 20–21—VOGDES, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 5—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1921) p. 59, 65, 68, 74, 76, 77, 78, 86, 98—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 442.

Brandenburg, etc., North Germany (Drift—Beyrichia and Encrinurus limestone and graptolite beds); Island of Gotland (Middle and Upper Gotlandian); Malvern, etc., England (Wenlock, Woolhope, etc.).

Topotypes.—U.S.N.M. No. 83044.

**Bythocypris siliqua ovata** (Jones and Holl) Silurian

*Cytherellina siliqua ovata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 217, pl. 14, fig. 4—JONES, *ibid.*, ser. 5, 19 (1887) p. 185.

Wenlock shale: Malvern, England.

**Bythocypris siliqua tersa** (Jones and Holl) Silurian

*Cytherellina siliqua tersa* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 217, 227, pl. 14, fig. 3.

*Cytherellina (Bythocypris) tersa* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 191.

Wenlock limestone: Near Malvern, England.

**Bythocypris simplex** Roth Devonian

*Bythocypris simplex* ROTH, Jour. Pal., 3, no. 4 (1929) p. 366, pl. 38, figs. 25a, b.

Helderbergian (Haragan): White Mound, Murray County, Okla.

Holotype.—U.S.N.M. No. 80646.

**Bythocypris strombiformis** Kummerow Ordovician  
*Bythocypris strombiformis* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924)  
 p. 436, 442, pl. 21, figs. 20a-c.

Drift (Gray limestone. Ostseekalk and algal limestone): Brandenburg, Northern Germany.  
 Topotypes.—U.S.N.M. No. 82342.

**Bythocypris sublunata** Jones and Kirkby Carboniferous  
*Bythocypris sublunata* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 3 (1886) p. 250, pl. 7, figs. 9-11; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—JONES and KIRKBY, Roy. Dublin Soc., Sci. Tr., ser. 2, 6 (1896) p. 192; British Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 1898, 8 (1905) p. 15, 16.

Northamptonshire, etc., England (Limestone); Fifeshire, etc., Scotland (Calcareous sandstone);  
 Cultra, Ireland.

**Bythocypris subreniformis** Kummerow Ordovician  
*Bythocypris subreniformis* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924)  
 p. 436, 442, pl. 21, figs. 18a, b.

Drift (gray and algal limestone): Northern Germany.  
 Topotypes.—U.S.N.M. No. 82343.

**Bythocypris symmetrica** Jones Silurian  
*Bythocypris symmetrica* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 186, pl. 7, figs. 3, 4, 7; Sil. Ostrac. Gothland (1887) p. 6; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 397—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 155—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 511, pl. 33, fig. 6—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 938—HEDE, Sver. Geol. Unders., ser. C, no. 281, 11, no. 2 (1917) p. 26, 29; Geol. För. Stockholm Förh., 41 (1919-1920) p. 142, pl. 6, fig. 5; Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 31, 41, 42, 49, 99—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 703.

Ironbridge, Malvern, etc., Shropshire, England (shales over Wenlock limestone, Upper and Lower Wenlock shale—Tickwood and Buildwas beds); Fröjel, etc., Gotland (Lower and Middle Gotlandian); North Germany (Drift—Encrinurus limestone).  
 Topotypes.—U.S.N.M. No. 83036.

**Bythocypris symmetrica obesa** Jones = **Bythocypris obesa**

**Bythocypris testacella** Jones Silurian  
*Bythocypris testacella* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 186, pl. 5, fig. 5; *ibid.*, ser. 6, 1 (1888) p. 398—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Upper Wenlock shale (Tickwood beds): Ironbridge and Malvern, England.

**Bythocypris (?) texana** Harlton Pennsylvanian  
*Bythocypris (?) texana* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 160, pl. 1, fig. 1.

Graham formation: East Menard County, Texas.  
 Holotype.—U.S.N.M. No. 80593.

**Bythocypris texensis** Coryell and Sample Pennsylvanian  
*Bythocypris texensis* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932)  
 p. 266, pl. 25, fig. 13.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Bythocypris thraso** (Jones) Carboniferous  
*Cythere thraso* JONES MS., in Moore, Geol. Soc. London, Quart. Jour., 23 (1867)  
 p. 494—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1866) p. 252, pl. 6, figs. 13a, b.

Limestone: Somersetshire and Northumberland, England.

- Bythocypris tomlinsoni** Harlton Pennsylvanian  
*Bythocypris tomlinsoni* HARLTON, *Am. Jour. Sci.*, ser. 5, **18**, no. 105 (1929) p. 270, pl. 2, figs. 17a-e—CORYELL and BILLINGS, *Am. Midl. Nat.*, **13**, no. 4 (1932) p. 175, pl. 17, fig. 9—HARLTON, *Jour. Pal.*, **7**, no. 1 (1933) p. 25, pl. 7, fig. 9.  
 Carter County (Dornick Hills formation) and Southern Oklahoma (Johns Valley shale); Northeast of Cisco, Texas (Wayland shale).  
 Holotype.—U.S.N.M. No. 79377.
- Bythocypris transversa** Roth Devonian  
*Bythocypris transversa* ROTH, *Jour. Pal.*, **3**, no. 4 (1929) p. 365, pl. 37, figs. 24a-c.  
 Helderbergian (Haragan): White Mound, Murray County, Okla.  
 Holotype.—U.S.N.M. No. 80652.
- Bythocypris triangularis** Grönwall Silurian  
*Bythocypris triangularis* GRÖNWALL, *Geol. För. Stockholm Förh.*, **19** (1897) p. 204, 207, 208, 210, 217, 218, 224, 240—MOBERG and GRÖNWALL, *Lunds Univ. Årsskr.*, *Ny Följd.*, Avd. 1, *Med. Mat. Nat. Ämnen*, n. s., **5** (1909) p. 70, 81, 86, pl. 4, figs. 22a, b.  
 Gotlandian: Island of Gotland.
- Bythocypris (?Carbonita) tumidus** Upson Permian  
*Bythocypris tumidus* UPSON, *Nebr. Geol. Surv.*, *Bull.* **8** (1933) p. 24, pl. 2, figs. 2a-c.  
 Garrison (Stearns shale): 5 miles south of Manhattan, Kan.
- Bythocypris (?Carbonita) tumidus magnus** Upson Permian  
*Bythocypris tumidus magnus* UPSON, *Nebr. Geol. Surv.*, *Bull.* **8** (1933) p. 24, pl. 2, figs. 13a, b.  
 Garrison (Stearns shale): 5 miles south of Manhattan, Kan.
- Bythocypris ulrichi** (Bonnema) Ordovician  
*Cytherellina ulrichi* BONNEMA, *Mitt. Min. Geol. Inst. Groningen*, **2** (1909) p. 75, pl. 7, figs. 1-14.  
 Kuckers (C2): Kuckers, Estonia.  
 Topotypes.—U.S.N.M. No. 58386.
- Bythocypris (Bairdiocypris) üxheimensis** Kegel Devonian  
*Bythocypris (Bairdiocypris) üxheimensis* KEGEL, *Preuss. Geol. Landes.*, *Jahrb.*, **1931**, **52** (1931) p. 250, pl. 13, fig. 6.  
 Upper Calceola beds: Near Gerolstein, Eifel, Germany.
- Bythocypris ventricosa** Tolmachoff Devonian (Db)  
*Bythocypris ventricosa* TOLMACHOFF, *2nd Arctic Exp. Fram*, 1898-1902, no. 38 (1926) p. 33, pl. 1, figs. 36-38.  
 Vestre Borgen, Ellesmereland, Arctic America.
- BYTHOCYHERE** Sars (Cytheridae)  
 Genotype: *B. turgida* Sars (Recent)
- Bythocythere* Sars, *Ofversigt af Norges Marine Ostracoder* (1865)—BRADY, CROSSKEY, and ROBERTSON, *Post-Tert. Entomostraca Scotland*, *Mon. Palaeontogr. Soc.* (1874) p. 113, 207—JONES and KIRKBY, *Geol. Assoc.*, *Pr.*, 1835-1886, **9** (1887) p. 514—LIENENKLAUS, *Deutsch. Geol. Ges.*, *Zeitschr.*, **46** (1894) p. 166, 251; *Ber. Senck. Nat. Ges. Frankfurt am Main*, teil 2 (1905) p. 59—KUIPERS, *Oligocäne und Miocäne Ostr. Nied.* (1918) p. 18.
- Bythocythere antiqua** Jones and Kirkby Carboniferous  
*Bythocythere antiqua* JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 5, **18** (1886) p. 263, pl. 9, fig. 5; *Geol. Soc. London, Quart. Jour.*, **42** (1886) p. 496, 513.  
 Limestone: Skellygate, Northumberland, England.

**Bythocythere eifeliensis** Chapman

Middle Devonian

*Bythocythere eifeliensis* CHAPMAN, Roy. Micr. Soc., Jour., pt. 4 (1921) p. 331, pl. 8, figs. 14a, b.

Devonian: Paffrath, Germany.

**Bythocythere youngiana** Jones and Kirkby

Carboniferous

*Bythocythere youngiana* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 263, pl. 9, fig. 4; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 312—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 455; British Assoc. Handb. Glasgow (1901) p. 491.

Lanarkshire, Scotland (limestone); Northumberland, England (Yoredale).

**CANDONA** Baird (Cypridae)Genotype: *C. lucens* Baird (Recent)

*Candona* BAIRD, Berwickshire Nat. Club, Tr., 2 (1845) p. 152—JONES, Entom. Cret. England, Mon. Palaeontogr. Soc. (1849) p. 5; Ann. Mag. Nat. Hist., ser. 2, 6 (1850) p. 26—BAIRD, Hist. British Entomostraca (1850) p. 159—JONES, Mon. Tertiary Entomostraca England, Palaeontogr. Soc. (1856) p. 16; Berwickshire Nat. Club, Pr. (1864) p. 87—BRADY, Intellectual Observer, 12 (1867) p. 118—BRADY, CROSSKEY, and ROBERTSON, Post-Tert. Entomostraca Scotland, Palaeontogr. Soc. (1874) p. 111, 133—GOLDENBERG, Fauna Saraepontana Fossilis, 2 (1877) p. 39—JONES and KIRKBY, Geol. Assoc., London, Pr., 9 (1886) p. 509—MILLER, North American geol. pal. (1889) p. 537—HÉJJAS, Ertesito 2, Nat. Abtheil. 15, pt. 2 (1892) p. 162; *ibid.*, 19, pt. 1 (1894) p. 62—LIENENKLAUS, Ber. Senck. Nat. Ges. Frankfurt am Main, teil 2, (1905) p. 20—SIEBER, Jahrb. Ver. Nat. Württemberg, 61 (1905) p. 327—MÉHES, Földtani Közlöny (Geol. Mitt.) 37 (1907) p. 459, 528.

**Candona ? elongata** Jones and Kirkby

Coal Measures

*Candona ? elongata* JONES and KIRKBY, Geol. Mag., dec. 3, 1 (1884) p. 361, pl. 12, fig. 10—DAWSON, Canadian Rec. Sci., 7 (1897) p. 322, text fig. 9—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 162.

Joggins, Nova Scotia.

**Candona elongata** (Goldenberg)

Permian

*Cyprida elongata* GOLDENBERG, Neues Jahrb. Min., Geol., Pal. (1870) p. 286, 287, woodcut fig. 3; Fauna Saraepontana Fossilis, 2 (1877) p. 39, pl. 2, fig. 19—FRITSCH, Sitz. Böhm. Ges. Wiss. Math.-Nat. Classe (1894–1895) p. 4; Fauna Gask. Kalks. Perm. Böhm., 4, pt. 3 (1901) p. 76.

Saarbrücken coal field; Bohemia.

**Candona kotahensis** Jones

Permian ?

*Candona kotahensis* JONES, Mon. Foss. Estheriae, Palaeontogr. Soc. (1862) p. 127, pl. 5, fig. 25.

Permian or Mesozoic: Central India.

**Candona ? salteriana** Jones = **Carbonita salteriana****Candona tateana** Jones

Carboniferous

*Candona (?) tateana* JONES, Mon. Foss. Estheriae, Palaeontogr. Soc. (1862) p. 123, pl. 5, fig. 15; Berwickshire Nat. Club, Pr. (1864) p. 87, text fig. 2; 10 (1884) p. 315—VINE, Naturalist, 10 (1885) p. 98.

Berwickshire, Scotland (Mountain limestone); Northumberland, England (Redesdale shale).

**CARBONIA** Jones = **CARBONITA****Carbonia agnes, etc.** = **Carbonita agnes, etc.**

**Carbonia carlottae** JONES and KIRKBY, Geol. Assoc., Pr., 1885–1886, 9 (1887) p. 503 (nom. nud.).

**CARBONITA** Strand (Kirkbyidae)

Genotype: *Carbonia agnes* Jones

*Carbonia* JONES, Geol. Mag., 7 (1870) p. 218; Monthly Micr. Jour., 10 (1873) p. 77—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 566; Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 30—JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 318—JONES and KIRKBY, Geol. Assoc., Pr., 9 (1886) p. 514—VOGDÉS, New York Acad. Sci., Ann., 1889, 5 (1891) p. 11; JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898–1899) p. 420–442—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 384.

*Carbonita* new name STRAND, Arch. Nat., 92, pt. A, no. 8 (1926–1928) p. 41 (*Carbonia* Jones, 1870, preoccupied by Robineau-Desvoidy, 1863).

**Carbonita agnes** (Jones)

Coal Measures

*Carbonia agnes* JONES, Geol. Mag., 7 (1870) p. 218, pl. 9, figs. 6, 7; Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 7a, 7c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512; Ann. Mag. Nat. Hist., ser. 5, 13 (1886) p. 265—VOGDÉS, New York Acad. Sci., Ann., 5 (1889) pl. 2, fig. 7a–e; San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 7.

South Wales.

**Carbonita agnes rugulosa** (Jones)

Coal Measures

*Carbonia agnes rugulosa* JONES, Geol. Mag., 7 (1870) p. 218, pl. 9, figs. 8, 9; Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 7b.

South Wales.

**Carbonita agnes subrugulosa** (Jones)

Coal Measures

*Carbonia agnes subrugulosa* JONES, Geol. Mag., 7 (1870) p. 218, pl. 9, fig. 10.

South Wales.

**Carbonita australis** (Etheridge)

Permian

*Carbonia australis* ETHERIDGE, Geol. Surv. New South Wales, Mem., pal. no. 5 (1893) p. 121, pl. 21, figs. 9–12.

Upper Marine series: Northumberland County, New South Wales.

**Carbonita bairdioides** (Jones and Kirkby)

Coal Measures, Carboniferous

*Cythere* ? (*Carbonia* ?) *bairdioides* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 38, pl. 3, figs. 24, 25 (figs. 26, 27).

*Carbonia bairdioides* JONES and KIRKBY, Geol. Mag., dec. 3, 1 (1884) p. 357, pl. 12a, fig. 8; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512; Geol. Mag., dec. 3, 6 (1889) p. 269, 270; Manchester Geol. Soc., Tr., 21, pt. 3 (1890) p. 140, 141, pl. figs. 9, 10—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—DAWSON, Canadian Rec. Sci., 7, no. 5 (1897) p. 322, text fig. 8—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 167—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898–1899) p. 420–442—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490.

North England (Coal Measures): East and West Scotland (Carboniferous limestone); Joggins, Nova Scotia.

**Carbonita elongata** (Jones and Kirkby)

Pennsylvanian

*Carbonia* ? *elongata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 1 (1884) p. 361, pl. 12, fig. 10—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 167.

Joggins, Nova Scotia.

**Carbonita evelinae** (Jones)

Coal Measures

*Carbonia evelinae* JONES, Geol. Mag., 7 (1870) p. 218, pl. 9, fig. 4—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512.

South Wales.

**Carbonita fabulina** (Jones and Kirkby) Coal Measures, Carboniferous limestone

*Cythere fabulina* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 217—MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 494, 525, 559—YOUNG, Geol. Soc. Glasgow, Tr., 3 (1871) p. 307.

*Carbonita fabulina* JONES, Geol. Mag., 7 (1870) p. 218—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 31, pl. 2, figs. 1–10—KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 568, 570, p. 587—JONES and KIRKBY, Geol. Mag., dec. 3, 1 (1884) p. 358, pl. 12, figs. 9a–c—JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 321, pl. 2, figs. 2a–2c—VINE, Naturalist, 10 (1885) p. 98—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512; Ann. Mag. Nat. Hist., ser. 5, 13 (1886) p. 265; Geol. Mag., dec. 3, 6 (1889) p. 269; Manchester Geol. Soc., Tr., 21, pt. 3 (1890) p. 139, 141, figs. 7, 8—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 458—DAWSON, Canadian Rec. Sci., 7, no. 5 (1897) p. 321, text fig. 7—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 167—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898–1899) p. 420–422—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—FRITSCH, Fauna Gask. Kalks. Perm. Böhm., 4, pt. 3 (1901) p. 76, pl. 160, figs. 13, 14—KIRKBY, Edinburgh Geol. Soc., Tr., 1898–1905, 8 (1905) p. 63–66—PRUVOST, Soc. Géol. Nord, Ann., 40 (1911) pl. 2, figs. 3–8—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 384.

*Cytherella inflata* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 1 (1884) p. 358—MILLER, North American geol. pal. (1889) p. 541, text fig. 992—DAWSON, Acadian Geol., ed. 2 (1868); ed. 3 (1878) p. 206.

Coal Measures of East and West Scotland, North and South England. Calciferous sandstone and Carboniferous limestone of East and West Scotland; Nova Scotia; North France.

**Carbonita fabulina altilis** (Jones and Kirkby) Coal Measures

*Carbonita fabulina altilis* JONES and KIRKBY, Geol. Mag., dec. 3, 6 (1889) p. 269, 270, text fig. 1–4.

Mabou Coal Field, Inverness County, Cape Breton, Nova Scotia.

**Carbonita fabulina humilis** (Jones and Kirkby) Coal Measures

*Carbonita fabulina humilis* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 31, pl. 2, figs. 11–14; Geol. Mag., n. s., dec. 3, 1 (1884) p. 358.

Craigenglen, etc., Scotland.

**Carbonita fabulina inflata** (Jones and Kirkby) Coal Measures

*Carbonita fabulina inflata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 31, pl. 2, figs. 15–19.

Craigenglen, etc., Scotland.

**Carbonita fabulina subangulata** (Jones and Kirkby) Coal Measures

*Carbonita fabulina subangulata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 31, pl. 2, figs. 20–23, 24.

West of Pittenweem, Scotland.

**Carbonita intermedia** (Münster) Permian, Carboniferous, ? Devonian

*Cythere intermedia* MÜNSTER, Neues Jahrb. Min., Geol., Pal. (1830) p. 65—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 405, 409, pl. 20, figs. 9a–e; Geol. Soc. Glasgow, Tr., 2 (1867) p. 223—MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 494, 559—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27—KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 576, 588—VINE, Naturalist, 10 (1885) p. 99—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 312—CHAPMAN, Roy. Micr. Soc., Jour., pt. 4 (1921) p. 331, pl. 8, figs. 13a, b.

*Bairdia reniformis* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 329, pl. 10, figs. 13, 13a—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 1858–1860, 4 (1860) p. 138, 154.



*Cythere subreniformis* GEINITZ, Anim. Ueber. Dyas (1861) p. 33—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 232, 235—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 1858-1860, 4 (1860) p. 154, 155, pl. 9, fig. 13, p. 163, pl. 11, figs. 23a-d.

Near Hof, Bavaria (Mountain limestone); North and South England (limestone); East and West Scotland (Calceiferous sandstone and Carboniferous limestone); Permian of England; ? Devonian of Germany.

**Carbonita ? lenticularis** (Knight)

Pennsylvanian

*Carbonia* (?) *lenticularis* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 335, pl. 44, figs. 9a, b.

Henrietta (Pawnee limestone): St. Louis County, Mo.  
Metatypes.—U.S.N.M. No. 83970.

**Carbonita muensteriana** (Jones and Kirkby)

Carboniferous

*Cythere muensteriana* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 410, pl. 20, figs. 11a, 11b.

Near Hof, Bavaria.

**Carbonita pungens** (Jones and Kirkby)

Carboniferous, Coal Measures

*Cythere pungens* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 222 (nom. nud.)—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 28—YOUNG, *ibid.*, 3 (1871) p. 307.

*Carbonia pungens* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 37, pl. 3, figs. 21-23; Geol. Mag., n. s., dec. 3, 1 (1884) p. 361; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—JONES, Manchester Geol. Soc., Tr., 21, pt. 3 (1890) p. 138, 141, pl. figs. 1, 2—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898-1899) p. 420-442—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—PRUVOST, Soc. Géol. Nord, Ann., 40 (1911) pl. 2, figs. 13, 14—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 386.

*Cythere* (*Darwinella*?) *pungens* JONES and KIRKBY, Berwickshire Nat. Field Club, Pr., 10 (1884) p. 319, 325.

Coal Measures and Lower Carboniferous limestone, East and West Scotland; Upper Coal Measures near Manchester, England; North France.

**Carbonita rankiniana** (Jones and Kirkby) Coal Measures, Carboniferous limestone

*Cythere rankiniana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 217 (nom. nud.)—YOUNG, *ibid.*, 3 (1871) p. 307.

*Carbonia rankiniana* ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 34, pl. 3, figs. 1-8—KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 564, 566, 570, table p. 587—BINNEY and KIRKBY, Geol. Soc. London, Quart. Jour., 38 (1882) p. 250—JONES and KIRKBY, *ibid.*, 42 (1886) p. 496, 512—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—DAWSON, Canadian Rec. Sci., 7, no. 5 (1897) p. 396, text fig. 10—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898-1899) p. 420-442—KIRKBY, Edinburgh Geol. Soc., Tr., 1898-1905, 8 (1905) p. 64-66—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—PRUVOST, Soc. Géol. Nord, Ann., 40 (1911) pl. 2, figs. 9-11—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 385.

Coal Measures: North and South England, East and West Scotland; North France.  
Calceiferous sandstone and Carboniferous limestone: East and West Scotland; North France.

**Carbonita roederiana** (Jones and Kirkby)

Upper Coal Measures

*Carbonia roederiana* JONES and KIRKBY, Manchester Geol. Soc., Tr., 21, pt. 3 (1890) p. 138, 141, pl., figs. 5, 6.

Near Manchester, England.

**Carbonita salteriana** (Jones)

Upper Coal Measures

*Cardona* (?) *salteriana* JONES, Mon. Foss. Estheriae, Mon. Palaeontogr. Soc. (1862) p. 122, pl. 5, figs. 13, 14—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513; Manchester Geol. Soc., Tr., 21, pt. 3 (1890) p. 140, 141, pl. figs. 11, 12—FRITSCH, Sitz. Böhm. Ges. Wiss. Math.-Nat. Classe (1894-1895) p. 4; Fauna Gask. Kalks. Perm. Böhm., 4, pt. 3 (1901) p. 76, pl. 160, fig. 15.

Near Manchester, England; Bohemia.

**Carbonita scalpellus** (Jones and Kirkby)

Coal Measures

*Carbonia scalpellus* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 36, pl. 3, figs. 14-17; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—PRUVOST, Soc. Géol. Nord, Ann., 40 (1911) p. 2, figs. 13, 14.

Ryhope Colliery, near Sunderland, England; North France.

**Carbonita secans** (Jones and Kirkby)

Coal Measures, Carboniferous limestone

*Cythere secans* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 222 (nom. nud.).

*Carbonia secans* ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 37, pl. 3, figs. 18-20; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512; Geol. Assoc. Pr., 1885-1886, 9 (1886) p. 514; Manchester Geol. Soc., Tr., 21, pt. 3 (1890) p. 138, 141, pl. figs. 3, 4—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 385.

North and South England (Coal Measures); West Scotland (Lower Carboniferous limestone).

**Carbonita subula** (Jones and Kirkby)

Carboniferous

*Cythere subula* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 222 (nom. nud.).

*Carbonia subula* ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 35, pl. 3, figs. 9-13—KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 565, 568, 570, 572, table p. 587—JONES and KIRKBY, *ibid.*, 42 (1886) p. 496, 512—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898-1899) p. 440-442—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 1898-1905, 8 (1905) p. 62, 63, 65—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 385.

Lower Carboniferous limestone and Calciferous sandstone: East and West Scotland.

**Carbonita wardiana** (Jones and Kirkby)

Coal Measures, Carboniferous

*Carbonia wardiana* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 265, pl. 9, fig. 10; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312.

North Staffordshire, England (Coal Measures); West Scotland (Calciferous sandstone).

**CAVELLINA** Coryell (Cytherellidae)Genotype: *C. pulchella* Coryell

*Cavellina* CORYELL, Jour. Pal., 2, no. 2 (1928) p. 89, 90, pl. 11—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 13.

**Cavellina arcuata** Coryell and Rogatz

Permian

*Cavellina arcuata* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 389, pl. 35, fig. 5.

Clear Fork-Arroyo: Tom Green County, Texas.

**Cavellina equalis** Coryell

Pennsylvanian

*Cavellina equalis* CORYELL, Jour. Pal., 2, no. 2 (1928) p. 92, pl. 11, fig. 6.

Boggy shale: deep well, Seminole County, Okla.

**Cavellina glandella** (Whitfield) Mississippian

*Cytherellina glandella* WHITFIELD, Am. Mus. Nat. Hist., Bull. **1** (1882) p. 94, pl. 9, figs. 28, 29—HALL, Ind. Dept. Geol. Nat. Hist., 12th Ann. Rept. (1883) pl. 32, figs. 28, 29—LESLEY, Geol. Surv. Pa., Rept. P 4 (1889) p. 186, 2 text figs.—WELLER, U. S. Geol. Surv., Bull. **153** (1898) p. 212—CUMINGS, Dept. Geol. and Nat. Res. Ind., 30th Ann. Rept. (1906) pl. 26, figs. 28, 29.

*Cytherella glandella* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1890) p. 310 (gen. ref.)—GIRTY, U. S. Geol. Surv., Bull. **539** (1915) p. 136—ROTH, Okla. Geol. Surv., Circ. **18** (1929) chart.

*Cytheropsis glandella* MILLER, North American geol. pal. (1889) p. 541, text fig. 994.

*Cavellina glandella* GEIS, Jour. Pal., **6**, no. 2 (1932) p. 186, pl. 26, figs. 9a-d.

Spergen Hill, etc., Ind. (Spergen limestone); Arkansas (Batesville).  
Topotypes.—U.S.N.M. No. 83046.

**Cavellina jejuna** Coryell and Sample Pennsylvanian

*Cavellina jejuna* CORYELL and SAMPLE, Am. Midl. Nat., **13**, no. 5 (1932) p. 274, pl. 26, fig. 16.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Cavellina lata** Coryell Pennsylvanian

*Cavellina lata* CORYELL, Jour. Pal., **2**, no. 2 (1928) p. 94, pl. 11, fig. 11—WARTHIN, Okla. Geol. Surv., Bull. **53** (1930) p. 79, pl. 7, fig. 5—HARLTON, Jour. Pal., **7**, no. 1 (1933) p. 28, pl. 7, fig. 12.

Deep well, Seminole County (Seminole and Holdenville formations) and Southern Oklahoma (Johns Valley shale).

**Cavellina lintris** Coryell and Sample Pennsylvanian

*Cavellina lintris* CORYELL and SAMPLE, Am. Midl. Nat., **13**, no. 5 (1932) p. 273, pl. 26, fig. 12.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Cavellina minima** Coryell Pennsylvanian

*Cavellina minima* CORYELL, Jour. Pal., **2**, no. 2 (1928) p. 94, pl. 11, fig. 10.

Wewoka formation: deep well, Seminole County, Okla.

**Cavellina pulchella** Coryell Pennsylvanian

*Cavellina pulchella* CORYELL, Jour. Pal., **2**, no. 2 (1928) p. 91-92, pl. 11, fig. 5—WARTHIN, Okla. Geol. Surv., Bull. **53** (1930) p. 78, pl. 7, fig. 3—CORYELL and BILLINGS, Am. Midl. Nat., **13**, no. 4 (1932) p. 181, pl. 17, fig. 16—CORYELL and SAMPLE, *ibid.*, **13**, no. 5 (1932) p. 273, pl. 26, fig. 15.

Southeastern Oklahoma (Seminole and Holdenville formation); northeast of Cisco (Wayland shale) and Mineral Wells, Texas (East Mountain shale).

**Cavellina reversa** Coryell Pennsylvanian

*Cavellina reversa* CORYELL, Jour. Pal., **2**, no. 2 (1928) p. 92, pl. 11, fig. 7—WARTHIN, Okla. Geol. Surv., Bull. **53** (1930) p. 80, pl. 7, fig. 6—CORYELL and SAMPLE, Am. Midl. Nat., **13**, no. 5 (1932) p. 274, pl. 26, fig. 10.

Deep well, Seminole County, Okla. (Boggy shale and Wetumka formation); Mineral Wells, Texas (East Mountain shale).

**Cavellina subovata** Coryell Pennsylvanian

*Cavellina subovata* CORYELL, Jour. Pal., **2**, no. 2 (1928) p. 93, pl. 11, fig. 8—HARLTON, *ibid.*, **7**, no. 1 (1933) p. 27, pl. 7, fig. 11.

Deep well, Seminole County (Boggy shale) and southern Oklahoma (Johns Valley shale).

**Cavellina subpulchella** Coryell

Pennsylvanian

*Cavellina subpulchella* CORYELL, Jour. Pal., 2, no. 2, p. 93, pl. 11, fig. 9—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 79, pl. 7, fig. 4—CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 270, pl. 5, figs. 3, 4.

Graham, Texas (Wayland); Deep well, Seminole County, Okla. (Boggy shale, Wetumka to Holden-ville).

**Cavellina subpulchella** Upson = **C. winfieldensis****Cavellina winfieldensis** Upson

Permian

*Cavellina winfieldensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 14, pl. 2, figs. 8a, b.

*Cavellina subpulchella* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 14, pl. 2, figs. 7a-c.

*Cytherella ovata* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 15, pl. 2, figs. 9a, b.

Chase (Gage shale): 2.5 miles east of Odell, Nebr.

**CERATELLA** Ulrich = **CERATOPSIS****Ceratiocaris permiana** Jones = **Kirkbya permiana****CERATOCYPRIS** Poulsen (Bairdiidae)Genotype: *C. symmetrica* Poulsen

*Ceratocypris* POULSEN, Jubilaeumsekspedition Nord om Gronland, 1920-1923 (1934) p. 38, fig. 5.

**Ceratocypris symmetrica** Poulsen

Silurian

*Ceratocypris symmetrica* POULSEN, Jubilaeumsekspedition Nord om Gronland, 1920-1923 (1934) p. 38, text fig. 5.

Cape Schuchert formation: Cape Schuchert, Greenland.

**CERATOPSIS** Ulrich (Beyrichiidae)Genotype: *Beyrichia chambersi* Miller

*Ceratella* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 113 (nom. nud).

*Ceratopsis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 675; Zittel-Eastman Textb. Pal., 1 (1900) p. 644—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1040—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 303—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 39—GRABAU and SHIMER, North American index fossils (1910) p. 352—BASSLER, Zittel-Eastman Textb. Pal., ed. 2 (1913) p. 738; U. S. Nat. Mus., Bull. 92 (1915) p. 198—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 311.

**Ceratopsis chambersi** (Miller)

Ordovician

*Beyrichia chambersi* MILLER, Cincinnati Quart. Jour. Sci., 1 (1874) p. 234, text fig. 27; North American geol. pal. (1889) p. 534, text fig. 975.

*Tetradella chambersi* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112.

*Ceratopsis chambersi* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 676, pl. 46, figs. 19-22—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 39, figs. 13-16—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1042, pl. 53, figs. 1, 1a.—GRABAU and SHIMER, North American index fossils (1910) p. 352, text fig. 1660 a-c—RUEDEMANN, N. Y. State Mus., Bull. 162 (1912) p. 121, pl. 9, fig. 15—BASSLER, Zittel-Eastman Textb. Pal. (1913) p. 738, fig. 1425k; U. S. Nat. Mus., Bull. 92 (1915) p. 199; Md. Geol. Surv., Cambrian-Ordovician vol. (1919) p. 169, 182, 369, pl. 55, fig. 34—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 310, fig. 20 (fig. 5)—RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 143.

Black River and Trenton: Minneapolis, etc., Minn.

Cincinnati: Cincinnati, Ohio, and vicinity (Eden); Albany County, N. Y. (Indian Ladder).

Plesiotypes.—U.S.N.M. No. 41506.

**Ceratopsis chambersi robusta** Ulrich = **C. robusta**

**Ceratopsis cornuta** (Krause)

Ordovician

*Ctenobolbina rostrata cornuta* KRAUSE, *Deutsch. Geol. Ges., Zeitschr.*, **48** (1896) p. 937, pl. 25, fig. 3.

*Ceratopsis cornuta* BONNEMA, *Mitt. Min. Geol. Inst. Groningen*, **2** (1909) p. 41, pl. 6, fig. 9.

Holland (Drift): Kuckers, Esthonia (Kuckers-C.2).  
Topotypes.—U.S.N.M. No. 58382.

**Ceratopsis duftonensis** Reed

Ordovician

*Ceratopsis duftonensis* REED, *Geol. Mag.*, dec. 5, **7** (1910) p. 217, pl. 17, figs. 9–11.

Dufton shales: Near Melmerby, England.

**Ceratopsis hastata** (Barrande)

Ordovician (D3–D5)

*Beyrichia hastata* BARRANDE, *Syst. Sil. Centre Bohême*, **1**, suppl. (1872) p. 499, pl. 26, fig. 4.

*Ceratopsis hastata* ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 308 (gen. ref.)

Near Trubin, etc., Bohemia.

**Ceratopsis intermedia** Ulrich

Ordovician

*Ceratopsis intermedia* ULRICH, *Geol. Minn.*, **3**, pt. 2 (1894) p. 676—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 308—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 99.

Trenton (Cynthiana): Covington, etc., Ky.  
Cotypes.—U.S.N.M. No. 41500.

**Ceratopsis oculifera** (Hall)

Ordovician

*Beyrichia oculifera* HALL, *Descr. new species fossils Cincinnati, Ohio* (1871) p. 8, pl. 4, figs. 9, 10; *N. Y. State Mus. Nat. Hist.*, 24th Ann. Rept. (1872) p. 232, pl. 8, figs. 9, 10—MILLER, *Cincinnati Quart. Jour. Sci.*, **1** (1874) p. 118—HALL and WHITFIELD, *Geol. Surv. Ohio, Pal.* **2** (1875) p. 103, pl. 4, figs. 9, 10—NICHOLSON and LYDEKKER, *Man. Pal.*, **1** (1879) p. 507, fig. 361 I—KIESOW, *Deutsch. Geol. Ges., Zeitschr.*, **40** (1888) p. 2, 3—KRAUSE, *Sitz. Ber. Ges. Nat. Freunde Berlin* (1889) p. 12—JONES, *Geol. Soc. London, Quart. Jour.*, **46** (1890) p. 21, pl. 4, figs. 19, 20.

*Tetradella oculifera* ULRICH, *Cincinnati Soc. Nat. Hist., Jour.*, **13** (1890) p. 113, text fig. 1.

*Ceratopsis oculifera* ULRICH, *Geol. Minn.*, **3**, pt. 2 (1894) p. 676—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) pl. 39, figs. 19, 20—CUMINGS, *Geol. Nat. Hist. Res. Ind.*, 32nd Ann. Rept. (1908) p. 1044, pl. 53, figs. 3, 3a—GRABAU and SHIMER, *North American index fossils* (1910) p. 352, text fig. 1662—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 199—ULRICH and BASSLER, *Md. Geol. Surv., Silurian vol.* (1923) p. 311—FOERSTE, *Geol. Surv. Canada, Mem.* **138** (1924) p. 25, pl. 45, figs. 1a, b—RUEDEMANN, *N. Y. State Mus., Bull.* **272** (1926) p. 143, pl. 23, figs. 17–20.

Maysville: Cincinnati, Ohio, and vicinity (Corryville); St. Hilaire, Quebec; Pulaski, N. Y. (Pulaski).  
Topotypes.—U.S.N.M. No. 41404.

**Ceratopsis ? quadrifida** Jones

Ordovician

*Beyrichia quadrifida* JONES, *Geol. Surv. Canada, Contr. Canada Micro-Pal.*, pt. 3 (1891) p. 66, pl. 11, figs. 9a, b.

*Ceratopsis? quadrifida* ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 308, pl. 39, figs. 21, 22—REED, *Geol. Mag.*, dec. 5, **7** (1910) p. 218—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 199.

Trenton: Lorette Falls, Quebec.

**Ceratopsis robusta** (Ulrich)

Silurian

*Beyrichia chambersi* HALL and WHITFIELD, *Geol. Surv. Ohio, Pal.*, **2** (1875) p. 104, pl. 4, figs. 11, 12.

*Ceratopsis chambersi robusta* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 677, text fig. 50—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1043, pl. 53, figs. 2, 2a.

*Ceratopsis robusta* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 308, pl. 39, figs. 17, 18—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 199.

Richmond: Waynesville, etc., Ohio and Indiana (Waynesville-Elkhorn); near Spring Valley, Minn. Holotype.—U.S.N.M. No. 41335.

**Ceratopsis rostrata** (Krause) Ordovician

*Beyrichia* (*Ctenobolbina*) *rostrata*, KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 395, pl. 21, fig. 2—KOKEN, Die Leitfossilien (1896) p. 383.

*Tetradella rostrata* ANDERSSON, Öfv. Kongl. Vet.-Akad. Förh., no. 2 (1893) p. 127.

*Beyrichia rostrata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 779, pl. 58, fig. 27.

*Ctenobolbina rostrata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 937, pl. 25, figs. 1, 2.

*Ceratopsis rostrata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 308.

Drift: Müggellheim, etc., Neue Brandenburg, North Germany (Macroura and *Ceratopsis rostrata* limestones); Holland.

Topotypes.—U.S.N.M. No. 83018.

**Ceratopsis schmidti** Bonnema Ordovician

*Ceratopsis schmidti* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 39, pl. 6, figs. 1-6—KUMMEROW, Preuss. Geol. Landes., Jahrb., 44 (1923-1924) p. 441.

Kuckers, Esthonia (Kuckers-C2); Northern Germany (Drift-Kuckers).

Topotypes.—U.S.N.M. No. 58381.

**CHILOBOLBINA** Ulrich and Bassler (Primitiidae—Eurychilinae)

Genotype: *Primitia dentifera* Bonnema

*Chilobolbina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 304—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 32.

**Chilobolbina billingsi** (Jones) Silurian

*Primitia billingsii* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 547, pl. 21, fig. 10—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 388.

*Chilobolbina billingsi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 518, pl. 37, figs. 4-6—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 515; *in* Twenhofel, Geol. Surv. Canada, Mem. 154 (1927) p. 344.

Anticostian (Gun River and Jupiter River): Jupiter River, etc., Anticosti

Clinton: 2 miles west of Cabot Head, Lake Huron (Dyer Bay); near Cumberland, Md. (*Mastigobolbina lata* zone).

Plesiotypes.—U.S.N.M. No. 82419.

**Chilobolbina dentifera** (Bonnema) Ordovician

*Primitia dentifera* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 25, pl. 2, figs. 1-5.

*Chilobolbina dentifera* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 303, 516, figs. 16, 1, 2—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 441—BONNEMA, Zeitsch. Geschiebeforschung, 9, no. 1 (1933) p. 36, figs. 34, 35.

Kuckers, Esthonia (Kuckers-C2); Northern Germany (Drift-Orthoceras limestone).

Topotypes.—U.S.N.M. No. 58376.

**Chilobolbina hartfordensis** Ulrich and Bassler Silurian

*Chilobolbina hartfordensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 520, pl. 37, figs. 7-9.

Clinton (*Mastigobolbina lata* zone): New Hartford, N. Y.

Cotypes.—U.S.N.M. No. 82422.

**Chilobolbina kapteyni** (Bonnema) Ordovician

*Primitia kapteyni* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 29, pl. 6, fig. 31—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 440.  
*Chilobolbina kapteyni* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 516.

Kuckers, Esthonia (Kuckers-C2); Northern Germany (drift).

**Chilobolbina kuckersiana** (Bonnema) Ordovician

*Primitia kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 27, pl. 5, figs. 19–21; pl. 3, fig. 25—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 440.  
*Chilobolbina kuckersiana* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 516 (gen. ref.).

*Eurychilina kuckersiana* KUMMEROW, Centr. Min., Geol., Pal., Jahr., 1930, Abt. B., no. 1 (1933) p. 49, fig. 8.

Kuckers, Esthonia (Kuckers-C2); Northern Germany (drift).

**Chilobolbina punctata** Ulrich and Bassler Silurian

*Chilobolbina punctata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 516, pl. 37, figs. 10–12—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 344.

Clinton (Dyer Bay): 2 miles west of Cabot Head, Lake Huron, and north of Cobalt, Ontario.  
 Cotypes.—U.S.N.M. No. 82423.

**Chilobolbina punctata brevis** Ulrich and Bassler Silurian

*Chilobolbina punctata brevis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 518, pl. 37, figs. 13, 14.

Clinton (*Mastigobolbina lata* zone): Cumberland, Md.  
 Cotypes.—U.S.N.M. No. 82425.

**Chilobolbina rhenana** (Paeckelman) Upper Devonian

*Eurichilina rhenana* PAECKELMANN, Preuss. Geol. Landes., Abh., n. s., 70 (1913) p. 187, pl. 3, fig. 3.

*Chilobolbina rhenana* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 32, pl. 2, fig. 20a.

Ullendahl, Slate Mountains, Germany.

**COELOCHILINA** Ulrich and Bassler (Primitiidae-Eurychiliniinae)

Genotype: *Eurychilina aequalis* Ulrich

*Coelochilina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 303.

**Coelochilina aequalis** (Ulrich) Ordovician

*Eurychilina aequalis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 129, pl. 9, figs. 5–8—GRABAU and SHIMER, North American index fossils (1910) p. 348, text fig. 1657 q–s—BASSLER, U. S. Nat. Mus., Bull., 92 (1915) p. 515.

*Coelochilina aequalis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 521 (gen. ref.).

Stones River: Bottom of gorge, High Bridge, Ky. (Ridley); Lebanon, Tenn. (Lebanon).  
 Cotypes.—U.S.N.M. No. 41639.

**Coelochilina dianthus** (Ruedemann) Ordovician

*Eurychilina dianthus* RUEDEMANN, N. Y. State Mus., Bull. 49 (1901–1902) p. 78, pl. 5, figs. 1, 2, 8, 9—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 515.

*Coelochilina dianthus* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 521 (gen. ref.).

Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.

**Coelochilina distans** (Krause) Ordovician

*Primitia distans* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 6, pl. 1, fig. 3; *ibid.*, 43 (1891) p. 516; *ibid.*, 44 (1892) p. 386, pl. 21, fig. 16; *ibid.*, 48 (1896) p. 933, pl. 25, figs. 7, 8—ANDERSSON, Ofv. Kongl. Vet.-Akad. Förh., no. 2 (1893) p. 126—KOKEN, Die Leitfossilien (1896) p. 381—JONES, Johns Hopkins Univ., Circ. no. 3 (1905) p. 31—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 409, 440.

*Coelochilina distans* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 421 (gen. ref.).

*Platytilina distans* KUMMEROW, Cent. Min., Geol., Pal., Jahr., 1933 (1933) p. 44, fig. 2.

Drift (Algal, Leptaena and Ostsee limestones): Müggelheim, Mark Brandenburg, etc., Germany; Holland.  
Topotypes.—U.S.N.M. No. 82345.

**Coelochilina jerseyensis** (Weller) Ordovician

*Eurychilina jerseyensis* WELLER, Geol. Surv. N. J., Pal. 3, (1903) p. 210, pl. 13, fig. 17—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 516.

Trenton: 2 miles southeast of Newton, N. J.

**Coelochilina oculifera** (Weller) Ordovician

*Eurychilina oculifera* WELLER, Geol. Surv. N. J., 3 (1903) p. 310, pl. 13, fig. 16—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 516.

*Coelochilina oculifera* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 521 (gen. ref.).

Trenton: 2 miles southeast of Newton, N. J.

**Coelochilina solida** (Ruedemann) Ordovician

*Eurychilina ? solida* RUEDEMANN, N. Y. State Mus., Bull. 49 (1901) p. 77, pl. 5, fig. 18—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 517.

*Coelochilina solida* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 521 (gen. ref.).

Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.

**Coelochilina striatomarginata** (Miller) Early Silurian

*Beyrichia striato-marginatus* MILLER, Cincinnati Quart. Jour. Sci., 1 (1874) p. 233, text fig. 26; North American geol. pal. (1889) p. 535, text fig. 979—DWIGHT, Vassar Bros. Inst., Tr., 5 (1890) p. 76.

*Eurychilina striatomarginata* ULRICH, Geol. Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 2 (1889) p. 52; Cincinnati Soc. Nat. Hist., Jour., 13, pt. 1 (1890) p. 130, pl. 9, fig. 14; Geol. Minn., 3, pt. 2 (1894) p. 659—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1046, pl. 53, fig. 9—GRABAU and SHIMER, North American index fossils (1910) p. 348, text fig. 1657t—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 517—FOERSTE, Geol. Surv. Canada, Mem. 138 (1924) p. 253, pl. 46, fig. 4.

*Coelochilina striatomarginata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 521 (gen. ref.).

Richmond (Whitewater-Saluda): 3 miles south of Osgood, etc., Ind.; Kentucky; Canada.

**Coelochilina subaequata** (Ulrich) Ordovician

*Eurychilina ? subaequata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 663, pl. 45, figs. 7-9—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 303—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 517.

*Coelochilina subaequata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 521 (gen. ref.).

Black River (Decorah): St. Paul, Minn.  
Holotype.—U.S.N.M. No. 41628.



**COLPOS** Moberg

Genotype: *C. insignis* Moberg (ostracode?)

*Colpos* MOBERG, Sver. Geol. Unders., ser. C, no. 156 (1895) p. 12.

**Colpos insignis** Moberg

Silurian

*Colpos insignis* MOBERG, Sver. Geol. Unders., ser. C, no. 156 (1895) p. 12, pl., fig. 8—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920–1921) p. 86, 98.

Scania, Sweden (Posidonamyskiffer); Island of Gotland (Middle Gotlandian).

**CONDRACYPRIS** Roth (Cypridae)

Genotype: *C. binoda* Roth

*Condracypris* ROTH, Jour. Pal., 3, no. 4 (1929) p. 370.

**Condracypris binoda** Roth

Devonian

*Condracypris binoda* ROTH, Jour. Pal., 3, no. 4 (1929) p. 370, pl. 38, figs. 28a–c.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80667.

**Condracypris simplex** Roth

Devonian

*Condracypris simplex* ROTH, Jour. Pal., 3, no. 4 (1929) p. 371, pl. 38, figs. 29a–c.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80666.

**COOPERIA** Tolmachoff (Beecherellidae)

Genotype: *C. granum* Tolmachoff

*Cooperia* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898–1902, no. 38 (1926) p. 34.

**Cooperia granum** Tolmachoff

Devonian (Db)

*Cooperia granum* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898–1902, no. 38 (1926) p. 35, pl. 1, figs. 43–45.

Ostre Borgen, Ellesmereland, Arctic America.

**CORNIGELLA** Warthin (Beyrichiidae)

Genotype: *C. minuta* Warthin

*Cornigella* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 59—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 253—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 72.

**Cornigella binoda** Kellett

Permian

*Cornigella binoda* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 73, pl. 13, figs. 24–26.

Riley County (Cottonwood limestone), Geary County (Wreford formation) and Fort Riley, Kan (Fort Riley limestone).  
Holotype.—U.S.N.M. No. 85433.

**Cornigella longispina** Coryell and Sample

Pennsylvanian

*Cornigella longispina* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 254, pl. 24, fig. 12.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Cornigella minuta** Warthin

Pennsylvanian

*Cornigella minuta* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 59, pl. 4, fig. 7—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 253, pl. 24, fig. 6.

Two miles west of Steedman, Okla. (Wetumka-Holdenville); 3 miles south of Mineral Wells, Texas (East Mountain shale).

**Cornigella parva** Knight

Permian

*Cornigella parva* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 73, pl. 13, figs. 33, 34.Fort Riley (Fort Riley limestone) and 17 miles east of Wichita, Kan. (Winfield formation).  
Holotype.—U.S.N.M. No. 85432.**Cornigella pushmatahensis** Harlton

Pennsylvanian

*Cornigella pushmatahensis* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 19, pl. 7, fig. 2.Johns Valley shale: Southern Oklahoma.  
Holotype.—U.S.N.M. No. 85543.**Cornigella tuberculospinosa** (Jones and Kirkby)

Carboniferous

*Beyrichia tuberculo-spinosa* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 258, pl. 8, figs. 7, 8; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 154; *ibid.*, 35 (1908) p. 321, pl. 42, figs. 21, 22. *Ulrichia tuberculo-spinosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 203, 204—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490. *Cornigella tuberculospinosa* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 59. *Hollina tuberculospinosa* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 361.

Lanarkshire, etc., East and West Scotland (Lower and Upper limestone): Northumberland, England.

**CORYELLA** Harris and Lalicker = **JONESINA****Coryella stovalli** Harris and Lalicker = **Jonesina bolliiformis****CRASPEDOBOLBINA** Kummerow (Primitiidae-Eurychiliniinae)Genotype: *C. dietrichi* Kummerow*Craspedobolbina* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 427.**Craspedobolbina dietrichi** Kummerow

Ordovician

*Craspedobolbina dietrichi* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 427, pl. 20, figs. 27, 28.Drift (Leptaena limestone) = Brandenburg, Germany.  
Topotype.—U.S.N.M. No. 82348.**CRATERELLINA** Ulrich and Bassler = **THLIPSURA****Craterellina moorei** Roth = **Thlipsurella moorei****Craterellina oblonga** Ulrich and Bassler = **Thlipsurella oblonga****Craterellina robusta** Ulrich and Bassler = **Thlipsura robusta****CTENOBOLBINA** Ulrich (Beyrichiidae)Genotype: *Beyrichia ciliata* Emmons*Ctenobolbina* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 108—MILLER, North American geol. pal. (1892) p. 706, appendix 1—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 673—GRABAU, Buffalo Soc. Nat. Sci., Bull. 6 (1899) p. 309—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 18 (1900) p. 180—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 309—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1040—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 43—GRABAU and SHIMER, North American index fossils (1910) p. 353—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 297—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 311—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 357.

**Ctenobolbina alata** Ulrich

Ordovician

*Ctenobolbina alata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 110, pl. 7, figs. 4a-c—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, text fig. 6, pl. 40, figs. 6-8—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 297.

Cincinnatian (Eden-McMicken): Cincinnati, Ohio, and vicinity.  
Cotypes.—U.S.N.M. No. 41489.

**Ctenobolbina antespinoza** Ulrich = **Hollinella antespinoza**

**Ctenobolbina armata** Ulrich = **Hollina armata**

**Ctenobolbina auricularis** (Jones)

Silurian

*Bollia auricularis* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 408, pl. 13, fig. 10;—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 150—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

*Haliella* ? *auricularis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 185 (gen. ref.).

*Ctenobolbina auricularis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 311, pl. 40, fig. 25-27.

Ironbridge, Severn, England (Wenlock); Mulde, Gotland (Middle Gotlandian).  
Topotypes.—U.S.N.M. No. 83014.

**Ctenobolbina barrandiana** (Jones)

Ordovician

*Beyrichia barrandiana* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 170, pl. 6, fig. 17—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3 ed. 2, appendix (1881) p. 390, 419.

*Primitia barrandiana* SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 291.

Lower Llandeilo: Mynydd, Beddgelert, North Wales.

**Ctenobolbina bispinosa** Ulrich

Ordovician

*Ctenobolbina bispinosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 110, pl. 7, fig. 6—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 40, fig. 9—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 297.

Cincinnatian (Eden-McMicken): Cincinnati, Ohio, and vicinity.  
Holotype.—U.S.N.M. No. 41490.

**Ctenobolbina carinata** (Krause)

Ordovician

*Beyrichia (Tetradella) carinata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 394, pl. 21, fig. 9.

*Tetradella carinata* ANDERSSON, Öfv. Kongl. Vet.-Akad. Förh., no. 2 (1893) p. 127—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.)—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 937.

*Ctenobolbina carinata* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 43, pl. 2, figs. 15-25.

Müggelheim, Northern Germany (Drift, *Ceratopsis rostrata* limestone); Kuckers, Esthonia (Kuckers-C2).

**Ctenobolbina cavimarginata** Ulrich = **Hollina cavimarginata**

**Ctenobolbina ciliata** (Emmons)

Ordovician

*Beyrichia ciliata* EMMONS, Am. Geol., 1, pt. 2 (1855) p. 219, text fig. 74c—MILLER, Cincinnati Quart. Jour., Sci., 2 (1875) p. 351—LESLEY, Geol. Surv. Pa., Rept., P 4 (1889) p. 89, text fig.—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 19 pl. 3, figs. 12-16; pl. 4, figs. 16-18.

*Beyrichia tumifrons* HALL, Descr. new species fossils Cincinnati, Ohio (1871) p. 7, pl. 4, fig. 11; N. Y. State Mus. Nat. Hist., 24th Ann. Rept. (1872) p. 231, pl. 8, fig. 11—MILLER, Cincinnati Quart. Jour. Sci., 1 (1874) p. 119, 354—HALL and WHITFIELD, Geol. Surv. Ohio, Rept., Pal. 2 (1875) p. 102, pl. 4, fig. 8.

*Ctenobolbina ciliata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 108, pl. 7, figs. 1a, b—ANDERSSON, Öfv. Kon. Vet.-Akad. Förh., no. 2 (1893) p. 128—

RUEDEMANN, N. Y. State Mus., Bull. 42, 8 (1901) p. 575, pl. 2, figs. 8, 9—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, text fig. 7, pl. 40, figs. 1, 2—GRABAU and SHIMER, North American index fossils (1910) p. 353, text fig. 1660 t, t'—WADE, Geol. Soc. London, Quart. Jour., 67 (1911) p. 452—BASSLER in Zittel-Eastman Textb. Pal. (1913) p. 738, fig. 1425e; U. S. Nat. Mus., Bull. 92 (1915) p. 297—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 310, 311, text fig. 20 (fig. 4)—FOERSTE, Geol. Surv. Canada, Mem. 138 (1924) p. 252, pl. 45, fig. 2—KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 419.

Cincinnati, Ohio, and vicinity (Cincinnati Eden); Green Island, Albany County, N. Y. (Trenton Snake Hill); ?Llandovery of England.  
Plesiotypes.—U.S.N.M. No. 41492.

**Ctenobolbina ciliata cornuta** Ruedemann Ordovician  
*Ctenobolbina ciliata cornuta* RUEDEMANN, N. Y. State Mus., Bull. 42, 8 (1901) p. 575, pl. 2, figs. 5-7—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 298.

Trenton (Snake Hill): Mechanicsville, Saratoga County and Green Island, Albany County, N. Y.

**Ctenobolbina ciliata curta** Ulrich = **C. curta**

**Ctenobolbina ciliata emaciata** Ulrich = **C. emaciata**

**Ctenobolbina ciliata hammelli** Cumings = **C. hammelli**

**Ctenobolbina ciliata parva** Kirk Ordovician  
*Ctenobolbina ciliata parva* KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 418, pl. figs. 4a-c.

Trenton (Catheys): Nashville, Tenn.

**Ctenobolbina ? cornuta** Ulrich Devonian  
*Ctenobolbina (?) cornuta* ULRICH, U. S. Geol. Surv., Prof. Pap. 89 (1916) p. 239, pl. 27, figs. 17-19.

Chapman sandstone: Chapman township, Aroostook County, Me.  
Holotype.—U.S.N.M. No. 83956.

**Ctenobolbina crassa** (Ulrich) Ordovician  
*Jonesella crassa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 123, pl. 7, figs. 11a-c.

*Ctenobolbina crassa* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 675, pl. 44, figs. 12-16—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 40, figs. 15, 16—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 298.

Black River (Decorah): Minneapolis, Cannon Falls, etc., Minn.  
Cotypes.—U.S.N.M. No. 41497.

**Ctenobolbina curta** Ulrich Ordovician  
*Ctenobolbina ciliata curta* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 109, pl. 7, fig. 2—RUEDEMANN, N. Y. State Mus., Bull. 42, 8 (1901) p. 575.  
*Ctenobolbina curta* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 310—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 298.

Cincinnati (Eden-McMicken): Cincinnati, Ohio.

**Ctenobolbina ? denticula** Ulrich and Bassler Devonian  
*Ctenobolbina ? denticula* ULRICH and BASSLER, Md. Geol. Surv. Lower Devonian vol. (1913) p. 524, pl. 96, figs. 6-9—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 298.

Helderbergian (Keyser): Cumberland, Md.  
Cotypes.—U.S.N.M. No. 53307.

**Ctenobolbina diensti** Kummerow Silurian  
*Ctenobolbina diensti* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 431, pl. 21, fig. 8; Centr. Min., Geol., Pal., Jahrb. (1933) p. 46, fig. 5.

Drift (Graptolite beds): Brandenburg, Germany.

**Ctenobolbina ? dubia** Ulrich and Bassler

Devonian

*Ctenobolbina ? dubia* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 525, pl. 96, figs. 10-12—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 298.

Helderbergian (Keyser): Cumberland, Md.  
Holotype.—U.S.N.M. No. 53277.

**Ctenobolbina duryi** (Miller)

Ordovician

*Beyrichia duryi* MILLER, Cincinnati Quart. Jour. Sci., **1** (1874) p. 232, text figs. 24, 25; North American geol. pal. (1889) p. 534, text figs. 976, 977.

*Ctenobolbina duryi* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1890) p. 108—ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 310—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 298.

Maysville (McMillan): Cincinnati, Ohio, and vicinity.  
Topotypes.—U.S.N.M. No. 41478.

**Ctenobolbina emaciata** (Ulrich)

Silurian

*Ctenobolbina ciliata emaciata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1890) p. 109, pl. 7, figs. 3a-c.

*Ctenobolbina emaciata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 310, pl. 40, figs. 3-5—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 299.

Richmond (Maquoketa): Savannah, Ill.  
Holotype.—U.S.N.M. No. 41325.

**Ctenobolbina fulcrata** Ulrich

Ordovician

*Ctenobolbina fulcrata* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 674, pl. 44, figs. 8-11—ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 297, fig. 40; pl. 40, figs. 13, 14—GRABAU and SHIMER, North American index fossils (1910) p. 353, text fig. 1660 r, s—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 299.

Black River (Decorah): St. Paul, Minn.  
Cotypes.—U.S.N.M. No. 41322.

**Ctenobolbina granosa** Ulrich

Devonian

*Ctenobolbina granosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **19** (1900) p. 183, pl. 8, fig. 12—ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) pl. 40, fig. 12—GRABAU and SHIMER, North American index fossils (1910) p. 353, text fig. 1658.

Helderbergian (New Scotland): Albany County, N. Y.  
Holotype.—U.S.N.M. No. 41324.

**Ctenobolbina guillieri** (Tromelin)

Ordovician

*Beyrichia guillieri* TROMELIN, Soc. Agr., Sci., Arts Sarthe, Bull., **21** (ser. 2, 13) (1871) p. 634—TROMELIN and LEBESCONTE, Assoc. Franc. Sci., C. R., 4th sess., Nantes (1875-1876) p. 623 footnote—JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 554, pl. 21, fig. 2.

*Ctenobolbina guillieri* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 310.

Brittany, France.

**Ctenobolbina hammelli** (Miller and Faber)

Early Silurian

*Beyrichia hammelli* MILLER and FABER, Cincinnati Soc. Nat. Hist., Jour., **17** (1894) p. 157, pl. 8, fig. 26—MILLER, North American geol. pal., appendix 2 (1897) p. 787, fig. 1458.

*Ctenobolbina hammelli* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 310—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 299; Geol. Surv. Canada, Mem. **154** (1927) p. 343.

*Ctenobolbina ciliata hammelli* CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1045, pl. 53, fig. 6.

Richmond: Versailles, etc., Ind.; Lebanon, etc., Ohio (Arnheim, Waynesville); Dry Point, Anticosti (English Head).  
Topotypes.—U.S.N.M. No. 83016.

**Ctenobolbina impressa** (Steusloff)

Ordovician

*Entomis impressa* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., **46** (1894) p. 777, pl. 58, fig. 19—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 406.

*Ctenobolbina impressa* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 297, fig. 41, p. 310, pl. 40, fig. 24.

Drift (Orthoceras limestone): Neue-Brandenburg, Germany.

**Ctenobolbina informis** Ulrich = **Hollina informis****Ctenobolbina insolens** Ulrich = **Hollina insolens****Ctenobolbina kuckersiana** Bonnema = **C. oblonga kuckersiana****Ctenobolbina latisulcata** (Steusloff)

Ordovician

*Entomis latisulcata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., **46** (1894) p. 777, pl. 58, fig. 18—KRAUSE, *ibid.*, **48** (1896) p. 936—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 406.

Drift (Orthoceras limestone): Neue-Brandenburg, Germany.

**Ctenobolbina loculata** Ulrich

Mississippian

*Ctenobolbina loculata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **19** (1900) p. 184, pl. 8, figs. 13, 14—ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 310, pl. 40, figs. 30, 31—GRABAU and SHIMER North American index fossils (1910) p. 354, fig. 1658, w—BASSLER, Tenn. State Geol. Surv., Bull. **38** (1932) pl. 27, figs. 7, 8—LATHAM, Roy. Soc. Edinburgh, Tr., **57**, pt. 2 (1932) p. 358, text fig. 6.

Mt. Pleasant, Tenn. (Ridgetop); Louisiana, Missouri (Louisiana); Scotland (Lower limestone).  
Holotype and plesiotype.—U.S.N.M. No. 41323.

**Ctenobolbina major** (Krause)

Ordovician

*Bollia major* KRAUSE, Deutsch. Geol. Ges., Zeitschr., **44** (1892) p. 392, pl. 21, fig. 18—ANDERSSON, Öfv. Kong. Vet.-Akad. Förh., no. 2 (1893) p. 127, 128—KOKEN, Die Leitfossilien (1896) p. 383—KRAUSE, Deutsch. Geol. Ges., Zeitschr., **48** (1896) p. 934.

*Ctenobolbina major* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 310, pl. 40, fig. 29.

Drift (Ceratopsis rostrata limestone): Müggelheim, Northern Germany.

**Ctenobolbina minima** Ulrich

Devonian

*Ctenobolbina minima* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1891) p. 188, pl. 15, fig. 7—GRABAU, Buffalo Soc. Nat. Sci., Bull. **6** (1899) p. 309, text fig. 252—ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) pl. 40, fig. 23—GRABAU and SHIMER, North American index fossils (1910) p. 354, text fig. 1658v.

Hamilton (Ludlowville): Eighteen Mile Creek, N. Y.  
Holotype.—U.S.N.M. No. 41370.

**Ctenobolbina minor** (Krause)

Ordovician

*Bollia minor* KRAUSE, Deutsch. Geol. Ges., Zeitschr., **44** (1892) p. 391, pl. 21, fig. 15—ANDERSSON, Öfv. Kong. Vet.-Akad. Förh., no. 2 (1893) p. 127, 128—KOKEN, Die Leitfossilien (1896) p. 383—CHAPMAN, Geol. Surv. New South Wales, Rec., **9**, pt. 2 (1920) p. 100.

*Ctenobolbina minor* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **35** (1908) p. 310—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 441.

Drift (Backsteinkalk and Ceratopsis rostrata limestone): Müggelheim, Northern Germany.  
Topotypes.—U.S.N.M. No. 83017.

**Ctenobolbina minor kuckersiana** (Bonnema)

Ordovician

*Bollia minor kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, **2** (1909) p. 58, pl. 4, figs. 1-3—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 410, 413.

Kuckers (C2): Kuckers, Esthonia.

- Ctenobolbina minor robusta** (Bonnema) Ordovician  
*Bolbia minor robusta* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 60, pl. 4, figs. 5-8.  
 Kuckers (C2): Kuckers, Esthonia.
- Ctenobolbina obliqua** Ulrich Ordovician  
*Ctenobolbina obliqua* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 19 (1900) p. 180, pl. 8, fig. 4—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 40, fig. 10—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 299.  
 Trenton (Prosser): Kenyon, Minn.  
 Holotype.—U.S.N.M. No. 41328.
- Ctenobolbina oblonga** (Steusloff) Ordovician  
*Entomis oblonga* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 780, pl. 58, fig. 17—KRAUSE, *ibid.*, 48 (1896) p. 935, pl. 25, figs. 13, 14.  
*Ctenobolbina oblonga* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 310, pl. 40, fig. 11—KUMMEROW, Jahrb. Preuss. Geol. Landes., 1923 (1924) p. 407.  
 Drift (Macroura limestone): Neue-Brandenburg, Germany; Holland.
- Ctenobolbina oblonga kuckersiana** (Bonnema) Ordovician  
*Entomis oblonga kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 67, pl. 5, figs. 6-9.  
*Ctenobolbina kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 46, pl. 4, figs. 19-25—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 407.  
 Kuckers, Esthonia (Kuckers-C2); Northern Germany (Drift—Backsteinkalk).  
 Topotypes.—U.S.N.M. No. 83012.
- Ctenobolbina ornata** (Krause) Ordovician  
*Bolbia minor ornata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 936, pl. 25, fig. 5.  
*Bolbia ornata* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 61, pl. 4, fig. 4.  
*Ctenobolbina ornata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 441.  
 Holland; Northern Germany (Drift—Backsteinkalk); Kuckers, Esthonia (Kuckers-C2).
- Ctenobolbina ornata latimarginata** (Bonnema) Ordovician  
*Bolbia ornata latimarginata* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 62, pl. 4, figs. 9-11.  
*Ctenobolbina ornata latimarginata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 44.  
 Kuckers, Esthonia (Kuckers-C2); Northern Germany (Drift—Kuckers).
- Ctenobolbina ornata** (Krause) Ordovician  
*Bolbia minor ornata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 396, pl. 25, fig. 5.  
*Bolbia ornata* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 61, pl. 4, fig. 4.  
*Ctenobolbina ornata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 441.  
 Holland; Northern Germany (Drift—Backsteinkalk); Kuckers, Esthonia (Kuckers-C2).
- Ctenobolbina ornata latimarginata** (Bonnema) Ordovician  
*Bolbia ornata latimarginata* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 62, pl. 4, figs. 9-11.  
*Ctenobolbina ornata latimarginata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 44.  
 Kuckers, Esthonia (Kuckers-C2); Northern Germany (Drift—Kuckers).

**Ctenobolbina papillosa** Ulrich

Devonian

*Ctenobolbina papillosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 186, pl. 15, figs. 8a-c—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 174 (loc. occ.)—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 310, pl. 40, figs. 21, 22.

Falls of the Ohio, Louisville, Ky. (Onondaga); Canandaigua Lake, N. Y. (Hamilton).  
Holotype.—U.S.N.M. No. 41321.

**Ctenobolbina punctata** Ulrich

Silurian

*Ctenobolbina punctata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 186, pl. 12, figs. 5a-5c—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 316, pl. 40, figs. 19, 20—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 299.

Clinton (Rochester): Lockport, etc., N. Y.; Grimsby, Ontario.  
Holotype.—U.S.N.M. No. 41578.

**Ctenobolbina rara** Troedsson

Silurian

*Ctenobolbina rara* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15 (1919) p. 54, 94, pl. 2, fig. 18.

Dalmanites beds: Röstånga, Sweden.

**Ctenobolbina reversa** Tolmachoff

Devonian

*Ctenobolbina reversa* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898-1902, no. 38 (1926) p. 31, pl. 1, figs. 28, 29.

Ostre Borgen, Ellesmereland, Arctic America.

**Ctenobolbina rossica** (Bonnama)

Ordovician

*Primitia rossica* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 26, pl. 6, fig. 29—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 440; Centr. Min., Geol., Pal., Jahrb., 1933, Abt. B, no. 1 (1933) p. 48, fig. 6.

Kuckers, Esthonia (Kuckers-C2); North Germany (Drift—Backsteinkalk).

**Ctenobolbina rostrata** Krause = **Ceratopsis rostrata****Ctenobolbina rostrata cornuta** Krause = **Ceratopsis cornuta****Ctenobolbina sexpapillosa** Troedsson

Silurian

*Ctenobolbina sexpapillosa* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15 (1919) p. 53, 93, pl. 2, figs. 16, 17.

Dalmanites beds: Röstånga, Scania, Sweden.

**Ctenobolbina sigma** (Krause)

Ordovician

*Entomis sigma* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 12, pl. 1, figs. 11-13; *ibid.*, 43 (1891) p. 508—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 3, pt. 3 (1893-1894) p. 73, 87—STEUSSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 770—KRAUSE, *ibid.*, 43 (1896) p. 935—KOKEN, Die Leitfossilien (1896) p. 39, 382, text fig. 26E—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 310—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 409, 441.

Drift (Orthoceras and gray limestone): Mark Brandenburg, Germany; Holland.  
Topotypes.—U.S.N.M. No. 83040.

**Ctenobolbina sigma antiquata** (Krause)

Ordovician

*Entomis sigma antiquata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518.

Drift: Mark Brandenburg, Germany.

**Ctenobolbina sigma ornata** (Krause)

Ordovician

*Entomis sigma ornata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 509, pl. 32, fig. 19.

Drift: Northern Germany.



**Ctenobolbina spiculosa** Ulrich = **Hollina spiculosa**

**Ctenobolbina subcrassa** Ulrich

Ordovician

*Ctenobolbina subcrassa* CINCINNATI Soc. Nat. Hist., Jour., 19 (1900) p. 180, pl. 8, figs. 1-3—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 293, fig. 27; p. 297, fig. 42—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 299.

Stones River (Ridley): Bottom of gorge, High Bridge, Ky.  
Cotypes.—U.S.N.M. No. 41316.

**Ctenobolbina subrotunda** Ruedemann

Ordovician

*Ctenobolbina subrotunda* RUEDEMANN, N. Y. State Mus., Bull. 42, 8 (1901) p. 576, pl. 2, figs. 1-4—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 299.

Trenton (Snake Hill): Port Schuyler, N. Y.

**Ctenobolbina tumida** Ulrich = **Drepanella tumida**

**Ctenobolbina umbonata** (Steusloff)

Ordovician

*Entomis umbonata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 778, pl. 58, fig. 20—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 406.

*Ctenobolbina umbonata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 297, fig. 39, p. 310, pl. 40, fig. 28.

Drift (Orthoceras limestone): Neue-Brandenburg, Germany.

**Ctenobolbina variolaris** (Bonnema)

Ordovician

*Entomis variolaris* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 68, pl. 4, figs. 10, 11.

Kuckers (C2): Kuckers, Esthonia.

**CYATHUS** Roth and Skinner (Leperditellidae)

Genotype: *C. ulrichi* Roth and Skinner

*Cyathus* ROTH and SKINNER, Jour. Pal., 4, no. 4 (1930) p. 347—KELLETT, *ibid.*, 7, no. 1 (1933) p. 68.

**Cyathus ulrichi** Roth and Skinner

Pennsylvanian

*Cyathus ulrichi* ROTH and SKINNER, Jour. Pal., 4, no. 4 (1930) p. 334, 347, pl. 28, figs. 5-8—KELLETT, *ibid.*, 7, no. 1 (1933) p. 69, pl. 13, figs. 27-29.

McCoy, Eagle County, Colo. (McCoy formation); Leavenworth County, Kan. (Stanton); Oklahoma, Texas, and Missouri.

**CYPRELLA** Koninck (Cypridinidae)

Genotype: *C. chrysalidea* Koninck

*Cyrella* KONINCK, Acad. Roy. Bruxelles, Mem., 14 (1841) p. 19; Descr. anim-foss. Belgique (1842-1844) p. 589—GEINITZ, Grund. Verst. (1845-1846) p. 245—BOSQUET, Soc. Roy. Sci. Liège, Mem., 4 (1848-1849) p. 382; Acad. Roy. Belgique, Mém. Cour. Mém. Sav. Étrang., 24 (1852) p. 130—PICTET, Traité Pal., ed. 2, 2 (1854) p. 536—BOSQUET, Mon. Crust. Foss. Cretace de Limbourg (1854) p. 123—JONES, Mon. Tertiary Entomostraca England, Palaeontogr. Soc. (1856) p. 9—ROEMER, Bronn's Leth. Geog., 1, pt. 2 (1851-1856) p. 532—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 411; Monthly Micr. Jour., 10 (1873) p. 75—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 37—JONES and KIRKBY, Geol. Assoc. London, Pr., 9 (1886) p. 499—VOGDES, New York Acad. Sci. (1891) p. 3, pl. 2, fig. 10—KOKEN, Die Leitfossilien (1896) p. 38, text fig. 25, fig. 9—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

*Cyrella* Bosquet 1847, 1852, 1854 refers mainly to *Cypridina*.

**Cyrella annulata** Koninck

Carboniferous

*Cypridina annulata* KONINCK, Acad. Roy. Bruxelles, Mém., 14 (1841) p. 18, pl., figs. 8a, b; Foss. terrain carb. Belgique (1842-1844) p. 588, pl. 52, figs. 3a, b—GEINITZ, Grund. Verst. (1845-1846) p. 245—KONINCK, Acad. Roy. Sci., Lettres, Beaux-Arts Belgique, Bull., ser. 2, 15, no. 1 (1863) p. 110.

*Cythere annulata* DUPONT, Acad. Roy. Belg., Bull., ser. 2, 15 (1863) p. 110.

*Cyprella annulata* JONES, Neues Jahrb. Min., Geol., Pal. (1864) p. 54—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 39—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomotraca Carb., Palaeontogr. Soc. (1874) p. 40, pl. 4, figs. 12, 13, 17—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 344, pl. 17, fig. 13—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489

Limestone: Visé, Belgium; Bathgate, etc., East and West Scotland; Cork, Ireland; North England; Hainault, France.

**Cyprella bureaui Péneau**

Devonian

*Cyprella bureaui* PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8 (1928–1929) p. 177, pl. 9, fig. 7; pl. 11, fig. 4.

La Vallée en Saint Julien-de-Vouvantes, Armorica Massif, France.

**Cyprella chrysalidea Koninck**

Carboniferous

*Cyprella chrysalidea* KONINCK, Acad. Roy. Bruxelles, Mém., 14 (1841) p. 19, figs. 7a–f; Descr. anim. foss. Belgique (1842–1844) p. 589, pl. 52, figs. 6a–e—GEINITZ, Grund. Verst. (1845–1846) p. 245—BOSQUET, Acad. Roy. Belgique, Mém. Cour. Mém. Sav. Étrang., 24 (1852) p. 132—ROEMER, Bronn's Leth. Geog., 1, pt. 2 (1851–1856) p. 533, pl. 93, figs. 11a–c—PICTET, Traité Pal., Atlas (1857) pl. 46, fig. 19—DUPONT, Acad. Roy. Sci., Lettres, Beaux-Arts Belgique., Bull., ser. 2, 15 (1863) p. 110—JONES, Neues Jahrb. Min., Geol., Pal. (1864) p. 54—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 38, 39—JONES, Monthly Micr. Jour., 10 (1873) p. 75; Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomotraca Carb., Palaeontogr. Soc. (1874) p. 38, pl. 4, figs. 14a, b, 15, 16a–c, 18a, b—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 310—KOKEN, Die Leitfossilien (1896) p. 37, text fig. 25 (9)—LAMPLAUGH, Geol. Isle Man, Geol. Surv. United Kingdom, Mem. (1903) p. 257.

Limestone: Visé, Belgium; Isle of Man; Settle, Yorkshire, England; Scotland, etc.

**Cyprella chrysalidea subannulata Jones**

Carboniferous

*Cyprella subannulata* JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 10; *ibid.*, 10 (1873) p. 78; Geol. Soc. London, Quart. Jour., 29 (1873) p. 410.

*Cyprella chrysalidea subannulata* JONES, KIRKBY, and BRADY, Mon. British Entomotraca Carb., Palaeontogr. Soc. (1874) p. 39, pl. 4, figs. 10, 11—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—VOGDEN, New York Acad. Sci., Ann., 5 (1891) pl. 2, figs. 10a, b (after Jones, 1870)—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

*Cyprella subannulata* VOGDES, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 10.

Limestone: Little Island, Cork, Ireland; Settle, Yorkshire, England; West Scotland.

**Cyprella primaeva Bosquet = Cypridina primaeva**

**Cyprida elongata Goldenburg = Candona elongata**

**CYPRIDELLA Koninck (Cypridinidae)**

Genotype: *C. cruciata* Koninck

*Cypridella* KONINCK, Acad. Roy. Bruxelles, Mém., 14 (1841) p. 20; Descr. anim. foss. Belgique (1842–1844) p. 590—GEINITZ, Grund. Verst. (1845–1846) p. 245—PICTET, Traité Pal., 2 (1854) p. 536—JONES, Mon. Tertiary Entomotraca England, Palaeontogr. Soc. (1856) p. 9; Monthly Micr. Jour., 10 (1873) p. 74; Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomotraca Carb., Palaeontogr. Soc. (1874) p. 32—ZITTEL, Handb. Pal., 2 (1885) p. 555—JONES and KIRKBY, Geol. Assoc. London, Pr., 9 (1886) p. 499—VOGDEN, New York Acad. Sci., Ann., 5 (1889) p. 38, pl. 12, fig. 9—KOKEN, Die Leitfossilien (1896) p. 38, text fig. 25, fig. 10—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

**Cypridella cruciata** Koninck

Carboniferous

*Cypridella cruciata* KONINCK, Acad. Roy. Bruxelles, Mém. 14 (1841) p. 20, pl., figs. 11a-e; Descr. anim. foss. Belgique (1842-1844) p. 590, pl. 52, figs. 7a-e—GEINITZ, Grund. Verst. (1845-1846) p. 245—PICTET, Traité Pal., Atlas (1857) pl. 46, fig. 20—KONINCK, Acad. Roy. Sci., Lettres, Beaux-Arts Belgique, Bull., ser. 2, 15, no. 1 (1863) p. 110—JONES, Neues Jahrb. Min., Geol., Pal. (1864) p. 54—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 38—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410; Monthly Micr. Jour., 10 (1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 35.

Limestone: Visé, Belgium.

**Cypridella cypreloides** Jones, Kirkby, and Brady

Carboniferous

*Cypridella cypreloides* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 36, pl. 4, figs. 9a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 509.

Limestone: Little Island, Cork, Ireland.

**Cypridella edwardsiana** (Koninck)

Carboniferous

*Cypridina edwardsiana* KONINCK, Acad. Roy. Bruxelles, Mém., 14 (1841) p. 17, pl., figs. 9a-c; Descr. anim. foss. Belgique (1842-1844) p. 287, pl. 52, figs. 2a-d—GEINITZ, Grund. Verst. (1845-1846) p. 245—QUENSTEDT, Handb. Petr., Atlas (1852) p. 301, pl. 23, fig. 33—VOGT, Lehrb. Geol. Petr., 1 (1854) p. 316.

*Cythere edwardsiana* DUPONT, Acad. Roy. Sci., Lettres, Beaux-Arts Belgique, Bull., ser. 2, 15, no. 1 (1863) p. 110.

*Cypridella edwardsiana* JONES, Neues Jahrb. Min., Geol., Pal. (1864) p. 54—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 39—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410; Monthly Micr. Jour., 10 (1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 32, pl. 4—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 509—GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 32—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Limestone: Visé, Belgium; Cork, Ireland; Bathgate, etc., Scotland.

**Cypridella edwardsiana septentrionalis** Jones, Kirkby, and Brady

Carboniferous

*Cypridella edwardsiana septentrionalis* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 33, pl. 4, figs. 4a-c; pl. 5, figs. 11a-c—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509; British Assoc. Handb. Glasgow (1901) p. 489.

Limestone: Cork, Ireland; Ayrshire, Scotland.

**Cypridella granulifera** Gemmellaro

Carboniferous

*Cypridella granulifera* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 33, pl. 5, figs. 18-20.

Sosio River, Palermo, Sicily.

**Cypridella jonesii** Gemmellaro

Carboniferous

*Cypridella jonesii* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 32, pl. 5, figs. 13-15.

Sosio River, Palermo, Sicily.

**Cypridella koninckiana** Jones

Carboniferous

*Cypridella koninckiana* JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 9—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410; Monthly Micr. Jour., 10

(1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 34, pl. 3, figs. 14, 16, 17—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—VOGDEN, New York Acad. Sci., Ann., 5 (1889) pl. 2, figs. 9a, b—GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 33—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 310—KOKEN, Die Leitfossilien (1896) p. 37, fig. 25—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 344, pl. 17, fig. 12—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—VOGDEN, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 9.

Limestone: Little Island, Cork, Ireland; West Scotland.

**Cypridella obsoleta** Jones, Kirkby, and Brady Carboniferous

*Cypridella obsoleta* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410; Monthly Micr. Jour., 10 (1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 34, pl. 3, figs. 12a–c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Limestone: Little Island, Cork, Ireland; West Scotland.

**Cypridella quadrata** Jones, Kirkby, and Brady Carboniferous

*Cypridella quadrata* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 35, pl. 4, figs. 2a–c.

Limestone: Visé, Belgium.

**Cypridella wrightii** Jones, Kirkby, and Brady Carboniferous

*Cypridella wrightii* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410; Monthly Micr. Jour., 10 (1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 34, pl. 4, figs. 1a–c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 509—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Limestone: Little Island, Cork, Ireland; West Scotland; Visé, Belgium.

**CYPRIDELLINA** Jones, Kirkby, and Brady (Cypridinidae)

Genotype: *C. clausa* Jones, Kirkby, and Brady

*Cypridellina* JONES, Monthly Micr. Jour., 10 (1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 25—ZITTEL, Handb. Pal., 2 (1885) p. 554—JONES and KIRKBY, Geol. Assoc., London, Pr., 9 (1886) p. 498; Geol. Soc. London, Quart. Jour., 42 (1886) p. 410—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

*Cypridinella* (part) JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410.

**Cypridellina alta** Jones, Kirkby, and Brady Carboniferous

*Cypridinella alta* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410.

*Cypridellina alta* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 31, pl. 3, figs. 15a, b—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 509.

Limestone: Little Island, Cork, Ireland; Visé, Belgium.

**Cypridellina bosquetii** Jones, Kirkby, and Brady Carboniferous

*Cypridellina bosqueti* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 31, pl. 3, figs. 20a, b.

Upper limestone: Visé, Belgium.

**Cypridellina burrovii** Jones, Kirkby, and Brady Carboniferous

*Cypridinella burrovii* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410.

*Cypridellina burrovii* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 27, pl. 3, figs. 4a-e, 5a-c, figs. 21a-e—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 508—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 344, pl. 17, fig. 11—GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 32—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—LAMPLAUGH, Geol. Isle Man, Geol. Surv. United Kingdom, Mem. (1903) p. 257.

Lower Sear limestone: Settle, Yorkshire, England; West Scotland; Isle of Man.

**Cypridellina burrovii longnoriensis** (Jones, Kirkby, and Brady) Carboniferous  
*Cypridellina burrovii longnoriensis* JONES, Geol. Soc. London, Quart. Jour. 29 (1873) p. 410.

*Cypridellina burrovii longnoriensis* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 28, pl. 3, fig. 8—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508.

Gray limestone: Longnor, Derbyshire, England.

**Cypridellina clausa** Jones, Kirkby, and Brady Carboniferous

*Cypridellina clausa* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 27, pl. 3, figs. 2a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508.

Gray limestone: Little Island, Cork, Ireland.

**Cypridellina elongata** Jones, Kirkby, and Brady Carboniferous  
*Cypridellina elongata* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410.

*Cypridellina elongata* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 29, pl. 3, figs. 18, 19.

Gray limestone: Visé, Belgium.

**Cypridellina elongata hibernica** Jones, Kirkby, and Brady Carboniferous  
*Cypridellina elongata hibernica* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410.

*Cypridellina elongata hibernica* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 29, pl. 3, figs. 9a-c.

Limestone: Little Island, Cork, Ireland.

**Cypridellina galea** Jones, Kirkby, and Brady Carboniferous

*Cypridellina galea* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410.

*Cypridellina galea* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 30, pl. 4, figs. 3a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496.

Limestone: Little Island, Cork, Ireland.

**Cypridellina intermedia** Jones, Kirkby, and Brady Carboniferous

*Cypridellina intermedia* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410.

*Cypridellina intermedia* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 29, pl. 5, figs. 8a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Gray limestone: Bathgate, Linlithgowshire, West Scotland.

**Cypridellina vomer** Jones, Kirkby, and Brady Carboniferous

*Cypridellina vomer* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 30, pl. 3, figs. 7a-c, 10a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509.

Limestone: Little Island, Cork, Ireland.

**Cypridellina vomer cultrata** Jones, Kirkby, and Brady Carboniferous*Cypridellina vomer cultrata* JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 410.*Cypridellina vomer cultrata* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 30, pl. 3, fig. 10—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 509.

Limestone: Little Island, Cork, Ireland.

**Cypridellina vomer uncinata** Jones, Kirkby, and Brady Carboniferous*Cypridellina vomer uncinata* JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 410.*Cypridellina vomer uncinata* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 30; Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 509.

Limestone: Little Island, Cork, Ireland.

**CYPRIDINA** Milne Edwards (Cypridinidae)

*Cypridina* MILNE EDWARDS, Hist. nat. anim. sans vert. de Lamarck, ed. 2, 5 (1838) p. 178; Hist. nat. crustace, ed. 2, 5 (1838) p. 178; *ibid.* (1840) p. 409—KONINCK, Acad. Roy. Bruxelles, Mém., **14** (1841) p. 17; Descr. anim. foss. Belgique (1842—1844) p. 586—GEINITZ, Grund. Verst. (1845—1846) p. 244—JONES, Entom. Cret. England, Mon. Palaeontogr. Soc. (1849) p. 3, 5—BOSQUET, Soc. Roy. Sci. Liège, Mem., **4** (1848—1849) p. 359—REUSS, Naturwiss. Abh., **3**, pt. 1 (1850) p. 61—65—MCCOY, Ann. Mag. Nat. Hist., ser. 2, **8** (1851) p. 387—BOSQUET, Acad. Roy. Belgique, Mém. Cour. Mém. Sav. Étrang., **24** (1852) p. 54, 55—PICTET, Traité Pal., **2** (1854) p. 535—ROEMER, Bronn's Leth. Geog., **1**, pt. 2 (1851—1856) p. 531—SANDBERGER and SANDBERGER, Verstein erungen des Rheinischen Schichtensystems in Nassau (1856) p. 3—JONES, Mon. Tertiary Entomostraca England, Palaeontogr. Soc. (1856) p. 6, 7, 9—EICHWALD, Soc. Imp. Nat., Moscou, Bull. (1857) **30** p. 308; Leth. Ross., **1** (1860) p. 1329—JONES, Monthly Micr. Jour., **10** (1873) p. 72—JONES, Neues. Jahrb. Min., Geol., Pal. (1874) p. 180—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 3, 7, 11—ZITTEL, Handb. Pal., **2** (1885) p. 554—TERQUEM, Soc. Géol. France, Mém., ser. 3, **4**, mem. 1 (1885) p. 40—JONES and KIRKBY, Geol. Assoc., Pr., **9** (1886) p. 497—WHIDBORNE, Mon. Devonian fauna south England, Palaeontogr. Soc., **1** (1889) p. 45—VOGDES, New York Acad. Sci., Ann., **5** (1889) p. 3, pl. 2, fig. 8—MILLER, North American geol. pal., appendix 1 (1892) p. 706—KOKEN, Die Leitfossilien (1896) p. 37, text fig. 25, fig. 3—JONES, Ann. Mag. Nat. Hist., ser. 7, **1** (1898) p. 339, 341—GRABAU and SHIMER, North American index fossils (1910) p. 363—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 346.

Many of the above references include other genera such as *Entomis*, etc. *Daphnia* McCoy, 1844, and *Cyprella* Bosquet, 1847, 1852, 1856, 1869, refer to *Cypridina*.**Cypridina adrianensis** Gemmellaro Carboniferous*Cypridina adrianensis* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, **8** (1892) p. 34, pl. 5, figs. 27—31, 37, 38.

Sosio River, Palermo, Sicily.

**Cypridina annulata** Koninck = *Cyprella annulata***Cypridina antiqua** Jones Ordovician ?*Cypridina antiqua* JONES, Geol. Mag., dec. 5, **1** (1904) p. 438, text fig. 1—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 346.

Trenton ? : Wenoma, Lake Ontario, near Hamilton, Ontario.

**Cypridina ?? ava** Richter Devonian*Cypridina ava* RICHTER, Deutsch. Geol. Ges., Zeitschr., **21** (1869) p. 767, pl. 20, fig. 1.

Thuringia, Germany.

**Cypridina barrandei** Richter = **Entomis barrandei**

**Cypridina bradyana** Jones, Kirkby, and Brady Carboniferous

*Cypridina bradyana* JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 409—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 15, pl. 2, figs. 13a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 508.

Gray limestone: Little Island, Cork, Ireland.

**Cypridina brevementum** Jones, Kirkby, and Brady Carboniferous

*Cypridina brevementum* JONES, Monthly Micr. Jour., **10** (1873) p. 73—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 15, pl. 2, figs. 15–19—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 508—GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, **8** (1892) p. 34—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, **9** (1893) p. 310—KOKEN, Die Leitfossilien (1896) p. 37, text fig. 25 (fig. 3)—JONES, Ann. Mag. Nat. Hist., ser. 7, **1** (1898) p. 340—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—JONES, Geol. Mag., dec. 5, **1** (1904) p. 439.

Gray limestone: Cork, Ireland; West Scotland; Derbyshire, England; Visé, Belgium.

**Cypridina buprestis** Rolle Devonian

*Cypridina buprestis* ROLLE, Neues Jahrb. Min., Geol., Pal. (1851) p. 664, pl. 9a, fig. 4.

Hamilton: Delphi Falls, Cazenovia, N. Y.  
Probably the same as *Primitiopsis punctulifera*.

**Cypridina calcarata** Richter = **Entomis calcarata**

**Cypridina concentrica** DeKoninck = **Entomis concentrica**

**Cypridina costata** Richter (part) = **Richterina exornata**

**Cypridina digitalis** Richter Devonian

*Cypridina digitalis* RICHTER, Deutsch. Geol. Ges., Zeitschr., **21** (1869) p. 391.

Thuringia, Germany.

**Cypridina edwardsiana** Koninck = **Cypridella edwardsiana**

**Cypridina elliptica** Gemmellaro Carboniferous

*Cypridina elliptica* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, **8** (1892) p. 35, pl. 5, figs. 34–36.

Sosio River, Palermo, Sicily.

**Cypridina elongata** (McCoy) Carboniferous

*Cythere elongata* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 166, pl. 23, fig. 13.

*Cypridina elongata* BOSQUET, Soc. Roy. Sci. Liège, Mem., **4** (1848–1849) p. 354—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, **18** (1866) p. 43, 46.

Limestone: Ireland.

**Cypridina fallax** Kegel Lower Devonian

*Cypridina fallax* KEGEL, Preuss. Geol. Landes., Abh., n. s., **100** (1926) p. 7, pl. 1, fig. 3.

Near Griessen, Germany.

**Cypridina fragilis** Roemer = **Entomis fragilis**

**Cypridina grayae** Jones Ordovician

*Cypridina grayae* JONES, Geol. Soc. London, Quart. Jour., **49** (1893) p. 305, pl. 14, fig. 22; Ann. Mag. Nat. Hist., ser. 7, **1** (1898) p. 339, pl. 17, fig. 17.

Middle Bala: Girvan, Ayrshire, Scotland.

**Cypridina gigantea** Trenkner = **Entomis gigantea**

**Cypridina globulus** Richter = **Entomis globulus**

**Cypridina grandis** Schrenk = **Leperditia grandis**

**Cypridina grapta** Eichwald = **Amphissites grapta**

**Cypridina grossartiana** Jones and Kirkby

Carboniferous

‡ *Cypridina grossartiana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 218—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 17, pl. 2, figs. 20a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Linlithgowshire, West Scotland.

**Cypridina gyrata** Richter = **Richterina (Fossirichterina) gyrata**

**Cypridina herzeri** Ulrich

Mississippian

*Cypridina herzeri* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 209, pl. 14, figs. 9a-c—WELLER, U. S. Geol. Surv., Bull. 153 (1893) p. 208—GRABAU and SHIMER, North American index fossils (1910) p. 364, text fig. 1667 v, w.

Waverly (New Providence): Richfield, Ohio.  
Holotype.—U.S.N.M. No. 41812.

**Cypridina hunteriana** Jones, Kirkby, and Brady

Carboniferous

*Cypridina hunteriana* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 18, pl. 5, figs. 3a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Main Point limestone: Braidwood, Carlisle, Scotland.

**Cypridina kayseri** Waldschmidt = **Haploprimitia kayseri**

**Cypridina labyrinthica** Richter = **Richterina labyrinthica**

**Cypridina laevigata** Eichwald = **Paraparchites laevis**, etc.

**Cypridina marginata** Gemmellaro

Carboniferous

*Cypridina marginata* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 36, pl. 5, figs. 32, 33.

Sosio River, Palermo, Sicily.

**Cypridina marginata** Keyserling = **Leperditia marginata**

**Cypridina marginata** Schrenk = **Leperditia keyserlingi**

**Cypridina microphthalma** Eichwald = **Paraparchites microphthalma**

**Cypridina minuta** Eichwald = **Primitia minuta** and **P. concinna**

**Cypridina nitida** Roemer = **Primitia nitida**

**Cypridina oblonga** Jones, Kirkby, and Brady

Carboniferous

*Cypridina oblonga* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 20, pl. 5, figs. 12a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508; British Assoc. Handb. Glasgow (1901) p. 489—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310.

Limestone: Little Island, Cork, Ireland.



**Cypridina ? obtusa** Moberg

Silurian

*Cypridina ? obtusa* MOBERG, Sver. Geol. Unders., ser. C, no. 156 (1895) p. 12, pl., fig. 6—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 226.

Posidonomya skiffer: Scania, Sweden.

**Cypridina ovulum** Eichwald = **Leperditia ovulum**

**Cypridina phillipsiana** Jones

Carboniferous

*Cypridina phillipsiana* JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 8—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410; Monthly Micr. Jour., 10 (1873) p. 73—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc., (1874) p. 18, pl. 2, figs. 4, 5, 9—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508—VOGDÉS, New York Acad. Sci., Ann., 5 (1889) pl. 2, figs. 8a, b—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—LAMPLAUGH, Geol. Isle Man, Geol. Surv. United Kingdom, Mem. (1903) p. 257—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 163—VOGDÉS, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 8.

Near Glasgow, Scotland (Lower and Upper limestone); Cork, Ireland; Isle of Man; Visé, Belgium.

**Cypridina polonica** (Gürich)

Silurian

*Bolbozoe polonica* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 378, pl. 15, figs. 12a-e.

*Cypridina ? polonica* JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 340, pl. 17, fig. 16.

Interrupta schiefer: Niestachow, etc., Poland.

**Cypridina postsilurica** Tschernyschew

Devonian

*Cypridina postsilurica* TSCHERNYSCHEW, Com. Géol., St. Petersburg, Mém., 4, no. 3 (1893) p. 20, pl. 1, figs. 19, 20.

Iss River, east side of Urals, Russia.

**Cypridina primaeva** (McCoy)

Carboniferous

*Daphnia primaeva* MCCOY, Synopsis characters Carboniferous Fossils Ireland (1844) p. 164, pl. 23, fig. 5—BOSQUET, Soc. Roy. Sci. Liège, Mem., 4 (1848-1849) p. 354.

*Cyprella primaeva* BOSQUET, Acad. Roy. Belgique, Mém. Cour. Mém. Sav. Étrang., 24 (1852) p. 132.

*Cypridina primaeva* JONES, in Morris, Cat. British fossils, ed. 2 (1854) p. 104; Neues Jahrb. Min., Geol., Pal. (1864) p. 54—JONES and KIRKBY, Canadian Nat. Geol., n. s., 1 (1864) p. 236; Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 39, 41, 48; Geol. Soc. Glasgow, Tr., 2 (1867) p. 218—JONES, Roy. Micr. Soc., Tr., n. s., 16 (1868) p. 46—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 409; Monthly Micr. Jour., 10 (1873) p. 73—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 12, 55, pl. 2, figs. 24-28—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508—GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 35, 36, pl. 5, figs. 39, 42—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES, Ann. Mat. Nat. Hist., ser. 7, 1 (1898) p. 342, pl. 17, fig. 5—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 163—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—LAMPLAUGH, Geol. Isle Man, Geol. Surv. United Kingdom, Mem. (1903) p. 257.

Carboniferous limestone: Ireland; West Scotland; North England; Isle of Man; ? Sicily.

**Cypridina pruniformis** Jones, Kirkby, and Brady

Carboniferous

*Cypridina pruniformis* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 409—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc.

(1884) p. 19, pl. 5, figs. 9a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508.

Limestone: Limerick (?), Ireland; Visé, Belgium.

**Cypridina radiata** Jones, Kirkby, and Brady Coal Measures

*Cypridina radiata* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 409—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 14, pl. 5, figs. 6a-f—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 486, 508—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—PRUVOST, Soc. Géol. Nord, Ann., 40 (1911) pl. 2, fig. 15.

Glasgow district, Scotland; North France.

**Cypridina raisinia** Jones Paleozoic

*Cypridina raisinia* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 164, text fig.; Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 338, pl. 27, fig. 18.

Paleozoic quartzite pebbles in Triassic conglomerates; Lleyon promontory, Budleigh, Salterton, Devonshire.

**Cypridina rankiniana** Jones and Kirkby = **Bradycinetus rankiniana**

**Cypridina sandbergeri** Richter = **Entomis sandbergeri**

**Cypridina schrenkii** Eichwald = **Kirkbya schrenkii**

**Cypridina scoriacea** Jones and Kirkby Carboniferous

*Cypridina scoriacea* JONES and KIRKBY, in ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 20, pl. 2, figs. 3a-d—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Upper limestone-shale: Gare, near Carlisle, West Scotland.

**Cypridina ? ? scrobiculata** Richter Devonian

*Cypridina scrobiculata* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 767, pl. 2, fig. 2.

Thuringia, Germany.

**Cypridina serratostrata** Sandberger = **Entomis serratostrata** and **Primitia sandbergeri**

**Cypridina sticta** Eichwald = **Amphissites sticta**

**Cypridina ? subfusiformis** Sandberger and Sandberger Devonian

*Cypridina subfusiformis* SANDBERGER and SANDBERGER, Verst. Rheinischen Schicht. Nassau (1850-1856) p. 5, atlas pl. 1, figs. 3a-d—REUSS, Jahr. Wetterauer Ges. Nat. Hanau, 1851-1853 (1854) p. 61—LUDWIG, Neues. Jahrb. Min., Geol., Pal. (1869) p. 674—RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 772—PENEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 7 (1927) p. 311, pl. 3, fig. 3.

*Cytherella subfusiformis* OEHLERT, Soc. Géol. France, Bull., ser. 3, 24 (1897) p. 814, pl. 26, fig. 13.

Nassau, Germany; Spain; Basse Loire, France.

**Cypridina subglobularis** Sandberger and Sandberger Devonian

*Cypridina subglobularis* SANDBERGER and SANDBERGER, Verst. Rhein. Schicht. Nassau (1850-1856) p. 6, pl. 1, figs. 4, 4a—RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 772.

Nassau, Germany.

**Cypridina subovata** Ulrich and Bassler Pennsylvanian

*Cypridina subovata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., **30** (1906) p. 162, pl. 11, figs. 23–26—GRABAU and SHIMER, North American index fossils (1910) text fig. 1667 x, y.

Douglas (Lawrence shale): Lawrence, Kan.  
Cotypes.—U.S.N.M. No. 35626.

**Cypridina taeniata** Richter = **Entomis taeniata**

**Cypridina tenella** Richter = **Entomis (Richtereria) tenella**

**Cypridina thomsoniana** Jones and Kirkby Carboniferous

*Cypridina thomsoniana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., **2** (1867) p. 218—ARMSTRONG, Geol. Soc. Glasgow, Tr., **3**, suppl. (1871) p. 27—JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 19, pl. 2, figs. 8a–c, pl. 5, fig. 4—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 508—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, **9** (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Upper limestone-shale: Gare, Carluke, West Scotland.

**Cypridina tosterupi** Moberg Silurian

*Cypridina tosterupi* MOBERG, Sver. Geol. Unders., ser. C, no. 156, **6** (1895) p. 11, 12, figs. 4, 5—GRÖNWALL, Geol. För. Stockholm Förh., **19** (1897) p. 226—CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr. Verb., **11**, art. 5 (1899) p. 152.

Posidonomya skiffer: Scania, Sweden.

**Cypridina tyrrenica** Canavari Silurian

*Cypridina tyrrenica* CANAVARI, Palaeontogr. Ital., **5** (1899) p. 204, pl. 26 (11), figs. 10–12.

Cardiola limestone: Sardinia.

**Cypridina villosa** Richter Devonian

*Cypridina villosa* RICHTER, Deutsch. Geol. Ges., Zeitschr., **21** (1869) p. 391.

Thuringia, Germany.

**Cypridina wrightiana** Jones, Kirkby, and Brady Carboniferous

*Cypridina wrightiana* JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 409—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 15, pl. 2, figs. 14a–c—NICHOLSON and LYDEKKER, Man. Pal., **1** (1879) p. 507, fig. 361L—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 508.

Gray limestone: Cork, Ireland.

**Cypridina youngiana** Jones, Kirkby, and Brady Carboniferous

*Cypridina youngiana* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 17, pl. 2, figs. 11a–c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 508—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, **8** (1893) p. 310—JONES, Ann. Mag. Nat. Hist., ser. 7, **1** (1898) p. 339—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Upper limestone-shale: Gare, Carluke, West Scotland.

**CYPRIDINELLA** Jones, Kirkby, and Brady (Cypridinidae)

Genotype: *C. cummingii* Jones, Kirkby, and Brady

*Cypridinella* JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 410 (part); Monthly Micr. Jour., **10** (1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 21—ZITTEL, Handb. Pal., **2** (1885)

p. 554—JONES and KIRKBY, Geol. Assoc. London, Pr., 9 (1886) p. 498—WHIDBORNE, Mon. Devonian fauna south England, Palaeontogr. Soc., 1 (1889) p. 46—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

**Cypridinella alta** Jones = **Cypridellina alta**

**Cypridinella bosqueti** Jones, Kirkby, and Brady Carboniferous

*Cypridinella bosqueti* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 23, 90, pl. 3, figs. 6a-c.

Upper Mountain limestone: Visé, Belgium; Cork, Ireland.

**Cypridinella burrovi** Jones = **Cypridinella burrovi**

**Cypridinella caeca** Whidborne Devonian

*Cypridinella caeca* WHIDBORNE, Mon. Devonian fauna south England, Palaeontogr. Soc., pt. 1 (1889) p. 46, pl. 4, figs. 16a-c—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 340.

Near Torquay, Devonshire, England.

**Cypridinella clausa** Jones, Kirkby, and Brady Carboniferous

*Cypridinella clausa* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 23, pl. 3, figs. 3a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508.

Limestone: Little Island, and Middleton, Cork, Ireland.

**Cypridinella cummingii** Jones, Kirkby, and Brady Carboniferous

*Cypridinella cummingii* JONES, Monthly Micr. Jour., 10 (1873) p. 74; Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 21, pl. 2, figs. 23a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508—GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 30—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—LAMPLAUGH, Geol. Isle Man, Geol. Surv. United Kingdom, Mem. (1903) p. 257.

Poolvash, Isle of Man; West Scotland; North England.

**Cypridinella cypridellopsis** Gemmellaro Carboniferous

*Cypridinella cypridellopsis* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 31, pl. 5, figs. 10-12.

Sosio River, Palermo, Sicily.

**Cypridinella elongata** Jones = **Cypridellina elongata**

**Cypridinella elongata hibernica** Jones = **Cypridellina elongata hibernica**

**Cypridinella galea** Jones = **Cypridellina galea**

**Cypridinella inflata** Gemellaro Carboniferous

*Cypridinella inflata* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 31, pl. 5, figs. 7-9.

Sosio River, Palermo, Sicily.

**Cypridinella intermedia** Jones = **Cypridellina intermedia**

**Cypridinella maccoyiana** Jones, Kirkby, and Brady Carboniferous

*Cypridinella maccoyiana* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr.

Soc. (1874) p. 24, pl. 3, figs. 12a-b—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 343, pl. 17, fig. 10.

Gray limestone: Little Island, Cork, Ireland.

**Cypridinella monitor** Jones, Kirkby, and Brady Carboniferous

*Cypridinella monitor* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410; Monthly Micr. Jour., 10 (1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 24, pl. 3, figs. 1a-b—GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 30.

Gray limestone: Visé, Belgium; North England.

**Cypridinella rostrata** Gemmellaro Carboniferous

*Cypridinella rostrata* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 30, pl. 5, figs. 3-6.

Sosio River, Palermo, Sicily.

**Cypridinella superciliosa** Jones, Kirkby, and Brady Carboniferous

*Cypridinella superciliosa* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 22, pl. 2, figs. 7a-c; pl. 5, figs. 7a-d—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 508—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Limestone: Little Island, Cork, Ireland; Bathgate, Linlithgowshire, Scotland; Settle, Yorkshire, England.

**Cypridinella vomer** Jones, Kirkby, and Brady Carboniferous

*Cypridinella vomer* JONES, Monthly Micr. Jour., 10 (1873) p. 74; Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 25, pl. 3, figs. 11a, c—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Limestone: Little Island, Cork, Ireland; West Scotland.

**Cypridinopsis simplex** Jones and Kirkby = **Polycope simplex**

**Cypridinopsis youngiana** Armstrong = **Polycope youngiana**

**CYPRIS** Müller (Cypridae). Not a Paleozoic genus.

**Cypris arcuata** Bean = **Jonesina arcuata**

**Cypris concentrica** BEAN, Mag. Nat. Hist., 9 (1836) p. 376, 377, fig. 5 (? ostracod).

**Cypris inflata** Murchison = **Paraparchites inflata**

**Cypris pyrrrhae** Eichwald = **Jonesina pyrrrhae**

**Cypris scotoburdigalensis** Hibbert = **Paraparchites scotoburdigalensis**

**Cypris subrecta** Griffith = **Paraparchites subrecta**

### CYPROSINA Jones (Cypridinidae)

Genotype: *C. whidbornei* Jones

*Cyprosina* JONES, Geol. Mag., dec. 2, 8 (1881) p. 338—WHIDBORNE, Mon. Devonian fauna south England, Palaeontogr. Soc., pt. 2 (1890) p. 52.

**Cyprosina whidbornei** Jones Middle Devonian

*Cyprosina whidbornei* JONES, Geol. Mag., dec. 2, 8 (1881) p. 338, pl. 9, figs. 1-3, 5—WHIDBORNE, Mon. Devonian fauna south England, Palaeontogr. Soc., pt. 2 (1890) p. 53, pl. 4, figs. 1-4—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 340, pl. 17, fig. 8.

Near Torquay, Devonshire, England.

**CYPROSIS** Jones (Cypridinidae)Genotype: *C. haswellii* Jones*Cyprosis* JONES, Geol. Mag., dec. 2, 8 (1881) p. 338.**Cyprosis haswellii** Jones

Silurian

*Cyprosis haswellii* JONES, Geol. Mag., dec. 2, 8 (1881) p. 338, pl. 9, figs. 6a, 6b; Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 339, pl. 17, fig. 9.

North Esk Reservoir, Pentland Hills, Scotland.

**CY THERE** Müller (Cytheridae). Not a Paleozoic genus**Cythere acuta** Jones = **Bairdia acuta****Cythere aequalis** Jones and Kirkby = **Bythocypris aequalis****Cythere aldensis** Murchison = **Pontocypris aldensis****Cythere aldensis major** Jones = **Pontocypris aldensis major****Cythere americana** Shumard = **Beyrichia** ?? **americana****Cythere ampla** Jones and Kirkby = **Bairdia ampla****Cythere amputata** Kirkby = **Bairdia amputata****Cythere amygdalina** McCoy = **Paraparchites amygdalina****Cythere annulata** Dupont = **Cyprella annulata****Cythere arcuata** McCoy = **Paraparchites arcuata****Cythere bailyana** Jones and Holl

Ordovician

*Cythere bailyana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 57, pl. 7, fig. 7—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, appendix (1881) p. 410.

Caradoc: Kildare, Ireland; Scotland; North Wales.

**Cythere** ? (**Carbonia** ?) **bairdioides** Jones and Kirkby = **Carbonita bairdioides****Cythere baltica** (Hisinger) Roemer, 1854 = **Leperditia balthica** (part) and **L. hisingeri** (part)**Cythere berniciensis** (Kirkby) Richter = **Bairdia berniciensis****Cythere bilobata** Münster = **Silenites bilobata****Cythere (Cytherella) ? biplicata** Jones

Permian

*Cythere (Cythereis) ? biplicata* JONES, in King's Mon. Perm. foss. (1850) p. 63, pl. 18, fig. 8.*Cythere biplicata* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 160, pl. 11, figs. 5a, 5b—GEINITZ, Anim. Ueber. Dyas (1861) p. 33, text fig. 2 (fig. 5).

Near Sunderland, England.

**Cythere bituberculata** McCoy = **Ulrichia bituberculata****Cythere bituberculata** Reuss = **Healdia** (?) **bituberculata****Cythere** ?? **bohémica** Barrande

Ordovician (D 3)

*Cythere ? bohémica* BARRANDE, Syst. Silurian Centre Bohême, 1, suppl. (1872) p. 507, pl. 27, fig. 10.

Near Trubin, Bohemia.

**Cythere brevicaudata** Jones = **Bairdia brevicaudata****Cythere carbonaria** Hall = **Paraparchites carbonaria**

**Cythere caudata** Richter = **Bairdia caudata**

**Cythere cincinnatiensis** Meek = **Elpe cincinnatiensis**

**Cythere concentrica** Dupont = **Entomis concentrica**

**Cythere corbuloides** Jones and Holl = **Microcheilinella corbuloides**

**Cythere cornigera** Jones and Kirkby = **Waylandella cornigera**

**Cythere ? ? cornuta** McCoy Carboniferous

*Cythere cornuta* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 165, pl. 23, fig. 12—BOSQUET, Soc. Roy. Sci. Liège, Mém., 4 (1848-1849) p. 354—GRIFFITH, Geol. Soc. Dublin, Jour. (1860-1862) p. 48-100—JONES, Neues Jahrb. Min., Geol., Pal. (1864) p. 54—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 43, 46.

**Cythere costata** Bigsby = **Richterina costata**

**Cythere costata** McCoy = **Glyptopleura costata**

**Cythere ? ? crassimarginata** Winchell Mississippian

*Cythere crassimarginata* WINCHELL, Acad. Nat. Sci. Philadelphia, Pr. (1862) p. 429; *ibid.* (1865) p. 133; Am. Philos. Soc., Pr., 11 (1870) p. 259—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 211—LANE and COOPER, Geol. Surv. Mich., 7, pt. 2 (1900) p. 277.

*Cytheropsis crassimarginata* MILLER, North American geol. pal. (1889) p. 541.

Marshall sandstone: Battle Creek, etc., Mich.; Rockville, Ohio.

**Cythere cuneola** Jones and Kirkby = **Waylandella cuneola**

**Cythere (Bairdia) curta** Jones = **Bairdia grandis** and **B. brevicauda**

**Cythere (Bairdia) curta** McCoy = **Bairdia curta**

**Cythere cyclas** Keyserling = **Bairdia cyclas**

**Cythere cyclas ? var. Geinitz** = **Cythere nebrascensis**

**Cythere cypridiformis** Jones and Kirkby = **Bythocypris cypridiformis**

**Cythere (? Bairdia) dorsalis** Richter Permian

*Cythere dorsalis* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 232, pl. 5, fig. 24; *ibid.*, 21 (1869) p. 429.

Lower Zechstein: Saalfeld and Kamsdorf, Thuringia, Germany.

**Cythere edwardsiana** Dupont = **Cypridella edwardsiana**

**Cythere elongata** Münster = **Bairdia clongata**

**Cythere elongata** McCoy = **Cypridina ? ? elongata**

**Cythere ? ? excavata** McCoy Carboniferous

*Cythere excavata* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 166, pl. 23, fig. 14—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 43, 46.

Limestone: Ireland.

**Cythere fabulina** Jones and Kirkby = **Carbonita fabulina**

**Cythere frumentum** Reuss = **Bairdia frumentum**

**Cythere geinitziana** Jones = **Bairdia geinitziana**

**Cythere ? ? gibberula** McCoy Carboniferous

*Cythere gibberula* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 166, pl. 23, fig. 25—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 68, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 406; *ibid.*, ser. 3, 18 (1866) p. 45, 46.

Limestone: Ireland.

**Cythere gracilis** McCoy = **Bairdia gracilis**

**Cythere gracilis** Jones, etc. = **Bairdia subgracilis**

**Cythere gracillima** Richter = **Macrocypris gracillima**

**Cythere grapta** Keyserling = **Amphissites grapta**

**Cythere grayana** Salter = **Pontocypris grayana**

**Cythere** (*Cytherella* ?) **grindrodiana** Jones and Holl Silurian

*Cythere grindrodiana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 212, text fig. 1.

Woolhope shales: West Malvern, England.

**Cythere gyripunctata** Jones and Kirkby = **Graphiodactylus gyripunctata**

**Cythere** ? ? **harknessiana** Jones and Holl Ordovician

*Cythere harknessiana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 57, pl. 7, fig. 8—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, appendix (1881) p. 409.

Caradoc: Kildare, Ireland; North Wales.

**Cythere haworthi** Ulrich and Bassler = **Amphissites pinguis**

**Cythere hibberti** McCoy = **Paraparchites ? hibberti**

**Cythere** ? ? **hollii** Jones Silurian

*Cythere hollii* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 190, pl. 6, figs. 5, 6.

Ironbridge (Wenlock shale) and Malvern, England (Woolhope).

**Cythere** ? ? **impressa** McCoy Carboniferous

*Cythere impressa* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 166, pl. 23, fig. 16; Ann. Mag. Nat. Hist., ser. 1, 20 (1847) p. 229—BOSQUET, Soc. Roy. Sci. Liège, Mém., 4 (1848-1849) p. 354—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 44, 46—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100—ETHERIDGE, Cat. Australian fossils (1878) p. 42; Geol. Surv. New South Wales, Mem., Pal., no. 5 (1893) p. 124.

*Beyrichia impressa* JONES, Geol. Mag., new ser., dec. 4, 3 (1901) p. 435.

Ireland; New South Wales.

**Cythere inflata** McCoy = **Paraparchites inflata**

**Cythere inornata** King and Jones = **Cytherella tyronica**

**Cythere inornata** McCoy = **Paraparchites inornata**

**Cythere intermedia** Münster = **Carbonita intermedia**

**Cythere irregularis** Miller = **Elpe irregularis**

**Cythere jonesiana** (Kirkby) = **Macrocypris jonesiana**

**Cythere jukesiana** Jones and Holl = **Pontocypris jukesiana**

**Cythere kingi** Reuss = **Bairdia kingi**

**Cythere kingiana** Richter = **Bairdia kingiana**

**Cythere** (*Macrocypris* ?) **kirkbyana** Jones = **Macrocypris kirkbyana**

**Cythere** (? *Bairdia*) **kutorgiana** Jones Permian

*Cythere kutorgiana* JONES, Mon. Perm. fossils (1850) p. 62, pl. 18, fig. 6—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 159, pl. 11, figs. 3a, 3b—GEINITZ, Anim. Uberr. Dyas (1861) p. 33, text fig. 2 (fig. 6)—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 233, pl. 5, fig. 23—MOORE, Geol. Soc. London,



Quart. Jour., 23 (1867) p. 525, 559—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581, pl. 6, figs. 13, 14—RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 429.

Near Sunderland, England; Thuringia, Germany (Lower Zechstein).

**Cythere leptura** Richter = **Macrocypris leptura**

**Cythere lunata** Jones and Kirkby = **Bythocypris lunata**

**Cythere maccoyii** Salter = **Leperditella maccoyii**

**Cythere marginata** Richter = **Macrocypris marginata**

**Cythere?** (**Bythocypris** ?) **morrisiana** Jones Permian

*Cythere morrisiana* JONES, in King's Mon. Perm. fossils (1850) p. 61, pl. 18, figs. 2a-c—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 158, pl. 11, figs. 1a-c—GEINITZ, Anim. Üherr. Dyas (1861) p. 33, text fig. 2 (fig. 4a, b)—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 580, pl. 6, fig. 3.

Humbleton, England.

**Cythere mucronata** Reuss = **Bairdia mucronata**

**Cythere muensteriana** Jones and Kirkby = **Carbonita muensteriana**

**Cythere nebrascensis** Geinitz = **Cytherella nebrascensis**

**Cythere** (**Cytherella**) **nuciformis** Jones = **Cytherella nuciformis**

**Cythere** ? ? **oblonga** McCoy Carboniferous

*Cythere oblonga* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 167, pl. 23, fig. 22—GRIFFITH, Geol. Soc. Dublin, Jour., 8 (1860-1862) p. 48, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 45, 46.

Limestone: Ireland.

**Cythere obtusa** Jones and Kirkby = **Paraparchites obtusa**

**Cythere** ? ? **ohioensis** Herrick Mississippian

*Ostracode crustacean* HERRICK, Sci. Lab. Denison Univ., Bull., 3 (1888) pl. 3, fig. 19.

*Cythere ohioensis* HERRICK, Sci. Lab. Denison Univ., Bull., 4 (1888) p. 60, pl. 8, fig. 9; Geol. Surv. Ohio, Rept., 7 (1893) pl. 19, fig. 8—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 211.

*Cytheropsis ohioensis* MILLER, North American geol. pal., appendix 1 (1892) p. 707 (gen. ref.).

Waverly: Newark, etc., Ohio.

**Cythere okeni** Münster = **Paraparchites okeni**

**Cythere** ? ? **orbicularis** McCoy Carboniferous

*Cythere orbicularis* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 167, pl. 23, fig. 19—BOSQUET, Soc. Roy. Sci. Liège, Mém., 4 (1848-1849) p. 354—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 45, 46.

Ireland.

**Cythere** ? ? **paradoxa** Barrande Devonian (G 1)

*Cythere ? paradoxa* BARRANDE, Syst. Silurian Centre Bohême, 1, suppl. (1872) p. 508, pl. 31, figs. 1-3.

Chotetz, Bohemia.

**Cythere** ? ? **parmula** Richter Permian

*Cythere parmula* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 233, pl. 5, figs. 21, 22; *ibid.*, 21 (1869) p. 429.

Lower Zechstein: Thuringia, Germany.

**Cythere phaseolus** Bosquet = **Leperditia phaseolus**

**Cythere phaseolus** McCoy (not Hisinger) = **Leperditella maccoyii**

**Cythere** ? ? (? **Cypridina**) **phillipsiana** (McCoy)

Carboniferous

*Cytherina phillipsiana* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 164—ROEMER, Bronn's Leth. Geog., 1851, 1, pt. 2 (1856) p. 534.

*Cythere phillipsiana* KONINCK, Deser. anim. foss. Belgique (1842-1844) p. 585, p. 52, figs. 1a, b—GEINITZ, Grund. Verst. (1845-1846) p. 243—BOSQUET, Soc. Roy. Sci. Liège, Mém., 4 (1848-1849) p. 354—VOGT, Lehrb. Geol. Petr., 1 (1854) p. 316—SHUMARD, Geol. Surv. Mo., 1st and 2nd Ann. Rept., pt. 2 (1855) p. 195—KONINCK, Acad. Roy. Sci., Lettres, Beaux-Arts Belghiques, Bull., ser. 2, 15, no. 1 (1863) p. 110—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 38.

Ireland; Visé, Belgium.

**Cythere piscis** Richter = **Macrocypris piscis**

**Cythere plebeia** Geinitz = **Bairdia plebeia**

**Cythere plebeia brevicaudata** Jones = **Bairdia brevicaudata**

**Cythere plebeia caudata** Kirkby = **Bairdia caudata**

**Cythere plebeia compressa** Kirkby = **Bairdia kingi compressa**

**Cythere plebeia grandis** = **Bairdia grandis**

**Cythere plebeia reussiana** Geinitz = **Bairdia plebeia reussiana**

**Cythere plebeia rhombica** Jones = **Bairdia plebeia rhombica**

**Cythere plebeia ventricosa** Kirkby = **Bairdia plebeia ventricosa**

**Cythere** ? **punctulifera** (Hall) Nicholson = **Primitiopsis punctulifera**

**Cythere pungens** Jones and Kirkby = **Carbonita pungens**

**Cythere** ? ? **pusilla** McCoy

Carboniferous

*Cythere pusilla* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 167, pl. 23, fig. 20—BOSQUET, Soc. Roy. Sci. Liège, Mém., 4 (1848-1849) p. 354—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 45, 46.

Ireland.

**Cythere pustulosa** Fritsch

Permian

*Cythere pustulosa* FRITSCH, Fauna Gask. Kalks. Perm. Böhm, 4, pt. 3 (1901) p. 76, pl. 160, figs. 16, 17.

Bohemia.

**Cythere pyrrhae** Eichwald = **Jonesina pyrrhae**

**Cythere pyrrhae** Keyserling = **Bairdia ovata**

**Cythere rankiniana** Jones and Kirkby = **Carbonita rankiniana**

**Cythere recta** Keyserling = **Leperditia** (? **Bairdia**) **recta**

**Cythere regularis** Richter = **Macrocypris regularis**

**Cythere reussiana** (Jones) Richter = **Bairdia plebeia reussiana**

**Cythere richteriana** Jones and Kirkby = **Cytherella richteriana**

**Cythere roessleri** Reuss = **Kirkbya roessleri**

**Cythere schaurothiana** Geinitz = **Bairdia hisingeri**

**Cythere schrenkii** Keyserling = **Kirkbya permiana schrenkii**

- Cythere ? ? scutululum** McCoy Carboniferous  
*Cythere scutululum* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 168, pl. 23, fig. 21—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860–1862) p. 68, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 45, 46.  
 Ireland.
- Cythere secans** Jones and Kirkby = **Carbonita secans**
- Cythere (Cytherella) simplex** White and St. John Mississippian  
*Cythere simplex* WHITE and ST. JOHN, Prel. notice new gen. and spec. foss. (1867) p. 3; Chicago Acad. Sci., Tr., 1 (1867) p. 127—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 211.  
*Cytheropsis simplex* MILLER, North American geol. pal. (1889) p. 542 (gen. ref.).  
 St. Louis: near Webster City, Hamilton County, Iowa.
- Cythere spinigera** McCoy Carboniferous  
*Cythere spinigera* MCCOY, Synopsis characters Carboniferous fossils Ireland (1844) p. 168, pl. 23, fig. 23.  
 Ireland.
- Cythere spinosa** Richter Carboniferous  
*Cythere spinosa* RICHTER, Deutsch. Geol. Ges., Zeitschr., 16 (1864) p. 155.  
 Culm: Thuringia, Germany.
- Cythere sticta** Keyserling = **Amphissites sticta**
- Cythere subcylindrica** Münster = **Bairdia subcylindrica**
- Cythere subelongata** Geinitz = **Macrocypris subelongata**
- Cythere subgracilis** Geinitz Permian  
*Cythere subgracilis* GEINITZ, Anim. Ueber. Dyas (1861) p. 344, text fig. 2 (fig. 9)—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581.  
 Zechstein: Thuringia, Germany.
- Cythere sublaevis** Shumard = **Leperditia sublaevis**
- Cythere suborbiculata** Münster = **Paraparchites suborbiculata**
- Cythere ? ? subquadrata** Jones Silurian  
*Cythere ? subquadrata* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 191, pl. 7, figs. 6, 14; *ibid.*, ser. 6, 1 (1888) p. 410—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 153.  
 Shropshire, England (Lower Wenlock-Buildwas); Mulde, Gotland (Middle Gotlandian).
- Cythere subrecta** (Portlock) Griffith = **Paraparchites subrecta**
- Cythere subreniformis** Kirkby = **Carbonita intermedia**
- Cythere subula** Jones and Kirkby = **Carbonita intermedia**
- Cythere subula** Jones and Kirkby = **Carbonita subula**
- Cythere superba** Jones and Kirkby = **Paraparchites superbus**
- Cythere taeniata** Jones = **Entomis taeniata**
- Cythere thraso** Jones = **Bythocypris ? thraso**
- Cythere trituberculata** McCoy = **Mauryella trituberculata**

**Cythere ? tulensis** Semenow and Möller Devonian

*Cythere tulensis* SEMENOW and MÖLLER, Acad. Imp. Sci. St. Petersburg, Bull. 7 (1864) p. 235—WENJUKOW, Fauna dev. nordw. centr. Russland (1886) p. 638, pl. 11, fig. 4.

Northwest Russia.

**Cythere tyronica** Jones = **Cytherella tyronica****Cythere umbonata** SalterOrdovician?

*Cythere umbonata* SALTER, British Pal. Foss. Geol. Mus., appendix A (1852) p. ii—BARRANDE, Syst. Sil. Centre Bohême, pt. 1, suppl. (1872) p. 508, pl. 27, figs. 10a-e—BAILY, Fig. char. British fossils, 1 (1875) p. 38, pl. 13, figs. 1a, b—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, 2d ed., app. (1881) p. 397.

Bala, North Wales.

Possibly a branchiopod or a pelecypod.

**Cythere ventricornis** Jones and Kirkby = **Kirkbyina (?) ventricornis****Cythere ? ? (Primitiella) vinei** JonesSilurian

*Cythere ? vinei* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 191, pl. 7, figs. 1, 5—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 152—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1920-1921) p. 49, 98.

Ironbridge, etc., England (Wenlock shale, Buildwas and Tickwood beds); Mulde, Gotland (Middle Gotlandian).

**Cythere ? ? wrightiana** Jones and HollOrdovician

*Cythere wrightiana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 57, pl. 7, fig. 5—JONES in Nicholson and Etheridge, Mon. Sil. fossils Girvan (1878-1880) p. 217, pl. 15, fig. 7—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, ed. 2, appendix (1881) p. 409—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 306.

Kildare, Ireland (Caradoc); North Wales; Aldens, Scotland.

**Cythere youngiana** Jones and Kirkby = **Polycope youngiana****Cythereis ardmorensis** Harlton = **Monoceratina ardmorensis****Cythereis drupacea** Richter = **Bairdia drupacea****CYTHERELLA** Jones (Cytherellidae)

Genotype: *C. ovata* (Roemer)

*Cytherella* JONES, Mon. Entomostraca Cretaceous formation England, Palaeontogr. Soc. (1849) p. 28—BOSQUET, Acad. Roy. Belgique, Mém. Cour. Mém. Sav. Etrang., 24 (1852) p. 2; Mon. Crust. Foss. Cretace de Limbourg (1854) p. 43—PICTET, Traité de Pal., 2 (1854) p. 530—BORNEMANN, Deutsch. Geol. Ges., Zeitschr., 7 (1855) p. 353—REUSS, Neues Jahrb. Min. (1853) p. 676—JONES, Mon. Tertiary Entomostraca England, Palaeontogr. Soc., 9 (1856) p. 4, 6, 9, 10, 22, 54—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 321—JONES and KIRKBY, Tyne-side Nat. Field Club, Tr., 4 (1860) p. 158—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 226—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 582—JONES, Monthly Micr. Jour., 10 (1873) p. 76—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1874) p. 6—REUSS, Palaeontographica, 20, pt. 2 (1872-1875) p. 150—TERQUEM, Soc. Géol. France, Mém., ser. 3, 1, mem. 3 (1878) p. 93—BRADY, Zool. Soc. London, Tr., 10 (1879) p. 407—NICHOLSON and LYDEKKEER, Mon. Pal., 1 (1879) p. 508—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1884) p. 57, 70—ZITTEL, Handb. Pal., 2 (1885) p. 556—TERQUEM, Soc. Géol. France, Mém., ser. 3, 4, mem. 1 (1885) p. 41—JONES and KIRKBY, Geol. Assoc., London, Pr., 9 (1886) p. 502—TERQUEM, Soc. Géol.

France, Mém., ser. 3, 4, mem. 2 (1886) p. 106—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 192—JONES and SHERBORN, Geol. Mag., n. s., dec. 3, 4 (1887) p. 457—JONES and SHERBORN, Mon. Tertiary Entomostraca England, Palaeontogr. Soc., suppl. (1889) p. 47—VOGDEN, New York Acad. Sci., Ann., 5 (1889) p. 4, pl. 2, fig. 4—MILLER, North American geol. pal., appendix 1 (1892) p. 707—LIENENKLAUS, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 262—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 684; in Zittel-Eastman Textb. Pal., 1 (1900) p. 646—KOKEN, Die Leitfossilien (1896) p. 40—LIENENKLAUS, Deutsch. Geol. Ges., Zeitschr., 52 (1900) p. 545—NAMAIS, Palaeont. Ital., 6 (1900-1901) p. 111—GRABAU and SHIMER, North American index fossils (1910) p. 366—BASSLER, in Zittel-Eastman Textb. Pal., ed. 2 (1913) p. 740; U. S. Nat. Mus., Bull. 92 (1915) p. 372—KUIPER, Oligocène und Miocène Ostr. Nied. (1918) p. 81—MERRET, Geol. Mag., 61 (1924) p. 233—NEVIANI, Pont. Acad. Sci. Nouvi Lincei, Mem. 2, sess. 1 (1927-1928) p. 160—VAN VEEN, Natuurh. Maanblad, 17, no. 9 (1928) p. 124.—ALEXANDER, Univ. Texas, Bull. 2907 (1929) p. 47—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 38—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 382.

**Cytherea aequalis** Jones, Kirkby, and Brady Carboniferous

*Cythere aequalis* (Jones Mss.) MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 494, 559—KIRKBY, *ibid.*, 36 (1880) p. 573, 574, 576, 588—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 75—JONES and KIRKBY, *ibid.*, n. s., dec. 3, 1 (1884) p. 361; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., and table p. 510—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

*Cytherea aequalis* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1884) p. 74, pl. 6, figs. 14, 16.

Limestone: Great Orme's Head, North Wales; Gare, near Carlisle, Scotland; Yorkshire, England (Yoredale).

**Cytherea attenuata** (Jones and Kirkby) Carboniferous

*Leperditia attenuata* JONES and KIRKBY Mss., in Kirkby, Geol. Soc. London, Quart. Jour., 36 (1880) p. 568, 573, 588.

*Cytherea attenuata* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 252, pl. 7, fig. 14; Geol. Soc. London, Quart. Jour., 42 (1886) p. 510—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 176—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898-1899) p. 420-422—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—KIRKBY, Edinburgh Geol. Soc., Tr., 8 (1898-1905) p. 62-67, 73—YANICHEVSKY, Com. Géol. Leningrad, Bull., 46 (1927) p. 1026—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 382.

Northamptonshire, etc., South and North England (Carboniferous limestone); East and West Scotland (Calcareous sandstone); Carland, Ireland; Konznetzk Basin, Russia.

**Cytherea benniei** Jones, Kirkby, and Brady Carboniferous

*Cytherea benniei* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1884) p. 70, pl. 6, figs. 3-5, 7—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—GIRTY, U. S. Geol. Surv., Bull. 377 (1909) p. 72, pl. 5, fig. 8; U. S. Geol. Surv., Bull. 436 (1910) p. 57, pl. 7, figs. 5-7—ROTH, Okla. Geol. Surv., Circ. 18 (1929)—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 83.

North England (Yoredale); Lanarkshire, etc., East and West Scotland (Carboniferous limestone and Calcareous sandstone); Oklahoma (Caney); Wyoming (Park City).

**Cytherea benniei** Girty (part) = **Cytherea constricta**

**Cytherea benniei intermedia** Jones, Kirkby, and Brady = **C. intermedia**

**Cytherea benniei iowensis** Jones, Kirkby, and Brady = **C. iowensis**

**Cytherella ? bispinulata** Stewart

Middle Devonian

*Cytherella ? bispinulata* STEWART, Geol. Surv. Ohio, ser. 4, Bull. 32 (1927) p. 60, pl. 5, figs. 18, 19.

Silica shale: Near Silica, Lucas County, Ohio.

**Cytherella brevis** Jones

Carboniferous

*Cytherella brevis* JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 4—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1884) p. 72, pl. 6, figs. 8a, b—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—VOGDÉS, New York Acad. Sci., Ann., 5 (1889) pl. 2, fig. 4—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 310—VOGDÉS, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 4.

Lower and Upper limestone: Campsie District, West Scotland.

**Cytherella calcar** Harlton

Pennsylvanian

*Cytherella calcar* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 141, pl. 21, figs. 16a, b; Univ. Texas, Bull. 2901 (1929) p. 161, pl. 4, fig. 9—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 39.

Graham formation: East Menard and Young counties, Texas; Tulsa County, Okla. Holotype and plesiotype.—U.S.N.M. Nos. 72248, 80582.

**Cytherella concinna** Jones, Kirkby, and Brady

Carboniferous

*Cytherella concinna* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Palaeontogr. Soc. (1884) p. 79, pl. 6, figs. 19a, b—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 266—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 310—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 454; British Assoc. Handb. Glasgow (1901) p. 489—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 383.

Somerset, England; West Scotland (Calcareous sandstone and limestone); Iowa (Fusulina limestone).

**Cytherella constricta** Delo

Pennsylvanian

*Cytherella benniei* GIRTY, U. S. Geol. Surv., Bull. 389 (1902) p. 116, pl. 8, figs. 7–9—BRANSON, Univ. Mo. Studies, 5, no. 2 (1930) pl. 16, fig. 24.  
*Cytherella constricta* DELO, Jour. Pal., 4, no. 2 (1930) p. 177, pl. 13, fig. 16.

San Andreas Mountains, N. Mex. (Yeso formation); deep well, Pecos County, Texas. Holotype.—U.S.N.M. No. 81787.

**Cytherella elongata** Jones and Kirkby = **Youngiella? elongata****Cytherella emaciata** Geis

Mississippian

*Cytherella emaciata* GEIS, Jour. Pal., 6, no. 2 (1932) p. 185, pl. 26, figs. 8a, b.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Cytherella extuberata** (Jones and Kirkby)

Carboniferous

*Leperditia okeni extuberata* JONES and KIRKBY, Ms., Geol. Soc. London, Quart. Jour., 36 (1880) p. 573, 576, 578.

*Cytherella extuberata* JONES and KIRKBY, Geol. Mag., dec. 3, 8 (1886) p. 251, pl. 7, fig. 13a, d; Geol. Soc. London, Quart. Jour., 42 (1886) p. 510—JONES, Geol. Mag., n. s., dec. 3, 3 (1888) p. 533, 534—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 175—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898–1899) p. 420–442—KIRKBY, *ibid.*, 8 (1898–1905) p. 63–67, 74—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 382.

Northamptonshire and Northumberland, England (Carboniferous limestone); West and East Scotland (Calcareous sandstone); Ireland (Cultra shale).

**Cytherella footei** Coryell and Booth

Pennsylvanian

*Cytherella footei* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 270, pl. 4, fig. 1.

Wayland shale: Graham, Texas.

- Cytherella foveolata** Wright Carboniferous  
*Cytherella foveolata* WRIGHT, Belfast Nat. Field Club, 9th Ann. Rept. (1872) table p. 35—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 352.  
 Ireland and Scotland.
- Cytherella glandella** Ulrich = **Cavellina glandella**
- Cytherella gloria** Coryell and Sample Pennsylvanian  
*Cytherella benniei intermedia* JONES, KIRKBY, and BRADY (not *Cytherella intermedia* Bornemann, 1855), Mon. British Entomostraca Carb., Palaeontogr. Soc. (1884) p. 78, pl. 7, figs. 7a, b—DELO, Geo. Washington Univ. Studies, Sci. Techn. Contr., no. 5 (1931) p. 50, pl. 4, fig. 10.  
*Cytherella intermedia* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 78, pl. 7, fig. 1.  
*Cytherella gloria* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 271, pl. 26, fig. 14.  
 Iowa; Southeastern Oklahoma (Wewoka, Holdenville and Belle City); Mineral Wells, Texas (East Mountain shale).
- Cytherella granum** Wenjukoff Devonian  
*Cytherella granum* WENJUKOFF, Faun. Devonian Syst. nordw. und central Russlands (1886) p. 639, pl. 11, fig. 5.  
 Northwest Russia.
- Cytherella hibernica** Jones, Kirkby, and Brady Carboniferous  
*Cytherella hibernica* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc., pt. 1 (1884) p. 72, pl. 6, figs. 12a, b—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 510; Roy. Dublin Soc., Tr., 6 (1896) p. 178, pl. 11, fig. 7.  
 Cultra, near Hollywood, Ireland.
- Cytherella impressa** Jones, Kirkby, and Brady Coal Measures  
*Cytherella impressa* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 79, pl. 7, fig. 8.  
 Fusulina limestone: Iowa.
- Cytherella incurvescens** Jones and Kirkby Carboniferous  
*Cytherella incurvescens* JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 176, pl. 11, figs. 1-5—HARLTON, Jour. Pal., 50, no. 3 (1927) p. 211, pl. 33, figs. 13a-d.  
 Cultra, Ireland (Cultra shale); Love County, Okla. (Pennsylvanian-Upper Glenn).
- Cytherella inflata** Dawson = **Carbonita fabulina**
- Cytherella inflata** Münster = **Paraparchites inflatus**
- Cytherella inornata** Richter = **Paraparchites inornatus**
- Cytherella intercalaris** Jones and Kirkby Carboniferous  
*Cytherella intercalaris* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 16 (1895) p. 455, pl. 21, fig. 4.  
 Yoredale: Downholme, Yorkshire, England.
- Cytherella intermedia** Warthin = **Cytherella gloria**
- Cytherella iowensis** (Jones, Kirkby, and Brady) Coal Measures  
*Cytherella benniei iowensis* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 77, pl. 6, figs. 17, a, b.  
 Iowa.

- Cytherella intumescens** Reed Carboniferous  
*Cytherella* (?) *intumescens* REED, Pal. Indica, n. s., 10, mem. 1 (1927) p. 73, pl. 10, figs. 20, 21.  
 Yun-Nan, China.
- Cytherella lunata** Stoddard Carboniferous  
*Cytherella lunata* STODDARD, Ann. Mag. Nat. Hist., ser. 3, 8 (1861) p. 490, pl. 18, fig. 6.  
 Limestone: Clifton near Bristol, England.
- Cytherella mientiensis** Grabau Silurian  
*Cytherella* (?) *mientiensis* GRABAU, Pal. Sinica, ser. B, 3, fasc. 2 (1926) p. 76, pl. 4, figs. 36-39.  
 Yun-Nan, China.
- Cytherella minima** Kummerow Silurian  
*Cytherella minima* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 437, pl. 21, figs. 22a, b.  
 Drift (Beyrichia limestone): Sensburg, East Prussia, and Brandenburg, Germany.  
 Topotype.—U.S.N.M. No. 82346.
- Cytherella missouriensis** Knight Pennsylvanian  
*Cytherella missouriensis* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 334, pl. 4, figs. 8a-i.  
 Henrietta (Fort Scott limestone): St. Louis County, Mo.  
 Metatypes.—U.S.N.M. No. 83971.
- Cytherella molaris** Coryell and Rogatz Permian  
*Cytherella molaris* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 389, pl. 35, fig. 6.  
 Permian (Clear Fork-Arroyo): Tom Green County, Texas.
- Cytherella munchisoniana** Jones and Kirkby Carboniferous  
*Cytherella munchisoniana* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 57, pl. 6, figs. 13a, b, 14a-c.  
 Near Bugulina, Russia.
- Cytherella nebrascensis** (Geinitz) Coal Measures, Permian  
*Cythere cyclas* var. GEINITZ, Carb. und Dyas in Nebr. (1866) pl. 1, figs. 3, 4.  
*Cythere nebrascensis* GEINITZ, Carb. und Dyas in Nebr. (1866) p. 2, pl. 1, fig. 2—MEEK, U. S. Geol. Surv., Nebr., Final Rept. (1872) p. 237, pl. 11, figs. 2 (figs. ?3a, b)—KEYES, Acad. Nat. Sci. Philadelphia, Pr. (1888) p. 243—WHITE, U. S. Geol. Surv., Bull. 77 (1891) p. 30, pl. 4, fig. 20—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 211.  
*Cytheropsis nebrascensis* MILLER, North American geol. and pal. (1889) p. 541 (gen. ref.).  
 Nebraska City, Nebr.; Military Crossing, Baylor County, Texas.  
 Topotype.—U.S.N.M. No. 21708.
- Cytherella nuciformis** (Jones) Permian  
*Cythere* (*Cytherella*?) *nuciformis* JONES, King's Mon. Perm. fossils (1850) p. 64, pl. 18, figs. 11a-c—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 580, pl. 6, fig. 1.  
*Cythere nuciformis* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 160, pl. 11, figs. 7a-c—GEINITZ, Anim. Ueberr. Dyas (1861) p. 31, text fig. 2—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 227, pl. 5, figs. 7, 8; *ibid.*, 21 (1869) p. 429.  
*Cytherella nuciformis* REUSS, Jahresb. Wetter. Ges. (1854) p. 68, fig. 9—RICHTER, Deutsch. Geol. Ges., Zeitschr., 7 (1855) p. 529, pl. 26, figs. 8, 9—KIRKBY, Ann. Mag.



Nat. Hist., ser. 3, 2 (1858) p. 438—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 73, pl. 7, figs. 14a-c.

Near Sunderland, England; near Hanau and Saalfeld, Germany (Zechstein).

**Cytherella obesa** Jones, Kirkby, and Brady Carboniferous

*Cytherella obesa* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 75, pl. 7, fig. 10—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311.

Lower limestone: West Broadstone, Beith, West Scotland.

**Cytherella obliquata** Jones, Kirkby, and Brady Carboniferous

*Cytherella obliquata* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 73, pl. 7, figs. 5a-d—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

*Cytherella obliqua* (Brady Mss.) JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310.

Upper limestone: Lanarkshire, West Scotland.

**Cytherella ovalis** (Stottard) Carboniferous

*Cythere ovalis* STOTTARD, Ann. Mag. Nat. Hist., ser. 3, 8 (1861) p. 489, pl. 18, fig. 5.

Limestone: Clifton near Bristol, England.

**Cytherella ovata** Upson = **Cavellina winfieldensis**

**Cytherella ovatiformis** Ulrich Mississippian

*Cytherella ovatiformis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 209, pl. 17, figs. 3, 4a-c—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 212—GRABAU and SHIMER, North American index fossils (1910) p. 366, text fig. 1666 v-x—BATALINA, Com. Geol., Bull. 43, no. 10 (1924) p. 1324, 1335, pl. 22, fig. 7, pl. 23, figs. 12-14.

Grayson Springs, Caldwell County, Ky. (Chester); Novgorod, Russia.  
Cotypes.—U.S.N.M. No. 41809.

**Cytherella ovoidiformis** Harlton Pennsylvanian

*Cytherella ovoidiformis* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 141, pl. 21, figs. 15a, b; Univ. Texas, Bull. 2901 (1929) p. 161, pl. 4, fig. 9—DELO, Jour. Pal., 4 (1930) p. 177, pl. 13, fig. 15.

Graham formation: East Menard and Stephens counties, Texas.  
Cotypes and plesiotype.—U.S.N.M. Nos. 72247, 80569.

**Cytherella prevalida** Chapman Middle Devonian

*Cytherella prevalida* CHAPMAN, Roy. Micr. Soc., Jour., pt. 4 (1921) p. 331, pl. 8, figs. 12a, b.

Paffrath, Germany.

**Cytherella proxima** Coryell and Sample Pennsylvanian

*Cytherella proxima* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 272, pl. 26, fig. 9.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Cytherella quaesita** Roth Devonian

*Cytherella quaesita* ROTH, Jour. Pal., 3, no. 4 (1929) p. 367, pl. 33, figs. 27a-c—VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 341, pl. 39, p. 1, 2.

White Mound, Murray County, Okla. (Helderbergian, Haragan); Rogers City, Mich. (Bell shale).  
Holotype.—U.S.N.M. No. 80644.

**Cytherella recta** Jones, Kirkby, and Brady Carboniferous

*Cytherella recta* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 68-71, pl. 6, figs. 6, 11—JONES and KIRKBY, Geol. Mag., dec. 3, 2 (1885) p. 540; Geol. Soc. London, Quart. Jour., 42 (1886) p. 510; Geol. Assoc., Pr., 9 (1887) p. 502—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 178; British Assoc. Handb. Glasgow (1901) p. 489—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 383.

Upper limestones: Lanarkshire, etc., Scotland; County Down, Ireland; North England (Yoredale).

**Cytherella regularis** Jones, Kirkby, and Brady Coal Measures

*Cytherella regularis* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 78, pl. 7, figs. 6a, b; (?var., pl. 7, fig. 9).

Fusulina limestone: Iowa and Danville, Ill.

**Cytherella reticulosa** Jones and Kirkby = **Amphissites reticulosus****Cytherella richteriana** (Jones and Kirkby)Permian

*Cythere richteriana* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 167, pl. 11, figs. 21a-c—GEINITZ, Anim. Ueber. Dyas (1861) p. 32—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 226, pl. 5, fig. 11—REUSS, Sitz. Math.-Nat. Kl. K. Akad. Wiss., 55, Bd., 1 Abt. (1867) p. 284—RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 429.

Zechstein: Thuringia, Germany.

**Cytherella richteriana** Jones, Kirkby, and Brady (not Jones and Kirkby, 1860) Devonian

*Cytherella richteriana* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 80, pl. 7, fig. 4.

Cypridinen Schiefer: Saalfeld, Germany.

**Cytherella rotundata** Jones, Kirkby, and Brady Carboniferous

*Cytherella? rotundata* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 76, pl. 7, fig. 15—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Lower limestone: Burnbank, Carluke, etc., East and West Scotland.

**Cytherella? rugosa** (Jones) Ordovician

*Cytheropsis rugosa* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 249, pl. 10, fig. 5; Geol. Surv. Canada, dec. 3 (1858) p. 100.

*Primitia rugosa* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 55 (gen. ref.).

*Cytherella? rugosa* JONES, Geol. Surv. Canada, Contr. Canada Micro.-Pal., pt. 3 (1891) p. 99 (gen. ref.)—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 866, pl. 43, figs. 21-24—GRABAU and SHIMER, North American index fossils (1910) p. 366, text fig. 1666 t, u—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 363.

Black River (Leray): Pauquette's Rapids, Ottawa River, Canada.  
Trenton (Prosser): Cannon Falls, Minn.  
Plesiotypes.—U.S.N.M. No. 41814.

**Cytherella? rugosa arcta** Ulrich Ordovician

*Cytherella? rugosa arcta* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 866, pl. 43, fig. 25—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 374.

Trenton (Prosser): Near Cannon Falls, Minn.  
Holotype.—U.S.N.M. No. 41815.

- Cytherella savagei** Geis Mississippian  
*Cytherella savagei* GEIS, Jour. Pal., 6, no. 2 (1932) p. 184, pl. 26, figs. 6a-f.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Cytherella scrobiculata** Jones, Kirkby, and Brady Carboniferous  
*Cytherella scrobiculata* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 76, pl. 6, fig. 10—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510; Geol. Assoc., Pr., 1885-1886, 9 (1887) p. 403.—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.  
 Near Glasgow, etc., West and East Scotland (Upper and Lower limestones); North England (Yoredale and Carboniferous limestone).
- Cytherella simplex** Jones, Kirkby, and Brady Carboniferous  
*Cytherella simplex* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 218—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 75, pl. 7, fig. 3a, b—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 509—YOUNG, Geol. Soc. Glasgow, Tr., 1882-1892, 9 (1893) p. 310—JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 177; British Assoc. Handb. Glasgow (1901) p. 489.  
 Limestone: Near Carluke, etc., East and West Scotland; Carland, Ireland.
- Cytherella smithii** Jones Silurian  
*Cytherella smithii* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 192, pl. 7, figs. 15, 16—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 177—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 156—HEDE, Sver. Geol. Unders., ser. C, no. 281, Arsb. 11, no. 2 (1917) p. 25, 29.  
 Shropshire, England (Woolhope); Mulde, Gotland (Middle Gotlandian).
- Cytherella spergenensis** Geis Mississippian  
*Cytherella spergenensis* GEIS, Jour. Pal., 6, no. 2 (1932) p. 185, pl. 26, figs. 7a, b.  
 Salem (Spergen) limestone: Harrodsburg, etc., Ind.
- Cytherella subfusiformis** Oehlert = **Cypridina? subfusiformis**
- Cytherella subparallela** Jones Ordovician  
*Cytherella subparallela* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 293, pl. 12, figs. 11-14.  
 Bala: Dufton and Puggill, Westmoreland, England.
- Cytherella subreniformis** Jones, Kirkby, and Brady Coal Measures  
*Cytherella subreniformis* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 79, pl. 6, figs. 18a-c.  
 Fusulina limestone: Iowa.
- Cytherella? subrotunda** Ulrich Ordovician  
*Cytherella? subrotunda* ULRICH, Geol. Minn. 3, pt. 2 (1894) p. 685, pl. 44, fig. 43—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 374.  
 Black River (Decorah): Minneapolis, Minn.  
 Holotype.—U.S.N.M. No. 41808.
- Cytherella tatei** Jones Carboniferous  
*Cytherella tatei* JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 323, pl. 2, figs. 1a, 1c—VINE, Naturalist, 10 (1885) p. 98, 100—JONES and KIRKBY, Geol. Soc. Lon-

don, Quart. Jour., 42 (1886) p. 496—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 74, pl. 7, figs. 1a-c.

Lower Mountain limestone: Lamberton, Berwickshire, Scotland.

**Cytherella tongia** Coryell and Sample Pennsylvanian

*Cytherella tongia* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 271, pl. 26, fig. 11.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Cytherella tyronica** (Jones) Permian

*Cythere? inornata* KING and JONES, Geol. Soc. Dublin, Jour., 7 (1856) p. 69, p. 78, pl. 1, fig. 13.

*Cythera tyronica* JONES, Tyneside Nat. Field Club, Tr., 4 (1860) p. 166, pl. 11, figs. 20a-b—GEINITZ, Anim. Übrerr. Dyas (1861) p. 32, text fig. 2—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 227, pl. 5, figs. 9, 10—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 580, pl. 6, fig. 12—RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 429.

Tullyconnell, Tyrone, Ireland; Saalfeld, etc., Thuringia, Germany (Zechstein).

**Cytherella unioniformis** Herrick Mississippian

*Cytherella unioniformis* HERRICK, Geol. Soc. Am., Bull. 2 (1891) p. 44, pl. 1, figs. 8-10—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 212.

Waverly (Cuyahoga): Scioto County, Ohio.

**Cytherella valida** Jones, Kirkby, and Brady Carboniferous

*Cytherella valida* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 70, pl. 6, figs. 2a-c; pl. 7, figs. 13a, b; Geol. Mag., dec. 3, 2 (1885) p. 540; Geol. Soc. London, Quart. Jour., 42 (1886) p. 509—JONES, Geol. Mag., n. s., dec. 3, 3 (1886) p. 435—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1895) p. 175—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898-1899) p. 420-442—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Mountain limestone: Calees, East Cumberland, etc., England; Carland, etc., Ireland: East and West Scotland (Calcliferous sandstone).

**Cytherella valida affiliata** Jones and Kirkby Carboniferous

*Cytherella valida affiliata* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 262, pl. 9, fig. 1; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509.

Yoredale, Lancashire, England.

**Cytherella watkinsi** Coryell and Sample Pennsylvanian

*Cytherella watkinsi* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 272, pl. 26, fig. 8.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Cytherella wewokana** Warthin Pennsylvanian

*Cytherella wewokana* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 77, pl. 7, fig. 2—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 272, pl. 26, fig. 13.

Four miles east of Ada, Okla. (Wewoka formation); Mineral Wells, Texas (East Mountain shale).

**CYTHERELLINA** Jones and Holl = **BYTHOCYPRIS**

**Cytherellina glandella** Whitfield = **Cavellina glandella**

**Cytherellina jonesii** Bonnema = **Bythocypris jonesii**

**Cytherellina krausei** Bonnema = **Bythocypris krausei**

- Cytherellina punctulifera* Warthin = **Primitiopsis ? punctulifera**  
*Cytherellina robusta* Kummerow = **Bythocypris robusta**  
*Cytherellina ruedemanni* Bonnema = **Bythocypris ruedemanni**  
*Cytherellina siliqua* Jones and Holl = **Bythocypris siliqua**  
*Cytherellina siliqua grandis* Jones and Holl = **Bythocypris grandis**  
*Cytherellina siliqua ovata* Jones and Holl = **Bythocypris siliqua ovata**  
*Cytherellina siliqua teres* Jones and Holl = **Bythocypris teres**  
*Cytherellina (Bythocypris) teres* Jones = **Bythocypris teres**  
*Cytherellina ulrichi* Bonnema = **Bythocypris ulrichi**  
**CYTHERINA** Lamarck, Anim. Sans Vert. t. v. 1818, p. 125. Not a Paleozoic genus  
*Cytherina alta* Conrad etc. = **Leperditia alta** and **L. jonesi**  
*Cytherina balthica* Hisinger = **Leperditia hisingeri** and **L. balthica**  
*Cytherina costata* Richter = **Richterina costata**  
*Cytherina crenulata* Emmons = **Cytheropsis crenulata**  
*Cytherina cylindrica* Hall = **Leperditia cylindrica**  
*Cytherina emmonsi* Vogdes = **Cytheropsis emmonsi**  
**Cytherina eos** Eichwald Permian  
*Cytherina (Cyclas) eos* EICHWALD, Soc. Imp. Nat. Moscou, Bull., 30, no. 4 (1857)  
 p. 307; Leth. Ross., 1 (1860) p. 1344.  
 Zechstein: Burakowa, Russia.  
**Cytherina fabulites** Conrad = **Leperditia fabulites**  
**Cytherina hemispherica** Richter = **Richterina hemispherica**  
**Cytherina minuta** Eichwald = **Primitia minuta**  
**Cytherina moravica** Rzekak = **Richterina (Fossirichterina) moravica**  
**Cytherina ovata** Eichwald = **Bairdia ovata**  
**Cytherina phaseolus** Hisinger = **Leperditia phaseolus**  
**Cytherina philipsiana** Koninck = **Entomoconchus scouleri**  
**Cytherina pyrrhae** Eichwald = **Jonesina pyrrhae**  
**Cytherina spinosa** Hall = **Paraechmina spinosa**  
**Cytherina subcylindrica** Emmons = **Cytheropsis emmonsi**  
**Cytherina subelliptica** Emmons = **Cytheropsis subelliptica**  
**Cytherina subrecta** Portlock = **Paraparchites subrectus**  
**Cytherina striatula** Richter = **Richterina striatula**  
**Cytherina tuberculata** Beyrich = **Beyrichia tuberculata**

**CYTHEROPSIS** McCoy

Genotype: *C. aldensis* McCoy

*Cytheropsis* McCoy, Ann. Mag. Hist., ser. 2, 4 (1849) p. 414; *ibid.*, ser. 2, 8 (1851) p. 387; Contr. British Pal. (1854) p. 153; Syn. Classification British Pal. Rocks (1851) pl. 1E., fig. 2—JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 248; Geol. Surv. Canada, dec. 3, 1 (1858) p. 98—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1863) p. 61—BARRANDE, Syst. Silurien Centre Bohême, pt. 1, suppl. (1872) p. 508—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 13—TERQUEM, Soc. Géol. France, Mém., ser. 3, 4, mem. 1 (1885)

p. 23; *ibid.*, mem. 2 (1886) p. 97—MILLER, North American geol. pal. (1889) p. 541—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 98—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 374.

This genus was never properly established, but when the genotype now referred to *Pontocypris* is restudied, *Cytheropsis* may assume valid standing.

**Cytheropsis aldensis** McCoy = **Pontocypris aldensis**

**Cytheropsis bisulcata** Kolmodin

Silurian

*Cytheropsis bisulcata* KOLMODIN, Sverig. Silurian Ostrac. (1869) p. 21, fig. 14; Ofv. Kon. Vet.-Akad. Förh., 36 (1879) p. 139—JONES, Sil. Ostrac. Gothland (1887) p. 8.

Gotlandian: Island of Gotland.

**Cytheropsis cincinnatiensis** Miller = **Elpe cincinnatiensis**

**Cytheropsis concinna** Jones = **Aparchites concinnus**

**Cytheropsis concinna?** Kolmodin = **Primitia minuta**

**Cytheropsis crassimarginata** Miller = **Cythere ?? crassimarginata**

**Cytheropsis crenulata** (Emmons)

Ordovician

*Cytherina crenulata* EMMONS, Am. Geol., 1, pt. 2 (1855) p. 220, text fig. 75, d, c—LESLEY, Geol. Surv. Pa., Rept., P. 4 (1889) p. 187, 2 text figs.

*Cytheropsis crenulata* MILLER, North American geol. pal. (1889) p. 541 (gen. ref.)—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 375.

Trenton: Middleville, N. Y.

**Cytheropsis derelicta** Barrande

Ordovician

*Cytheropsis derelicta* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 509, pl. 24, fig. 31.

Koenigshof, Bohemia.

**Cytheropsis emmonsi** (Vogdes)

Ordovician

*Cytherina subcylindrica* EMMONS, Am. Geol., 1, pt. 2 (1855) p. 220, fig. 75b.

*Cytheropsis subcylindrica* MILLER, North American geol. pal. (1889) p. 542 (gen. ref.).

*Cytherina emmonsi* VOGDES, New York Acad. Sci., Ann., 5 (1889) p. 13a (to replace *C. subcylindrica*, preoccupied)—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 375.

Trenton: Middleville, N. Y.

**Cytheropsis glandella** Miller = **Cytherella glandella**

**Cytheropsis irregularis** Miller = **Elpe irregularis**

**Cytheropsis (? Bythocypris) melonica** Barrande

Ordovician (D4)

*Cytheropsis melonica* BARRANDE, Syst. Silurian Centre Bohême, 1, suppl. (1872) p. 509, pl. 25, figs. 7, 8.

Zahorzan, Bohemia.

**Cytheropsis nebrascensis** Miller = **Cythere nebrascensis**

**Cytheropsis ohioensis** Miller = **Cythere ohioensis**

**Cytheropsis rugosa** Jones = **Cytherella? rugosa**

**Cytheropsis siliqua** Jones = **Macrocypris? siliqua**

**Cytheropsis simplex** Miller = **Cythere simplex**

**Cytheropsis subcylindrica** (Emmons) Miller = **Cytherina emmonsi**

**Cytheropsis subelliptica** (Emmons)

Ordovician

*Cytherina subelliptica* EMMONS, Am. Geol., 1 (1855) p. 220, text fig. 75, a.

*Cytheropsis subelliptica* MILLER, North American geol. pal. (1889) p. 542 (gen. ref.)—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 375.

Black River: Near Watertown, N. Y.

**Cytheropsis subtestis** Tromelin and Lebesconte Silurian

*Cytheropsis subtestis* TROMELIN and LEBESCONTE, Assoc. Franc. Avanc. Sci., C. R. 1875 (1876) p. 523.

France.

**Cytheropsis (Bythocypris?) testis** Barrande Ordovician

*Cytheropsis testis* BARRANDE, Syst. Silurian Centre Bohême, **1**, suppl. (1872) p. 510, pl. 25, figs. 29, 30; Assoc. Franc. Avanc. Sci., C. R. 1875 (1876) p. 623.

Drabow, Bohemia.

**Cytheropsis umbonata** Baily, Fig. Char. British Fossils, **1** (1875) p. 32.

**Daphnia primaeva** McCoy = **Cypridina primaeva**

**DARWINELLA** Brady and Robertson = **DARWINULA**

**Darwinella berniciana** Jones = **Darwinula berniciana**

**DARWINULA** Jones (Darwinulidae)

Genotype: *D. stevensoni* Brady and Robertson (Recent)

*Darwinella* BRADY and ROBERTSON (to replace *Polycheles* Brady and Robertson, preoccupied) Ann. Mag. Nat. Hist., ser. 4, **9** (1872) p. 50—BRADY, CROSSKEY, and ROBERTSON, Post-Tert. Entom. Scotl., Mon., Pal. Soc. (1874) table p. 111, p. 140.

*Darwinula* (new name for *Darwinella* preoccupied) JONES, Geol. Soc. London, Quart. Jour., **41** (1885) p. 319, 346—JONES and KIRKBY, Geol. Assoc., Pr., **9**, 1885-1886 (1887) p. 513—MEHES, Foldani Kozlony (Geol. Mitt.) **38** (1908) p. 538, 602.

**Darwinula berniciana** (Jones) Carboniferous

*Darwinella?* *berniciana* JONES, Berwickshire Nat. Club, Pr., **10** (1884) p. 325, pl. 2, fig. 4a-c—VINE, Naturalist, **10** (1885) p. 98.

*Darwinella berniciana* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 513—JONES, Geol. Mag., n. s., dec. 3, **3** (1886) p. 147, 533—JONES and KIRKBY, British Assoc. Glasgow (1901) p. 491.

Northumberland, North England (Redesdale); Scotland.

**DEPRANELLA** Ulrich = **DREPANELLA**

**Depranella ampla**, etc. = **Drepanella ampla**, etc.

**DIBOLBINA** Ulrich and Bassler (Beyrichiidae)

Genotype: *D. cristata* Ulrich and Bassler

*Dibolbina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 312.

**Dibolbina cristata** Ulrich and Bassler Silurian

*Dibolbina cristata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 659, pl. 63, figs. 13-15.

Cayugan (Tonoloway): Keyser, W. Va.; Pinto, etc., Md.  
Cotypes.—U.S.N.M. No. 63705.

**Dibolbina producta** Ulrich and Bassler Silurian

*Dibolbina producta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 660, pl. 63, fig. 16.

Cayugan (Tonoloway): Near Hancock, Md.  
Holotype.—U.S.N.M. No. 63707.

**DICRANELLA** Ulrich (Primitiidae)Genotype: *D. bicornis* Ulrich

*Dicranella* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 664; Zittel-Eastman Textb. Pal., 1 (1900) p. 644—GRABAU and SHIMER, North American index fossils (1910) p. 349—BASSLER, Zittel-Eastman Textb. Pal., 2d ed. (1913) p. 738; U. S. Nat. Mus., Bull. 92 (1915) p. 415—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 301.

**Dicranella bicornis** Ulrich

Ordovician

*Dicranella bicornis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 655, pl. 44, fig. 26—GRABAU and SHIMER, North American index fossils (1910) p. 349, text fig. 1657 j. k.—BASSLER, Zittel-Eastman Textb. Pal. (1913) p. 738, fig. 1425d; U. S. Nat. Mus., Bull. 92 (1915) p. 415—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 229, 301, fig. 15.

*Beyrichia bicornis* MILLER, North American geol. pal., 2d appendix (1897) p. 797 (gen. ref.).

Black River (Decorah): Minneapolis and St. Paul, Minn.  
Cotypes.—U.S.N.M. No. 41366.

**Dicranella bivertex** (Ulrich)

Ordovician

*Leperditia bivertex* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 2 (1879) p. 11, pl. 7, figs. 5, 5a.

*Ulrichia bivertex* RUEDEMANN, N. Y. State Mus., Bull. 162 (1912) p. 120, pl. 9, figs. 11, 12—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1311; Md. Geol. Surv., Cambrian and Ordovician vol. (1919) p. 169, 182, 370, pl. 55, fig. 32.

Trenton: Covington, Ky. and vicinity (Cynthiana); Pennsylvania (Martinsburg); Canajoharie, N. Y. (Canajoharie).  
Holotype.—U.S.N.M. No. 41365.

**Dicranella ? byrnesi** (Miller)

Ordovician

*Leperditia byrnesi* MILLER, Cincinnati Quart. Jour. Sci., 1 (1874) p. 123, text fig. 10—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 2 (1879) p. 9, 11—MILLER, North American geol. pal. (1889) p. 552, text fig. 1020.

*Aechmina byrnesi* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 12, pl. 3, figs. 9-11—BOTKE, Verh. Geol. Mij. Gen. Nederland, Geol. ser., Deel 3 (1916) p. 22, 28.

*Dicranella ? byrnesi* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 664—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 415.

Trenton (uppermost beds): Cincinnati, Ohio, and vicinity.  
Topotypes.—U.S.N.M. No. 41531.

**Dicranella macrocarinata** Harris

Ordovician

*Dicranella macrocarinata* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 92, pl. 14, fig. 3a, b.

Simpson (Bromide): A quarter mile west of Highway 77, Arbuckle Mts., sec. 25, T. 2 S., R. 1 E., Okla.

**Dicranella marginata** Ulrich

Ordovician

*Dicranella marginata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 666, pl. 44, fig. 27, 28—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 415.

*Beyrichia marginata* MILLER, North American geol. pal., 2nd appendix (1897) p. 786 (gen. ref.).

Black River (Decorah): Fountain, St. Paul, etc., Minn.  
Holotype.—U.S.N.M. No. 41368.

**Dicranella marrii** (Jones)

Ordovician

*Ulrichia marrii* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 294, pl. 12, fig. 16.

Bala: Dufton, Westmoreland, England.



**Dicranella nicholsoni** (Jones) Ordovician  
*Ulrichia nicholsoni* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 294, pl. 12, fig. 15.

Bala: Pusgill, Westmoreland, England.

**Dicranella ? simplex** Ulrich Ordovician  
*Dicranella ? simplex* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 666, pl. 44, figs. 24, 25; pl. 46, fig. 42—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 415.  
*Beyrichia simplex* MILLER, North American geol. pal., 2nd appendix (1897) p. 787 (gen. ref.).

Black River (Decorah): Fountain and Cannon Falls, Minn.  
 Holotype.—U.S.N.M. No. 41367.

**Dicranella spinosa** Ulrich Ordovician  
*Dicranella spinosa* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 665, pl. 44, fig. 23; pl. 46, fig. 41—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 415.  
*Beyrichia spinosa* MILLER, North American geol. pal., 2nd appendix (1897) p. 787 (gen. ref.).

Black River (Decorah): Minneapolis and Cannon Falls, Minn.  
 Holotype.—U.S.N.M. No. 41369.

**DILOBELLA** Ulrich (Primitiidae)

Genotype: *D. typa* Ulrich

*Dilobella* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 672—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 311—GRABAU and SHIMER, North American index fossils (1910) p. 347—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 437—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 302.

**Dilobella auricularis** (Krause) Ordovician  
*Entomis auricularis* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 390, pl. 22, fig. 5—ANDERSSON, Ofv. Kon. Vet.-Akad. Förh., no. 2 (1893) p. 128—KOKEN, Die Leitfossilien (1896) p. 382.

Drift (Ceratopsis rostrata beds): Müggellheim, North Germany.

**Dilobella lorraineensis** Ruedemann Ordovician  
*Dilobella lorraineensis* RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 142.

Lower Lorraine (Whetstone Gulf): Mill Creek section, N. Y.

**Dilobella obliqua** (Krause) Ordovician  
*Entomis obliqua* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 388, pl. 22, fig. 10—ANDERSSON, Ofv. Kon. Vet.-Akad. Förh., no. 2 (1893) p. 128—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 935 (loc. occ.)—KOKEN, Die Leitfossilien (1896) p. 381—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 310.

Drift: Müggellheim, North Germany; Holland.

**Dilobella (Ctenobolbina ?) obliqua kuckersiana** (Bonnema) Ordovician  
*Entomis obliqua kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 68, pl. 5, figs. 12-16.

Kuckers (C2): Kuckers, Esthonia.  
 Topotypes.—U.S.N.M. No. 83941.

**Dilobella simplex** (Krause) Ordovician  
*Entomis simplex* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 390, pl. 21, fig. 6.

Drift: Müggellheim, North Germany.

**Dilobella texana** Coryell and Booth Pennsylvanian  
*Dilobella texana* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 273,  
 pl. 5, fig. 13.

Wayland shale: Graham, Texas.

**Dilobella typa** Ulrich Ordovician  
*Dilobella typa* ULRICH, Geol. Minn., 2, pt. 2 (1894) p. 673, pl. 46, figs. 30-34—  
 GRABAU and SHIMER, North American index fossils (1910) p. 348, text fig. 1658,  
 s, s', t—BASSLER, Zittel-Eastman Textb. Pal. (1913) p. 758, fig. 1658; U. S. Nat.  
 Mus., Bull. 92 (1915) p. 437—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 299, fig. 15 (fig. 28) p. 302.

*Bollia typa* MILLER, North American geol. pal., 2nd appendix (1897) p. 787  
 (gen. ref.).

Black River (Decorah): St. Paul and Cannon Falls, Minn.

Cotypes.—U.S.N.M. No. 41641.

**Dithyrocaris glypta** Jones = **Kirkbya permiana glypta**

**Dithyrocaris permiana** Jones = **Kirkbya permiana**

**DIZYGOPLEURA** Ulrich and Bassler (Kloedenellidae)

Genotype: *D. swartzi* ULRICH and BASSLER

*Dizygopleura* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 313—  
 MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 41.

**Dizygopleura acuminata** Ulrich and Bassler Silurian

*Dizygopleura acuminata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 685, pl. 60, figs. 4-9.

Cayugan: Flintstone and Cumberland, Md. (McKenzie); Syracuse, N. Y. (Vernon).

Cotypes.—U.S.N.M. Nos. 63682, 63686.

**Dizygopleura acuminata prolapsa** Ulrich and Bassler Silurian

*Dizygopleura acuminata prolapsa* ULRICH and BASSLER, Md. Geol. Surv., Silurian  
 vol. (1923) p. 685, pl. 60, figs. 10-12.

Cayugan (McKenzie): Flintstone, Md.

Cotypes.—U.S.N.M. No. 63683.

**Dizygopleura affinis** Ulrich and Bassler Silurian

*Dizygopleura affinis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 686, pl. 60, fig. 13.

Cayugan (Wills Creek): Near Hancock, Md.

Holotype.—U.S.N.M. No. 63681.

**Dizygopleura asymmetrica** Ulrich and Bassler Silurian

*Dizygopleura asymmetrica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 690, pl. 61, figs. 9, 10.

Upper Clinton (*Drepanellina clarki* zone): Cumberland, Md.

Cotypes.—U.S.N.M. No. 63675.

**Dizygopleura brevisulcata** Swartz Silurian

*Dizygopleura brevisulcata* SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 251, pl. 29, figs.  
 9a-g, 10a-e.

Cayugan (Middle McKenzie): Lakemont near Altoona, etc., Pa.

**Dizygopleura bulbifrons** Ulrich and Bassler Silurian

*Dizygopleura bulbifrons* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 687, pl. 60, fig. 14.

Cayugan (McKenzie): Flintstone, Md.

Holotype.—U. S. N. M. No. 63693.

- Dizygopleura carinata** Ulrich and Bassler Silurian  
*Dizygopleura carinata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 684, pl. 60, figs. 1-3.  
 Cayugan (McKenzie): Cumberland, Md.
- Dizygopleura clarkei** (Jones) Devonian  
*Beyrichia clarkei* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 17, text fig. 2.  
*Bollia clarkei* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 669 (gen. ref.).  
*Kloedenella clarkei* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 319; Md. Geol. Surv., Lower Devonian vol. (1913) p. 533, pl. 97, fig. 21—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 683.  
*Dizygopleura clarkei* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 698, pl. 62, figs. 31, 32.  
 Helderbergian: Schoharie County, N. Y. (Manlius transition); Cumberland, Md. (Keyser).  
 Plesiotypes.—U.S.N.M. No. 63657.
- Dizygopleura clarkei paupera** (Ulrich and Bassler) Devonian  
*Kloedenia clarkei paupera* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 320, pl. 43, fig. 5.  
*Kloedenella clarkei paupera* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 534, pl. 98, figs. 1-3—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 683.  
 Helderbergian (Keyser): Cumberland, Md.  
 Holotype.—U.S.N.M. No. 53280.
- Dizygopleura concentrica** Ulrich and Bassler Silurian  
*Dizygopleura concentrica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 691, pl. 61, fig. 11.  
 Cayugan (McKenzie—30 feet below top): Pinto, Md.  
 Holotype.—U.S.N.M. No. 63666.
- Dizygopleura concentrica subquadrata** Ulrich and Bassler Silurian  
*Dizygopleura concentrica subquadrata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 692, pl. 61, fig. 12.  
 Cayugan (McKenzie—30 feet above base): Flintstone, Md.  
 Holotype.—U.S.N.M. No. 63667.
- Dizygopleura conjugata** Swartz Silurian  
*Dizygopleura conjugata* SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 249, pl. 29, figs. 7a-d, 8a-d; pl. 30, fig. 10.  
 Cayugan (Lower McKenzie): Near Lewistown, etc., Pa.; Virginia.
- Dizygopleura costata** Ulrich and Bassler Silurian  
*Dizygopleura costata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 700, pl. 60, figs. 23, 24.  
 Cayugan (Tonoloway): Keyser, W. Va.; Pinto, etc., Md.  
 Cotypes.—U.S.N.M. No. 63677.
- Dizygopleura cranei** Ulrich and Bassler Silurian  
*Dizygopleura cranei* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 690, pl. 61, figs. 4-8.  
 Upper Clinton (*Drepanellina clarki* zone): 7 miles west of Lewiston, Pa.  
 Cotypes.—U.S.N.M. No. 63665.
- Dizygopleura euglyphea** Warthin Devonian  
*Dizygopleura euglyphea* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 210, pl. 1, fig. 7.  
 Lower Gravel Point: Emmet County, Mich.

**Dizygopleura falcifera** Ulrich and Bassler Silurian  
*Dizygopleura falcifera* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 694, pl. 62, figs. 11, 12.

Cayugan (McKenzie): 1½ miles east of Great Cacapon, W. Va.  
 Holotype.—U.S.N.M. No. 63658.

**Dizygopleura gibba** Ulrich and Bassler Silurian  
*Dizygopleura gibba* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 684, pl. 59, fig. 25.

Cayugan (Upper McKenzie): Flintstone, Md.  
 Holotype.—U.S.N.M. No. 63680.

**Dizygopleura hallii** (Jones) Silurian, Devonian  
*Beyrichia hallii* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 15, pl. 4,  
 fig. 21—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 390.  
*Bollia halli* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 669 (gen. ref.).

*Kloedenella halli* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 319,  
 fig. 62, pl. 43, fig. 4—CLARKE, N. Y. State Mus., Mem. 9, pt. 2 (1909) p. 13, 21—  
 GRABAU and SHIMER, North American index fossils (1910) p. 359, text fig. 1663g—  
 BONNEMA, Sci. Akad. Wet., Amsterdam, Pr., 16 (1914) p. 1107, pl. fig. 6—BASSLER,  
 U. S. Nat. Mus., Bull. 92 (1915) p. 683.

*Poloniella halli* VAN VEEN, in English, Kon. Akad. Wet., Pr. Sect. Sci., 23, pt. 2  
 (1922) p. 995, pl. fig. 12. In Dutch: Kon. Akad. Wet. Amsterdam, Versl. Gew.  
 Verg. Wis.-en Naturk., Afd. 29 (1921) p. 892, pl. fig. 12.

*Dizygopleura halli* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 696, pl. 62, figs. 24, 25.

Helderbergian: near Utica, etc., N. Y. (Manlius transition); near Hancock, Pinto, etc., Md. (Tonoloway).  
 Plesiotypes.—U.S.N.M., Nos. 63652, 63653.

**Dizygopleura halli obscura** Ulrich and Bassler Silurian  
*Dizygopleura halli obscura* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 697, pl. 62, fig. 26.

Cayugan (Tonoloway): Keyser, W. Va.; Pinto, etc., Md.  
 Cotypes.—U.S.N.M., No. 63654.

**Dizygopleura (? Poloniella) hieroglyphica** (Krause) Silurian  
*Beyrichia hieroglyphica* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 506,  
 pl. 32, fig. 10—VAN VEEN, in English, Kon. Akad. Wet., Pr. Sect. Sci., 23, pt. 2  
 (1922) p. 993-996, pl. figs. 2, 3, 5, 6, 8, 10, 11.

*Kloedenella hieroglyphica* BONNEMA, Sci. Kon. Akad. Wet., Amsterdam, Pr., 16  
 (1914) p. 1105-9, figs. 1-5—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser.,  
 Deel 3 (1916) Bladg. 21-30, p. 26.

*Poloniella hieroglyphica* VAN VEEN, Kon. Akad. Wet., Pr. Sect. Sci., 23,  
 pt. 2 (1922) p. 994—BONNEMA, Jour. Pal., 4 (1930) p. 118, figs. 5-7; Zeitschr. Ge-  
 schiefbeforschung, 9, pt. 1 (1933) p. 28, figs. 4-7.

*Dizygopleura hieroglyphica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 699, pl. 60, fig. 22.

Drift (Beyrichia limestone?): Mark Brandenburg, Germany.  
 Plesiotype.—U.S.N.M. No. 63684.

**Dizygopleura hymenifera** F. M. Swartz Silurian  
*Dizygopleura hymenifera* F. M. SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 243, pl. 28,  
 figs. 1a-e, 2a-d.

Cayugan (Middle McKenzie formation): 2½ miles east of Montoursville, Pa.

**Dizygopleura intermedia** Ulrich and Bassler = *Kloedenella intermedia*

**Dizygopleura intermedia antecedens** Ulrich and Bassler = *Kloedenella inter-  
 media antecedens*

- Dizygopleura intermedia cornuta** Ulrich and Bassler = **Kloedenella cornuta**  
**Dizygopleura lacunosa** Ulrich and Bassler Silurian  
*Dizygopleura lacunosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 683, pl. 59, figs. 27-29.  
 Upper Clinton (*Drepanellina clarki* zone): 1½ miles east of Great Cacapon, Md.; 7 miles west of Lewiston and Hollidaysburg, Pa.  
 Cotypes.—U.S.N.M. Nos. 63659, 63668.
- Dizygopleura landesi** Roth Devonian  
*Dizygopleura landesi* ROTH, Jour. Pal., 3, no. 4 (1929) p. 341, pl. 35, figs. 7a-i.  
 Helderbergian (Haragan): Pontotoc County, Okla.  
 Holotype.—U.S.N.M. No. 80645.
- Dizygopleura loculata** Ulrich and Bassler Silurian  
*Dizygopleura loculata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 691, pl. 61, figs. 13, 14.  
 Upper Clinton (*Mastigobolbina typus* zone): Lakemont and Hollidaysburg, Pa.; near Great Cacapon, W. Va.; Maryland.  
 Cotypes.—U.S.N.M. No. 63676.
- Dizygopleura macra** Ulrich and Bassler Silurian  
*Dizygopleura macra* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 696, pl. 62, figs. 21-23.  
 Upper Clinton (*Mastigobolbina typus* zone): Six Mile House, Md.  
 Holotype.—U.S.N.M. No. 63655.
- Dizygopleura micula** Ulrich and Bassler Silurian  
*Dizygopleura micula* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 690, pl. 61, fig. 3.  
 Cayugan (McKenzie): Flintstone, Md.  
 Holotype.—U.S.N.M. No. 63663.
- Dizygopleura minima** Ulrich and Bassler Silurian  
*Dizygopleura minima* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 683, pl. 59, fig. 26.  
 Upper Clinton (*Mastigobolbina typus* zone): Hollidaysburg, Pa.  
 Holotype.—U.S.N.M. No. 63679.
- Dizygopleura neodevonica** Matern Upper Devonian  
*Dizygopleura neodevonica* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 42, pl. 3, fig. 30a-e.  
 Les Abannets, Belgium.
- Dizygopleura obliqua** Roth Devonian  
*Dizygopleura obliqua* ROTH, Jour. Pal., 3, no. 4 (1929) p. 346, pl. 36, figs. 9a, b.  
 Helderbergian (Haragan): White Mound, Murray County, Okla.  
 Holotype.—U.S.N.M. No. 80668.
- Dizygopleura oblonga** Warthin Devonian  
*Dizygopleura oblonga* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 211, pl. 1, fig. 8.  
 Traverse (Long Lake Series): Black Lake, Cheyboygan County, Mich.
- Dizygopleura perrugosa** Ulrich and Bassler Silurian  
*Dizygopleura perrugosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 700, pl. 60, fig. 26—SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 248, pl. 28, figs. 7, 8.  
 Cayugan (Upper McKenzie): Cumberland, Md.; near Altoona, etc., Pa.  
 Holotype.—U.S.N.M. No. 63678.

- Dizygopleura pinguis** Ulrich and Bassler Silurian  
*Dizygopleura pinguis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 694, pl. 62, figs. 9, 10.  
 Cayugan (McKenzie): Flintstone, Md.  
 Cotypes.—U.S.N.M. No. 63662.
- Dizygopleura planata** Ulrich and Bassler Silurian  
*Dizygopleura planata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 689, pl. 60, fig. 21.  
 Cayugan (Manlius): Herkimer County, N. Y.  
 Holotype.—U.S.N.M. No. 63692.
- Dizygopleura pricei** Ulrich and Bassler Silurian  
*Dizygopleura pricei* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 682, pl. 59, fig. 24.  
 Upper Clinton (*Drepanellina clarki* zone): Pinto, Md.  
 Holotype.—U.S.N.M. No. 83030.
- Dizygopleura proutyi** Ulrich and Bassler Silurian  
*Dizygopleura proutyi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 682, pl. 59, figs. 21–23.  
 Upper Clinton (*Drepanellina clarki* zone): Cumberland, Md.  
 Cotypes.—U.S.N.M. Nos. 63690, 63691.  
 Possibly female of *Kloedenella cornuta*.
- Dizygopleura punctata** Ulrich and Bassler, Md. Geol. Surv., Silurian vol. (1923)  
 p. 83 (nomen nudum).
- Dizygopleura recta** Roth Devonian  
*Dizygopleura recta* ROTH, Jour. Pal., 3, no. 4 (1929) p. 344, pl. 36, figs. 8a–c.  
 Helderbergian (Haragan): White Mound, Murray County, Okla.  
 Holotype.—U.S.N.M. No. 80669.
- Dizygopleura reticulata** Swartz Silurian  
*Dizygopleura reticulata* SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 252, pl. 29, figs. 2a,  
 b, 3a, b.  
 Cayugan (Lower McKenzie): Lakemont, near Altoona, etc., Pa.; Maryland; Virginia.
- Dizygopleura simplex** Ulrich and Bassler, Md. Geol. Surv., Silurian vol. (1923)  
 p. 91 (nomen nudum).
- Dizygopleura simulans** Ulrich and Bassler Silurian  
*Dizygopleura simulans* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 698, pl. 62, fig. 28.  
 Cayugan (Tonoloway): Keyser, W. Va.; Pinto, Md.  
 Holotype.—U.S.N.M. No. 63660.
- Dizygopleura simulans limbata** Ulrich and Bassler Silurian  
*Dizygopleura simulans limbata* ULRICH and BASSLER, Md. Geol. Surv., Silurian  
 vol. (1923) p. 698, pl. 62, figs. 29, 30.  
 Cayugan (Tonoloway): Keyser, W. Va.; Pinto, etc., Md.
- Dizygopleura stosei** Ulrich and Bassler Silurian  
*Dizygopleura stosei* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 695, pl. 62, figs. 18–20, p. 313, text fig. 21 (fig. 3).  
*Poloniella stosei* BONNEMA, Jour. Pal., 4 (1930) p. 118, fig. 8.  
 Cayugan (McKenzie): Flintstone and 1½ miles east of Great Cacapon, Md.  
 Holotype and paratypes.—U.S.N.M. Nos. 63650, 63651.

**Dizygopleura subdivisa** Ulrich and Bassler Silurian  
*Dizygopleura subdivisa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 689, pl. 61, figs. 1, 2.

Cayugan (McKenzie): Flintstone and Cumberland, Md.  
 Holotype and paratype.—U.S.N.M. Nos. 63673, 63674.

**Dizygopleura subovalis** Ulrich and Bassler Silurian  
*Dizygopleura subovalis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 697, pl. 62, fig. 27.

Cayugan (Tonoloway): Keyser, W. Va.; Pinto, Md.  
 Holotype.—U.S.N.M. No. 63661.

**Dizygopleura swartzi** Ulrich and Bassler Silurian  
*Dizygopleura swartzi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 693, pl. 62, figs. 1-8—SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 245, pl. 28, figs. 3, 4.

Cayugan (Middle and Upper McKenzie): Cumberland, Flintstone, Pinto, etc., Md.; Pennsylvania.  
 Cotypes.—U.S.N.M. No. 63645, 63649.

**Dizygopleura symmetrica** (Hall) Silurian  
*Beyrichia symmetrica* HALL, Nat. Hist. New York, Pal., 2 (1852) p. 317, pl. 67,  
 fig. 16—DANA, Man. Geol. (1863) and revised ed. (1866) p. 242, figs. 412, 412a—  
 GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 390.

*Bollia symmetrica* JONES, Am. Geol., 4 (1889) p. 339 (gen. ref.); Geol. Soc. London,  
 Quart. Jour., 46 (1890) p. 12—GRABAU, N. Y. State Mus., Bull. 45, 9 (1901)  
 p. 219, text fig. 151; Buffalo Soc. Nat. Sci., Bull., 7 (1901) p. 219, text fig. 151—  
 ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 319, fig. 61—GRABAU and  
 SHIMER, North American index fossils (1910) p. 352, text fig. 1661.

*Bollia lata* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 12, pl. 3, figs. 1-3  
 —ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 657.

*Kloedenella symmetrica* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 684.

*Dizygopleura symmetrica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 695, pl. 62, figs. 13-17—SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 247, pl. 28,  
 figs. 5, 6.

Clinton: Lockport, etc., N. Y. (Rochester); Cumberland, etc., Md.; Pennsylvania (*Drepanellina*  
*clarki* and *Mastigobolbina typus* zones).  
 Plesiotypes.—U.S.N.M. Nos. 63656, 63670.

**Dizygopleura trisinuata** Van Pelt Devonian  
*Dizygopleura trisinuata* VAN PELT, Jour. Pal., 7, no. 3 (1933) pl. 39, figs. 61, 62.

Bell shale; Rogers City, Mich.

**Dizygopleura unipunctata** Ulrich and Bassler Silurian  
*Dizygopleura unipunctata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 699, pl. 60, fig. 25.

Cayugan (McKenzie—77 feet below top): Flintstone, Md.  
 Holotype.—U.S.N.M. No. 63685.

**Dizygopleura virginica** Ulrich and Bassler Silurian  
*Dizygopleura virginica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 699, pl. 60, figs. 27-29.

Cayugan (Sneedville): Big Stone Gap, Va.  
 Cotypes.—U.S.N.M. No. 63689.

### DREPANELLA Ulrich (Zygodolbidae-Drepanellinae)

Genotype: *D. crassinoda* Ulrich

*Depranella* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 117, 118—  
 MILLER, North American geol. pal., 1st appendix (1892) p. 707.

*Drepanella* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 670; Zittel-Eastman Textb.

Pal., 1 (1900) p. 644—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 311—GRABAU and SHIMER, North American index fossils (1910) p. 349—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 462—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 308—KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 421.

**Drepanella ampla** (Ulrich)

Ordovician

*Drepanella ampla* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 120, pl. 8, fig. 2.

*Drepanella ampla*, ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 312, pl. 41, fig. 9—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 462.

Stones River (?Ridley): Bottom of gorge, High Bridge, Ky.; Lone Mountain, Tenn.  
Holotype.—U.S.N.M. No. 41375.

**Drepanella bigeneris** Ulrich

Ordovician

*Drepanella bigeneris* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 672, pl. 44, figs. 20–22—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 41, figs. 1–3—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 462.

Black River (Decorah): Minneapolis, Minn.  
Holotype.—U.S.N.M. No. 41379.

**Drepanella bilateralis** Ulrich = **Scofieldia bilateralis**

**Drepanella crassinoda** (Ulrich)

Ordovician

*Drepanella crassinoda* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 118, pl. 8, figs. 1a–c.

*Drepanella crassinoda* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 291, fig. 18, pl. 41, figs. 4–6—GRABAU and SHIMER, North American index fossils (1910) p. 349, text fig. 1657 l–n—BASSLER, Va. Geol. Surv., Bull., 2a (1909) pl. 23, fig. 12; Zittel-Eastman Textb. Pal. (1913) p. 738, fig. 1425a; U. S. Nat. Mus., Bull. 92 (1915) p. 462—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 308, 309, fig. 19 (fig. 3).

*Drepanella ampla elongata* (in error for *D. crassinoda*) ULRICH, Geol. Minn., 31, pt. 2 (1894) p. 670, text figs. 48a–c.

Black River (Lowville): High Bridge, Ky.  
Holotype.—U.S.N.M. No. 41377.

**Drepanella crassinoda nitida** Ulrich = **Drepanella nitida**

**Drepanella elongata** (Ulrich)

Ordovician

*Drepanella elongata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 121, pl. 8, figs. 5a, b.

*Drepanella elongata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 41, figs. 10, 11—GRABAU and SHIMER, North American index fossils (1910) p. 349, text fig. 1657, o—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 462.

*Drepanella macra* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 670, text fig. 48d (not 48c = *D. crassinoda*).

Stones River (?Ridley): Bottom of gorge, High Bridge, Ky.  
Holotype.—U.S.N.M. No. 41376.

**Drepanella macra** (Ulrich)

Ordovician

*Drepanella macer* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1894) p. 119, pl. 8, figs. 4a–c.

*Drepanella macra* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 291, fig. 17, pl. 41, figs. 12–14—GRABAU and SHIMER, North American index fossils (1910) p. 350, text fig. 1664a–c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 463; Md. Geol. Surv., Cambrian and Ordovician vol. (1919) p. 137, 182, 367, pl. 43, figs. 13–15.

Stones River, Lavergne, etc., Tenn. (Lebanon); Fort Loudon, Pa. (Chambersburg limestone).  
Holotype.—U.S.N.M. No. 41373.

**Drepanella macra** Ulrich, 1894 (part) = **Drepanella elongata**



**Drepanella nitida** (Ulrich) Ordovician

*Drepanella crassinoda nitida* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 119, pl. 8, figs. 3a, 3b.

*Drepanella nitida* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 291, fig. 19, pl. 41, fig. 7, 8—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 463.

Black River (Lowville): High Bridge, Ky.  
Holotype.—U.S.N.M. No. 41378.

**Drepanella progressa** Kirk Ordovician

*Drepanella progressa* KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 419, pl., figs. 1a-c.

Trenton (Catheys): Nashville, Tenn.

**Drepanella progressa reticulata** Kirk Ordovician

*Drepanella progressa reticulata* KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 421, pl., fig. 2.

Trenton (Catheys): Nashville, Tenn.

**Drepanella richardsoni** (Miller) Early Silurian

*Beyrichia richardsoni* MILLER, Cincinnati Quart. Jour. Sci., 1 (1874) p. 347, text fig. 40; North American geol. pal. (1889) p. 535, text fig. 978.

*Drepanella richardsoni* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 117

*Drepanella richardsoni* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 292, fig. 23, pl. 41, fig. 15—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 463—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 602.

Richmond (Whitewater): Near Wilmington, Ohio.  
Plesiotypes.—U.S.N.M. No. 41407.

**Drepanella richardsoni canadensis** (Ulrich) Early Silurian

*Drepanella richardsoni canadensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 118.

*Drepanella richardsoni canadensis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 312—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 463—FOERSTE, Geol. Surv. Canada, Mem. 138 (1924) p. 252, pl. 46, figs. 5a-c.

Richmond (Queenston): Oakville, Ontario.  
Cotypes.—U.S.N.M. No. 41374.

**Drepanella serotina** Jones = **Hollina serotina**

**Drepanella symmetrica** (Emerson) Early Silurian

*Beyrichia symmetrica* EMERSON, U. S. Navy Dept., Narrative Hall's 2nd Arctic Exp. (1879) p. 581, text fig. 9.

*Drepanella symmetrica* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 463.

Richmond: Frobisher Bay, Baffin Land, Arctic America.  
Plastotype.—U.S.N.M. No. 60729.

**Drepanella** (? **Mastigobolbina**) **tumida** (Ulrich) Early Silurian

*Ctenobolbina tumida* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 111, pl. 7, figs. 5a, b—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 602.

*Beyrichia tumida* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285, 292, fig. 24; p. 294, fig. 33—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 124.

Richmond (Saluda): McKinneys and Moreland, Ky.  
Holotype.—U.S.N.M. No. 41326.

**DREPANELLINA** Ulrich and Bassler (Zygodolbidae-Drepanellinae)

Genotype: *D. clarki* Ulrich and Bassler

*Drepanellina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 308—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 38.

- Drepanellina clarki** Ulrich and Bassler Silurian  
*Drepanellina clarki* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 648, pl. 56, figs. 10–13, p. 309, text fig. 19 (figs. 5–7).  
 Upper Clinton (*Drepanellina clarki* zone): Cumberland, Md.; Lakemont, Hollidaysburg, etc., Pa.  
 Cotypes.—U.S.N.M. No. 43478.
- Drepanellina claypolei** Ulrich and Bassler Silurian  
*Drepanellina claypolei* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 650, pl. 56, fig. 4.  
 Upper Clinton: Juniata County, Pa.  
 Holotype.—U.S.N.M. No. 83482.
- Drepanellina confluens** Ulrich and Bassler Silurian  
*Drepanellina confluens* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 649, pl. 56, figs. 7–9.  
 Mt. Wissick, Temiscouta Lake, Quebec.  
 Cotypes.—U.S.N.M. No. 67781.
- Drepanellina? laqueus** Matern Upper Devonian  
*Drepanellina? laqueus* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929)  
 p. 38, pl. 2, figs. 28a–b.  
 Les Abannets, Belgium.
- Drepanellina modesta** Ulrich and Bassler Silurian  
*Drepanellina modesta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 649, pl. 56, figs. 1, 2.  
 Upper Clinton (*Drepanellina clarki* zone): Cumberland, Md.  
 Cotypes.—U.S.N.M. No. 43480.
- Drepanellina? simplex** Ulrich and Bassler Silurian  
*Drepanellina? simplex* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 649, pl. 56, fig. 3.  
 Upper Clinton (*Drepanellina clarki* zone): Lakemont, Pa.  
 Holotype.—U.S.N.M. No. 43481.
- Drepanellina ventralis** Ulrich and Bassler Silurian  
*Drepanellina ventralis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 650, pl. 56, figs. 5, 6.  
 Upper Clinton (*Drepanellina clarki* zone): Rose Hill, Md.  
 Cotypes.—U.S.N.M. No. 43479.

#### ELLESMERIA Tolmachoff (Barychilinidae)

Genotype: *E. ovata* Tolmachoff

*Ellesmeria* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898–1902, no. 38 (1926) p. 35.

- Ellesmeria cylindrica** Tolmachoff Devonian (Db)  
*Ellesmeria cylindrica* TOLMACHOFF, 2nd Arctic Exped. *Fram*, 1898–1902, no. 38  
 (1926) p. 36, pl. 2, figs. 9–13.

Ostre Borgen, Ellesmereland, Arctic America.

- Ellesmeria ovata** Tolmachoff Devonian (Db)  
*Ellesmeria ovata* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898–1902, no. 38 (1926) p.  
 36, pl. 2, figs. 1–3.

Ostre Borgen, Ellesmereland, Arctic America.

**ELLIPSELLA** Coryell and Rogatz (Kloedenellidae)

Genotype: *E. obliqua* Coryell and Rogatz

*Ellipsella* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1923) p. 390—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 82.

**Ellipsella distenta** Kellett Pennsylvanian, Permian  
*Ellipsella distenta* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 82, pl. 13, figs. 14-16, 18-20.

East of Elmdale (Elmdale formation), Kan. Range, Howard-Wabaunsee, Elmdale-Winfield.  
 Holotype.—U.S.N.M. No. 85430.

**Ellipsella gilei** Coryell and Rogatz Permian  
*Ellipsella gilei* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 391, pl. 35, figs. 9, 10.

Clear Fork (Arroyo): Tom Green County, Texas.

**Ellipsella obliqua** Coryell and Rogatz Permian  
*Ellipsella obliqua* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 390, pl. 35, figs. 7, 8.

Clear Fork (Arroyo): Tom Green County, Texas.

**ELPE** Barrande (Entomidae)

Genotype: *E. inchoata* Barrande

*Elpe* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 510—ZITTEL, Handb. Pal., 2nd ed. (1885) p. 554—ULRICH, Zittel-Eastman Textb. Pal., 1st ed. (1900) p. 646—BASSLER, *ibid.*, 2nd ed. (1913) p. 741.

*Leioditia* JONES (Ulrich Mss.) Geol. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 94.

**Elpe cincinnatiensis** (Meek) Ordovician  
*Cythere cincinnatiensis* MEEK, Acad. Nat. Sci. Philadelphia, Pr. (1872) p. 331; Geol. Surv. Ohio, Pal., 1 (1873) p. 158, pl. 14, figs. 1a-1d—MILLER, Cincinnati Quart. Jour. Sci., 1 (1874) p. 120—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 395.

*Cytheropsis cincinnatiensis* MILLER, North American geol. pal. (1889) p. 541, text fig. 993.

*Elpe cincinnatiensis* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 475—RUEDEMANN, N. Y. State Mus., Bull. 282 (1926) p. 145.

Maysville (Corryville): Cincinnati, Ohio, and vicinity.  
 Topotypes.—U.S.N.M. No. 41709.

**Elpe inchoata** Barrande Devonian (F2)  
*Entomoconchus inchoatus* (Barrande) BIGSBY, Thes. Silurica (1868) p. 199.

*Elpe inchoata* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 511, pl. 26, fig. 10—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 395—KEGEL, Preuss. Geol. Landes., Abh., n. s., 100 (1926) p. 8, pl. 1, fig. 4.

Konieprus, Bohemia; near Gieszen, Germany.

**Elpe irregularis** (Miller) Ordovician  
*Cythere irregularis* MILLER, Cincinnati Soc. Nat. Hist., Jour., 1 (1878) p. 106, pl. 3, figs. 7, 7a—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 94.

*Cytheropsis irregularis* MILLER, North American geol. pal. (1889) p. 541 (gen. ref.).

*Elpe irregularis* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 476.

Maysville (Corryville): Cincinnati, Ohio, and vicinity.  
 Topotypes.—U.S.N.M. No. 41710.

**Elpe (? Offa) pinguis** (Barrande)

Devonian (F2)

*Entomoconchus pinguis* (Barrande) BIGSBY, Thes. Sil. (1868) p. 199.*Elpe pinguis* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 512, pl. 26, fig. 15—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 395; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 94.

Mniénian, Bohemia.

**Elpe radiata** (Ulrich)

Ordovician

*Leperditia radiata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 2 (1879) p. 9, pl. 7, figs. 2-2b—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 94.*Elpe radiata* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 476—RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 144, pl. 23, fig. 16.Cincinnati, Ohio, etc. (Fulton); Georgian Bay, Lake Huron (Collingwood); Near Rome (Frankfort) and Lorraine gorge (Deer River) N. Y.  
Cotypes.—U.S.N.M. No. 41711.**Elpe reniformis** Kolmodin = **Entomis reniformis****Elpe tyrrelli** Jones

Devonian

*Elpe tyrrelli* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 93, text fig. 8—WHITEAVES, Geol. Surv. Canada, Contr. Can. Pal., 1, pt. 4 (1892) p. 346 (loc. occ.).

Lake Winnipegosis, Canada.

**Elpe ulrichi** Foerste

Silurian

*Elpe ulrichi* FOERSTE, Geol. Surv. Ohio, Pal., 7 (1893) p. 532, pl. 37, figs. 14a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 476.

Medinan (Brassfield): Dayton, Ohio.

**ENTOMIDELLA** Jones (Entomidae)Genotype: *E. divisa* Jones*Entomidella* JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 416; Monthly Mier. Jour. 10 (1873) p. 76, 78—Zittel, Handb. Pal., 2nd ed. (1885) p. 556—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 12—KOKEN, Die Leitfossilien (1896) p. 39—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 60.This genus was founded upon *E. divisa* Jones, a Silurian ostracode, and *Leperditia buprestis* Salter, a Cambrian branchiopod. In 1884, Jones selected *E. buprestis* as the genotype. As both species are little known, more work is necessary before the status of *Entomidella* can be fixed definitely.**Entomidella angusta** Matern

Upper Devonian

*Entomidella angusta* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 61, pl. 4, fig. 49.

Oberscheld, etc., Slate Mountains, Germany.

**Entomidella buprestis** Jones, a Cambrian branchiopod**Entomidella divisa** Jones = **Bolbozoe divisa****Entomidella marrii** Jones

Canadian

*Entomidella marrii* (Hicks) JONES, British Assoc. and Geol. Mag., Rept., dec. 2, 10 (1883) p. 464; Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 401, pl. 15, fig. 21.

Upper Arenig: Point Seiont, Caernarvonshire, Wales.

**ENTOMIS** Jones (Entomidae)Genotype: *E. tuberosa* Jones*Cypridina* in part of early authors (DeKoninck, Sandberger, Roemer, Richter, etc.).

*Entomis* JONES, Geol. Surv. Great Britian Expl., Mem., map 32, Scotland (1861) p. 137—JONES and KIRKBY, British Assoc., Rept. (1863-1864) p. 80—BARRANDE, Syst. Sil. Centre Bohême, pt. 1 (1872) p. 512—JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 413; Monthly Micr. Jour., 10 (1873) p. 76; Neues Jahrb. Min., Geol., Pal. (1874) p. 180—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 507, 508—JONES, Geol. Mag., ser. 2, 8 (1881) p. 341; Ann. Mag. Nat. Hist., ser. 5, 12 (1882) p. 245—CLARKE, Neues Jahrb. Min., Geol., Pal. (1884) p. 184—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 82—ZITTEL, Handb. Pal., 2nd ed. (1885) p. 555—JONES and KIRKBY, Geol. Assoc., Pr., 1885-1886, 9 (1887) p. 501—KRAUSE, Sitz. Ges. Naturf. Freunde Berlin (1889) p. 12, 14—VOGDES, New York Acad. Sci., Ann., 5 (1889) p. 19, pl. 2, figs. 12, 13—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 11, 12—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 96—VOGDES, New York Acad. Sci., Ann., 5 (1891) p. 19—MILLER, North American geol. pal., appendix 1 (1892) p. 707—WHIDBORNE, Mon. Dev. Fauna South England, pts. 1, 2 (1889-1892) p. 51—KOKEN, Die Leitfossilien (1896) p. 39, 382, text fig. 26 E—GRABAU, Buffalo Soc. Nat. Sci., Bull. 6 (1899) p. 304—ÜLRICH, Zittel-Eastman Textb. Pal., 1 (1900) p. 646—ÜLRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 310—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1040—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 66—GRABAU and SHIMER, North American index fossils (1910) p. 362—BASSLER, Zittel-Eastman Textb. Pal., 2nd ed. (1913) p. 741; U. S. Nat. Mus., Bull. 92 (1915) p. 486—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 43—KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 409.

*Richteria* (subgenus) KEGEL (Jones, 1874) Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (Genotype *Entomis serrato-striata* Sandberger)

***Entomis aciculata* Jones**

Silurian

*Entomis aciculata* JONES, British Assoc., Rept. (1871) p. 93; Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 416; Monthly Micr. Jour., 10 (1873) p. 77; Geol. Mag., dec. 2, 1 (1874) p. 2, text figs. 4a, b; Edinburgh Geol. Soc., Tr., 11 (1874) p. 322.

Peeblesshire, Scotland.

***Entomis aequilobata* Gemellaro**

Carboniferous

*Entomis aequilobata* GEMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 39, pl. 5, figs. 24-26.

Sosio River, Palermo, Sicily.

***Entomis amygdaloides* Tschernyschew**

Lower Devonian

*Entomis amygdaloides* TSCHERNYSCHEW, Com. Géol., Mém., 3 (1885-1889) (no. 1, 1885) p. 8, pl. 1, fig. 1.

West slope of Urals, Russia.

***Entomis* (?) *amygdaloides* Canavari**

Silurian

*Entomis* (?) *amygdaloides* CANAVARI, Pal. Italica, 5 (1899) p. 200, pl. 25 (fig. 1) figs. 15-17.

Cardiola limestone: Sardinia.

***Entomis* (Elpe) *angelini* Jones**

Silurian

*Entomis angelini* JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 395, pl. 15, fig. 14; Sil. Ostrac. Gotthland (1887) p. 8.

Gotlandian: Island of Gotland.

***Entomis angulosa* Gürich = *Richteria striatula***

***Entomis auricularis* Krause = *Dilobella auricularis***

***Entomis barrandei* (Richter)**

Upper Devonian

*Cypridina Barrandei* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 770, pl. 20, fig. 18.

*Entomis (Entomis) barrandei* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 51, pl. 3, fig. 32a-d.

Saalfeld, Thuringia, Germany.

**Entomis (Richteria) biconcentrica** Jones Carboniferous

*Entomis biconcentrica* JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 13; Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 415—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 85, pl. 4, figs. 25, 26; Monthly Micr. Jour., 10 (1873) p. 77—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq. and table p. 509—VOGDÉS, New York Acad. Sci., Ann., 5 (1889) pl. 2, figs. 12a, b—GEMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 38—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. (1901) p. 489—VOGDÉS, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 13.

*Entomis (Richteria) biconcentrica* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

Limestone: Little Island, Cork, Ireland; Carluke, West Scotland.

**Entomis brevispinata** Matern Upper Devonian

*Entomis (Entomis) brevispinata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 47, pl. 3, figs. 36a-c.

Schleddenhof, etc., Slate Mountains, Germany.

**Entomis brookei** Kindle Devonian

*Entomis brookei* KINDLE, Canada Dept. Mines, Mus. Bull. 29 (1919) (Geol. ser. no. 36) p. 8, pl. 2, figs. 7-10.

Portage (Simpson shale): Mackenzie River, 5 miles above Rabbitskin River, Canada.

**Entomis buprestis** (Salter) Jones = **Entomidella buprestis**, a Cambrian branchiopod

**Entomis burrovi** Jones, Kirkby, and Brady Carboniferous

*Entomis burrovi* JONES, Monthly Micr. Jour., 10 (1873) p. 77—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 86, pl. 4, fig. 21—JONES, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496.

*Entomis (Richteria) burrovi* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413.

Limestone: Settle, West Yorkshire, England.

**Entomis (Richteria) calcarata** (Richter) Upper Devonian

*Cypridina calcarata* RICHTER, Denks. Akad. Wien, 11 (1856) p. 37, pl. 2, figs. 36-38; Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 771, pl. 21, figs. 3-5.

*Entomis calcarata* JONES, Geol. Mag., ser. 2, 8 (1881) p. 341, pl. 9, figs. 9, 10—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 48, pl. 3, fig. 38a-b—PENEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8 (1928-1929) p. 170, pl. 10, fig. 10.

*Richteria calcarata* BIGSBY, Foss. and Fauna Devonian (1878) p. 27.

*Entomis (Richteria) calcarata* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

Saalfeld, Thuringia, and Slate Mountains, Germany; Belgium; Armorica Massif, France (Clymenia beds).

**Entomis (Richteria) concentrica** (Koninck) Carboniferous

*Cypridina concentrica* KONINCK, Acad. Roy. Belg., Mem., 14 (1841) p. 18, fig. 10; Anim. foss. Terr. Carb. Belg., Descr. (1844) p. 587, pl. 52, figs. 4, 5—GENITZ, Grund. Verst., 1 (1845-1846) p. 245.

*Cythere concentrica* DUPONT, Acad. Roy. Soc. Belg., Bull., ser. 2, 15 (1863) p. 110.—KONINCK, Acad. Roy. Sci. Lettr., Beaux-Arts Belg., Bull., ser. 2, 15, no. 1 (1863).

*Entomis concentrica* JONES and KIRKBY, Neues Jahrb. Min., Geol., Pal. (1864) p. 54; Canada Nat. Geol., n. s., 1 (1864) p. 237; Geol. Soc. Glasgow, Tr., 2 (1865)

p. 218; Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 38, 39—ARMSTRONG, Geol. Soc. Glasgow, Tr., suppl. (1871) p. 28—JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 414; Monthly Micr. Jour., 10 (1873) p. 76—JONES, KIRKBY, and BRADY, Mon. British Entomotraca Carb., Paleontogr. Soc. (1884) p. 85, pl. 6, figs. 22, 25—JULIEN, Terr. Carb. marin France Central (1896) pl. 5, fig. 19.

*Entomis (Richteria) concentrica* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

Limestone: Visé, Belgium.

**Entomis corduroides** Grabau

Silurian

*Entomis? corduroides* GRABAU, Pal. Sinica, ser. B., 3, fasc. 2 (1926) p. 75, pl. 4, fig. 35.

Yun-Nan, China.

**Entomis depressa** Jones

Silurian

*Entomis depressa* SALTER, Ms., Cambr. Sil. Fossils, Mus. Pract. Geol., Cat. (1873) p. 125—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 394, pl. 15, figs. 2, 3.

Mocktree, Shropshire (Aymestry), and Aymestry, England (Upper Ludlow).

**Entomis dimidiata** Barrande

Silurian, Devonian (G1, F2, E2)

*Entomis dimidiata* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 513, pl. 24, figs. 7–9—JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 316—CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr. Verb., 11, art. 5 (1899) p. 151.

Branik (G1), near Konieprus (F2), near Lochkow (E2), Bohemia; Sardinia (Silurian).

**Entomis divisa** Jones = **Bolbozoe divisa**

**Entomis flabellifera** Krause = **Eurychilina flabellifera**

**Entomis fragilis** (Roemer)

Devonian

*Cypridina fragilis* ROEMER, Paleontographica of Dunker and von Meyer, 3 (1854) p. 19, pl. 3, fig. 31; *ibid.*, 13 (1864–1866) p. 226.

*Entomis fragilis* JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 415 (gen. ref.).

*Entomis (Richteria) fragilis* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 414, figs. 3, 4.

Weissenbach schists: Goslar, etc., Harz and Rhine Valley, Germany.

**Entomis gebaueri** Tschernyschew

Lower Devonian

*Entomis gebaueri* TSCHERNYSCHEW, Com. Géol., St. Petersburg, Mém., 4, no. 3 (1893) p. 18, pl. 1, fig. 9.

Tschernuschka River, east side of Urals, Russia.

**Entomis gigantea** (Trenkner)

Devonian

*Cypridina gigantea* TRENKNER, Abh. Natur. Ges. Halle, 10 (1867) p. 5, pl. 1, fig. 4.

*Entomis gigantea* CLARKE, Neues Jahrb. Min. (1884) p. 324.

Northwest Harz, Germany.

**Entomis globulosa** Jones

Silurian

*Entomis globulosa* JONES, in Nicholson and Etheridge, Mon. Sil. Fossils Girvan (1880) p. 223, pl. 15, fig. 12—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, appendix (1881) p. 410—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 396, pl. 15, figs. 11a–e, 12—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Girvan, Ayrshire, and Pentland Hills, Scotland; North Wales.

**Entomis (Richteria) globulus** (Richter)

Upper Devonian

*Cypridina globulus* RICHTER, Denks. Akad. Wien, 11 (1856) p. 122, pl. 2, figs. 30–32—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 399.

*Entomis globulus* JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 415 (gen. ref.)  
—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 52, pl. 3, fig. 41a, b, and  
pl. 4, figs. 42a-c.

Cypridinen schiefer: Saalfeld, Thuringia, and Slate Mountains, Germany.

**Entomis (Richteria) goslariensis** Kegel Middle Devonian  
*Entomis (Richteria) goslariensis* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933)  
p. 415, figs. 5, 6.

Goslar, Germany.

**Entomis grandeuryi** Barrois Carboniferous  
*Entomis grandeuryi* BARROIS, Soc. Géol. Nord, Lille, Mém., 2 (1882) p. 357, pl. 17,  
fig. 29.

Santo Firne, Asturias, Spain.

**Entomis gyrata** Jones = **Richteria (Fossirichteria) gyrata**

**Entomis haswelliana** Jones Silurian  
*Entomis haswelliana* JONES, Ann. Mag. Nat. Hist. ser. 5, 14 (1884) p. 394, pl. 15,  
figs. 9, 10—SMITH, Nat. Hist. Soc. Glasgow, n. s., 3 (1892) table p. 158.

Pentland Hills, Scotland.

**Entomis ichnusae** Canavari Silurian  
*Entomis ichnusae* CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr. Verb., 11, art. 5  
(1899) p. 151; Pal. Italica, 5 (1899) p. 197, pl. 25 (fig. 1) fig. 12.

Cardiola limestone: Sardinia.

**Entomis (Richteria) imitatrix** Kegel Middle Devonian  
*Entomis (Richteria) imitatrix* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933)  
p. 418, fig. 10.

Wissenbacher schiefer: Bockswiese, Harz, Germany.

**Entomis impendens** Haswell Silurian  
*Entomis impendens* HASWELL, Silurian Form. Pentland Hills (1865) p. 38, pl. 3,  
fig. 11—JONES, Edinburgh Geol. Soc., Tr., pt. 3 (1869-1870) p. 322; Ann. Mag.  
Nat. Hist., ser. 4, 7 (1873) p. 415; Geol. Mag., n. s., dec. 2, 1 (1874) p. 512—NICHOL-  
SON and LYDEKKER, Man. Pal., 1 (1879) p. 507, fig. 361 K—JONES, Ann. Mag. Nat.  
Hist., ser. 5, 14 (1884) p. 399, pl. 15, fig. 19.

Pentland Hills, Scotland.

**Entomis (? Dilobella) imperfecta** Krause Ordovician  
*Entomis imperfecta* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 58 (1896) p. 935, pl.  
figs. 11, 12.

Drift: Holland.

**Entomis impressa** Steusloff = **Ctenobolbina impressa**

**Entomis inaequalis** (Jones) Silurian  
*Primitia inaequalis* JONES, Sil. Ostrac. Gothland (1887) p. 5.  
*Entomis inaequalis* JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 408, pl. 22,  
figs. 20a-c—KRAUSE, Sitz. Ges. Naturf. Freunde Berlin (1889) p. 14; Deutsch.  
Geol. Ges., Zeitschr., 41 (1889) p. 12.

Middle Gotlandian: Fröjel, Gotland.

**Entomis? jonesi** Koninck Permo-Carboniferous  
*Entomis jonesi* KONINCK, Soc. Roy. Sci. Liège, Mem., 2nd ser., 7 (1878) p. 209,  
pl. 24, fig. 6—ETHERIDGE, Australian Fossils Cat. (1878) p. 42—JONES, Ann. Mag.  
Nat. Hist., ser. 5, 14 (1884) p. 393—ETHERIDGE, Geol. Surv. New South Wales,



Pal., Mem., no. 5 (1893) p. 122—KONINCK, Geol. Surv. New South Wales, Pal., Mem., no. 6 (1898) p. 276.

Muree sandstone: New South Wales.

**Entomis kayseri** Paeckelmann = **Haploprimitia kayseri**

**Entomis (Richteria) koninckiana** Jones Carboniferous

*Entomis koninckiana* JONES, Monthly Micr. Jour., 10 (1873) p. 77—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 87, pl. 4, fig. 20—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, table p. 509.

*Entomis (Richteria) koninckiana* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

White limestone: Settle, West Yorkshire, England.

**Entomis laevior** Gürich Devonian

*Entomis laevior* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 376.

*Richteria? laevior* PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 3 (1928-1929) p. 175, pl. 10, fig. 6.

Humboldt kalk: Kadzielnia, Poland; Armorican Massif, France.

**Entomis lamarmorai** Canavari Silurian

*Entomis lamarmorai* CANAVARI, Pal. Italica, 5 (1899) p. 195, pl. 25 (fig. 1) figs. 3-5.

Cardiola limestone: Sardinia.

**Entomis (Richteria) latesulcata** Paeckelmann Upper Devonian

*Entomis latesulcata* PAECKELMANN, Preuss. Geol. Landes., Jahrb., 1920, 41 (1921) p. 113—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 49, pl. 3, fig. 33.

*Entomis (Richteria) latesulcata* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

Barmen, etc., Slate Mountains, Germany.

**Entomis latisulcata** Steusloff = **Ctenobolbina latisulcata**

**Entomis lindstroemi** Jones Silurian

*Entomis lindstroemi* JONES, Sil. Ostrac. Gothland (1887) p. 3; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 407, pl. 22, fig. 16.

Upper Gotlandian: Lindeklint, Gotland.

**Entomis madisonensis** Ulrich Early Silurian

*Entomis madisonensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 107, pl. 7, figs. 12a, 12b—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) pl. 53, figs. 8, 8b, p. 1046—GRABAU and SHIMER, North American index fossils (1910) p. 362, text fig. 1667, r, s—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 487.

Richmond (Whitewater-Saluda): 5 miles north of Madison, Ind.  
Holotype.—U.S.N.M. No. 41565.

**Entomis marstoniana** Jones Silurian

*Entomis marstoniana* JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 394, pl. 15, fig. 8 Sil. Ostrac. Gothland (1887) p. 4; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 408.

Lower Ludlow: Mocktree, Shropshire, England.

**Entomis meneghinii** Canavari Silurian

*Entomis meneghinii* CANAVARI, Pal. Italica, 5 (1899) p. 196, pl. 35 (fig. 1) figs. 7-11.

Cardiola limestone: Sardinia.

**Entomis (Richteria) migrans** Barrande Silurian

*Entomis migrans* BARRANDE, Syst. Sil. Centre Bohême, pt. 1, suppl. (1872) p. 514, pl. 24, figs. 10-14; pl. 27, fig. 22—JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 416—CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr. Verb., 11, art. 5 (1899) p. 151; Pal. Italica, 5 (1899) p. 193, pl. 25 (1) figs. 1, 2—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1921) p. 86, 98.

*Entomis (Richteria) migrans* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

Dworetz, Bohemia (E2); Sardinia (Cardiola limestone); Gotland (Middle Gotlandian).

**Entomis (Richteria) migratoria** Gürich Silurian

*Entomis migratoria* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 374.

*Entomis (Richteria) migratoria* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

Interrupta schiefer: Niestachow, Poland.

**Entomis (Nehdentomis) nehdensis** Matern = *Nehdentomis nehdensis***Entomis nitida** Jones = *Primitia nitida***Entomis nodosa** Burgess Devonian

*Entomis nodosa* BURGESS, Mus. Comp. Zool., Bull., 72, no. 5 (1931) p. 200, pl. 1, fig. 1.

Kiln shale: 3 miles south of Pochahontas, Alberta.

**Entomis obliqua** Krause = *Dilobella obliqua***Entomis obliqua kuckersiana** Bonnema = *Dilobella obliqua kuckersiana***Entomis (Richteria) oblonga** Matern Upper Devonian

*Entomis (Entomis) oblonga* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 46, pl. 3, fig. 35a-b.

*Entomis (Richteria) oblonga* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

Schleddendorf, Gerolstein, etc., Slate Mts., Germany.

**Entomis oblonga** Steusloff = *Ctenobolbina oblonga***Entomis oblonga kuckersiana** Bonnema = *Ctenobolbina oblonga kuckersiana***Entomis obscura** Jones, Kirkby, and Brady Carboniferous

*Entomis obscura* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 87, pl. 4, figs. 19, 24—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) 496.

Gray limestone: Settle, West Yorkshire, England.

**Entomis? parvula** Canavari Silurian

*Entomis (?) parvula* CANAVARI, Pal. Italica, 5 (1899) p. 200, pl. 26 (fig. 11) figs. 1, 2.

Cardiola limestone: Sardinia.

**Entomis patella** Spriestersbach Devonian

*Entomis patella* SPRIESTERSBACH, Preuss. Geol. Landes., Jahrb., 1924, 45 (1925) p. 403, pl. 10, fig. 11.

Upper Coblenzian: Würdinghausen, Germany.

**Entomis pelagica** Barrande = *Entomis tuberosa*

**Entomis peregrina** Whidborne

Devonian

*Entomis peregrinus* WHIDBORNE, Rept. British Assoc. Adv. Sci. 1888, Tr., sec. C. (1889) p. 681; Geol. Mag., dec. 3, 6 (1889) p. 28; Mon. Dev. Fauna South England., pt. 1, 2 (1889-1892) p. 51, pl. 4, figs. 14a-d, 15 a-c.

South England.

**Entomis phalanga** Kegel

Lower Devonian

*Entomis phalanga* KEGEL, Preuss. Geol. Landes., Abh., n. s., 100 (1926) p. 6, pl. 1, figs. 1a-d; Preuss. Geol. Landes, Jahrb., 54 (1933) p. 411.

Near Giessen, Germany.

**Entomis plicata** Krause = **Beyrichia plicata**

**Entomis polita** Gemmellaro

Carboniferous

*Entomis polita* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., 3, ser. 8 (1892) p. 38, pl. 5, figs. 21-23.

Sosio River, Palermo, Sicily.

**Entomis prosephina** Loomis

Devonian

*Entomis prosephina* LOOMIS, N. Y. State Mus., Bull. 69, Pal. 9 (1903) p. 918, pl. 5, figs. 10, 11.

Tully: Canandaigua Lake, N. Y.

**Entomis (Nehdentomis) pseudorichterina** Matern = **Nehdentomis pseudorichterina**

**Entomis? pteroides** Canavari

Silurian

*Entomis (?) pteroides* CANAVARI, Atti Soc. Tosc. Sci. Nat., Pr. Verb., 11 (1899) p. 151; Pal. Italica, 5 (1899) p. 201, pl. 26 (fig. 11) figs. 3-5.

Cardiola limestone: Sardinia.

**Entomis (Bursulella?) quadrispina** Krause = **Bursulella quadrispina**

**Entomis rara** Barrande

Ordovician (D5)

*Entomis rara* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 516, pl. 25, figs. 23, 24—JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 416.

Leiskow, Bohemia.

Plastotypes.—U.S.N.M. No. 81707.

**Entomis rara correctata** Patte

Devonian

*Entomis rara correctata* PATTE, Serv. Geol. Indo-China, Bull., 15, fasc. 1 (1926) p. 88, pl. 5, fig. 30.

Tonkin, Indo-China.

**Entomis reniformis** (Kolmodin)

Silurian

*Elpe reniformis* KOLMODIN, Ofv. Kön. Vet.-Akad. Förh., 36 (1880) p. 135, pl. 19, fig. 2a-c.

*Entomis reniformis* JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 396, pl. 15, fig. 22; Sil. Ostrac. Gothland (1887) p. 4; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 408.

Wisby, Gotland (Gotlandian); Sedgley, England (Lower Ludlow).

**Entomis reniformis** Venukoff

Silurian

*Entomis reniformis* VENUKOFF, Mat. Geol. Russl., 19 (1899) p. 207, pl. 6, fig. 10—SIEMIRADSKI, Beitr. Pal. Geol. Oester.-Ungarns, 19 (1906) p. 219 (fig. 47).

Podolia; Bohemia.

**Entomis rhomboidea** Jones = **Barychilina rhomboidea**

**Entomis richteri** Jones Devonian  
*Entomis sandbergeri* JONES (not Richter) Geol. Soc. London, Quart. Jour., **46** (1890) p. 514.

*Entomis richteri* JONES, Ann. Mag. Nat. Hist., ser. 6, **6** (1890) p. 321, pl. 11, fig. 3.  
 Whiteway farmyard, Devonshire, England.

**Entomis rugatulus** Van Pelt Devonian  
*Entomis rugatulus* VAN PELT, Jour. Pal., **7**, no. 3 (1933) p. 340, pl. 39, figs. 21, 22.  
 Bell shale: Rogers City, Mich.

**Entomis sandbergeri** Jones = **Entomis richteri**

**Entomis (Richteria) sandbergeri** (Richter) Upper Devonian  
*Cypridina sandbergeri* RICHTER, Deutsch. Geol. Ges., Zeitschr., **21** (1869) p. 770, pl. 20, fig. 17.

*Entomis (Entomis) sandbergeri* MATERN, Preuss. Geol. Landes., Abh., n. s., **118** (1929) p. 50, pl. 3, fig. 31a-b.

*Entomis (Richteria) sandbergeri* KEGEL, Preuss. Geol. Landes., Jahrb., **54** (1933) p. 413 (gen. ref.).

Saalfeld, Thuringia, Germany.

**Entomis scabra** Gürich = **Richterina (Fossirichterina) scabra**

**Entomis (Nehdentomis) schmidti** Matern = **Nehdentomis schmidti**

**Entomis (Richteria) serratostrata** (Sandberger) Devonian  
*Cypridina serratostrata* SANDBERGER, Leonhardt and Bronn's Jahrb. (1842) p. 226; Jahrb. Ver. Nat. Nassau, **2** (1845) p. 121, pl. 1, fig. 6; Verst. Rhein. Schicht Nassau (1855) p. 4, pl. 1, fig. 2—ROEMER, Paleontogr., **3** (1854) p. 42, pl. 6, fig. 15—JONES, British Fossils Morris's Cat. (1854) p. 104—RICHTER, Denks. Akad. Wien, **11** (1856) p. 35, pl. 2, figs. 20-29—ROEMER, Leth. Geog., 3rd ed., **1** (1856) p. 532, pl. 9, fig. 10; Deutsch. Geol. Ges., Zeitschr., **18** (1866) p. 673, 680, 690, pl. 13, figs. 4, 5; Beitr. Geol. Kennt. Nordw. Harzgeb. Paleontogr., **3** (1870) (fig. 1) p. 42, pl. 6, fig. 15—ETHERIDGE, Geol. Soc. London, Quart. Jour., **23** (1867) p. 618—RICHTER, Deutsch. Geol. Ges., Zeitschr., **21** (1869) p. 768, pl. 20, figs. 3-10.

*Entomis serratostrata* JONES, Ann. Mag. Nat. Hist., ser. 4, **11** (1873) p. 414; Ann. Mag. Nat. Hist., ser. 5, **12** (1883) p. 245, pl. 6, figs. 4, 5; *ibid.*, ser. 6, **10** (1890) p. 320, pl. 11, figs. 1, 2—KAYSER, Lehrb. Geol. Form., **2** (1891) p. 86, pl. 17, fig. 6, p. 105—JONES, Ann. Mag. Nat. Hist., ser. 6, **15** (1895) p. 63, pl. 7, fig. 6—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, **32** (1896) p. 374—CLARKE, N. Y. State Mus., Mem. **6** (1904) p. 344, text fig. 12—GÜRICH, Leitfossilien Devon. (1909) p. 168, pl. 47, fig. 9—KINDLE, Canada Dept. Mines, Mus. Bull. **29** (1919) (geol. ser. no. 36) p. 2, 3, 7, pl. 2, figs. 4-6—MATERN, Preuss. Geol. Landes., Abh., n. s., **118** (1929) p. 43, pl. 3, fig. 37a-d—PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, **8** (1928-1929) p. 169.

*Entomis (Richteria) serratostrata* KEGEL, Preuss. Geol. Landes., Jahrb., **5** (1933) p. 413 (gen. ref.).

Nassau, Harz Mountains, Thuringia, Slate Mts., etc., Germany (Cypridinen schiefer); Belgium; Devonshire; Cornwall; Montpellier and Armorican Massif, France; Siberia; New York (Naples); Poland; Mackenzie River five miles above Rabbitskin River, Canada (Portage-Simpson shale).

**Entomis shumardiana** Girty = **Sansabella shumardiana**

**Entomis sigma** Krause = **Ctenobolbina sigma**

**Entomis sigma antiquata** Krause = **Ctenobolbina antiquata**

**Entomis sigma ornata** Krause = **Ctenobolbina sigma ornata**

**Entomis simplex** Krause = **Dilobella simplex**

**Entomis subreniformis** Canavari

Silurian

*Entomis subreniformis* CANAVARI, Pal. Italica, 5 (1899) p. 199, pl. 25 (fig. 1) fig. 14.

Cardiola limestone; Sardinia.

**Entomis (Richteria) taeniata** (Richter)

Upper Devonian

*Cypridina taeniata* RICHTER, Denks. Akad. Wien. 11 (1856) p. 36, pl. 2, fig. 35; Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 771, pl. 21, figs. 1, 2.

*Entomis taeniata* JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 415 (gen. ref.)

—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 51, pl. 3, fig. 39.

*Cythere taeniata* JONES, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 186.

*Entomis (Richteria) taeniata* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

*Entomis serratostrinata* JONES, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 1, 3, 5, 7, 13-17, 186, pl. 11, fig. 7—PÉNEAU, Études stratigraphiques (1923) p. 169, pl. 10, fig. 9a.

Cypridinen schiefer; Saalfeld, Thuringia, and various localities in Slate Mountains, Germany.

**Entomis (Richteria) tenella** (Richter)

Devonian

*Cypridina tenella* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 768, pl. 20 fig. 11.

*Entomis tenella* JONES, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 187, pl. 11, figs. 2, 6.

*Entomis (Richteria) tenella* KEGEL, Preuss. Geol. Landes, Jahrb., 54 (1933) p. 413 (gen. ref.).

Thuringia, Germany.

**Entomis tenera** Gürich = **Nehdentomis tenera**

**Entomis (Nehdentomis) tenuistriata** Matern = **Nehdentomis tenuistriata**

**Entomis (Richteria) torleyi** Matern

Upper Devonian

*Entomis (Entomis) torleyi* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 45, pl. 3, fig. 34a-b.

*Entomis (Richteria) torleyi* KEGEL, Preuss. Geol. Landes., Jahrb., 54 (1933) p. 413 (gen. ref.).

Schleddenhof, etc., Slate Mts., Germany.

**Entomis (Richteria) torta** Kegel

Middle Devonian

*Entomis (Richteria) torta* KEGEL, Preuss. Geol. Landes, Jahrb., 54 (1933) p. 417, figs. 7, 8.

Laasphe, Germany.

**Entomis trilobata** Krause = **Beyrichia trilobata**

**Entomis tuberosa** Jones

Silurian

*Entomis tuberosa* JONES, Geol. Surv. Great Britain, Neighb. Edinburgh, Mem., Map 32 (1861) p. 137, pl. 2, fig. 5; Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 413, 415—ETHERIDGE, Cat. Australian fossils (1878) p. 16—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 507, fig. 361—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 391, pl. 15, fig. 1, 5-7—KRAUSE, Sitz. Ges. Naturf. Freunde Berlin (1889) p. 12—WHIDBORNE, Mon. Dev. Fauna South England, Palaeontogr. Soc., pt. 2 (1889-1892) p. 51, 52—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr. Verb., 11, art. 5 (1899) p. 151—GORTANI, Pal. Italica, 21 (1915) p. 164, pl. 16 (3) figs. 17, 18—KEGEL, Preuss. Geol. Landes, Abh., n. s., 100 (1926) p. 7.

*Entomis pelagica* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 515, pl. 24, fig. 1-6—ETHERIDGE, Australian fossils cat. (1878) p. 16—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 391, 393—TSCHERNYSCHEW, Com. Géol. St. Petersburg, Mém., 3 (1885-1889) (no. 1, 1885) p. 8, pl. 1, fig. 6 (not fig. 4)—KRAUSE,

Sitz. Ges. Naturf. Freunde Berlin (1889) p. 14—WHIDBORNE, Mon. Dev. Fauna South England, pt. 2 (1889-1892) p. 51, 52—TSCHERNYSCHEW, Com. Geol. St. Petersburg, Mém., 4, no. 3 (1893) p. 17, pl. 1, figs. 12-13—KONINCK, Geol. Surv. New South Wales, Mem., no. 6, Pal. (1898) p. 35—CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr. Verb., 11, art. 5 (1899) p. 151—GORTANI, Pal. Italica, 21 (1915) p. 164—PATTE, Surv. Geol. Indo-China, Bull., 15, fasc. 1 (1926) p. 87, pl. 5, figs. 26, 27.

Pentland Hills, Scotland; Aymestry, Ludlow, Dudley, etc., Shropshire, England; New South Wales; Sardinia; Tonkin, Indo China; Russia; near Konieprus, Bohemia (F2).

**Entomis umbonata** Steusloff = **Ctenobolbina umbonata**

**Entomis? unicornis** Girty = **Sansabella unicornis**

**Entomis variostrata** Clarke, etc. = **Primitia variostrata** and **P. wildungensis**

**Entomis vittata** Gürich = **Richterina vittata**

**Entomis waldronensis** Ulrich

Silurian

*Entomis waldronensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 2 (1891) p. 183, pl. 12, figs. 3a, 3b—GRABAU and SHIMER, North American index fossils (1910) p. 363, text fig. 1668 m, n,—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 487.

Niagaran (Waldron): Waldron, Ind.  
Holotype.—U.S.N.M. No. 41566.

**Entomis zoppii** Canavari

Silurian

*Entomis zoppii* CANAVARI, Soc. Toscana Sci. Nat. Pisa, Pr. Verb., 11, art. 5 (1899) p. 151; Pal. Italica, 5 (1899) p. 198, pl. 25 (fig. 1) fig. 13.

Cardiola limestone: Sardinia.

## ENTOMOCONCHUS McCoy (Entomoconchidae)

Genotype: *E. scouleri* McCoy

*Entomoconchus* MCCOY, Geol. Soc. Dublin, Jour., 11 (1839) p. 91; Syn. Char. Carb. Fossils Ireland (1844) p. 164—ROEMER, Bronn's Leth. Geog. 1, pt. 2 (1851-1856) p. 533—JONES, Neues Jahrb. Min. (1864) p. 54; Geol. Soc. London, Quart. Jour., 29 (1873) p. 409; Monthly Micr. Jour., 10 (1873) p. 75—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 5, 45—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 507, 508—ZITTEL, Handb. Pal., 2, Munich (1885) p. 555—JONES and KIRKBY, Geol. Assoc. London, Pr., 9 (1886) p. 500—VOGDEN, New York Acad. Sci., Ann., 5 (1889) p. 3, pl. 2, fig. 11—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

**Entomoconchus elongatus** Gemmellaro

Carboniferous

*Entomoconchus elongatus* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem. (1892) p. 37, pl. 5, figs. 43, 46.

Sosio River, Palermo, Sicily.

**Entomoconchus globosus** Jones, Kirkby, and Brady

Carboniferous

*Entomoconchus globosus* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 409—JONES and KIRKBY, *ibid.*, 42 (1886) p. 496, 509—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 52, pl. 5, figs. 10a-g—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Lower Limestone series: West Broadstone, Leith, Ayrshire, Scotland; Cork, Ireland.

**Entomoconchus inchoatus** Barrande = **Elpe inchoata**

**Entomoconchus orbicularis** Jones, Kirkby, and Brady

Carboniferous

*Entomoconchus orbicularis* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 409—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr.

Soc. (1874) p. 52, pl. 1, figs. 7a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—LAMPLAUGH, Geol. Isle Man, Geol. Surv. United Kingdom, Mem. (1903) p. 257.

Limestone: Little Island, Cork, Ireland; Povloash, Isle of Man.

**Entomoconchus pinguis** Barrande = **Elpe pinguis**

**Entomoconchus scouleri** McCoy

Carboniferous

*Entomoconchus scouleri* MCCOY, Geol. Soc. Dublin, Jour., 2 (1839) p. 91, pl. 5, figs. a-e; Syn. Char. Carb. fossils Ireland (1844) p. 164, pl. 23, fig. 4—BOSQUET, Soc. Roy. Sci. Liège, Mem., 4 (1848-1849) p. 354—ROEMER, Bronn's Leth. Geol. 1, pt. 2 (1851-1856) p. 534, pl. 93, figs. 14a, b—OWEN, Palaeontology (1860) p. 42, text fig. 9 (fig. 2); 2nd ed. (1861) p. 46, text fig. 9 (fig. 2)—JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 218; Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 37—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 11—CRAIG, Geol. Soc. Glasgow, Tr., 8 (1871) p. 291—ARMSTRONG, *ibid.*, 8, suppl. (1871) p. 28—JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 409—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 49, pl. 1, figs. 2-6—BAILY, Fig. char. British fossils, 1 (1875) p. lxxiv, 119, pl. 41, figs. 5a, b—JONES, Geol. Soc. London, Quart. Jour., 29 (1878) p. 409—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 507, fig. 361—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1868) p. 496—VOGDEN, New York Acad. Sci., Ann., 5 (1891) pl. 2, fig. 11—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—LAMPLAUGH, Geol. Isle of Man, Geol. Surv. United Kingdom, Mem. (1903) p. 257—VOGDEN, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 11.

*Cytherina philipsiana* KONINCK, Acad. Roy. Bruxelles, Mem., 14 (1841) p. 16, pl. figs. 13a, b—MORRIS, British fossils cat. (1843) p. 73—KONINCK, Anim. foss. terrain Carbonifère Belgique, Descr. (1844) p. 585, pl. 52, fig. 1—CUMMINGS, Geol. Soc. London, Quart. Jour., 2 (1846) p. 322—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 49.

Limestone: Little Island, Cork, Ireland; Ayrshire, Scotland; Isle of Man; Settle, Yorkshire, and Derbyshire, England; Visé, Belgium.

**Entomoconchus scouleri ovalis** Jones, Kirkby, and Brady

Carboniferous

*Entomoconchus scouleri ovalis* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 409—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 49, pl. 1, fig. 1.

Near Naul, County Meath, Ireland.

**EOCONCHOECIA** Moberg (Beyrichiidae)

Genotype: *E. mucronata* Moberg

*Eoconchoecia* MOBERG, Sver. Geol. Unders., ser. C, no. 156 (1895) p. 9.

**Eoconchoecia? imbecilis** Moberg

Silurian

*Eoconchoecia? imbecilis* MOBERG, Sver. Geol. Unders., ser. C, no. 165 (1895) p. 10, 11, pl. fig. 3—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 226.

Posidonomya skiffer: Scania, Sweden.

**Eoconchoecia mucronata** Moberg

Silurian

*Eoconchoecia mucronata* MOBERG, Sver. Geol. Unders. ser. C, no. 156 (1895) p. 6, 10, pl. fig. 1, 2—GRÖNWALL, Geol. För Stockholm Förh., 19 (1897) p. 226.

Posidonomya skiffer: Scandia, Sweden.

**EREMOS** Westergard, a genus of Early Paleozoic branchiopods

**ERIDOCONCHA** Ulrich and Bassler (Leperditellidae)Genotype: *E. rugosa* Ulrich and Bassler*Eridoconcha* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 297—MATERN, Preuss. Geol. Landes, Abh., n. s., 118 (1929) p. 13.**Eridoconcha magna** Harris Ordovician  
*Eridoconcha magnus* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 91, pl. 5, figs. 3a, b.

Simpson (Oil Creek): A quarter of a mile west of Highway 77, Arbuckle Mts., sec. 25, T. 2 S., R. 1 E., Okla.

**Eridoconcha materni** new name Upper Devonian*Eridoconcha rugosa* MATERN (not Ulrich and Bassler, 1923), Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 13, pl. 1, fig. 1.

Les Abannets, etc., Belgium.

**Eridoconcha oboloides** Ulrich and Bassler Ordovician*Eridoconcha oboloides* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 296, fig. 14, figs. 6-8.Black River (Decorah): St. Paul, Minn.  
Holotype.—U.S.N.M. No. 82388.**Eridoconcha rotunda** Ulrich and Bassler Silurian*Eridoconcha rotunda* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 504, pl. 36, fig. 24.Upper Clinton (*Mastigobolina typus* zone): Lakemont, Pa.  
Holotype.—U.S.N.M. No. 63603.**Eridoconcha rugosa** Matern = **Eridoconcha materni****Eridoconcha rugosa** Ulrich and Bassler Ordovician*Eridoconcha rugosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 296, fig. 14 (fig. 9).Cincinnatian (Maysville, Corryville): Cincinnati, Ohio.  
Holotype.—U.S.N.M. No. 82389.**Eridoconcha simpsoni** Harris Ordovician*Eridoconcha simpsoni* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 90, pl. 11, figs. 1a-d, pl. 14, figs. 1a, b.

Simpson (Bromide): A quarter mile west of Highway 77, Arbuckle Mts., sec. 25, T. 2 S., R. 1 E., Okla.

**ESCASONA** Matthew = **BEYRICHONA**, a genus of Cambrian branchiopods**EUGLYPHELLA** Warthin (Thlipsuridae)Genotype: *Strepula sigmoidalis* Jones*Euglyphella* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 220.**Euglyphella sigmoidalis** (Jones) Devonian*Strepula sigmoidalis* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 11 pl. 2, fig. 4—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 305, text fig. 245—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 173 (loc. occ.).*Strepula sigmoïdes* GRABAU and SHIMER, North American index fossils (1910) p. 350, text fig. 1660.*Strepula plantaris* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 540, pl. 20, figs. 8a, b—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 305, text fig. 246—GRABAU and SHIMER, North American index fossils (1910) p. 350, text fig. 1660, n, n'.*Octonaria percarinata* VAN PELT, Jour. Pal., 7 (1933) p. 335, pl. 39, figs. 52-54.



*Euglyphella sigmoidalis* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 220, pl. 1, fig. 21.

Eighteen Mile Creek, N. Y. (Ludlowville); Rogers City (Bell shale) and Emmet County (Lower Gravel Point), Mich.

**Euglyphella sigmoidalis primitiva** Warthin Devonian

*Euglyphella sigmoidalis primitiva* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 221, pl. 1, fig. 22.

Traverse (Bell shale): Rockport, Alpena County, Mich.

**EUKLOEDENELLA** Ulrich and Bassler (Kloedenellidae)

Genotype: *E. umblicata* Ulrich and Bassler

*Eukloedenella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 313.

**Eukloedenella abrupta** Ulrich and Bassler Silurian

*Eukloedenella abrupta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 674, pl. 58, fig. 13.

Upper Clinton (*Drepanellina clarki* zone): 7 miles west of Lewiston, Pa.  
Holotype.—U.S.N.M. No. 63638.

**Eukloedenella brevis** Ulrich and Bassler Silurian

*Eukloedenella brevis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 670, pl. 57, fig. 21.

Cayugan (McKenzie): 1½ miles east of Great Cacapon, W. Va.  
Holotype.—U.S.N.M. No. 63633.

**Eukloedenella bulbosa** Ulrich and Bassler Silurian

*Eukloedenella bulbosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 675, pl. 58, fig. 18.

Cayugan (McKenzie): 1½ miles east of Great Cacapon, Md.  
Holotype.—U.S.N.M. No. 63636.

**Eukloedenella dorsata** Ulrich and Bassler Silurian

*Eukloedenella dorsata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 673, pl. 58, fig. 6.

Cayugan (McKenzie): Flintstone, Md.  
Holotype.—U.S.N.M. No. 63640.

**Eukloedenella foveolata** Ulrich and Bassler Silurian

*Eukloedenella foveolata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 675, pl. 58, fig. 17.

Cayugan (McKenzie): 1½ miles east of Great Cacapon, Md.  
Holotype.—U.S.N.M. No. 63635.

**Eukloedenella indivisa** Ulrich and Bassler Silurian

*Eukloedenella indivisa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 668, pl. 57, figs. 1-4.

Cayugan (McKenzie—30 feet above base): Flintstone, Md.  
Cotypes.—U.S.N.M. No. 63623.

**Eukloedenella longula** Ulrich and Bassler Silurian

*Eukloedenella longula* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 675, pl. 58, fig. 14.

Cayugan (McKenzie—20 feet above base): 1½ miles east of Great Cacapon, Md.  
Holotype.—U.S.N.M. No. 63637.  
Possibly female of *Eukloedenella sulcifrons*.

- Eukloedenella pennsylvanica** (Jones) Devonian  
*Primitia pennsylvanica* JONES, Am. Geol., 4, no. 6 (1889) p. 339, text figs. 15a, 15b—CLAYPOLE, Am. Geol., 32 (1903) p. 247.  
 Helderbergian: Perry County, Pa.
- Eukloedenella primitioides** Ulrich and Bassler Silurian  
*Eukloedenella primitioides* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 670, pl. 57, figs. 14–17.  
 Cayugan (McKenzie—30 feet above base): Flintstone, Md.  
 Cotypes.—U.S.N.M. No. 63643.
- Eukloedenella primitioides minor** Ulrich and Bassler Silurian  
*Eukloedenella primitioides minor*, ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 670, pl. 57, figs. 18–20.  
 Cayugan (McKenzie—30 feet above base): Flintstone, Md.  
 Cotypes.—U.S.N.M. No. 63644.
- Eukloedenella punctilosa** Ulrich and Bassler Silurian  
*Eukloedenella punctilosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 673, pl. 58, figs. 7–9.  
 Cayugan (McKenzie—45 feet above base): Cumberland, Md.  
 Cotypes and paratypes.—U.S.N.M. Nos. 63634, 63642.
- Eukloedenella similis** Ulrich and Bassler Silurian  
*Eukloedenella similis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 674, pl. 58, figs. 15, 16.  
 Cayugan (McKenzie—20 feet above base): 1½ miles east of Great Cacapon, Md.  
 Cotypes.—U.S.N.M. No. 63639.
- Eukloedenella simplex** Ulrich and Bassler Silurian  
*Eukloedenella simplex* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 671, pl. 57, figs. 22, 23.  
 Cayugan (McKenzie—20 feet above base): 1½ miles east of Great Cacapon, Md.  
 Cotypes.—U.S.N.M. No. 63639.
- Eukloedenella sinuata** Ulrich and Bassler Silurian  
*Eukloedenella sinuata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 671, pl. 57, figs. 24–27—SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 260, pl. 30, figs. 7, 8.  
*Eukloedenella sinuata angulata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 672, pl. 57, figs. 28–31, pl. 58, fig. 1.  
 Cayugan (Upper McKenzie): Flintstone, Md.; Altoona, etc., Pa.  
 Cotypes.—U.S.N.M. Nos. 63626, 63627.
- Eukloedenella sinuata angulata** Ulrich and Bassler = **E. sinuata**
- Eukloedenella sinuata proclivis** Ulrich and Bassler Silurian  
*Eukloedenella sinuata proclivis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 671, pl. 58, figs. 2–5.  
 Cayugan (McKenzie): 1½ miles east of Great Cacapon, etc., Md.  
 Cotypes.—U.S.N.M. No. 63629.
- Eukloedenella sulcifrons** Ulrich and Bassler Silurian  
*Eukloedenella sulcifrons* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 673, pl. 58; figs. 10–12—SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 258, pl. 30, figs. 5, 6.  
 Cayugan (Lower McKenzie—20 feet above base): 1½ miles east of Great Cacapon, Md.  
 Holotype and paratypes.—U.S.N.M. No. 63632.

**Eukloedenella umbilicata** Ulrich and Bassler Silurian  
*Eukloedenella umbilicata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 669, pl. 57, figs. 8-12.

Cayugan (McKenzie): Flintstone, Md.  
 Cotypes.—U.S.N.M. No. 63622.

**Eukloedenella umbilicata curta** Ulrich and Bassler Silurian  
*Eukloedenella umbilicata curta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 669, pl. 57, fig. 13.

Cayugan (Wills Creek—45 feet above base): Pinto, Md.  
 Holotype.—U.S.N.M. No. 63624.

**Eukloedenella umbonata** Ulrich and Bassler Silurian  
*Eukloedenella umbonata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 668, pl. 57, figs. 5-7.

Cayugan (McKenzie—30 feet above base): Flintstone, Md.  
 Cotypes.—U.S.N.M. No. 63621.

**EUPRIMITIA** Ulrich and Bassler (Primitiidae)

Genotype: *Primitia sanctipauli* Ulrich

*Euprimitia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299.

**Euprimitia buttsi** Ulrich and Bassler Silurian  
*Euprimitia buttsi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 505, pl. 37, figs. 1, 2.

Clinton (*Zygobolbina erecta* zone): 1½ miles southwest of Cherrytown, Pa.  
 Cotypes.—U.S.N.M. No. 63462.

**Euprimitia compta** Kummerow Silurian  
*Euprimitia compta* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 423, pl. 20, figs. 21a, b.

Drift (Beyrichia limestone): Brandenburg, Germany.  
 Topotypes.—U.S.N.M. No. 82349.

**Euprimitia sanctipauli** (Ulrich) Ordovician  
*Primitia sanctipauli* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 652, pl. 43, figs. 73, 74—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1032.  
*Euprimitia sanctipauli* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, 300, text fig. 15 (fig. 5).

Black River (Decorah): St. Paul and near Cannon Falls, Minn.  
 Holotype.—U.S.N.M. No. 41343.

**Eurichilina parvula** Paeckelmann = **Neochilina parvula**  
**Eurichilina rhenana** Paeckelmann = **Chilobolbina rhenana**

**EURYCHILINA** Ulrich (Primitiidae—Eurichilininae)

Genotype: *E. reticulata* Ulrich

*Eurichilina* ULRICH, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 2 (1889) p. 52—VOGDEN, New York Acad. Sci., Ann., 5 (1889) p. 36—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 1 (1890) p. 125, 126—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 538—MILLER, North American geol. pal., 1st appendix (1892) p. 707—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 658; Zittel-Eastman Textb. Pal., 1 (1900) p. 644—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1040—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 278, 299, 300, text figs. 47-51, p. 299—GRABAU and SHIMER, North American index fossils (1910) p. 348—BASSLER, Geol. Soc. Am., Bull., 22 (1912) p. 277; Zittel-Eastman Textb. Pal., 2nd ed. (1913) p. 738; U. S. Nat. Mus., Bull. 92 (1915) p. 515—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 303.

**Eurychilina aequalis** Ulrich = **Coelochilina aequalis**

**Eurychilina billingsi** Jones = **Chilobolbina billingsi**

**Eurychilina bulbifera** Ruedemann

Ordovician

*Eurychilina bulbifera* RUEDEMANN, N. Y. State Mus., Bull. 49 (1901-1902) p. 76, pl. 5, figs. 14-17—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 515.

Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.

**Eurychilina bursa** (Krause)

Ordovician

*Primitia strangulata* LINNARSSON, Kongl. Svenska Vet. Akad. Handl., 8, no. 2 (1869) p. 85, pl. 2, fig. 69.

*Primitia bursa* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 9, pl. 1, figs. 7-10—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 298—STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 780—KRAUSE, *ibid.*, 43 (1891) p. 516; *ibid.*, 48 (1896) p. 933—KOKEN, Die Leitfossilien (1896) p. 381—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 409, 410, 413, 440.

Drift (Glauconite, Algal and Leptaena limestones, etc.): Mark Brandenburg, etc., Northern Germany; Gotland; Holland.

Topotypes.—U.S.N.M. No. 82426.

**Eurychilina bursa scanensis** (Troedsson)

Silurian

*Primitia bursa scanensis* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15 (1919) (no. 3, 1918) p. 49, 92, pl. 2, figs. 8-10.

Dalmanites beds: Röstanga, Scandia, Sweden.

**Eurychilina** (? **Chilobolbina**) **cineta** (Krause)

Ordovician

*Primitia cineta* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 7, pl. 1, figs. 4, 5; *ibid.*, 43 (1891) p. 516—KOKEN, Die Leitfossilien (1896) p. 381.

Drift: Mark Brandenburg, North Germany (reddish limestone).

Topotypes.—U.S.N.M. No. 82427.

**Eurychilina decumana** (Bonnema)

Ordovician

*Primitia decumana* BONNEMA, Mitt. Geol. Inst. Groningen, 2 (1909) p. 26, pl. 11, fig. 10-14—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 440.

Kuckers, Esthonia (Kuckers, C2); Northern Germany (Drift-Kuckers).

**Eurychilina dianthus** Ruedemann = **Coelochilina dianthus**

**Eurychilina esthonica** (Bonnema)

Ordovician

*Primitia esthonica* BONNEMA, Mitt. Minn. Geol. Inst. Groningen, 2 (1909) p. 32, pl. 6, fig. 30—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 440.

Kuckers, Esthonia (Kuckers, C2); Northern Germany (drift).

**Eurychilina excavata** (Krause)

Ordovician

*Primitia excavata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 388, pl. 21, fig. 13.

*Platychilina excavata* KUMMEROW, Centr. Min., Geol., Pal., Jahrb., 1933, abt. B, no. 1 (1933) p. 45.

Drift (gray limestone): Müggelheim, Northern Germany.

**Eurychilina flabellifera** (Krause)

Ordovician

*Entomis (Primitia?) flabellifera* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 388, pl. 21, fig. 17.

*Entomis flabellifera* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 70, pl. 5, figs. 1-5—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 441.

*Entomis (Primitia?) flabellifera* ANDERSSON, Ofv. Kong. Vet.-Akad. Förh., no. 2 (1893) p. 126.

Müggelheim, Northern Germany (Drift-Ceratopsis rostrata beds); Kuckers, Esthonia (Kuckers-C2).

Topotypes.—U.S.N.M. No. 58378.

- Eurychilina frobisheri** (Emerson) Early Silurian  
*Primitia frobisheri* EMERSON, U. S. Navy Dept., Narrative Hall's 2nd Arctic Exp. (1879) p. 581, text fig. 8.  
*Eurychilina frobisheri* BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 516.  
 Richmond: Frobisher Bay, Baffin Land, Arctic America.  
 Plastotype.—U.S.N.M. No. 6072S.
- Eurychilina granosa** Ulrich Ordovician  
*Eurychilina granosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13**, pt. 1 (1890) p. 128, pl. 9, figs. 9–12—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 516.  
 Stones River (Ridley): Bottom of gorge, High Bridge, Ky.  
 Cotypes.—U.S.N.M. No. 41616.
- Eurychilina intermedia** (Krause) Ordovician  
*Primitia intermedia* KRAUSE, Deutsch. Geol. Ges., Zeitschr., **41** (1889) p. 11, pl. 1, fig. 16; *ibid.*, **43** (1891) p. 516; *ibid.*, **48** (1896) p. 933—KOKEN, Die Leitfossilien (1896) p. 381.  
 Drift (gray limestone): Mark Brandenburg, Germany.
- Eurychilina jerseyensis** Weller = **Coelochilina jerseyensis**  
**Eurychilina kuckerisiana** Kummerow = **Chilobolbina kuckersiana**  
**Eurychilina latimarginata** (Raymond) Ordovician  
*Primitia latimarginata* RAYMOND, Am. Jour. Sci., ser. 4, **20** (1905) p. 380.  
*Eurychilina latimarginata* RAYMOND, Carnegie Mus., Ann., **7** (1911) p. 255, text fig. 26—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 516.  
 Chazyan: Valcour Island, Crown Point etc., Champlain Valley, N. Y. (Day Point, Valcour); East Tennessee (Lenoir).
- Eurychilina longula** Ulrich Ordovician  
*Eurychilina longula* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13**, pt. 1 (1890) p. 127, pl. 9, figs. 3a, b, 4—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 516.  
 Black River (Lowville): High Bridge, Ky.; Central Tennessee.  
 Cotypes.—U.S.N.M. No. 41623.
- Eurychilina manitobensis** Ulrich Early Silurian  
*Eurychilina manitobensis* ULRICH, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 2 (1889) p. 53, pl. 9, figs. 10, 10a—WHITEAVES, Pal. Foss., Geol. Surv. Canada, **3**, pt. 2 (1895) p. 127—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 516.  
 Richmond (Stony Mountain): Stony Mountain, Manitoba.
- Eurychilina monticuloides** Reed Ordovician  
*Eurychilina monticuloides* REED, Pal. Indica, ser. 15, **7**, mem. 2 (1912) p. 115, pl. 16, figs. 7, 8.  
 Near Muth, Pin Valley, Spiti, India.
- Eurychilina obesa** Ulrich = **Apatochilina obesa**  
**Eurychilina obliqua** Ruedemann = **Apatochilina obliqua**  
**Eurychilina oculifera** Weller = **Coelochilina oculifera**  
**Eurychilina plana** (Krause) = **Apatochilina plana**  
**Eurychilina reticulata** (Steusloff) Ordovician  
*Primitia reticulata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., **46** (1894) p. 776, pl. 58, fig. 6—KUMMEROW, Preuss. Geol. Landes. Jahrb., 1923 (1924) p. 407.  
 Drift (Orthoceras limestone): Neue Brandenburg, Germany.  
 Probably same as *E. bursa* and hence needs no new name.

**Eurychilina reticulata** Ulrich Ordovician

*Eurychilina reticulata* ULRICH, Geol. Surv. Canada, Geol. Contr. Can. Micro-Pal., pt. 2 (1889) p. 52, pl. 9, figs. 9, 9a; Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 123; Geol. Minn., 3, pt. 2 (1894) p. 660, pl. 44, fig. 1—RUEDEMANN, N. Y. State Mus., Bull. 49 (1901-1902) p. 76, pl. 5, fig. 3—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 298, fig. 46—GRABAU and SHIMER, North American index fossils (1910) p. 348, text fig. 1657 p.—BASSLER, Zittel-Eastman Textb. Pal., 2nd ed. (1913) p. 738, fig. 1425g; U. S. Nat. Mus., Bull. 92 (1915) p. 516—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 303, text fig. 16 (fig. 5).

Mohawkian: Minneapolis, etc., Minn. (Black River, Decorah); Rysedorph Hill, Rensselaer County, N. Y. (Rysedorph).  
Cotypes.—U.S.N.M. No. 41601.

**Eurychilina reticulata** Jones 1890 (not Ulrich) = **Eurychilina reticulosa****Eurychilina reticulata incurva** Ulrich Ordovician

*Eurychilina reticulata incurva* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 661, pl. 44, fig. 2—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 517.

Black River (Decorah): St. Paul, Minn.  
Holotype.—U.S.N.M. No. 41599.

**Eurychilina reticulosa** new name Devonian

*Eurychilina reticulata* JONES (not Ulrich), Geol. Soc. London, Quart. Jour., 46 (1890) p. 539, pl. 20, figs. 13a, b.

Onondaga: New York.

**Eurychilina rhenana** Paeckelmann = **Chilobolbina rhenana****Eurychilina schmidtii** (Krause) Ordovician

*Primitia schmidtii* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 10, pl. 1, fig. 14; *ibid.*, 43 (1891) p. 498, 516; *ibid.*, 44 (1892) p. 384—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 300—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 933, pl. 25, fig. 10.

*Eurychilina schmidtii* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 300.

Drift (reddish limestone): Mark Brandenburg, North Germany; Holland.  
Topotype.—U.S.N.M. No. 82428.

**Eurychilina schmidtii ornata** (Krause) Ordovician

*Primitia schmidtii* var. KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 11, pl. 1, fig. 15.

*Primitia schmidtii ornata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 516.

Drift: Mark Brandenburg, Germany.

**Eurychilina solida** Ruedemann = **Coelochilina solida****Eurychilina striatomarginata** Miller = **Coelochilina striatomarginata****Eurychilina subaequata** Ulrich = **Coelochilina subaequata****Eurychilina subradiata** Ulrich Ordovician

*Eurychilina subradiata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 1 (1890) p. 126, pl. 9, figs. 1a-c, 2a-c; Geol. Minn., 3, pt. 2 (1894) p. 661, pl. 44, figs. 3, 4, 4a—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 299, fig. 49—RUEDEMANN, N. Y. State Mus., Bull. 162 (1912) pl. 9, fig. 16—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 517—BUTTS, Geol. Ala. (1926) p. 124, pl. 30, fig. 5—BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 10, fig. 14.

Lebanon, etc. (Stones River, Lebanon) Tenn.; Dixon, etc., Ill. (Platteville); Minneapolis, etc., Minn. (Decorah); Canajoharie, N. Y. (Canajoharie).  
Cotypes and plesiotypes.—U.S.N.M. Nos. 41611-41614.

**Eurychilina subradiata rensseleerica** Ruedemann Ordovician  
*Eurychilina subradiata rensseleerica* RUEDEMANN, N. Y. State Mus., Bull. **49**  
 (1901-1902) p. 77, pl. 5, figs. 4-7, 13—BASSLER, U. S. Nat. Mus., Bull. **92** (1915)  
 p. 517.

Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.

**Eurychilina? symmetrica** Ulrich Ordovician  
*Eurychilina symmetrica* ULRICH, Geol. Minn., 3, pt 2 (1894) p. 663, pl. 44, figs.  
 5-7; pl. 45, figs. 4-6 —BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 517.

Black River (Decorah): St. Paul and near Cannon Falls, Minn.  
 Cotypes.—U.S.N.M. Nos. 41386, 41630.

**Eurychilina (Coelochilina) umbonata** (Krause) Ordovician  
*Primitia (Ulrichia?) umbonata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., **44** (1892)  
 p. 389, pl. 21, figs. 10, 11—JONES, Geol. Soc. London, Quart. Jour., **49** (1893) p. 293  
 —KOKEN, Die Leitfossilien (1896) p. 381.  
*Platyechilina umbonata* KUMMEROW, Centr. Min., Geol., Pal., Jahr., 1933 (1933) p. 45.

Drift: Mügellheim North Germany (Ceratopsis rostrata beds).  
 Topotypes.—U.S.N.M. No. 82426.

**Eurychilina ventrosa** Ulrich Ordovician  
*Eurychilina ventrosa* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 662, pl. 45, figs. 1-3—  
 BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 517.

Trenton (Prosser): Near Cannon Falls and Kenyon, Minn.  
 Cotypes.—U.S.N.M. Nos. 41625, 41626.

**FABERIA** Miller

Genotype: *F. anomala* Miller

*Faberia* MILLER, North American geol. pal. (1889) p. 549—BASSLER, U. S. Nat.  
 Mus., Bull. **92** (1915) p. 526.

**Faberia anomala** Miller Ordovician  
*Faberia anomala* MILLER, North American geol. pal. (1889) p. 549, text fig. 1009  
 —BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 526.

Maysville or Richmond: Butler County, Ohio.  
 Not an ostracode. The type preserved in the Walker Museum, University of Chicago, proves to be  
 the phosphatized cast of a small species of Ctenodonta, a pelecypod from the Arnheim formation.

**FORDILLA** Walcott, a genus of Cambrian branchiopods

**GIRTYITES** Coryell and Booth (Kirkbyidae)

Genotype: *G. spinosus* Coryell and Booth

*Girtyites* CORYELL and BOOTH, Am. Midl. Nat., **15**, no. 3 (1933) p. 361.

**Girtyites spinosus** Coryell and Booth Pennsylvanian  
*Girtyites spinosus* CORYELL and BOOTH, Am. Midl. Nat., **15**, no. 3 (1933) p. 261,  
 pl. 3, fig. 5.

Wayland shale: Graham, Texas.

**GLYPTOPLEURA** Girty (Glyptopleuridae)

Genotype: *G. inopinata* Girty

*Glyptopleura* GIRTY, New York Acad. Sci., Ann., **20** (1910) p. 236—CORYELL and  
 BRACKMIER, Am. Midl. Nat., **12** (1931) p. 509—GEIS, Jour. Pal., **6**, no. 2 (1932)  
 p. 170—KELLETT, *ibid.*, **7**, no. 1 (1933) p. 74.

- Glyptopleura angulata** Girty Mississippian  
*Glyptopleura angulata* GIRTY, New York Acad. Sci., Ann., **20** (1910) p. 237—  
 CORYELL and BRACKMIER, Am. Midl. Nat., **12** (1931) p. 509.  
 Fayetteville shale: Arkansas.
- Glyptopleura carinata** Geis Mississippian  
*Glyptopleura carinata* GEIS, Jour. Pal., **6**, no. 2 (1932) p. 172, pl. 25, figs. 3a, b.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Glyptopleura coryelli** Harlton Pennsylvanian  
*Glyptopleura spinosa* HARLTON, Univ. Texas, Bull. **2901** (1929) p. 148, pl. 1, fig. 18—DELO, Jour. Pal., **4**, (1930) p. 162, pl. 12, fig. 12.  
*Glyptopleura coryelli* HARLTON in Coryell and Brackmier, Am. Midl. Nat., **12** (1931) p. 513, pl. 2, fig. 18—DELO, Washington Univ. Studies, n. s., Sci. and Techn., no. 5 (1931) p. 44, pl. 4, fig. 5.  
 East Menard County (Graham formation) and deep well, Schleicher County, Texas; Hamilton County, Kan. (deep well).  
 Holotype.—U.S.N.M. No. 80566.
- Glyptopleura costata** (McCoy) Carboniferous  
*Cythere costata* MCCOY, Syn. char. [Carb. fossils, Ireland (1844) p. 165, pl. 23, fig. 11.  
*Kirkbya costata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, **18** (1866) p. 43—JONES and HOLL, *ibid.*, ser. 4, **3** (1869) p. 225—WRIGHT, Belfast Nat. Field Club, 9th Ann. Rept. (1872) p. 35—JONES, KIRKBY, and BRADY, Mon. British Entomotraca Carb., Paleontogr. Soc. (1884) p. 89, pl. 7, fig. 17—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, **15** (1885) p. 186, pl. 3, figs. 13, 14; Geol. Mag., n. s., dec. 3, **2** (1885) p. 536–541—JONES, *ibid.*, dec. 3, **3** (1886) p. 435—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 571—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 96—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, **9** (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Tr., **6** (1896) p. 189—WELLER, U. S. Geol. Surv., Bull. **153** (1898) p. 315—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—LAMPLAUGH, Geol. country around Belfast, Geol. Surv. Ireland, Mem. (1904) p. 13.  
*Glyptopleura costata* LATHAM, Roy. Soc. Edinburgh, Tr., **57**, pt. 2 (1932) p. 371, text fig. 19.  
 Cultra, etc., Ireland; Fifeshire, East and West Scotland (Carboniferous limestone and Calciferous sandstone); Cumberland, etc., North and South England (Carboniferous limestone).
- Glyptopleura costata** Harlton = **Glyptopleura perbella**
- Glyptopleura costata mooreana** (Jones and Kirkby) Carboniferous  
*Kirkbya costata mooreana* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, **15** (1885) p. 187, pl. 3, fig. 15.  
*Glyptopleura mooreana* CORYELL and BRACKMIER, Am. Midl. Nat., **2** (1931) p. 514, pl. 2, fig. 15.  
 Weston-super-Mare, England.
- Glyptopleura eichwaldi** (Jones and Kirkby) Carboniferous  
*Primitia eichwaldi* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, **15** (1875) p. 55, pl. 6, fig. 12, a, b.  
 Phillineonowa, Russia.
- Glyptopleura elegantis** Geis Mississippian  
*Glyptopleura elegantis* GEIS, Jour. Pal., **6**, no. 2 (1932) p. 173, pl. 25, figs. 4a, b.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.



- Glyptopleura emarginata** Delo Pennsylvanian  
*Glyptopleura emarginata* DELO, Jour. Pal., 4 (1930) p. 163, pl. 12, fig. 13—CORYELL and BRACKMIER, Am. Midl. Nat., 72 (1931) p. 517, pl. 2, fig. 19.  
 Deep well, Pecos County, Texas.  
 Holotype.—U.S.N.M. No. 81788.
- Glyptopleura guardia** Coryell and Brackmier Carboniferous  
*Glyptopleura guardia* CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 512, pl. 1, fig. 5.  
 Limestone: Steeraway, England.
- Glyptopleura inopinata** Girty Mississippian  
*Glyptopleura inopinata* GIRTY, New York Acad. Sci., Ann., 20 (1910) p. 236, 237—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 7, 35, 36—CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 509.  
 Fayetteville shale: Arkansas.
- Glyptopleura irregularis** Delo Pennsylvanian  
*Glyptopleura irregularis* DELO, Washington Univ. Studies, n. s., Sci. and Techn., no. 5 (1931) p. 44, pl. 4, fig. 5.  
 Deep well, Hamilton County, Kan.
- Glyptopleura karli** Geis Mississippian  
*Glyptopleura karli* GEIS, Jour. Pal., 6, no. 2 (1932) p. 173, pl. 25, figs. 5, 6.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Glyptopleura menardensis** Harlton Pennsylvanian  
*Glyptopleura menardensis* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 149, pl. 2, figs. 1a-c—CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 515, pl. 2, fig. 12.  
 Graham formation: East Menard County, Texas.  
 Cotype.—U.S.N.M. No. 80567.
- Glyptopleura parvacostata** Geis Mississippian  
*Glyptopleura plicata* CORYELL and BRACKMIER (not Jones and Kirkby) Am. Midl. Nat., 12, no. 12 (1931) p. 511, pl. 1, figs. 7a-b.  
*Glyptopleura parvacostata* GEIS, Jour. Pal., 6, no. 2 (1932) p. 171, pl. 25, figs. 2a-d.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Glyptopleura perbella** Geis Mississippian  
*Kirkbya* (?*Barychilina*) *costata* ULRICH (not McCoy), Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 208, pl. 18, fig. 2—BONNEMA, Acad. Amsterdam, Pr., 13 (1910) p. 141—GRABAU and SHIMER, North American index fossils (1910) p. 361, text figs. 1665, n, o.  
*Glyptopleura costata* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 206, pl. 32, figs. 8a, b—CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 510, pl. 1, figs. 1-4.  
 Columbia, Ill. (Warsaw); Spergen Hill, etc., Ind. (Spergen); Love County, Okla. (Upper Glenn).
- Glyptopleura plicata** Coryell and Brackmier (part) = **Glyptopleura parvacostata**
- Glyptopleura plicata** (Jones and Kirkby) Carboniferous  
*Kirkbya plicata* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 221—MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 559—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 576, 578, 588—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 184, pl. 3, figs. 9, 10; Geol. Mag., dec. 3, 3 (1886) p. 250, pl. 7, figs. 1-3; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511; Roy. Dublin Soc., Tr., 6 (1896) p. 188—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311; British

Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 8 (1898-1905) p. 74, 75.

*Glyptopleura plicata* CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 511, pl. 2, figs. 8, 9 (not pl. 1, figs. 7a, b = *G. parvacostata*)—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 372, text fig. 21.

Calcareous sandstone and limestones: Fifeshire, etc., East and West Scotland; Somerset, England; Carland, Ireland.

***Glyptopleura rhomboidalis* Girty = *Savagella rhomboidalis***

***Glyptopleura salemensis* Coryell and Brackmier** Mississippian

*Glyptopleura salemensis* CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 512, pl. 1, fig. 6.

Salem (Spergen) limestone: Bloomington, Ind.

***Glyptopleura scotica* (Jones and Kirkby)** Carboniferous

*Kirkbya scotica* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 220—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 56; *ibid.*, ser. 5, 15 (1885) p. 187, pl. 3, figs. 16, 17; Geol. Soc. London, Quart. Jour., 42 (1886) p. 596 et seq. and table p. 511—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 96—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490.

*Primitia scotica* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 53.

*Glyptopleura scotica* CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 516, pl. 2, fig. 14.

Lower and Upper limestones: East and West Scotland.

***Glyptopleura spinosa* Harlton = *G. coryelli***

***Glyptopleura spinosa* (Jones and Kirkby)** Carboniferous

*Kirkbya spinosa* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 220—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225—JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 29; Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541—VINE, Naturalist, 10 (1885) p. 101—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 185, pl. 3, fig. 12; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq. and table p. 512—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 456; British Assoc. Handb. Glasgow (1901) p. 490.

*Glyptopleura spinosa* CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 513, pl. 2, fig. 10—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 372, text fig. 20.

East and West Scotland (Lower limestone); North England (Yoredale); Northumberland and Yorkshire, England (Redesdale); South England (Limestone).

***Glyptopleura spiralis* (Jones and Kirkby)** Carboniferous, Coal Measures

*Kirkbya spiralis* JONES and KIRKBY (Ms.) Geol. Soc. London, Quart. Jour., 36 (1880) p. 564, 568, 573, 588; Berwickshire Nat. Club, Pr., 10 (1884) p. 323, pl. 2, figs. 12, 13; Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 184, pl. 3, fig. 11; Geol. Mag., n. s., dec. 3, 2 (1885) p. 436-540—VINE, Naturalist, 10 (1885) p. 98—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq. and table p. 511; Roy. Dublin Soc., Tr., 6 (1896) p. 188—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7 (1898-1899) p. 434—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 8 (1898-1905) p. 15, 62-65, 74—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 8.

*Glyptopleura spiralis* CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 514, pl. 2, fig. 11—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 373, text fig. 22.

Northumberland and Cumberland, England (limestone); Fifeshire, etc., Scotland (Calcareous sandstone); Cultra, Ireland.

**Glyptopleura texana** Harlton Pennsylvanian  
*Glyptopleura texana* HARLTON, Univ. Texas, Bull. **2901** (1929) p. 148, pl. 1, figs. 17a, b—CORYELL and BRACKMIER, Am. Midl. Nat., **12** (1931) p. 515, pl. 2, fig. 17.

Graham formation: East Menard County, Texas.  
 Holotype.—U.S.N.M. No. 80565.

**Glyptopleura triserata** Harris and Lalicker Permian  
*Glyptopleura triserata* HARRIS and LALICKER, Am. Midl. Nat., **13**, no. 6 (1932) p. 403, pl. 37, fig. 8—KELLETT, Jour. Pal., **7**, no. 1 (1933) p. 75, pl. 13, fig. 30.

Wreford limestone: 5 miles south of Dexter, Cowley, and Chase counties, Kan.

**Glyptopleura venosa** (Ulrich) Mississippian  
*Kirkbya venosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1891) p. 208, pl. 18, figs. 3a, b—WELLER, U. S. Geol. Surv., Bull. **153** (1898) p. 314—GRABAU and SHIMER, North American index fossils (1910) p. 361, text fig. 1665, s. t.  
*Glyptopleura venosa* CORYELL and BRACKMIER, Am. Midl. Nat., **12** (1931) p. 516, pl. 2, fig. 5.

Chester (Glen Dean): Near Grayson Springs, Ky.  
 Holotype.—U.S.N.M. No. 41353.

**Glyptopleura walcotti** Roth = **Barychilina walcotti**

**GLYPTOPLEURINA** Coryell (Glyptopleuridae)

Genotype: *G. montifera* Coryell

*Glyptopleurina* CORYELL, Jour. Pal., **2**, no. 4 (1928) p. 381.

**Glyptopleurina minuta** Warthin = **Moorites minutus**

**Glyptopleurina montifera** Coryell Pennsylvanian  
*Glyptopleurina montifera* CORYELL, Jour. Pal., **2**, no. 4 (1928) p. 381, pl. 51, fig. 4.

Boggy shale: Seminole County, Okla.

**Glyptopleurina powersi** Harlton Pennsylvanian  
*Glyptopleurina powersi* HARLTON, Univ. Texas, Bull. **2901** (1929) p. 147, pl. 1, fig. 16.

Graham formation: East Menard County, Texas.  
 Holotype.—U.S.N.M. No. 80564.

**GRAPHIADACTYLLIS** Roth = **GRAPHIODACTYLUS**

**GRAPHIODACTYLUS** Roth (Kirkbyidae)

Genotype: *Kirkbya lindahli arkansana* Girty

*Graphiadactyllis* ROTH, Wagner Free Inst. Sci., Publ., **1** (1929) p. 10.  
*Graphiodactylus* ROTH, Jour. Pal., **3** (1929) p. 292, 293.  
*Bassleria* HARLTON, Am. Jour. Sci., ser. 5, **18**, no. 105 (1929) p. 255. (Genotype: *B. fayettevillensis* Harlton.)

**Graphiodactylus arkansanus** (Girty) Mississippian  
*Kirkbya lindahli arkansana* GIRTY, New York Acad. Sci., Ann., **20** (1910) p. 234—ROUNDY, U. S. Geol. Surv., Prof. Pap. **146** (1926) p. 7, pl. 1, figs. 14a–16.  
*Graphiadactyllis arkansana* ROTH, Wagner Free Inst. Sci., Publ., **1** (1929) p. 10.  
*Graphiodactylus arkansana* ROTH, Jour. Pal., **3** (1929) p. 293, 294.  
*Bassleria arkansana* HARLTON, Am. Jour. Sci., ser. 5, **18**, no. 105 (1929) p. 257.  
*Bassleria fayettevillensis* HARLTON, Am. Jour. Sci., ser. 5, **18**, no. 105 (1929) p. 256, pl. 1, figs. 2a–c.

Arkansas and Oklahoma (Fayetteville shale); San Saba County, Texas (Barnett shale).

**Graphiodactylus catenulatus** Van Pelt Devonian  
*Graphiodactylus catenulatus* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 333, pl. 39,  
 figs. 31, 32.

Bell shale: Rogers City, Mich.

**Graphiodactylus gyripunctata** (Jones and Kirkby) Carboniferous  
*Cythere* (?) *gyripunctata* JONES and KIRKBY Ann. Mag. Nat. Hist., ser. 5, 18  
 (1886) p. 253, pl. 6, fig. 14.

Limestone: Arnside, Westmoreland, England.

### HALLIELLA Ulrich (Primitiidae)

Genotype: *Primitia? sculptilis* Ulrich

*Halliella* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 2 (1891) p. 184—  
 MILLER, North American geol. pal., 1st appendix (1892) p. 707—ULRICH, Geol.  
 Minn., 3, pt. 2 (1894) p. 656—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908)  
 p. 279—GRABAU and SHIMER, North American index fossils (1910) p. 346—BASSLER,  
 U. S. Nat. Mus., Bull. 92 (1915) p. 577—ULRICH and BASSLER, Md. Geol. Surv.,  
 Silurian vol. (1923) p. 300.

**Halliella bellipuncta** (Van Pelt) Devonian  
*Amphissites bellipunctus* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 332, pl. 39,  
 figs. 37-40.

*Halliella bellipuncta* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934)  
 p. 208, pl. 1, fig. 2.

Traverse (Bell shale and Lower Thunder Bay Series): Rogers City and Thunder Bay River, Mich.

**Halliella? auricularis** Ulrich = **Ctenobolbina auricularis**

**Halliella fissurella** Ulrich and Bassler Silurian  
*Halliella fissurella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 514, pl. 37, figs. 22, 23.

Cayuga (Tonoloway-Upper part): Keyser, W. Va.  
 Cotypes.—U.S.N.M. No. 63607.

**Halliella labiosa** Ulrich Ordovician  
*Halliella labiosa* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 656, pl. 46, figs. 43-46—  
 GRABAU and SHIMER, North American index fossils (1910) p. 346, text fig. 1658  
 r, r'—BASSLER, Zittel-Eastman Textb. Pal. (1913) p. 738, fig. 1425h; U. S. Nat.  
 Mus., Bull. 92 (1915) p. 578.

Trenton (Prosser): Near Cannon Falls, Minn.  
 Cotypes.—U.S.N.M. No. 41361.

**Halliella retifera** Ulrich Devonian  
*Halliella retifera* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 2 (1891) p.  
 185, pl. 15, figs. 5a-e—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 174 (loc. occ.)—  
 GRABAU and SHIMER, North American index fossils (1910) p. 347, text fig. 1660,  
 p, p', q.—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, 300,  
 text fig. 15 (fig. 6).

Falls of the Ohio (Onondaga): Canandaigua Lake, etc., N. Y. (Hamilton).  
 Cotypes.—U.S.N.M. No. 41363.

**Halliella? retiformis** Girty Mississippian  
*Halliella retiformis* GIRTY, New York Acad. Sci., Ann., 20 (1910) p. 233.

Fayetteville shale: Arkansas.

**Halliella sculptilis** (Ulrich) Ordovician  
*Primitia? sculptilis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 1 (1890)  
 p. 136, pl. 8, fig. 6.

*Halliella sculptilis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 656; Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 185—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 578.

Trenton (Perryville): Perryville, Boyle County, Ky.  
Holotype.—U.S.N.M. No. 41362.

**Halliella seminulum** (Jones) Silurian

*Beyrichia seminulum* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 173, pl. 6, fig. 24—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 390.

*Primitia seminulum* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 418; *ibid.*, ser. 5, 17 (1886) p. 413, pl. 14, figs. 14a-c—JONES, Sil. Ostrac. Gothland (1887) p. 5; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 406, pl. 22, figs. 17a, b—KRAUSE, Deutsch Geol. Ges., Zeitschr., 43 (1891) p. 498, 516—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—BONNEMA, Sci. Akad. Wet., Pr., 3 (1901) p. 140—HEDE, Sver. Geol. Unders., ser. C, 14, no. 305 (1920) no. 7 (1921) p. 49, 98.

*Primitia* (*Halliella*) *seminulum* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 387, pl. 22, fig. 3.

Montgomeryshire, Wales; Ironbridge, Dudley, etc., England (Wenlock); Fröjel, etc., Gotland (Middle Gotlandian); Northern Germany (drift); Beechey Island, Arctic America.  
Topotype.—U.S.N.M. No. 82401.

**Halliella seminulum** (Jones) var. Devonian

*Primitia seminulum* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 5, pl. 2, fig. 2—GRABAU, Buffalo Soc. Nat. Sci., Bull. 6 (1899) p. 303, text fig. 242—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 174 (loc. occ.)—GRABAU and SHIMER, North American index fossils (1910) p. 345, text fig. 1660d.

*Halliella seminulum* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 2 (1891) p. 49 (gen. ref.).

*Halliella* (*Primitia*) *seminulum* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 656.

Hamilton (Ludlowville): Eighteen Mile Creek, etc., N. Y.

**Halliella? seminulum longa** Ulrich and Bassler Devonian

*Halliella? seminulum longa* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 520, pl. 95, fig. 16—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 578.

Helderbergian (Keyser): Cumberland, Md.  
Holotype.—U.S.N.M. No. 53309.

**Halliella subequata** Ulrich and Bassler Silurian

*Halliella subequata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 514, pl. 37, fig. 20.

Cayugan (Wills Creek—45 feet above base): Pinto, Md.  
Holotype.—U.S.N.M. No. 63608.

**Halliella? triplicata** Ulrich and Bassler Silurian, Devonian

*Halliella? triplicata* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 521, pl. 95, figs. 17, 18; Md. Geol. Surv., Silurian vol. (1923) p. 515, pl. 37, fig. 21—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 578.

Cumberland, Md. (Helderbergian, Keyser); Keyser, W. Va. (Cayugan, Tonoloway—lower part).  
Holotype and plesiotype.—U.S.N.M. Nos. 53310, 82400.

**Halliella umbonata** Kummerow Silurian

*Halliella umbonata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 424, pl. 20, fig. 22.

Drift (Beyrichia limestone): Müggelheim, Northern Germany.  
Topotype.—U.S.N.M. No. 82350.

**HAPLOPRIMITIA** Ulrich and Bassler (Primitiidae)Genotype: *Primitia minutissima* Ulrich*Haploprimitia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 297—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 14.**Haploprimitia concentrica** Matern

Upper Devonian

*Haploprimitia concentrica* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 15, pl. 1, figs. 15a-d.

Gerolstein, etc., Slate Mountains, Germany; Belgium.

**Haploprimitia concentrica inflata** Matern

Upper Devonian

*Haploprimitia concentrica inflata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) pl. 2, fig. 16a-e.

Gerolstein, etc., Slate Mountains, Germany; Belgium.

**Haploprimitia kayseri** (Waldschmidt)

Upper Devonian

*Cypridina kayseri* WALDSCHMIDT, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 925, pl. 40, fig. 5.*Entomis kayseri* PAECKELMANN, Preuss. Geol. Landes., Jahrb., 41 (1921) p. 111.*Haploprimitia kayseri* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 14, pl. 1, figs. 2a-c.

Wildungen, etc., Slate Mountains, Germany.

**Haploprimitia minutissima** (Ulrich)

Ordovician

*Primitia minutissima* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 651, pl. 45, fig. 31—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031.*Haploprimitia minutissima* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 297, 298, 299, text fig. 15 (fig. 2).

Black River (Decorah): Fountain, etc., Minn.

Holotype.—U.S.N.M. No. 41838.

**Haploprimitia paeckelmanni** Matern

Upper Devonian

*Haploprimitia paeckelmanni* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 17, pl. 1, fig. 12.

Near Oberberge, etc., Slate Mountains, Germany.

**HEALDIA** Roundy (Bairdiidae)Genotype: *H. simplex* Roundy*Healdia* ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 8—HARLTON, Am. Jour. Sci., 18, no. 105 (1929) p. 260—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 36—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 380—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 27.**Healdia absentia** Coryell and Billings

Pennsylvanian

*Healdia absentia* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 179, pl. 17, fig. 13.

Graham (Wayland shale): Northeast of Cisco, Texas.

**Healdia ackersi** Delo

Pennsylvanian

*Healdia ackersi* DELO, Jour. Pal., 4 (1930) p. 170, pl. 13, fig. 7.

Deep well, Sutton County, Texas.

**Healdia alba** Coryell and Billings

Pennsylvanian

*Healdia alba* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 178, pl. 18, fig. 13—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 270, pl. 26, fig. 3.

Northeast of Cisco (Wayland shale) and Mineral Wells (East Mountain shale), Texas.

- Healdia ampla** Roundy Mississippian  
*Healdia ampla* ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 8, pl. 1, figs. 12a, 13.  
 Boone limestone: San Saba County, Texas.
- Healdia arcuata** Coryell and Osorio Pennsylvanian  
*Healdia arcuata* CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 37, pl. 5, fig. 6.  
 Canyon (Nowata shale): Hughes Quarry, Tulsa County, Okla.  
 Holotype.—U.S.N.M. No. 81789.
- Healdia bituberculata** (Reuss) Permian  
*Cythere bituberculata* REUSS, Jahrb. Wet. Ges., 1851–1853 (1854) p. 69, pl. fig. 10—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438—GEINITZ, Anim. Ueberr. Dyas. (1861) p. 38, text fig. 2 (figs. 18a–c)—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 235.  
 Zechstein: Wetterau, etc., Germany.
- Healdia boggyensis** Harlton Pennsylvanian  
*Healdia boggyensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 209, pl. 33, figs. 5a, b; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 265, pl. 2, figs. 7a, b.  
 Upper Glenn: Love County, Okla.  
 Cotypes.—U.S.N.M. No. 71717.
- Healdia bythocyproidea** Warthin = **Waylandella bythocyproidea**
- Healdia caneyensis** Harlton Pennsylvanian  
*Healdia caneyensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 208, pl. 33, figs. 2a–c; Am. Jour. Sci., ser. 5, 18, no. 105 (1927) p. 261, pl. 1, figs. 9a–c—HARLTON, Jour. Pal., 7, no. 1 (1933) p. 26, pl. 7, fig. 10.  
 Love and Carter counties, etc., southern Oklahoma (Springer formation, Johns Valley shale).  
 Holotype and plesiotype.—U.S.N.M. Nos. 71411, 79364.
- Healdia cincta** Coryell and Billings Pennsylvanian  
*Healdia cincta* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 177, pl. 17, fig. 17.  
 Graham (Wayland shale): Northeast of Cisco, Texas.
- Healdia ciscoensis** Harlton Pennsylvanian  
*Healdia ciscoensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 208, pl. 33, figs. 4a, b; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 265, pl. 2, fig. 6—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 75, pl. 6, fig. 8.  
 Coleman County, Texas (Cisco, Wabaunsee, and Hoxbar formations); Southeastern Oklahoma (Wewoka and Holdenville).  
 Holotype.—U.S.N.M. No. 71715.
- Healdia colonyi** Coryell and Booth Pennsylvanian  
*Healdia colonyi* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 266, pl. 4, figs. 9, 10.  
 Wayland shale: Graham, Texas.
- Healdia compressa** Coryell and Billings Pennsylvanian  
*Healdia compressa* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 178, pl. 18, fig. 18.  
 Graham (Wayland shale): Northeast of Cisco, Texas.

- Healdia concinna** Delo Pennsylvanian  
*Healdia concinna* DELO, Jour. Pal., 4 (1930) p. 172, pl. 13, fig. 8.  
 Deep well, Sutton County, Texas.  
 Holotype.—U.S.N.M. No. 81790.
- Healdia cornigera** Latham = **Waylandella cornigera**  
**Healdia cuneata** Coryell and Billings Pennsylvanian  
*Healdia cuneata* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 178, pl. 18, fig. 14—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 269, pl. 26, fig. 2.  
 Northeast of Cisco (Wayland shale) and Mineral Wells (East Mountain shale) Texas.
- Healdia cuneola** Latham = **Waylandella cuneola**  
**Healdia elegans** Warthin Pennsylvanian  
*Healdia elegans* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 76, pl. 6, fig. 11—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 37.  
 Conjada Mt., Wagon County (Wetumka formation) and Tulsa County (Nowata) Okla.
- Healdia denisoni** Harlton Pennsylvanian  
*Healdia denisoni* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 262, pl. 1, fig. 12.  
 Springer formation: Carter County, Okla.  
 Holotype.—U.S.N.M. No. 72579.
- Healdia fayettevillensis** Harlton Mississippian  
*Healdia fayettevillensis* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 263, pl. 2, figs. 2a-c.  
 Fayetteville shale: Fayetteville, Ark.  
 Holotype.—U.S.N.M. No. 79367.
- Healdia formosa** Harlton Pennsylvanian  
*Healdia formosa* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 135, pl. 21, figs. 7a, b.  
 Gaptank: Pecos County, Texas.
- Healdia formosa** Warthin = **H. limacoidea**  
**Healdia glennensis** Harlton Pennsylvanian  
*Healdia glennensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 209, pl. 33, fig. 6a; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 263, pl. 2, fig. 4—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 269, pl. 26, fig. 6.  
 Love County, Okla. (Upper Glenn, Atoka, and basal Boggy); Mineral Wells, Texas (East Mountain shale).  
 Holotype.—U.S.N.M. No. 71718.
- Healdia leguminoides** Knight Pennsylvanian  
*Healdia leguminoides* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 332, pl. 44, figs. 7a, b—ROTH and SKINNER, Jour. Pal., 4, no. 3 (1930) p. 334.  
 St. Louis County, Mo. (Upper Fort Scott); Eagle County, Colo. (McCoy).
- Healdia lentiformis** Delo Pennsylvanian  
*Healdia lentiformis* DELO, Jour. Pal., 4 (1930) p. 168, pl. 13, fig. 5.  
 Deep well, Sutton County, Texas.  
 Holotype.—U.S.N.M. No. 81791.
- Healdia limacoidea** Knight Pennsylvanian  
*Healdia limacoidea* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 333, pl. 44, figs. 5a-e.



*Healdia formosa* WARTHIN (not Harlton), Okla. Geol. Surv., Bull. 53 (1930) p. 77, pl. 6, fig. 13—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 37.—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 270, pl. 26, fig. 7.

St. Louis County, Mo. (Upper Fort Scott); Southeastern Oklahoma (Wewoka, Nowata); Mineral Wells, Texas (East Mountain shale).  
Metatypes.—U.S.N.M. No. 83972.

**Healdia longa** Knight Pennsylvanian  
*Healdia longa* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 332, pl. 44, figs. 6a-e—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 75, pl. 6, fig. 10—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 270, pl. 26, fig. 5.

St. Louis County, Mo. (Upper Fort Scott); Southeastern Oklahoma (Wewoka, Holdenville?); Mineral Wells, Texas (East Mountain shale).

**Healdia marginata** Harlton Pennsylvanian  
*Healdia marginata* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 136, 138, pl. 21, figs. 8a, b; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 262, pl. 1, figs. 11a, b.

Springer formation (Caney shale): Johns' Valley, Carter County, Okla.  
Cotypes.—U.S.N.M. No. 72240.

**Healdia masoni** Coryell and Booth Pennsylvanian  
*Healdia masoni* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 267, pl. 4, figs. 7, 8.

Wayland shale: Graham, Texas.

**Healdia miranda** Coryell and Billings Pennsylvanian  
*Healdia miranda* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 179, pl. 17, fig. 14.

Graham (Wayland shale): Northeast of Cisco, Texas.

**Healdia nucleolata** Knight Pennsylvanian  
*Healdia nucleolata* KNIGHT, Jour. Pal., 2, no. 4 (1928) p. 329, pl. 44, figs. 4a-e.—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 75, pl. 6, fig. 9.

St. Louis County, Mo. (Upper Fort Scott); Southeastern Oklahoma (Wetumka and Wewoka).  
Metatypes.—U.S.N.M. No. 83973.

**Healdia obsolens** Delo Pennsylvanian  
*Healdia obsolens* DELO, Jour. Pal., 4 (1930) p. 168, pl. 13, fig. 4.

Deep well, Sutton County, Texas.  
Holotype.—U.S.N.M. No. 81792.

**Healdia oklahomaensis** Harlton Pennsylvanian  
*Healdia oklahomaensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 208, pl. 33, figs. 3a-c; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 263, pl. 2, fig. 5—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 268, pl. 26, fig. 4.

Love County, Okla. (Upper Glenn, Canyon); Mineral Wells, Texas (East Mountain shale).  
Holotype.—U.S.N.M. No. 71716.

**Healdia overbrookensis** Harlton Pennsylvanian  
*Healdia overbrookensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 207, pl. 33, figs. 1a-c; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 261, pl. 1, fig. 10.

Lower Glenn, Wapanucka limestone: Love County, Okla.  
Holotype.—U.S.N.M., No. 71412.

**Healdia quadrispinosa** Coryell and Billings Pennsylvanian  
*Healdia quadrispinosa* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 177, pl. 18, fig. 12.

Graham (Wayland shale): Northeast of Cisco, Texas.

- Healdia simplex** Roundy Pennsylvanian  
*Healdia simplex* ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 8, pl. 1, figs. 11a-c—CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 179, pl. 17, fig. 15—CORYELL and SAMPLE, *ibid.*, 12, no. 5 (1932) p. 263, pl. 26, fig. 1—CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 267, pl. 4, fig. 6.  
 Graham formation: Stephens County, etc., Texas.
- Healdia simplicissima** Harlton Pennsylvanian  
*Healdia simplicissima* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 24, pl. 7, figs. 7a-c.  
 Johns Valley shale: Southern Oklahoma.  
 Cotypes.—U.S.N.M. No. 85559.
- Healdia squamosa** Harlton Pennsylvanian  
*Healdia squamosa* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 138, pl. 21, figs. 10a, b; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 263, pl. 2, figs. 3a, b.  
 Springer formation, Caney shale: Carter County, Okla.  
 Holotype.—U.S.N.M. No. 72242.
- Healdia subangularis** Delo Pennsylvanian  
*Healdia subangularis* DELO, Jour. Pal., 4 (1930) p. 169, pl. 13, fig. 6.  
 Deep well, Sutton County, Texas.  
 Holotype.—U.S.N.M. No. 81793.
- Healdia torquata** Harlton Pennsylvanian  
*Healdia torquata* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 138, pl. 21, figs. 9a, b.  
 Wayland shale: Stephens County, Texas.  
 Holotype.—U.S.N.M. No. 72241.
- Healdia tulsensis** Coryell and Osorio Pennsylvanian  
*Healdia tulsensis* CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 37, pl. 5, fig. 5.  
 Canyon (Nowata shale): Hughes Quarry, Tulsa County, Okla.
- Healdia variolosa** Geis Mississippian  
*Healdia variolosa* GEIS, Jour. Pal., 6, no. 2 (1932) p. 175, pl. 25, fig. 7.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Healdia vinitaensis** Harlton Mississippian  
*Healdia vinitaensis* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 262, pl. 1, figs. 1a, b.  
 Fayetteville shale (just below limestone): Craig County, Okla.  
 Holotype.—U.S.N.M. No. 72580.
- Healdia winfieldensis** Upson Permian  
*Healdia winfieldensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 28, pl. 2, figs. 10a-c.  
 Winfield (Grant shale): 2½ miles east of Odell, Nebr.
- HERRMANNELLA** Kegel (preoccupied in Copepoda). See *Leperditia*.  
**Herrmannella (Leperditia) briarti** (Dewalque) = **Leperditia quenstedti**  
**Herrmannella waldschmidti** Paeckelmann = **Leperditia waldschmidti**
- HIPPA** Barrande (Beyrichiidae)  
 Genotype: *H. latens* Barrande  
*Hippa* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 516—ZITTEL, Handb. Pal., 2 (1885) p. 553.  
 Perhaps an ostracode near *Ctenobolbina*.

**Hippa latens** Barrande

Ordovician (D2-4)

*Hippa latens* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 517, pl. 26, fig. 3a-b.

Trubsko (D2), Trubin (D3), Chrutenitz (D4), Bohemia.

**Hippa rediviva** Barrande

Silurian (E2)

*Hippa rediviva* BARRANDE, Syst. Sil. Centre. Bohême, 1, suppl. (1872) p. 518, pl. 26, fig. 3a-b.

Dlauha Hora, near Beraun, Bohemia.

**HIPPONICHARION** Matthew, a genus of Cambrian branchiopods

**HOLLINA** Ulrich and Bassler (Beyrichiidae)

Genotype: *Ctenobolbina insolens* Ulrich

*Hollina* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315—GRABAU and SHIMER, North American Index fossils (1910) p. 357—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 312—KNIGHT, Jour. Pal., 2, no. 3 (1929) p. 235—KELLETT, Jour. Pal., 3, no. 2 (1929) p. 196-200—MOORE, Denison Univ., Bull. 24 (1929) p. 99-102.

**Hollina antespinos** (Ulrich) = **Hollinella antespinos**

**Hollina armata** (Ulrich)

Devonian

*Ctenobolbina armata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 19 (1900) p. 181, pl. 8, fig. 6.

*Hollina armata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315, pl. 42, fig. 14—GRABAU and SHIMER, North American index fossils (1910) p. 357, text fig. 1660.

Onondaga: Falls of the Ohio, Louisville, Ky.

Holotype.—U.S.N.M. No. 41494.

**Hollina avonensis** Latham = **Hollinella avonensis**

**Hollina bassleri** Knight = **Hollinella bassleri**

**Hollina buehleri** Knight = **Hollinella bassleri**

**Hollina buehleri** Harlton = **Hollinella menardensis**

**Hollina cavimarginata** (Ulrich)

Devonian

*Ctenobolbina cavimarginata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 19 (1900) p. 182, pl. 8, figs. 7-9.

*Hollina cavimarginata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315, pl. 42, fig. 10-12—GRABAU and SHIMER, North American index fossils (1910) p. 357, text fig. 1660 w, w', x.

Onondaga: Falls of the Ohio, Louisville, Ky.

Cotypes.—U.S.N.M. No. 41495.

**Hollina devoniana** Van Pelt

Devonian

*Hollina devoniana* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 327, pl. 39, figs. 33-36.

Bell shale: Rogers City, Mich.

**Hollina emaciata** Ulrich and Bassler = **Hollinella emaciata**

**Hollina emaciata occidentalis** Girty = **Hollinella occidentalis**

**Hollina fortscottensis** Knight = **Hollinella bassleri**

**Hollina fortscottensis** Harlton = **Hollinella menardensis**

**Hollina grahamensis** Harlton = **Hollinella grahamensis**

**Hollina granifera** Harlton = **Hollinella ulrichi**

**Hollina hamiltonensis** (Jones)

Devonian

*Beyrichia hamiltonensis* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 19, pl. 2, fig. 3—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 306, text fig. 247—GRABAU and SHIMER, North American index fossils (1910) p. 355, text fig. 1665 l.

Hamilton (Ludlowville): Eighteen Mile Creek, N. Y.

**Hollina herrickana** Girty = **Hollinella herrickana****Hollina informis** (Ulrich)

Devonian

*Ctenobolbina informis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 187, pl. 15, figs. 6a-c.

*Hollina informis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315.

Onondaga: Falls of the Ohio, Louisville, Ky.  
Holotype.—U.S.N.M. No. 41320.

**Hollina insolens** (Ulrich)

Devonian

*Ctenobolbina insolens* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 19 (1900) p. 182, pl. 8, figs. 10, 11.

*Hollina insolens* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1907) p. 315, pl. 42, figs. 8, 9—GRABAU and SHIMER, North American index fossils (1910) p. 357, text fig. 1663, l, m—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 310, 312, text fig. 20 (fig. 9)—KELLETT, Jour. Pal., 3, no. 2 (1929) p. 200—MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 100.

Onondaga: Falls of the Ohio, Louisville, Ky.  
Cotypes.—U.S.N.M. No. 41318.

**Hollina kolmodini** Ulrich and Bassler = **Hollinella kolmodini****Hollina longispina** Jones and Kirkby = **Hollinella longispina****Hollina obsita** Moore = **Hollinella obsita****Hollina radiata** (Jones and Kirkby) = **Hollinella radiata****Hollina radiata** Ulrich and Bassler = **Hollinella ulrichi****Hollina radiata cestriensis** Ulrich = **Hollinella cestriensis****Hollina radlerae** Harlton = **Hollinella radlerae****Hollina serotina** (Jones)

Lower Devonian

*Drepanella serotina* (Sandberger Ms.) JONES, Ann. Mag. Nat. Hist., ser. 6, 15 (1898) p. 86, pl. 7, fig. 12—LEIDHOLD, Centr. Min., Geol., Pal. (1917) p. 164-167.

Dillenburg, Nassau, Germany.

**Hollina spiculosa** (Ulrich)

Devonian

*Ctenobolbina spiculosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 19 (1900) p. 181, pl. 8, fig. 5.

*Hollina spiculosa* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315, pl. 42, fig. 13—GRABAU and SHIMER, North American index fossils (1910) p. 357, text fig. 1660 u.

Onondaga: Falls of the Ohio, Louisville, Ky.  
Holotype.—U.S.N.M. No. 41317.

**Hollina stepanovi** Battalina = **Hollinella stepanovi****Hollina tricollina** Ulrich and Bassler = **Hollinella tricollina****Hollina tricollina** Harlton = **Hollinella radlerae****Hollina tuberculospinosa** Latham = **Cornigella tuberculospinosa****Hollina ulrichi** Knight = **Hollinella ulrichi** and **H. kellestae**

**HOLLINELLA** Coryell (Beyrichiidae)

Genotype: *H. dentata* Coryell

*Hollina* (part) ULRICH and BASSLER (1908); KNIGHT (1929), LATHAM (1932).

*Hollinella* CORYELL, Jour. Pal., 2, no. 4 (1928) p. 377-378, pl. 51, figs. 1-3—KELLETT, *ibid.*, 3, no. 2 (1929) p. 196-200—BLAKE, *ibid.*, 4, no. 3 (1930) p. 297—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 56—KNIGHT, Jour. Pal., 4, no. 4 (1930) p. 417—KELLETT, *ibid.*, 7, no. 1 (1933) p. 69—UPSON, Nebr. Geol. Surv., 8 (1933) p. 30.

*Basslerina* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 103.

(Genotype *B. limata* Moore)

*Hollites* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 252.

(Genotype *H. papillosus* Coryell and Sample)

**Hollinella antespinoza** (Ulrich)

Devonian

*Ctenobolbina* (?*Bollia*) *antespinoza* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 187, pl. 15, figs. 9a-c.

*Hollina antespinoza* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315—GRABAU and SHIMER, North American index fossils (1920) p. 367, text figs. 1660, y, y', y''.

*Hollinella antespinoza* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 200.

Onondaga: Falls of the Ohio, Louisville, Ky

Holotype.—U.S.N.M. No. 41319.

**Hollinella australis** Delo

Pennsylvanian

*Hollinella australis* DELO, Jour. Pal., 4 (1930) p. 157, pl. 12, figs. 6, 7.

Deep well, Irion County, Texas.

Holotype.—U.S.N.M. No. 81794.

**Hollinella avonensis** (Latham)

Carboniferous

*Hollina avonensis* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 360, text fig. 9.

Upper limestone series: Scotland.

**Hollinella bassleri** (Knight)

Pennsylvanian

*Hollina bassleri* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 240, pl. 31, fig. 3; pl. 34, fig. 7.

*Hollinella bassleri* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 197, pl. 25, figs. 5a-c—MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 101—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 57, pl. 4, fig. 3—CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 185, pl. 18, fig. 4.

*Hollina buehleri* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 236, pl. 31, fig. 1, pl. 34, fig. 8.

*Hollina fortscottensis* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 237, pl. 31, fig. 2.

Southeastern Oklahoma (Marmaton-Wetumka, Wewoka and Holdenville); St. Louis County, Mo. (Henrietta—Upper Fort Scott); northeast of Cisco, Texas (Wayland shale).

**Hollinella bassleri** Harlton = **H. menardensis**

**Hollinella bulbosa** Coryell and Sample

Pennsylvanian

*Hollinella bulbosa* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 251, pl. 24, fig. 7.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Hollinella burlingamensis** Kellett

Pennsylvanian

*Hollinella burlingamensis* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 72, pl. 14, figs. 28-30.

Osage County, Kan. (Burlingame limestone); Northern Oklahoma (Cryptozoan limestone).  
Holotype.—U.S.N.M. No. 85434.

- Hollinella cestriensis** (Ulrich) Mississippian  
*Beyrichia radiata cestriensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 204, pl. 14, figs. 4a, b—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 148.  
*Hollina radiata cestriensis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315, pl. 42, figs. 19, 20.  
 Chester: Near Grayson Springs, Ky.  
 Holotype.—U.S.N.M. No. 41692.
- Hollinella crassimarginata** Kellett Pennsylvanian, Permian  
*Hollinella crassimarginata* KELLETT, Jour. Pal., 3, no. 3 (1929) p. 206, pl. 26, figs. 3a, b—UPSON, Nebr. Geol. Surv., 8 (1933) p. 31, fig. 5a.  
 Cottonwood limestone: bridge east of Elmdale, etc. Kan. Range, Wabaunsee, Americus—Ft. Riley.  
 Holotype and paratypes.—U.S.N.M. Nos. 80521, 80523.
- Hollinella cushmani** Kellett Pennsylvanian  
*Hollinella cushmani* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 71, pl. 13 figs. 35–37.  
 Deer Creek (Ervin Creek limestone): Shawnee County, Kan.  
 Holotype.—U.S.N.M. No. 85436.
- Hollinella dentata** Coryell Pennsylvanian  
*Hollinella dentata* CORYELL, Jour. Pal., 2, no. 4 (1928) p. 378, pl. 51, fig. 1.  
 Wewoka formation: Seminole County, Okla.  
 Considered a synonym of *H. bassleri* by Warthin, 1930.
- Hollinella digitata** Kellett = **H. ulrichi**
- Hollinella emaciata** (Ulrich and Bassler) Permian  
*Beyrichia?* *emaciata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 156, pl. 11, fig. 6.  
*Hollina emaciata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315.  
*Hollinella emaciata* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 202, pl. 25, figs. 1a–c—UPSON, Nebr. Geol. Surv., 8 (1933) p. 32, pl. 4, figs. 2a–c.  
 Cottonwood to Fort Riley limestones: 6 miles west of Reece, etc., Kan.; Nebraska.  
 Holotype and plesiotypes.—U.S.N.M. Nos. 35362, 80519.
- Hollinella gibbosa** Kellett Pennsylvanian, Permian  
*Hollinella gibbosa* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 208, pl. 25, figs. 3a–c; pl. 26, figs. 5, 14—UPSON, Nebr. Geol. Surv., 8 (1933) p. 34, pl. 4, fig. 3a.  
 Fort Riley, Kan. (Fort Riley limestone). Range, Americus to Ft. Riley, East Kansas and Nebraska.  
 Holotype and paratypes.—U.S.N.M. Nos. 80511–80516.
- Hollinella grahamensis** (Harlton) Pennsylvanian  
*Hollina grahamensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 203, pl. 32, figs. 2a, b.  
*Hollinella grahamensis* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 215, pl. 26, fig. 1—HARLTON, Univ. Texas, Bull. 2901 (1929) p. 145, pl. 1, fig. 7—MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 101.  
 Love County, Okla. (Upper Glenn); East Menard County, Texas (Graham formation).  
 Holotype.—U.S.N.M. No. 71413.
- Hollinella granifera** (Ulrich) Mississippian  
*Bollia granifera* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 205, pl. 12, figs. 12a, b—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 149—BATALINA, Com. Geol., Bull., 43, no. 10 (1924) p. 1325, 1335, pl. 22, figs. 9–12, pl. 23, figs. 18–22.  
*Hollina granifera* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315, pl. 42, figs. 16, 17.  
 Elizabethtown, Ky. (Spergen limestone); ?Carboniferous of Russia.  
 Holotype.—U.S.N.M. No. 41329.

- Hollinella harltoni** Kellett Pennsylvanian  
*Hollinella harltoni* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 2, 11, pl. 26, figs. 10a-b—  
 CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 251, pl. 24, fig. 8.  
 Pontotoc County, Okla. (Belle City limestone); Mineral Wells, Texas (East Mountain shale).  
 Holotype.—U.S.N.M. No. 80524.
- Hollinella herrickiana** (Girty) Permian  
*Hollina herrickiana* GIRTY, U. S. Geol. Surv., Bull. 389 (1909) p. 115, 116, pl. 8,  
 figs. 10, 11.  
*Hollinella herrickiana* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 197—DELO, Jour.  
 Pal., 4 (1930) p. 156, pl. 12, fig. 4.  
 San Andreas Mountains, N. Mex. (Yeso formation); deep well, Irion County, Texas.
- Hollinella hibernica** (Jones and Kirkby) Carboniferous  
*Beyrichia hibernica* JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 186,  
 pl. 12, fig. 7.  
 Cultra, Ireland.
- Hollinella inflata** Coryell and Osorio Pennsylvanian  
*Hollinella inflata* CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 29,  
 pl. 5, fig. 2.  
 Canyon (Nowata shale): Hughes Quarry, Tulsa County, Okla.
- Hollinella kellettae** Knight Pennsylvanian  
*Hollina ulrichi* KNIGHT, Jour. Pal., 2, no. 3 (1928) pl. 31, figs. 4a, b.  
*Hollinella ulrichi* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 57, pl. 4, fig. 5.  
*Hollinella kellettae* KNIGHT in Kellett, Jour. Pal., 7, no. 1 (1933) p. 70—CORYELL  
 and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 271, pl. 5, figs. 8-10.  
 St. Louis County, Mo. (Fort Scott limestone); Southeastern Oklahoma; Graham, Texas (Wayland  
 shale).
- Hollinella kolmodini** (Jones) Devonian  
*Beyrichia kolmodini* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 538,  
 pl. 20, fig. 6—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 174 (loc. occ.).  
*Beyrichia* (?*Depranella*) *kalmadini* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13  
 (1891) p. 190, pl. 14, figs. 1a-c.  
*Hollina kolmodini* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315,  
 pl. 42, figs. 5-7—GRABAU and SHIMER, North American index fossils (1910) p. 358,  
 figs. 1665 f-h—MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 100.  
 Clarke County, Ind., etc. (Onondaga); Canandaigua Lake, N. Y. and Thedford, Ontario (Ham-  
 ilton).  
 Plesiotypes.—U.S.N.M. No. 41381.
- Hollinella limata** (Moore) Pennsylvanian  
*Basslerina limata* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 106,  
 pl. 6, fig. 1, pl. 7, figs. 3, 4, pl. 8, figs. 5, 6.  
 Graham (South Bend shale): 1 mile west of Graham, Texas.
- Hollinella limbata** (Moore) Pennsylvanian  
*Basslerina limbata* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 110,  
 pl. 6, fig. 7; pl. 7, figs. 11, 12; pl. 8, figs. 13, 14.  
*Hollinella limbata* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 58.  
 Wewoka and Holdenville formations: Pontotoc County, Okla.
- Hollinella longispina** (Jones and Kirkby) Carboniferous  
*Beyrichia longispina* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886)  
 p. 257, pl. 8, fig. 3; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, table  
 p. 511.

*Hollina longispina* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315—MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 101—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 361, text fig. 9.

Limestone: Cumberland and Northumberland, England; Linlithgowshire, Scotland.

**Hollinella menardensis** Harlton Pennsylvanian  
*Hollinella menardensis* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 145, pl. 1, fig. 6a, b—KELLETT, Jour. Pal., 3, no. 2 (1929) p. 215, pl. 26, figs. 9a, b, 12a, b.  
*Hollina fortscottensis* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 145, pl. 1, fig. 5.  
*Hollina buehleri* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 144, pl. 1, fig. 4.

Graham formation: East Menard County, Texas.  
 Cotype.—U.S.N.M. No. 80559.

**Hollinella nevensis** Kellett Permian  
*Hollinella nevensis* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 201, pl. 25, figs. 2a-c, pl. 26, fig. 4—UPSON, Nebr. Geol. Surv., 8 (1933) p. 35, pl. 4, fig. 6a.  
*Jonesina alta* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 399, pl. 36, fig. 4.

Neva and Foraker limestones: Manhattan, near Elmdale, etc., Kan.  
 Holotype.—U.S.N.M. No. 80518.

**Hollinella nowataensis** Coryell and Osorio Pennsylvanian  
*Hollinella nowataensis* CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 29, pl. 5, fig. 1.

Canyon (Nowata shale): Hughes Quarry, Tulsa County, Okla.

**Hollinella obsita** (Moore) Pennsylvanian  
*Hollina obsita* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 104, pl. 6, fig. 4; pl. 7, figs. 9, 10; pl. 8, figs. 11, 12.

Top of Francis formation: near Ada, Okla.

**Hollinella occidentalis** (Girty) Permian  
*Hollina emaciata occidentalis* GIRTY, U. S. Geol. Surv., Bull. 436 (1910) p. 55, 56, pl. 7, figs. 8-10—BRANSON, Univ. Mo. Studies (1930) pl. 16, fig. 22.  
*Hollinella occidentalis* DELO, Jour. Pal., 4 (1930) p. 156, pl. 12, fig. 4.

Thomas Fork, Wyo. (Park City formation); deep well, Irion County, Texas.

**Hollinella oklahomaensis** (Harlton) Pennsylvanian  
*Jonesina oklahomaensis* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 133, pl. 21, figs. 3a, b.  
*Hollinella oklahomaensis* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 146, pl. 1, figs. 8a, b—KELLETT, Jour. Pal., 3, no. 2 (1929) p. 2, 15, pl. 26, figs. 13a, b—MOORE, Denison, Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 103.

Pontotoc County, Okla. (Belle City limestone); East Menard County, Texas (Graham formation).  
 Cotypes and plesiotype.—U.S.N.M. Nos. 72235, 80561.

**Hollinella ovata** Coryell Pennsylvanian  
*Hollinella ovata* CORYELL, Jour. Pal., 2, no. 4 (1928) p. 380, pl. 51, fig. 2.

Francis formation: Seminole County, Okla.

**Hollinella pulchra** (Moore) Pennsylvanian  
*Basslerina pulchra* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 109, pl. 6, fig. 5; pl. 7, figs. 1, 2; pl. 8, figs. 1, 2.

Graham (South Bend shale): 1 mile west of Graham, Texas.

**Hollinella radiata** (Jones and Kirkby) Carboniferous  
*Beyrichia radiata* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 1 (1867) p. 220—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 26—KIRKBY, Geol. Soc. London, Quart.



Jour., 36 (1880) p. 561, 587—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536–541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 257, pl. 8, figs. 1, 2a–b—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 204 (loc. occ.)—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311; British Assoc. Handb. Glasgow (1901) p. 490.

*Hollina radiata* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 101, 103, 104—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 359, 360, text fig. 8.

North England (Yoredale); East and West Scotland and North England (Lower and upper limestones and calciferous sandstone); Caldwell County, Ky. (Chester).

Plesiotypes.—U.S.N.M. Nos. 41661, 41693.

**Hollinella radlerae** (Harlton) Pennsylvanian

*Hollina tricollina* HARLTON (not Ulrich), Jour. Pal., 6, no. 3 (1927) p. 204, pl. 32, figs. 4a, b.

*Hollina radlerae* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 133, pl. 21, figs. 2a, b; Univ. Texas, Bull. 2901 (1929) p. 141, pl. 1, figs. 2a–c.

*Hollinella radlerae* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 199, pl. 26, fig. 6.

Love County, Okla. (Lower Glenn); East Menard County, Texas (Graham); Pontotoc County, Okla. (Belle City limestone).

Holotype and plesiotype.—U.S.N.M. Nos. 72234, 80555.

**Hollinella recurva** (Moore) Pennsylvanian

*Basslerina recurva* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 111, pl. 6, fig. 2; pl. 7, figs. 7, 8, pl. 8, figs. 9, 10.

Wayland shale: 5 miles west of Eastland, Texas. South Bend shale, Boggy shale, and Hoxbar formation of Texas and Oklahoma.

**Hollinella regularis** Coryell Pennsylvanian

*Hollinella regularis* CORYELL, Jour. Pal., 2, no. 4 (1928) p. 380, pl. 51, fig. 3.

Francis formation: Seminole County, Okla.

**Hollinella regularis** (Moore) Pennsylvanian

*Basslerina regularis* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 108, pl. 6, fig. 3; pl. 8, figs. 7, 8, 15.

Graham (South Bend shale): 1 mile west of Graham, Texas. Considered a synonym of *Hollinella basleri* by Warthin, 1930.

**Hollinella shawneensis** Kellett Pennsylvanian

*Hollinella shawneensis* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 209, pl. 25, figs. 4a–c, pl. 26, fig. 8.

Howard and Deer Creek of the Shawnee formation: Topeka, Kan.

Holotype.—U.S.N.M. No. 80510.

**Hollinella simulatrix** (Ulrich) Mississippian

*Beyrichia simulatrix* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 205, pl. 18, figs. 7a, b—JONES and KIRKBY, Roy. Dublin Soc., Sci. Tr., 2, ser. 6 (1896–1898) p. 187—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 148.

Chester: Near Grayson Springs, Ky.; Chester, Ill.

Holotype.—U.S.N.M. No. 41696.

**Hollinella stepanovi** (Batalina) Carboniferous

*Hollina stepanovi* BATALINA, Com. Geol., Bull., 43, no. 10 (1924) p. 1328, 1335, pl. 22, figs. 13–16; pl. 23, figs. 23–24.

Novgorod, Russia.

Considered a synonym of *H. longispina* by Latham, 1932.

**Hollinella tricollina** (Ulrich) Devonian

*Beyrichia tricollina* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 189, pl. 12, fig. 6—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 306, text fig. 248.

*Hollina tricollina* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315, pl. 42, fig. 15—GRABAU and SHIMER, North American index fossils (1910) p. 358, text fig. 1665, m—MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 105, 106.

Hamilton (Ludlowville): Eighteen Mile Creek, N. Y.  
Holotype.—U.S.N.M. No. 41678.

**Hollinella ulrichi** Knight (part) = **H. kellettae**

**Hollinella ulrichi** (Knight) Pennsylvanian (?), Permian

*Beyrichia*(?) *radiata* ULRICH and BASSLER (not Jones and Kirkby) U. S. Nat. Mus., Pr., 30 (1906) p. 156, pl. 11, fig. 5.

*Hollina radiata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 315, pl. 42, fig. 18—GRABAU and SHIMER, North American index fossils (1910) p. 358, text fig. 1666a.

*Hollina ulrichi* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 237, pl. 31, figs. 4a–b (not = *Hollinella kellettae*).

*Hollina granifera* HARLTON (not Ulrich), Jour. Pal., 1, no. 3 (1927) p. 204, pl. 32, fig. 3.

*Hollinella ulrichi* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 210, pl. 26, fig. 1a, b—HARLTON, Univ. Texas, Bull. 2901 (1929) p. 141, pl. 1, fig. 3—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 56, pl. 4, fig. 6—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 70—UPSON, Nebr. Geol. Surv., 8 (1933) p. 33, pl. 4, figs. 4a–b.

*Hollinella digitata* KELLETT, Jour. Pal., 3, no. 2 (1929) p. 209, pl. 26, figs. 1a–b—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 57, pl. 4, fig. 5—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 250, pl. 24, fig. 15.

Cottonwood to Wreford limestones: Near Cottonwood Falls, etc., Kan.; 3 miles west of Mineral Wells, Texas (East Mountain shale); (?) Southeastern Oklahoma (Holdenville); (?) Menard County, Texas (Graham).  
Plesiotypes.—U.S.N.M. Nos. 80517, 80556.

**Hollinella verrucula** (Moore) Pennsylvanian

*Basslerina verrucula* MOORE, Denison Univ., Bull. Jour. Sci. Lab., 24 (1929) p. 107, pl. 6, fig. 6; pl. 7, figs. 5, 6; pl. 8, figs. 3, 4.

Graham (South Bend shale): 1 mile west of Graham, Texas.

**HOLLITES** Coryell and Sample = **HOLLINELLA**

**Hollites papillosus** Coryell and Sample Pennsylvanian

*Hollites papillosus* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 252, pl. 24, fig. 9.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.  
An early molt of some *Hollinella*.

**HYPHASMAPHORA** Van Pelt (Thlipsuridae)

Genotype: *H. textiligera* Van Pelt

*Hyphasmaphora* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 339.

**Hyphasmaphora textiligera** Van Pelt Devonian

*Hyphasmaphora textiligera* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 340, pl. 39, figs. 3–7—WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 219, pl. 1, fig. 20.

Traverse (Bell shale and Gravel Point stage): Rogers City and Emmet County, Mich.

**INDIANA** Matthew, a genus of Cambrian branchiopods

**ISOCHILINA** Jones (Leperditiiidae)

Genotype: *Leperditia ottawa* Jones

*Isochilina* JONES, Geol. Surv. Canada, dec. 3 (1858) p. 97; Ann. Mag. Nat. Hist., ser. 2, 1 (1858) p. 248; Monthly Micr. Jour., 4 (1870) p. 191—BARRANDE,

Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 533—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., 7, ser. 21, no. 2 (1873) p. 8—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 506—ZITTEL, Handb. Pal., 2 (1885) p. 552—MILLER, North American geol. pal. (1889) p. 551—VOGDES, New York Acad. Sci., Ann., 5 (1889) p. 22, pl. 2, fig. 18—MILLER, North American geol. pal., appendix 1 (1892) p. 707—KOKEN, Die Leitfossilien (1896) p. 40—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 307—ULRICH, Zittel-Eastman Textb. Pal., 1 (1900) p. 643—JAEKEL, Deutsch. Geol. Ges., Zeitschr., 53 (1901) p. 149—GRABAU, Buffalo Soc. Nat. Sci., Bull., 7 (1901) p. 218; N. Y. State Mus., Bull. 9 (1901) p. 218—GRABAU and SHIMER, North American index fossils (1910) p. 341—BASSLER, Zittel-Eastman Textb. Pal., 2d ed. (1913) p. 737; U. S. Nat. Mus., Bull. 92 (1915) p. 671—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 295—KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 414-416.

**Isochilina amiana** Ulrich = **Isochilina gregaria**

**Isochilina amiana insignis** Ulrich = **Isochilina cristata**

**Isochilina amii** Jones

Ordovician

*Isochilina amii* JONES, Geol. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 68, pl. 10, figs. 14a, b—RUEDEMANN, N. Y. State Mus., Bull. 49 (1901) p. 84—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 672.

Trenton: Lorette, Quebec.

**Isochilina ampla** Ulrich

Ordovician

*Isochilina ampla* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 1 (1891) p. 179, pl. 11, figs. 8a-d—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 672—BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 17, fig. 3.

*Leperditia ampla* KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 410, pl. figs. 4a-h.

Trenton (Cannon): Nashville, etc., Tenn.; Greenwood, Ala.  
Cotypes.—U.S.N.M. No. 41291.

**Isochilina ampla nashvillensis** (Kirk)

Ordovician

*Leperditia ampla nashvillensis* KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 416, pl. figs. 5a-c.

Trenton (Catheys): Nashville, Tenn.

**Isochilina apicalis** Ulrich and Bassler

Ordovician

*Isochilina apicalis* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 21, fig. 9.

Trenton (Catheys formation): Nashville, Tenn.  
Holotype.—U.S.N.M. No. 68769.

**Isochilina arctica** Poulsen

Upper Canadian

*Isochilina arctica* POULSEN, Jubilaemsekped. Nord om Gronland, 1920-1923 (1927) p. 309, pl. 21, fig. 5.

Nunatami formation: Nunatami, Greenland.

**Isochilina armata** (Walcott)

Ordovician

*Leperditia (Isochilina) armata* WALCOTT, Descr. new species fossils, Trenton Group (1883) p. 7; N. Y. State Mus. Nat. Hist., 35th Rept. (1884) p. 213, pl. 17, fig. 10.

*Isochilina armata* (Walcott) JONES, Geol. Mag., n. s., dec. 4, 10 (1903) p. 304—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 672—WILSON and MATHER, Ont. Bur. Mines, 25th Ann. Rept. (1916) pl. 2, fig. 7—WILSON, Canadian Dept. Mines, Bull. 33 (1921) (Geol. ser., no. 40) p. 39.

*Isochilina kentuckyensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 179, pl. 11, figs. 11a-d.

Black River (Lowville): Russia, Herkimer County, N. Y.; High Bridge, and Frankfort, Ky.  
Holotype (*I. kentuckyensis*).—U.S.N.M. No. 43155.

**Isochilina armata pygmaea** Ruedemann Ordovician  
*Isochilina armata pygmaea* RUEDEMANN, N. Y. State Mus., Bull. 49 (1901-1902) p. 72, pl. 7, figs. 19-25—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 652.

Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.

**Isochilina bellula** Jones = **Primitiella bellula**

**Isochilina biensis** (Grünewaldt) Devonian  
*Leperditia biensis* GRÜNEWALDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 2, no. 7 (1860) p. 71, pl. 5, fig. 11a, b.

*Isochilina biensis* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 21 (1873) p. 21, pl. fig. 35—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 31, pt. 5 (1883) p. 22—TSCHERNYSCHEW, Com. Géol., St. Petersburg, Mém., 3, 1885-1889, no. 3 (1887) p. 16.

West slope of Urals, Russia.

**Isochilina bulbosa** Harris Ordovician

*Isochilina bulbosa* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 87, pl. 5, figs. 2a, b.  
 Simpson (Oil Creek): 1 mile north of Hickory, Okla.

**Isochilina canaliculata** Krause = **Aparchites canaliculata**

**Isochilina? clavigera** (Jones) Ordovician  
*Beyrichia clavigera* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 65, pl. 11, fig. 7.

*Isochilina? clavigera* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, text fig. 3—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 672.

Stones River (Pamelia): Aylmer, Quebec.

Plesiotype.—U.S.N.M. No. 41653.

**Isochilina clavigera clavifracta** (Jones) Ordovician

*Beyrichia clavigera clavifracta* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 65, pl. 11, fig. 8.

*Isochilina clavigera clavifracta* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 672.

Stones River (Pamelia): Aylmer, Quebec.

Topotype.—U.S.N.M. No. 41854.

**Isochilina columbina** Bassler Ordovician

*Isochilina columbina* BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 17, fig. 2.

Trenton (Cannon limestone): Nashville, Tenn.

Holotype.—U.S.N.M. No. 68806.

**Isochilina cristata** (Whitfield) Canadian

*Primitia? cristata* WHITFIELD, Am. Mus. Nat. Hist., Bull. 11 (1889) p. 59, pl. 13, figs. 1, 2—LESLEY, Geol. Surv. Pa., Rept. P. 4 (1889) p. 743, text figs.

*Isochilina cristata* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 23, pl. 1, fig. 8; Geol. Mag., n. s., dec. 4, 10 (1903) p. 304—SEELY, Vt. State Geol., Rept. 7 (1910) pl. 61, fig. 15—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 672.

*Isochilina amiana insignis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13, pt. 1 (1891) p. 181, pl. 11, fig. 13.

Beekmantown: Cove Island, Ball's Bay, Lake Champlain, Vt.; drift at Ottawa, Ontario.

Holotype (*I. amiana insignis*).—U.S.N.M. No. 41290.

**Isochilina cylindrica** (Hall) = **Leperditia cylindrica**

**Isochilina dawsoni** Jones Devonian

*Isochilina dawsoni* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 92, text fig. 8—WHITEAVES, Geol. Surv. Canada, Contr. Can. Pal., 1, pt. 4 (1892) p. 346 (loc. occ.).

Lake Winnipegosis, Canada.

**Isochilina egressa** Poulsen Upper Canadian  
*Isochilina egressa* POULSEN, Jubilaemseksped. Nord om Gronland, 1920-1923 (1927) p. 309, pl. 21, fig. 6.

Nunatami formation: Nunatami, Greenland.

**Isochilina erratica** Krause = **Leperditella erratica**

**Isochilina fabacea** Jones = **Primitiella fabacea**

**Isochilina?formosa** Barrande Silurian (E2)

*Isochilina? formosa* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 534, pl. 23, figs. 22-25; pl. 34, figs. 1-3.

*Isochilina (Leperditia) formosa* JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 79.

Dworetz, Bohemia.

**Isochilina frequens** Steusloff Ordovician

*Isochilina frequens* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 784, pl. 58, fig. 4.

*Aparchites(?) frequens* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 415, 440, pl. 20, fig. 5.

Drift (Algal and Leptaena limestone): Neue Brandenburg, Germany.  
 Topotypes.—U.S.N.M. No. 82334.

**Isochilina gigantea** Barrande = **Leperditia grandis**

**Isochilina gracilis** (Jones) Ordovician

*Leperditia (Isochilina) gracilis* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 248, pl. 10, fig. 2; Geol. Surv. Canada, dec. 3 (1858) p. 98, pl. 11, fig. 15.

*Isochilina gracilis* BILLINGS, Geol. Surv. Canada, Rept. Progress Comm. to 1863 (1863) p. 954—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 422—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 18; Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 347—DWIGHT, Vassar Bros. Inst., Tr. (1890) p. 76—VOGDÉS, New York Acad. Sci., Ann., 5 (1891) pl. 2, figs. 18a-e—JONES, Geol. Mag., n. s., dec. 4, 10 (1903) p. 303—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 672—VOGDÉS, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 18—BASSLER, Md. Geol. Surv., Cambrian-Ordovician vol. (1919) p. 136, 137.

Trenton or Black River: White Horse Rapids, Isle Jesus, Canada.

**Isochilina grandis** Jones = **Isochilina latimarginata**

**Isochilina grandis** Schrenk = **Leperditia grandis**

**Isochilina gregaria** (Whitfield) Canadian

*Primitia gregaria* WHITFIELD, Am. Mus. Nat. Hist., Bull. 2 (1889) p. 58, pl. 13, figs. 3-5—LESLEY, Geol. Surv. Pa., Rept. P. 4 (1889) p. 743, text figs.

*Isochilina gregaria* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 22, pl. 1, figs. 9, 10; Geol. Mag., n. s., dec. 4, 10 (1903) p. 304—SEELY, Vt. State Geol., Rept. 7 (1910) pl. 61, figs. 16, 17—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 673—BASSLER, Md. Geol. Surv., Cambrian and Ordovician vol. (1919) p. 104, 182, 363, pl. 36, figs. 10-12.

*Isochilina ottawa* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 551.

*Isochilina ottawa intermedia* JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 66, pl. 10, figs. 10a, b, 11a, b; Geol. Mag., n. s., dec. 4, 10 (1903) p. 303.

*Isochilina amiana* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 180, pl. 11, figs. 12a-c—JONES, Geol. Mag., n. s., dec. 4, 10 (1903) p. 303, 304.

Beekmantown: Cove Island, Balls Bay, Vt.; near Hagerstown, Md.; drift at Ottawa, Ontario.  
 Holotypes (*I. amiana*) U.S.N.M. No. 41289.

***Isochilina gregaria ulrichiana* Jones**

Ordovician

*Isochilina gregaria ulrichiana* JONES, Geol. Mag., dec. 4, **10** (1903) p. 301, text figs. 1, 2a, b—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 673.

Trenton(?): Hamilton, Ontario (drift).

***Isochilina jonesi* Wetherby**

Ordovician

*Isochilina jonesi* WETHERBY, Cincinnati Soc. Nat. Hist., Jour., **4** (1881) p. 80, pl. 2, figs. 7, 7a—MILLER, North American geol. pal. (1889) p. 552, text fig. 1018—ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13**, pt. 1 (1891) p. 179, pl. 11, figs. 9a-c—JONES, Geol. Mag., n. s., dec. 4, **10** (1903) p. 303—GRABAU and SHIMER, North American index fossils (1910) p. 342, text fig. 1656 l-n—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 673—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 295, text fig. 13 (figs. 6-8).

Trenton: Mercer County, Ky. (Perryville); 1½ miles east of Milton, Tenn. and Greenwood, Ala. (Cannon).  
Plesiotypes.—U.S.N.M. Nos. 41292, 68793.

***Isochilina kentuckyensis* Ulrich = *Isochilina armata******Isochilina labellosa* Jones = *Leperditella* (?) *labellosa******Isochilina labrosa* Jones**

Devonian, Silurian

*Isochilina labrosa* JONES, Ann. Mag. Nat. Hist., ser. 6, **3** (1889) p. 383, text figs. 3, 4, pl. 17, fig. 11—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., **17**, pt. 1 (1904) p. 299, pl. 16, fig. 3—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 673—KIRK, Am. Jour. Sci., ser. 5, **16** (1928) p. 416.

Cap Bon Ami, New Brunswick (Helderbergian); Cave Hill, Lilydale, Victoria (Yeringian).

***Isochilina latimarginata* (Jones)**

Silurian

*Leperditia marginata* JONES (not Keyserling) Ann. Mag. Nat. Hist., ser. 2, **17** (1856) p. 94, 100, pl. 7, figs. 14a-d; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 78.

*Isochilina grandis* JONES (not Schrenk) Ann. Mag. Nat. Hist., ser. 5, **8** (1881) p. 347; *ibid.*, **9** (1882) p. 171; *ibid.*, ser. 5, **14** (1884) p. 344; Geol. Mag., n. s., dec. 4, **10** (1903) p. 303—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., **22** (1909) p. 4.

*Isochilina grandis latimarginata* JONES, Geol. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 78, pl. 10, figs. 1-4—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 673.

*Leperditia phaseolus marginata* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, **31** (1883) p. 5—JONES, Ann. Mag. Nat. Hist., ser. 5, **8** (1881) p. 341, pl. 19, fig. 15—CHMIELEWSKI, Schrift. Phys. Ökon. Ges. Königsberg, **6** (1900) p. 23.

Niaganan: Long Point, Lake Winnipegosis, Cedar Lake, and Saskatchewan River, Canada.

***Isochilina*? (?*Barychilina*) *lineata* Jones**

Devonian

*Isochilina lineata* JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 21, pl. 2, figs. 5a, b, 8a, b; Geol. Mag., n. s., dec. 4, **10** (1903) p. 304.

Hamilton: Monteith's Point, Canandaigua, N. Y.

***Isochilina maakii* Schmidt**

Silurian

*Isochilina maakii* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, **21** (1873) p. 23, pl. figs. 33, 39—JONES, Geol. Mag., n. s., dec. 2, **1** (1874) p. 512.

Between Uilui and Vlenek, East Siberia.

***Isochilina minutissima* Hall = *Aparchites minutissimus******Isochilina musculosa* Foerste**

Silurian

*Isochilina musculosa* FOERSTE, Cincinnati Soc. Nat. Hist., Jour., **21**, no. 1 (1909) p. 30, pl. 1, fig. 2—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 673.

Cayugan (Kokomo): Southeast of Kokomo, Ind.

**Isochilina nelsoni** Ulrich and Bassler

Ordovician

*Isochilina nelsoni* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 21, fig. 10.

Trenton (Catheys formation): Nashville, Tenn.  
Holotype.—U.S.N.M. No. 63765.

**Isochilina ottawa** (Jones)

Canadian

*Leperditia (Isochilina) ottawa* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 243, pl. 10, fig. 1; Geol. Surv. Canada, dec. 3 (1858) p. 97, pl. 11, fig. 14—DWIGHT, Vassar Bros. Inst., 5 (1890) p. 75.

*Isochilina ottawa* JONES, Monthly Micr. Jour., Mem., 4 (1870) p. 191—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 21, pt. 5 (1873) p. 2—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 507, fig. 361, B.—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 345; Geol. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 66; Geol. Mag., n. s., dec. 4, 10 (1903) p. 303, 304; *ibid.*, dec. 5, 1 (1904) p. 349—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 674—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 31 (1918) p. 112.

*Isochilina ottawaensis* BUTTS, Geol. Ala. (1926) p. 124, pl. 30, figs. 1, 2.

Beekmantown: Grenville, Quebec. Ridley limestone: Jefferson, Ala.  
Plesiotypes.—U.S.N.M. No. 71508.

**Isochilina ottawa intermedia** Jones = **Isochilina gregaria**

**Isochilina ottawaensis** Butts = **Isochilina ottawa**

**Isochilina panolensis** Foerste

Silurian

*Isochilina panolensis* FOERSTE, Ky. Geol. Surv., Bull. 7 (1906) p. 328; Cincinnati Soc. Nat. Hist., Jour., 21, no. 1 (1909) p. 30, pl. 1, fig. 1—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 674—KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 164.

Clinton (Waco): Panola and near Irvine, Ky.  
Holotype.—U.S.N.M. No. 81965.

**Isochilina perporosa** Poulsen

Upper Canadian

*Isochilina perporosa* POULSEN, Jubilaemsekasped. Nord om Gronland, 1920-1923 (1927) p. 309, pl. 21, figs. 1, 2.

Nunatami formation: Nunatami, Greenland.

**Isochilina pondi** Ulrich and Bassler

Ordovician

*Isochilina pondi* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 21, fig. 8.

Trenton (Catheys formation): Nashville, Tenn.  
Holotype.—U.S.N.M. No. 53462.

**Isochilina punctata** (Eichwald)

Ordovician

*Leperditia marginata* JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 91, pl. 7, figs. 11-13.

*Leperditia phaseolus punctata* EICHWALD, Leth. Ross. (1860) p. 1334.

*Isochilina punctata* SCHMIDT, Russ. Sil. Leperd., Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 7 (1873) p. 10, 22, figs. 36, 37—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512; Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 346, pl. 19, fig. 12; *ibid.*, 14 (1884) p. 344.

Government St. Petersburg, Russia.  
Topotypes.—U.S.N.M. No. 68800.

**Isochilina rectangularis** Ulrich = **Macronotella(?) rectangularis**

**Isochilina saffordi** Ulrich

Ordovician

*Isochilina saffordi* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 178, pl. 11, figs. 10a-d—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 674—KIRK, Am.

Jour. Sci., ser. 5, 16 (1928) p. 418—BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 17, fig. 1.

Trenton: Nashville, Tenn. (Cannon); near Harrodsburg, Ky. (Perryville).  
Holotype.—U.S.N.M. No. 41288.

**Isochilina scapha** Stewart Devonian

*Isochilina scapha* STEWART, Ohio Jour. Sci., 30 (1930) p. 57, pl. 1, figs. 11, 12.

Silica shale: Lucas County, Ohio.

**Isochilina scofieldi** Miller = **Macronotella scofieldi**

**Isochilina seelyi** (Whitfield) Canadian

*Primitia seelyi* WHITFIELD, Am. Mus. Nat. Hist., Bull., 11 (1889) p. 60, pl. 13, figs. 6, 7—LESLEY, Geol. Surv. Pa., Rept. P 4 (1889) p. 774, 2 text figs.

*Isochilina seelyi* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 22, pl. 1, fig. 7—SEELY, Vt. State Geol., Rept., 7 (1910) pl. 61, fig. 17—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 674; Md. Geol. Surv., Cambrian and Ordovician vol. (1919) p. 105, 182, 363, pl. 35, fig. 12—KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 416.

Beekmantown: Shoreham, Vt.; Providence Island, Lake Champlain; Huyett, Md.  
Topotypes.—U.S.N.M. No. 82387.

**Isochilina? socialis** Brögger Ordovician

*Isochilina(?) socialis* BRÖGGER, Die Sil. Etagen 2 und 3, Kristiana (1882) p. 55 pl. 12, fig. 14.

Expansus beds and Orthoceras limestone: Christiania region, Norway.

**Isochilina suavis** Poulsen Upper Canadian

*Isochilina suavis* POULSEN, Jubilæumseksped. Nord om Gronland, 1920–1923 (1927) p. 308, pl. 21, figs. 3, 4.

Nunatami formation: Nunatami, Greenland.

**Isochilina subnodosa** Ulrich Ordovician

*Isochilina subnodosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 177, pl. 11, figs. 7a–c—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, text fig. 2—GRABAU and SHIMER, North American index fossils (1910) p. 342, text fig. 1656 (figs. l–k)—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 674.

Trenton (Perryville): Perryville, etc., Ky.  
Holotype.—U.S.N.M. No. 41294.

**Isochilina sweeti** Chapman, probably refers to a Cambrian branchiopod

**Isochilina vaurealensis** Twenhofel Early Silurian

*Isochilina vaurealensis* TWENHOFEL, Geol. Surv. Canada, Mem. 154 (1929) p. 341, pl. 60, fig. 6.

Richmond (Vaureal): Vaureal Falls, Anticosti.

**Isochilina ventricosa** Matthew, refers to a Cambrian branchiopod

**Isochilina whiteavesii** Jones Ordovician

*Isochilina whiteavesii* JONES, Geol. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 68, pl. 10, figs. 13a, b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 674.

Trenton: Lorette Falls, Quebec.

### JANISCHEWSKYA Batalina (Beyrichiidae)

Genotype: *J. digitata* Batalina

*Janischewskya* BATALINA, Com. Geol., Bull., 43, no. 10 (1924) p. 1332, 1336—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 365.



**Janischewskya digitata** Batalina

Carboniferous

*Janischewskya digitata* BATALINA, Com. Geol., Bull., 43, no. 10 (1924) p. 1332, 1336, pl. 22, figs. 20-24, pl. 23, figs. 10-11—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1933) p. 365.

Novgorod, Russia; Scotland (Lower limestone).

**JANUSELLA** Roth (Beecherellidae)

Genotype: *J. biceratina* Roth

*Janusella* ROTH, Jour. Pal., 3, no. 4 (1929) p. 363.

**Janusella biceratina** Roth

Devonian

*Janusella biceratina* ROTH, Jour. Pal., 3, no. 4 (1929) p. 363, pl. 37, figs. 23a-c.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80665.

**JONESELLA** Ulrich (Primitiidae)

Genotype: *Leperditia crepidiformis* Ulrich

*Jonesella* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 121—MILLER, North American geol. pal., 1st appendix (1892) p. 708—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 667—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 278—GRABAU and SHIMER, North American index fossils (1910) p. 349—BASSLER, Zittel-Eastman Textb. Pal., 2nd ed. (1913) p. 738; U. S. Nat. Mus., Bull. 92 (1915) p. 680—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 301.

*Melanella* WADE, Geol. Soc. London, Quart. Jour., 67 (1911) p. 451. Genotype: *M. hemidiscus* Wade

*Vogdesella* (new name for *Melanella* preoccupied) BAKER, Cal. Acad. Sci., Pr., 13 (1924) p. 187, 188.

**Janusella crassa** Ulrich = **Ctenobolbina crassa**

**Jonesella crepidiformis** (Ulrich)

Ordovician

*Leperditia crepidiformis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 11 (1879) p. 10, pl. 7, figs. 3, 3a.

*Jonesella crepidiformis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 122, pl. 7, figs. 8a-c; Geol. Minn., 3, pt. 3 (1894) p. 667, text fig. 47a-c—GRABAU and SHIMER, North American index fossils (1910) p. 349, text fig. 1658, a-c—WADE, Geol. Soc. London, Quart. Jour., 67 (1911) p. 451, 452, text fig. 9c—BASSLER, Zittel-Eastman Textb. Pal. (1913) p. 738, fig. 1425; U. S. Nat. Mus., Bull. 92 (1915) p. 680—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (fig. 14) p. 301—FOERSTE, Geol. Surv. Canada, Mem. 138 (1924) p. 254, pl. 45, fig. 7.

Cincinnati (Eden): Covington, Ky.; Cincinnati, Ohio, and vicinity; Ontario.  
Cotypes.—U.S.N.M. No. 41359.

**Jonesella? (?Kloedenella) digitata** Ulrich

Early Silurian

*Jonesella digitata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 122, pl. 7, figs. 10a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 680.

Richmond (Arnheim): Marion County, Ky.  
Holotype.—U.S.N.M. No. 41358.

**Jonesella hemidiscus** (Wade)

Ordovician

*Melanella hemidiscus* WADE, Geol. Soc. London, Quart. Jour., 67 (1911) p. 451, figs. 9a, b.

*Vogdesella hemidiscus* BAKER, Cal. Acad. Sci., Pr., 13 (1924) p. 187.

Llandoverly: Montgomeryshire, Wales.

**Jonesella obscura** Ulrich

Ordovician

*Jonesella obscura* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 668, pl. 44, figs. 17-19—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 680.

*Melanella obscura* WADE, Geol. Soc. London, Quart. Jour., 67 (1911) p. 451.  
*Vogdesella obscura* BAKER, Cal. Acad. Sci., Pr., 13 (1924) p. 187.

Trenton (Prosser): Cannon Falls, Minn.  
 Cotypes.—U.S.N.M. No. 41529.

### **Jonesella pedigera** Ulrich

Ordovician

*Jonesella pedigera* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 122, pl. 7, figs. 9a, 9b; Geol. Minn., 3, pt. 2 (1894) p. 667, text fig. 47d, e—GRABAU and SHIMER, North American index fossils (1910) p. 349, text fig. 165, d, e—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 680—RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 140, pl. 23, figs. 13–15.

Covington, Ky., and vicinity (Eden-Economy); Lorraine Gulf, N. Y. (Whetstone Gulf); Manitoulin Island (Eden).  
 Holotype.—U.S.N.M. No. 41360.

### **JONESINA** Ulrich and Bassler (Kloedenellidae)

Genotype: *Beyrichia fastigiata* Jones and Kirkby

*Jonesina* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 324—GRABAU and SHIMER, North American index fossils (1910) p. 359—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 314—UPSON, Nebr. Geol. Surv., Bull. 8. (1933) p. 46—GEIS, Jour. Pal., 6, no. 2 (1932) p. 156—KELLETT, *ibid.*, 7, no. 1 (1933) p. 76.  
*Coryella* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 397—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 49. Genotype: *C. stovalli* Harris and Lalicker = early molts of *Jonesina bolliiformis*.

### **Jonesina acuneata** Warthin

Pennsylvanian

*Jonesina acuneata* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 61, pl. 4, fig. 9—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 254, pl. 24, fig. 10.

Two miles west of Steedman, Okla. (Wetumka formation); 3 miles west of Mineral Wells, Texas (East Mountain shale).  
 Probably same as *J. ampla*.

### **Jonesina alta** Harris and Lalicker = **Hollinella nevensis**

### **Jonesina ampla** Warthin

Pennsylvanian

*Jonesina ampla* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 61, pl. 4, fig. 8—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 255, pl. 25, fig. 14.

Three miles east of Ada, Okla. (Wetumka formation); Mineral Wells, Texas (East Mountain shale).

### **Jonesina arcuata** (Bean)

Coal Measures

*Cypris arcuata* BEAN, Mag. Nat. Hist., 9 (1836) p. 377, text fig. 55—GEINITZ, Grund. Verst. (1845–1846) p. 243.

*Beyrichia arcuata* JONES and KIRKBY, British Assoc., Rept., 1863 (1864) p. 80; Geol. Soc. Glasgow, Tr., 2 (1865) p. 217; Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 35, 36, 50—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 26—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq., table p. 511; Geol. Mag., dec. 3, 3 (1886) p. 438, pl. 12, figs. 12–14—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 331, pl. 17, figs. 7a–c—YOUNG, Geol. Soc. Glasgow, Tr., 9, 1888–1892 (1893) p. 311—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7, 1898 (1899) p. 437—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 154, 157.

*Jonesina arcuata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 324, pl. 44, figs. 17–19—TROEDSSON, Lunds Univ. Arsskr., n. s., Avd. 2, 15 (1919) p. 51—HARLTON, Jour. Pal., 1, no. 3 (1927) p. 205, pl. 32, figs. 6a–c—KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 243–246, pl. 31, figs. 6a–b, pl. 33, fig. 6.

*Sansabella arcuata* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 366, text fig. 12.

Newcastle, etc., England; East and West Scotland; Cap Bon Ami, Canada; Love County, Okla. (Lower Glenn); St. Louis County, Mo. (Henrietta Fort Scott).

**Jonesina bolliiformis** (Ulrich and Bassler) Pennsylvanian, Permian

*Beyrichiella bolliiformis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 158, pl. 11, figs. 7, 8.

*Jonesina bolliiformis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 325, pl. 44, figs. 1, 2—GRABAU and SHIMER, North American index fossils (1910) p. 359, text fig. 1666 c. c',—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 78, pl. 14, figs. 1-8, 17-19, 32-36.

*Sansabella(?) bolliiformis* ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 6.

*Jonesina subquadrata* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 47, pl. 3, fig. 5b.

*Jonesina garrisonensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 48, pt. 3, figs. 9a, b.

*Beyrichiella bolliiformis tumida* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 158, pl. 11, figs. 9-11.

*Jonesina bolliiformis tumida* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 325, pl. 44, figs. 3-5.

*Coryella stovalli* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 398, pl. 36, figs. 3a-c—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 50, pl. 3, figs. 2a-c.

*Knozina nebraskensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 51, pl. 3, figs. 10a-b.

Two miles east of Cottonwood Falls, Kan., and Nebraska. (Cottonwood); Baylor County, etc., Texas. Range in Kansas—Wabausee formation to Chase formation. Holotype.—U.S.N.M. Nos. 35630, 35631.

**Jonesina bradyana** (Jones and Kirkby) Carboniferous

*Beyrichia bradyana* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 438, pl. 12 fig. 11; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 454; British Assoc. Handb. Glasgow (1901) p. 490.

*Jonesina bradyana* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 324, pl. 44, figs. 15, 16—HARLTON, Jour. Pal., 1, no. 3 (1927) p. 205, pl. 32, figs. 7a, b.

*Sansabella bradyana* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 366, text fig. 13.

East and West Scotland (Lower limestone); Yorkshire, England (Yoredale); Love County, Okla. (Upper Glenn).

**Jonesina carbonifera** Girty Permian

*Jonesina carbonifera* GIRTY, U. S. Geol. Surv., Bull. 436 (1910) p. 56, pl. 7, figs. 1-4—BRANSON, Univ. Mo. Studies, 5, no. 2 (1930) pl. 16, fig. 24.

Park City formation: Thomas Fork, Wyo.

**Jonesina craterigera** (Jones and Kirkby) Carboniferous

*Beyrichia craterigera* (Brady Ms.) JONES and KIRKBY, Geol. Mag., dec. 3, 11 (1885) p. 540; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 et seq. and table p. 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 186; British Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 8 (1893-1905) p. 64—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 154.

*Jonesina craterigera* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 324, pl. 44, fig. 13, 14—HARLTON, Jour. Pal., 1, no. 3 (1927) p. 205, pl. 32, figs. 5a, b; Jour. Pal., 3 (1929) p. 308.

Northumberland, Westmoreland, etc., North England (Limestone and Yoredale); West Scotland (Lower limestone and Calciferous sandstone); Ireland; Carter County, Okla. (Lower Glenn).

**Jonesina etheridgei** Chapman Permo-Carboniferous

*Jonesina etheridgei* CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920) p. 104, pl. 17, fig. 11.

Lower Marine Series: Farley, New South Wales.

**Jonesina fastigiata** (Jones and Kirkby) Carboniferous

*Beyrichia fastigata* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 219; *ibid.* (1869) p. 220—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 26—

JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511; Geol. Mag., dec. 3, 3 (1886) p. 438, pl. 12, figs. 8-10—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311; British Assoc. Handb. Glasgow (1901) p. 490—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 154, 158.

*Jonesina fastigiata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 324, pl. 44, figs. 10-12; Md. Geol. Surv., Silurian vol. (1923) p. 313, 314, text fig. 21 (fig. 5)—ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 5.

Lower and Upper limestone: Linlithgowshire, Sterlingshire, etc., Scotland.

**Jonesina fodicata** (Jones and Kirkby)

Carboniferous

*Beyrichia fodicata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 38 (1886) p. 258, pl. 8, figs. 4-6; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 152, 154, 158.

*Jonesina fodicata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 324, pl. 44, figs. 7-9.

Upper limestone: East and West Scotland.

**Jonesina grahamensis** Coryell and Booth

Pennsylvanian

*Jonesina grahamensis* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 272, pl. 5, figs. 11, 12.

Wayland shale: Graham, Texas.

**Jonesina gregaria** (Ulrich and Bassler)

Pennsylvanian

*Beyrichiella gregaria* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 157, pl. 11, fig. 18.

*Jonesina gregaria* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 325, pl. 44, fig. 6—GRABAU and SHIMER, North American index fossils (1910) p. 359, text fig. 1666b—HARLTON, Jour. Pal., 2, no. 2 (1928) p. 134, pl. 21, figs. 4a, b—KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 241-243, 246, pl. 31, figs. 5a-f—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 607, pl. 4, fig. 11—DELO, Washington Univ. Studies, n. s., Sci. and Techn., no. 5 (1931) p. 43, pl. 4, fig. 3.

Kansas City, Mo.; Love County, etc., Okla. (Glenn, Wewoka); St. Louis County, Mo. (Henrietta, Fort Scott); Hamilton County, Kan. (deep well).

Cotypes and plesiotype.—U.S.N.M. Nos. 35625, 72236.

**Jonesina howardensis** Kellett

Pennsylvanian

*Jonesina howardensis* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 81, pl. 14, figs. 43-45—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 48, pl. 3, figs. 9a-d.

Topeka (Howard formation) and east of Auburn, Shawnee County, Kan. (Scranton); Oklahoma. Holotype.—U.S.N.M. No. 85439.

**Jonesina mccoysi** Roth and Skinner

Pennsylvanian

*Jonesina mccoysi* ROTH and SKINNER, Jour. Pal., 4, no. 4 (1930) p. 334, 338, pl. 28, figs. 9-11.

McCoy formation: McCoy, Eagle County, Colo.

**Jonesina multiloba** (Jones and Kirkby)

Carboniferous

*Beyrichia multiloba* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 219—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 26—JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 320—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 258, pl. 8, fig. 9—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—LAMPLAUGH, Geol. country around Belfast, Geol. Surv. Ireland, Mem. (1904) p. 13—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 321.

*Kloedenella multiloba* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 362.

Lower and Upper limestones: West Scotland.

**Jonesina oblonga** Geis

Mississippian

*Jonesina oblonga* GEIS, Jour. Pal., 6, no. 2 (1932) p. 157, pl. 23, figs. 6a-d.

Salem (Spergen) limestone: Spergen Hill, Ind.

**Jonesina oklahomaensis** Harlton = **Hollinella oklahomaensis**

**Jonesina papillosa** Harris and Lalicker

Permian

*Jonesina papillosa* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 400, pl. 37, fig. 1.

Foraker limestone: 3 miles southeast of Americus, Lyon County, Kan.

**Jonesina papillosa inflata** Harris and Lalicker

Permian

*Jonesina papillosa inflata* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 401, pl. 37, fig. 3.

Foraker limestone: 1¼ miles northeast of Elmdale, Chase County, Kan.

**Jonesina primitioides** Harris and Lalicker

Permian

*Jonesina primitioides* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 401, pl. 37, fig. 2—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 79, pl. 14, figs. 13-16, 20-27.

Neva limestone: 1 mile north of Reece, Greenwood County, Kan.

Plesiotypes: U.S.N.M. No. 85440.

**Jonesina prolata** Delo

Pennsylvanian

*Jonesina prolata* DELO, Jour. Pal., 4 (1930) p. 160, pl. 12, fig. 10.

Deep well, Irion County, Texas.

Holotype.—U.S.N.M. No. 81795.

**Jonesina pyrrhae** (Eichwald)

Permian

*Cypris pyrrhae* EICHWALD, Petersb. Min. Ges. (1844).

*Cythere pyrrhae* EICHWALD, Soc. Imp. Nat. Moscou, Bull. 30, no. 4 (1857) p. 30—

JONES, Johns Hopkins Univ., Circ., no. 3 (1905) p. 32—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 580.

*Cytherina pyrrhae* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438—GEINITZ, Anim. Ueber. Dyas (1861) p. 32.

*Bairdia pyrrhae* EICHWALD, Leth. Ross., 1 (1860) p. 1344, pl. 52, fig. 3.

*Beyrichia pyrrhae* JONES, Mon. Foss. Esther., Pal. Soc. (1862) p. 121, pl. 5, figs. 18, 19.

Burakova, Cazan, Russia.

**Jonesina? rectangularis** Troedsson

Silurian

*Jonesina rectangularis* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15 (1919) (no. 3, 1918) p. 56, 87, 95, text fig. 9.

Dalmanites beds: Röstanga, Scania, Sweden.

**Jonesina reticulata** Harlton

Mississippian

*Jonesina reticulata* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 259, pl. 1, fig. 6.

Fayetteville shale (just below limestone): Craig County, Okla.

Holotype.—U.S.N.M. No. 79361.

**Jonesina sinuodorsata** Geis

Mississippian

*Jonesina sinuodorsata* GEIS, Jour. Pal., 6, no. 2 (1932) p. 158, pl. 23, fig. 7.

Salem (Spergen) limestone: Harrodsburg, Ind.

**Jonesina subarcuata** (Jones)

Coal Measures, Carboniferous

*Beyrichia subarcuata* JONES, Mon. Foss. Esther., Pal. Soc. (1862) p. 120, pl. 5, figs. 16, 17—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 34—

KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 565 etc., table p. 587—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 1 (1884) p. 360; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496 and table p. 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311.

Lancashire, England (Coal Measures); East and West Scotland (Califerous sandstone and Carboniferous limestone).

**Jonesina subquadrata** Delo Pennsylvanian

*Jonesina subquadrata* DELO, Jour. Pal., 4 (1930) p. 161, pl. 12, fig. 11.

Deep well, Menard County, Texas.  
Holotype.—U.S.N.M. No. 81796.

**Jonesina subquadrata** Upson = **J. bolliiformis**

**Jonesina texana** Harlton = **Knoxina texana**

**Jonesina texana** Warthin = **Sulcella warthini**

**Jonesina uncialis** Harris and Lalicker Permian

*Jonesina uncialis* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 399, pl. 36, fig. 5.

Garrison shale: 3 miles east of Elmdale, Chase County, Kan.

**Jonesina varicosa** (Jones and Kirkby) Carboniferous

*Beyrichia varicosa* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 259, pl. 8, figs. 10, 11; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—JACK and ETHERIDGE, Geol. and Pal. of Queensland and New Guinea (1892) pl. 7, fig. 15—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 321.

Linlithgowshire, etc., East Scotland (Lower limestone); Queensland (Dotswood beds).

**Jonesina vinitaensis** Harlton Mississippian

*Jonesina vinitaensis* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 260, pl. 1, figs. 7a, b.

Fayetteville shale (just below limestone): Craig County, Okla.  
Holotype.—U.S.N.M. No. 79362.

### JONESITES Coryell (Primitiidae)

Genotype: *Primitia excavata* Jones and Holl

*Placentula* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 407—MILLER, North American geol. pal., 1st appendix (1892) p. 710—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158, p. 140—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 155; *ibid.*, 35 (1908) p. 277—GRABAU and SHIMER, North American index fossils (1910) p. 351—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 982—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 301.

*Jonesites* CORYELL (*Placentula* preoccupied by Lamarek, 1822) Jour. Pal., 4, no. 3 (1930) p. 294.

**Jonesites auricularis** (Kummerow) Silurian

*Placentula auricularis* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 426, pl. 20, fig. 26.

Drift (Beyrichia limestone): Gränigen near Rathenow, Northern Germany.

**Jonesites excavatus** (Jones and Holl) Silurian

*Primitia excavata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 222, pl. 15, figs. 10a-c—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 74.

*Placentula excavata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 407, pl. 13, figs. 10-12, 16—KOKEN, Die Leitfossilien (1896) p. 381—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 7—SMITH, Nat. Hist. Soc. Glasgow, Tr.,

n. s., 3 (1892) table p. 158—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (fig. 13) p. 301.

*Jonesites excavatus* CORYELL, Jour. Pal., 4, no. 3 (1930) p. 295, fig. 1c, d.

Woolhope limestone and Upper Wenlock shales (Tickwood beds): Woolhope and Ironbridge, England.

**Jonesites inornatus** (Ulrich) Ordovician

*Placentula inornata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 124, pl. 10, figs. 14a, b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 982.

Cincinnati (Eden-Economy): Covington, Ky.

**Jonesites jonesii** (Krause) Ordovician

*Placentula jonesii* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 936, pl. 25, fig. 6.

Drift: Holland.

**Jonesites marginatus** (Ulrich) Ordovician

*Placentula marginata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 124, pl. 10, figs. 13a-c—GRABAU and SHIMER, North American index fossils (1910) p. 351, text fig. 1666d, d'—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 982.

Maysville (Corryville): Cincinnati, Ohio.

Holotype.—U.S.N.M. No. 41364.

**KELLETTTELLA** Delo (Kirkbyidae)

Genotype: *K. naviculata* Delo

*Kellettella* DELO, Jour. Pal., 4 (1930) p. 176—GEIS, Jour. Pal., 6, no. 2 (1932) p. 187.

**Kellettella incarinata** Geis Mississippian

*Kellettella incarinata* GEIS, Jour. Pal., 6, no. 2 (1932) p. 187, pl. 26, figs. 10a, b.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Kellettella naviculata** Delo Pennsylvanian

*Kellettella naviculata* DELO, Jour. Pal., 4 (1930) p. 176, pl. 13, fig. 14.

Deep well, Menard County, Texas.

Holotype.—U.S.N.M. No. 81797.

**KIESOWIA** Ulrich and Bassler (Beyrichiidae)

Genotype: *Beyrichia dissecta* Krause

*Kiesowia* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 307; Md. Geol. Surv., Silurian vol. (1923) p. 311.

**Kiesowia dissecta** (Krause) Ordovician

*Beyrichia dissecta* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 292, pl. 21, fig. 3.

*Tetradella?* *dissecta* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.).

*Tetradella* (*Kiesowia*) *dissecta* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306, pl. 39, fig. 10.

*Kiesowia dissecta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 310, 311, text fig. 20 (fig. 6).

Drift: Mügellheim, North Germany.

**Kiesowia mamillosa** (Krause) Ordovician

*Beyrichia mamillosa* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 293, pl. 22, fig. 14.

*Tetradella?* *mamillosa* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.).—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 441.

*Tetradella (Kiesowia) mamillosa* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306, pl. 39, fig. 11.

Drift (Backsteinkalk): Müggelheim, Northern Germany.

**Kiesowia radians** (Krause)

Ordovician

*Beyrichia radians* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 393, pl. 21, fig. 5—ANDERSSON, Ofv. Kön. Vet.-Akad. Förh., no. 2 (1893) p. 128.

*Tetradella (Kiesowia) radians* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 307, pl. 39, fig. 12.

Drift (Ceratopsis rostrata limestone): Müggelheim, Northern Germany.

**KIRKBYIA** Cossmann = **BEYRICHIELLA**

**KIRKBYIA** Jones (Kirkbyidae)

Genotype: *Dithyrocaris permiana* Jones

*Kirkbya* JONES, Tyneside Nat. Field Club, Tr., 4 (1859) p. 129, 134, 136—GEINITZ, Dyas oder die Zechsteinformation und das Rothliegende (1861) p. 39—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 223—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 223, 235—JONES, Monthly Micr. Jour. (1870) p. 192—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 506—VINE, Yorkshire Geol. and Polyt. Soc., Pr., n. s., 8 (1884) p. 235—ZITTEL, Handb. Pal., 2 (1885) p. 554—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 176; Geol. Assoc., London, Pr., 9 (1886) p. 507—KRAUSE, Sitz. Ges. Naturf. Freunde (1889) p. 15—VOGDES, New York Acad. Sci., Ann., 5 (1889) p. 4, pl. 2, fig. 15—MILLER, North American geol. pal., appendix 1 (1892) p. 708—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 155; *ibid.*, 35 (1908) p. 277—GRABAU and SHIMER, North American index fossils (1910) p. 360—GIRTY, New York Acad. Sci., Ann., 20 (1910) p. 233—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 293, 316, 503—YANICHEVSKY, Com. Geol., Leningrad, Bull. 49 (1927) p. 102—KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 246-252—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 3-14—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 31—GEIS, Jour. Pal., 6, no. 2 (1932) p. 160—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 367—KELLETT, *ibid.*, 7, no. 1 (1933) p. 84—UPSON, Nebr. Geol. Surv., 8 (1933) p. 35.

Most of the above references refer in part to *Amphissites*.

**Kirkbya alpina** Guembel

Paleozoic or Mesozoic

*Kirkbya alpina* GUEMBEL, Kurze Anleitung zu geol. Beobacht in dem Alpen (1878) p. 83, fig. 28—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 183.

Bellerophon bed: Alps.

**Kirkbya annectens** Jones and Kirkby = **Beyrichiella annectens**

**Kirkbya arcuata** Roth

Pennsylvanian

*Kirkbya arcuatum* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 18, 19, pl. 1, figs. 4a-c.

Contact Hogshooter limestone and Nellie Bly formation: Tulsa County, Okla.  
Holotype.—U.S.N.M. No. 80182.

**Kirkbya bendensis** Harlton

Pennsylvanian

*Kirkbya bendensis* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 22, pl. 6, fig. 2.

Johns Valley shale: Southern Oklahoma.  
Holotype.—U.S.N.M. No. 85548.

**Kirkbya bipartita** Jones and Kirkby = **Beyrichiella annectens bipartita**



**Kirkbya canyonensis** Harlton Pennsylvanian, Permian

*Kirkbya canyonensis* HARLTON, Univ. Texas, Bull. **2901** (1929) p. 153, pl. 2, figs. 5a, b—KELLETT, Jour. Pal., **7**, no. 1 (1933) p. 89, pl. 15, figs. 1-7.

East Menard County, Texas (Graham); Leavenworth County (Stanton-Wabaunsee) and Chase County, Kan. (Elmdale and Neva).  
Holotype.—U.S.N.M. No. 80577.

**Kirkbya centronata** Ulrich and Bassler = **Amphissites centronotus**

**Kirkbya clarocarinata** Knight Pennsylvanian

*Kirkbya clarocarinata* KNIGHT, Jour. Pal., **2**, no. 3 (1928) p. 258, pl. 32, fig. 2; pl. 33, fig. 2—HARLTON, Univ. Texas, Bull. **2901** (1929) p. 152, pl. 2, figs. 3a, b—CORYELL and OSORIO, Am. Midl. Nat., **13**, no. 2 (1932) p. 31—CORYELL and BILLINGS, Am. Midl. Nat., **13**, no. 4 (1932) p. 181, fig. 11—KELLETT, Jour. Pal., **7**, no. 1 (1933) p. 86, pl. 14, figs. 50-53.

St. Louis County, Mo. (Upper Fort Scott); East Menard County, etc., Texas (Graham); Tulsa County, Okla. (Nowata); Leavenworth County, Kan. (Stanton).  
Plesiotype.—U.S.N.M. No. 80575.

**Kirkbya collaris** Richter Permian

*Kirkbya collaris* RICHTER, Deutsch. Geol. Ges., Zeitschr., **19** (1867) p. 225, pl. 5, figs. 5, 6; *ibid.*, **21** (1869) p. 428—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, **15** (1885) p. 190.

Zechstein: Saalfeld, etc., Thuringia, Germany.

**Kirkbya cornuta** Yanichevsky Carboniferous

*Kirkbya cornuta* YANICHEVSKY, Com. Geol., Leningrad, Bull. **49** (1927) p. 1024, pl. 51, figs. 16, 17, 27.

Kougnetzki Basin, Russia.

**Kirkbya costata** McCoy = **Glyptopleura costata**

**Kirkbya** (?*Barychilina*) **costata** Ulrich = **Glyptopleura perbella**

**Kirkbya costata mooreana** Jones and Kirkby = **Glyptopleura costata mooreana**

**Kirkbya?** **cymbula** Ulrich Devonian

*Kirkbya cymbula* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **19** (1900) p. 184, pl. 8, figs. 15-18—GRABAU and SHIMER, North American index fossils (1910) p. 360, text fig. 1666, e, e', f.

Onondaga limestone: Falls of the Ohio, Louisville, Ky.  
Cotypes.—U.S.N.M. No. 41581.

**Kirkbya distends** Roth = **K. distenta**

**Kirkbya distenta** Roth Pennsylvanian

*Kirkbya distends* ROTH, Wagner Free Inst. Sci., Publ., **1** (1929) p. 19, pl. 1, figs. 4a-c.

*Kirkbya distenta* (corrected name) ROTH, Jour. Pal., **3** (1929) p. 292.

Contact Hogshooter limestone and Nellie Bly formation: Tulsa County, Okla.  
Holotype.—U.S.N.M. No. 80183.

**Kirkbya dorsoconvexa** Geis Mississippian

*Kirkbya dorsoconvexa* GEIS, Jour. Pal., **6**, no. 2 (1932) p. 160, pl. 23, figs. 9a-b.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Kirkbya dubia** Tolmachoff Devonian (Db)

*Kirkbya* (?) *dubia* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898-1902, no. 38 (1926) p. 28, pl. 1, figs. 22-23.

Ostre Borgen, Ellesmereland, Arctic America.

- Kirkbya eichwaldiana** Jones and Kirkby Carboniferous  
*Kirkbya eichwaldiana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 21.—CRAIG, *ibid.*, 3 (1871) p. 291—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 28.  
 Ayrshire, Scotland.
- Kirkbya fibula** Jones and Holl Silurian  
*Kirkbya fibula* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1869) p. 224, pl. 15, figs. 9a, 9b—JONES, Monthly Micr. Jour., 4 (1870) p. 193—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 174, 177—JONES and HOLL, *ibid.*, ser. 5, 17 (1886) p. 404.  
 Upper Ludlow: Hales End, 3 miles northwest of Malvern, England.
- Kirkbya firma** Kellett Pennsylvanian  
*Kirkbya firma* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 87, pl. 14, figs. 9, 10.  
 Stanton limestone: Leavenworth County, Kan.  
 Holotype.—U.S.N.M. No. 85441.
- Kirkbya? germana** Ulrich Devonian  
*Kirkbya germana* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 19 (1900) p. 185, pl. 8, figs. 19–22—GRABAU and SHIMER, North American index fossils (1910) p. 360, text fig. 1666g, g', h, h'.  
 Onondaga limestone: Falls of the Ohio, Louisville, Ky.  
 Cotypes.—U.S.N.M. No. 41580.
- Kirkbya glypta** (Jones) Permian  
*Dithyrocaris glypta* JONES, King's Mon. Perm. Foss. England (1850) p. 66, pl. 18, fig. 12.  
*Kirkbya Permiana glypta* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 135, pl. 8, figs. 4, 7—GEINITZ, Anim. Überra. Dyas (1861) p. 39, text fig. 2 (fig. 19)—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 225—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225.  
*Kirkbya glypta* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 176–177—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 5.  
 Near Sunderland, etc., England.
- Kirkbya inornata** Roth Permian, Pennsylvanian  
*Kirkbya permiana* JONES and KIRKBY (part), Tyneside Nat. Field Club, Tr., 4 (1859) p. 129, pl. 18, fig. 5.  
*Kirkbya inornatum* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 5, 14, 16, 37, pl. 1, figs. 1a–c.  
 England (Permian): Pontotoc County, Okla. (Wapanucka limestone).  
 Holotype.—U.S.N.M. No. 80180.
- Kirkbya kellestae** Harlton Pennsylvanian  
*Kirkbya kellestae* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 152, pl. 2, figs. 2a–c.  
 Graham formation: East Menard County, Texas.  
 Cotype.—U.S.N.M. No. 80574.
- Kirkbya kirkbyana** (Jones) Carboniferous  
*Beyrichia kirkbyana* JONES, Geol. Mag., n. s., dec. 4, 8 (1901) p. 435.  
*Kirkbya kirkbyana* YANICHEVSKY, Com. Geol., Leningrad, Bull. 49 (1927) p. 1025, pl. 51, fig. 14.  
 Boogtash Mountain and Kouznetzk Basin, Russia.
- Kirkbya knighti** Harlton Pennsylvanian  
*Kirkbya knighti* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 153, pl. 2, figs. 4a, b.  
 Graham formation: East Menard County, Texas.  
 Holotype.—U.S.N.M. No. 80576.

**Kirkbya laciniata** Knight

Pennsylvanian

*Kirkbya laciniata* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 255-256, pl. 32, figs. 5a-b, pl. 33, fig. 4.

Henrietta (Upper Fort Scott): St. Louis County, Mo.

**Kirkbya lindahli** Ulrich = **Savagella lindahli**

**Kirkbya lindahli arkansana** Girty = **Graphiodactylus arkansana**

**Kirkbya? loriei** Bonnema

Paleozoic

*Kirkbya (?) loriei* BONNEMA, Acad. Amsterdam, Pr., 13 (1910) p. 141, pl. fig. 2.

Island of Borkum, North Sea.

**Kirkbya magna** Roth

Pennsylvanian

*Kirkbya magnum* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 16, 17, 19, pl. 1, figs. 2a-b.

Wapanucka limestone: Pontotoc County, Okla.  
Holotype.—U.S.N.M. No. 80181.

**Kirkbya minima** Kummerow

Silurian

*Kirkbya minima* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 432, 442, pl. 21, fig. 10.

Drift (Beyrichia limestone): Gräningen near Rathenow, Northern Germany.  
Topotype.—U.S.N.M. No. 82354.

**Kirkbya moorei** Kellett

Pennsylvanian

*Kirkbya moorei* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 89, pl. 15, figs. 9-11.

Wreford limestone: Funston, Kan.  
Holotype.—U.S.N.M. No. 85452.

**Kirkbya oblonga** Jones and Kirkby = **Amphissites oblongus**

**Kirkbya oblonga transversa** Girty = **Amphissites oblongus transversus**

**Kirkbya parallela** Ulrich = **Amphissites parallelus**

**Kirkbya pergrandis** Kellett

Pennsylvanian

*Kirkbya pergrandis* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 85, pl. 14, fig. 31.

Shawnee County (Deer Creek formation) and Leavenworth County (Stanton), Kan.  
Holotype.—U.S.N.M. No. 85443.

**Kirkbya permiana** (Jones)

Carboniferous, Permian

*Dithyrocaris permiana* JONES, King's Mon. Perm. Foss. (1850) p. 66, pl. 18, fig. 1—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 320.

*Ceraliocraris? permiana* JONES, Morris's Cat. British Foss., 2nd ed. (1854) p. 103.

*Leperditia? permiana* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 434, pl. 11, figs. 5-13.

*Kirkbya permiana* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1859) p. 129, pl. 10a, figs. 1-9; pl. 10, figs. 6-13; p. 133, pl. 8, figs. 2, 3, 5a-6b—GEINITZ, Anim. Übrerr. Dyas (1861) p. 38, text fig. 2 (fig. 20)—KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308—JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 220—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 224, pl. 5, figs. 1-3; *ibid.*, 21 (1869) p. 428—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225—McPHAIL, Geol. Soc. Glasgow, Tr., 3 (1871) p. 268—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 28—KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 561, 588—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 8 (1884) p. 236, 239, pl. 12, figs. 12, 12a—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-540; Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 177, pl. 3, fig. 1—VINE, Naturalist, 10 (1885) p. 100—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—PRESTWICH, Geology, 2 (1888) p. 136, text fig. 66c (not 66b)—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES

and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 6, 16 (1895) p. 454, 458; *Roy. Dublin Soc., Sci. Tr.*, ser. 2, 6 (1896-1898) p. 187; *British Assoc. Handb. Glasgow* (1901) p. 490—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, 30 (1906) p. 155—GIRTY, *New York Acad. Sci., Ann.*, 20 (1910) p. 233—BATALINA, *Com. Geol., Bull.* 43, no. 10 (1924) p. 1323, 1335, pl. 22, fig. 4, pl. 23, figs. 7-9—KNIGHT, *Jour. Pal.*, 2, no. 3 (1928) p. 246, 247, 255—LATHAM, *Roy. Soc. Edinburgh, Tr.*, 57, pt. 2 (1932) p. 367, text fig. 14.

North England (Yoredale); East and West Scotland (Carboniferous limestone and Calcareous sandstone); Ireland; Russia; near Sunderland, Durham, and Yorkshire, England (Permian); Thuringia, Germany (Zechstein).  
Plesiotype.—U.S.N.M. No. 80184.

**Kirkbya permiana** Roth = **K. punctata**

**Kirkbya permiana glypta** Jones and Kirkby = **Kirkbya glypta**

**Kirkbya permiana grapta** Jones and Kirkby = **Amphissites grapta**

**Kirkbya permiana richteriana** Jones and Kirkby = **Kirkbya richteriana**

**Kirkbya permiana roessleri** Richter = **Kirkbya richteriana**

**Kirkbya permiana roessleri** Jones and Kirkby = **Kirkbya roessleri**

**Kirkbya permiana schrenki** Jones and Kirkby = **Kirkbya schrenkii**

**Kirkbya permiana sticta** Jones = **Amphissites sticta**

**Kirkbya permiana varica** Roth Pennsylvanian

*Kirkbya permiana varica* ROTH, *Wagner Free Inst. Sci., Publ.*, 1 (1929) p. 5, 25, 29, 34, pl. 1, fig. 6a-b.

Contact Hogshooter limestone and Nellie Bly formation: Tulsa County, Okla.  
Holotype.—U.S.N.M. No. 80186.

**Kirkbya perplexa** Roth = **Knichtina perplexa**

**Kirkbya pinguis** Ulrich and Bassler = **Amphissites pinguis**

**Kirkbya plicata** Jones and Kirkby = **Glyptopleura plicata**

**Kirkbya punctata** Kellett Pennsylvanian

*Kirkbya permiana* ROTH (not Jones) *Wagner Free Inst. Sci., Publ.*, 1 (1929) p. 21, pl. 1, fig. 5a, b.

*Kirkbya punctata* KELETT, *Jour. Pal.*, 7, no. 1 (1933) p. 87, pl. 14, figs. 46-49.

Leavenworth County, Kan. (Stanton limestone). Also in Howard and Burlingame formations of Kansas and Belle City formation of Oklahoma.  
Holotype.—U.S.N.M. No. 85445.

**Kirkbya radiata** McPhail = **Kirkbya umbonata radiata**

**Kirkbya reflexa** Girty = **Amphissites reflexus**

**Kirkbya richteriana** (Jones) Permian

*Cythere rössleri* RICHTER (not Reuss), *Deutsch. Geol. Ges., Zeitschr.*, 7 (1855) p. 528, pl. 26, figs. 1, 5.

*Kirkbya permiana richteriana* JONES and KIRKBY, *Tyneside Nat. Field Club, Tr.*, 4 (1859) p. 136, pl. 8, fig. 8a, 8f—ROTH, *Wagner Free Inst. Sci., Publ.*, 1 (1929) p. 5.

*Kirkbya richteriana* JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 5, 15 (1885) p. 176, 177, 190.

*Kirkbya permiana rössleri* RICHTER, *Deutsch. Geol. Ges., Zeitschr.*, 19 (1867) p. 225.

Zechstein: Thuringia, Germany.

**Kirkbya rigida** (Jones and Kirkby) Carboniferous

*Beyrichia rigida* JONES and KIRKBY, *Geol. Soc. Glasgow, Tr.*, 2 (1867) p. 220; 2, suppl. (1871) p. 26.

*Kirkbya rigida* JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 5, 15 (1885) p. 188, pl. 3, fig. 18; *Geol. Soc. London, Quart. Jour.*, 42 (1886) p. 496, 512—JONES and HOLL,

Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 404—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 96—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Sci. Tr., 2, ser. 6 (1896-1898) p. 192—BATALINA, Com. Geol., Bull. 43, no. 10 (1924) p. 1320 (in synonymy of *Ulrichia bituberculata*).

Upper limestone: East and West Scotland.

**Kirkbya roessleri** (Reuss)

Permian

*Cythere roessleri* REUSS, Jahrb. Wetterau Ges., 1851-53 (1854) p. 70, pl. figs. 11a, b—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 320.

*Leperditia? roessleri* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 436, 438.

*Kirkbya permiana roessleri* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 135, pl. 8, figs. 9a, 9b—GEINITZ, Anim. Uberr. Dyas (1861) p. 38, 39, text fig. 2 (fig. 21)—SCHMIDT, Neues Jahrb. Min., Jahrg. (1867) p. 577—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 5.

*Kirkbya roessleri* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 174, 176, 177.

Zechstein: Bleichenbach, Wetterau, Germany.

**Kirkbya rothi** Geis

Mississippian

*Kirkbya rothi* GEIS, Jour. Pal., 6, no. 2 (1932) p. 161, pl. 23, figs. 10a-b.

Salem (Spergen) limestone: Spergen Hill, Ind.

**Kirkbya scaphula** Knight

Pennsylvanian

*Kirkbya scaphula* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 256-257, pl. 32, figs. 4a-b; pl. 33, fig. 5.

Henrietta (Upper Fort Scott): St. Louis County, Mo.

**Kirkbya (?Ulrichia) schrenkii** (Keyserling)

Permian

*Cythere schrenkii* KEYSERLING in Schrenk, Reise nordost europ. Russlands (1854) p. 112, pl. 4, fig. 37—GEINITZ, Anim. Uberr. Dyas (1861) p. 38.

*Cypridina schrenkii* EICHWALD, Soc. Imp. Nat. Moscou, Bull. 30 (1857) p. 308.

*Leperditia? schrenkii* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438.

*Beyrichia schrenkii* EICHWALD, Leth. Ross., 1 (1860) p. 1350.

*Kirkbya permiana schrenkii* JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1859) p. 136—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225.

*Kirkbya schrenkii* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 15 (1885) p. 174, 176, 177.

Pinega River, Russia.

**Kirkbya scotica** Jones and Kirkby = *Glyptopleura scotica*

**Kirkbya semimuralis** Ulrich = *Amphissites semimuralis*

**Kirkbya simplex** Girty = *Amphissites simplex*

**Kirkbya spinosa** Jones and Kirkby = *Glyptopleura spinosa*

**Kirkbya spiralis** Jones and Kirkby = *Glyptopleura spiralis*

**Kirkbya sticta** Jones and Kirkby = *Amphissites sticta*

**Kirkbya striolata** (Eichwald)

Carboniferous

*Beyrichia striolata* EICHWALD, Soc. Imp. Nat. Moscou, Bull. 30 (1857) p. 312; Leth. Ross., 1 (1860) p. 1348, pl. 5, fig. 14.

*Kirkbya striolata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 13 (1869) p. 225—JONES and KIRKBY, *ibid.*, ser. 4, 15 (1875) p. 53; *ibid.*, ser. 5, 15 (1885) p. 174, 177.

Sloboda, Toula, Russia.

- Kirkbya subquadrata** Ulrich = **Amphissites subquadratus**
- Kirkbya texana** Harlton = **Knightina texana**
- Kirkbya tricollina** Jones and Kirkby = **Amphissites tricollina**
- Kirkbya tumida** Roth Pennsylvanian  
*Kirkbya tumidus* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 27, 34, pl. 1, fig. 7a.  
 Contact Hogshooter limestone and Nellie Bly formation: Tulsa County, Okla.  
 Holotype.—U.S.N.M. No. 80185.
- Kirkbya umbonata** Jones and Kirkby = **Amphissites umbonatus**
- Kirkbya umbonata radiata** Jones and Kirkby = **Amphissites umbonatus radiatus**
- Kirkbya urei** Jones = **Amphissites urei**
- Kirkbya valida** Kellett Permian  
*Kirkbya valida* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 86, pl. 14, figs. 11, 12.  
 Elmdale formation: Elmdale, Kan.  
 Holotype.—U.S.N.M. No. 85442.
- Kirkbya (Beyrichiopsis?) variabilis** Jones and Kirkby Carboniferous  
*Kirkbya variabilis* JONES and KIRKBY, Geol. Mag., dec. 3, 3 (1886) p. 249, pl. 7, figs. 4-8; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 6.  
 Limestone: Gayton Boring, near Northampton, England.
- Kirkbya venosa** Ulrich = **Glyptopleura venosa**
- Kirkbya voluta** Knight Pennsylvanian  
*Kirkbya voluta* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 253-254, pl. 32, figs. 3a-b, pl. 33, fig. 3.  
 Henrietta (Upper Fort Scott): St. Louis County, Mo.
- Kirkbya(?) walcotti** Jones = **Barychilina walcotti**
- Kirkbya welleri** Geis Mississippian  
*Kirkbya welleri* GEIS, Jour. Pal., 6, no. 2 (1932) p. 161, pl. 23, fig. 8.  
 Salem (Spergen) limestone: Spergen Hill, etc., Ind.
- Kirkbya wymani** Kellett Permian  
*Kirkbya wymani* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 91, pl. 15, figs. 23-32—URSON, Nebr. Geol. Surv., 8 (1933) p. 36, pl. 4, figs. 7a, b.  
 Sedgwick County, Kan. (Winfield limestone). Range, Neva to Winfield.  
 Holotype.—U.S.N.M. No. 85450.

#### KIRKBYELLA Coryell and Booth (Kirkbyidae)

Genotype: *K. typa* Coryell and Booth

*Kirkbyella* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 262.

- Kirkbyella typa** Coryell and Booth Pennsylvanian  
*Kirkbyella typa* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 262, pl. 3, fig. 7.  
 Wayland shale: Graham, Texas.

#### KIRKBYIA Cossman = BEYRICHIELLA

**KIRKBYINA** Ulrich and Bassler (Kloedenellidae)

Genotype: *Beyrichiella? reticosa* Jones and Kirkby

*Kirkbyina* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 322; Md. Geol. Surv., Silurian vol. (1923) p. 314—LATHAM, Roy. Soc. Edinburgh, Tr., 57 (1932) pl. 2, p. 363.

***Kirkbyina inflata*** Harlton Pennsylvanian, Permian  
*Kirkbyina inflata* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 146, pl. 1, figs. 15a-e.

Graham formation: East Menard County, Texas. Found also in Kansas from the Kansas City up into the Lower Permian and in the Hoxbar formation of Oklahoma.  
Cotypes.—U.S.N.M. No. 80563.

***Kirkbyina laevis*** Warthin Pennsylvanian  
*Kirkbyina laevis* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 62, pl. 4, fig. 12—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 256, pl. 24, fig. 11.

Seven miles southeast of Ada, Okla. (Wewoka formation); Mineral Wells, Texas (East Mountain shale).

***Kirkbyina reticosa*** (Jones and Kirkby) Carboniferous  
*Beyrichiella(?) reticosa* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 13 (1886) p. 260, pl. 8, figs. 15, 16; British Assoc. Handb. Glasgow (1901) p. 490.  
*Beyrichia reticosa* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496.

*Kirkbyina reticosa* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 322, pl. 43, fig. 11-14; Md. Geol. Surv., Silurian vol. (1923) p. 313, 314, text fig. 21 (fig. 4).

Lower limestone: Linlithgowshire and Fifeshire, Scotland.

***Kirkbyina spinosa*** Harlton Pennsylvanian  
*Kirkbyina spinosa* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 260, pl. 1, fig. 8.

Wapanucka limestone: Coal County, Okla.  
Holotype.—U.S.N.M. No. 79363.

***Kirkbyina ventricornis*** (Jones and Kirkby) Carboniferous  
*Cythere ventricornis* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 223—McPHAIL, Geol. Soc. Glasgow, Tr., 3 (1871) p. 268.  
*Beyrichia ventricornis* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311.

*Beyrichiella(?) ventricornis* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 13 (1886) p. 260, pl. 8, figs. 17, 18a-c; British Assoc. Handb. Glasgow (1901) p. 490.

*Kirkbyina ventricornis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 322, pl. 43, figs. 15-18—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 363.

Fifeshire, etc., East and West Scotland (Lower and Upper limestone); North England (Yoredale).

**KLOEDENELLA** Ulrich and Bassler (Kloedenellidae)

Genotype: *Kloedenia pennsylvanica* Jones

*Kloedenella* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 317—GRABAU and SHIMER, North American index fossils (1920) p. 358—BONNEMA, Sci. Akad. Wet., Amsterdam, Pr., 16 (1914) p. 1108-1109—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 683—VAN VEEN, in Dutch, Kon. Akad. Wet. Amsterdam Verst. Gew. Verg. Wis. en Naturk., Afd. 29 (1921) p. 888-892; in English, Kon. Akad. Wet. Pr., Sect. Sci., 23, pt. 2 (1922) p. 993-996—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 284, 313, 665, 676, text fig. 12a (fig. 11) p. 284.

***Kloedenella bicaesa*** (Jones and Kirkby) Carboniferous  
*Beyrichia (?) bicaesa* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 13 (1886) p. 249, pl. 8, figs. 12, 13; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, and

table p. 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490.

*Kloedenella bicaesa* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 318, pl. 43, figs. 9, 10.

Upper limestone: West Scotland.

**Kloedenella birmanica** Reed Lower Paleozoic  
*Kloedenella(?) birmanica* REED, Pal. Indica, n. s., 6, mem. 1 (1915) p. 85, pl. 12, fig. 26.

Panghsa-pye beds: North Nan-Shan States.

**Kloedenella bisulcata** ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 112 (nomen nudum).

**Kloedenella cacaponensis** Ulrich and Bassler Silurian  
*Kloedenella cacaponensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 677, pl. 59, fig. 3.

Cayugan (McKenzie):  $1\frac{1}{2}$  miles east of Great Capacon, etc., Md.  
Holotype.—U.S.N.M. No. 63614.

**Kloedenella clarkei** Ulrich and Bassler = **Dizygopleura clarkei**

**Kloedenella clarkei paupera** Ulrich and Bassler = **Dizygopleura clarkei paupera**

**Kloedenella cornuta** (Ulrich and Bassler) Silurian  
*Dizygopleura intermedia cornuta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 688, pl. 60, fig. 17.

*Kloedenella cornuta* SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 255, pl. 30, figs. 1, 2.

Cayugan (Base of McKenzie):  $1\frac{1}{2}$  miles east of Great Cacapon, Md.; near Altoona, etc., Pa.  
Holotype.—U.S.N.M. No. 63687.

**Kloedenella cornuta praenuntia** Swartz Silurian  
*Kloedenella cornuta praenuntia* SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 256, pl. 29, figs. 6a, b.

Clinton (Rochester): Lakemont, near Altoona, etc., Pa.

**Kloedenella germana** ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 164 (nomen nudum).

**Kloedenella gibberosa** Ulrich and Bassler Silurian  
*Kloedenella gibberosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 680, pl. 59, figs. 71, 18.

Cayugan (Upper McKenzie): Pinto, Md.  
Cotypes.—U.S.N.M. Nos. 63609, 63610.

**Kloedenella halli** Jones = **Dizygopleura halli**

**Kloedenella hieroglyphica** (Krause) = **Dizygopleura hieroglyphica**

**Kloedenella immersa** Ulrich and Bassler Silurian  
*Kloedenella immersa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 680, pl. 59, figs. 15, 16.

Cayugan (McKenzie): Cumberland, Md.  
Cotypes.—U.S.N.M. No. 63618.

**Kloedenella intermedia** (Ulrich and Bassler) Silurian  
*Dizygopleura intermedia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 688, pl. 60, figs. 15, 16.

*Kloedenella intermedia* SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 253, pl. 29, figs. 4, 5.

*Kloedenella scapha* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 677, pl. 59, figs. 4-9.



*Kloedenella scapha brevicula* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 678, pl. 59, fig. 10.

Cayugan (Lower McKenzie): Cumberland, etc., Md.; Lakemont near Altoona, etc., Pa.  
Cotypes.—U.S.N.M. Nos. 63672, 63619.

**Kloedenella intermedia antecedens** (Ulrich and Bassler) Silurian

*Dizygopleura intermedia antecedens* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 688, pl. 60, figs. 18–20.

Upper Clinton (*Drepanellina clarki* zone): 1½ miles east of Great Cacapon, Md.  
Holotype.—U.S.N.M. No. 63688.

**Kloedenella medialis** ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 164 (nomen nudum).

**Kloedenella multiloba** Latham = **Jonesina multiloba**

**Kloedenella nitida** Ulrich and Bassler Silurian

*Kloedenella nitida* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 679, pl. 59, fig. 14—SWARTZ, Jour. Pal., 7, no. 3 (1933) p. 257, pl. 30, figs. 3, 4.

Cayugan (Middle McKenzie): Cumberland, Md.; near Altoona, etc., Pa.  
Holotype.—U.S.N.M. No. 63617.

**Kloedenella obliqua** Ulrich and Bassler Silurian

*Kloedenella obliqua* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 676, pl. 59, fig. 1.

Cayugan (Tonoloway): Cumberland, Md.  
Holotype.—U.S.N.M. No. 63612.

**Kloedenella pennsylvanica** (Jones) Devonian

*Kloedenia pennsylvanica* JONES, Am. Geol. 4 (1889) p. 341, pl., figs. 5a–d, 6 (not 7a, b, 8, 9).

*Kloedenella pennsylvanica* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 304, fig. 54, p. 318, 340, pl. 43, fig. 1–3—CLARKE, N. Y. State Mus., Mem., 9, pt. 2 (1909) p. 13, 21—GRABAU and SHIMER, North American index fossils (1910) p. 359, text fig. 1663, n–p—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 533, pl. 97, figs. 18–21—BONNEMA, Sci. Akad. Wet., Amsterdam, Pr., 16 (1914) p. 1107–1108, pl., fig. 7—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 683—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 661, 676.

*Beyrichia pennsylvanica* LESLEY, Geol. Surv. Pa., Rept. P 4 (1889) p. 90, text figs.  
*Poloniella pennsylvanica* VAN VEEN, in English Kon. Akad. Wet., Pr., Sect. Sci., 23, pt. 2 (1922) p. 995, pl., fig. 13.

Helderbergian: Perry County, Pa.; Tonoloway, Md. (Keyser); Herkimer County, N. Y.  
Topotype.—U.S.N.M. No. 41645.

**Kloedenella rectangularis** Ulrich and Bassler Silurian

*Kloedenella rectangularis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 676, pl. 59, fig. 2.

Cayugan (Manlius): Herkimer County, N. Y.  
Holotype.—U.S.N.M. No. 63613.

**Kloedenella scapha** Ulrich and Bassler = **K. intermedia**

**Kloedenella scapha brevicula** Ulrich and Bassler = **K. intermedia**

**Kloedenella subovata** Ulrich and Bassler Silurian

*Kloedenella subovata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 679, pl. 59, figs. 11–13.

Cayugan (McKenzie): Flintstone, Md.  
Cotypes.—U.S.N.M. No. 63616.

**Kloedenella symmetrica** Bassler = **Dizygopleura symmetrica**

**Kloedenella transitans** Ulrich and Bassler Silurian  
*Kloedenella transitans* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 681, pl. 59, figs. 19, 20.

Cayugan (McKenzie): Flintstone, Md.  
 Cotypes.—U.S.N.M. No. 63611.

**Kloedenella trisulcata** (Hall) Devonian  
*Beyrichia trisulcata* HALL, Nat. Hist. New York, Pal., 3, 1859 (1861) p. 381—  
 JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 14, pl. 1, fig. 2.  
*Kloedenella trisulcata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 318  
 —BASSLER, U. S. Nat. Mus., Bull. 92 (1913) p. 684.

Helderbergian (Manlius transition): Herkimer County, N. Y.

**Kloedenella turgida** Ulrich and Bassler Devonian  
*Kloedenia pennsylvanica* (part) JONES, Am. Geol., 4 (1889) p. 341, pl. figs. 8, 9  
 (not figs. 5-7).

*Kloedenella turgida* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 318,  
 text fig. 63, pl. 43, figs. 6, 7—GRABAU and SHIMER, North American index fossils  
 (1910) p. 359, text fig. 1663 r, s—ULRICH and BASSLER, Md. Geol. Surv., Lower  
 Devonian vol. (1913) p. 535, pl. 98, figs. 4-6—BASSLER, Zittel-Eastman Textb. Pal.  
 (1913) p. 238, fig. 1425 l; U. S. Nat. Mus., Bull. 92 (1915) p. 684.

Helderbergian (Keyser): Cumberland, Md.; Keyser, W. Va.; Perry County, Pa.  
 Cotypes.—U.S.N.M. No. 53278.

**Kloedenella turgida ventrosa** Ulrich and Bassler Devonian  
*Kloedenia pennsylvanica* (part) JONES, Am. Geol., 4 (1889) p. 341, pl. figs. 7a, b  
 (not figs. 5, 6, 8, 9).

*Kloedenella turgida ventrosa* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908)  
 p. 318, pl. 43, fig. 8; Md. Geol. Surv., Lower Devonian vol. (1913) p. 535, pl. 98,  
 fig. 7—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 684.

Helderbergian (Keyser): Cumberland, Md.; Perry County, Pa.  
 Holotype.—U.S.N.M. No. 53279.

### KLOEDENIA Jones and Holl (Zygobolbidae-Kloedeninae)

Genotype: *Beyrichia wilkensisiana* Jones

*Kloedenia* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 362—KRAUSE  
 Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 21—KOKEN, Die Leitfossilien (1896)  
 p. 39, text fig. 26A—MILLER, North American geol. pal., 1st appendix (1892) p.  
 708—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1893) p. 158, 139—ULRICH,  
 Zittel-Eastman Textb. Pal., 1 (1900) p. 644—ULRICH and BASSLER, U. S. Nat. Mus.,  
 Pr., 35 (1908) p. 300—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd.,  
 Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 64—GRABAU and SHIMER, North American  
 index fossils (1910) p. 355—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 684—  
 KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 421—MATERN, Preuss. Geol. Landes., Abh.,  
 n. s., 118 (1929) p. 35.

?*Gibba* (subgenus) FUCHS, Preuss. Geol. Landes., Jahrb., 39, pt. 1 (1919) p. 83  
 (Genotype *Beyrichia (Gibba) spinosa* Fuchs).

**Kloedenia apiculata** Jones = *Kyammodos apiculata*

**Kloedenia australis** Chapman Silurian  
*Kloedenia australis* CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920)  
 p. 100, pl. 16, fig. 6.

Ten miles ESE. of Fifield, New South Wales.

**Kloedenia barretti** (Weller) Devonian  
*Beyrichia barretti* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 254, pl. 23 fig. 9.

*Kloedenia barretti* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301; Md. Geol. Surv., Lower Devonian vol. (1913) p. 532, pl. 97, fig. 17—BASSLER, U. S. Nat. Mus., Bull 92 (1915) p. 684.

Helderbergian: 2 miles south of Tristates, N. Y. (Decker Ferry); Tonoloway, Md. (Keyser).  
Plastotype.—U.S.N.M. No. 58936.

**Kloedenia bursaeformis** Whidborne Devonian

*Kloedenia bursaeformis* WHIDBORNE, Devonian Fauna England, Paleontogr. Soc., 3, pt. 1 (1896) p. 22, pl. 3, figs. 18–23.

Boggy, South England.

**Kloedenia cacaponensis** Ulrich and Bassler Silurian

*Kloedenia cacaponensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 640, pl. 61, figs. 24, 25.

Upper Clinton (*Drepanellina clarki* zone): 1½ miles east of Great Cacapon, W. Va., and Lakemont, Pa.  
Cotypes.—U.S.N.M. No. 82991.

**Kloedenia centricornis** Ulrich and Bassler Devonian

*Kloedenia centricornis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301, pl. 38, fig. 23—GRABAU and SHIMER, North American index fossils (1910) p. 356, fig. 1663j—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 529, pl. 97, figs. 1–4—BASSLER, Zittel Eastman Textb. Pal., 2nd ed., 1 (1913) p. 738, fig. 1425; U. S. Nat. Mus., Bull. 92 (1915) p. 684.

Helderbergian (Keyser): Cumberland, Md.  
Cotypes.—U.S.N.M. No. 53305.

**Kloedenia concinna** (Jones and Holl) Silurian

*Beyrichia concinna* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 356, pl. 12, figs. 22a, b—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 150, 158.

*Kloedenia concinna* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301.

Dormington, England (Wenlock); Mulde, Gotland (Gotlandian).

**Kloedenia cribrosa** Kummerow Silurian

*Kloedenia cribrosa* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 429, pl. 21, fig. 2.

Drift (Beyrichia limestone): Hasselberge near Bützow, Northern Germany.  
Topotype.—U.S.N.M. No. 82355.

**Kloedenia dillensis** Matern Upper Devonian

*Kloedenia dillensis* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 37, pl. 2, fig. 24a–b.

Seszackey, Slate Mountains, Germany.

**Kloedenia fifieldensis** Chapman Silurian

*Kloedenia fifieldensis* CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920) p. 99, pl. 16, fig. 5.

Ten miles ESE. of Fifield, New South Wales.

**Kloedenia fimbriata** Ulrich and Bassler Devonian

*Kloedenia fimbriata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301, pl. 38, fig. 22—GRABAU and SHIMER, North American index fossils (1910) p. 356, text fig. 1663k—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 529, pl. 97, figs. 5–7—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 685.

Helderbergian: Herkimer County, N. Y.; Cumberland, Md. (Keyser).  
Holotype.—U.S.N.M. No. 53306.

**Kloedenia globifera** (Krause) (Ordovician) Silurian  
*Primitia (Ctenobolbina?) globifera* KRAUSE, *Deutsch. Geol. Ges., Zeitschr.*, **44** (1892) p. 289, pl. 22, fig. 9.

Drift: Mùgellheim, North Germany.

**Kloedenia globosa** Krause = **Kyammodos globosa**

**Kloedenia gotlandica** Chapman Silurian  
*Kloedenia gotlandica* CHAPMAN, *Ann. Mag. Nat. Hist.*, ser. 7, **7** (1901) p. 149, pl. 3, fig. 12—HEDE, *Sver. Geol. Unders.*, ser. C, no. 305, *Arsh.*, **14**, 1920, no. 7 (1921) p. 49, 98.

Middle Gotlandian: Mulde, Gotland.

**Kloedenia granulata** (Hall) Devonian  
*Beyrichia granulata* HALL, *Nat. Hist. New York, Pal.*, **3**, 1859 (1861) p. 377, pl. 57B, fig. 1—JONES, *Geol. Soc. London, Quart. Jour.*, **46** (1890) p. 15, pl. 1, fig. 3.  
*Kloedenia granulata* ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 301.

Helderbergian (Coeymans): Schoharie and Herkimer counties, N. Y.  
 Topotype.—U.S.N.M. No. 41648.

**Kloedenia? incompta** Dahmer Devonian  
*Kloedenia? incompta* DAHMER, *Preuss. Geol. Landes., Jahrb.* (1919) p. 214, pl. 6, figs. 5–9—PRIESTERSBACH, *ibid.*, für 1924, **45** (1925) p. 402, pls. 10, fig. 10.

Upper Coblenzian: Bärweg Würdinghausen, etc., Germany.

**Kloedenia initialis** (Ulrich) Ordovician  
*Beyrichia initialis* ULRICH, *Geol. Minn.*, **3**, pt. 2 (1894) p. 658, pl. 43, figs. 82, 83.  
*Kloedenia initialis* ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 301, pl. 38, figs. 12, 13—GRABAU and SHIMER, *North American index fossils* (1910) p. 355, text fig. 1663, e, f—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 685—KIRK, *Am. Jour. Sci.*, ser. 5, **16** (1928) p. 420.

Black River (Decorah): Minneapolis, Minn.  
 Holotype.—U.S.N.M. No. 41666.

**Kloedenia intermedia** (Jones and Holl) Silurian  
*Beyrichia intermedia* JONES and HOLL, *Ann. Mag. Nat. Hist.*, ser. 4, **3** (1869) p. 218, pl. 15, fig. 7—JONES and KIRKBY, *ibid.*, ser. 4, **15** (1875) p. 55, pl. 6, fig. 11—JONES, *Geol. Mag.*, n. s., dec. 2, **8** (1881) p. 343, pl. 10, fig. 5—JONES and KIRKBY, *Geol. Soc. London, Quart. Jour.*, **42** (1886) p. 496, 511—YOUNG, *Geol. Soc. Glasgow, Tr.*, 1888–1892, **9** (1893) p. 311—JONES and KIRKBY, *British Assoc. Handb. Glasgow* (1901) p. 490.

*Kloedenia intermedia* JONES and HOLL, *Ann. Mag. Nat. Hist.*, ser. 5, **17** (1886) p. 362—SMITH, *Nat. Hist. Soc. Glasgow, Tr.*, n. s., **3** (1892) p. 153—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 301.

Ludlow (Aymestry): Malvern, England; Thuringia.

**Kloedenia intermedia marginata** Jones and Holl. Silurian  
*Kloedenia intermedia marginata* JONES and HOLL, *Ann. Mag. Nat. Hist.*, ser. 5, **17** (1886) p. 362, pl. 12, figs. 21a, b—SMITH, *Nat. Hist. Soc. Glasgow, Tr.*, n. s., **3** (1892) p. 138.

Lower Wenlock shales (Buildwas beds): Shropshire, England.

**Kloedenia jerseyensis** (Weller) Devonian  
*Beyrichia jerseyensis* WELLER, *Geol. Surv. N. J., Pal.*, **3** (1903) p. 255, pl. 23, fig. 5.  
*Kloedenia jerseyensis* ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 301—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 685.

Helderbergian: 2 miles south of Tristates, N. Y. (Decker Ferry); 1 mile west of Tomahawk, W. Va. (Keyser).  
 Plastotype.—U.S.N.M. No. 58933.

- Kloedenia kayseri** Kegel Lower Devonian  
*Kloedenia kayseri* KEGEL, Kongl. Preuss. Geol. Landes., Abh., n. s., 76, 1913 (1914) p. 38, pl. 2, fig. 10; Centr. Min., Geol., Pal. (1917) p. 164-167.  
 Taunus quartzite: Volkersberg, Germany.
- Kloedenia kenziensis** Ulrich and Bassler Silurian  
*Kloedenia kenziensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 640, pl. 61, fig. 23.  
 Cayugan (McKenzie): Pinto, Md.  
 Holotype.—U.S.N.M. No. 83003.
- Kloedenia kiesowi** Krause = **Kyammodos kiesowi**
- Kloedenia kokomoensis** Foerste Silurian  
*Kloedenia kokomoensis* FOERSTE, Cincinnati Soc. Nat. Hist., Jour., 21, no. 1 (1909) p. 32, pl. 1, figs. 3a, b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 685.  
 Cayugan (Kokomo): Kokomo, Ind.
- Kloedenia kümmeli** (Weller) Devonian  
*Beyrichia kümmeli* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 266, pl. 24, fig. 21.  
*Kloedenia kümmeli* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301, Md. Geol. Surv., Lower Devonian vol. (1913) p. 531, pl. 97, fig. 16—BASSLER U. S. Nat. Mus., Bull. 92 (1915) p. 685.  
 Helderbergian: 2 miles south of Tristates, N. Y. (Keyser—"Manlius"); Tonoloway, Md. (Keyser).  
 Platype.—U.S.N.M. No. 58941.
- Kloedenia lieoinensis** Barrois, Pruvost, and Dubois = **Kloedenia spinosa**
- Kloedenia longula** Ulrich and Bassler Silurian  
*Kloedenia longula* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 640, pl. 61, figs. 30, 31.  
 Cayugan: Flintstone, Md. (Wills Creek); Hancock County, Tenn. (Sneedville).  
 Cotypes.—U.S.N.M. No. 82992.
- Kloedenia lovisatoi** Canavari Silurian  
*Kloedenia lovisatoi* CANAVARI, Pal. Italica, 5 (1899) p. 203, pl. 26 (fig. 2), fig. 13.  
 Cardiola limestone: Sardinia.
- Kloedenia manliensis** (Weller) Devonian  
*Beyrichia manliensis* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 268, pl. 23, fig. 10.  
*Kloedenia manliensis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301, pl. 38, fig. 21—GRABAU and SHIMER, North American index fossils (1910) p. 355, text fig. 1663g—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 685.  
*Kloedenia manliusensis* CLARKE, N. Y. State Mus., Mem., 9, pt. 2 (1909) p. 13, 20.  
 Helderbergian: 2 miles south of Tristates, N. Y. (Keyser—"Manlius"); Dalhousie, New Brunswick (Dalhousie).  
 Plesiotype and platype.—U.S.N.M. Nos. 58937, 53941.
- Kloedenia manliensis deckerensis** (Weller) Devonian  
*Beyrichia deckerensis* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 256, pl. 23, fig. 11.  
*Kloedenia manliensis deckerensis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 685.  
 Helderbergian (Decker Ferry): 2 miles south of Tristates, N. Y.  
 Platype.—U.S.N.M. No. 58938.
- Kloedenia marginalis** Ulrich and Bassler Devonian  
*Kloedenia marginalis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301, pl. 38, fig. 16—CLARKE, N. Y. State Mus., Mem., 9, pt. 2 (1909) p. 13, 20—GRABAU and SHIMER, North American index fossils (1910) p. 356, text fig. 1663 i.  
 Helderbergian (Dalhousie): Dalhousie, New Brunswick.  
 Holotype.—U.S.N.M. No. 53937.

- Kloedenia monroensis** Grabau Silurian  
*Kloedenia monroensis* GRABAU and SHERZER, Mich. Geol. Biol. Surv., Publ., 2, geol. ser. 1 (1910) p. 38, 206, pl. 25, fig. 11—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 685—WILLIAMS, Canada Dept. Mines, Mem., 3, no. 91, geol. ser. (1919) p. 90.  
 Lower Monroan (Raisin River): Newport, Mich.
- Kloedenia montaguensis** (Weller) Devonian  
*Beyrichia montaguensis* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 267, pl. 24, fig. 23.  
*Kloedenia montaguensis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 686.  
 Helderbergian (Keyser—"Manlius"): 2 miles south of Tristates, and Herkimer County, N. Y. Plastotype.—U.S.N.M. No. 58945.
- Kloedenia nearpassi** (Weller) Devonian  
*Beyrichia nearpassi* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 255, pl. 23, figs. 7, 8.  
*Kloedenia nearpassi* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301, 304, figs. 55, 56; Md. Geol. Surv., Lower Devonian vol. (1913) p. 530, pl. 97, figs. 12, 13—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 686.  
 Helderbergian: 2 miles south of Tristates, N. Y. (Decker Ferry); Tonoloway, Md. (Keyser). Plastotype.—U.S.N.M. No. 58935.
- Kloedenia normalis** Ulrich and Bassler Silurian  
*Kloedenia normalis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 639, pl. 61, figs. 15–19, text fig. 18 (6, 7) p. 306.  
 Cayugan: Pinto and Flintstone, Md. (Wills Creek); Syracuse, N. Y. (Vernon). Cotypes.—U.S.N.M. Nos. 82997, 82999.
- Kloedenia normalis appressa** Ulrich and Bassler Silurian  
*Kloedenia normalis appressa*, ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 639, pl. 61, figs. 20–22.  
 Cayugan (Wills Creek): Flintstone, Md. Cotypes.—U.S.N.M. No. 83001.
- Kloedenia notata** Jones = **Kyammodos notata**
- Kloedenia notata ventricosa** Hall = **Kyammodos notata ventricosa**
- Kloedenia obscura** Ulrich and Bassler Silurian  
*Kloedenia obscura* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 641, pl. 61, figs. 26–29.  
 Lower Clinton: 1½ miles southwest of Frankstown, Pa. Holotype.—U.S.N.M. No. 63479.
- Kloedenia oculina** (Hall) Devonian  
*Beyrichia oculina* HALL, Nat. Hist. New York, Pal., 3, 1859 (1861) p. 378—REUTER, Deutsch Geol. Ges., Zeitschr., 37 (1885) p. 626—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 16, pl. 1, fig. 4—CLARKE, N. Y. State Mus., Mem., 9, pt. 2 (1909) p. 97.  
*Kloedenia oculina* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301.  
 Helderbergian (Coeymans): Schoharie County, N. Y.
- Kloedenia parasitica** (Hall) Devonian  
*Leperditia parasitica* HALL, Nat. Hist. New York, Pal., 3, 1859 (1861) p. 376 (pl. 79a, fig. 8).

*Beyrichia parasitica* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 16, text fig. 1; *ibid.*, 49 (1893) p. 302.

*Kloedenia parasitica* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301.

Helderbergian (New Scotland): Herkimer County, N. Y.

**Kloedenia pennsylvanica** Jones (part) = **Kloedenella pennsylvanica**, **K. tur-gida**, and **K. turgida ventricosa**

**Kloedenia plicata** Jones = **Kloedenia wilckensiana plicata**

**Kloedenia praenuntia** Ulrich and Bassler

Ordovician

*Kloedenia praenuntia* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301, pl. 38, fig. 15—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 686—KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 420.

Trenton (Hermitage): 4 miles south of Carthage, Tenn.  
Holotype.—U.S.N.M. No. 41643.

**Kloedenia punctilosa** Ulrich and Bassler

Devonian

*Kloedenia punctilosa* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301, pl. 38, fig. 17—CLARKE, N. Y. State Mus., Mem., 9, pt. 2 (1909) p. 21.

Helderbergian (Dalhousie): Dalhousie, New Brunswick.  
Holotype.—U.S.N.M. No. 53938.

**Kloedenia retifera** Ulrich and Bassler

Devonian

*Kloedenia retifera* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 320, pl. 38, fig. 18—CLARKE, N. Y. State Mus., Mem., 9, pt. 2 (1909) p. 13, 20.

Helderbergian (Dalhousie): Dalhousie, New Brunswick.  
Holotype.—U.S.N.M. No. 53939.

**Kloedenia saalfeldensis** Matern

Upper Devonian

*Kloedenia saalfeldensis* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 36, pl. 2, fig. 21a-b.

Saalfeld, Thuringia, Germany.

**Kloedenia scotica** (Jones and Holl)

Silurian

*Beyrichia kloedeni scotica* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 356, pl. 12, fig. 10—JONES, *ibid.*, ser. 6, 3 (1889) p. 380—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 302.

*Kloedenia scotica* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 302.

Llandoverly: Near Girvan, Ayrshire, Scotland.

**Kloedenia simplex** Jones

Upper Devonian

*Kloedenia simplex* JONES, Am. Geol., 4 (1889) p. 338, text fig. 14—CLAYPOLE, *ibid.*, 32 (1903) p. 247—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 25 (1908) p. 302, 305.

Chemung: Kings Mill, Perry County, Pa.

**Kloedenia smocki** (Weller)

Devonian

*Beyrichia smocki* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 268, pl. 24, fig. 24. *Kloedenia smocki* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 302—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 686—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 639.

Helderbergian (Keyser-"Manlius"): Nearpass Quarry, 2 miles south of Tristates, N. Y.  
Plastotype.—U.S.N.M. No. 58943.

**Kloedenia (Gibba) spinosa** (Fuchs)

Devonian

*Beyrichia (Gibba) spinosa* FUCHS, Preuss. Geol. Landes., Jahrb., 1918, 39, pt. 1 (1919) p. 81, pl. 6, figs. 15, 16.

*Kloedenia (Gibba) spinosa* ASSELBERGHS, Mus. Hat. Hist. Belgique, Mem., 41 (1930) p. 56.

*Kloedenia kloedinensis* BARROIS, PRUVOST, and DUBOIS, Soc. Geol. Nord, Mem., 6, no. 2 (1922) p. 111, pl. 15, fig. 23-28.

Gedinnian: Ardennes, Belgium, and Germany.

***Kloedenia sussexensis* (Weller)**

Devonian

*Beyrichia sussexensis* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 253, p. 23, figs. 3, 4.

*Kloedenia sussexensis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 302, pl. 38, figs. 19, 20—CLARKE, N. Y. State Mus., Mem., 9, pt. 2 (1909) p. 13, 20—GRABAU and SHIMER, North American index fossils (1910) p. 355, text fig. 1663 h—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 532, pl. 97, figs. 14, 15—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 686.

*Beyrichia perinflata* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 254, pl. 23, fig. 6.

Helderbergian: 2 miles south of Tristates, N. Y. (Decker Ferry); Tonoloway, Md. (Keyser): Dalhousie, New Brunswick (Dalhousie).

Plesiotypes and plastotypes.—U.S.N.M. Nos. 58943, 58934.

***Kloedenia tuberculata* (Salter)**

Silurian

*Agnostus tuberculatus* SALTER, in Murchison's Sil. Syst. (1839) p. 604, pl. 3, fig. 17—MCCOY, Syn. Sil. Fossils, Ireland (1846) p. 57—QUENSTEDT, Handb. Petr. (1852) p. 302, Atlas, pl. 23, figs. 29-30—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 345.

*Beyrichia tuberculata* SALTER, Geol. Surv. Great Britain, Mem., 2, pt. 1 (1848) p. 352, pl. 8, figs. 14, 15; Siluria (1854) p. 234, fig. 45, 4 (1867, fig. 64, 4)—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 345, figs. 14, 15, pl. 8—KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 12.

*Beyrichia kloedeni* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 165, pl. 6, fig. 9.

*Beyrichia kloedeni tuberculata* JONES, Geol. Mag., dec. 2, 8 (1881) p. 73, 345, pl. 10, fig. 13—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 354, pl. 12, figs. 8, 9—JONES, Sil. Ostrac. Gotland (1887) p. 3; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 401—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 151—HEDE, Sver. Geol. Unders., ser. C, no. 305, Arsb. 14, 1920, no. 7 (1921) p. 49, 97—CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920) p. 101, 102, pl. 17, fig. 7—STRAW, Manchester Lit. Philos. Soc., Mem. Pr., 72 (1927-1928) p. 201.

*Kloedenia tuberculata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 302.

Ironbridge, Woolhope, Dudley, etc., Shropshire, England (Lower and upper Wenlock shales); Mulde, etc., Gotland (Middle Gotlandian); New South Wales. Topotypes.—U.S.N.M. No. 82988.

***Kloedenia tuberculata clausa* (Jones and Holl)**

Silurian

*Beyrichia kloedeni tuberculata clausa* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 355, pl. 12, fig. 9—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.

Shales over Wenlock limestone: Shropshire, England.

***Kloedenia wallpackensis* (Weller)**

Devonian

*Beyrichia wallpackensis* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 266, pl. 24, fig. 22.

*Kloedenia wallpackensis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 302—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 686—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 150.

Helderbergian (Keyser—"Manlius"): 2 miles south of Tristates, N. Y.

***Kloedenia wilckensiana* (Jones)**

Silurian

*Battus tuberculatus* KLOEDEN (part), Verst. d. Mark Brandenburg (1834) p. 115, pl. 1, fig. 18.



*Beyrichia wilckensiana* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 89, pl. 5, figs. 17, 18—BOLL, Deutsch. Geol. Ges., Zeitschr., 8 (1856) p. 321, 322, 324—EICHWALD, Leth. Ross., 1 (1860) p. 1347—SCHMIDT, Archiv. Nat. Liv.-Ehst-und Kurlands, ser. 1, 2 (1858-1861) p. 461-463—ROEMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 602—BOLL, Archiv. Ver. Freunde Naturg. Mecklenburg. (1862) p. 137, pl. 1, fig. 14—RICHTER, Deutsch. Geol. Ges., Zeitschr., 17 (1865) p. 364—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 60—KARSTEN, Versteinerungen des Ubergangsgebirges (1869) p. 58, pl. 20, fig. 31—JONES, Geol. Soc. London, Quart. Jour., 26 (1870) p. 492; Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 19—HARKNESS and NICHOLSON, Geol. Soc. London, Quart. Jour., 33 (1877) p. 463—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 35, pl. 1, figs. 18a, b—JONES, Geol. Mag., n. s., dec. 2, 8 (1882) p. 343, 344, pl. 10, figs. 3, 6—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 32, appendix, 1881 (1881) p. 409—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 337—KIESOW, Schrift. Naturg. Ges. Danzig, n. s., 6 (1884) p. 226, 227, 229, 278—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 109 (fig. 356) pl. 8 (fig. 31) figs. 16a-c—REUTER, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 647, pl. 26, fig. 23—PRESTWICH, Geology, 2 (1888) p. 60—KIESOW, Deutsch. Geol. Ges., Zeitschr., 40 (1888) p. 3—NICHOLSON and MARR, Geol. Soc. London, Quart. Jour., 47 (1891) p. 505, 510—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514-521—VOGDES, New York Acad. Sci., Ann., 5 (1891) pl. 2, fig. 19—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mel. Geol. Pal. Bull., 1, pt. 1 (1892) p. 136—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 289, 290—MOBERG, Sver. Geol. Unders., ser. C, no. 156 (1895) p. 14—KOKEN, Die Leitfossilien (1896) p. 433—SIEMIRADSKI, Beitr. Pal. Geol. Oster-Ungarns, 19, pt. 4 (1906) p. 219 (fig. 47)—VOGDES, San Diego Soc. Nat. Hist., Tr., 3 (1917) pl. 5, fig. 19.

*Kloedenia wilckensiana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 347—JONES, *ibid.*, ser. 6, 1 (1888) p. 398—KRAUSE, Sitz. Ges. Naturf. Freunde (1889) p. 12—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 380—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 386—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 218, 220, 240, 241—CANAVARI, Soc. Toscana Sci. Nat., Pisa, Pr. Verb., 11, art. 5 (1899) p. 152—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 304, figs. 52, pl. 38, fig. 14—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 66, pl. 6, figs. 6-7—BONNEMA, Acad. Amsterdam, Pr., 13 (1910) p. 140 (in English); Sci. K. Akad. Wet., Amsterdam, Pr., 16 (1914) p. 1106—BOTKE, Overg. Verh. Geol. Mijn Gen. Nederland, geol ser., 3 (1916) p. 26—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 307.

Near Breslau, North Germany (Drift-Beyrichia limestone); England; Thuringia; North Wales; Gotland and Ösel; Bohemia; Poland.  
 Topotypes.—U.S.N.M. No. 82989.

***Kloedenia wilckensiana plicata* (Jones)**

Silurian

*Beyrichia wilckensiana plicata* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 90, pl. 5, figs. 19-21; Monthly Micr. Jour., 4 (1870) p. 192—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 348—KIESOW, Kon. Preuss. Geol. Landes. Berg., Jahrb., 1889 (1892) p. 102, pl. 24, figs. 15, 16.

*Kloedenia plicata* JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 398.

*Kloedenia wilckensiana plicata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 220, 226.

Drift (Beyrichia limestone): Near Berlin, Germany.

**KNIGHTINA KelleTT (Kirkbyidae)**

Genotype: *Amphissites allerismoides* Knight

*Knightina* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 97—UPSON, Nebr. Geol. Surv., 8 (1933) p. 37.

*Amphissites* part of authors.

- Knightina allerismoides*** (Knight) Pennsylvanian  
*Amphissites allerismoides* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 265, 266, pl. 32, figs. 10a-e; pl. 34, fig. 4.  
*Knightina allerismoides* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 98 (gen. ref.).  
 Henrietta (Upper Fort Scott): St. Louis County, Mo.  
 Metatypes.—U.S.N.M. No. 83959.
- Knightina ampla*** Kellett Pennsylvanian  
*Knightina ampla* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 100, pl. 16, figs. 43-46.  
 Deer Creek formation: Jefferson County, Kan.  
 Holotype.—U.S.N.M. No. 85463.
- Knightina bassleri*** Kellett Permian  
*Knightina bassleri* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 101, pl. 16, figs. 33-42—  
 UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 40, pl. 4, figs. 8a, b.  
 Chase County, Kan. (Wreford). Also in the Neva limestone, Garrison formation, and Fort Riley  
 limestone of this and Geary and Marion counties, Kan.  
 Holotype.—U.S.N.M. No. 85461.
- Knightina harltoni*** Kellett Pennsylvanian  
*Knightina harltoni* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 99, pl. 16, figs. 1-7.  
 Stanton limestone: Linwood, Kan.  
 Holotype.—U.S.N.M. No. 85458.
- Knightina hextensis*** (Harlton) Pennsylvanian  
*Amphissites* (?) *hextensis* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 152, pl. 2,  
 figs. 6a-d.  
*Knightina hextensis* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 98 (gen. ref.).  
 Graham formation: Menard County, Texas.  
 Cotypes.—U.S.N.M. No. 80573.
- Knightina incurva*** Kellett Permian  
*Knightina incurva* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 102, pl. 16, fig. 29-32.  
*Knightina perplexa* UPSON, Nebr. Geol. Surv., 8 (1933) p. 38, pl. 3, figs. 13a-c.  
 Marion County (Winfield formation) and Geary County (Wreford formation), Kan.; Gage County,  
 Nebr. (Gage shale).  
 Holotype.—U.S.N.M. No. 85462.
- Knightina menardensis*** (Harlton) Pennsylvanian  
*Amphissites* (?) *menardensis* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 151, pl. 1,  
 fig. 12.  
*Knightina menardensis* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 98 (gen. ref.).  
 Graham formation: Menard County, Texas.  
 Holotype.—U.S.N.M. No. 80571.
- Knightina minuta*** (Harris and Lalieker) Pennsylvanian, Permian  
*Ulrichia minuta* HARRIS and LALIEKER, Am. Midl. Nat., 13, no. 6 (1932) p. 403,  
 pl. 37, fig. 6.  
*Knightina minuta* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 98 (gen. ref.).  
 Fort Riley limestone: 1 mile southwest of New Salem, Cowley County, Kan. Range, Garrison to  
 Winfield.  
 Plesiotypes.—U.S.N.M. No. 85459.
- Knightina perplexa*** (Roth) Pennsylvanian  
*Kirkbya perplexa* ROTH, Wagner Free Inst. Sci., Publ. 1 (1929) p. 29, pl. 1, figs.  
 8a-c.  
*Knightina perplexa* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 98 (gen. ref.).  
 Belle City formation: Pontotoc County, Okla.  
 Holotype.—U.S.N.M. No. 80187.

**Knightina perplexa** Upson = **K. incurva**

**Knightina texana** (Harlton) Pennsylvanian, Permian

*Kirkbya texana* HARLTON, Jour. Pal., 2 (1928) p. 136, pl. 21, figs. 6a, b.

*Amphissites*(?) *texanus* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 150, pl. 1, fig. 11.

*Knightina texana* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 100, pl. 16, figs. 23-28—UPSON, Nebr. Geol. Surv., 8 (1933) p. 39, pl. 3, figs. 14a, b.

Eastland County (Ciseo) and Menard County, Texas (Graham); Chase County, etc., Kan. (Elmdale to Winfield).

Holotype and plesiotype.—U.S.N.M. Nos. 72238, 80570, 85460.

**KNOXINA** Coryell and Rogatz (Kloedenellidae)

Genotype: *K. lecta* Coryell and Rogatz

*Knoxina* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 383—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 50.

**Knoxina elliptica** Coryell and Rogatz Permian

*Knoxina elliptica* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 384, pl. 34, figs. 4-6.

Permian (Clear Fork-Arroyo): Tom Green County, Texas.

**Knoxina incurvata** Coryell and Rogatz Permian

*Knoxina incurvata* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 385, pl. 34, figs. 7-9.

Permian (Clear Fork-Arroyo): Tom Green County, Texas.

**Knoxina indistincta** Coryell and Rogatz Permian

*Knoxina indistincta* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 386, pl. 34, figs. 10-12.

Permian (Clear Fork-Arroyo): Tom Green County, Texas.

**Knoxina lecta** Coryell and Rogatz Permian

*Knoxina lecta* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 383, pl. 34, figs. 1-3.

Permian (Clear Fork-Arroyo): Tom Green County, Texas.

**Knoxina texana** (Harlton) Pennsylvanian

*Jonesina texana* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 146, pl. 1, figs. 14a, b—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 255, pl. 24, fig. 13.

*Knoxina texana* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 383.

Graham formation: East Menard County, Texas.

Holotype.—U.S.N.M. No. 80562.

**KRAUSELLA** Ulrich (Beecherellidae)

Genotype: *K. inaequalis* Ulrich

*Krausella* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 691—MILLER, North American geol. pal., 2nd appendix (1897) p. 788—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317—GRABAU and SHIMER, North American index fossils (1920) p. 362—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 687.

**Krausella anticostiensis** (Jones) Early Silurian

*Bairdia anticostiensis* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 548, pl. 21, figs. 3a, b—WADE, *ibid.*, 67 (1911) p. 453.

*Krausella anticostiensis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 691—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 687; Geol. Surv. Canada, Mem. 154 (1927) p. 349.

Richmond (English Head, Vaureal): English Head, etc., Anticosti.

**Krausella arcuata** Ulrich

Ordovician

*Krausella arcuata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 692, pl. 44, figs. 47-53—GRABAU and SHIMER, North American index fossils (1910) p. 362, text fig. 1667 a-c—WADE, Geol. Soc. London, Quart. Jour., 67 (1911) p. 453—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 687—REED, Pal. Indica, n. s., 6, mem. 1 (1915) p. 56—HARRIS, Okla. Geol. Surv., Bull. 55 (1931) p. 94, pl. 14, figs. 4a-c.

Black River: Minneapolis, Minn.; Mineral Point, Wis., Dixon, Ill. (Platteville); High Bridge, Ky. (Lowville); Arbuckle Mountains, Okla. (Bromide); ?Llandoverly of England; Northern Shan States.

Cotypes.—U.S.N.M. Nos. 41717-41719.

**Krausella inaequalis** Ulrich

Ordovician

*Krausella inaequalis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 692, pl. 44, figs. 44-46—BASSLER, U. S. Nat. Mus., Bull. 92 (1914) p. 687—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 318, text fig. 24.

Black River (Platteville): Dixon, Ill.

Holotype.—U.S.N.M. No. 41727.

**Krausella shianensis** Reed

Ordovician

*Krausella shianensis* REED, Pal. Indica, ser. 15, 7, mem. 2 (1912) p. 115, pl. 16, fig. 9.

Near Shian, Pin Valley, Spiti, India.

**Krausella spinata** Kummerow

Ordovician, Silurian

*Pontocypris mawii proxima* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 512, pl. 33, fig. 8.

*Krausella spinata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 434, 442, pl. 21, fig. 15.

Drift (Leptaena and Encrinurus limestones): Rattey, Mecklenburg, North Germany.

Topotype.—U.S.N.M. No. 82353.

**KRITHE** Brady, Crosskey, and Robertson (Cytheridae)

*Krithe* BRADY, CROSSKEY, and ROBERTSON, Post-Tert. Entom. Scotl., Mon. Palaeogr. Soc. (1874) p. 183.

Probably not a Paleozoic genus.

**Krithe?? subreniformis** Jones and Kirkby

Carboniferous

*Krithe subreniformis* JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 194, pl. 12, figs. 17, 18.

Cultra shale: Cultra, Ireland.

**Krithe?? subreniformis elongata** Jones and Kirkby

Carboniferous

*Krithe subreniformis elongata* JONES and KIRKBY, Roy. Dublin Soc., Tr., ser. 2, 6 (1896) p. 195, pl. 12, fig. 19.

Cultra shale: Cultra, Ireland.

**KYAMMODES** Jones (Zygobolbidae-Kloedeninae)

Genotype: *K. whidbornei* Jones

*Kyammodes* JONES, Ann. Mag. Nat. Hist., ser. 6, 2 (1888) p. 295—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 390—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 304, 320—BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 307.

**Kyammodes apiculata** (Jones)

Silurian

*Kloedenia apiculata* JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 398, pl. 21, figs. 1-5—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 149—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 301.

Middle Gotlandian: Slite and Mulde, Gotland.

**Kyammodes globosa** (Krause)

Ordovician

*Kloedenia? globosa* KRAUSE, *Deutsch. Geol. Ges., Zeitschr.*, **41**, 1889 (1889) p. 21, pl. 2, fig. 14; *ibid.*, **43** (1891) p. 518—KOKEN, *Die Leitfossilien* (1896) p. 39, text fig. 26 A.

Drift (Leperditia limestones): Mark Brandenburg, North Germany.

**Kyammodes kiesowi** (Krause)

Silurian

*Kloedenia kiesowi* KRAUSE, *Deutsch. Geol. Ges., Zeitschr.*, **43** (1891) p. 506, pl. 32, figs. 12, 13—GRÖNWALL, *Geol. För. Stockholm Förh.*, **19** (1897) p. 204, 207, 213, 218, 220, 224, 240—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 304, fig. 57, 58—MOBERG and GRÖNWALL, *Lunds Univ. Årsskr.*, Ny Följd., Avd. 1, *Med. Mat. Nat. Ämnen*, **5** (1909) p. 64, 81, 86, pl. 4, figs. 16, 17—ULRICH and BASSLER, *Md. Geol. Surv.*, Silurian vol. (1923) p. 306, text fig. 18 (fig. 11); p. 643, 644—KUMMEROW, *Preuss. Geol. Landes., Jahrb.*, 1923 (1924) p. 412.

*Kyammodes kiesowi* KUMMEROW, *Centr. Min., Geol., Pal., Jahr.*, 1933, Abt. B, no. 1 (1933) p. 49, fig. 10.

North Germany (Drift-Beyrichia limestone); Gotland.  
Topotypes.—U.S.N.M. No. 82982.

**Kyammodes notata** (Hall)

Devonian

*Beyrichia notata* HALL, *Nat. Hist. New York, Pal.*, **3**, 1859 (1861) p. 379—JONES, *Am. Geol.*, **4** (1889) p. 341.

*Kloedenia notata* JONES, *Geol. Soc. London, Quart. Jour.*, **46** (1890) p. 13, pl. 4, figs. 22, 23—CANAVARI, *Soc. Toscana Sci. Nat., Pisa, Pr. Verb.*, **11**, art. 5 (1899) p. 152—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 305—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 686.

Helderbergian (Manlius transition): Herkimer County and near Utica, N. Y.

**Kyammodes notata ventricosa** (Hall)

Devonian

*Beyrichia notata ventricosa* HALL, *Nat. Hist. New York, Pal.* **3**, 1859 (1861) p. 380.  
*Kloedenia notata ventricosa* JONES, *Geol. Soc. London, Quart. Jour.*, **46** (1890) p. 14, pl. 1, figs. 1a, b; pl. 4, fig. 24.

Helderbergian (New Scotland): Herkimer and Albany counties, N. Y.

**Kyammodes swartzii** Ulrich and Bassler

Silurian

*Kyammodes swartzii* ULRICH and BASSLER, *Md. Geol. Surv.*, Silurian vol. (1923) p. 643, pl. 55, figs. 14–16.

Cayugan (Tonoloway): Grasshopper Run, near Hancock, Md.  
Cotypes.—U.S.N.M. No. 82987.

**Kyammodes tricornis** Ulrich and Bassler

Silurian

*Kyammodes tricornis* ULRICH and BASSLER, *Md. Geol. Survey, Silurian vol.* (1923) p. 644, pl. 55, figs. 1–5.

Cayugan (McKenzie): Flintstone, Md.  
Cotypes.—U.S.N.M. No. 82983.

**Kyammodes whidbornei** Jones

Devonian

*Kyammodes whidbornei* JONES, *Ann. Mag. Nat. Hist.*, ser. 6, **2** (1888) p. 296, pl. 11, figs. 1–7—ULRICH and BASSLER, *U. S. Nat. Mus., Pr.*, **35** (1908) p. 304, fig. 59, 60; *Md. Geol. Surv.*, Silurian vol. (1923) p. 306, 308, 643, text fig. 18 (fig. 10).

Daddy-Hole Cove, near Torquay, Devonshire, England.

**Kyammodes whidbornei elliptica** Jones

Devonian

*Kyammodes whidbornei elliptica* JONES, *Ann. Mag. Nat. Hist.*, ser. 6, **2** (1888) p. 297, pl. 11, figs. 8, 10.

Daddy-Hole Cove, near Torquay, Devonshire, England.

- Kyammodes whidbornei obsolescens** Jones Devonian  
*Kyammodes whidbornei obsolescens* JONES, Ann. Mag. Nat. Hist., ser. 6, 2 (1888)  
 p. 297, pl. 11, fig. 9.  
 Daddy-Hole Cove, near Torquay, Devonshire, England.

**LACCOPRIMITIA** Ulrich and Bassler (Primitiidae)

Genotype: *Primitia centralis* Ulrich

*Laccoprimitia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299.

- Laccoprimitia borussica** Kummerow Silurian  
*Laccoprimitia borussica* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924)  
 p. 422, pl. 20, figs. 20a, b.

Drift (Leperditia limestone): Sensburg, East Prussia, Germany.  
 Topotype.—U.S.N.M. No. 82357.

- Laccoprimitia centralis** (Ulrich) Ordovician

*Primitia centralis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 130,  
 pl. 10, figs. 1, 2a-c—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 291, pl.  
 12, figs. 1a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1029—ULRICH and  
 BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (fig. 4)—FOERSTE,  
 Geol. Surv. Canada, Mem. 138 (1924) p. 254, pl. 45, fig. 3—RUEDEMANN, N. Y.  
 State Mus., Bull. 272 (1926) p. 138, pl. 23, fig. 7.

Trenton (upper), Eden and Maysville: Cincinnati, Ohio, and vicinity; New York; Canada; ?West-  
 moreland, England.  
 Holotype and paratype.—U.S.N.M. Nos. 41337, 41338.

- Laccoprimitia osterodensis** Matern Upper Devonian

*Laccoprimitia osterodensis* MATERN, Senckenbergiana, 13 (1931) p. 121, fig. 1.

Cypridina beds: Osterode, Harz Mountains, Germany.

- Laccoprimitia resseri** Ulrich and Bassler Silurian

*Laccoprimitia resseri* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 505, pl. 37, fig. 3.

Clinton (*Drepanellina clarki* zone): Cumberland, Md.  
 Holotype.—U.S.N.M. No. 63605.

**LEIODITIA** (Ulrich Mss.) Jones = **ELPE**

**LEPERDITELLA** Ulrich (Leperditellidae)

Genotype: *Leperditia inflata* Ulrich

*Leperditia* (part) ULRICH, Am. Geol., 10 (1892) p. 263–268.

*Leperditella* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 636; Zittel-Eastman, Textb.  
 Pal., 1 (1900) p. 643—GRABAU and SHIMER, North American index fossils (1910)  
 p. 335, 339—BASSLER, Zittel-Eastman, Textb. Pal., 2nd ed. (1913) p. 737; U. S.  
 Nat. Mus., Bull. 92 (1915) p. 696—ULRICH and BASSLER, Md. Geol. Surv., Silurian  
 vol. (1923) p. 297.

- Leperditella aequilatera** (Ulrich) Ordovician

*Leperditia aequilatera* ULRICH, Am. Geol., 10 (1892) p. 265, pl. 9, figs. 9–11.

*Leperditella aequilatera* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 636, text fig. 46i—  
 BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 696.

Stones River (Ridley limestone): Bottom of gorge, High Bridge, Ky.  
 Holotype.—U.S.N.M. No. 41312.

- Leperditella baltica** Kummerow Ordovician

*Leperditella baltica* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 418,  
 pl. 20, fig. 10.

Drift (Gray limestone): Brandenburg, North Germany.  
 Topotype.—U.S.N.M. No. 82356.

**Leperditella brookingi** Harris Ordovician  
*Leperditella brookingi* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 88, pl. 3, figs. 2a-c.

Simpson (Joins): One-quarter mile west Highway 77, Arbuckle Mts., sec. 25, T. 2 S., R. 1 E., Okla.

**Leperditella canalis** Ulrich Ordovician

*Leperditella canalis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 637, pl. 43, figs. 1-3—  
 BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 696.

*Leperditia canalis* MILLER, North American Geol. Pal., 2nd appendix (1897) p. 788.

Black River (Platteville): Minneapolis and 7 miles south of Cannon Falls, Minn.  
 Holotype.—U.S.N.M. No. 41304.

**Leperditella cooperi** Harris Ordovician

*Leperditella cooperi* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 88, pl. 3, figs. 1a-c.

Simpson (Joins): One-quarter mile west Highway 77, Arbuckle Mts., sec. 25, T. 2 S., R. 1 E., Okla.

**Leperditella? deckeri** Harris Ordovician

*Leperditella? deckeri* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 89, pl. 14, figs. 5a-c.

Simpson (Bromide): One-quarter mile west Highway 77, Arbuckle Mts., sec. 25, T. 2 S., R. 1 E., Okla.

**Leperditella? dorsicornis** (Ulrich) Early Silurian

*Leperditia (?Primitia) dorsicornis* ULRICH, Am. Geol., 10 (1892) p. 267, pl. 9, figs. 24-26.

*Leperditella dorsicornis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 636, 639, text figs. 19, 20.

*Primitia dorsicornis* WHIDBORNE, Mon. Dev. Fauna South England, Pal. Soc., 3 (1896) p. 18, pl. 3, fig. 13—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1030.

Richmond (Maquoketa): Savannah, Ill.?, Devonian, South England.  
 Holotype.—U.S.N.M. No. 41315.

**Leperditella erratica** (Krause) Ordovician

*Isochilina? erratica* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 491, pl. 29, figs. 6, 7—ANDERSSON, Ofv. Kön. Vet.-Akad. Förh., no. 2 (1893) p. 126—  
 SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, 19 (1906) p. 219.

Mark Brandenburg, Germany (drift-Glaucconite limestone); Bohemia.

**Leperditella germana** (Ulrich) Ordovician

*Leperditia germana* ULRICH, Am. Geol., 10 (1892) p. 266, pl. 9, figs. 16-18.

*Leperditella germana* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 636, 638, pl. 45, figs. 24-26—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 696.

Black River (Platteville): Mineral Point, Wis.; Dixon, Ill.  
 Holotype.—U.S.N.M. No. 41307.

**Leperditella? glabra** (Ulrich) Early Silurian

*Primitia glabra* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 134, pl. 10, figs. 9a-c.

*Leperditella? glabra* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 639—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1696—FOERSTE, Geol. Surv. Canada, Mem. 133 (1928) p. 251, pl. 45, fig. 5.

Richmond (Whitewater): Oxford and Blanchester, Ohio; Richmond, Ind.; Canada.  
 Holotype.—U.S.N.M. No. 41827.

**Leperditella? himalaica** Reed Ordovician

*Leperditella? himalaica* REED, Pal. Indica, ser. 15, 7, mem. 2 (1912) p. 117, pl. 16, fig. 12.

Near Shian, Pin Valley, Spiti, India.

**Leperditella inflata** (Ulrich) Ordovician*Leperditia inflata* ULRICH, *Am. Geol.*, **10** (1892) p. 265, pl. 9, figs. 12-15.*Leperditella inflata* ULRICH, *Geol. Minn.*, **3**, pt. 2 (1894) p. 636, text figs. 46a-d—GRABAU and SHIMER, *North American index fossils* (1910) p. 339, text fig. 1656a-c—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 696—ULRICH and BASSLER, *Md. Geol. Surv.*, *Silurian vol.* (1923) p. 296, text fig. 14 (figs. 1, 2).Stones River (Ridley): Bottom of gorge, High Bridge, Ky.  
Cotypes.—U.S.N.M. No. 41311.**Leperditella? labellosa** (Jones) Ordovician*Isochilina labellosa* JONES, *Geol. Surv. Canada, Contr. Can. Micro-Pal.*, pt. 3 (1891) p. 69, pl. 10, figs. 16a-c, 17, 19.*Leperditella? labellosa* ULRICH, *Geol. Minn.*, **3**, pt. 2 (1894) p. 637—BASSLER, *U. S. Nat. Mus., Bull.* **2** (1915) p. 696.Stones River (Pamelia): Aylmer, Quebec, and Gloucester, Carleton County, Ontario.  
Topotypes.—U.S.N.M. No. 82390.**Leperditella maccoyii** (Salter) Ordovician*Cythere phaseolus* MCCOY (not Hisinger), *Syn. Sil. Fossils Ireland* (1846) p. 58—SALTER, *Murchison's Siluria*, 2nd ed. (1859) p. 538; 3rd ed. (1867) p. 517—JONES, *Geol. Soc. London, Quart. Jour.*, **49** (1893) p. 289-290.*Cythere maccoyii* SALTER, *Morris's Cat. British Foss.*, 2nd ed. (1854) p. 105—BAILY, *Desc. Quarter Sheet*, **35**, N. E., *Geol. Surv. Ireland* (1858) p. 10.*Primitia maccoyii* JONES and HOLL, *Ann. Mag. Nat. Hist.*, ser. 4, **2** (1868) p. 55, pl. 7, figs. 1-3; *ibid.*, ser. 4, **3** (1869) p. 223—JONES, *Neues Jahrb. Min., Geol., Pal.* (1874) p. 180—BAILY, *Fig. Char. British Fossils*, **1** (1875) p. xxxii, 38, pl. 13, figs. 2a-c—SALTER and ETHERIDGE, *Geol. Surv. Great Britain and Mus. Pract. Geol.*, *Mem.*, **3**, 2nd ed., appendix (1881) p. 409—NICHOLSON and MARR, *Geol. Soc. London, Quart. Jour.*, **47** (1891) p. 507—KRAUSE, *Deutsch. Geol. Ges., Zeitschr.*, **53** (1891) p. 494, pl. 30, figs. 3a-c; *ibid.* (1896) p. 934 (loc. occ.).*Aparchites maccoyii* JONES, *Geol. Soc. London, Quart. Jour.*, **49** (1893) p. 297.

Chair of Kildare, Ireland (Caradoc); Westmoreland, England (Keisley limestone); North Wales; drift, Mark Brandenburg, North Germany; Aldens, Ayrshire, Scotland.

**Leperditella macra** Ulrich Ordovician*Leperditella macra* ULRICH, *Geol. Minn.*, **3**, pt. 2 (1894) p. 638, pl. 43, figs. 7-9—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 696.*Leperditia macra* MILLER, *North American geol. pal.*, 2nd appendix (1897) p. 788 (gen. ref.).Black River (Decorah): Minneapolis, Minn.  
Holotype.—U.S.N.M. No. 41306.**Leperditella minuta** Tolmachoff Devonian (Db)*Leperditella minuta* TOLMACHOFF, *Second Arctic Exp. Fram, 1898-1902*, no. 38 (1926) p. 27, pl. 1, figs. 18, 19.

Ostre Borgen, Ellesmereland, Arctic America.

**Leperditella mundula** (Ulrich) Ordovician*Leperditia mundula* ULRICH, *Am. Geol.*, **10** (1892) p. 265, pl. 9, figs. 4-8.*Leperditella mundula* ULRICH, *Geol. Minn.*, **3**, pt. 2 (1894) p. 636, fig. 46E-H—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 696.Stones River (Ridley): Bottom of gorge, High Bridge, Ky.  
Cotypes.—U.S.N.M. No. 41309.**Leperditella? obscura** (Jones) Ordovician*Leperditia? obscura* JONES, *Geol. Surv. Canada, Contr. Can. Micro-Pal.*, pt. 3 (1891) p. 71, pl. 10, figs. 15a-c.*Leperditella obscura* ULRICH, *Geol. Minn.*, **3**, pt. 2 (1894) p. 637—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 697.

Trenton: Falls of Lorette, Quebec, Canada.



**Leperditella ornata** Weller

Ordovician

*Leperditella ornata* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 209, pl. 13, figs. 13-15—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 697.

Trenton: Near Iliff's Pond, 2 miles southeast of Newton, N. J.

**Leperditella persimilis** Ulrich

Ordovician

*Leperditella persimilis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 637, pl. 43, figs. 4-6—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 697.

*Leperditia persimilis* MILLER, North American geol. pal., 2nd appendix (1897) p. 788 (gen. ref.).

Black River (Decorah): Minneapolis, Minn.

Holotype.—U.S.N.M. No. 41308.

**Leperditella sulcata** (Ulrich)

Ordovician

*Leperditia sulcata* ULRICH, Am. Geol., 10 (1892) p. 266, pl. 9, figs. 19-21.

*Leperditella sulcata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 636, text fig. 46j—BASSLER, Va. Geol. Surv., Bull. 2a (1909) pl. 23, fig. 14; U. S. Nat. Mus., Bull. 92 (1915) p. 697.

Black River (Lowville): High Bridge, Ky.; Tennessee; Virginia.

Holotype.—U.S.N.M. No. 41313.

**Leperditella sulcata ventricornis** (Ulrich)

Ordovician

*Leperditia sulcata ventricornis* ULRICH, Am. Geol., 10 (1892) p. 266, pl. 9, figs. 22, 23.

*Leperditella sulcata ventricornis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 636, text fig. 46k—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 697.

Black River (Lowville): High Bridge, Ky.

Holotype.—U.S.N.M. No. 41314.

**Leperditella tumida** (Ulrich)

Ordovician

*Leperditia tumida* ULRICH, Am. Geol., 10 (1892) p. 264, pl. 9, figs. 1-3.

*Leperditella tumida* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 636—BASSLER, Va. Geol. Surv., Bull. 2a (1909) pl. 23, fig. 13; U. S. Nat. Mus., Bull. 92 (1915) p. 697—WILSON and MATHER, Ontario Bur. Mines, 25th Ann. Rept. (1916) pl. 2, fig. 9—BASSLER, Md. Geol. Surv., Cambrian and Ordovician vol. (1919) p. 137, 182, 366, pl. 43, figs. 10-12.

Black River (Lowville): High Bridge, Ky.; Tennessee; Virginia; Franklin County, Pa.

Holotype.—U.S.N.M. No. 41310.

**Leperditella vandalica** Kummerow

Ordovician

*Leperditella vandalica* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 418, pl. 20, fig. 9.

Drift (Gray limestone): Voigtsdorf, Northern Germany.

**LEPERDITIA** Rouault (Leperditidae)

Genotype: *L. britannica* Rouault

*Leperditia* ROUAULT, Soc. Geol. France, Bull., ser. 2, 8 (1851) p. 377—JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 84; Mon. British Entomotraca Carb., Paleontogr. Soc., 9 (1856) p. 4; Monthly Micr. Jour., 4 (1870) p. 188-189—BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1873) p. 523—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., 21, no. 2 (1873) p. 7—MILLER, Cincinnati Quart. Jour. Sci., 1 (1874) p. 121, 122—ALTH., Abh. Geol. Reichs., 7, 1 (1874) p. 66—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 334—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., 31, no. 3 (1883)—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 8 (1884) p. 234—ZITTEL, Handb. Pal., 2 (1885) p. 551—JONES and KIRKBY, Geol. Assoc., Pr., 9 (1887) p. 503—VOGDES, New York Acad. Sci., Ann., 5 (1889) p. 23, pl. 2, fig. 17—MILLER, North American geol. pal. (1889) p. 552—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 506—KIESOW, Kon. Preuss. Geol. Landes., Berg., Jahrb.,

1889 (1892) p. 80—MILLER, North American geol. pal., 1st appendix (1892) p. 708—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 633—MATTHEW, New York Acad. Sci., Tr., 14 (1895) p. 137—KOKEN, Die Leitfossilien (1896) p. 40, 433—GRABAU, Buffalo Soc. Nat. Sci., Bull., (1899) p. 307—ULRICH, Zittel's Textb. Pal. (Am. ed.) (1900) p. 643—CHMIELEWSKI, Schrift Phys. Okon. Ges. Königsberg, 6 (1900) p. 2—10—GRABAU, N. Y. State Mus., Bull., 9, no. 45 (1901) p. 218; Buffalo Soc. Nat. Sci., Bull., 7 (1901) p. 218—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1041—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 280—GRABAU and SHIMER, North American index fossils (1910) p. 339—BONNEMA, Sci. K. Akad. Wet., Pr., 16 (1913) p. 70—BASSLER, Zittel-Eastman Textb. Pal., 2d ed. (1913) p. 737; U. S. Nat. Mus., Bull. 92 (1915) p. 697—CHAPMAN, Geol. Surv. New South Wales, Rec. 19, pt. 2 (1920) p. 102—KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 414—416—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 294—KEGEL, Preuss. Geol. Landes., Jahrb., 53 (1932) p. 911.

*Herrmanella* KEGEL (subgenus) Preuss. Geol. Landes., Jahrb., 53 (1932) p. 911 (Genotype, *H. waldschmidti* Paeckelmann).

*Briartina* KEGEL (subgenus) Preuss. Geol. Landes., Jahrb., 53 (1932) p. 924 (Genotype, *Leperditia quenstedti* Gümbel).

***Leperditia abbreviata* Schmidt = *L. hisingeri abbreviata***

***Leperditia acuta* Jones and Kirkby = *Paraparchites okeni acuta***

***Leperditia aequilatera* Ulrich = *Leperditella aequilatera***

***Leperditia alta* (Conrad)**

Devonian, Silurian

*Cytherina alta* CONRAD in Vanuxem, Nat. Hist. New York, Geol., 3 (1842) p. 112, fig. 6—MATHER, Geol. New York, 1 (1843) p. 349, fig. 6—HALL, *ibid.*, 4 (1843) p. 142, fig. 6—OWEN, Am. Jour. Sci. Arts, ser. 2, 1 (1846) p. 47, fig. 6—EMMONS, Man. Geol. (1860) p. 113, fig. 102—LINCKLAEN, N. Y. State Cab. Nat. Hist., 14th Rept. (1861) p. 58, pl. 9, fig. 6.

*Leperditia alta* JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 88, pl. 7, fig. 7; *ibid.*, ser. 3, 1 (1859) p. 250, 255, pl. 10, figs. 8, 9—HALL, Pal. New York, 3 (1859) p. 373, pl. 79a, figs. 6a-e—EMMONS, Man. Geol., 2nd ed. (1867) p. 113, text fig. 102 (fig. 6)—EMERSON, appendix 3, Narr. 2nd Arctic Exp. made by Charles F. Hall, 45, Congr., 3 sess., Senate Doc., no. 27 (1879) p. 579, text figs. 5a, b—DANA, Man. Geol., 2nd ed. (1874); 3rd ed. (1880) p. 239, 240, fig. 473, p. 239—JONES, Ann. Mag. Nat. Hist., London, ser. 5, 8 (1881) p. 346—WHITFIELD, Geol. Wis., 4 (1882) p. 323, pl. 25, figs. 8, 9—CHAMBERLIN, *ibid.*, 1 (1883) p. 198, fig.—JONES, Ann. Mag. Nat. Hist., London, ser. 5, 14 (1884) p. 343; Geol. Soc. London, Quart. Jour., 46 (1890) p. 25, pl. 1, figs. 6a, b—WHITFIELD, New York Acad. Sci., Ann., 5 (1890) p. 517, pl. 5, fig. 27—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 60, 84, pl. 13, figs. 10, 11a, b—WELLER, Geol. Surv. N. J., Rept., Pal., no. 3 (1903) p. 77, 78, 79, 259, 265, pl. 24, figs. 25-28—DANA, Man. Geol., 4th ed. (1895) p. 556, 557, fig. 796—GRABAU and SHIMER, North American index fossils (1910) p. 341—GRABAU and SHERZER, Mich. Geol. Biol. Surv., Publ., 2, geol. ser., 1 (1910) p. 31-34, 205, 206, 213—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1915) p. 102, 103, 112, 117, 171—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 698—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 75, 106-113, 115-126, 129-132, 136-138, 140-144, 147-161, 166-172, 174-176, 222, 371, 502, pl. 36, figs. 14-17.

Helderbergian (Manlius): Albany, Schoharie, and other counties in New York; New Jersey.

Cayugan (McKenzie): Wills Creek and Tonoloway, Md. and neighboring states.

Plesiotypes.—U.S.N.M. Nos. 9115, 82379.

***Leperditia alta* Hall (part) = *Leperditia jonesi***

***Leperditia alta* Whitfield = *Leperditia ohioensis***

***Leperditia alta brevicula* Ulrich and Bassler**

Silurian

*Leperditia alta brevicula*, ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 502, pl. 36, fig. 19.

Cayugan (Wills Creek); Pinto, Md.

Cotypes.—U.S.N.M. No. 82380.

**Leperditia alta cacaponensis** Ulrich and Bassler Silurian  
*Leperditia alta cacaponensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 502, pl. 36, fig. 18.

Clinton (*Drepanellina clarki* zone): 1½ miles east of Great Cacapon, Md.  
 Holotype.—U.S.N.M. No. 82378.

**Leperditia altoides** Grabau = **Leperditia ohioensis**

**Leperditia altoides** Weller Devonian  
*Leperditia altoides* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 252, pl. 23, figs. 1, 2—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 513, pl. 97, figs. 8, 9—BASSLER, U. S. Mus., Bull. 92 (1915) p. 698.

Helderbergian: Flatbrookville, N. J. (Rondout); Devils Backbone near Cumberland and Tonoloway, Md. (Keyser).  
 Plastotype.—U.S.N.M. No. 58931.

**Leperditia altoides marylandica** Ulrich and Bassler Silurian  
*Leperditia altoides marylandica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 501, pl. 36, fig. 1.

Cayuga (Wills Creek, 182 feet above base): Flintstone, Md.  
 Holotype.—U.S.N.M. No. 82377.

**Leperditia amphiporae** Gürich Devonian  
*Leperditia amphiporae* GÜRICH, Russ. Kais. Min. Ges., St. Petersburg, Verh., ser. 2, 32 (1896) p. 378, pl. 15, figs. 9a, b—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 185, 337, 527.

Amphipora kalk: Biologan, Poland.

**Leperditia ampla** Kirk = **Isochilina ampla**

**Leperditia ampla nashvillensis** Kirk = **Isochilina ampla nashvillensis**

**Leperditia amygdalina** Jones and Kirkby = **Paraparchites amygdalina**

**Leperditia amygdalina** Jones Ordovician  
*Leperditia amygdalina* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 341; Geol. Surv. Canada, dec. 3, 1 (1858) p. 97, pl. 11, figs. 18, 19; Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 344, pl. 19, fig. 9; *ibid.*, 14 (1884) p. 342; Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 83, 98—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 698.

Stones River (Pamelia): Near L'Original, Canada.

**Leperditia angelini** Schmidt = **Leperditia phaseolus**

**Leperditia angelini ornata** Chmielewski = **Leperditia phaseolus**

**Leperditia angulifera** Whitfield Silurian  
*Leperditia angulifera* WHITFIELD, New York Acad. Ann., ser. 2 (1882) p. 197; *ibid.*, 5 (1891) p. 518, pl. 5, figs. 28-30; Geol. Surv. Ohio, Pal. 7 (1898) p. 418, pl. 1, figs. 28-30—SCHERZER, Geol. Surv. Mich., 7, pt. 1 (1900) pl. 17, figs. 28-30—GRABAU, Mich. Geol. Surv., 1st geol. ser. (1909) p. 203, pl. 30, figs. 28-30—GRABAU and SCHERZER, Mich. Geol. Biol. Surv., Publ., 2nd geol. ser., 1 (1910) p. 31, 203, 213, pl. 20, figs. 28-30—GRABAU and SHIMER, North American index fossils (1910) p. 340, text fig. 1654—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 698—WILLIAMS, Canada Dept. Mines, Mem. 3, no. 91, geol. ser. (1919) p. 90.

Lower Monroan (Greenfield): Greenfield, Ohio; Michigan.

**Leperditia anna** Jones Canadian

*Leperditia anna* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 247, pl. 9, fig. 18; Geol. Surv. Canada, dec. 3 (1858) p. 96, pl. 11, fig. 13—DANA, Man. Geol. (1863); rev. ed. (1866) p. 192, 193, figs. 260, 260a, b, p. 192; Man. Geol., 2nd ed. (1874); 3rd ed. (1886) p. 188, 189, figs. 296, 297; 4th ed. (1895) p. 499, fig. 616-616b—

JONES, Geol. Surv. Canada, Contr. Can. Micro.-Pal., pt. 3 (1891) p. 98, 99—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 698—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 31 (1918) p. 108, 110.

Beekmantown: near St. Anne, Canada.

**Leperditia anticostiana** (Jones)

Silurian

*Leperditia Canadensis anticostiana* JONES, Geol. Surv. Canada, dec. 3 (1858) p. 95, pl. 11, fig. 17.

*Leperditia anticostiana* BILLINGS, Cat. Sil. Fossils Anticosti, Geol. Surv. Canada (1866) p. 66 (loc. occ.)—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 341—DWIGHT, Vassar Bros. Inst., Tr. (1890) p. 76 (loc. occ.)—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 698; Geol. Surv. Canada, Mem. 154 (1929) p. 341.

*Leperditia anticostiensis* JONES, Geol. Surv. Canada, Contr. Can. Micro.-Pal., pt. 3 (1891) p. 98, 99.

*Leperditia fabulites anticostiana* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 344, pl. 19, fig. 8.

Anticostian (Jupiter): East Point and Jumpers, Anticosti.  
Topotypes.—U.S.N.M. No. 63897.

**Leperditia anticostiensis Jones = Leperditia anticostiana**

**Leperditia appressa** Ulrich

Ordovician

*Leperditia appressa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 176, pl. 11, figs. 5a-d—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 699.

Trenton: Danville and Harrodsburg, Ky. (Perryville); Nashville, Tenn. (Cannon).  
Cotypes.—U.S.N.M. Nos. 41281, 41282.

**Leperditia arctica** Jones

Silurian

*Leperditia baltica arctica* JONES, in Salter, Sutherland's Jour. Voyage in Baffin's Bay, etc., 2, appendix (1852) p. ccxxi, pl. 5, fig. 13; in Salter, Geol. Soc. London, Quart. Jour., 9 (1853) p. 314.

*Leperditia arctica* JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 87, pl. 7, figs. 1-5—EICHWALD, Leth. Ross., 1 (1861) p. 1332—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 21, pt. 5 (1873) p. 14, 17—ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 68—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, 9 (1882) p. 171—TOLL, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 37, no. 3, 1889 (1890) p. 43, pl. 3, figs. 7a, 10—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 699.

Cape Hotham, Assistance Bay; Seal Island, Baring Bay, etc., Arctic America (*Lissatrypa phoca* fauna); Kotelný Island, Siberia.

**Leperditia argenta** Walcott. Refers to a Cambrian branchiopod

**Leperditia (Isochilina) armata** Walcott = **Isochilina armata**

**Leperditia armstrongiana** Jones and Kirkby = **Paraparchites armstrongiana**

**Leperditia attenuata** Jones and Kirkby Ms. = **Cytherella attenuata**

**Leperditia balthica** (Hisinger)

Silurian

*Cytherina baltica* HISINGER, Bidrag till Sverges Geognosie (1831) p. 109, 132, Atlas, pl. 8, fig. 2—HISINGER, Lethæa Svecica, (1837) p. 10, pl. 1, figs. 2a, b (not pl. 30, fig. 1); Anteckningar Phys. o. Geol., 1, pt. 5 (1837) pl. 8, fig. 2—KEYSERLING, Wiss. Beob. Petschora Land. (1846) p. 289—QUENSTEDT, Handb. Petr. (1852) p. 301—EICHWALD, Imp. Soc. Nat. Moscou, Bull., 27, pt. 1 (1854) p. 99, 100, pl. 2, figs. 7-8a, b—ROEMER, Bronn's Leth. Geol., 2 (1854) p. 528 (part) pl. 6, figs. 1, 2, 4, 5—JEREMEJEW, Russ. Kais. Min. Ges., St. Petersburg, Verh. (1856) p. 83—SCHRENCK, Archiv. Naturk. Liv. Ehst.-und-Kurlands, ser. 1, 1 (1854-1857) p. 79, 83, 85, 87—EICHWALD, Soc. Imp. Nat. Moscou Bull., 30 (1857) p. 308—ROEMER, Neues Jahrb. Min. Geog., Geol. (1858) p. 270—JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 254—LEBEDEFF, Com. Géol. St. Petersburg, Mém., 12, no. 2 (1892) p. 29.

*Leperditia balthica* JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 81-85, 93, 94, pl. 6, figs. 1-5—ROEMER, Deutsch. Geol. Ges., Zeitschr., 10 (1858) p. 357-359—OWEN, Palaeontology (1860) p. 42, text fig. 9 (fig. 1); 2nd ed. (1861) p. 46, text fig. 9 (fig. 1)—EICHWALD, Leth. Ross., 1 (1860) p. 1329—NIESZKOWSKI, Archiv. Nat. Liv.-Ehst.-und Kurlands, ser. 1, 2 (1858-1861) p. 305—SCHMIDT, Archiv. Nat. Liv.-Ehst.-und Kurlands, ser. 1, 2 (1858-1861) p. 192, 453, 454—KJERULF, Veiv. Geol. Excur. Christiana Omegn (1865) p. 20, 30—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 407—DANA, Man. Geol., 1863, rev. ed. (1866) p. 242, 262—JONES, Monthly Micr. Jour., 4 (1870) p. 185, 188, pl. 61, fig. 17—BARRANDE, Syst. Sil., Centre Bohême, pt. 1, suppl. (1872) p. 525—SCHMIDT, Acad. Imp. Sci., St. Petersburg, Mem., ser. 7, 21, pt. 5 (1873) p. 16—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512—ALTH. Abh. Geol. Reichs., 7, pt. 1 (1874) p. 66, 69, 70, 71—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 29—MARTIN, Nied Nordw. Sed. (1878) p. 45—KOLMODIN, Avers. Kongl. Vet. Akad. Förh., 36, no. 9, 1879 (1880) p. 133, 134—DANA, Man. Geol., 2nd ed. (1874); 3rd ed. (1880) p. 230, 249—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 333, 335-337, 339, pl. 19, figs. 4a, 4b, 10, 11—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, 9 (1882) p. 168, 171—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 31, pt. 5 (1883) p. 11, pl. 1, figs. 2, 3—KIESOW, Schrift. Naturf. Ges. Danzig, n. s., 6 (1884) p. 275—JONES, Sil. Ostrac. Gothland (1887) p. 8—PRESTWICH, Geology, 2 (1888) p. 58, text fig. 31d—DAMES, Sitz. Kon. Preuss. Akad. Wiss., pt. 2 (1890) p. 1125—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 489, 491, 514—VOGDÉS, New York Acad. Sci., Ann., 5 (1889) pl. 2, figs. 17a-e—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém. Geol. Pal. Bull., 1, pt. 1 (1892) p. 123, 125, 133—KIESOW, Preuss. Geol. Land., Berg., Jahrb., 1889 (1892) p. 89, pl. 23, figs. 14, 15—DANA, Man. Geol., 4th ed. (1895) p. 552, 569—KOKEN, Die Leitfossilien (1896) p. 433—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 17, pl. 1, figs. 17-20—BONNEMA, in Dutch. Versl. Wis. Nat. Afd. K. Akad. Wet., 9 (1901) Amsterdam; in English, Sci. K. Akad. Wet., Pr., 3 (1901) p. 137-140—JONKER, Kon. Akad. Wet. Amsterdam, Pr. Sect. Sci., 7, pt. 2 (1905) p. 697-699—KIAER, Schrift. Vid. Selsk. Christiana, 1906, Math.-Nat. Klasse, Bd. 2 (1908) p. 595—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Foljd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 57—VOGDÉS, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 17 (after Jones, 1870)—HEDE, Sver. Geol. Unders., ser. C, no. 305, Arsb. 14, 1920, no. 7 (1921) p. 40, 41, 42, 43, 44, 48, 97.

*Cythere balthica* BOSQUET, Soc. Roy. Sci. Liege, Mem., 4 (1848-1849) p. 354—REUSS, Wett. Ges. Nat. Hanau, Jahrb., 1851-1853 (1854) p. 60—ROEMER, Bronn's Leth. Geol., 1, pt. 2 (1851-1856) p. 528, pl. 93, figs. 8a-f—KIESOW, Schrift. Naturf. Ges. Danzig, n. s., 6 (1884) p. 274.

*Leperditia baltica* var. *KOLMODIN*, Sver. Sil. Ost. (1869) p. 14, figs. 1-3—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 21, pt. 5 (1873) p. 15.

Faro, Slite, etc., east coast of Gotland (Middle Gotlandian); west coast, Island of Malmö; Bay of Christiania, Norway; drift of North Germany; Lithuania; Esthonia; Livonia; Petschora, Russia.

Topotypes.—U.S.N.M. No. 41842.

***Leperditia balthica* Jones (Part) = *Leperditia hisingeri***

***Leperditia balthica arctica* Jones = *Leperditia arctica***

***Leperditia balthica contracta* Jones (part) = *Leperditia tyraica* and *L. hisingeri abbreviata***

***Leperditia balthica contracta* Jones** Silurian

*Leperditia balthica contracta* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 337, pl. 19, figs. 2, 3 (not figs. 13, 14)—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, 9 (1882) p. 169—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31, pt. 5 (1883) p. 16.

Dudley, England (Wenlock); Ludlow, England (Ludlow); Talkof, Livonia; Kamenetz, Padolsk.

***Leperditia balthica formosa* Chmielewski** Silurian

*Leperditia balthica formosa* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 10, 33—JONKER, Kon. Akad. Wet. Amsterdam, Pr. Sect. Sci., 7,

pt. 2 (1905) p. 697—KIAER, *Schrift. Vid. Selsk. Christiana*, 1906, Math-Nat. Klasse, Bd. 2 (1908) p. 595.

Drift: East Prussia; Kurland; Holland.

**Leperditia balthica guelfica** Jones

Silurian

*Leperditia balthica guelfica* JONES, *Geol. Surv. Canada, Contr. Can. Micro-Pal.*, pt. 3 (1891) p. 80, pl. 13, figs. 12a, b, 13a-c—WHITEAVES, *Geol. Surv. Canada, Pal. Foss.*, 3, pt. 2 (1895) p. 106 (loc. occ.)—CLARKE and RUEDEMANN, *N. Y. State Mus., Mem.* 5 (1903) p. 106, pl. 21, figs. 9-11—LEE, *Roy. Phys. Soc. Edinburgh, Pr.*, 18 (1912) p. 263, pl. fig. 5—BASSLER, *U. S. Nat. Mus., Bull.* 92 (1915) p. 699—WILLIAMS, *Canada Dept. Mines, Mem.* 111, no. 91, *geol. ser.* (1919) p. 81.

Niagaran (Guelf): Durham and Aboyno, Ontario; Rochester, N. Y.; Arctic America.

**Leperditia balthica primaeva** Jones

Ordovician

*Leperditia balthica primaeva* JONES, *Geol. Surv. Canada, Contr. Can. Micro-Pal.*, pt. 3 (1891) p. 70, pl. 10, fig. 18—BASSLER, *U. S. Nat. Mus., Bull.* 92 (1915) p. 699.

Stones River (Pamelia): Carleton County, Ontario.

**Leperditia baltica** Schmidt, 1858 = **Leperditia phaseolus**

**Leperditia barbotana** Schmidt

Devonian

*Leperditia barbotana* SCHMIDT, *Acad. Imp. Sci. St. Petersburg, Mém.*, ser. 7, 21 (1873) p. 12, pl. figs. 7-9—JONES, *Geol. Mag.*, n. s., dec. 2, 1 (1874) p. 512—SCHMIDT, *Acad. Imp. Sci. St. Petersburg, Mém.*, ser. 7, 31 (1883) p. 22—TSCHERNYSCHEW, *Com. Géol., Mém.*, 3 (1885-1889) (no. 1, 1885) p. 3, 7—KAZANSKY, *Soc. Nat. Imp. Kazan Univ., Tr.*, 34, pt. 2 (1900) p. 9, 43—SOBOLEW, *Mat. Geol. Russ.*, 24 (1909) p. 162.

Western slope of the Urals, Russia.

**Leperditia biensis** Grünewald = **Isochilina biensis**

**Leperditia billingsi** Jones = **Aparchites billingsi**

**Leperditia bivertex** Ulrich = **Dicranella bivertex**

**Leperditia bivia** White

Ordovician

*Leperditia bivia* WHITE, *U. S. Geogr. Surv., West 100th Meridian Rept.*, 4 (1877) p. 58, pl. 3, figs. 7a-d (Prel. Rept., 1874, p. 11)—WALCOTT, *U. S. Geol. Surv., Mon.* 8 (1884) p. 88—JONES, *Ann. Mag. Nat. Hist.*, ser. 5, 14 (1884) p. 346—BASSLER, *U. S. Nat. Mus., Bull.* 92 (1915) p. 699.

Upper Pogonip: Queen Spring Hill, Schell Creek Range, Nev.  
Cotypes.—U.S.N.M. No. 17411.

**Leperditia bosquetiana** Jones and Kirkby = **Paraparchites bosquetianus**

**Leperditia brachynotus** Schmidt

Silurian

*Leperditia brachynotus* SCHMIDT, *Archiv. Nat. Liv.-Ehst.-und Kurlands*, ser. 1, 2 (1858-1861) p. 193—EICHWALD, *Leth. Ross.*, 1 (1860) p. 1335—JONES and HOLL, *Ann. Mag. Nat. Hist.*, ser. 4, 2 (1868) p. 59—STEUSLOFF, *Deutsch. Geol. Ges., Zeitschr.*, 46 (1894) p. 784.

*Primitia brachynotus* REMELE, *Deutsch. Geol. Ges., Zeitschr.*, 32 (1880) p. 646—KRAUSE, *ibid.*, 41 (1889) p. 2, 5; *ibid.*, 42 (1891) p. 491, 516.

Borkholm, Esthonia; Mark Brandenburg, Germany.

**Leperditia brevis** Tolmachoff

Devonian (Db)

*Leperditia brevis* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898-1902, no. 38 (1926) p. 27, pl. 1, figs. 15-17.

Vestre Borgen, Ellesmereland, Arctic America.

**Leperditia briarti** Dewalque = **Leperditia quenstedti**

**Leperditia britannica** Rouault

Devonian

*Leperditia britannica* ROUAULT, Geol. Soc. France, Bull., ser. 2, 8 (1851) p. 377, text figs. 1-3—JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 89, pl. 6, figs. 6, 7—BARRANDE, Syst. Sil. Centre Bohême, pt. 1, suppl. (1872) p. 523, 524—OEHLERT, Soc. Geol. France, Bull. 3, ser. 5 (1876-1877) p. 583, pl. 9, figs. 4-4c—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 295.

Brittany and Normandy, France.

**Leperditia buprestis** Salter = **Entomidella buprestis**, a Cambrian branchiopod

**Leperditia byrnesi** Miller = **Dicranella?** **byrnesi**

**Leperditia cabotensis** Ulrich and Bassler

Silurian

*Leperditia cabotensis* (Ulrich and Bassler, Mss.) WILLIAMS, Canada Dept. Mines, Mem. 111, no. 91, geol. ser. (1919) p. 37.

Dyer Bay dolomite: 2 miles west of Cabot Head, Ontario.  
This species is the same as *L. ulrichi* Troedsson (*vide* Ulrich).  
Topotypes.—U.S.N.M. No. 68891.

**Leperditia caeca** Jones

Silurian

*Leperditia caeca* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 88, pl. 12, figs. 6, 7, 9—LEE, Roy. Phys. Soc. Edinburgh, Pr., 18 (1912) p. 263, pl., fig. 7—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 700.

Niagaran: Saskatchewan River, Canada.

**Leperditia caecigena** Miller

Early Silurian

*Leperditia caecigena* MILLER, Cincinnati Soc. Nat. Hist., Jour., 4 (1881) p. 263, pl. 6, figs. 5, 5a; North American geol. pal. (1889) p. 552, text fig. 1021—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 176, pl. 11, figs. 6a-d—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) pl. 53, figs. 10-10c, p. 1047—GRABAU and SHIMER, North American index fossils (1910) p. 340, text fig. 1656d, e—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 700—FOERSTE, Geol. Surv. Canada, Mem. 138 (1924) p. 250, pl. 45, figs. 6a, b.

Richmond (Whitewater-Saluda): Versailles, etc., Ind.; Moreland, etc., Ky.; Ontario, Canada.  
Plesiotypes.—U.S.N.M. No. 41276.

**Leperditia caecigena frankfortensis** Ulrich

Ordovician

*Leperditia caecigena frankfortensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 277—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 700.

Trenton: Reservoir Hill, Frankfort, Ky. (Perryville); Nashville, Tenn. (Cannon).  
Cotypes.—U.S.N.M. No. 41279.

**Leperditia (Herrmannella) calceolae** Kegel

Devonian

*Leperditia (Herrmannella) calceolae* KEGEL, Preuss. Geol. Land., Jahrb., 1932 53 (1932) p. 911, text fig. 3, pl. 46, fig. 7.

Upper Calceola beds: near Gerolstein, Eifel, Germany.

**Leperditia? cambrensis** Hicks = **Indiana cambrensis**, a Cambrian branchiopod

**Leperditia canadensis** Jones

Canadian

*Leperditia canadensis* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 244, pl. 9, figs. 11-15; Canadian Organic Remains, dec. 3, 1 (1858) p. 92—CHAPMAN, Canadian Jour., n. s., 8 (1863) p. 195, text fig. 163—BILLINGS, Geol. Surv. Canada, Rept. of Progress Comm. (1863) p. 137, 138, 141, 179, 192, 184, 165, 196, 954—CHAPMAN, Expos. Min. Geol. Canada (1864) p. 167, text fig. 163—BILLINGS, Cat. Sil. Fossils Anticosti, Geol. Surv. Canada (1866) p. 28—EMERSON, Narrative Hall's 2nd Arctic Exp., U. S. Navy Dept. (1879) p. 580, text fig. 6—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 342, pl. 20, fig. 5; *ibid.*, ser. 5, 14 (1884) p. 340—DWIGHT, Vassar Bros. Inst., Tr., 5 (1890) p. 76—JONES, Geol. Surv. Canada, Contr.

Micro-Pal., pt. 3 (1891) p. 97, 99—AMT, Geol. Surv. Canada, Rept., n. s., 14, 1904 (1905) p. 83J—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 700.

Beekmantown; Grenville, etc., Quebec. Identified also at Pleasant Valley, N. Y., and Frobisher Bay, Arctic America.

**Leperditia canadensis** Jones (part) = **Leperditia louckiana** and **L. nana**

**Leperditia canadensis anticostiana** Jones = **Leperditia anticostiana**

**Leperditia canadensis josephiana** Jones = **Leperditia fabulites**

**Leperditia canadensis labrosa** Jones = **Leperditia labrosa**

**Leperditia canadensis nana** Jones = **Leperditia nana**

**Leperditia canadensis pauquettiana** Jones = **Leperditia pauquettiana**

**Leperditia canalis** Miller = **Leperditella canalis**

**Leperditia capax** SAFFORD, Geol. Tenn. (1869) p. 290 (nom nud.).

**Leperditia capsella** Chapman. Probably refers to a Cambrian branchiopod

**Leperditia carbonaria** Whitfield = **Paraparchites carbonarius**

**Leperditia catheyensis** Kirk Ordovician

*Leperditia catheyensis* KIRK, Am. Jour. Sci., ser. 5, 16 (1928) p. 416, pl., figs. 6a-e.

Trenton (Catheys): Nashville, Tenn.

**Leperditia cayuga** Hall Devonian

*Leperditia cayuga* HALL, Descr. new species fossils (1861) p. 83; N. Y. State Cab. Nat. Hist., 15th Rept. (1862) p. 111.

Onondaga: Springport, near Cayuga Lake, N. Y.

**Leperditia changyiensis** Grabau Silurian

*Leperditia changyiensis* GRABAU, Pal. Sinica, ser. B., 3, fasc. 2 (1926) p. 72, pl. 4, figs. 26, 27, 29a-31.

Yunnan, China.

**Leperditia chmielewskii** Schmidt Silurian

*Leperditia chmielewskii* SCHMIDT, Russ. Min. Ges. St. Petersburg, Verh., ser. 2, 38 (1900) p. 307—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 31.

Lithuania.

**Leperditia claypolei** Jones = **Primitiella claypolei**

**Leperditia compressa** Jones and Kirkby = **Paraparchites compressus**

**Leperditia concinnula** Billings Ordovician

*Leperditia concinnula* BILLINGS, Geol. Surv. Canada, Pal. Fossils, 1 (1865) p. 299—DANA, Man. Geol., 2nd ed. (1874); 3rd ed. (1880) p. 190—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 701.

Chazyan (Quebec-L, M.): Point Rich and Table Head, Newfoundland.

**Leperditia (Herrmannella) consobrina** Jones Devonian

*Leperditia consobrina* JONES, Soc. Geol. Belgique, Ann., 23 (1896) p. 147, pl. 1, fig. 6—MAILLIEUX, Soc. Belge Geol., Bull., 28 (1919) p. 108—KEGEL, Preuss. Geol. Landes. Jahrb., 53 (1932) p. 915, pl. 46, fig. 8.

Stringocephalus beds: Waha, Belgium; Eifel, Germany.

**Leperditia conspersa** Kiesow Silurian

*Leperditia conspersa* KIESOW, Kön. Preuss. Geol. Landes., Jahrb., 1889 (1892) p. 92, pl. 23, fig. 18.



*Leperditia (Isochilina?) aff. conspersa* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 490, pl. 29, figs. 5a-e.

Drift: West Prussia, Germany.

**Leperditia crepiformis** Ulrich = **Jonesella crepidiformis**

**Leperditia (Herrmannella) curva** Kegel Devonian

*Leperditia (Herrmannella) curva* KEGEL, Preuss. Geol. Landes., Jahrb., 53 (1932) p. 923, text fig. 11, pl. 46, fig. 4.

Lower Stringocephalus beds: Sötenich, Germany.

**Leperditia cylindrica** (Hall) Silurian

*Cytherina cylindrica* HALL, Nat. Hist. New York, Pal., 2 (1852) p. 14, pl. 4, figs. 8a, b.

*Leperditia (Isochilina) cylindrica* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 253.

*Leperditia cylindrica* HALL, N. Y. State Cab. Nat. Hist., 12th Rept. (1859) p. 80 (gen. ref.)—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 344—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 701.

*Isochilina cylindrica* GRABAU, Buffalo Soc. Nat. Sci., Bull., 7 (1901) p. 218; N. Y. State Mus., Bull. 45, 9 (1901) p. 218—GRABAU and SHIMER, North American index fossils (1910) p. 342.

Upper Medinan: Medina, Lockport, etc., N. Y.

Topotypes.—U.S.N.M. No. 68892.

**Leperditia cylindrica** Miller = **Bythocypris cylindrica**

**Leperditia czesskii** Toll Silurian

*Leperditia czesskii* TOLL, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 37, no. 3, 1889 (1890) p. 43, pl. 3, fig. 11.

Kotelny Island, Siberia.

**Leperditia dermatoides** Walcott = **Indiana dermatoides**, a Cambrian branchiopod

**Leperditia? desiderata** Barrande Devonian (G2)

*Leperditia desiderata* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 530, pl. 34, figs. 27, 28.

Wawrowitz, Bohemia.

**Leperditia dewalquei** Jones and Kirkby = **Paraparchites dewalquei**

**Leperditia?? dorsalis** (Richter) Upper Devonian

*Beyrichia dorsalis* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 774, pl. 21, figs. 10-13—JONES, Neues Jahrb. Min., Geol., Pal. (1874) p. 180.

*Leperditia? dorsalis* JONES, Geol. Mag., dec. 2, 8 (1881) p. 340, pl. 9, fig. 8.

Thuringia, Germany.

**Leperditia (Primitia) dorsicornis** Ulrich = **Leperditella? dorsicornis**

**Leperditia dossi** Chmielewski Silurian

*Leperditia dossi* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 15, pl. 1, figs. 15-16.

Drift: Gouvernement Kowno, Lithuania; East Prussia.

**Leperditia ebenina** Dwight, refers to some Cambrian branchiopod

**Leperditia eichwaldi** Schmidt Silurian

*Leperditia baltica* var. aff. *L. arctica*, EICHWALD, Leth. Ross. (1860) p. 1332.

*Leperditia eichwaldi* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21, no. 2 (1873) p. 17, pl. figs. 19-21—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p.

512—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 11, pl. 1, fig. 1—KIESOW, Schrift. Naturf. Ges. Danzig, n. s., 6 (1884) p. 275, pl. 4, fig. 4; Kön. Preuss. Geol. Landes. Jahrb., 1889 (1892) p. 90, pl. 23, fig. 16—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 488, pl. 29, figs. 1–3—SCHMIDT, Geol. Pal., Bull. Acad. Imp. Sci. St. Petersburg, Mém., 1, pt. 1 (1892) p. 133—KOKEN, Die Leitfossilien (1896) p. 434—BONNEMA, in Dutch, Verst. Wis. Nat. Afd. K. Akad. Wet., 9, Amsterdam; in English, Sci. K. Akad. Wet., Pr., 3 (1901) p. 137–140.  
*Leperditia baltica eichwaldi* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 10, 17, 33—JONKER, Koninkl. Akad. Wet. Amsterdam, Pr. Sect. Sci., 7, pt. 2 (1905) p. 697–699.

Oesel; East and West Prussia (drift); Gouvernement Kowno, Lithuania.

**Leperditia elongata** Peetz Middle Devonian  
*Leperditia elongata* PEETZ, Trav. Sect. Geol. Cab. Sa. Maj., 4 (1901) p. 37, 370, pl. 1, figs. 6a, b—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161.

Tomskoi Zawod on the Tomi Tschumysch River, Russia.

**Leperditia elongata** Weller Devonian  
*Leperditia elongata* WELLER, Geol. Surv. N. J., Pal., 3 (1903) p. 259, pl. 23, fig. 13—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 701—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 514, pl. 97, fig. 11.

Helderbergian; 2 miles south of Tristates, N. Y. (Rondout); Tonoloway, Md. (Keyser).  
 Plastotypes.—U.S.N.M. No. 58939.

**Leperditia elongata willsensii** Ulrich and Bassler Silurian  
*Leperditia elongata willsensii* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 500, pl. 36, figs. 3–6.

Cayuga (Wills Creek); Pinto, Cedar Bluff, and Cumberland, Md.  
 Cotypes.—U.S.N.M. Nos. 63463–63465.

**Leperditia(?) exigua** Jones Devonian  
*Leperditia (?) exigua* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 94, pl. 12, fig. 10—WHITEAVES, Geol. Surv. Canada, Contr. Can. Pal., 1, pt. 4 (1892) p. 347 (loc. occ.).

Lake Winnipegosis, Canada.

**Leperditia extuberata** Jones and Kirkby = *Cytherella extuberata*

**Leperditia? faba** Hall Silurian  
*Leperditia faba* HALL, N. Y. State Mus. Nat. Hist., 28th Rept. (1877) doc. ed., 1875, pl. 32, figs. 1–3; mus. ed. (1879) p. 186, pl. 32, figs. 1–3; Ind. Dept. Geol. Nat. Hist., 11th Ann. Rept. (1882) p. 331, pl. 34, figs. 1–3—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 343—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 701.

Niagaran (Waldron); Waldron, Ind.  
 Topotype.—U.S.N.M. No. 10466.

**Leperditia fabulites** (Conrad) Ordovician

*Cytherina* sp. HALL, Pal. New York, 1 (1847) p. 44, pl. 10, fig. 12.  
*Cytherina fabulites* CONRAD, Acad. Nat. Sci. Philadelphia, Pr., 1 (1843) p. 332.  
*Leperditia fabulites* JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 89; *ibid.*, ser. 3, 1 (1858) p. 246, 255—DANA, Man. Geol. (1863) and the rev. ed. (1866) p. 215; *ibid.* 2nd ed. (1874); 3rd ed. (1880) p. 202, 204, figs. 367a, b, p. 203—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 342, pl. 20, fig. 4—CHAMBERLIN, Geol. Wis., 1 (1883) p. 160, fig.—WHITFIELD, *ibid.*, 1 (1883) p. 373—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 342, 346, 347—DWIGHT, Vassar Bros. Inst., Tr., 5 (1887–1890) p. 76—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 173, pl. 21, figs. 1a–1d, 2—JONES, Geol. Surv. Canada, Contr. Can. Micr.-Pal., pt. 3 (1891) p. 98, 99—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 634, pl. 43, figs. 10–14—

DANA, *Man. Geol.*, 4th ed. (1895) p. 508, 515, fig. 693a, b—RUEDEMANN, N. Y. State Mus., Bull., 49, Pal. Pap. no. 2 (1901) p. 70, pl. 5, figs. 19, 20—WELLER, *Geol. Surv. N. J.*, Pal. 3 (1903) p. 208, pl. 13, figs. 11, 12—RAYMOND, *Am. Pal.*, Bull. 4, no. 17 (1903) p. 15, 16—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, text fig. 1—GRABAU and SHIMER, *North American index fossils* (1910) p. 340, text fig. 1653—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 701—WILSON and MATHER, *Ontario Bur. Mines*, 25th Ann. Rept. (1916) pl. 2, fig. 8—BASSLER, *Md. Geol. Surv.*, Cambrian and Ordovician vol. (1919) p. 136, 140, 142, 364, pl. 39, fig. 16, pl. 43, figs. 1-5—WILSON, *Canada Dept. Mines*, Bull. 33 (geol. ser. no. 40) (1921) p. 39, 44—ULRICH and BASSLER, *Md. Geol. Surv.*, Silurian vol. (1923) p. 295, text fig. 13 (figs. 1-5)—BUTTS, *Geol. Ala.* (1923) p. 124, pl. 30, fig. 3—CRONEIS, *Ark. Geol. Surv.*, Bull. 3 (1930) p. 30—HARRIS, *Okl. Geol. Surv.*, Bull. 33 (1931) p. 87, pl. 10, figs. 1, 2—BASSLER, *Tenn. State Geol. Surv.*, Bull. 38 (1932) pl. 6, figs. 13-16.

*Leperditia canadensis josephiana* JONES, *Geol. Surv. Canada*, dec. 3 (1858) p. 94, pl. 11, fig. 16; *Ann. Mag. Nat. Hist.*, ser. 3, 1 (1858) p. 340, 341; *ibid.*, ser. 5, 8 (1881) p. 343, 344; *ibid.*, 14 (1884) p. 341; *Geol. and Nat. Hist. Surv. Canada*, *Contr. Can. Micro-Pal.*, pt. 3 (1891) p. 97, 98.

*Leperditia josephiana* BILLINGS, *Geol. Surv. Canada*, Rept. Progress Comm. (1863) p. 954—DANA, *Man. Geol.*, 1863, rev. ed. (1866) p. 215—NICHOLSON and LYDEKKER, *Man. Pal.*, 1 (1879) p. 507, figs. 361 C—DANA, *Man. Geol.*, 2nd ed. (1874); 3rd ed. (1880) p. 204—JONES, *Ann. Mag. Nat. Hist.*, ser. 5, 14 (1884) p. 341—DWIGHT, *Vassar Bros. Inst.*, Tr., 5 (1887-1890) p. 76—JONES, *Geol. and Nat. Hist. Surv. Canada*, *Contr. Can. Micro-Pal.*, pt. 3 (1891) p. 98, 99—ULRICH, *Cincinnati Soc. Nat. Hist.*, Jour., 13 (1891) p. 174.

*Leperditia fabulites josephiana* JONES, *Ann. Mag. Nat. Hist.*, ser. 5, 8 (1881) pl. 19, fig. 7, p. 343-345, pl. 20, figs. 7, 8—LEBEDEFF, *Com. Géol. St. Petersburg*, Mém., 12, no. 2 (1892) p. 29.

Black River: Mineral Point, etc., Wis. (Platteville); Minnesota; Montana; Kentucky; Tennessee; New York; Alabama; Canada; St. Joseph's Island, Lake Huron (*L. josephiana*); Stones River, Tennessee, and Appalachian Valley.  
Plesiotypes.—U.S.N.M. Nos. 41261, 41263, 41267, 71509.

**Leperditia fabulites anticostiana** Jones = **Leperditia anticostiana**

**Leperditia fabulites josephiana** Jones = **Leperditia fabulites**

**Leperditia fabulites louckiana** Jones = **Leperditia louckiana**

**Leperditia fabulites pauquettiana** Jones = **Leperditia pauquettiana**

**Leperditia fabulites pinguis** Butts Ordovician

*Leperditia fabulites pinguis* BUTTS, *Geol. Ala.* (1926) p. 124, pl. 30, fig. 4-7.

Stones River (Ridley): Cedar Mt., 2 miles southwest of Argo, Ala.  
Cotypes.—U.S.N.M. No. 71540.

**Leperditia (Herrmannella) fastigiata** Kegel Devonian

*Leperditia (Herrmannella) fastigiata* KEGEL, *Preuss. Geol. Landes, Jahrb.*, 1931, 53 (1932) p. 921, text fig. 10, pl. 46, fig. 9.

Lower Stringocephalus beds: Sötenich, Germany.

**Leperditia ferruginea** Salter and Etheridge; probably a Cambrian branchiopod.

**Leperditia fimbriata** Ulrich = **Aparchites fimbriatus**

**Leperditia fonticola** Hall Silurian

*Leperditia fonticola* HALL, N. Y. State Cab. Nat. Hist., 20th Rept. (extras Jan. 1865) (1868) p. 335, pl. 21 (12), figs. 1-3; rev. ed. 1868 (1870) p. 428, pl. 21, figs. 1-3—WHITFIELD, *Geol. Wis.*, 1, 1873-1879 (1883) p. 373—JONES, *Ann. Mag. Nat. Hist.*, ser. 5, 14 (1884) p. 343—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 702.

Niagaran (Byron): Fond du Lac, Wis.

**Leperditia foveolata** Eichwald

Silurian

*Leperditia foveolata* EICHWALD, Leth. Ross., **1** (1860) p. 1336, pl. 53, fig. 1—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, **21**, pt. 5 (1873) p. 2.

Pentamerus limestone: Talkhof, Russia.

**Leperditia? fragilis** Barrande

Ordovician (D4)

*Leperditia fragilis* BARRANDE, Syst. Sil. Centre Bohême, **1**, suppl. (1872) p. 531, pl. 25, figs. 31, 32.

Near Zahorzan, Bohemia.

**Leperditia frontalis** Jones

Silurian

*Leperditia frontalis* JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 547, pl. 21, figs. 8a, 8b—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 702; Geol. Surv. Canada, Mem. **154** (1927) p. 340.

Anticostian (Jupiter): Near The Jumpers, Anticosti.

**Leperditia germana** Ulrich = **Leperditella germana****Leperditia gibbera** Jones

Silurian

*Leperditia gibbera* JONES, Ann. Mag. Nat. Hist., ser. 2, **17** (1856) p. 90, pl. 7, figs. 8-10; *ibid.*, ser. 3, **1** (1858) p. 242, 243, 255—JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 81—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 702.

*Lissatrypa phoca* fauna: Beechey Island, Lancaster Sound, Arctic America.

**Leperditia gibbera scalaris** Jones = **Leperditia scalaris****Leperditia gigantea** Weller

Devonian

*Leperditia gigantea* WELLER, Geol. Surv. N. J., Pal., **3** (1903) p. 260, pl. 23, fig. 14—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 514, pl. 97, fig. 10—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 702.

Helderbergian: Tristates, N. Y. (Rondout); Tonoloway, Md. (Keyser).  
Plastotype.—U.S.N.M. No. 58940.

**Leperditia gigantea** Roemer = **Leperditia grandis****Leperditia gigantea poniewieshensis** Chmielewski = **Leperditia grandis poniewieshensis****Leperditia glypta** Kirkby = **Kirkbya glypta****Leperditia gracilentata** Schmidt and Jones = **L. phaseolus****Leperditia (Isochilina) gracilis** Jones = **Isochilina gracilis****Leperditia grandis** (Schrenk)

Silurian

*Cypridina grandis* SCHRENK, Arch. Nat. Liv.-Ehst.-und Kurlands, ser. 1, **1** (1854) p. 85—EICHWALD, Soc. Imp. Nat. Moscou, Bull., **30** (1857) p. 309—SCHMIDT, Arch. Nat. Liv.-Ehst.-und Kurlands, ser. 1, **2** (1858-1861) p. 192.

*Leperditia grandis* SCHMIDT, Arch. Nat. Liv.-Ehst.-und Kurlands, ser. 1, **2** (1859) p. 455—EICHWALD, Leth. Ross., **1**, no. 2 (1860) p. 1332, pl. 52, fig. 9a, b, c (?)—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, **21** (1873) p. 10, figs. 1, 3-6—JONES, Geol. Mag., n. s., dec. 2, **1** (1874) p. 512—KOLMODIN, Ofv. Kon. Vet.-Akad. Förh., **36** (1879) p. 135—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, **9** (1882) p. 169-171—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7 (1883) p. 8—ROEMER, Pal. Abh., **2**, pt. 5 (1885) p. 84 (331)—JONES, Sil. Ostrac. Gothland (1887) p. 3; Ann. Mag. Nat. Hist., ser. 6, **1** (1888) p. 403, pl. 22, fig. 11; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 87, 79—KOKEN, Die Leitfossilien (1896) p. 433—BONNEMA, (in Dutch) Versl. Wis., Nat. Afd. K. Akad. Wet., **9** (1901) (in English) Sci. K. Akad. Wet., **3** (1901) p. 545-549.

*Leperditia gigantea* ROEMER, Deutsch. Geol. Ges., Zeitschr., **10** (1858) p. 357, text fig. 1-3, p. 360—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, **21**,

pt. 5 (1873) p. 3, 11—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, 9 (1882) p. 169, 170—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 84 (fig. 331)—JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 403—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 79, 490, 512—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 28, 31, 35.

*Leperditia (Isochilina) gigantea* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 535, pl. 34, fig. 4, 5b.

Östergarn, Gotland, and Oesel (Middle Gotlandian); North Germany (drift).

**Leperditia grandis poniewieshensis** Chmielewski Silurian

*Leperditia gigantea poniewieshensis* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 10, 28, pl. 2, figs. 52, 54.

Drift: Poniewiesh, Lithuania.

**Leperditia grandis uralensis** Schmidt Silurian

*Leperditia grandis uralensis* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 24, pl. 1, figs. 26–28.

Belaja River, Urals, Russia.

**Leperditia granilabiata** Ulrich = **Aparchites granilabiatus**

**Leperditia? grapta** Kirkby = **Amphissites grapta**

**Leperditia gregaria** Kiesow Silurian

*Leperditia gregaria* KIESOW, K. Preuss. Geol. Landes., Berg., Jahrb., 1889 (1892) p. 84, pl. 23, figs. 4a–8b—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 24, 30,—KIAER, Schrift. Vid. Selsk. Christiana, 1906, Math.-Nat. Klasse, 2 (1909) p. 595—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 408.

Drift: Mark Brandenburg, etc., Germany; Baltic Provinces.  
Topotypes.—U.S.N.M. No. 41843.

**Leperditia gregaria arcticoidea** Kiesow Silurian

*Leperditia gregaria arcticoidea* KIESOW, K. Preuss. Geol. Landes, Berg., Jahrb., 1889 (1892) p. 87, pl. 23, figs. 9, 10—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 6.

Drift: Mark Brandenburg and East Prussia, Germany.

**Leperditia gregaria ardua** Kiesow Silurian

*Leperditia gregaria ardua* KIESOW, K. Preuss. Geol. Landes., Berg., Jahrb., 1889 (1892) p. 88, pl. 23, figs. 11–13—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514.

Drift: Mark Brandenburg, Germany.

**Leperditia gregaria coccinella** Chmielewski Silurian

*Leperditia gregaria coccinella* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 25, 34, pl. 2, figs. 34–35.

Drift: Gouvernement Kowno, Lithuania; East and West Prussia.

**Leperditia gregaria conoidea** Chmielewski Silurian

*Leperditia gregaria conoidea* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, p. 7, 26, 35, pl. 2, fig. 43.

Drift: Gouvernement Kowno, Lithuania, and East Prussia.

**Leperditia gregaria semigalliensis** Chmielewski Silurian

*Leperditia gregaria semigalliensis* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 27, 35, pl. 2, figs. 44–45.

Drift: Gouvernement Kowno, Lithuania.

**Leperditia gregaria tumulosa** Chmielewski

Silurian

*Leperditia gregaria tumulosa* CHMIELEWSKI, *Schrift. Phys. Okon. Ges. Königsberg*, 6 (1900) p. 7, 26, 35, pl. 2, figs. 38-39.

Drift: Gouvernement Kowno, Lithuania, and East Prussia.

**Leperditia (Briartina) hassiaca** Kegel

Devonian

*Leperditia (Briartina) hassiaca* KEGEL, *Preuss. Geol. Landes., Jahrb., 1932*, 53 (1932) p. 926, text fig. 13, pl. 46, fig. 11.

Lower Stringocephalus beds: near Giessen, Germany.

**Leperditia hicksii** Jones = **Bradoria hicksii**, a Cambrian branchiopod.**Leperditia hisingeri** Schmidt

Silurian

*Cytherina balthica* (part) HISINGER, *Lethaea Suecica* (1837) p. 10, pl. 30, fig. 1.*Cythere baltica* ROEMER, *Bronn's Leth. Geogn.*, 2 (1854) p. 528 (part) pl. 9, figs. 8a-c.*Leperditia balthica* (part) JONES, *Ann. Mag. Nat. Hist.*, ser. 2, 17 (1856) p. 85, pl. 6, figs. 3a-e—KOLMODIN, *Bidrag till Kännedomen om Sveriges Siluriska Ostracoder* (1869) p. 14, figs. 4, 5—JONES, *Ann. Mag. Nat. Hist.*, ser. 5, 8 (1881) p. 333, pl. 19, figs. 10-11—KIESOW, *Schrift. Naturf. Ges. Danzig*, n. s., 6 (1884) p. 274.*Leperditia hisingeri* SCHMIDT, *Acad. Imp. Sci. St. Petersburg, Mém.*, ser. 2, 21, no. 2 (1873) p. 16, fig. 23—KOLMODIN, *Ofv., Kongl. Vet.-Akad. Förh.*, 36 (1880) p. 133—SCHMIDT, *Acad. Imp. Sci. St. Petersburg, Mém.*, ser. 2, 31, no. 5 (1883) p. 14, pl. 5, figs. 5-7—KIESOW, *Schrift. Naturf. Ges. Danzig*, n. s., 6 (1884) p. 221, 274, pl. 4, fig. 3—TOLL, *Acad. Imp. Sci. St. Petersburg, Mém.*, ser. 7, 37, no. 3, 1889 (1890) p. 45—JONES, *Geol. Surv. Canada, Contr. Can. Micro-Pal.*, pt. 3 (1891) p. 82, pl. 13, figs. 1, 9—KRAUSE, *Deutsch. Geol. Ges., Zeitschr.*, 43 (1891) p. 489, pl. 29, fig. 4—KAYSER, *Lehrb. Geol. Form.*, 2 (1891) p. 70, pl. 7, figs. 7, 8—LEBEDEFF, *Com. Géol. St. Petersburg, Mém.*, 12, no. 2 (1892) p. 29, 45, pl. 3, figs. 26-28—SCHMIDT, *Acad. Imp. Sci. St. Petersburg, Mel. Geol. Pal. Bull.*, 1, pt. 1 (1892) p. 123, 124, 130, 132—CHMIELEWSKI, *Schrift. Phys. Okon. Ges. Königsberg*, 6 (1900) p. 7, 30—JONKER, *Koninkl. Akad. Wet. Amsterdam, Pr. Sect. Sci.*, 7, pt. 2 (1905) p. 697—KIAER, *Schrift. Vid. Selsk. Christiana Math.-Nat. Klasse*, 2 (1908) p. 595—BASSLER, *U. S. Nat. Mus., Bull.* 92 (1915) p. 703—BONNEMA, *Verh. Geol. Mynb. Gen. (geol. ser.)* 3 (1916) p. 16, 17, pl. 1, figs. 6-8—HEDE, *Sver. Geol. Unders.*, ser. C, no. 305, *Arsb.*, 14, 1920, no. 7 (1921) p. 97, table opposite p. 82—BONNEMA, *Jour. Pal.*, 4 (1930) p. 118, fig. 10; *Zeitschr. Geschieforschung*, 9, pt. 1 (1933) p. 31, figs. 4, 15.*Leperditia schmidti* KOLMODIN, *Ofv. Kon. Vet. Akad. Förh.*, vol. 9, 1879 (1880) p. 133—JONES, *Ann. Mag. Nat. Hist.*, ser. 5, 8 (1881) p. 333, 339—SCHMIDT, *Acad. Imp. Sci. St. Petersburg, Mém.*, ser. 7, 31, pt. 5 (1883) p. 14; *Acad. Imp. Sci. St. Petersburg, Mel. Geol. Pal. Bull.*, 1, pt. 1 (1892) p. 124—LEBEDEFF, *Com. Géol. St. Petersburg, Mém.*, 12, no. 2 (1892) p. 29—STEPHANOV, *Russ. Kais. Min. Ges. St. Petersburg, Verh.*, 46 (1908) p. 162.

Baltic Provinces (zone G); East coast, Island of Malmö, Norway (Gotlandian); near Wisby, etc., Gotland (Lower Gotlandian-Wisby group); Northern Germany (drift); Timan; Long Point, Lake Winnipegosis, Grand Rapids, Saskatchewan River, and Beechey Island, Lancaster Sound, Canada.

Topotypes.—U.S.N.M. No. 41840.

**Leperditia hisingeri?** Jones = **Leperditia keyserlingi****Leperditia hisingeri abbreviata** Schmidt

Silurian

*Leperditia baltica* EICHWALD (part), *Leth. Ross.*, *Anc. Per.* (1860) p. 1329.*Leperditia hisingeri* SCHMIDT, *Acad. Imp. Sci. St. Petersburg, Mém.*, ser. 7, 21, no. 2 (1873) p. 16, pl. fig. 22.*Leperditia baltica contracta* JONES (part), *Ann. Mag. Nat. Hist.*, ser. 5, 8 (1881) p. 337, pl. 19, fig. 13.*Leperditia hisingeri abbreviata* SCHMIDT, *Acad. Nat. Sci. St. Petersburg, Mém.*, ser. 7, 31 (1883) p. 16, pl. 1, figs. 8-12—LEBEDEFF, *Com. Géol. St. Petersburg, Mém.*, 12, no. 2 (1892) p. 31, 45, pl. 3, figs. 23-25—CHMIELEWSKI, *Schrift. Phys. Okon. Ges. Königsberg*, 6 (1900) p. 7, 16, 33.

*Leperditia abbreviata* KIAER, Schrift. Vid. Selsk. Christiana, 1906, Math. Nat. Klasse, Bd. 2 (1908) p. 595.

Drift: Gouvernement Kowno, Lithuania; Timan, Russia.

**Leperditia hisingeri angulata** Lebedeff Silurian

*Leperditia hisingeri angulata* LEBEDEFF, Com. Géol. St. Petersburg, Mém., 12, no. 2 (1892) p. 32, 46, pl. 3, figs. 29-36—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 10, 11, 32, pl. 1, figs. 1-5.

Timan, etc., Russia; Prussia and Lithuania (drift).

**Leperditia hisingeri** var. Jones = **Leperditia phaseolus**

**Leperditia hisingeri egena** Jones Silurian

*Leperditia hisingeri egena* JONES, Geol. Surv. Canada, Cont. Micro-Pal., pt. 3 (1891) p. 82, pl. 13, fig. 8—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 703.

Niaganan: Grand Rapids, Saskatchewan River, Canada.

**Leperditia hisingeri fabulina** Jones Silurian

*Leperditia hisingeri fabulina* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 82, pl. 10, figs. 5, 7, pl. 12, figs. 15; pl. 13, figs. 2, 3, 5, 6—LEBEDEFF, Com. Géol. St. Petersburg, Mém., 12, no. 2 (1892) p. 29—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 703.

Niaganan: Long Point, Lake Winnipegosis, and foot of Grand Rapids, Saskatchewan River, Canada.

**Leperditia hisingeri gibbera** Jones Silurian

*Leperditia hisingeri gibbera* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 82, pl. 13, fig. 4—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 703.

Niaganan: Long Point, Lake Winnipegosis, Canada.

**Leperditia hisingeri** Schmidt (1873) (part) = **Leperditia hisingeri abbreviata**

**Leperditia hisingeri gracilentata** Jones = **Leperditia phaseolus**

**Leperditia hisingeri subparallela** Schmidt = **Leperditia subparallela**

**Leperditia hudsonica** Hall Devonian

*Leperditia hudsonica* HALL, Nat. Hist. New York, Pal., 3, 1859 (1861) p. 375, pl. 79a, figs. 7a-c—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 24, pl. 1, figs. 5a-c; pl. 3, fig. 20—GRABAU, Buffalo Soc. Nat. Sci., Bull. 6 (1899) p. 308, text fig. 250—GRABAU and SHIMER, North American index fossils (1910) p. 341, text fig. 1656 (figs. f-h).

Becraft Mts. near Hudson (?Coeymans) and Eighteen Mile Creek, N. Y. (Encrinal).

**Leperditia illinoisensis** Savage Silurian

*Leperditia illinoisensis* SAVAGE, Geol. Soc. Am., Bull., 24 (1913) p. 368—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 703—SAVAGE, Ill. State Geol. Surv., Bull. 23 (1917) p. 160, pl. 9, fig. 27.

Upper Medinan (Channahon): Will County, Ill.

**Leperditia inaequalis** Grönwall Silurian

*Leperditia inaequalis* GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 207, 211, 213, 219, 223, 224, 237—MOBERG and GRÖNWALL, Lunds Univ. Årsskr. Ny Följd., Afd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 50, 81, 86, pl. 4, figs. 1-3.

Gotlandian: Island of Gotland.

**Leperditia inflata** Jones and Kirkby = **Paraparchites inflata**

**Leperditia inflata** Ulrich = **Leperditella inflata**

**Leperditia inornata** Jones and Kirkby = **Paraparchites inornatus****Leperditia isochilinoides** Jones

Devonian

*Leperditia isochilinoides* JONES, Ann. Mag. Nat. Hist., ser. 5, 12 (1883) p. 248, pl. 9, figs. 1-9.

Schistose sandstone: Spitzbergen.

**Leperditia jonesi** Hall

Silurian

*Cytherina alta* (Conrad) HALL, Nat. Hist. New York, Pal., 2 (1852) p. 338, pl. 78, figs. 2a-d.*Leperditia alta* ? JONES, Am. Mag. Nat. Hist., ser. 2, 17 (1856) p. 88, pl. 7, fig. 6.*Leperditia jonesi* HALL, Nat. Hist. New York, Pal., 3, 1859 (1861) p. 372; N. Y. State Cab. Nat. Hist., 12th Rept. (1859) p. 80—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 346; *ibid.*, 14 (1884) p. 342; Geol. Soc. London, Quart. Jour., 46 (1890) p. 25-27, 28—SCHUCHERT, Am. Geol., 31 (1903) p. 169—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 703.

Cayugan (Cobleskill): Schoharie and Herkimer counties, N. Y.

**Leperditia josephiana** Jones = **Leperditia fabulites****Leperditia keyserlingi** Schmidt

Silurian

*Cypridina marginata* SCHRENCK, Arch. Nat. Liv.-Ehst-und Kurlands, ser. 1, 1 (1852) p. 54, 56.*Leperditia marginata* SCHMIDT, Arch. Nat. Liv.-Ehst-und Kurlands, ser. 1, 2 (1858) p. 192 (part).*Leperditia keyserlingi* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21 (1873) p. 20, pl. figs. 32-34—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, 9 (1882) p. 171—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31, pt. 5 (1883) p. 7, 13—JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 268—TOLL, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 37, no. 3, 1889 (1890) p. 45, pl. 3, fig. 19—DANA, Man. Geol., 4th ed. (1895) p. 568—KOKEN, Die Leitfossilien (1896) p. 434—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 10, 31, 32.*Leperditia hisingeri* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 339, pl. 19, fig. 5?

Railküll, etc., Gouvernement Kowno, Lithuania; Kotelny Island, Siberia.

**Leperditia? kiesowii** Steusloff = **Macronotella kiesowii****Leperditia knowsleyensis** Chapman

Ordovician

*Leperditia knowsleyensis* CHAPMAN, Geol. Surv. Victoria, Rec., 4, pt. 1 (1906) p. 87, pl.

Knowsley, Victoria.

**Leperditia koninckiana** Jones and Kirkby (Mss.) Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 407.

Carboniferous limestone of Belgium.

**Leperditia kotelnyensis** Toll

Silurian

*Leperditia kotelnyensis* TOLL, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 37, no. 3, 1889 (1890) p. 42, pl. 3, figs. 8, 9, 12—JONES, Geol. Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 81, 83—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 15.

Kotelny Island, Siberia.

**Leperditia krausei** Steusloff = **Macronotella krausei****Leperditia labrosa** (Jones)

Ordovician

*Leperditia canadensis labrosa* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 245, pl. 9, fig. 13; Geol. Surv. Canada, dec. 3 (1858) p. 93, pl. 11, fig. 8; Ann. Mag.



Nat. Hist., ser. 5, 8 (1881) p. 343; Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 97, 99—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 700.

Chazyan (Aylmer): Hawkesbury, Ontario.

**Leperditia lentiformis** Cobbold, a Cambrian branchiopod.

**Leperditia (Briartina) librata** Kegel Devonian

*Leperditia (Briartina) librata* KEGEL, Preuss. Geol. Landes., Jahrb., 1932, 53 (1932) p. 929, text fig. 15, pl. 46, fig. 13.

Lower Stringocephalus beds: near Giessen, Germany.

**Leperditia limatula** Raymond Ordovician

*Leperditia limatula* RAYMOND, Am. Jour. Sci., ser. 4, 20 (1905) p. 380; Carnegie Mus., Ann., ser. 7, no. 2 (1911) p. 253, text fig. 25—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 703.

Chazyan: Valcour Island, Valcour, and Chazy, N. Y. (Crown Point); East Tennessee (Lenoir).

**Leperditia lindstroemi** Schmidt Silurian

*Leperditia lindstroemi* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 85, pl. 5a, figs. 17–20.

Waigatsch Island, Arctic Sea, Russia.

**Leperditia lindstroemi mutica** Schmidt Silurian

*Leperditia lindstroemi mutica* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 86, pl. 5a, figs. 21, 22.

Waigatsch Island, Arctic Sea, Russia.

**Leperditia linneyi** Ulrich Ordovician

*Leperditia linneyi* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 174, pl. 11, figs. 3a–e—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 704.

Trenton: Harrodsburg, Frankfort, etc., Ky. (Perryville); near Franklin, Tenn. (Cannon).  
Cotypes.—U.S.N.M. No. 41272.

**Leperditia lithuanica** Chmielewski Silurian

*Leperditia lithuanica* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 13, 32, pl. 1, figs. 6–10.

Drift: Subotsch, etc., Kovno, Lithuania; East and West Prussia.

**Leperditia lithuanica intermedia** Chmielewski Silurian

*Leperditia lithuanica intermedia* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 14, 32, pl. 1, figs. 11–14.

Drift: Gouvernement, Kovno, Lithuania; East and West Prussia.

**Leperditia (Herrmannella) lotzi** Kegel Devonian

*Leperditia obtusa* LOTZ (not Jones), Schrift. Ges. Beförd. Ges. Naturw. Marburg, 13 (1900) p. 204, pl. 3, fig. 12.

*Leperditia (Herrmannella) lotzi* KEGEL, Preuss. Geol. Landes., Jahrb., 1932, 53 (1932) p. 917, text fig. 7, pl. 46, fig. 10.

Lower Stringocephalus beds: near Giessen, Germany.

**Leperditia louckiana** (Jones) Ordovician

*Leperditia canadensis louckiana* JONES, Geol. Surv. Canada, dec. 3 (1856) p. 93, pl. 11, fig. 11; Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 97, 99—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 700.

*Leperditia canadensis* ? JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 245, pl. 9, figs. 16, 17.

*Leperditia fabulites louckiana* JONES, Ann. Mag. Nat. Hist., ser. 5, 3 (1881) p. 343.

*Leperditia louckiana* JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 340—DWIGHT, Vassar Bros. Inst. (1890) p. 76.

Trenton: Loucks Mill, Castor River, Canada.

**Leperditia lovicensis** Jones and Kirkby = **Paraparchites lovicensis**

**Leperditia macra** Miller = **Leperditella macra**

**Leperditia manitoulinensis** Foerste

Early Silurian

*Leperditia manitoulinensis* FOERSTE, Geol. Surv. Canada, Mem. 138 (1928) p. 250, pl. 46, figs. 1a-d.

Richmond: Manitoulin Island, Canada.

**Leperditia marginata** (Keyserling)

Silurian

*Cypridina marginata* KEYSERLING, Wiss. Beobacht. auf. Reise in das Petschora-Land (1846) p. 288, pl. 11, fig. 16—SCHRENCK, Archiv. Naturk. Liv.-Ehst.-und Kurlands, ser. 1, 1 (1854-1857) p. 56—ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 66—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, 9 (1882) p. 171.

*Cypridina balthica* EICHWALD (not *Cytherina balthica* Hisinger), Imp. Soc. Nat. Moscou, Bull., no. 1 (1854) p. 99, pl. 2, fig. 6; *ibid.*, 30 (1857) p. 308—EICHWALD, Leth. Ross., 1 (1860) p. 1330.

*Leperditia marginata* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 254—SCHMIDT, Archiv. Nat. Liv.-Ehst.-und Kurlands, ser. 1, 2 (1858-1861) p. 170, 192, 453; Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21 (1873) p. 19, pl. fig. 29—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512—FEISTMANTEL, Lotos. Zeitschr. Naturw., 24 (1874) p. 226, 227—KOLMODIN, Overs. Kon. Vet.-Akad. Förh., 36, no. 9, 1879 (1880) p. 133—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 339, 340, 346, 347; *ibid.*, 14 (1884) p. 344; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 86, pl. 10, figs. 6a-c—LEBEDEFF, Com. Géol. St. Petersburg, Mém., 12, no. 2 (1892) p. 26, pl. 3, figs. 20-22—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 18, pl. 1, figs. 13-19—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 704.

Washkina, Petschora Land, Russia; Gotland; North Germany (drift); Lake Winnepegosis, Canada; Kington, Herefordshire, England (Downtonian sandstone).

**Leperditia marginata** Jones, 1856 = **Isochilina punctata** and **I. grandis**

**Leperditia marginata** Schmidt (part) = **Leperditia keyserlingi**

**Leperditia marginata rotundata** Schmidt

Silurian

*Leperditia marginata rotundata* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 2, 31 (1883) p. 15, p. 20, pl. 1, figs. 17, 18—LEBEDEFF, Comite Geol. St. Petersburg, Mém., 12, no. 2 (1892) p. 47.

Washkina, Petschora Land, Russia.

**Leperditia marginata subparallela** Schmidt = **Leperditia subparallela**

**Leperditia mathewsi** Ulrich and Bassler

Silurian

*Leperditia mathewsi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 500, pl. 36, figs. 7, 8.

Cayuga (Tonoloway): Grasshopper Run, Hancock, Md.

Cotypes.—U.S.N.M. No. 82376.

**Leperditia miaokensis** Grabau

Silurian

*Leperditia miaokensis* GRABAU, Pal. Sinica, ser. B, 3, fasc. 2 (1926) p. 74, pl. 4, figs. 32-34.

South Yunnan, China.

**Leperditia microphthalmus** Eichwald = **Paraparchites microphthalmus**

**Leperditia millepunctata** Ulrich = **Aparchites millepunctatus**

**Leperditia? minor** Matthew = **Bradoria minor**, a Cambrian branchiopod

**Leperditia minuta** Eichwald = **Primitia minuta**

**Leperditia minuta** Tolmachoff

Devonian (Db)

*Leperditia minuta* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898-1902, no. 38 (1926) p. 27, pl. 1, figs. 18, 19.

Ostre Borgen, Ellesmereland, Arctic America.

**Leperditia (Isochilina) minutissima** Hall = **Aparchites minutissimus**

**Leperditia mölleri** Schmidt

Devonian

*Leperditia mölleri* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 23, pl. 1, figs. 23-25—JONES, Ann. Mag. Nat. Hist., ser. 5, 12 (1883) p. 245—TSCHERNYSCHEW, Com. Géol. St. Petersburg, Mém., 3 (1885-1889) p. 16—KAZANSKY, Soc. Nat. Imp. Kazan Univ., Tr., 34, pt. 2 (1900) p. 10, 43.

West slope of Urals, Russia.

**Leperditia möelleri laevigata** Schmidt

Devonian

*Leperditia möelleri laevigata* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 88.

West slope of Urals, Russia.

**Leperditia morgani** SAFFORD, Geol. Tenn. (1869) p. 290 (nom. nud.).

Trenton: Nashville, Tennessee

**Leperditia mundula** Ulrich = **Leperditella mundula**

**Leperditia nana** (Jones)

Canadian

*Leperditia canadensis* JONES (part), Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 244; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 97.

*Leperditia canadensis nana* JONES, Geol. Surv. Canada, dec. 3 (1858) p. 92, pl. 11, figs. 6, 7, 9, 10; Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 343; *ibid.*, ser. 6, 3 (1889) p. 383—DANA, Man. Geol., 4th ed. (1895) p. 502, 503, fig. 638.

*Leperditia nana* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 27, pl. 4, fig. 4—RAYMOND, Carnegie Mus., Ann., 7, no. 2 (1911) p. 254—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 704.

Grenville, Quebec, Canada (Beekmantown); Valcour Island, etc., N. Y. (?Chazyan); Welshpool, Montgomeryshire, North Wales (Bala).

**Leperditia nicklesi** Ulrich = **Paraparchites nicklesi**

**Leperditia nitens** Kolmodin

Silurian

*Leperditia nitens* KOLMODIN, Sver. Sil. Ostrac. (1869) p. 15, fig. 6; Ofv. Kon. Vet.-Akad. Förh., 36 (1879) p. 135—JONES, Sil. Ostrac. Gothland (1887) p. 8.

Gotlandian: Wisby, Gotland.

**Leperditia nordenskjoldi** Schmidt

Silurian

*Leperditia nordenskjoldi* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 25, pl. 1, figs. 29-32—JONES, Ann. Mag. Nat. Hist., ser. 5, 12 (1883) p. 248—KIESOW, Kon. Preuss. Geol. Landes., Jahrb., Berg. Berlin (1889) p. 92—KRAUSE, Zeitschr., Deutsch. Geol. Ges., 43 (1891) p. 490—PEETZ, Trav. Sect. Geol. Cab. Sa. Maj., 4 (1901) p. 37, 352, pl. 1, fig. 5—SOBOLEW, Mat. Geol. Russ. (1909) p. 261.

Island of Waigatsch, Arctic Sea, and Tomskoï Zawod, Russia.

**Leperditia norvegica** Kiaer

Silurian

*Leperditia norvegica* KIAER, Schrift. Vid. Selsk. Christiana, 1906, Math-Nat. Klasse, 2 (1908) p. 578, 595.

Norway.

**Leperditia obesa** Jones and Kirkby = **Paraparchites obesus**

**Leperditia obesa** Kummerow

Silurian

*Leperditia obesa* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 415, 440, pl. 20, fig. 4.

Drift (*Leperditia* limestone): Voigtsdorf, Mecklenburg, North Germany.

**Leperditia obliqua** Schmidt

Silurian

*Leperditia obliqua* SCHMIDT, Archiv. Nat. Liv.-Ehst.-und Kurlands, ser. 1, 2 (1858-1861) p. 193—ETCHWALD, Leth. Ross., 1 (1860) p. 1335—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 69.

Borkholm, Esthonia.

**Leperditia oblonga** Jones and Kirkby = **Paraparchites oblonga**

**Leperditia? obscura** Jones = **Leperditella? obscura**

**Leperditia (Briartina) obtusa** Jones

Middle Devonian

*Leperditia obtusa* JONES, Soc. Geol. Belgique, Ann., 23 (1896) p. 145, pl. 1, figs. 4, 5—MAILLIEUX, Soc. Belge Geol., Bull. 28 (1919) p. 109.

*Leperditia (Briartina) obtusa* KEGEL, Preuss. Geol. Landes., Jahrb., 50 (1932) p. 927, text fig. 14, pl. 46, fig. 12.

Lower Stringocephalus beds: Near Vireux, Belgium; near Giessen, Germany.

**Leperditia ohioensis** Bassler

Silurian

*Leperditia alta* WHITFIELD (not Conrad), New York Acad. Sci., Ann., 5 (1891) p. 517, pl. 5, fig. 27; Geol. Surv. Ohio, Pal., 7 (1893) p. 417-418, pl. 1, fig. 27—MEEK, Geol. Surv. Ohio, Pal., 1 (1873) p. 187, pl. 17, figs. 2a, b.

*Leperditia altooides* GRABAU (not Weller), Mich. Geol. Surv., geol. ser., 1 (1909) p. 205, pl. 30, fig. 27—GRABAU and SHERZER, Mich. Geol. Biol. Surv., Publ., 2, geol. ser. 1 (1910) p. 21, 205, 213, pl. 30, fig. 27.

*Leperditia ohioensis* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 704—PROSSER, Am. Jour. Sci., ser. 4, 41 (1916) p. 443, 444—WILLIAMS, Canada Dept. Mines, geol. ser., Mem. 111, no. 91 (1919) p. 90.

Lower Monroan (Greenfield): Greenfield and Ballville, Ohio.

**Leperditia okeni** Münster = **Paraparchites okeni**

**Leperditia okeni acuta** Jones and Kirkby = **Paraparchites okeni acutus**

**Leperditia okeni attenuata** Jones and Kirkby = **Paraparchites attenuatus**

**Leperditia okeni extuberata** Jones and Kirkby = **Cytherella extuberata**

**Leperditia okeni gracilis** Jones = **Paraparchites okeni gracilis**

**Leperditia okeni inornata** Jones and Kirkby = **Paraparchites inornatus**

**Leperditia okeni obliqua** Jones and Kirkby = **Paraparchites okeni obliquus**

**Leperditia okeni obtusa** Kirkby = **Paraparchites obtusus**

**Leperditia okeni scotoburdigaliensis** Jones and Kirkby = **Paraparchites scotoburdigaliensis**

**Leperditia okeni suborbiculata** Jones and Kirkby = **Paraparchites suborbiculatus**

**Leperditia okeni subrecta** Jones and Kirkby = **Paraparchites subrectus**

**Leperditia ordoviciana** Kummerow

Ordovician

*Leperditia ordoviciana* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 413, 440, pl. 20, fig. 1.

Drift (gray limestone): Voigtsdorf, Mecklenberg, North Germany.

- Leperditia ornata** Eichwald Silurian  
*Leperditia ornata* EICHWALD, Leth. Ross., 1 (1860) p. 1333, pl. 52, figs. 12a-c—  
 SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21, pt. 5 (1873) p. 3.  
*Leperditia phaseolus ornata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891)  
 p. 514—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 24, 34.  
 Island of Oesel, East Prussia.
- Leperditia (Isochilina) ottawa** Jones = **Isochilina ottawa**
- Leperditia ovalis** Butts Ordovician  
*Leperditia ovalis* BUTTS, Geol. Ala. (1926) p. 116, pl. 26, figs. 1, 2.  
 Chazyan (Little Oak limestone): Near Pelham, Ala.  
 Holotype.—U.S.N.M. No. 71492.
- Leperditia ovata** Jones Ordovician  
*Leperditia ovata* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 252, pl. 10, fig.  
 14; Geol. Pa., 2, pt. 2 (1858) p. 834, text fig. 697—BASSLER, U. S. Nat. Mus., Bull.  
 92 (1915) p. 704.  
 Trenton: Potter's Fort, Penns Valley, Pa.
- Leperditia (?Bythocypris) ovulum** (Eichwald) Ordovician  
*Cypridina ovulum* EICHWALD, Beitr. Geol. Pal. Russland (1854) p. 33.  
*Leperditia ovulum* EICHWALD, Leth. Ross., 1 (1860) p. 1335, pl. 52, fig. 16—  
 SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21, pt. 5 (1873) p. 4.  
 Kuckers (C2): Erras, Esthonia.
- Leperditia parallela** Jones and Kirkby = **Paraparchites parallela**
- Leperditia parallela** Schmidt Silurian  
*Leperditia parallela* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21,  
 no. 2 (1873) p. 18, figs. 24-26—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512.  
 Between Wilui and Olenek, East Siberia.
- Leperditia parasitica** Hall = **Kloedenia parasitica**
- Leperditia parvula** Hall Devonian  
*Leperditia parvula* HALL, Nat. Hist. New York, Pal., 3, 1859 (1861) p. 376.  
 Tentaculites limestone: Herkimer County, N. Y.
- Leperditia pauquettiana** (Jones) Ordovician  
*Leperditia canadensis pauquettiana* JONES, Geol. Surv. Canada, dec. 3 (1858)  
 p. 94, pl. 11, fig. 12; Geol. Surv. Canada, Contr. Can. Micr.-Pal., pt. 3 (1891)  
 p. 97, 99—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 701.  
*Leperditia fabulites pauquettiana* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881)  
 p. 343.  
 Black River (Leray): Pauquette's Rapids, Alumette Island, Ottawa River, Canada.
- Leperditia pectinata** Schmidt Silurian  
*Leperditia pectinata* JONKER, Kon. Akad. Wet. Amsterdam, Pr. Sect. Sci., 7, pt.  
 2 (1905) p. 697.  
*Leperditia baltica pectinata* HEDE, Sver. Geol. Unders., ser. C, no. 281, Arsb. 11,  
 no. 2 (1917) p. 6, 7.  
 Drift: Holland.
- Leperditia pennsylvanica** Jones Silurian  
*Leperditia pennsylvanica* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 251,  
 pl. 10, figs. 12, 13—ROGERS, Geol. Pa., 2, pt. 2 (1858) p. 834, text fig. 699—BASSLER,  
 U. S. Nat. Mus., Bull. 92 (1915) p. 705.  
 Clinton: Near Barre Forge, Pa.

**Leperditia permiana** (Jones) Kirkby = **Kirkbya permiana****Leperditia (Herrmannella) perobliqua** Kegel

Devonian

*Leperditia (Herrmannella) perobliqua* KEGEL, Preuss. Geol. Landes., Jahrb., 53 (1932) p. 920, text fig. 9, pl. 46, fig. 6.

Lower Stringocephalus beds: Sötenich, Germany.

**Leperditia persimilis** Miller = **Leperditella persimilis****Leperditia phaseolus** (Hisinger)

Silurian

*Cytherina phaseolus* HISINGER, Bidrag till Sveriges Geognosie (1831) p. 110, 135, Atlas pl. 8, fig. 3—KLOEDEN, Verst. Mark Brandenburg (1834) p. 102, pl. 1, figs. 10, 11—HISINGER, Leth. Svec. (1837) p. 9, pl. 1, fig. 1 (part)?—JONES, Ann. Mag. Nat. Hist., ser. 2, 17 (1856) p. 81—EICHWALD, Soc. Imp. Nat. Moscou, Bull. 30, no. 4 (1857) p. 307—ROEMER, Neues Jahrb. Min., Geogn., Geol. (1858) p. 270—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21, pt. 5 (1873) p. 3—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 29.

*Cythere phaseolus* BOSQUET, Soc. Roy. Sci. Liege, Mem., 4 (1848-1849) p. 354—HARKNESS, Geol. Soc. London, Quart. Jour., 21 (1865) p. 243, 249—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1866) p. 55, 56—BAILY, Fig. Char. British Fossils, 1 (1875) p. 38.

*Leperditia phaseolus* EICHWALD, Leth. Ross., 1 (1861) p. 1331, 1334—SCHMIDT, Archiv. Nat. Liv.-Ehst.-und Kurlands., ser. 1, 2 (1858-1861) p. 168, 192—ROEMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 607, 608—FEISTMANTEL, Lotos. Zeitschr. Naturw., 24 (1874) p. 225, 227—ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 66, 69, 70—MARTIN, Nied. Nordw. Sec. (1878) p. 45—KOLMODIN, Ofv. Kön. Vet.-Akad. Förh., 36 (1879) p. 134, pl. figs. 4, 5—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 341, pl. 19, fig. 15—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, 9 (1882) p. 170, 171—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 9; *ibid.*, pt. 5 (1883) p. 4, 5, 7, 8, 9—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 228, 229, 275—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 84 (fig. 331), 85, 90 (fig. 337) pl. 6 (fig. 29) fig. 5—JONES, Sil. Ostrac. Gothland (1887) p. 8—DAMES, Sitz. Kon. Preuss. Akad. Wiss. Berlin (1890) pl. 2, p. 1125—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 85, pl. 13, figs. 7, 8—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514—KIESOW, Kön. Preuss. Geol. Landes., Jahrb., Berg. Berlin, 1889 (1892) p. 81, 83, pl. 23, figs. 1, 2—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 378—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 237—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 20, 34, pl. 1, figs. 21-24—BONNEMA, Versl. Wis. Nat. Avd. K. Akad. Wet., 9, 1901, Amsterdam (in English) Sci. K. Akad. Wet., Pr., 3 (1901) p. 548—KIAER, Schrift. Vid. Selsk. Christiana Math., 1906, Nat. Klasse, 2 (1908) p. 578, 595—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 50-52—LEE, Roy. Phys. Soc. Edinburgh, Pr., 18 (1912) p. 263, pl. fig. 4—BONNEMA, Sci. K. Akad. Wet., Amsterdam, Pr., 16 (1914) p. 1106—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 705—HEDE, Geol. För. Stockholm Förh., 41 (1919) p. 131, pl. 5, fig. 7; Sver. Geol. Unders., ser. C, no. 305, 14, 1920, no. 7 (1921) p. 48, 51, 69, 77, 78, 97, table opposite p. 82—HEDSTROM, Geol. För. Stockholm Förh., 45 (1923) p. 335, 336, text figs. 1, 2.

*Leperditia baltica et phaseolus* SCHMIDT, Untersuchung über die Silur. formation, in Estland und Oesel (1858) p. 192—EICHWALD, Leth. Ross. (1860) p. 1330, 1334.

*Leperditia* n. sp. SCHMIDT, Beitr. Geol. Gotlands (1859) p. 455.

*Leperditia angelini* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21 (1873) p. 13, pl. 1, figs. 13-16—LUNDGREN, Lunds Univ. Årsskr., 10 (1874) p. 9—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 29—KOLMODIN, Ofv. Kön. Vet.-Akad. Förh., 36, no. 9, 1879 (1880) p. 134—JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 341—SCHMIDT and JONES, *ibid.*, ser. 5, 9 (1882) p. 170-171—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31, pt. 5 (1883) p. 4, 5, 9—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 6 (1884) p. 229, 275—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 110 (fig. 357) p. 7 (fig. 30) fig. 13—JONES, Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 85—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mel. Geol. Pal. Bull. 1,

pt. 1 (1892) p. 135—KIESOW, Kön. Preuss. Geol. Landes., Berg. Berlin, Jahrb., 1889 (1892) p. 81, 84—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 237—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 50–52.

*Leperditia tyraica* LINNARSSON, Geol. For. Förh., Bd. 2 (1875) p. 280.

*Leperditia phaseolus marginata* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 341, pl. 19, fig. 15.

*Leperditia hisingeri* var. JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 340, pl. 19, fig. 16.

*Leperditia hisingeri gracilentia* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 340, pl. 19, fig. 6—SCHMIDT and JONES, *ibid.*, ser. 5, 9 (1882) p. 170, 171—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31, pt. 5 (1883) p. 9—KIESOW, Kön. Preuss. Geol. Landes., Berg. Berlin, Jahrb., 1889 (1892) p. 81.

*Leperditia phaseolus angelini* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 34.

Island of Gotland (Middle and Upper Gotlandian); Island of Oesel; Lithuania and East Prussia (drift-Beyrichia limestone); Norway; Saskatchewan River, Canada.

**Leperditia phaseolus angelini** Chmielewski = **Leperditia phaseolus**

**Leperditia phaseolus borussica** Chmielewski

Silurian

*Leperditia phaseolus borussica* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 20, pl. 2, figs. 32, 33—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 52.

East Prussia.

**Leperditia phaseolus guelphica** Jones

Silurian

*Leperditia phaseolus guelphica* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 86, text fig. 5—WHITEAVES, Geol. Surv. Canada, Pal. Foss., 3, pt. 2 (1895) p. 106 (loc. occ.)—CLARKE and RUEDEMANN, N. Y. State Mus., Mem. 5 (1903) p. 107, 112—BASSLER, U. S. Nat. Mus., Bull. 82 (1915) p. 705—WILLIAMS, Canada Dept. Mines, Mem. III, no. 91, geol. ser. (1919) p. 81.

Niagaran (Guelph): Durham, Ontario; New York.

**Leperditia phaseolus lata** Chmielewski

Silurian

*Leperditia phaseolus lata* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 7, 23, 34, pl. 2, figs. 30, 31—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 52.

Drift: Gouvernement Kovno, Lithuania.

**Leperditia phaseolus marginata** Jones = **Leperditia phaseolus**

**Leperditia phaseolus ornata** Eichwald = **Leperditia ornata**

**Leperditia phaseolus praecursor** Kummerow

Ordovician

*Leperditia phaseolus praecursor* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 414, 440, pl. 20, fig. 2.

Drift (Leptaena limestone): Brandenburg, North Germany

**Leperditia phaseolus punctata** Eichwald = **Isochilina punctata**

**Leperditia phaseolus subpentagona** Kiesow

Silurian

*Leperditia phaseolus subpentagona* KIESOW, Kön. Preuss. Geol. Landes., Berg. Berlin, Jahrb., 1889 (1892) p. 83, pl. 23, fig. 3—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 514.

Drift: Mark Brandenburg, etc., Germany.

**Leperditia praelonga** Steusloff = **Macronotella praelonga**

**Leperditia primaeva** Matthew = **Indiana primaeva**, a Cambrian branchiopod

**Leperditia primordialis** Linnarsson = **Aluta primordialis**, a Cambrian branchiopod

**Leperditia?** (**?Jonesina**) **prominens** Chapman Permo-Carboniferous  
*Leperditia prominens* CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920) p. 102, pl. 17, fig. 8, 9.

Lower Marine Series: Farley, New South Wales.

**Leperditia punctatissima** Salter = **Entomidella buprestis**, a Cambrian branchiopod

**Leperditia punctulifera** Hall = **Primitiopsis punctulifera**

**Leperditia pustulosa** Kummerow Silurian  
*Leperditia pustulosa* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 415, 440, pl. 20, fig. 3.

Drift (Leperditia limestone): near Brandenburg, North Germany  
 Topotype.—U.S.N.M. No. 82360.

**Leperditia (Briartina) quenstedti** Gümbel Devonian  
 “*Cytherina von Sotenich*” QUENSTEDT, Handb. Petrefaktenkunde (1852) p. 301, pl. 23, fig. 38.

*Leperditia quenstedti* GÜMBEL, Neues Jahrb. Min., Geol., Pal. (1874) p. 69.

*Leperditia briarti* DEWALQUE, Soc. Geol. Belg., Ann., 8 (1881) p. 43, pl. 2, fig. 2—JONES, *ibid.*, 23 (1896) p. 147—MAILLIEUX, Soc. Belg. Geol., Bull. 28 (1919) p. 109.

*Herrmannella briarti* PAECKELMANN, Preuss. Geol. Landes., Abh., n. s., 91 (1922) p. 16 (gen. ref.).

*Leperditia (Briartina) quenstedti* KEGEL, Preuss. Geol. Landes., Jahrb., 1932, 53 (1932) p. 924, text fig. 12, pl. 46, fig. 14.

Stringocephalus limestone: Waha, Belgium; Sötenich, Germany.

**Leperditia radiata** Ulrich = **Elpe radiata**

**Leperditia rarissima** Barrande Silurian (E2)  
*Leperditia rarissima* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 531, pl. 27, fig. 21.

Kozorz, Bohemia.

**Leperditia (Bairdia) recta** (Keyserling) Permian

*Cythere recta* KEYSERLING in Schrenk, Reise in den Norden Russlands (1854) p. 112, pl. 4, fig. 40—GEINITZ, Anim. Überr. Dyas (1861) p. 37; Carb. and Dyas in Nebraska (1866) p. 2; also in Verh. K. Leopoldino-Carolinischen Deutsch. Akad. Naturf., 33, 1866 (1867) p. 581.

*Leperditia recta* EICHWALD, Leth. Ross., 1 (1860) p. 1337, 1344.

Zechstein: Pinega River, Russia.

**Leperditia resplendens** Ruedemann Ordovician

*Leperditia resplendens* RUEDEMANN, N. Y. State Mus., Bull. 49, 1901 (1902) p. 71, pl. 5, figs. 21–27—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 705.

Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.

**Leperditia? rhenania** Maurer Devonian

*Leperditia rhenania* MAURER, Neues Jahrb. Min., 10 (1895–96) p. 704, pl. 17, fig. 7

Orthoceras schiefer: Rupbachthal, Rheinland, Germany.

**Leperditia rhombica** Jones and Kirkby = **Paraparchites rhombica**

**Leperditia roessleri** Kirkby = **Kirkbya roessleri**

**Leperditia römeri** Alth = **Leperditia tyraica**



- Leperditia rotundata** Walcott Devonian  
*Leperditia rotundata* WALCOTT, U. S. Geol. Surv., Mon., 8 (1884) p. 206, pl. 16, fig. 5.  
 Eureka District, Nev.  
 Cotypes.—U.S.N.M. No. 14005.
- Leperditia? rugosa** Matthews = **Bradoria robusta**, a Cambrian branchiopod
- Leperditia salairico** Peetz Middle Devonian  
*Leperditia salairico* PEETZ, Trav. Sec. Geol. Lab. Sa. Maj., 4 (1901) p. 38, 352, 370, pl. 1, figs. 7a, b—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161.  
 Tomskoi Zarvod on the Tomi Tschumysch River, Russia.
- Leperditia sannikowi** Toll Silurian  
*Leperditia sannikowi* TOLL, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 37, no. 3, 1889 (1890) p. 44, pl. 3, figs. 13–18.  
 Kotelny Island, Siberia.
- Leperditia scalaris** (Jones) Silurian  
*Leperditia gibbera scalaris* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 250, pl. 10, figs. 10, 11—ROGERS, Geol. Pa., 2, pt. 2 (1858) p. 834, fig. 698.  
*Leperditia scalaris* GRABAU, Geol. Soc. Am., Bull., 11 (1900) p. 371, pl. 22, figs. 6a–d; Buffalo Soc. Nat. Sci., Bull. 7 (1901) p. 219, fig. 150; N. Y. State Mus., Bull. 45, 9 (1901) p. 219, fig. 150; *ibid.*, Bull. 92 (1906) p. 111; Mich. Geol. Surv., geol. ser. 1 (1909) p. 202, pl. 32, fig. 6a, d—GRABAU and SHIMER, North American index fossils, 2 (1910) p. 340, fig. 1655—GRABAU and SHERZER, Mich. Geol. Biol. Surv., Publ., 2, geol. ser., 1 (1910) p. 59, 202, 213, pl. 32, figs. 6a–d—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 705—WILLIAMS, Canada Dept. Mines, Mem. 111, no. 91, geol. ser. (1919) p. 86.  
 Cayuga: Williamsville, Buffalo, Akron, etc., N. Y., and Ontario (Akron); Schoharie and High Falls, N. Y. (Cobleskill).  
 Topotypes.—U.S.N.M. No. 82381.
- Leperditia scalaris praecedens** Ulrich and Bassler Silurian  
*Leperditia scalaris praecedens* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 501, pl. 36, figs. 12, 13.  
 Cayuga (Tonoloway): Keyser, W. Va.; Pinto, Md.  
 Cotypes.—U.S.N.M. Nos. 63460, 63461.
- Leperditia schellwieni** Chmielewski Silurian  
*Leperditia schellwieni* CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsburg, 6 (1900) p. 7, 27, pl. 2, figs. 46–50.  
 Drift: Gouvernement Kowna, Lithuania; East Prussia.
- Leperditia schmidti** Kolmodin = **Leperditia hisingeri**
- Leperditia schrenkii** Kirkby = **Kirkbya schrenkii**
- Leperditia scotoburdigalensis** Jones and Kirkby = **Paraparchites scotoburdigalensis**
- Leperditia selwynii** Jones Silurian  
*Leperditia selwynii* JONES, Geol. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 89, pl. 12, figs. 1–5—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 705; Geol. Surv. Canada, Mem. 154 (1927) p. 340.  
 Anticostian (Beesie, Gun River, and Jupiter): Jupiter River, Wreck Beach, etc., Anticosti.
- Leperditia seneca** Hall = **Aparchites seneca**

**Leperditia shearsbii** Chapman Silurian  
*Leperditia shearsbii* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 22 (1909) p. 2, 3, pl. 1—  
 STEPANOV, Russ. Minn. Ges., Verh., ser. 2, 46 (1908) p. 161.

Cliftonwood, Yass, New South Wales; Balchas See.  
 Topotype.—U.S.N.M. No. 58474.

**Leperditia sinuata** Hall Silurian  
*Leperditia sinuata* HALL, Canadian Nat. Geol., 5 (1860) p. 158—DAWSON, Acadian  
 Geol., 2nd ed. (1868) p. 609—JONES, Geol. Soc. London, Quart. Jour., 46 (1890)  
 p. 24, pl. 1, figs. 12a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 705.

Arisaig; Arisaig, Nova Scotia.

**Leperditia solitaria** Barrande Silurian (E2)  
*Leperditia solitaria* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 532,  
 pl. 23, figs. 1-5; pl. 34, figs. 14-17—LUNDGREN, Lunds Univ. Årsskr., 9, Math.-  
 Nat. (1872) p. 9—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21, pt. 5  
 (1873) p. 14—ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 69—NICHOLSON and  
 LYDEKKER, Man. Pal., 1 (1879) p. 507, fig. 361 D.

Budnian, etc., Bohemia.

**Leperditia solvensis** Jones = **Indiana solvensis**, a Cambrian branchiopod.

**Leperditia spinulifera** Hall Devonian  
*Leperditia spinulifera* HALL, N. Y. State Cab. Nat. Hist., 15th Rept. (1862)  
 p. 111 (adv. sheets Sept. 1861, p. 83).

Onondaga; Ontario County, N. Y.

**Leperditia steadi** Matthew = **Bradoria steadi**, a Cambrian branchiopod.

**Leperditia sticta** Kirkby = **Amphissites sticta**

**Leperditia (Herrmannella) strigosa** Kegel Devonian  
*Leperditia (Herrmannella) strigosa* KEGEL, Preuss. Geol. Landes., Jahrb., 1932,  
 53 (1932) p. 912, text fig. 4, pl. 46, fig. 3.

Lower Stringocephalus beds: Sötenich, Germany.

**Leperditia subaequalis** Reed Carboniferous  
*Leperditia subaequalis* REED, Pal. Indica, n. s., 10, mem. 1 (1927) p. 72, pl. 10,  
 figs. 18-18b.

Yun-Nan, China.

**Leperditia subcylindrica** Ulrich Early Silurian  
*Leperditia subcylindrica* ULRICH, Geol. Surv. Canada, Contr. Can. Micro-Pal.,  
 pt. 2 (1889) p. 49, pl. 9, figs. 4-4b—WHITEAVES, Geol. Surv. Canada, Pal. Foss.,  
 3, pt. 2 (1895) p. 125 (loc. occ.)—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 705.

Richmond (Stony Mountain): Stony Mountain, Manitoba.  
 Topotype.—U.S.N.M. No. 82375.

**Leperditia sublaevis** (Shumard) Ordovician  
*Cythere sublaevis* SHUMARD, Geol. Surv. Mo., 1st and 2nd Ann. Rept., pt. 2  
 (1855) p. 195, pl. B, fig. 15.

*Leperditia sublaevis* KEYES, Mo. Geol. Surv., 4, 1894 (1895) p. 239—BASSLER,  
 U. S. Nat. Mus., Bull. 92 (1915) p. 706.

St. Peter (Joachim): St. Louis, Ste. Genevieve, and Ralls counties, Mo.

**Leperditia (Herrmannella) subobliqua** Kegel Devonian  
*Leperditia (Herrmannella) subobliqua* KEGEL, Preuss. Geol. Landes., Jahrb., 1932,  
 53 (1932) p. 914, text fig. 5, pl. 46, fig. 5.

Lower Stringocephalus beds: near Wachendorf, Germany.

**Leperditia suborbiculata** Jones and Kirkby = **Paraparchites suborbiculata**

**Leperditia subparallela** (Schmidt)

Silurian

*Leperditia marginata subparallela* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31, pt. 5 (1883) p. 20, pl. 1, fig. 19—LEBEDEFF, Com. Géol. St. Petersburg, Mém., 12, no. 2 (1890) p. 34, 47, pl. 3, figs. 40–42.

*Leperditia hisingeri subparallela* CHMIELEWSKI, Shrift. Phys. Okon. Ges. Königsburg, 61 (1900) p. 10.

Waschkina, Timan, Russia.

**Leperditia subquadrata** Jones

Devonian

*Leperditia subquadrata* JONES, Am. Geol., 4, no. 6 (1889) p. 340, text figs. 4a–d.

Helderbergian: Perry County, Pa.

**Leperditia (?Paraparchites) subquadrata** Reed

Carboniferous

*Leperditia subquadrata* REED, Pal. Indica, n. s., 10, mem. 1 (1927) p. 72, pl. 10, figs. 16–17.

Yun-Nan, China.

**Leperditia subrecta** Jones and Kirkby = **Paraparchites subrecta**

**Leperditia? subrotunda** Ulrich = **Paraparchites subrotundus**

**Leperditia subscalaris** Grabau

Silurian

*Leperditia subscalaris* GRABAU, Pal. Sinica, ser. B, 3, fasc. 2 (1926) p. 70, pl. 4, figs. 19 (figs. 2, 3) 22–29(b).

South Yun-Nan, China.

**Leperditia sulcata** Ulrich = **Leperditella sulcata**

**Leperditia sulcata ventricornis** Ulrich = **Leperditella sulcata ventricornis**

**Leperditia symmetrica** Hortedahl

Lower Devonian

*Leperditia symmetrica* HOLTEDAHL, 2d Arctic Exp., 1898–1902, no. 32 (1914) p. 37, pl. 8, fig. 15—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 706.

Helderbergian (Lower beds): Southwestern Ellesmereland, Arctic America.

**Leperditia tatei** Chapman

Upper Cambrian

*Leperditia tatei* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 31 (1918) p. 109, pl. 9, figs. 1–3.

South Australia. Probably refers to some branchiopod.

**Leperditia timanica** Lebedeff

Silurian

*Leperditia timanica* LEBEDEFF, Com. Géol. St. Petersburg, Mém., 12, no. 2 (1892) p. 33, 47, pl. 3, figs. 37–39.

Timan, Russia.

**Leperditia tingi** Grabau

Silurian

*Leperditia tingi* GRABAU, Pal. Sinica, ser. B, 3, fasc. 3 (1926) p. 8–20, 67–78, pl. 4, figs. 17–21.

South Yun-nan, China.

**Leperditia titanica** Scott

Ordovician

*Leperditia titanica* SCOTT, Ill. Acad. Sci., Tr., 24 (1931) p. 378, figs. 1–3.

Galena limestone: Ogle County, Ill.

**Leperditia tonkinensis** Mansuy, a Cambrian branchiopod.

**Leperditia torifera** Fuchs

Devonian

*Leperditia torifera* FUCHS, Preuss. Geol. Landes., Jahrb., 50, pt. 1 (1929) p. 200, pl. 14, figs. 21-24.

Gedinnien: Blatt Herscheid, Germany.

**Leperditia trentonensis** Wilson

Ordovician

*Leperditia trentonensis* WILSON, Geol. Surv. Canada, Dept. Mines, Bull. 33 (1921) p. 57, pl. 4, figs. 12, 13, text fig. 7.

Lower Trenton: MacLaren Landing, Quebec.

**Leperditia troyensis** Ford = **Aluta troyensis**, a Cambrian branchiopod.**Leperditia tuberculata** Kolmodin

Silurian

*Leperditia tuberculata* KOLMODIN, Ofv. Kon. Vet.-Akad. Förh., 36 (1879) p. 135, pl. fig. 1a, b—JONES, Sil. Ostrac. Gothland (1887) p. 8.

Gotlandian: Wisby, Gotland.

**Leperditia tumida** Ulrich = **Leperditella tumida****Leperditia tumidula** Ulrich

Ordovician

*Leperditia tumidula* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 175, pl. 11, figs. 4a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 706.

Trenton: Danville, Ky. (Perryville); Maury County, Tenn. (Cannon).  
Holotype.—U.S.N.M. No. 41284.

**Leperditia turgida** Billings

Canadian

*Leperditia turgida* BILLINGS, Geol. Surv. Canada, Pal. Foss., 1 (1865) p. 299—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 706.

Quebec (G, H): Port aux Choix and Cape Norman, Newfoundland.

**Leperditia tyraica** Schmidt

Silurian

*Leperditia tyraica* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21, no. 2 (1873) p. 13, pl. figs. 10-12—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512—ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 68-70, pl. 5, figs. 28-32—SCHMIDT and JONES, Ann. Mag. Nat. Hist., ser. 5, 9 (1882) p. 170, 171—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31, pt. 5 (1883) p. 9—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 489—VENUKOFF, Nat. Geol. Russl., 19 (1899) p. 205—CHMIELEWSKI, Schrift. Phys. Okon. Ges. Königsberg, 6 (1900) p. 29, pl. 2, fig. 5—SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, 19, pt. 4 (1906) p. 218 (fig. 46)—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 50-52.

*Leperditia romeri* ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 68, pl. 5, figs. 28-32, 34-36 (Referred on expl. of plate to *L. tyraica* Schmidt.)—VENUKOFF, Mat. Geol. Russl., 19 (1899) p. 205.

*Leperditia balthica contracta* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 337, pl. 19, fig. 14.

*Leperditia roemeriana* SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, 19 (1906) p. 218 (fig. 46).

Zaleszyk, Galicia; Russia; Bohemia; drift of North Germany.  
Topotypes.—U.S.N.M. No. 82374.

**Leperditia tyraica** Linnarsson (not Schmidt) = **Leperditia phaseolus****Leperditia ulrichi** Troedsson

Silurian

*Leperditia ulrichi* TROEDSSON, Jubilaemsekpeditionen Nord om Gronland, 1920-1923, no. 5 (1928) p. 80, pl. 19, figs. 24, 25.

Cape Calhoun beds: Cape Calhoun, Greenland.  
See *Leperditia cabotensis*.

**Leperditia unicornis** Ulrich = **Primitiella unicornis**

- Leperditia vandatica** Kummerow Silurian  
*Leperditia vandatica* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 418, 440, pl. 20, fig. 9.  
 Drift: North Germany.
- Leperditia ventralis** Billings Ordovician  
*Leperditia ventralis* BILLINGS, Geol. Surv. Canada, Pal. Foss., 1 (1865) p. 300—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 706.  
 Chazyan (Quebec-N): Bonne Bay, Newfoundland.
- Leperditia ventricosa** Matthew. Refers to some Cambrian branchiopod.
- Leperditia? vexata** Hicks. Not an ostracod, but a Cambrian branchiopod or larval trilobite.
- Leperditia viator** Reed Carboniferous  
*Leperditia viator* REED, Pal. Indica, n. s., 10, mem. 1 (1927) p. 71, pl. 10, figs. 14-15a.  
 Yun-Nan, China.
- Leperditia waigatschensis** Schmidt Silurian  
*Leperditia waigatschensis* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 27, pl. 1, fig. 33.  
 Waigatsch Island, Arctic Sea, Russia.
- Leperditia (Herrmannella) waldschmidti** (Paeckelmann) Devonian  
*Herrmannella waldschmidti* PAECKELMAN, Preuss. Geol. Landes., Abh., n. s., 91 (1922) p. 15.  
*Leperditia (Herrmannella) waldschmidti* KEGEL, Preuss. Geol. Landes., Jahrb., 1932, 53 (1932) p. 918, text fig. 8, pl. 46, figs. 1, 2.  
 Upper *Stringocephalus* beds: Barmen-Rittershausen, Germany.
- Leperditia whiteavesii** Jones Silurian  
*Leperditia whiteavesii* JONES, Geol. Surv. Canada, Contr. Micro-Pal., pt. 3 (1891) p. 87, text fig. 6, pl. 12, figs. 11-14—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 706.  
 Niagaran: Chemahawin and Old Fort Island, Cedar Lake, Saskatchewan River, Canada.
- Leperditia wiluiensis** Schmidt Silurian  
*Leperditia wiluiensis* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 21, no. 2 (1873) p. 17, pl. figs. 27, 28—JONES, Geol. Mag., n. s., dec. 2, 1 (1874) p. 512—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 55—SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mém., ser. 7, 31 (1883) p. 21, pl. 1, figs. 20-22.  
 East Siberia, Russia.
- Leperditia wrightiana** Jones and Kirkby = **Paraparchites wrightianus**
- Leperditia youngiana** Jones and Kirkby = **Paraparchites youngianus**
- LEPIDILLA** Matthew, a genus of Cambrian branchiopods
- LEPIDITTA** Matthew, a genus of Cambrian branchiopods

**MACROCYPRIS** Brady (Bairdiidae)

Genotype: *Cythere minna* Baird (Recent)

*Macrocypris* BRADY, Intellectual Observer, 12, London (1867) p. 119—TERQUEM, Soc. Géol. France, Mém., ser. 3, 4, mem. 1 (1885); *ibid.*, mem. 2 (1886)—JONES and KIRKBY, Geol. Assoc., London, Pr., 9 (1886) p. 510—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 178—MILLER, North American geol. pal., 1st ap-

pendix (1889) p. 709—JONES and HINDE, Suppl. Mon. Cretaceous Entomostraca, Paleontogr. Soc. (1890) p. 9—ULRICH, Zittel-Eastman Textb. Pal., 1 (1900) p. 646—LIENENKLAUS, Deutsch. Geol. Ges., Zeitschr., 52 (1900) p. 504—NAMAIS, Pal. Italica, Mem. Pal., 6, 1900 (1901) p. 87—LIENENKLAUS, Ber. Senck. Nat. Ges. Frankfurt am Main (1905) p. 15—BASSLER, Zittel-Eastman Textb. Pal., 2nd ed. (1913) p. 740; U. S. Nat. Mus., Bull. 92 (1915) p. 781—KUIPER, Oligoc. und Mioc. Ostrac. Nied. (1918) p. 11—ULRICH, and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 321—NEVIANI, Pont. Acad. Sci. Nouvi Lincei, Mem., 11, 1 Sess., 1927 (1928) p. 25—ALEXANDER, Univ. Texas, Bull. 2907 (1929) p. 59—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 36—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 25.

**Macrocypris? alta** Jones

Silurian

*Macrocypris? alta* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 181, pl. 5, figs. 10a, b.

Wenlock shale: Ironbridge, Shropshire, England.

**Macrocypris carbonica** Jones and Kirkby

Carboniferous

*Macrocypris carbonica* (Brady Mss.) JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 265, pl. 9, fig. 9—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—YOUNG, Geol. Soc. Glasgow, Tr., 9, 1888–1892 (1893) p. 312—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490.

Lower limestone: Sterlingshire, West Scotland.

**Macrocypris? crassula** Jones

Silurian

*Macrocypris? crassula* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 181, pl. 7, fig. 10; *ibid.*, ser. 6, 4 (1889) p. 268—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Wenlock limestone: Crofts, near Malvern, England.

**Macrocypris elegans** Jones

Silurian

*Macrocypris elegans* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 180, pl. 5, fig. 8—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3, pt. 2 (1892) p. 158.

Lower Wenlock shales (Buildwas beds): Shropshire, England.

**Macrocypris flexuosa** Chapman

Silurian

*Macrocypris flexuosa* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 309, pl. 13, fig. 6.

Yeringian: Cave Hill, Lilydale, Victoria, Australia.

**Macrocypris garrisonensis** Upson

Permian

*Macrocypris garrisonensis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 25, pl. 2, figs. 14a, b.

Garrison (Funston limestone): 4 miles east of Home City, Kan.

**Macrocypris gracillima** (Richter)

Permian

*Cythere gracillima* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 231, pl. 5, fig. 28; *ibid.*, 21 (1869) p. 429.

Zechstein: Thuringia, Germany.

**Macrocypris jonesiana** (Kirkby)

Carboniferous, Permian

*Bairdia gracilis* (part) JONES, Mon. Perm. Foss. (1850) p. 63—REUSS, Jahreshb. Wett. Ges., 1851–1853 (1854) p. 65, pl. fig. 3.

*Bairdia jonesiana* KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 432, pl. 11, figs. 1, 2, 2a—GEINITZ, Anim. Ueberr. Dyas (1861) p. 34.

*Cythere (Cytherideis) jonesiana* KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1860) p. 151, pl. 10, figs. 1, 2—JONES, *ibid.*, p. 168, pl. 11, figs. 24a–d, 25a–d—KIRKBY, Geol. Soc. London, Quart. Jour., 17 (1861) p. 308.

*Cythere jonesiana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 223—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 235, pl. 5, figs. 13, 14; *ibid.*, 21 (1869) p. 429—JONES and KIRKBY, Tyneside Nat. Field Club, Tr., 4 (1859–1869) p. 168, pl. 11, figs. 24–25—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27—WRIGHT, Belfast Nat. Field Club, 9th Ann. Rept. (1872) p. 35—KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 573, 574, 576, 588—JONES, Berwickshire Nat. Field Club, Pr., 10 (1884) p. 321—LAMPLAUGH, Geol. country around Belfast, Geol. Surv. Ireland, Mem. (1904) p. 13.

*Macrocypris jonesiana* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536–541—JONES, *ibid.*, dec. 3, 3 (1886) p. 533—JONES and KIRKBY, *ibid.*, dec. 3, 3 (1886) p. 251, pl. 7, fig. 12; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—YOUNG, Geol. Soc. Glasgow, Tr., 9, 1888–1892 (1893) p. 312—JONES and KIRKBY, Roy. Dublin Soc., Tr., 2nd ser., 6 (1896) p. 194—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7, 1898 (1899) p. 437—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490—KIRKBY, Edinburgh Geol. Soc., Tr., 8 (1898–1905) p. 74.

Yorkshire, etc., North and South England (Carboniferous limestone); Carlisle, Ireland; East and West Scotland (Calcareous sandstone). Permian: Thuringia, etc., Germany (Zechstein); Durham and Yorkshire, England.

**Macrocypris kirkbyana** (Jones) Carboniferous

*Cythere (Macrocypris?) kirkbyana* JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 320, pl. 2, figs. 3a, 3b.

*Macrocypris? kirkbyana* VINE, Naturalist, 10 (1885) p. 97.

Tuedian shale: Banks of the Leet, near Coldstream, England.

**Macrocypris leptura** (Richter) Permian

*Cythere leptura* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 230, pl. 5, fig. 29; *ibid.*, 21 (1869) p. 429.

Zechstein: Thuringia, Germany.

**Macrocypris? marginata** (Richter) Permian

*Cythere marginata* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 233, pl. 5, fig. 20; *ibid.*, 21 (1869) p. 429.

Zechstein: Thuringia, Germany.

**Macrocypris menardensis** Harlton Pennsylvanian

*Macrocypris menardensis* HARLTON, Univ. Texas, Bull. 2901 (1929) p. 161, pl. 4, figs. 7a, b—CORYELL and OSORIO, Am. Midl. Nat., 32, no. 2 (1932) p. 36—DELO, Jour. Pal., 4 (1930) p. 174, pl. 13, fig. 10.

Graham formation: East Menard County, and deep well, Pecos County, Texas; Tulsa County, Okla. (Nowata).

Holotype.—U.S.N.M. No. 80594.

**Macrocypris? piscis** (Richter) Permian

*Cythere piscis* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 231, pl. 5, fig. 26; *ibid.*, 21 (1869) p. 429.

Zechstein: Thuringia, Germany.

**Macrocypris pusilla** Jones = **Bythocypris pusilla**

**Macrocypris? regularis** (Richter) Permian

*Cythere regularis* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1907) p. 228, pl. 5, fig. 36; *ibid.*, 21 (1869) p. 429.

Zechstein: Thuringia, Germany.

**Macrocypris remesiana** Kegel Middle Devonian

*Macrocypris remesiana* KEGEL, Preuss. Geol. Landes, Jahrb., 1927, 48 (1928) p. 654, pl. 33, fig. 4.

Celechowitz, Moravia.

**Macrocypris? siliqua** (Jones)

Ordovician

*Cytheropsis siliqua* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 249, pl. 10, fig. 6; Canadian organic remains, dec. 3 (1858) p. 99, 101—BILLINGS, Geol. Surv. Canada, Rept. Progress Comm. (1863) p. 954—JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 396.

*Macrocypris? siliqua* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 99—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 781—WILSON, Canada Dept. Mines, Bull. 33 (geol. ser. no. 40) (1921) p. 39, 44.

Black River (Leray): Pauquette's Rapids, Ottawa River, Canada.

**Macrocypris siliquoides** Jones

Silurian

*Macrocypris siliquoides* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 181, pl. 5, fig. 9—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 154, 158—HEDE, Sver. Geol. Unders., ser. C, 1920, Arsb. 14, no. 7 (1921) p. 49, 98.

Shropshire, England (shales over Wenlock limestone and Lower Wenlock shale): Mulde, Gotland (Middle Gotlandian).

**Macrocypris? subcylindrica** Jones

Early Silurian

*Macrocypris? subcylindrica* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 549, pl. 21, figs. 5a, b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 781; Geol. Surv. Canada, Mem. 154 (1927) p. 350.

Richmond (English Head): English Head, Anticosti.

**Macrocypris subelongata** (Geinitz)

Permian

*Cythere subelongata* GEINITZ, Anim. Uberr. Dyas (1861) p. 33, text fig. 2 (fig. 3)—JONES and KIRKBY, Ann. Mat. Nat. Hist., ser. 3, 15 (1865) p. 405—SCHMIDT, Neues Jahrb. Min., Jahrb. (1867) p. 580, pl. 6, fig. 2—RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 226, pl. 5, fig. 12; *ibid.*, 21 (1869) p. 429.

Zechstein: Thuringia, Germany.

**Macrocypris symmetrica** Jones

Silurian

*Macrocypris symmetrica* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 181, pl. 7, fig. 8—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Woolhope beds: Shropshire, England.

**Macrocypris vinei** Jones

Silurian

*Bairdia elongata* (?Münster) VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48.

*Macrocypris vinei* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 179, text fig., pl. 4, figs. 1-3; Sil. Ostrac. Gothland (1887) p. 6; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 396, pl. 22, figs. 1, 2; *ibid.*, 4 (1889) p. 269—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 310, pl. 14, fig. 7—HEDE, Sver. Geol. Unders., ser. C, no. 281, 11, no. 2 (1917) p. 25, 29; Geol. För. Stockholm Förh., 41 (1919) p. 150, pl. 6, fig. 3; Sver. Geol. Unders., ser. C, 1920, 14, no. 7 (1921) p. 42, 49, 98—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 320, text fig. 25 (fig. 1)—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 442.

Ironbridge, etc., Shropshire, England (shales over Wenlock limestone and Lower Wenlock shale); Fröjel, Gotland (Middle Gotlandian); Cave Hill, Lilydale, Victoria (Yeringian); Germany (drift—Beyrichia limestone).

**MACRONOTELLA** Ulrich (Kirkbyidae)

Genotype: *M. scofieldi* Ulrich

*Macronotella* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 683—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 155—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 55—GRABAU and SHIMER, North American index fossils (1910) p. 348—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 781—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 316—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 432.



- Macronotella elliptica** KUMMEROW Ordovician  
*Macronotella elliptica* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 432, 442, pl. 21, fig. 11.  
 Drift (Gray limestone): Brandenburg, Germany.  
 Topotype.—U.S.N.M. No. 82351.
- Macronotella fragaria** Ruedemann Ordovician  
*Macronotella fragaria* RUEDEMANN, N. Y. State Mus., Bull. 49, 1901 (1902) p. 85, pl. 6, figs. 3–5—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 781.  
 Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.
- Macronotella kiesowii** (Steusloff) Ordovician  
*Leperditia* (?) *kiesowii* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 784, pl. 58, fig. 2—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 407.  
 Drift (Leptaena limestone): Neue Brandenburg, Germany.
- Macronotella krausei** (Steusloff) Ordovician  
*Leperditia krausei* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 783, pl. 58, fig. 1—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 408.  
 Drift (Leptaena limestone): Neue Brandenburg, Germany.
- Macronotella kuckersiana** Bonnema Ordovician  
*Macronotella kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2, pt. 1 (1909) p. 55, pl. 3, figs. 1–9.  
 Kuckers (C2): Kuckers, Esthonia.
- Macronotella lenticularis** Kummerow Ordovician  
*Macronotella lenticularis* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 433, 442, pl. 21, fig. 12; *ibid.*, 1927 (1928) p. 42.  
 Drift (gray, algal and Leptaena limestones): Near Brandenburg, Germany.  
 Topotypes.—U.S.N.M. No. 82352.
- Macronotella praelonga** (Steusloff) Silurian  
*Leperditia praelonga* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 781, pl. 58, fig. 3—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 407.  
 Drift (Borkholm limestone): Neue Brandenburg, Germany.
- Macronotella? rectangularis** (Ulrich) Devonian  
*Isochilina rectangularis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 182, pl. 16, figs. 2a–c.  
*Macronotella? rectangularis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 683.  
 Onondaga limestone: Falls of the Ohio, Louisville, Ky.  
 Holotype.—U.S.N.M. No. 41826.
- Macronotella scofieldi** Ulrich Ordovician  
*Macronotella scofieldi* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 684, pl. 43, figs. 30–34—GRABAU and SHIMER, North American index fossils (1910) p. 348, text fig. 1657 u, v—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 781—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 315, 316, text fig. 22 (fig. 7).  
*Isochilina scofieldi* MILLER, North American geol. pal., 2nd appendix (1897) p. 788 (gen. ref.).  
 Black River: Near Cannon Falls, Minn. (Platteville); High Bridge, Ky. (Lowville).  
 Cotypes.—U.S.N.M. Nos. 41848, 41849.
- Macronotella ulrichi** Ruedemann Ordovician  
*Macronotella ulrichi* RUEDEMANN, N. Y. State Mus., Bull. 49 (1902) p. 83, pl. 6, figs. 6–16, pl. 7, figs. 1—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 782—RUEDE-

MANN, Md. Geol. Surv., Cambrian and Ordovician vol. (1919) p. 137, 182, 368, pl. 43, figs. 6-9.

Mohawkian: Rysedorph Hill and Moordener Kill, Rensselaer County, N. Y. (Rysedorph); Fort Loudon, Pa. (Chambersburg).

**MASTIGOBOLBINA** Ulrich and Bassler (Zygobolbidae-Kloedeninae)

Genotype: *M. typus* Ulrich and Bassler

*Mastigobolbina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 307.

**Mastigobolbina arctilimbata** Ulrich and Bassler Silurian

*Mastigobolbina arctilimbata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 613, pl. 50, figs. 18-20.

Upper Clinton (*Mastigobolbina typus* zone): 1½ miles east of Great Cacapon, W. Va.; Lakemont, Pa. Holotype and paratype.—U.S.N.M. Nos. 63568, 63572.

**Mastigobolbina arguta** Ulrich and Bassler Silurian

*Beyrichia lata triplicata* FOERSTE, Geol. Surv. Ky., Bull. 7 (1907) p. 329; Cincinnati Soc. Nat. Hist., Jour., 21 (1909) p. 31 (not pl. 1, fig. 4).

*Mastigobolbina arguta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 607, pl. 50, figs. 6-10.

Upper Clinton, Lewis County, Ky.: 1½ miles east of Great Cacapon, W. Va.; Hollidaysburg, Pa.; Virginia; etc. (*Mastigobolbina typus* zone). Holotype and paratypes.—U.S.N.M. Nos. 63563, 63564.

**Mastigobolbina bifida** Ulrich and Bassler Silurian

*Mastigobolbina bifida* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 617, pl. 52, figs. 17-20.

Upper Clinton (*Bonnesia rudis* zone): 5 miles northwest of Sneedville, Tenn. Cotypes.—U.S.N.M. No. 63571.

**Mastigobolbina clarkei** Ulrich and Bassler Silurian

*Beyrichia lata* ULRICH and BASSLER (not Hall), U. S. Nat. Mus., Pr., 35 (1909) p. 292, fig. 25.

*Mastigobolbina clarkei* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 629, pl. 51, figs. 18-20.

Middle Clinton (*Mastigobolbina lata* zone): New Hartford, N. Y.; near Reedsville, Pa.; Cumberland, Md. Cotypes.—U.S.N.M. No. 41557.

**Mastigobolbina declivis** Ulrich and Bassler Silurian

*Mastigobolbina declivis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 630, pl. 52, figs. 7-10.

Middle Clinton (*Zygobolbina emaciata* zone): 4½ miles northwest of Mercersburg, Pa. Cotypes.—U.S.N.M. No. 83460.

**Mastigobolbina glabra** Ulrich and Bassler Silurian

*Mastigobolbina glabra* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 614, pl. 50, fig. 21.

Upper Clinton (*Mastigobolbina typus* zone): Lakemont, Pa. Holotype.—U.S.N.M. No. 63569.

**Mastigobolbina incipiens** Ulrich and Bassler Silurian

*Mastigobolbina incipiens* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 632, pl. 53, figs. 8-12.

Lower Clinton (top): Frankstown, Pa. Cotypes.—U.S.N.M. No. 63477.

**Mastigobolbina intermedia** Ulrich and Bassler Silurian  
*Mastigobolbina intermedia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 609, pl. 50, figs. 12-15.

Upper Clinton (*Mastigobolbina typus* zone): Hollidaysburg, Pa.  
 Cotypes.—U.S.N.M. No. 63567.

**Mastigobolbina lata** (Hall) Silurian  
*Agnostus latus* (part) VANUXEM, Geol. New York, 3rd Geol. Dist. (1842) p. 80 (name only).

*Beyrichia lata* MCCOY, Syn. Sil. Fossils Ireland (1846) p. 58—HALL, Nat. Hist. New York, Pal., 2 (1852) p. 301, pl. 460, figs. 10c-e—JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 168, pl. 6, fig. 13—LESLEY, Geol. Surv. Pa., Rept. P 4 (1889) p. 90, 3 text figs. only—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 390—FOERSTE, Geol. Surv. Ky., Bull. 7 (1906) p. 329—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 292, fig. 25—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 122.

*Bollia lata* JONES, Amer. Geol., 4 (1889) p. 339 (gen. ref.)—FOERSTE, Ky. Geol. Surv., Bull. 7 (1906) p. 329—WADE, Geol. Soc. London, Quart. Jour., 67 (1911) p. 453—ULRICH and BASSLER, Md. Geol. Surv., Middle and Upper Devonian (1913) p. 337—GRABAU and SHIMER, North American index fossils (1910) p. 352—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 129.

*Mastigobolbina lata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 620, pl. 51, figs. 1-11, 16, 19; pl. 52, figs. 5, 6.

Middle Clinton (*Mastigobolbina lata* zone): Van Hornsville, New Hartford, etc., N. Y.; Cumberland, etc., Md.; Virginia.; Pennsylvania.;? England.  
 Pleistotypes.—U.S.N.M. Nos. 63520, 63532.

**Mastigobolbina lata nana** Ulrich and Bassler Silurian  
*Mastigobolbina lata nana* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 626, pl. 51, figs. 12-17.

Middle Clinton: New Hartford, N. Y. (*Mastigobolbina lata* zone); 4½ miles northwest of Mercersburg, Pa. (*Zygobolbina emaciata* zone).  
 Cotypes.—U.S.N.M. No. 63533.

**Mastigobolbina micula** Ulrich and Bassler Silurian  
*Mastigobolbina micula* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 616, pl. 51, fig. 24.

Upper Clinton (*Bonnemaia rudis* zone): Near Six Mile House, Md.  
 Holotype.—U.S.N.M. No. 63535.

**Mastigobolbina modesta** Ulrich and Bassler Silurian  
*Mastigobolbina modesta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 611, pl. 52, figs. 11-16.

Middle Clinton (*Mastigobolbina lata* zone): 1 mile west of Narrows, and 1½ miles northwest of Warm Springs, Va.  
 Cotypes.—U.S.N.M. Nos. 63475, 63585.

**Mastigobolbina producta** Ulrich and Bassler Silurian  
*Mastigobolbina producta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 633, pl. 63, figs. 13-17.

Lower Clinton (top): Frankstown, Pa.  
 Cotypes.—U.S.N.M. No. 63478.

**Mastigobolbina punctata** Ulrich and Bassler Silurian  
*Mastigobolbina punctata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 615, pl. 50, figs. 22, 23.

Upper Clinton (*Mastigobolbina typus* zone): Lakemont, Pa.  
 Holotype.—U.S.N.M. No. 63570.

- Mastigobolbina retifera** Ulrich and Bassler Silurian  
*Mastigobolbina retifera* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 634, pl. 53, figs. 1-7.  
 Lower Clinton (top): Half a mile northwest of Frankstown, Pa.  
 Cotypes.—U.S.N.M. No. 63476.
- Mastigobolbina rotunda** Ulrich and Bassler Silurian  
*Mastigobolbina rotunda* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 610, pl. 50, fig. 11.  
 Upper Clinton (*Mastigobolbina typus* zone): 1½ miles east of Great Cacapon, W. Va.  
 Holotype.—U.S.N.M. No. 63565.
- Mastigobolbina trilobata** Ulrich and Bassler Silurian  
*Mastigobolbina trilobata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 612, pl. 50, figs. 16, 17.  
 Upper Clinton (*Mastigobolbina typus* zone): 1½ miles east of Great Cacapon, W. Va.; Lakemont,  
 Pa.; Clinton, N. Y.  
 Cotypes.—U.S.N.M. No. 83461.
- Mastigobolbina triplicata** (Foerste) Silurian  
*Beyrichia lata triplicata* (part) FOERSTE, Geol. Surv. Ky., Bull. 7 (1906) p. 329;  
 Cincinnati Soc. Nat. Hist., Jour., 21, no. 1 (1909) p. 31, pl. 1, fig. 4—BASSLER, U.  
 S. Nat. Mus., Bull. 92 (1915) p. 122.  
*Mastigobolbina triplicata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 605, pl. 50, figs. 1-4.  
 Upper Clinton: Lewis County, Ky. (Alger); Hollidaysburg and Lakemont, Pa. (*Mastigobolbina*  
*typus* zone).  
 Cotypes and plesiotypes.—U.S.N.M. Nos. 63558, 63561.
- Mastigobolbina typus** Ulrich and Bassler Silurian  
*Mastigobolbina typus* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 602, pl. 49, figs. 1-16.  
 Upper Clinton (*Mastigobolbina typus* zone): 1½ miles east of Great Cacapon, W. Va.; near Six  
 Mile House, etc., Md.; Virginia; Pennsylvania.  
 Cotypes.—U.S.N.M. Nos. 63553-63556.
- Mastigobolbina typus angulata** Ulrich and Bassler Silurian  
*Mastigobolbina typus angulata* ULRICH and BASSLER, Md. Geol. Surv., Silurian  
 vol. (1923) p. 604, pl. 49, fig. 12.  
 Upper Clinton (*Mastigobolbina typus* zone): Near Six Mile House, Md.  
 Cotypes.—U.S.N.M. No. 63557.
- Mastigobolbina typus praenuntia** Ulrich and Bassler Silurian  
*Mastigobolbina typus praenuntia* ULRICH and BASSLER, Md. Geol. Surv., Silurian  
 vol. (1923) p. 602, pl. 50, fig. 5.  
 Upper Clinton (*Bonnemaia rudis* zone): 5 miles northwest of Sneedville, Tenn.  
 Holotype.—U.S.N.M. No. 63471.
- Mastigobolbina ultima** Ulrich and Bassler Silurian  
*Mastigobolbina ultima* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 618, pl. 51, figs. 21-23.  
 Upper Clinton (*Bonnemaia rudis* zone): Near Six Mile House, Md.  
 Cotypes.—U.S.N.M. No. 63531.
- Mastigobolbina vanuxemi** Ulrich and Bassler Silurian  
*Mastigobolbina vanuxemi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 1923 (1923) p. 627, pl. 52, figs. 1-4.  
 Middle Clinton (*Mastigobolbina lata* zone): New Hartford, N. Y.; Cumberland, Md.; Tennessee.  
 Cotypes.—U.S.N.M. Nos. 63489, 63490.

**Mastigobolbina virginia** Ulrich and Bassler Silurian  
*Mastigobolbina virginia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 628, pl. 45, figs. 15-19.

Upper Clinton (*Bonnemaia rudis* zone): Wills Creek, Cumberland, Md.; 1¼ miles northwest of  
 Warm Springs, Va.  
 Cotypes.—U.S.N.M. No. 63480.

**MAURYELLA** Ulrich and Bassler (Kirkbyidae)

Genotype: *M. mammillata* Ulrich and Bassler

*Mauryella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 316.

**Mauryella mammillata** Ulrich and Bassler Mississippian

*Mauryella mammillata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 316, fig. 22 (fig. 4); Tenn. State Geol. Surv., Bull. 38 (1932) pl. 27, fig. 9

Kinderhook (Ridgetop): Mt. Pleasant, Tenn.  
 Holotype.—U.S.N.M. No. 63604.

**Mauryella quincollina** Harlton Mississippian

*Mauryella quincollina* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 257,  
 pl. 1, fig. 5.

Fayetteville shale: Fayetteville, Ark.  
 Holotype.—U.S.N.M. No. 79360.

**Mauryella trituberculata** (McCoy) Carboniferous

*Cythere trituberculata* MCCOY, Syn. Char. Carb. Fossils Ireland (1844) p. 168,  
 pl. 23, fig. 24—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100—  
 JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 45, 46.

Ireland.

**MELANELLA** Wade = **Jonesella**

**Melanella hemidiscus** Wade = **Jonesella hemidiscus**

**Melanella obscura** Ulrich = **Jonesella obscura**

**MESOMPHALUS** Ulrich and Bassler (Zygobolbidae-Drepanellinae)

Genotype: *M. hartleyi* Ulrich and Bassler

*Mesomphalus* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913)  
 p. 522; *ibid.*, Silurian vol. (1923) p. 309—BASSLER, U. S. Nat. Mus., Bull. 92 (1915)  
 p. 801.

**Mesomphalus hartleyi** Ulrich and Bassler Devonian

*Mesomphalus hartleyi* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian  
 vol. (1913) p. 523, pl. 96, figs. 1-3; pl. 95, figs. 22-24—BASSLER, U. S. Nat. Mus.,  
 Bull. 92 (1915) p. 801—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 309, text fig. 19.

Helderbergian (Keyser): Cumberland, Md.; Keyser, W. Va.  
 Cotypes.—U.S.N.M. No. 53304.

**Mesomphalus submarginata** Ulrich and Bassler Devonian

*Mesomphalus submarginata* ULRICH and BASSLER, Md. Geol. Surv., Lower Devo-  
 nian vol. (1913) p. 523, pl. 96, figs. 4, 5—BASSLER, U. S. Nat. Mus., Bull. 92, (1915) p. 801.

Helderbergian (Keyser): Cumberland, Md.  
 Holotype.—U.S.N.M. No. 53308.

**MICROCHEILINELLA** Geis (Bairdiidae)

Genotype: *M. distortus* Geis

*Microcheilus* GEIS (not Kittl 1894), Jour. Pal., 6, no. 2 (1932) p. 181.

*Microcheilinella* GEIS, Jour. Pal., 7, no. 1 (1933) p. 112.

- Microcheilinella corbuloides** (Jones and Holl) Silurian  
*Cythere corbuloides* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 211, pl. 15, figs. 4a-4e, 5a, b—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73, 74—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 265.  
*Xestoleberis corbuloides* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 410—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.  
 Shales over Wenlock limestone, Upper Wenlock shale (Tickwood), Middle Wenlock shale (Coalbrook Dale): Malvern, Ironbridge, etc., England.
- Microcheilinella distorta** (Geis) Mississippian  
*Microcheilus distortus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 182, pl. 25, figs. 15a, b.  
 Salem (Spergen) limestone: Spergen Hill etc., Ind.
- Microcheilinella punctulata** (Ulrich) Devonian  
*Bythocypris punctulata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 196, pl. 17, figs. 2a-c.  
 Onondaga limestone: Falls of the Ohio, Louisville, Ky.  
 Holotype.—U.S.N.M. No. 41823.
- Microcheilinella punctulata niagarensis** (Ulrich) Silurian  
*Bythocypris punctulata niagarensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 196—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 150—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 343.  
 Clinton (Rochester): Lockport, etc., N. Y.; Maryland; Pennsylvania.  
 Holotype.—U.S.N.M. No. 41797.
- Microcheilinella spinosa** (Geis) Mississippian  
*Microcheilus spinosus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 182, pl. 25, figs. 17a, b.  
 Salem (Spergen) limestone: Harrodsburg, etc., Ind.
- Microcheilinella subcorbuloides** (Jones and Kirkby) Carboniferous  
*Xestoleberis subcorbuloides* JONES and KIRKBY, Geol. Mag., dec. 3, 2 (1885) p. 540; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 264, pl. 9, fig. 8; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513; British Assoc. Handb. Glasgow (1901) p. 491—ROUNDY, U. S. Geol. Surv., Prof. Pap., 146 (1926) p. 8.  
 Lancashire, England (Carboniferous limestone); Scotland; San Saba County, Texas (Barnett shale).
- MICROCHEILUS** Geis = **MICROCHEILINELLA**
- MONOCERATINA** Roth (Primitiidae)  
 Genotype: *M. ventrale* Roth
- Monoceratina* ROTH, Jour. Pal., 2, no. 1 (1928) p. 15-19—ALEXANDER, Jour. Pal., 7, no. 2 (1933) p. 57.  
*Triceratina* UPSON, Nebr. Geol. Surv., 8 (1933) p. 29.
- Monoceratina ardmorensis** (Harlton) Lower Pennsylvanian  
*Cythereis? ardmorensis* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 211, pl. 33, figs. 14a-c; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 270, pl. 2, figs. 18a, b.  
*Monoceratina ardmorensis* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 21, (21) pl. 7, figs. 14a, b.  
 Lower Glenn, Wapanucka limestone, Johns Valley shale, and Dornick Hills formation: Southern Oklahoma.
- Monoceratina casei** Warthin Devonian  
*Monoceratina casei* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 207, pl. 1, fig. 1.  
 Traverse (Thunder Bay Series): Thunder Bay River, Mich.

**Monoceratina lewisi** Harris and Lalicker Permian

*Monoceratina lewisi* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 398, pl. 36, figs. 6a, b.

*Triceratina wrefjordensis* UPSON, Nebr. Geol. Surv., 8 (1933) p. 29, pl. 3, figs. 1a-c.

Eight miles southeast Towanda, Butler County, Kan. (Fort Riley limestone); near Bennet, Nebr. (Wreford).

**Monoceratina tennesseense** (Ulrich and Bassler) Mississippian

*Bursulella? tennesseensis* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1832) pl. 27, figs. 11, 12.

Kinderhook (Ridgetop shale): Mt. Pleasant, Tenn.  
Cotypes.—U.S.N.M. No. 41716.

**Monoceratina ventrale** Roth Pennsylvanian

*Monoceratina ventrale* ROTH, Jour. Pal., 2, no. 1 (1928) p. 15-19, text figs. 1a-c, p. 17—HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 270—HARLTON, Jour. Pal., 7, no. 1 (1933) p. 21, pl. 7, figs. 13a, b.

Pontotoc County (Wapanucka limestone) and Southern Oklahoma (Johns Valley shale).

**Monoceratina ventrale magnum** Roth Pennsylvanian

*Monoceratina ventrale magnum* ROTH, Jour. Pal., 2, no. 1 (1928) p. 18, 19, text fig. 2a-c, p. 17.

Middle portion of the Drum group: Tulsa County, Okla.  
Holotype.—U.S.N.M. No. 71813.

**MOOREA** Jones and Kirkby (Youngiellidae)

Genotype: *M. obesa* Jones

*Moorea* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 23 (1867) p. 494—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 225—JONES, Monthly Micr. Jour., 4 (1870) p. 193—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 506—JONES and KIRKBY, Geol. Assoc. London, Pr., 9 (1886) p. 508; Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 409—VOGDEN, New York Acad. Sci., Ann., 5 (1889) p. 4—MILLER, North American geol. pal., appendix (1892) p. 709—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 681—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 309—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 155—GRABAU and SHIMER, North American index fossils (1910) p. 350—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 838—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 215, 316—ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 8.

**Moorea angularis** Ulrich Ordovician

*Moorea angularis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 682, pl. 43, fig. 89; pl. 46, figs. 15, 16—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 838.

Black River (Decorah): Minneapolis and near Fountain, Minn.  
Cotypes.—U.S.N.M. Nos. 41685, 41800.

**Moorea bicornuta** Ulrich Devonian

*Moorea bicornuta* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 191, pl. 16, figs. 4a-c—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 310, text fig. 253—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 174 (loc. occ.)—GRABAU and SHIMER, North American index fossils (1910) p. 350, text fig. 1660, l, l', m.

Hamilton (Ludlowville): Eighteen Mile Creek and Canandaigua Lake, N. Y.  
Holotype.—U.S.N.M. No. 41683.

**Moorea elongata** Coryell and Sample Pennsylvanian

*Moorea elongata* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 258, pl. 24, fig. 19.

Mineral Wells (East Mt. shale): Mineral Wells, Texas.

**Moorea granosa** Ulrich

Mississippian

*Moorea granosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 206, pl. 12, figs. 9a, b—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 357.

Chester: Near Grayson Springs, Ky.  
Holotype.—U.S.N.M. No. 41680.

**Moorea kirkbyi** Jones

Devonian

*Moorea kirkbyi* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 542, pl. 20, figs. 9a, b, 10a, b.

Onondaga: Ontario County, N. Y.

**Moorea obesa** Jones and Kirkby

Carboniferous

*Moorea obesa* MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 525, 559—JONES and HOLL, (misprint, *obtusa*) Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 226—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 261, pl. 8, figs. 20a, b; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 315, text fig. 22 (fig. 3).

Limestone: Glamorganshire, England.

**Moorea obtusa** Jones and Holl = **Moorea obesa****Moorea? perplexa** Ulrich

Ordovician

*Moorea? perplexa* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 683, pl. 46, figs. 17, 18—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 838.

Black River (Decorah): Near Fountain, Minn.

**Moorea punctata** Ulrich

Ordovician

*Moorea punctata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 682, pl. 43, figs. 84, 88—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 838.

Black River (Decorah): St. Paul, Minn.  
Cotypes.—U.S.N.M. No. 41684.

**Moorea silurica** Jones and Holl

Silurian

*Moorea silurica* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 226, pl. 15, figs. 8a, 8b—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 16—VOGDEN, New York Acad. Sci., Ann., ser. 5, 5 (1891) pl. 2, figs. 16a, b; San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 16.

Upper Ludlow: Hales End, Malvern, England.

**Moorea? smithii** Jones

Silurian

*Moorea smithii* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 409, pl. 13, fig. 11—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.

Wenlock: Ironbridge, England.

**Moorea tenuis** Jones and Kirkby

Carboniferous

*Moorea tenuis* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 261, pl. 8, figs. 21a, b—MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 559—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 226—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512.

Limestone: Somerset, England.

**MOOREINA** Harlton (Primitiidae)

Genotype: *M. johnsvalleyensis* Harlton

*Mooreina* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 21.

**Mooreina johnsvalleyensis** Harlton

Pennsylvanian

*Mooreina johnsvalleyensis* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 21, pl. 7, figs. 15a-c.

Johns Valley shale: Southern Oklahoma.  
Holotype.—U.S.N.M. No. 85546.



**MOORITES** Coryell and Billings (Youngiellidae)

Genotype: *M. hewetti* Coryell and Billings

*Moorites* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 182—  
KELLETT, Jour. Pal., 7, no. 1 (1933) p. 104.

***Moorites hewetti*** Coryell and Billings = ***M. minutus***

***Moorites minutus*** (Warthin) Pennsylvanian

*Glyptopleurina? minuta* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 67, pl. 5, fig. 6.

*Moorites minutus* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 183, pl. 18, fig. 6—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 256, pl. 24, fig. 18—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 104, pl. 14, figs. 37–39.

*Moorites hewetti* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 182, pl. 18, fig. 5—CORYELL and SAMPLE, *ibid.*, 13, no. 5 (1932) p. 257, pl. 24, fig. 17.

*Moorites truncatus* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 183, pl. 18, fig. 7.

Three miles east of Ada, Okla. (Holdenville-Sasakwa member); northeast of Cisco (Wayland shale) and Mineral Wells Texas (East Mt. shale); Kansas (Stanton limestone, Deer Creek and Howard formations).

Plesiotypes.—U.S.N.M. No. 85447.

***Moorites parallela*** Coryell and Sample Pennsylvanian

*Moorites parallela* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 257, pl. 24, fig. 16.

Mineral Wells (East Mt. shale): Mineral Wells, Texas.

***Moorites truncatus*** Coryell and Billings = ***M. minutus***

**NEHDENTOMIS** Matern (Entomidae)

Genotype: *N. nehdensis* Matern

*Nehdentomis* (subgenus of *Entomis*) MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 54, pl. 4, fig. 43.

***Nehdentomis elliptica*** (Paeckelmann) Upper Devonian

*Richterina elliptica* PAECKELMANN, Preuss. Geol. Landes., Abh., n. s., 70 (1913) p. 194, pl. 3, fig. 3.

*Entomis (Nehdentomis) elliptica* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 54, pl. 4, fig. 43.

Evertsburch, etc., Slate Mts., and various localities in East Thuringia, Germany.

***Nehdentomis nehdensis*** (Matern) Upper Devonian

*Entomis (Nehdentomis) nehdensis* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 56, pl. 4, figs. 46a–c.

Nehden, etc., Slate Mts., Germany.

***Nehdentomis pseudorichterina*** (Matern) Upper Devonian

*Entomis (Nehdentomis) pseudorichterina* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 59, pl. 4, fig. 46a–c.

Oos (Eifel), etc., Slate Mts., Germany.

***Nehdentomis schmidti*** (Matern) Upper Devonian

*Entomis (Nehdentomis) schmidti* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 59, pl. 4, fig. 47a–c.

Östrich, Slate Mts., Germany.

***Nehdentomis tenera*** (Gürich) Upper Devonian

*Entomis tenera* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 374, 375, pl. 10, fig. 15—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 369.

*Richterina tenera* GÜRICH, Leitfossilien, Devonian vol. (1903) p. 169, pl. 47, fig. 10.  
*Entomis (Nehdentomis) tenera* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 58, pl. 4, fig. 48a-b.

Intumescens kalk: Kadzielnia, Poland; Russia; Slate Mts. and Thuringia, Germany; Belgium.

**Nehdentomis tenuistriata** (Matern) Upper Devonian  
*Entomis (Nehdentomis) tenuistriata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 57, pl. 4, figs. 44a-b.

Nehden, etc., Slate Mts., Germany.

**NEOCHILINA** Matern (Primitiidae-Eurychiliniinae)

Genotype: *N. binsenbachensis* Matern

*Neochilina* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 33.

**Neochilina binsenbachensis** Matern Upper Devonian  
*Neochilina binsenbachensis* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 33, pl. 2, fig. 19a-b.

Binsenbach, Slate Mts., Germany.

**Neochilina parvula** (Paeckelmann) Upper Devonian  
*Eurichilina parvula* PAECKELMANN, Preuss. Geol. Landes., Abh., n. s., 70 (1913) p. 188, pl. 3, fig. 4.  
*Neochilina parvula* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 34, pl. 2, fig. 18.

Ullendahl, etc., Slate Mts., Germany.

**OCTONARIA** Jones (Thlipsuridae)

Genotype: *O. octoformis* Jones

*Octonaria* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 404—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 508—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 193—MILLER, North American geol. pal., 1st appendix (1892) p. 709—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158, p. 140—GRABAU and SHIMER, North American index fossils, 2 (1910) p. 350—ULRICH, Zittel Eastman Textb. Pal. (1900) p. 645—BASSLER, *ibid.*, 2nd ed. (1913) p. 739; U. S. Nat. Mus., Bull. 92 (1915) p. 865—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 537; *ibid.*, Silurian vol. (1923) p. 317—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1923) p. 434.

**Octonaria altoonensis** Swartz Devonian  
*Octonaria altoonensis* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 57, pl. 11, figs. 7a, b.

Helderbergian (Keyser): Altoona, Pa.  
 Holotype.—U.S.N.M. No. 86503.

**Octonaria? angulata** Ulrich and Bassler Devonian  
*Octonaria? angulata* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 537, pl. 98, figs. 9-11—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 865.

Helderbergian (Keyser): Cumberland, Md.; Keyser, W. Va.  
 Cotypes.—U.S.N.M. No. 53286.

**Octonaria bicava** Ulrich and Bassler Ordovician  
*Octonaria bicava* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317, fig. 23 (figs. 2, 4).

Cincinnatian (Eden-Southgate): Covington, Ky.  
 Holotype.—U.S.N.M. No. 41699.

- Octonaria bifasciata** Krause Silurian  
*Octonaria bifasciata* KRAUSE, *Deutsch. Geol. Ges., Zeitschr.*, **44** (1892) p. 396, pl. 22, fig. 16.  
 Drift (Encrinurus beds): Mark Brandenburg, Germany.  
 Topotype.—U.S.N.M. No. 83019.
- Octonaria bollii** Steusloff Silurian  
*Octonaria bollii* STEUSLOFF, *Deutsch. Geol. Ges., Zeitschr.*, **46** (1894) p. 787, pl. 58, fig. 30.  
 Drift (Beyrichia limestone): Neue-Brandenburg, Germany.
- Octonaria clavigera** Ulrich Devonian  
*Octonaria clavigera* ULRICH, *Cincinnati Soc. Nat. Hist., Jour.*, **13** (1891) p. 195, pl. 16, figs. 7a-c—GRABAU and SHIMER, *North American index fossils* (1910) p. 351, text fig. 1666 m, m', n.  
 Onondaga: Falls of the Ohio, Louisville, Ky.  
 Holotype.—U.S.N.M. No. 41701.
- Octonaria cranei** Ulrich and Bassler Silurian  
*Octonaria cranei* ULRICH and BASSLER, *Md. Geol. Surv., Silurian vol.* (1923) p. 701, pl. 63, fig. 12.  
 Upper Clinton (*Drepanellina clarki* zone): 7 miles west of Lewiston, Pa.  
 Holotype.—U.S.N.M. No. 83020.
- Octonaria crescentiformis** Van Pelt Devonian  
*Octonaria crescentiformis* VAN PELT, *Jour. Pal.*, **7**, no. 3 (1933) p. 334, pl. 39, figs. 55-60—WARTHIN, *Mus. Pal. Univ. Mich., Contr.*, **4**, no. 12 (1934) p. 218, pl. 1, fig. 18.  
 Traverse (Bell shale and Gravel Point stage): Rogers City and Emmet County, Mich.
- Octonaria curta** Ulrich Silurian  
*Octonaria curta* ULRICH, *Cincinnati Soc. Nat. Hist., Jour.*, **13** (1891) p. 195, pl. 12, figs. 4a, 4b—GRABAU and SHIMER, *North American index fossils* (1910) p. 351, text fig. 1666 1, 1'—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 865.  
 Clinton (Rochester): Lockport, etc., N. Y.  
 Holotype.—U.S.N.M. No. 41674.
- Octonaria deltsulcata** Swartz Devonian  
*Octonaria deltsulcata* SWARTZ, *Jour. Pal.*, **6**, no. 1 (1932) p. 55, pl. 11, figs. 9a-c.  
 Oriskany (Shriver): Hollidaysburg, Pa.  
 Holotype.—U.S.N.M. No. 86497.
- Octonaria dorsosulcata** Swartz Devonian  
*Octonaria dorsosulcata* SWARTZ, *Jour. Pal.*, **6**, no. 1 (1932) p. 56, pl. 11, figs. 8a, b.  
 Oriskany (Shriver): Hollidaysburg, Pa.  
 Cotypes.—U.S.N.M. Nos. 86494, 86498.
- Octonaria elliptica** Krause Silurian  
*Octonaria elliptica* KRAUSE, *Deutsch. Geol. Ges., Zeitschr.*, **43** (1891) p. 508, pl. 32, fig. 14.  
 Drift (Encrinurus limestone): Mark Brandenburg, North Germany.
- Octonaria inaequalis** Ulrich and Bassler Devonian  
*Octonaria inaequalis* ULRICH and BASSLER, *Md. Geol. Surv., Lower Devonian vol.* (1913) p. 538, pl. 98, figs. 12-18—BASSLER, *U. S. Nat. Mus., Bull.* **92** (1915) p. 866—ROTH, *Jour. Pal.*, **3**, no. 3 (1929) p. 352.  
 Helderbergian (Keyser): Cumberland, Md.  
 Cotypes.—U.S.N.M. No. 50284.

- Octonaria linnarssoni** Jones Devonian  
*Octonaria linnarssoni* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 541, pl. 20, figs. 7a, b—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 194.  
 Onondaga: Clarke County, Ind.
- Octonaria muricata** Ulrich and Bassler Silurian  
*Octonaria muricata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 701, pl. 63, figs. 10, 11.  
 Cayuga (Tonoloway): Keyser, W. Va.  
 Cotypes.—U.S.N.M. No. 83022.
- Octonaria nucleolata** Warthin Devonian  
*Octonaria nucleolata* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 219, pl. 1, fig. 19.  
 Traverse (Bell shale): Rockport, Alpena County, Mich.
- Octonaria octoformis** Jones Silurian  
*Octonaria octoformis* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 404, pl. 12, fig. 2—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317, text fig. 23.  
 Upper Wenlock shale (Tickwood beds): Shropshire, England.
- Octonaria octoformis bipartita** Jones Silurian  
*Octonaria octoformis bipartita* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 405, pl. 12, fig. 6—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.  
 Shale over Wenlock limestone: Shropshire, England.  
 Topotype.—U.S.N.M. No. 83021.
- Octonaria octoformis informis** Jones Silurian  
*Octonaria octoformis informis* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 405, pl. 12, fig. 5—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.  
 Upper Wenlock shales (Tickwood beds): Shropshire, England.
- Octonaria octoformis intorta** Jones Silurian  
*Octonaria octoformis intorta* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 404, pl. 12, fig. 3—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.  
 Woolhope: Shropshire, England.
- Octonaria octoformis monticulata** Jones Silurian  
*Octonaria octoformis monticulata* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 406, pl. 12, fig. 8—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.  
 Shales over Wenlock limestone: Shropshire, England.
- Octonaria octoformis persona** Jones Silurian  
*Octonaria octoformis persona* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 405, pl. 12, fig. 7—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.  
 Shales over Wenlock limestone: Shropshire, England.
- Octonaria octoformis simplex** Jones Silurian  
*Octonaria octoformis simplex* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 405, pl. 12, fig. 4—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.  
 Upper Wenlock shale (Tickwood beds): Shropshire, England.
- Octonaria ovata** Ulrich Devonian  
*Octonaria ovata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 194, pl. 16, figs. 6a, 6b—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317, fig. 23 (fig. 2).  
 Onondaga: Falls of the Ohio, Louisville, Ky.  
 Cotypes.—U.S.N.M. No. 41707.

- Octonaria? paradoxa** Jones Silurian  
*Octonaria? paradoxa* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 406, pl. 13, fig. 12—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.  
 Lower Wenlock shale (Buildwas beds): Shropshire, England.
- Octonaria percarinata** Van Pelt = **Euglyphella sigmoidalis**
- Octonaria perplexa** Kummerow Silurian  
*Octonaria perplexa* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 434, 442, pl. 21, fig. 14.  
 Drift (Beyrichia limestone): Gräningen near Rathenow, Northern Germany.  
 Topotype.—U.S.N.M. No. 82361.
- Octonaria punctata** Roth Devonian  
*Octonaria punctata* ROTH, Jour. Pal., 3, no. 4 (1929) p. 351, pl. 36, figs. 12a-f.  
 Helderbergian (Haragan): Pontotoc County, Okla.  
 Holotype.—U.S.N.M. No. 80653.
- Octonaria quadricostata** Van Pelt Devonian  
*Octonaria quadricostata* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 336, pl. 39, figs. 41-51—WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 217, pt. 1, figs. 16, 17.  
 Traverse (Bell shale and Gravel Point stage): Rogers City and Emmet County, Mich.
- Octonaria simplex** (Krause) Silurian, Devonian  
*Thlipsura simplex* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 508, pl. 32, fig. 16.  
*Octonaria simplex* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 538, pl. 98, fig. 19—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 866.  
 Drift (Beyrichia and Encrinurus limestones): Mark Brandenburg, North Germany. Helderbergian (Keyser): Cumberland, Md.  
 Plesiotype.—U.S.N.M. No. 53285.
- Octonaria singularis** Van Pelt Devonian  
*Octonaria singularis* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 338, pl. 39, fig. 16.  
 Bell shale: Rogers City, Mich.
- Octonaria stigmata** Ulrich Devonian  
*Octonaria stigmata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 193, pl. 16, figs. 8a, b—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 174 (loc. occ.)—GRABAU and SHIMER, North American index fossils (1910) p. 351, text fig. 1666, o, o'—KINDLE, U. S. Geol. Surv., Bull. 505 (1912) p. 115, pl. 9, fig. 11.  
 Falls of the Ohio, Louisville, Ky., and New Bloomfield, Pa. (Onondaga); Canandaigua Lake, N. Y. (Hamilton).  
 Holotype and plesiotype.—U.S.N.M. Nos. 41705, 62128.
- Octonaria stigmata loculosa** Ulrich Devonian  
*Octonaria stigmata loculosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 3 (1890) p. 194, pl. 16, fig. 10.  
 Onondaga: Falls of the Ohio, Louisville, Ky.  
 Holotype.—U.S.N.M. No. 41704.
- Octonaria stigmata oblonga** Ulrich Devonian  
*Octonaria stigmata oblonga* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 194, pl. 16, figs. 9a-c.  
 Onondaga: Falls of the Ohio, Louisville, Ky.  
 Holotype.—U.S.N.M. No. 41706.

**Otonaria undosa** Jones

Silurian

*Otonaria undosa* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 406, pl. 12, fig. 1—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.

Wenlock: Lincoln Hill, Ironbridge, England.

**OFFA** Jones, Kirkby, and Brady (Entomoconchidae)

Genotype: *O. barrandiana* Jones, Kirkby, and Brady

*Offa*, JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 409—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 53—ZITTEL, Handb. Pal., 2 (1885) p. 555—JONES, KIRKBY, and BRADY, Geol. Assoc. London, Pr., 9 (1886) p. 501—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

**Offa barrandiana** Jones, Kirkby, and Brady

Carboniferous

*Offa barrandiana* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 53, pl. 2, figs. 6a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509.

Gray limestone: Middleton County, Cork, Ireland.

**OLIGANISUS** Geis (Kloedenellidae)

Genotype: *O. sulcatus* Geis

*Oliganisus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 158.

**Oliganisus punctatus** Geis

Mississippian

*Oliganisus punctatus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 159, pl. 23, figs. 4a-b.

Salem (Spergen) limestone: Spergen Hill, Ind.

**Oliganisus sulcatus** Geis

Mississippian

*Oliganisus sulcatus* GEIS, Jour. Pal., 6, no. 2 (1932) p. 159, pl. 23, figs. 5a-b.

Salem (Spergen) limestone: Harrodsburg, Ind.

**PACHYDOMELLA** Ulrich (Cytherellidae)

Genotype: *P. tumida* Ulrich

*Pachydomella* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 197, 198—MILLER, North American geol. pal., 1st appendix (1892) p. 710—GRABAU and SHIMER, North American index fossils (1910) p. 362—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 931.

**Pachydomella longula** Ulrich and Bassler

Devonian

*Pachydomella longula* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 542, pl. 98, figs. 29-31—BASSLER, U. S. Nat. Mus., Bull. 93 (1915) p. 931.

Helderbergian (Keyser): Cumberland, Md.

Holotype.—U.S.N.M. No. 53289.

**Pachydomella tumida** Ulrich

Devonian

*Pachydomella tumida* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 198, pl. 13, figs. 5a-c—GRABAU and SHIMER, North American index fossils (1910) p. 362, text fig. 1665, y, z.

Onondaga: Falls of the Ohio, Louisville, Ky.

Holotype.—U.S.N.M. No. 41824.

**Pachydomella wrightii** (Jones)

Ordovician

*Xestoleberis wrightii* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 28, pl. 4, figs. 14, 15.

Chair of Kildare, Leinster, Ireland.

**Pachydomella wrightii oblonga** (Chapman) Silurian  
*Xestoleberis wrightii oblonga* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904)  
 p. 303, pl. 15, figs. 1a, b.

Yeringian: Cave Hill, Lilydale, Victoria, Australia.

**PALAEOCYPRIS** Brongniart (Cypridae)

Genotype: *P. edwardsi* Brongniart

*Palaeocypris* BRONGNIART, Sci. Geol., Ann., 7 (1876) p. 49-56—NICHOLSON and  
 LYDEKKER, Man. Pal., I (1879) p. 508.

**Palaeocypris edwardsii** Brongniart Carboniferous

*Palaeocypris edwardsii* BRONGNIART, Sci. Geol., Ann., 7 (1876) p. 49-56, pl. 7—  
 WOODWARD, Geol. Soc. London, Quart. Jour., 35 (1879) p. 345—ULRICH and BASSLER  
 Md. Geol. Surv., Silurian vol. (1923) p. 273, fig. 11 (fig. 3).

St. Etienne, France.

**PALEOCY THERE** Tolmachoff (Barychilinidae)

Genotype: *P. typa* Tolmachoff

*Palaeocythere* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898-1902, no. 38 (1926) p. 36.

**Palaeocythere typa** Tolmachoff Devonian (Db)

*Palaeocythere typa* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898-1902, no. 38 (1926)  
 p. 37, pl. 2, figs. 14-17.

Ostre Borgen, Ellesmereland, Arctic America.

**PARACY THERE** Ulrich and Bassler (Kirkbyidae)

Genotype: *P. granopunctata* Ulrich and Bassler

*Paracythere* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) p. 236.

**Paracythere cornuta** Ulrich and Bassler Mississippian

*Paracythere cornuta* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38  
 (1932) pl. 27, fig. 13.

Kinderhook (Ridgetop shale): Mt. Pleasant, Tenn.

Holotype.—U.S.N.M. No. 80506.

**Paracythere granopunctata** Ulrich and Bassler Mississippian

*Paracythere granopunctata* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38  
 (1932) pl. 27, fig. 4.

Kinderhook (Ridgetop shale): Mt. Pleasant, Tenn.

Holotype.—U.S.N.M. No. 80500.

**PARAECHMINA** Ulrich and Bassler (Primitiidae)

Genotype: *Aechmina spinosa* Hall

*Paraechmina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299.

*Aechmina* (part) of many authors.

**Paraechmina abnormis** (Ulrich) Silurian

*Aechmina abnormis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 183,  
 pl. 12, figs. 7a, 7b—GRABAU and SHIMER, North American index fossils (1910)  
 p. 346, text fig. 1660, h-j—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 13—BOTKE,  
 Verh. Geol. Mijjn. Gen. Nederland, geol ser., 3 (1916) p. 22, 28—ULRICH and BASSLER,  
 Md. Geol. Surv., Silurian vol. (1923) p. 507, pl. 38, fig. 11.

Clinton: Lockport, etc., N. Y. (Rochester); Maryland and Pennsylvania (*Drepanellina clarki* zone).

Holotype.—U.S.N.M. No. 41372.

- Paraechmina altimuralis** Ulrich and Bassler Silurian  
*Paraechmina altimuralis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 509, pl. 38, figs. 23-26.  
 Clinton (*Drepanellina clarki* zone): 7 miles west of Lewiston, Pa.  
 Cotypes.—U.S.N.M. No. 63598.
- Paraechmina ambigua** Roth Devonian  
*Paraechmina ambigua* ROTH, Jour. Pal., 3, no. 4 (1929) p. 339, pl. 35, figs. 5a, b.  
 Helderbergian (Haragan): White Mound, Murray County, Okla.  
 Holotype.—U.S.N.M. No. 80649.
- Paraechmina bimuralis** Ulrich and Bassler Silurian  
*Paraechmina bimuralis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 510, pl. 38, fig. 15.  
 Cayugan (McKenzie): 1½ miles east of Great Cacapon, W. Va.  
 Holotype.—U.S.N.M. No. 63600.
- Paraechmina crassa** Ulrich and Bassler Silurian  
*Paraechmina crassa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 506, pl. 38, fig. 14.  
 Clinton (*Mastigobolbina typus* zone): Hollidaysburg, Pa.  
 Holotype.—U.S.N.M. No. 63601.
- Paraechmina cumberlandia** Ulrich and Bassler Silurian  
*Paraechmina cumberlandia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 511, pl. 38, fig. 4.  
 Clinton (*Drepanellina clarki* zone): Cumberland, Md.  
 Holotype.—U.S.N.M. No. 63591.
- Paraechmina depressa** Ulrich and Bassler Silurian  
*Paraechmina depressa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 509, pl. 38, fig. 22.  
 Cayugan (McKenzie): Cumberland, Md.  
 Holotype.—U.S.N.M. No. 63586.
- Paraechmina? dubia** Ulrich and Bassler Silurian  
*Paraechmina? dubia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 512, pl. 38, fig. 5.  
 Cayugan (Tonoloway): Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 63589.
- Paraechmina inaequalis** Ulrich and Bassler Silurian  
*Paraechmina inaequalis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 510, pl. 38, figs. 16-18.  
 Cayugan (McKenzie): Flintstone, Md.  
 Cotypes.—U.S.N.M. No. 63602.
- Paraechmina intermedia** Ulrich and Bassler Silurian  
*Paraechmina intermedia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 508, pl. 38, figs. 12, 13.  
 Clinton (*Drepanellina clarki* zone): 7 miles west of Lewiston, Pa.  
 Cotypes.—U.S.N.M. No. 63595.
- Paraechmina postica** Ulrich and Bassler Silurian  
*Paraechmina postica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 507, pl. 38, figs. 6-10.  
 Clinton (*Drepanellina clarki* zone): Cumberland, Md.; Lakemont, Hollidaysburg, etc., Pa.  
 Cotypes.—U.S.N.M. No. 63587, 63588.



**Paraechmina postmuralis** Ulrich and Bassler Silurian  
*Paraechmina postmuralis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 509, pl. 38, fig. 19.

Clinton (*Zygobolina emaciata* zone):  $4\frac{1}{2}$  miles northwest of Mercersburg, Pa.  
 Holotype.—U.S.N.M. No. 63593.

**Paraechmina punctata** Ulrich and Bassler Silurian  
*Paraechmina punctata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 511, pl. 38, fig. 21.

Clinton (*Mastigobolina typus* zone): 2 miles west of Hollidaysburg, Pa.  
 Holotype.—U.S.N.M. No. 63596.

**Paraechmina spinosa** (Hall) Silurian  
*Cytherina spinosa* HALL (not Reuss, 1844), Nat. Hist. New York, Pal., 2 (1852) p. 317, pl. 67, figs. 17-21.  
*Beyrichia spinosa* HALL, N. Y. State Cab. Nat. Hist., 12th Rept. (1859) p. 80 (gen. ref.).

*Aechmina spinosa* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 218—JONES, Am. Geol., 4 (1889) p. 339; Geol. Soc. London, Quart. Jour., 46 (1890) p. 11, pl. 3, figs. 4-8—GRABAU, Buffalo Soc. Nat. Sci., Bull., 7 (1901) p. 220, text fig. 152; N. Y. State Mus., Bull. 45, 9 (1901) p. 220, text fig. 152—GRABAU and SHIMER, North American index fossils (1910) p. 345, text fig. 1659—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 18—BOTKE, Verh. Geol. Mijn. Gen. Nederland, geol. ser., 3 (1916) p. 27, 28—WILLIAMS, Canada Dept. Mines, Mem. 111, no. 91, geol. ser. (1919) p. 56.

*Paraechmina spinosa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 506, pl. 38, figs. 1-3.

Clinton, Lockport, etc., N. Y., and Ontario (Rochester); Cumberland, etc., Md., and Hollidaysburg, etc., Pa. (*Drepanellina clarki* zone).  
 Plesiotypes.—U.S.N.M. No. 63599.

**Paraechmina waldronensis** W. Berry Silurian  
*Paraechmina waldronensis* W. BERRY, Ind. Acad. Sci., Pr., 40 (1932) p. 208, fig. 1.  
 Waldron shale: Clifty Creek, Ind.

**PARAPARCHITES** Ulrich and Bassler (Leperditellidae)

Genotype: *P. humerosus* Ulrich and Bassler

*Paraparchites* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 149—GRABAU and SHIMER, North American index fossils (1910) p. 343—HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 254—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 63—LATHAM, Roy. Soc. Edinburgh, Pr., 57, pt. 2 (1932) p. 353—URSON, Neb. Geol. Surv., Bull. 8 (1933) p. 11.

Very probably some of the European species here listed are synonyms, but with present knowledge it is impossible to give their relationship with certainty.

**Paraparchites acutus** (Jones and Kirkby) Carboniferous  
*Leperditia okeni acuta* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 406, pl. 20, fig. 4; Geol. Mag., dec. 3, 1 (1884) p. 357, pl. 12, figs. 4a, b; *ibid.*, 2 (1885) p. 536-541; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 256, pl. 7, fig. 9; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 319.

*Leperditia acuta* JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 184; Roy. Dublin Soc., Sc. Tr., ser. 2, 6 (1896-1898) p. 184; British Assoc. Handb. Glasgow (1901) p. 498.

Bavaria; Northumberland and Somerset, England; Scotland; Carland; Ireland; Nova Scotia.

- Paraparchites amygdalina** (McCoy) Carboniferous  
*Cythere amygdalina* MCCOY, Syn. Char. Carb. Fossils, Ireland (1844) p. 165, pl. 23, fig. 8.  
*Leperditia amygdalina* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 46 (gen. ref.); Geol. Assoc., Pr., 1885-1886, 9 (1887) p. 504; Roy. Dublin Soc., Tr., 6 (1896) p. 186.  
 Ireland.
- Paraparchites arcuatus** (McCoy) Carboniferous  
*Cythere arcuata* MCCOY, Syn. Char. Carb. Fossils, Ireland (1844) p. 165, pl. 25, fig. 9—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1867) p. 406; *ibid.*, ser. 3, 18 (1866) p. 92, 4 pls.  
 Ireland.
- Paraparchites armstrongianus** (Jones and Kirkby) Carboniferous  
*Leperditia armstrongiana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 219—CRAIG, *ibid.*, 2 (1867) p. 219; *ibid.*, 8 (1871) p. 291—ARMSTRONG, *ibid.*, 8, suppl. (1871) p. 29—JONES and KIRKBY, Geol. Mag., n. s., dec. 8, 2 (1885) p. 536-541; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 253, pl. 7, fig. 1; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—JONES, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 454; British Assoc. Handb. Glasgow (1901) p. 489.  
*Paraparchites armstrongianus* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1933) p. 356, text fig. 4.  
 Calciferous sandstone—Lower and Upper limestone: Ayrshire, etc., East and West Scotland.
- Paraparchites bimammatus** Delo Pennsylvanian  
*Paraparchites bimammatus* DELO, Jour. Pal., 4 (1930) p. 154, pl. 12, fig. 2.  
 Deep well, Pecos County, Texas.  
 Holotype.—U.S.N.M. No. 81798.
- Paraparchites bosquetianus** (Jones and Kirkby) Carboniferous  
*Leperditia bosquetiana* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 254, pl. 7, fig. 2; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.  
 Lower limestone: Argyleshire, West Scotland; northwest England.
- Paraparchites brazoensis** Coryell and Sample Pennsylvanian  
*Paraparchites brazoensis* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 249, pl. 24, fig. 5.  
 Mineral Wells (East Mt. shale): Mineral Wells, Texas.
- Paraparchites carbonarius** (Hall) Mississippian  
*Cythere carbonaria* HALL, Albany Inst., Tr., 4 (1858) p. 33.  
*Leperditia carbonaria* WHITFIELD, Am. Mus. Nat. Hist., Bull. 1 (1882) p. 94, pl. 9, figs. 24-27—HALL, Ind. Dept. Geol. Nat. Hist., 12th Ann. Rept. (1883) p. 375, pl. 32, figs. 24-27—LESLEY, Geol. Surv. Pa., Rept. P 4 (1889) p. 309, 3 text figs.—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 319—CUMINGS, Dept. Geol. Nat. Res. Ind., 30th Ann. Rept. (1906) pl. 26, figs. 24-27.  
*Paraparchites carbonaria* Girty, U. S. Geol. Surv., Bull. 539 (1915) p. 134, 135—GEIS, Jour. Pal., 6, no. 2 (1932) p. 156, pl. 23, figs. 2a, b.  
 Spergen limestone: Spergen Hill, Bloomington, etc., Ind.  
 Topotypes.—U.S.N.M. Nos. 17607, etc.
- Paraparchites claytonensis** Knight Pennsylvanian  
*Paraparchites claytonensis* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 231, 232, pl. 31, figs. 8a-d.  
 Henrietta (Pawnee limestone): Clayton, St. Louis County, Mo.  
 Metatypes.—U.S.N.M. No. 83980.

**Paraparchites compressus** (Jones and Kirkby) Carboniferous

*Leperditia compressa* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 219—ARMSTRONG, *ibid.*, 8, suppl. (1871) p. 29—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 256, pl. 7, fig. 7—JONES, Ann. Mag. Nat. Hist., ser. 6, 8 (1889) p. 383—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 185; British Assoc. Handb. Glasgow (1901) p. 489.

*Paraparchites compressus* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 151.

Lower limestone: Stirlingshire, Scotland; County Donegal, Ireland; Durham, England (Yoredale).

**Paraparchites cuneatus** Warthin Pennsylvanian

*Paraparchites cuneatus* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 56, pl. 4, fig. 2.

Marmaton (Wewoka to Holdenville): 3 miles east of Ada, Okla.

**Paraparchites? dewalquei** (Jones and Kirkby) Carboniferous

*Leperditia dewalquei* JONES and KIRKBY, Soc. Geol. Belg., Ann., 20 (1893) p. lxxviii, pl. 3, figs. 1-4.

*Primitia dewalquei* JONES, Soc. Geol. Belg., Ann., 23 (1896) p. 149, pl. 1, figs. 7a, b, 10.

Viséen: Paire (Clavier), Belgium.

**Paraparchites gibbosus** Upson Permian

*Paraparchites gibbosus* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 11, pl. 1, figs. 1a, b.

Garrison (Funston limestone): 4 miles east of Home City, Kan.

**Paraparchites hibbertii** (McCoy) Carboniferous

*Cythere hibbertii* MCCOY, Syn. Char. Carb. Fossils, Ireland (1844) p. 166, pl. 23, fig. 15—BOSQUET, Soc. Roy. Sci. Liège, Mém., 4 (1848-1849) p. 354—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 43, 46.

Ireland.

**Paraparchites humerosus** Ulrich and Bassler Pennsylvanian, Permian

*Paraparchites humerosus* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 151, pl. 11, figs. 1-4—GRABAU and SHIMER, North American index fossils (1910) p. 344, text fig. 1657, g-i—DELO, Wash. Univ. Studies, n. s., Sci. and Techn., no. 5 (1931) p. 42, pl. 4, fig. 1—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 64, pl. 13, figs. 1-12.

*Paraparchites humerosus kansasensis* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 396, pl. 36, figs. 1a, 1b.

*Paraparchites humerosus spinosus* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 13, pl. 1, figs. 2a, b.

*Paraparchites oviformis* UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 13, pl. 1, figs. 3a, b.

Manhattan (Elmdale), 6 miles west of Reece (Wrexford), Hamilton County (well at depth of 4100 feet), Gage and Cowley counties, Kan.; Mustang Creek, east of Ballinger, Texas. Range in Kansas—Elmdale to Ft. Riley.

Cotypes.—U.S.N.M. No. 35627.

**Paraparchites humerosus kansasensis** Harris and Lalicker = **P. humerosus**

**Paraparchites humerosus spinosus** Upson = **P. humerosus**

**Paraparchites humerosus texanus** Delo Pennsylvanian

*Paraparchites humerosus texanus* DELO, Jour. Pal., 4 (1930) p. 153, pl. 12, fig. 1.

Deep well, Menard County, Texas.

Holotype.—U.S.N.M. No. 81799.

**Paraparchites inflatus** (McCoy)

Carboniferous

*Cythere inflata* MCCOY, Syn. Char. Carb. Fossils, Ireland (1844) p. 167, pl. 23, fig. 18—BOSQUET, Soc. Roy. Sci. Liège, Mém., 4 (1848-1849) p. 354—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 68, 100—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 44, 46.

Ireland.

**Paraparchites inflatus** (Münster)

Carboniferous

*Cythere inflata* MÜNSTER, Jahrb. Min., no. 17 (1830) p. 65.

*Cytherella inflata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 408, pl. 20, fig. 8—MÜNSTER, Geol. Soc. Glasgow, Tr., 2 (1867) p. 218; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496—YOUNG, Geol. Soc. Glasgow, Tr., 9 (1893) p. 310—LEE, Roy. Soc. Edinburgh, Tr., 47, 1908-1911, pt. 1 (1909) p. 179—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 74, pl. 7, fig. 2—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 383.

Hof, Bavaria (Mountain limestone); West Scotland; England; Nova Zembla; Visé, Belgium.

**Paraparchites inflatus** (Murchison)

Carboniferous

*Cypris inflata* MURCHISON, Silurian Syst. (1839) p. 84, woodcut, figs. A 1-3—QUENSTEDT, Handb. Petrefakt. (1852) p. 301, Atlas, pl. 23, fig. 34—JONES, Neues Jahrb. Min., Geol., Pal. (1864) p. 54—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 406; *ibid.*, ser. 3, 18 (1866) p. 36, 37.

*Leperditia inflata* JONES and KIRKBY, British Assoc., Rept., 1863 (1864) p. 80; Canadian Nat. Geol., n. s., 6 (1864) p. 236; Geol. Assoc., Pr., 1885-1886, 9 (1887) p. 504; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510.

England.

**Paraparchites inornatus** (McCoy)

Carboniferous, Permian

*Cythere inornata* MCCOY, Syn. Char. Carb. Fossils, Ireland (1844) p. 167, pl. 23, fig. 18—BOSQUET, Soc. Roy. Sci. Liège, Mém., 4 (1848-1849) p. 354—JONES, Tyne-side Nat. Field Club, Tr., 4 (1860) p. 160, pl. 1, fig. 6—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 10 (1862) p. 205—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100—JONES, Neues Jahrb. Min., Geol., Pal. (1864) p. 54—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 44, 46.

*Cythere (Cytherella?) inornata* JONES, King's Mon. Perm. Fossils (1850) p. 63, pl. 18, fig. 9—SCHMIDT, Neues Jahrb. Min., Geol., Pal. (1867) p. 581, pl. 6, fig. 30.

*Cytherella inornata* RICHTER, Deutsch. Geol. Ges., Zeitschr., 7 (1855) p. 529, pl. 26, figs. 6, 7—KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 2 (1858) p. 438.

*Leperditia inornata* JONES and KIRKBY, Canadian Nat. Geol., n. s., 1 (1864) p. 236; British Assoc., Rept. (1864) p. 80; Roy. Dublin Soc., Tr., 6 (1896) p. 183, pl. 11, figs. 15, 16, pl. 12, figs. 1-3; Roy. Dublin Soc., Sci. Tr., ser. 2, 6 (1896-1898) p. 183, pl. 11, figs. 15, 16, pl. 12, figs. 1-3.

*Leperditia okevi inornata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 54, pl. 6, fig. 2; *ibid.*, ser. 6, 9 (1892) p. 303, pl. 6, fig. 2.

*Paraparchites inornata* HARLTON, Jour. Pal., 1, no. 3 (1927) p. 203, pl. 32, figs. 1a, b—DELO, Wash. Univ. Studies, n. s., Sci. and Techn., no. 5 (1931) p. 42, pl. 4, fig. 1—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 355, text fig. 3.

Cultra, Bundoran, etc., Ireland; North England; Scotland (Calceiferous sandstone and limestone); Russia; Mongolia; near Coleman, Texas (Cisco); Eagle County, Colo. (McCoy); Hamilton County, Kan. (deep well).  
Plesiotype.—U.S.N.M. No. 82397.

**Paraparchites? laevigatus** (Eichwald)

Carboniferous

*Cypridina laevigata* EICHWALD, Soc. Imp. Nat. Moscou, Bull. 30 (1857) p. 310.  
*Bairdia laevigata* EICHWALD, Leth. Ross., 1 (1860) p. 1342, pl. 52, figs. 5a-d—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 53, 54.

Sloboda, Toula, Russia.

**Paraparchites laevigatus nigrescens** (Jones and Kirkby) Carboniferous  
*Bairdia laevigata nigrescens* EICHWALD, Leth. Ross. (1860) p. 1342, pl. 52, fig. 5—  
 JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 406; *ibid.*, ser. 4, 15  
 (1875) p. 53, 54.

Filimonoff, Russia.

**Paraparchites latidorsatus** Warthin Pennsylvanian, Permian  
*Paraparchites latidorsatus* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 55,  
 pl. 4, fig. 1—CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 249, pl. 24,  
 fig. 2.

Seven miles southeast Ada, Okla. (Wetumka to Francis formation); 3 miles west of Mineral Wells,  
 Texas (Mineral Wells-East Mt. shale).

**Paraparchites laudensis** Knight Pennsylvanian  
*Paraparchites laudensis* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 234, pl. 31, fig. 7.

Henrietta (Upper Fort Scott): St. Louis County, Mo.

**Paraparchites lovicensis** (Jones and Kirkby) Carboniferous  
*Lepralia lovicensis* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886)  
 p. 256, pl. 7, fig. 8a, 8b; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511.

Limestone (Yoredale): Lowick, Northumberland, England; West Scotland.

**Paraparchites magnus** Kellett Pennsylvanian  
*Paraparchites magnus* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 65, pl. 13, figs.  
 13, 23, 38, 39.

Shawnee (Deer Creek): Shawnee County, Kan.  
 Holotype.—U.S.N.M. No. 85425.

**Paraparchites microphthalma** (Eichwald) Carboniferous  
*Cypridina microphthalma* EICHWALD, Soc. Imp. Nat. Moscou, Bull. 30 (1857)  
 p. 310.

*Leperditia microphthalma* EICHWALD, Leth. Ross., 1 (1860) p. 1336, pl. 52, fig. 7—  
 JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1875) p. 53.

Sloboda, Toula, etc., Russia.

**Paraparchites nicklesi** (Ulrich) Mississippian  
*Leperditia nicklesi* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 200,  
 pl. 18, figs. 1a—e—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 319.

*Paraparchites nicklesi* GRABAU and SHIMER, North American index fossils (1910)  
 p. 343, text fig. 1657c—f—GIRTY, U. S. Geol. Surv., Bull. 439 (1911) p. 105, pl. 9,  
 figs. 2—5; *ibid.*, Bull. 639 (1915) p. 134—135, pl. 11, fig. 2—ROTH, Okla. Geol. Surv.,  
 Circ. 18 (1929)—HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 255, pl. 1,  
 fig. 1—CRONEIS, Ark. Geol. Surv., Bull. 3 (1930) p. 63, pl. 15, fig. 11.

Grayson Springs, Ky. (Chester); Columbia, Monroe County, Ill. (Warsaw); northern Arkansas  
 (Batesville, Moorefield, and Fayetteville).

Cotypes and plesiotypes.—U.S.N.M. Nos. 41844, 79357.

**Paraparchites nicklesi cyclopea** Girty Mississippian  
*Paraparchites nicklesi cyclopea* GIRTY, New York Acad. Sci., Ann., 20 (1910)  
 p. 232.

Fayetteville shale: Arkansas

**Paraparchites obesus** (Jones and Kirkby) Carboniferous  
*Leperditia obesa* JONES and KIRKBY, Geol. Mag., dec. 3, 2 (1885) p. 540; Ann. Mag.  
 Nat. Hist., ser. 5, 18 (1886) p. 256, pl. 7, fig. 6; Geol. Soc. London, Quart. Jour.,  
 42 (1886) p. 496, 511—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 383.

Limestone: Arnside, Westmoreland, England.

**Paraparchites oblongus** (Jones and Kirkby)

Carboniferous

*Leperditia oblonga* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 407, pl. 20, fig. 5; Geol. Soc. Glasgow, Tr., 2 (1865) p. 219—ARMSTRONG, Geol. Soc. Glasgow, Tr., 8, suppl. (1871) p. 29—JONES and KIRKBY, Geol. Mag., n. s., dec. 8, 2 (1885) p. 536–541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Limestone: Near Hof, Bavaria; West Scotland; North England.

**Paraparchites oblongus** Coryell and Sample

Pennsylvanian

*Paraparchites oblongus* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 250, pl. 24, fig. 3.

Mineral Wells (East Mountain shale): Mineral Wells, Texas. See *P. brazoensis*, *P. palopintoensis* and *P. thomasi* Coryell and Sample for closely related if not identical species.

**Paraparchites obtusa** (Jones and Kirkby)

Carboniferous

*Cythere obtusa* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 222—ARMSTRONG, *ibid.*, 8, suppl. (1871) p. 27—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 75—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 266, pl. 9, fig. 12; Geol. Soc. London, Quart. Jour., 42 (1886) p. 507—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 192.

*Leperditia okeni obtusa* KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 588.

Limestone: Northumberland, England; West Scotland.

**Paraparchites okeni** (Münster)

Carboniferous

*Cythere okeni* MÜNSTER, Jahrb. Min. (1830) p. 65.

*Leperditia okeni* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 406, pl. 20, figs. 1–3; Geol. Soc. Glasgow, Tr., 2 (1867) p. 218; Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 34, 35—DAWSON, Acadian Geol. (1868) p. 256, fig. 78b—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 29—CRAIG, *ibid.*, 3 (1871) p. 291—MC PHAIL, *ibid.*, 3 (1871) p. 268—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 53, 54, pl. 6, fig. 1—DAWSON, Acadian Geol., 2nd ed. (1868); 3rd ed. (1878) p. 256, fig. 78b—KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 574, 582, table p. 588—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 1 (1884) p. 357, pl. 12, fig. 3—JONES, Berwickshire Field Club, Pr., 10 (1884) p. 322—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 8 (1884) p. 235, 239, pl. 12, figs. 10, 10a—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536–541—VINE, Naturalist, 10 (1885) p. 100—JONES, Geol. Mag., n. s., dec. 3, 3 (1886) p. 435, 533—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 255; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—VENUKOFF, Soc. Belge. Geol. Pal. Hydrol., Pr.-Verb., Bull. 2 (1888) p. 301—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 383; *ibid.*, 9 (1892) p. 303, pl. 16, fig. 1—ULRICH, Am. Geol., 10, no. 5 (1892) p. 264—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 303, pl. 16, fig. 1—YOUNG, Geol. Soc. Glasgow, Tr., 1888–1892, 9 (1893) p. 311—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 458, 459; Roy. Dublin Soc., Tr., 6 (1896) p. 172, pl. 11, figs. 8a, b, 9, 10—JONES, Soc. Geol. Belg., Ann., 23 (1895–1896) p. 144, pl. 2 (fig. 1), figs. 1, 3, 9—DAWSON, Canadian Rec. Sci., 7 (1896–1897) p. 318, text fig. 1, 1a—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 319—JONES and KIRKBY, Roy. Dublin Soc., Sci. Tr., ser. 2, 6 (1896–1898) p. 178, 180, pl. 11, figs. 8–10—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 7, 1898 (1899) p. 420–442—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—KIRKBY, Edinburgh Geol. Soc., Tr., 8 (1898–1905) p. 15, 16, 63, 64, 73, 75—LEE, Roy. Soc. Edinburgh, Tr., 47, 1908–1911, pt. 1 (1909) p. 179.

*Paraparchites okeni* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 232—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 354, text fig. 1.

Near Hof, Bavaria (Mountain limestone); North and South England (Carboniferous limestone and Yoredale); East and West Scotland (Carboniferous limestone and Calciferous sandstone); Ireland; Russia; Nova Scotia; Belgium; Mongolia.

- Paraparchites okeni gracilis** (Jones) Devonian  
*Leperditia okeni gracilis* JONES, Soc. Geol. Belgique, Ann., 23 (1896) p. 144, pl. 1, figs. 2a, b.  
 Givetien: Givet, Belgium.
- Paraparchites okeni obliquus** (Jones and Kirkby) Carboniferous  
*Leperditia okeni obliqua* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 55, pl. 6, fig. 3; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510.  
 Phillineonowa, Russia; North England (Yoredale).
- Paraparchites ornatus** Delo Pennsylvanian  
*Paraparchites ornatus* DELO, Jour. Pal., 4 (1930) p. 155, pl. 12, fig. 3.  
 Deep well, Iron County, Texas.  
 Holotype.—U.S.N.M. No. 81800.
- Paraparchites oviformis** Coryell and Rogatz Permian  
*Paraparchites oviformis* CORYELL and ROGATZ, Am. Midl. Nat., 13, no. 6 (1932) p. 387, pl. 35, figs. 1, 2.  
 Permian (Clear Fork-Arroyo): Tom Green County, Texas.
- Paraparchites oviformis** Upson = **P. humerosus**
- Paraparchites palopintoensis** Coryell and Sample Pennsylvanian  
*Paraparchites palopintoensis* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 248, pl. 24, fig. 4.  
 Mineral Wells (East Mountain shale): Mineral Wells, Texas.
- Paraparchites parallelus** (Jones and Kirkby) Carboniferous  
*Leperditia parallela* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 407, pl. 20, figs. 6a, 6b; *ibid.*, 18 (1866) p. 50; *ibid.*, ser. 5, 18 (1886) p. 255, pl. 7, fig. 5; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 510—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 383—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490.  
 Near Hof, Bavaria; Fifeshire, Scotland; North and South England (Yoredale and Carboniferous limestone).
- Paraparchites(?) perminutus** Kellett Pennsylvanian  
*Paraparchites (?) perminutus* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 67, pl. 13, figs. 31, 32.  
 Fort Leavenworth, Kan. (Oread or Iatan limestone).  
 Holotype.—U.S.N.M. No. 85424.
- Paraparchites rhombicus** (Jones and Kirkby) Carboniferous  
*Leperditia rhombica* JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 185, pl. 12, fig. 6.  
 Carland, Ireland.
- Paraparchites scotoburdigalensis** (Hibbert) Carboniferous  
*Cypris scotoburdigalensis* HIBBERT, Roy. Soc. Edinburgh, Tr., 13 (1836) p. 179—PORTLOCK, Geol. Londonderry, etc., Rept. (1843) p. 316, pl. 24, fig. 13c—JONES, Neues Jahrb. Min., Geol., Pal. (1864) p. 54—HUXLEY and ETHERIDGE, Cat. Fossils, Mus. Pract. Geol. (1865) p. 101.  
*Cythere scotoburdigalensis* JONES, Mon. Foss. Estheriae, Paleontograph. Soc. (1862) p. 119.  
*Leperditia scotoburdigalensis* JONES and KIRKBY, British Assoc., Rept., 1863 (1864) p. 80; Canada Nat. Geol., n. s., 6 (1864) p. 236; Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 34—JONES, Berwickshire Nat. Club, Pr., 10 (1884) p. 314, 316, 321, pl. 2,

figs. 7, 9—VINE, *Naturalist*, 10 (1885) p. 98—JONES and KIRKBY, *Geol. Soc. London, Quart. Jour.*, 42 (1886) p. 496, 510; *Ann. Mag. Nat. Hist.*, ser. 5, 18 (1886) p. 254, pl. 7, fig. 4—JONES, *ibid.*, ser. 6, 3 (1889) p. 383; *Am. Geol.*, 4 (1889) p. 340—YOUNG, *Geol. Soc. Glasgow, Tr.*, 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, *Roy. Dublin Soc., Tr.*, ser. 2, 6 (1896) p. 180, pl. 11, fig. 12—YOUNG, *Edinburgh Geol. Soc., Tr.*, 1898, 7 (1899) p. 420-442—KIRKBY, *ibid.*, 8 (1898-1905) p. 62, 63.

*Leperditia okeni scotoburdigalensis* JONES and KIRKBY, *Geol. Soc. Glasgow, Tr.*, 2 (1867) p. 219—WRIGHT, *Belfast Nat. Field Club, 9th Ann. Rept.* (1872) p. 25—KIRKBY, *Geol. Soc. London, Quart. Jour.*, 36 (1880) p. 562, 565, 566, 569, 572, 573, 577, 580, table p. 588—JONES and KIRKBY, *Geol. Mag.*, ser. 3, 1 (1884) p. 357, pl. 12, figs. 1, 2—DAWSON, *Canadian Rec. Sci.*, 7 (1896-1897) p. 318—JONES and KIRKBY, *Roy. Dublin Soc., Sci. Tr.*, ser. 1, 6 (1896-1898) p. 181—WELLER, *U. S. Geol. Surv., Bull.* 153 (1898) p. 320—LAMPLAUGH, *Geol. country around Belfast, Geol. Surv. Ireland, Mem.* (1904) p. 13.

*Leperditia okeni* DAWSON, *Acad. Geol.* (1868) p. 256, fig. 78b.

*Paraparchites scotoburdigalensis* LATHAM, *Roy. Soc. Edinburgh, Tr.*, 57, pt. 2 (1932) p. 354, text fig. 2.

Limestone and Calcareous sandstone: Near Edinburgh, Fifeshire, Lanarkshire, etc., Scotland; Ireland; Northumberland, etc., North England.

#### **Paraparchites subcircularis** Geis

Mississippian

*Paraparchites subcircularis* GEIS, *Jour. Pal.*, 6, no. 2 (1932) p. 155, pl. 23, figs. 1a-d.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

#### **Paraparchites suborbiculatus** (Münster)

Carboniferous

*Cythere suborbiculata* MÜNSTER, *Jahrb. Min.* (1830) p. 65.

*Leperditia suborbiculata* JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 3, 15 (1865) p. 407, pl. 20, figs. 7a-c; *ibid.*, 18 (1866) p. 50; *Geol. Mag.*, n. s., dec. 3, 2 (1885) p. 536-541; *Geol. Soc. London, Quart. Jour.*, 42 (1886) p. 496, 510—YOUNG, *Geol. Soc. Glasgow, Tr.*, 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, *Roy. Dublin Soc., Tr.*, 6 (1896) p. 180, pl. 11, fig. 11.

*Leperditia okeni suborbiculata* JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 3, 15 (1865) p. 407.

Near Hof, Bavaria (Mountain limestone); Ireland; North and South England; East and West Scotland (Carboniferous limestone and Calcareous sandstone).

#### **Paraparchites subrectus** (Portlock)

Carboniferous

*Cypris subrecta* PORTLOCK, *Geol. Londonderry, Rept.* (1843) p. 316, pl. 24, fig. 13—JONES, *Neues Jahrb. Min., Geol., Pal.* (1864) p. 54—JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 3, 15 (1865) p. 406—GEINITZ, *Carb. and Dyas in Nebr.* (1866) p. 2—MEEK, *U. S. Geol. Surv. Nebr.* (1872) p. 237, p. 11, figs. 1a-d—JONES and KIRKBY, *Roy. Dublin Soc., Sci. Tr.*, ser. 2, 6 (1896-1898) p. 179.

*Cytherina subrecta* GEINITZ, *Die Versteinerungen der Grauwacken-formation*, 2 (1853) p. 23, pl. 19, fig. 20.

*Cythere subrecta* GRIFFITH, *Geol. Soc. Dublin, Jour.*, 9 (1860) p. 48.

*Leperditia okeni subrecta* JONES and KIRKBY, *Ann. Mag. Nat. Hist.*, ser. 3, 18 (1866) p. 39, 42-47, 49-51.

*Leperditia subrecta* JONES and KIRKBY, *British Assoc.*, 1863, *Rept.*, Tr. sect. (1864) p. 80; *Canadian Nat. Geol.*, n. s., 1 (1864) p. 236—BAILY, *Fig. Char. British Fossils* (1875) p. lxxiv, 118, pl. 41, figs. 4a-c—JONES, *Berwickshire Nat. Club, Pr.*, (1884) p. 321, pl. 2, fig. 8—VINE, *Naturalist*, 10 (1885) p. 98—JONES and KIRKBY, *Geol. Soc. London, Quart. Jour.*, 42 (1886) p. 510; *Geol. Assoc., Pr.*, 9 (1887) p. 504—YOUNG, *Geol. Soc. Glasgow, Tr.*, 1888-1892, 9 (1893) p. 311—JONES and KIRKBY, *Roy. Dublin Soc., Tr.*, 6 (1896) p. 182, pl. 11, figs. 13, 14—JONES, KIRKBY, and YOUNG, *Edinburgh Geol. Soc., Tr.*, 1898, 7 (1899) p. 420-442—KIRKBY, *ibid.*, 8 (1898-1905) p. 15, 16—JONES and KIRKBY, *British Assoc. Handb. Glasgow* (1901) p. 490.

Limestone: Londonderry, etc., Ireland; North England; East and West Scotland (Calcareous sandstone).



**Paraparchites subrotundus** (Ulrich) Devonian

*Leperditia? subrotunda* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 181, pl. 16, figs. 1a-c—KINDLE, U. S. Geol. Surv., Bull. 505 (1912) p. 115, pl. 9, fig. 7—ULRICH and BASSLER, Md. Geol. Surv., Middle and Upper Devonian vol. (1913) p. 59, 91, 108, 335, pl. 44, fig. 6—STEWART, Ohio Jour. Sci., 30 (1930) p. 57, pl. 1, fig. 10.

Onondaga: Falls of the Ohio; Little Moccasin Gap, W. Va.; Lucas County, Ohio (Silica).  
Holotype and plesiotype.—U.S.N.M. Nos. 41825, 62124.

**Paraparchites? superbus** (Jones and Kirkby) Carboniferous

*Cythere superba* KIRKBY, Geol. Soc. London, Quart. Jour., 36 (1880) p. 588—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 1 (1884) p. 360; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 266, pl. 9, fig. 11—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 1898, 7 (1899) p. 437—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 491—KIRKBY, Edinburgh Geol. Soc., Tr., 8 (1898-1905) p. 66.

*Paraparchites superbus* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 356, text fig. 5.

Calcareous sandstone and Lower limestone: Fifeshire, etc., East Scotland.

**Paraparchites thomasi** Coryell and Sample Pennsylvanian

*Paraparchites thomasi* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 248, pl. 24, fig. 1.

Mineral Wells (East Mountain shale): Mineral Wells, Texas.

**Paraparchites wapanuckaensis** Harlton Pennsylvanian

*Paraparchites wapanuckaensis* HARLTON, Jour. Pal., 2, no. 2 (1928) p. 132, pl. 21, figs. 1a-b; Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 255, pl. 1, figs. 3a, b—HARLTON, Jour. Pal., 7, no. 1 (1933) p. 19, pl. 6, figs. 1a, b.

Pittsburg County, Okla. (Wapanucka limestone); southern Oklahoma (Johns Valley shale).  
Holotype.—U.S.N.M. No. 72233.

**Paraparchites wrightianus** (Jones and Kirkby) Carboniferous

*Leperditia wrightiana* JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 184, pl. 12, figs. 4, 5—KIRKBY, Edinburgh Geol. Soc., Tr., 8 (1898-1905) p. 15, 16.

Carland, Ireland.

**Paraparchites youngianus** (Jones and Kirkby) Carboniferous

*Leperditia youngiana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 218—CRAGIN, Geol. Soc. Glasgow, Tr., 3 (1871) p. 291—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 29—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 254, pl. 7, figs. 3a-c—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 383—JONES and KIRKBY, Soc. Geol. Belg., Ann., 20 (1892-1893) p. lxxviii, pl. 3—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311.

*Paraparchites youngianus* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1933) p. 357.

Limestone: Ayrshire, Scotland.

**PHANASSYMETRIA** Roth (Thlipsuridae)

Genotype: *P. triserrata* Roth

*Phanassymetria* ROTH, Jour. Pal., 3, no. 4 (1929) p. 358.

**Phanassymetria quadrupla** Roth Devonian

*Phanassymetria quadrupla* ROTH, Jour. Pal., 3, no. 4 (1929) p. 360, pl. 37, figs. 21a-c.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80671.

**Phanassymetria triserrata** Roth

Devonian

*Phanassymetria triserrata* ROTH, Jour. Pal., 3, no. 3 (1929) p. 358, pl. 37, figs. 20a-c.Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80670.**PHILOMEDES** Lilljeborg (Cypridinidae)Genotype: *P. longicornis* Lilljeborg*Philomedes* LILLJEBORG, Crust. in Scania Occurrentibus (1853) p. 175—JONES, Mon. Tert. Entomostraca Engl., Palaeontogr. Soc., 9 (1856) p. 7—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 4, 43—ZITTEL, Handb. Pal., 2 (1885) p. 555—JONES and KIRKBY, Geol. Assoc., Pr., 1885, 1886, 9 (1887) p. 500—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.**Philomedes (Cypridina?) acanthoides** Gemmellaro

Carboniferous

*Philomedes acanthoides* GEMMELLARO, Math. e Fis. Soc. Ital. Sci., Mem., ser. 3, 8 (1892) p. 37, pl. 5, figs. 16, 17—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 338.

Sosio River, Palermo, Sicily.

**Philomedes bairdiana** Jones, Kirkby, and Brady

Carboniferous

*Philomedes bairdiana?* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 411—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 43, pl. 2, figs. 30, 31—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 343, pl. 17, fig. 7.

Gray limestone: Little Island, Cork, Ireland.

**Philomedes elongata** Jones, Kirkby, and Brady

Coal Measures

*Philomedes elongata* JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1884) p. 81, pl. 6, fig. 1—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

Base of Middle Coal Measures: 5 miles south of Chesterfield, Derbyshire, England.

**Philomedes interpuncta** Jones

Middle Coal Measures

*Philomedes interpuncta* JONES, Monthly Micr. Jour., 10 (1873) p. 75.

Ireland.

**PHREATURA** Jones and Kirkby (Thlipsuridae)Genotype: *P. concinna* Jones and Kirkby*Phreatura* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 507; Geol. Assoc., Pr., 1885-1886, 9 (1887) p. 509—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317.**Phreatura concinna** Jones and Kirkby

Carboniferous

*Phreatura concinna* JONES and KIRKBY, Geol. Mag., n. s., dec. 8, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 507; Geol. Assoc., Pr., 9 (1886) p. 509, text figs. 3, 4; Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 455, pl. 21, fig. 3—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317, 318, fig. 23 (fig. 7).

Yoredale: Yorkshire, England.

**PLACENTULA** Jones and Holl = **JONESITES****Placentula auricularis** Kummerow, etc. = **Jonesites auricularis**, etc.**Platy chilina distans** Kummerow = **Coelochilina distans****Platy chilina excavata** Kummerow = **Eurychilina excavata****Platy chilina umbonata** Kummerow = **Eurychilina (Coelochilina) umbonata**

**PLETHOBOLBINA** Ulrich and Bassler (Zygobolbidae-Kloedeninae)

Genotype: *P. typicalis* Ulrich and Bassler

*Plethobolbina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 307, 635.

***Plethobolbina cornigera*** Ulrich and Bassler Silurian

*Plethobolbina cornigera* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 637, pl. 53, figs. 21, 22.

Upper Clinton (*Mastigobolbina typus* zone): Wills Creek, Cumberland, Md. 2 miles west of Hollidaysburg, Pa.  
Holotype.—U.S.N.M. No. 63576.

***Plethobolbina cribraria*** Ulrich and Bassler Silurian

*Plethobolbina cribraria* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 637, pl. 53, figs. 23, 24.

Lower Clinton (57 feet above top Tuscarora sandstone): Cumberland, Md.  
Cotypes.—U.S.N.M. No. 63578.

***Plethobolbina ornata*** Ulrich and Bassler Silurian

*Plethobolbina ornata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 636, pl. 53, figs. 18–20.

Upper Clinton (*Mastigobolbina typus* zone): near Hollidaysburg, Pa.  
Holotype.—U.S.N.M. No. 63584.

***Plethobolbina sulcata*** Ulrich and Bassler Silurian

*Plethobolbina sulcata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 638, pl. 53, figs. 25–27.

Middle Clinton (*Zygobolbina emaciata* zone): 4½ miles northwest of Mercersburg, Pa.  
Cotypes.—U.S.N.M. No. 63577.

***Plethobolbina typicalis*** Ulrich and Bassler Silurian

*Plethobolbina typicalis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 636, pl. 52, fig. 21, pl. 53, figs. 28–33.

Upper Clinton (*Mastigobolbina typus* zone): Great Cacapon, W. Va.; Six Mile House, Md.; Pennsylvania; Virginia; Clinton, N. Y.  
Cotypes.—U.S.N.M. No. 63574.

**POLONIELLA** Gürich (Thlipsuridae)

Genotype: *P. devonica* Gürich

*Poloniella* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 388—VAN VEEN, Kon. Akad. Wet., Pr. Sect. Sci., 23, pt. 2 (1922) p. 993, 996—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 664—WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 212.

***Poloniella cingulata*** Warthin Devonian

*Poloniella cingulata* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 212, pl. 1, fig. 9.

Traverse (Upper Gravel Point stage): Charlevoix County, Mich.

***Poloniella devonica*** Gürich Middle Devonian

*Poloniella devonica* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 388, 389, pl. 14, figs. 1a–e—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161—VAN VEEN, Kon. Akad. Wet., Pr. Sect. Sci., 23, pt. 2 (1922) p. 994, 996, pl. figs. 1, 4, 7, 9—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 664.

Dabrowa, Poland.

***Poloniella hieroglyphica*** Van Veen = ***Dizygopleura hieroglyphica***

***Poloniella pennsylvanica*** Van Veen = ***Kloedenella pennsylvanica***

***Poloniella stosei*** Bonnema = ***Dizygopleura stosei***

**POLYCOPE** Sars (Cypridinidae)Genotype: *P. orbicularis* Sars (Recent)

*Polycope* Sars, Oversight af. Norges Marine Ostracoder (1865) p. 121—JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 411; Monthly Micr. Jour., **10** (1873) p. 76—BRADY, CROSSKEY, and ROBERTSON, Post-Tert. Entomostraca Scotland, Mon. Paleontogr. Soc. (1874) p. 113, 219—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 6, 54—NICHOLSON and LYDEKKER, Man. Pal. (1879) p. 508—TERQUEM, Soc. Geol. France, Mém., ser. 3, 4, mem. 1 (1885) p. 40—ZITTEL, Handb. Pal., 2 (1885) p. 556—TERQUEM, Soc. Geol. France, Mém., ser. 3, 4, mem. 2 (1886) p. 104—JONES and KIRKBY, Geol. Assoc. London, Pr., **9** (1886) p. 501—WHIDBORNE, Mon. Dev. Fauna South England (1890) p. 47—JONES, Ann. Mag. Nat. Hist., ser. 7, **1** (1898) p. 341.

**Polycope burrovii** Jones, Kirkby, and Brady Carboniferous

*Polycope burrovii* JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 412—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 54, pl. 2, figs. 3a-c—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., **42** (1886) p. 496, 509—LAMPLAUGH, Geol. Isle of Man. Geol. Surv. United Kingdom, Mem. (1903) p. 257.

Gray limestone: Settle, Yorkshire, England; Isle of Man.

**Polycope clymeniarum** Rzehak Devonian

*Polycope clymeniarum* RZEHAK, Zeitschr. Mähr. Landes., Mus., Brunn, **10** (1910) p. 149-215.

Clymenia beds: Moravia.

**Polycope devonica** Jones Middle Devonian

*Polycope devonica* JONES, Geol. Mag., dec. 2, **8** (1881) p. 340, pl. 9, fig. 4—WHIDBORNE, Mon. Dev. Fauna South England, pts. 1, 2, 1889 (1892) p. 48, pl. 4, figs. 7a-c.

Near Torquay, Devonshire, England.

**Polycope devonica concinna** Whidborne Devonian

*Polycope devonica concinna* WHIDBORNE, Mon. Dev. Fauna South England, pts. 1, 2, 1889 (1892) p. 49, pl. 4, figs. 17a-c.

Near Torquay, Devonshire, England.

**Polycope devonica major** Whidborne Devonian

*Polycope devonica major* WHIDBORNE, Mon. Dev. Fauna South England, pts. 1, 2 (1892) p. 49, pl. 4, figs. 13a-c.

Near Torquay, Devonshire, England.

**Polycope devonica obliqua** Whidborne Devonian

*Polycope devonica obliqua* WHIDBORNE, Mon. Dev. Fauna South England, pts. 1, 2, 1889 (1892) p. 49, pl. 4, figs. 12a-d.

Near Torquay, Devonshire, England.

**Polycope hughesiae** Whidborne Devonian

*Polycope hughesiae* WHIDBORNE, Mon. Dev. Fauna South England, pts. 1, 2, 1889 (1892) p. 50, pl. 4, figs. 11a-c.

Near Torquay, Devonshire, England.

**Polycope simplex** (Jones and Kirkby) Carboniferous

*Cypridinopsis simplex* ARMSTRONG, Geol. Soc. Glasgow, Tr., **3**, suppl. (1871) p. 26.

*Polycope simplex* JONES, Geol. Soc. London, Quart. Jour., **29** (1873) p. 412—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc.

(1874) p. 54, pl. 2, figs. 1, 10, pl. 5, fig. 1—KONINCK, Soc. Roy. Sci. Liège, Mém., ser. 2, 7 (1878) p. 208, pl. 24, fig. 7—ETHERIDGE, Cat. Australian Fossils (1878) p. 42—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 507, fig. 361—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—WHIDBORNE, Mon. Dev. Fauna South England, pts. 1, 2, 1889 (1892) p. 48, pl. 4, figs. 8a-c—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 310—ETHERIDGE, Geol. Surv. New South Wales, Mem., n. s., Pal., no. 5 (1893) p. 123—JONES, Ann. Mag. Nat. Hist., ser. 7, 1 (1898) p. 340—KONINCK, Geol. Surv. New South Wales, Mem., Pal., no. 6 (1898) p. 275—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489—LAMPLAUGH, Geol. Isle of Man, Geol. Surv. United Kingdom, Mem. (1903) p. 257.

Little Island, Cork, and County Meath, Ireland; near Carluke and Glasgow, Scotland; Isle of Man; New South Wales.

**Polycope sublenticularis Jones = Schmidtella sublenticularis**

**Polycope youngiana** (Jones and Kirkby) Carboniferous

*Cythere? youngiana* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 223.

*Cypridinopsis youngiana* ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 26.

*Polycope youngiana* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 412—JONES, KIRKBY, and BRADY, Mon., Paleontogr. Soc. (1874) p. 56, pl. 5, figs. 2a-f—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509—YOUNG, Geol. Soc. Glasgow, Tr., 9 (1888-1892) p. 310—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 489.

Lower limestone: Campsie, Carluke, Scotland.

**POLYPHYMA** Groom, a genus of Cambrian branchiopods

**POLYZYGA** Gürich (Zygobolbidae-Drepanellinae)

Genotype: *P. symmetrica* Gürich

*Polyzyga* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 387.

**Polyzygia symmetrica** Gürich Middle Devonian

*Polyzygia symmetrica* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 387, pl. 14, figs. 8, 9—SOBOLEW, Mat. Geol. Russ. Her. Kais. Min. Ges., 24 (1909) p. 394.

Skaly, etc., Poland.

**PONTOCYPRIS** Sars (Bairdiidae)

Genotype: *P. serrulata* Sars (Recent)

*Pontocypris* Sars, Oversight af Norges Marine Ostracoder (1865) p. 15—BRADY, Intellectual Observer, 12 (1867) p. 118—BRADY, CROSSKEY, and ROBERTSON, Post-Tert. Entomostraca Scotland, Mon., Paleontogr. Soc. (1874) p. 111, 136—TERQUEM, Soc. Geol. France, Mém., ser. 3, 1, pt. 3 (1878) p. 87—BRADY, Zool. Soc. London, Tr., 10 (1879) p. 381—TERQUEM, Soc. Geol. France, Mém., ser. 3, 4, mem. 1 (1885) p. 11; *ibid.*, mem. 2 (1886) p. 93—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 182—JONES and HINDE, Suppl. Mon. Cret. Entomostraca, Paleontogr. Soc. (1890) p. 3—LIENENKLAUS, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 166, 172; *ibid.*, 52 (1900) p. 505—ULRICH, Zittel-Eastman Textb. Pal., 1 (1900) p. 646—NAMATS, Pal. Italica, Mem. Pal., 6 (1900-1901) p. 86—LIENENKLAUS, Ber. Senck. Nat. Ges. Frankfurt am Main (1905) p. 15—GRABAU and SHIMER, North American index fossils (1910) p. 364—BASSLER, Zittel-Eastman Textb. Pal., 1 (1913) p. 740; U. S. Nat. Mus., Bull. 92 (1915) p. 1023—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 320—NEVIANI, Pont. Acad. Sci. Nouvi Lincei, Mem., 11, 1 sess. (1928) p. 22.

It is probable that the various Paleozoic species referred to this recent genus will in the future be placed elsewhere, for example, in *Cytheropsis*, the type of which (*C. aldensis*) is here included in *Pontocypris*.

**Pontocypris(?) acuminata** Ulrich Mississippian

*Pontocypris? acuminata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 210, pl. 17, figs. 8a-c—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 469—GRABAU and SHIMER, North American index fossils (1910) p. 365, text fig. 1667, j, j', k.

Waverly: Moots Run near Granville, Ohio.  
Holotype.—U.S.N.M. No. 41813.

**Pontocypris aldensis** (McCoy) Ordovician

*Cytheropsis* n. sp. MCCOY, British Assn., Rept. (1850) p. 107.  
*Cytheropsis aldensis* MCCOY, Ann. Mag. Nat. Hist., ser. 2, 8 (1851) p. 387; Republ. in Contributions to British Pal. (1854) p. 163; Syst. Descr. Pal. Foss., Geol. Mus. Cambridge (1852) pl. 1, L, fig. 2—SALTER, Murchison's Siluria, 2nd ed. (1859) p. 539.

*Cythere? aldensis* MURCHISON'S Siluria, 3rd ed. (1867) p. 517—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 60, pl. 7, fig. 12; *ibid.*, 3 (1869) p. 221—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, appendix (1881) p. 410—JONES in Nicholson and Etheridge, Mon. Sil. Fossils Girvan, 1 (1880) p. 215, pl. 15, figs. 1-3—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 306.

Aldens, Ayrshire, Scotland (Lower Bala); Kildare, Ireland (Caradoc); North Wales.

**Pontocypris aldensis major** (Jones) Silurian

*Cythere aldensis major* JONES, in Nicholson and Etheridge, Mon. Sil. Fossils Girvan (1880) p. 216, pl. 15, fig. 4—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Aldens, Ayrshire, Scotland.

**Pontocypris arcuata** Ulrich and Bassler Devonian

*Pontocypris arcuata* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 541, pl. 98, figs. 23-25—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1023.

Helderbergian (Keyser): Cumberland, Md.  
Holotype.—U.S.N.M. No. 53258.

**Pontocypris billingsella** Geis Mississippian

*Pontocypris billingsella* GEIS, Jour. Pal., 6, no. 2 (1932) p. 183, pl. 26, figs. 5a, b.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Pontocypris coryelli** Geis Mississippian

*Pontocypris coryelli* GEIS, Jour. Pal., 6, no. 2 (1932) p. 184, pl. 26, figs. 4a, b.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Pontocypris grayana** (Jones) Silurian

*Cythere grayana*, JONES in Nicholson and Etheridge, Mon. Sil. Fossils Girvan (1880) p. 217, pl. 15, figs. 5, 6—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, 1881, appendix (1887) p. 410—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 306.

Aldens, Ayrshire, Scotland; North Wales.

**Pontocypris(?) illinoisensis** Ulrich Early Silurian

*Pontocypris(?) illinoisensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 107, pl. 10, figs. 16a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1023.

Richmond (Maquoketa): Savannah, Ill.  
Holotype.—U.S.N.M. No. 41333.

**Pontocypris jukesiana** (Jones and Holl) Ordovician

*Cythere jukesiana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 57, pl. 7, figs. 6a, 6b; Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 3—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, appendix (1881) p. 409—VOGDÉS, New York Acad. Sci., Ann., 5 (1891) pl. 2, figs. 3a, b; San Diego Soc. Nat. Hist., Tr., ser. 3, no. 1 (1919) pl. 5, fig. 5.

*Pontocypris jukesiana* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 183.

Caradoc: Kildare, Ireland.

**Pontocypris mawii** Jones Silurian

*Pontocypris mawii* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 182, pl. 4, figs. 4, 7; *ibid.*, ser. 6, 1 (1888) p. 397, pl. 22, figs. 3a-c—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 512, pl. 33, fig. 8—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 154—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, 1920, no. 7 (1921) p. 49, 98—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 320, text fig. 25.

Ironbridge, etc., Shropshire, England (Lower and Upper Wenlock shales—Buildwas and Tickwood beds); Fröjel and Mulde, Gotland (Middle Gotlandian); North Germany (drift-Encrinurus limestone).

Topotype.—U.S.N.M. No. 83048.

**Pontocypris mawii breviata** Jones Silurian, Devonian

*Pontocypris mawii breviata* JONES, Ann. Mag. Nat. Hist., ser. 6, 6 (1889) p. 269, pl. 15, fig. 4—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 541, pl. 98, figs. 26-28—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1023.

Near Wisby, Island of Gotland (Gotlandian—lowest beds); Cumberland, Md. (Helderbergian—Keyser).

Plesiotype.—U.S.N.M. No. 53287.

**Pontocypris mawii divergens** Jones Silurian

*Pontocypris mawii divergens* JONES, Ann. Mag. Nat. Hist., ser. 6, 6 (1889) p. 269, pl. 15, fig. 6.

Gotlandian (lowest beds): Near Wisby, Gotland.

**Pontocypris mawii gibbera** Jones Silurian

*Pontocypris mawii gibbera* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 182, pl. 4, fig. 6—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.

Lower Wenlock shale (Buildwas beds): Shropshire, England.

Topotypes.—U.S.N.M. No. 83049.

**Pontocypris mawii proxima** Jones Silurian

*Pontocypris mawii proxima* JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 269, pl. 15, figs. 5a, b—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 154.

Gotlandian: Near Wisby (lowest beds) and Mulde, Gotland.

**Pontocypris mawii proxima** Krause = **Krausella spinata**

**Pontocypris siliquoides** (Jones and Kirkby) Carboniferous

*Bairdia siliquoides* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 35 (1879) p. 576, pl. 31, figs. 9-14—KIRKBY, *ibid.*, 36 (1880) p. 573, 576, 582, table p. 587—JONES and KIRKBY, *ibid.*, 42 (1886) p. 496, 513—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312; *ibid.*, 1898, 7 (1899) p. 437—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 491; Edinburgh Geol. Soc., Tr., 1898, 8 (1905) p. 73, 74.

*Macrocypris siliquoides* SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.

Carboniferous limestone and Calciferous sandstone: Lanarkshire, Fifeshire, etc., Scotland.

**Pontocypris smithii** Jones Silurian

*Pontocypris smithii* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 184, pl. 4, fig. 5; *ibid.*, ser. 6, 1 (1888) p. 410—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3

(1892) p. 158—HEDE, Sver. Geol. Unders., Arsb., 14, ser. C, 1920, no. 7 (1921) p. 49, 98.

Dudley Castle, Malvern, etc., England (Wenlock and Woolhope); Gotland (Middle Gotlandian).

**Pontocypris smithii magna** Roth

Devonian

*Pontocypris smithii magna* ROTH, Jour. Pal., 3, no. 4 (1929) p. 366, pl. 38, figs. 26, a, b.

Helderbergian (Haragan): Pontotoc County, Okla.  
Holotype.—U.S.N.M. No. 80643.

**PRIMITIA** Jones and Holl (Primitiidae)

Genotype: *Beyrichia mundula* Jones

*Primitia* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 415; *ibid.*, ser. 4, 3 (1869) p. 222—JONES, Monthly Micr. Jour., 4 (1870) p. 181—BARRANDE, Syst. Sil. Centre Bohême, pt. 1, suppl. (1872) p. 539-546—ALTH, Abh. Geol. Reichs. 7, pt. 1 (1874) p. 64—CALLOWAY, Geol. Soc. London, Quart. Jour., 33 (1877) p. 668—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 506—ZITTEL, Handb. Pal., 2 (1885) p. 553—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 193—VOGDES, New York Acad. Sci., Ann., 5 (1889) p. 30, pl. 2, fig. 14—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 4—MILLER, North American geol. pal. (1889) p. 561—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 650—KOKEN, Die Leitfossilien (1896) p. 39, text fig. 26 C—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 382—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 303—ULRICH, Zittel's textb. Pal. (Am. ed.) (1900) p. 644—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 153; *ibid.*, 35 (1908) p. 277-279, 300, 303, 313—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1041—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 15—GRABAU and SHIMER, North American index fossils (1910) p. 345—BASSLER, Zittel-Eastman Textb. Pal., 2nd ed. (1913) p. 738; U. S. Nat. Mus., Bull. 92 (1915) p. 1029—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 300, p. 284, text fig. 12a (fig. 4)—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 413—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 22.

**Primitia acadica** Matthew = **Indiana acadica**, a Cambrian branchiopod

**Primitia aequalis** Jones = **Ulrichia aequalis**

**Primitia? angulata** Steusloff

Ordovician

*Primitia angulata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 780, pl. 58, fig. 8—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 408.

Drift: (Ordovician *Beyrichia* limestone): Neue-Brandenburg, Germany.

**Primitia arctica** Hortedahl

Devonian

*Primitia arctica* HOLTEDAHL, 2nd Arctic Exp. *Fram*, 1892-1902, no. 32 (1914) p. 39, pl. 8, fig. 16—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1029.

Helderbergian (Lower beds): Near Borgen, southwest Ellesmereland, Arctic America.

**Primitia? armata** (Richter)

Silurian

*Beyrichia* (?*Leperditia*) *armata* RICHTER, Deutsch. Geol. Ges., Zeitschr., 15 (1863) p. 672, pl. 19, figs. 16-18.

*Beyrichia armata* RICHTER, Deutsch. Geol. Ges., Zeitschr., 19 (1867) p. 220; *ibid.*, 21 (1869) p. 369.

*Primitia armata* JONES, Geol. Mag., dec. 2, 8 (1881) p. 341, pl. 9, fig. 11.

Thuringia, Germany.

**Primitia aurora** Matthew = **Bradoria aurora**, a Cambrian branchiopod

**Primitia barrandiana** Smith = **Ctenobolbina barrandiana**



**Primitia barrandiana** Jones

Silurian

*Primitia barrandiana* JONES in Nicholson and Etheridge, Mon. Sil. Fossils Girvan (1880) p. 220, pl. 15, fig. 11.

Aldens, Ayrshire, Scotland.

**Primitia bassleri** KUMMEROW

Silurian

*Primitia bassleri* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 421, pl. 20, figs. 16, 17.

Drift (Encrinurus limestone): Rattey, Mecklenburg, North Germany.  
Topotypes.—U.S.N.M. No. 82362.

**Primitia (Primitiella?) beyrichiana** Jones and Holl

Silurian

*Primitia beyrichiana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 416, 422, pl. 3, fig. 9; Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 38—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 110 (fig. 357)—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 385—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 5; *ibid.*, 43 (1891) p. 496, 516, pl. 31, figs. 3a, b.

Drift: Mark Brandenburg, North Germany.

**Primitia bicollina** Reed

Carboniferous

*Primitia (?) bicollina* REED, Palaeontologia Indica, n. s., 10, mem. 1 (1927) p. 73, pl. 10, figs. 19, 19a.

Yun-Nan, China.

**Primitia (Ulrichia?) bicornis** (Jones)

Ordovician

*Beyrichia bicornis* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 173, pl. 6, fig. 23.

*Primitia bicornis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 420; *ibid.*, ser. 4, 2 (1868) p. 59—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, 2nd ed. (1881) p. 409, appd.—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 312—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 135.

*Ulrichia bicornis* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 543.

Caradoc: Harnage, near Shrewsbury, Shropshire, England.

**Primitia billingsi** Jones = **Chilobolbina billingsi**

**Primitia biloba** Troedsson

Silurian

*Primitia (?) biloba* TROEDSSON, Lunds Univ. Arsskr., Ny Följd., Avd. 2, 15 (1919) p. 51, 93, pl. 2, figs. 11–12.

Dalmanites beds: Röstånga, Scania, Sweden.

**Primitia? binodis** Krause

Silurian

*Primitia binodis* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 934, pl. 25, fig. 16.

Drift: Holland.

**Primitia bipunctata** Jones and Holl = **Ulrichia bipunctata**

**Primitia bovisfrons** Whidborne

Devonian

*Primitia bovisfrons* WHIDBORNE, Devonian Fauna England, Paleontogr. Soc., 3, pt. 1 (1896) p. 19, pl. 3, figs. 25–30.

Pilton, etc., South England.

**Primitia brachynotos** Remele = **Leperditia brachynotos**

**Primitia bursa** Krause = **Eurychilina bursa**

**Primitia bursa scanensis** Troedsson = **Eurychilina bursa scanensis**

- Primitia calceolae** Gürich Middle Devonian  
*Primitia calceolae* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, **32** (1896) p. 384, pl. 14, figs. 6a, b—SOBOLEW, Mat. Geol. Russ., **24** (1909) p. 527.  
 Skaly, Poland.
- Primitia canaliculata** Steusloff Ordovician  
*Primitia canaliculata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., **46** (1894) p. 782, pl. 58, fig. 9—KRAUSE, *ibid.*, **46** (1894) p. 934; *ibid.*, **48** (1898) p. 934.  
 Drift (Borkholm limestone): Neue-Brandenburg, Germany; Holland.
- Primitia cantabrica** BARRANDE, Syst. Sil., pt. 1, suppl. (1872) p. 539 (nom. nud.).  
 Cantabrian Mts., Spain.
- Primitia carinata** Hadding Ordovician  
*Primitia carinata* HADDING, Kongl. Fysiogr. Sölsk., Hand., n. s., **24**, no. 15 (1913) p. 68, pl. 6, fig. 12.  
 Lower Dicclograptus shale: Sweden.
- Primitia celata** Ulrich Ordovician  
*Primitia celata* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 653, pl. 43, figs. 67, 68—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 1029.  
 Black River (Decorah): Minneapolis, Minn.  
 Holotype.—U.S.N.M. No. 41339.
- Primitia centralis** Ulrich = **Laccoprimitia centralis**
- Primitia cestriensis** Ulrich Mississippian  
*Primitia cestriensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1891) p. 201—WELLER, U. S. Geol. Surv., Bull. **153** (1898) p. 479.  
 Chester: Chester, Ill.; Marion, Ky.  
 Holotype.—U.S.N.M. No. 41422.
- Primitia cestriensis caldwellensis** Ulrich Mississippian  
*Primitia cestriensis caldwellensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1891) p. 202, pl. 14, figs. 8a-c—WELLER, U. S. Geol. Surv., Bull. **153** (1898) p. 480.  
 Chester (Clore): Claxton Post Office, Caldwell County, Ky.  
 Holotype.—U.S.N.M. No. 41419.
- Primitia cincinnatiensis** (Miller) Silurian  
*Beyrichia cincinnatiensis* MILLER, Cincinnati Quart. Jour. Sci., **2** (1875) p. 350, text fig. 25—WALCOTT, Albany Inst., Tr., **10** (1876) p. 23.  
*Primitia cincinnatiensis* MILLER, North American geol. pal. (1889) p. 561, text fig. 1045—ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1890) p. 132, pl. 10, figs. 5, 6—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1047, pl. 53, figs. 11-11d—GRABAU and SHIMER, North American index fossils (1910) p. 345, text fig. 1658—BASSLER, Zittel-Eastman Textb. Pal. (1913) p. 738, fig. 1425b; U. S. Nat. Mus., Bull. **92** (1915) p. 1029—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (fig. 3)—HUSSEY, Mus. Geol. Univ. Mich., Contr., **2**, no. 8 (1926) p. 141, 183.  
 Richmond (Arnheim, Waynesville): Near Fort Ancient, etc., Ohio; Indiana; Michigan.  
 Plesiotypes.—U.S.N.M. No. 41346.
- Primitia cincta** Krause = **Eurychilina** (?**Chilobolbina**) **cincta**
- Primitia clarkei** Jones Devonian  
*Primitia clarkei* JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 535, pl. 20 fig. 11.  
 Onondaga limestone: Ontario County, N. Y.

- Primitia? concentrica** Ulrich and Bassler Devonian  
*Primitia concentrica* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 517, pl. 95, figs. 6-8.  
 Oriskany (Shriver): 21st Bridge near Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 53300.
- Primitia conchooides** Hadding Ordovician  
*Primitia conchooides* HADDING, Kongl. Fysiög Sölsk., Hand., n. s., 24, no. 15 (1913) p. 68, pl. 6, figs. 13-17—TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15 (no. 3, 1918) (1919) p. 49.  
 Lower Dicclograptus shale: Sweden.
- Primitia concinna** Steusloff Ordovician  
*Primitia concinna* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 776, pl. 58, fig. 7.  
 Drift (Orthoceras limestone): Neue-Brandenburg, Germany
- Primitia concinna** Alth = **Primitia minuta**
- Primitia concinna** Jones and Holl = **Aparchites? concinnus**
- Primitia conica** Troedsson Silurian  
*Primitia conica* TROEDSSON, Lund Univ. Årsskr., Ny Följd., Avd. 2, 15 (no. 3, 1918) (1919) p. 49, 92, pl. 2, figs. 6, 7.  
 Dalmanites beds: Röstånga, Scania, Sweden.
- Primitia consobrina** Barrande Devonian (F2)  
*Primitia consobrina* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 547, pl. 24, figs. 19-22—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 211-227—TROMELIN and LEBESCONTE, Soc. Geol. France, Bull., ser. 3, 4 (1875-1876) p. 607.  
 Konieprus, Bohemia;? Silurian, France.
- Primitia constricta** Miller = **Primitiella constricta**
- Primitia? (?Entomis) contusa** Maurer Lower Devonian  
*Primitia contusa* MAURER, Abh. Grosseherz Hessisch. Geol. Landes., Darmstadt, 1, no. 2 (1885) p. 246, pl. 11, fig. 2.  
 Near Giessen, Germany.
- Primitia cornuta** Jones and Holl = **Ulrichia cornuta**
- Primitia corrugata** Krause = **Primitiella corrugata**
- Primitia cristata** Whitfield = **Isochilina cristata**
- Primitia cristata** Jones and Holl Silurian  
*Primitia cristata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 420, pl. 13, figs. 1a-c; *ibid.*, ser. 4, 3 (1869) p. 220—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 411 (loc. occ.)—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 495, pl. 31, figs. 1, 2—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—HEDE, Geol. För. Stockholm Förh., 41 (1919) p. 137, pl. 5, fig. 12; Sver. Geol. Unders., ser. C, no. 305, Arsb., 14, no. 7 (1921) p. 49, 98.  
 West Malvern, England (Wenlock-Tickwood beds); Island of Gotland (Middle Gotlandian); Drift of North Germany.  
 Topotypes.—U.S.N.M. No. 82412.
- Primitia? cumberlandica** Ulrich and Bassler Devonian  
*Primitia? cumberlandica* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 516, pl. 95, fig. 5—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1030.  
 Helderbergian (Keyser): Cumberland, Md.; Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 53282.

**Primitia cuneata** Steusloff = **Bairdia cuneata****Primitia cuneus** Chapman

Middle Devonian

*Primitia cuneus* CHAPMAN, Geol. Surv. Victoria, Rec., **3**, pt. 2 (1912) p. 221, pl. 36, figs. 10–12; Roy. Soc. New South Wales, Pr., **47** (1913) p. 244.

Buchan, Australia.

**Primitia ?? curva** Steusloff

Ordovician

*Primitia curva* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., **46** (1894) p. 780, pl. 58, fig. 10.

Drift (Ordovician Beyrichia limestone): Neue-Brandenburg, Germany.

**Primitia cylindrica** (Richter)

Silurian

*Beyrichia cylindrica* RICHTER, Deutsch. Geol. Ges., Zeitschr., **15** (1863) p. 671, pl. 19, figs. 13, 14.*Primitia? cylindrica* JONES, Geol. Mag., dec. 2, **8** (1881) p. 342; Ann. Mag. Nat. Hist., ser. 5, **12** (1883) p. 246.

Thuringia, Germany.

**Primitia? debilis** Barrande

Devonian (F2)

*Primitia debilis* BARRANDE, Syst. Sil. Centre Bohême, **1**, suppl. (1872) p. 547, pl. 26, fig. 8—TROMELIN and LEBESCONTE, Soc. Geol. France, Bull., ser. 3, **4** (1875) p. 607.

Konieprus, Bohemia; France.

**Primitia decumana** Bonnema = **Eurychilina decumana****Primitia dentifera** Bonnema = **Chilobolbina dentifera****Primitia dewalquei** Jones = **Paraparchites dewalquei****Primitia distans** Krause = **Coelochilina distans****Primitia (?Ulrichia) diversa** Jones and Holl

Silurian

*Primitia diversa* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, **17** (1886) p. 412, pl. 14, fig. 10.*Ulrichia diversa* JONES, Geol. Soc. London, Quart. Jour., **36** (1890) p. 543—ULRICH, Cincinnati Soc. Nat. Hist., Jour., **13** (1891) p. 135—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s. (1892) p. 158.

Lower Wenlock shales (Buildwas beds): Shropshire, England.

**Primitia dorsicornis** Whidborne = **Leperditella dorsicornis****Primitia? (?Jonesina) dunnei** Chapman

Permo-Carboniferous

*Primitia dunnei* CHAPMAN, Geol. Surv. New South Wales, Rec., **9**, pt. 2 (1920) p. 103, pl. 17, fig. 10.

Upper Marine Series: Cessnock, New South Wales.

**Primitia duplicata** Ulrich

Ordovician

*Primitia duplicata* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 654, pl. 43, figs. 60, 61—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 1030.Black River (Decorah): Minneapolis, Minn.  
Holotype.—U.S.N.M. No. 41348.**Primitia eichwaldi** Jones and Kirkby = **Glyptopleura eichwaldi****Primitia elongata** Krause = **Primitiella elongata****Primitia elongata nuda** Jones = **Primitiella elongata nuda**

- Primitia** (?*Eurychilina*) **elongata obliqua** Steusloff Silurian  
*Primitia elongata obliqua* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 783, pl. 58, fig. 12—KRAUSE, *ibid.*, 48 (1896) p. 934 (loc. occ.)  
 Drift (Borkholm limestone): Neue-Brandenburg, Germany; Holland.
- Primitia elongata parallela** Chapman = **Primitiella elongata parallela**
- Primitia?** **elongata semicircularis** Steusloff Ordovician  
*Primitia elongata semicircularis* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 784, pl. 58, fig. 13.  
 Drift (Leptaena limestone): Neue-Brandenburg, Germany.
- Primitia** (*Barychilina*) **entomidella** Gürich Upper Devonian  
*Primitia entomidella* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 384, pl. 14, fig. 10—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 369—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 28, pl. 1, fig. 13.  
 Intumescens kalk; Kadzielnia, Poland.
- Primitia esthonica** Bonnema = **Eurychilina esthonica**
- Primitia everesti** Reed Ordovician  
*Primitia everesti* REED, Pal. Indica, ser. 1b, 7, mem. 2 (1912) p. 116, pl. 16, fig. 10.  
 Near Muth, Pin Valley, Spiti, India.
- Primitia excavata** Jones and Holl = **Jonesites excavata**
- Primitia excavata** Krause = **Eurychilina excavata**
- Primitia?** **excelsa** Steusloff Ordovician  
*Primitia excelsa* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 776, pl. 58, fig. 15—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 408.  
 Drift (Orthoceras limestone): Neue-Brandenburg, Germany.
- Primitia fabaeformis** Gürich Middle Devonian  
*Primitia fabaeformis* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 383—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161, 527.  
 Dabrowan, Poland.
- Primitia fabula** Maurer Lower Devonian  
*Primitia fabula* MAURER, Abh. Grossherz Hessisch Geol. Landes., Darmstadt, 1, no. 2 (1885) p. 247, pl. 11, figs. 4, 5.  
 Near Giessen, Germany.
- Primitia fabulina** Jones and Holl Silurian  
*Primitia fabulina* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 408, pl. 14, fig. 2a, 2b—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 148 (loc. occ.).  
 Shropshire, England (Lower Wenlock shale-Buildwas beds); Mulde, Gotland (Middle Gotlandian).
- Primitia fayettevillensis** Girty Mississippian  
*Primitia fayettevillensis* GIRTY, New York Acad. Sci., Ann., 20 (1910) p. 232; U. S. Geol. Surv., Bull. 539 (1915) p. 135—ROTH, Okla. Geol. Surv., Circ. 18, chart (1929).  
 Fayetteville shale and Batesville sandstone: Arkansas.
- Primitia fillmorensis** Miller = **Primitiella fillmorensis**

- Primitia fischeri** Oehlert Devonian  
*Primitia fischeri* OEHLERT, Soc. Geol. France, Bull., ser. 3, 5 (1876-1877) p. 584, pl. 9, figs. 5-5e—JONES, Ann. Mag. Nat. Hist., ser. 5, 10 (1882) p. 359—PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8 (1928-1929) p. 179.  
 Department Mayenne and Vern, France.
- Primitia frobisheri** Emerson = *Eurychilina frobisheri*
- Primitia** (?*Jonesina*) **frostburgensis** Jones Permian  
*Primitia frostburgensis* JONES, Johns Hopkins Univ., Circ. 3 (1905) p. 222, 225, text figs. 1-4.  
 Dunkard: Near Frostburg, Md.
- Primitia** (?*Bythocypris*) **fugax** Barrande Ordovician (D5)  
*Primitia fugax* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 548, pl. 26, fig. 7a-d.  
 Koenigshof, Bohemia.
- Primitia**? (*Ctenobolbina*) **furcata** Jones and Holl Silurian  
*Primitia furcata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 413, pl. 14, figs. 15a, 15b—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.  
 Wenlock: Dudley Tunnel, Shropshire, England.
- Primitia?** **fusiformis** Matthew = *Mononotella fusiformis*, a Cambrian branchiopod
- Primitia?** **fusus** Barrande Devonian (F2)  
*Primitia fusus* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 548, pl. 26, figs. 12a-g—TROMELIN and LEBESCONTE, Soc. Geol. France, Bull., ser. 3, 4 (1875-1876) p. 607—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73.  
 Bohemia (Mnielian); France; Shropshire, England (Silurian).
- Primitia gerardi** Reed Ordovician  
*Primitia gerardi* REED, Pal. Indica, ser. 15, 7, mem. 2 (1912) p. 116, pl. 16, fig. 11.  
 Near Muth, Pin Valley, Spiti, India.
- Primitia gibbera** Ulrich Early Silurian  
*Primitia gibbera* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 655, pl. 43, figs. 57-59—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1030—LADD, Iowa Geol. Surv., Ann. Rept., 1928, 34 (1931) p. 395.  
 Richmond (Maquoketa): 3 miles north of Spring Valley, Minn.; Iowa.  
 Holotype.—U.S.N.M. No. 41341.
- Primitia?** **girvanensis** Jones Ordovician  
*Primitia girvanensis* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 298, pl. 13, figs. 7-9.  
 Middle Bala: Girvan, Ayrshire, Scotland.
- Primitia glabra** Ulrich = *Leperditella?* **glabra**
- Primitia globifera** Krause = *Kloedenia globifera*
- Primitia?** **globosa** Tschernyschew Lower Devonian  
*Primitia* (?) *globosa* TSCHERNYSCHEW, Com. Géol. St. Petersburg, Mém., 4, no. 3 (1893) p. 19, pl. 1, fig. 10.  
 East side of Urals, Tschernuschka River, Russia.
- Primitia grandis** Jones = *Aparchites grandis*

- Primitia granimarginata** Ulrich Mississippian  
*Primitia granimarginata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 201, pl. 12, figs. 8a, b—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 302—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 490.  
 Chester: Near Grayson Springs Station, Ky.  
 Cotypes.—U.S.N.M. No. 41427.
- Primitia grayae** JONES Ordovician  
*Primitia grayae* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 299, pl. 13, fig. 10.  
 Middle Bala: Girvan, Ayrshire, Scotland.
- Primitia gregaria** Barrande Ordovician (D5)  
*Primitia gregaria* (Barrande Mss.) JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 223.  
 Königshof, Bohemia.
- Primitia gregaria** Whitfield = **Isochilina gregaria**
- Primitia halli** Chapman Silurian  
*Primitia halli* CHAPMAN, Roy. Soc. Victoria, Pr., 17, n. s., pt. 1 (1904) p. 304, pl. 14, figs. 2a-e.  
 Yeringian: Cave Hill, Lilydale, Victoria, Australia.
- Primitia harparum** Troedsson Silurian  
*Primitia harparum* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15, no. 3, 1918 (1919) p. 48, 92, pl. 2, figs. 4-5.  
 Dalmanites beds: Röstånga, Scania, Sweden.
- Primitia hattingensis** Matern Upper Devonian  
*Entomis* n. sp. aff. *nitida* PAECKELMANN, Preuss. Geol. Landes., Jahrb., 1920 (1920) p. 111, pl. 3, fig. 2.  
*Primitia hattingensis* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 24, pl. 1, fig. 11.  
 Hattingen, etc., Slate Mts., Germany.
- Primitia? holliana** Jones and Kirkby Carboniferous  
*Primitia(?) holliana* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 259, pl. 8, figs. 14a-c.  
 Limestone: Great Ormes Head, Caernarvonshire, Wales.
- Primitia humiliformis** Gürich Middle Devonian  
*Primitia humiliformis* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 382—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161, 527.  
 Near Kielce, Poland.
- Primitia humilis** Jones and Holl Silurian  
*Primitia humilis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 409, pl. 14, fig. 6, 9—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 148—HEDE, Sver. Geol. Unders., ser. C, no. 305, Arsb. 14, 1920, no. 7 (1921) p. 49, 98.  
 Shropshire, England (Woolhope and Wenlock shale, Tickwood beds); Mulde, Gotland (Middle Gotlandian).
- Primitia humilis humilor** Jones = **Primitiella humilor**
- Primitia impressa** Ulrich Early Silurian  
*Primitia impressa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 131, pl. 10, figs. 3a-c, 4a-c—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 300—

CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1048, pl. 53, figs. 7-7d—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1030.

Richmond (Maquoketa): Savannah, Ill.  
Cotypes.—U.S.N.M. No. 41332.

**Primitia inaequalis** Jones = **Entomis inaequalis**

**Primitia intermedia** Krause = **Eurychilina intermedia**

**Primitia jonesii** Krause

Ordovician

*Primitia jonesii* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 8, pl. 1, fig. 6; *ibid.*, 43 (1891) p. 493, pl. 31, fig. 6, 7—KOKEN, Die Leitfossilien (1896) p. 381.

Drift (Gray limestone): Mark Brandenburg, North Germany.

**Primitia? jonesii** Koninck

Devonian

*Primitia jonesii* KONINCK, Soc. Geol. Belg., Ann., 3, mem. 2 (1876) p. 29, pl. 1, fig. 16—LERICHE, Soc. Belge. Geol. Pal. Hydrol., 25, Pr.-Verb., Bull., fasc. 1 (1911) p. 329; Mus. Roy. Hist. Pal., Mém. (1917) p. 164-167—BARROIS, PRUVOST, and DUBOIS, Soc. Géol. Nord, Mém., ser. 2, 6 (1922) p. 107, pl. 15, figs. 19-22—ASSELBERGHS, Roy. Hist. Nat. Belgique, Mém., 41 (1930) p. 55.

Gedinien: Ardennes, Belgium.

**Primitia jonesi** (Ruedemann)

Ordovician

*Primitia mundula* (in error for *P. cincinnatiensis*) *jonesi* RUEDEMANN, N. Y. State Mus., Bull. 49 (1901-1902) p. 80, pl. 7, figs. 2-5—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1050.

Mohawkian (Rysedorph): Rysedorph Hill, Rensselaer County, N. Y.

**Primitia kapteyni** Bonnema = **Chilobolbina kapteyni**

**Primitia krausei** Jones

Ordovician

*Primitia krausei* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 298, pl. 14, fig. 7.

Middle Bala: Girvan, Ayrshire, Scotland.

**Primitia kuckersiana** Bonnema = **Chilobolbina kuckersiana**

**Primitia? (Chilobolbina) labrosa** Krause

Ordovician

*Primitia labrosa* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 390, pl. 21, fig. 14—KOKEN, Die Leitfossilien (1896) p. 381.

Drift (Gray limestone): Müggelheim, North Germany.

**Primitia laevigata** Jones

Upper Devonian

*Primitia laevigata* (Sandberger Ms.) JONES, Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 63, pl. 7, fig. 3.

Cuboides zone: Arpatschai Valley, Armenia.

**Primitia laevis** Jones = **Primitiella laevis** and **P. stricta**

**Primitia latimarginata** Raymond = **Eurychilina latimarginata**

**Primitia (?Plethobolbina) lativia** Ulrich

Early Silurian

*Primitia lativia* ULRICH, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 2 (1889) p. 50, pl. 9, figs. 8, 8a—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 300—WHITEAVES, Geol. Surv. Canada, Pal. Foss., 3, pt. 2 (1895) p. 126 (loc. occ.)—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1030; Geol. Surv. Canada, Mem. 154 (1927) p. 342—FOERSTE, Geol. Surv. Canada, Mem. 138 (1928) p. 254, pl. 45, fig. 4, pl. 46, fig. 3.

Richmond: Stony Mt., Manitoba (Stony Mt.); Ohio and Indiana (Whitewater); Island of Anticosti (English Head); Michigan.



**Primitia?? lenticularis** Jones and Holl Silurian

*Primitia lenticularis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 219, text figs. 4a-c; *ibid.*, ser. 5, 17 (1886) p. 408, pl. 14, figs. 1a, 1b—JONES, *ibid.*, ser. 6, 3 (1889) p. 385—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Woolhope and Wenlock shales: Dudley, Ironbridge, Malvern, etc., England.

**Primitia lentiformis** Gürich Middle Devonian

*Primitia lentiformis* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 383—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161, 527.

Dabrowa, Poland.

**Primitia leperditoides** Jones = **Primitia logani leperditoides**

**Primitia? leviter** Maurer Lower Devonian

*Primitia leviter* MAURER, Abh. Grossherz Hessisch. Geol. Landes., Darmstadt, 1, no. 2 (1885) p. 246, pl. 11, fig. 3.

Near Giessen, Germany.

**Primitia limbata** Miller = **Primitiella limbata**

**Primitia limbata** Kummerow Silurian

*Primitia limbata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 422, pl. 20, fig. 19.

Drift (Beyrichia limestone): Gräningen near Rathenow, northern Germany.  
Topotype.—U.S.N.M. No. 82364.

**Primitia logani** (Jones) Canadian

*Beyrichia logani* JONES, Geol. Soc. London, Quart. Jour., 9 (1853) p. 161; Ann. Mag. Nat. Hist., ser. 3, 1 (1853) p. 244, pl. 9, figs. 6-10; Geol. Surv. Canada, dec. 3, (1858) p. 91, pl. 11, figs. 2-4—BILLINGS, Geol. Surv. Canada, Rept. Progress Comm. (1863) p. 127, 192, 953.

*Primitia logani* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 417—JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 63, 97, 99—RAYMOND, Am. Pal., Bull., 4, no. 17 (1903) p. 15, 16—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 31 (1918) p. 108.

Beekmantown: Grenville, Quebec; Hawkesbury, Ontario.

**Primitia logani leperditoides** (Jones) Canadian

*Beyrichia logani leperditoides* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 244, pl. 9, fig. 10; Geol. Surv. Canada, dec. 3 (1858) pl. 11, fig. 5.

*Primitia leperditoides* JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 345.

*Primitia logani leperditoides* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 63, 97, 99—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031.

Beekmantown: Grenville, Quebec; Hawkesbury, Ontario.

**Primitia logani reniformis** Jones Canadian

*Beyrichia logani reniformis* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 244, pl. 9, fig. 6.

*Primitia logani reniformis* JONES, Geol. Surv. Canada, dec. 3 (1858) p. 91, pl. 11, fig. 1; *ibid.* (1891) p. 63, 97, 99—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031.

Beekmantown: Grenville, Quebec; Hawkesbury, Ontario.

**Primitia maccoyii** Salter = **Leperditella maccoyii**

**Primitia mammata** Ulrich Ordovician

*Primitia mammata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 652, pl. 48, figs. 78-81—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031.

Black River (Decorah): Minneapolis, Minn.  
Holotype.—U.S.N.M. No. 41349.

- Primitia matutina** Jones and Holl Ordovician ? Silurian  
*Primitia matutina* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 418, pl. 13, figs. 7a, 7b; *ibid.*, ser. 4, 2 (1868) p. 59—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17, pt. 1 (1904) p. 302, pl. 13, fig. 5.  
*Aparchiles matutinus* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 297.  
 River Onuy, Shropshire, England (Upper Bala-Caradoc); Cave Hill, Lilydale, Victoria (Yeringian).
- Primitia medialis** Ulrich Early Silurian  
*Primitia medialis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 132, pl. 10, figs. 7a, 7b—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031.  
 Richmond (?Waynesville): Jefferson County, Ky.  
 Holotype.—U.S.N.M. No. 41347.
- Primitia micula** Ulrich Ordovician  
*Primitia micula* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 653, pl. 43, figs. 69–72—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031.  
 Trenton (Prosser): Near Cannon Falls, Minn.  
 Cotypes.—U.S.N.M. No. 41336.
- Primitia milleri** Ulrich Silurian  
*Primitia milleri* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 133, pl. 12, figs. 2a–c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031.
- Primitia minuta** Jones (part) = **Bythocypris cylindrica**
- Primitia minuta** (Eichwald) Ordovician  
*Cypridina minuta* EICHWALD, Beitr. Geol. Pal. Russlands (1850) p. 123, pl. 2, fig. 6; Soc. Imp. Nat. Moscou, Bull., 27 (1854) p. 99, pl. 2, figs. 6a, b—JEREMEJEV, Russ. Kais. Min. Ges. St. Petersburg, Verh. (1865) p. 83—JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 254.  
*Cytherina minuta* EICHWALD, Geol. Pal. Russl. Moskow (1854) p. 123, pl. 2, fig. 6.  
*Leperditia minuta* EICHWALD, Leth. Ross. (1860) p. 1335, pl. 52, fig. 2—SCHMIDT, Archiv. Nat. Liv.-Ehst-und Kurlands, ser. 1, 2 (1858–1861) p. 192—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 424; *ibid.*, ser. 4, 2 (1868) p. 59—ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 65—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 8; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal. pt. 3 (1891) p. 91.  
*Primitia minuta* SCHMIDT, Acad. Imp. Sci. St. Petersburg, Mem., ser. 7, 21, pt. 5 (1873) p. 4—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 404; Geol. Soc. London, Quart. Jour., 46 (1890) p. 7, pl. 3, figs. 21–23 (not 18, 19)—MILLER, North American geol. pal., 1st appendix (1892) p. 710—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 289—CLARKE, Archives Mus. Nac. Rio de Janeiro, 10, Eng. ed. (1900) p. 21, pl. 2, fig. 32—KATZER, Grundz. Geol. Unt. Amazonas (1903) pl. 16, fig. 17—JONES, Johns Hopkins Univ., Circ. 3 (1905) p. 224, 225, text figs. 5, 6, p. 32, text fig. 1, 2.  
*Primitia concinna* ALTH, Abh. Geol. Reichs., 7 (1874) p. 65, pl. 5, fig. 25—VENUKOFF, Mat. Geol. Russl., 19 (1899) p. 208.  
*Cytheropsis concinna* KOLMODIN, Ofv. Kon. Vet.-Akad. Förh., 36, no. 9 (1879–1880) p. 138.  
 Podolia, Russia.
- Primitia minutissima** Ulrich = **Haploprimitia minutissima**
- Primitia? modesta** Barrande Devonian (F2)  
*Primitia modesta* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 549, pl. 26, figs. 14a–h.  
 Mnienian: Bohemia.
- Primitia (?Barychilina) molli** Bonnema Ordovician  
*Primitia molli* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 24, pl. 2, figs. 6–9.  
 Kuckers (C2): Kuckers, Esthonia.

**Primitia? monas** Barrande

Devonian (G1)

*Primitia monas* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 549, pl. 26, fig. 16.

Branik, Bohemia.

**Primitia moorfieldiana** Girty

Mississippian

*Primitia moorfieldiana* GIRTY, U. S. Geol. Surv., Bull. 439 (1911) p. 106, pl. 9, figs. 6, 7; *ibid.*, Bull. 595 (1915) p. 39—ROTH, Okla. Geol. Surv., Circ. 18, chart (1929).

Boone chert: Batesville quadrangle, Arkansas.

**Primitia morgani** Jones = **Ulrichia morgani**

**Primitia mundula** (Jones)

Silurian

*Beyrichia mundula* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 90, pl. 5, fig. 23; p. 174, pl. 6, figs. 28-31; *ibid.*, ser. 3, 1 (1858) p. 247—ROMER, Deutsch. Geol. Ges., Zeitschr., 14 (1862) p. 602—BOLL, Ver. Freunde Naturg. Mecklenburg, Archiv. (1862) p. 139, pl. 1, fig. 16.

*Primitia mundula* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 416, 419—JONES, Geol. Soc. London, Quart. Jour., 26 (1870) p. 492—ALTH, Abh. Geol. Reischs., 7, pt. 1 (1874) p. 65—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 38—KIESOW, Schrift. Naturf. Ges. Danzig, n. s., 6 (1884) p. 229, 276—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 110 (fig. 357)—VERNWORN, Deutsch. Geol. Ges., Zeitschr., 39 (1887) p. 23—JONES, Am. Geol., 4 (1889) p. 337, pl. figs. 1, 2, 10-15; Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 378, pl. 17, fig. 1, p. 375, text fig. 2; pl. 16, figs. 1, 2, 4-9; Geol. Soc. London, Quart. Jour., 46 (1890) p. 550-553; Geol. and Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 72—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 495, 516, pl. 30, figs. 5a-e, 6, 7a, b—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 291, pl. 12, figs. 2, 3—AMI, Nova Scotia Inst., Pr. and Tr., 1, 2nd ser. (1893) p. 191—MOBERG, Sver. Geol. Unders., n. s., 3, no. 156 (1895) p. 13, 14, pl. fig. 7; *ibid.*, ser. C, no. 156 (1895) p. 7, 8—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 207, 217, 226, 227, 240—BONNEMA, Ver. Wis. Nat. Afd. K. Akad. Wet., Amsterdam, 9 (1901) (in English) K. Akad. Wet. Pr. Sci., 3 (1901) p. 140—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 149, 158—CLAYPOLE, Am. Geol., 32 (1903) p. 247—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Föjld., 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 54, 81, 86, pl. 6, fig. 1—BONNEMA, Acad. Amsterdam, Pr., 13 (1910) p. 140—LERICHE, Mus. Roy. Hist. Nat. Belg., Mém., 6 (1912) p. 43—MEYER, Centr. Min., Geol., Pal. (1914) p. 504—REED, Pal. Indica, n. s., 6, mem. 1 (1915) p. 56—HEDE, Sver. Geol. Unders., ser. C, no. 281, Arsb., 11, no. 2 (1917) p. 24, 29—HEDE, Geol. För. Stockholm Förh., 41 (1919) p. 137, pl. 5, fig. 13—CHAPMAN, Geol. Surv. New South Wales, Rec., 9, pt. 2 (1920) p. 99, pl. 16, fig. 5—HEDE, Sver. Geol. Unders., ser. C, no. 305, Arsb., 14, 1920, no. 7 (1921) p. 49, 74, 78, 86, 98—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 300—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 440—Centr. Min., Geol., Pal., Jahr. 1933, Abt. B, no. 1 (1933) p. 43, figs. 1, 3.

Mulde, Gotland (Middle and Upper Gotlandian); near Breslau, etc., Germany (Drift-Beyrichia limestone); Malvern, England (Wenlock); also identified in Ordovician and Devonian of America, Europe, Asia, and Australia.  
Topotypes.—U.S.N.M. No. 82414.

**Primitia mundula cambrica** Jones

Ordovician

*Primitia mundula cambrica* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 5, pl. 4, fig. 7.

Bala: Welshpool, Montgomeryshire, North Wales.

**Primitia mundula effussa** Jones

Ordovician

*Primitia mundula effussa* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 64, pl. 10, fig. 8—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1031.

Black River or Trenton: Quebec, Canada.

**Primitia mundula fimbriata** Jones Ordovician  
*Primitia mundula fimbriata* JONES, Geol. Soc. London, Quart. Jour., **49** (1893)  
 p. 299, pl. 13, fig. 11.

Middle Bala: Girvan, Ayrshire, Scotland.

**Primitia mundula incisa** Jones Ordovician  
*Primitia mundula incisa* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal.,  
 pt. 3 (1891) p. 64, pl. 10, figs. 9a-c; Geol. Soc. London, Quart. Jour., **49** (1893)  
 p. 301—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 1032.

Trenton: Lorette Falls, Quebec.

**Primitia mundula jonesi** Ruedemann = **Primitia jonesi**

**Primitia mundula kloedeniana** Jones Ordovician  
*Primitia mundula kloedeniana* JONES, Geol. Soc. London, Quart. Jour., **49** (1893)  
 p. 299, pl. 13, figs. 12-15.

Middle Bala: Girvan, Ayrshire, Scotland.

**Primitia mundula longa** Jones Ordovician  
*Primitia mundula longa* JONES, Geol. Soc. London, Quart. Jour., **49** (1893) p. 291,  
 pl. 12, fig. 4.

Upper Bala: Pusgill, Westmoreland, England.

**Primitia mundula producta** Jones Ordovician  
*Primitia mundula producta* JONES, Geol. Soc. London, Quart. Jour., **49** (1893)  
 p. 291, pl. 12, figs. 5, 6.

Upper Bala (Staurocephalus limestone): Westmoreland, England.

**Primitia mundula sacculus** Jones Lower Devonian  
*Primitia sacculus* SANDBERGER, Nassauischen Ver. Nat., Jahr., **42** (1889) p. 33,  
 34, 38.

*Primitia mundula sacculus* JONES, Ann. Mag. Nat. Hist., ser. 6, **15** (1895) p. 61,  
 pl. 7, fig. 7—LEIDHOLD, Centr. Min., Geol., Pal. (1917) p. 164-167.

Spirifer sandstone: Dillenburg District, Nassau, Germany.

**Primitia muta** Jones and Holl Silurian  
*Cytheropsis concinna?* JONES, Ann. Mag. Nat. Hist., ser. 3, **1** (1858) p. 254, pl. 9,  
 fig. 3.

*Primitia muta* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, **16** (1865) p. 425—  
 ALTH, Abh. Geol. Reichs., **7**, pt. 1 (1874) p. 66, pl. 5, fig. 27—EMERSON, Narrative  
 Hall's 2nd Arctic Exp., U. S. Navy Dept. (1879) p. 580, text fig. 7—JONES, Ann.  
 Mag. Nat. Hist., ser. 6, **3** (1889) p. 385—SIEMIRADSKI, Beitr. Pal. Geol. Oster-  
 Ungarns, **19** (1906) p. 220, fig. 48—BASSLER, U. S. Nat. Mus., Bull. **92** (1915)  
 p. 1032.

Beechey Island, Lancaster Sound, Arctic America (*Lissatrypa phoca* fauna); Podolia; Bohemia.

**Primitia nana** Jones and Holl Ordovician  
*Beyrichia strangulata* var. *r.*, JONES, Ann. Mag. Nat. Hist., ser. 2, **16** (1855) p. 172,  
 pl. 6, fig. 22.

*Primitia nana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, **16** (1865) p. 420;  
*ibid.*, ser. 4, **2** (1868) p. 59—LINNARSSON, Kongl. Svenska Vet. Akad. Handl., **8**,  
 no. 2 (1869) p. 85—EMERSON, Narr. 2nd Arctic Exp. by Charles F. Hall, Appendix  
**3**, 45th Congr., 3rd sess. (1879) p. 581—JONES, Ann. Mag. Nat. Hist., ser. 6, **3** (1889)  
 p. 379.

Caradoc: Harnage near Shrewsbury, Shropshire, England.

**Primitia? nitida** (Roemer)

Upper Devonian

*Cypridina nitida* ROLLE, Neues Jahrb. Min. Geogn. Geol. (1851) p. 664—ROEMER, Palaeontographica, 3, pt. 2 (1852) p. 28, pl. 4, fig. 20; *ibid.*, 13 (1864–1866) p. 232—CLARKE, Neues Jahrb. Min., Geol., Pal. (1884) p. 184.

*Entomis nitida* JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 415 (gen. ref.)—KONINCK, Soc. Roy. Sci. Liège, Mém., ser. 2, 7 (1878) p. 209—ETHERIDGE, Geol. Surv. New South Wales, Pal., Mem., 5 (1893) p. 122.

*Entomis* cf. *nitida* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 378—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 369.

*Primitia nitida* JONES, Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 62, pl. 7, figs. 1, 2—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 23, pl. 1, figs. 10–13, p. 121, fig. 2; Senckenbergiana, 13 (1931) p. 121, fig. 2.

Altenau, Harz, etc. (Goniatite limestone) and Slate Mts., Germany; Poland.

**Primitia nitida** Ulrich

Ordovician

*Primitia nitida* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 135, pl. 8, fig. 7—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1032.

Trenton (Perryville): Paris, Ky.  
Holotype.—U.S.N.M. No. 41334.

**Primitia nodosa** Ulrich = *Ulrichia nodosa*

**Primitia obliqua** Gürich

Devonian

*Primitia obliqua* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 382—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161.

Near Kielce, Poland.

**Primitia obliquipunctata** Jones

Silurian

*Primitia obliquipunctata* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 409, pl. 13, fig. 1—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 287, pl. 22, fig. 4—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Shropshire, England (Woolhope); North Germany (drift).

**Primitia oblonga** Tolmachoff

Devonian

*Primitia oblonga* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898–1902, no. 38 (1926) p. 31, pl. 1, figs. 26–27.

Ostre Borgen, Ellesmereland, Arctic America.

**Primitia oblongus** Jones and Holl = *Primitiopsis oblongus*

**Primitia obsoleta** Jones and Holl = *Primitiopsis obsoletus*

**Primitia oculata** Matthew = *Bradoria oculata*, a Cambrian branchiopod.

**Primitia ornata** Jones and Holl

Silurian

*Primitia ornata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 411, pl. 14, fig. 5—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 149—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—HEDE, Sver. Geol. Unders. ser. C, no. 305, Arsb., 14, 1920, no. 7 (1921) p. 49, 98—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 440.

Iron Bridge, England (Woolhope and Wenlock); Mulde, Gotland (Middle Gotlandian): North Germany (drift, Beyrichia limestone).

**Primitia ornatissima** Gürich

Middle Devonian

*Primitia ornatissima* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) pl. 14, figs. 3a, b—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161, 527.

Dabrowa, Poland.

**Primitia ostrogothia** Moberg and Segerberg Lower Ordovician  
*Primitia ostrogothia* MOBERG and SEGERBERG, Meddelande Fran, Lunds Geologiska Faltklubb, ser. B, no. 2 (1906) p. 75, pl. 3, figs. 25, 26.

Ostergotland, Sweden.

**Primitia ovata** Jones and Holl = **Aparchites ovatus**

**Primitia papillata** Krause Ordovician  
*Primitia papillata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1894) p. 387, pl. 22, fig. 7; KOKEN, Die Leitfossilien (1896) p. 381.

Drift (*Ceratopsis rostrata* bed): Müggellheim, North Germany.

**Primitia parallela** Kummerow Silurian

*Primitia parallela* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 422, pl. 20, fig. 18.

Drift (*Beyrichia* limestone): Müggellheim, North Germany.

**Primitia?** (**?Beyrichia**) **parallela** Ulrich = **Beyrichia parallela**

**Primitia parva** Kummerow Ordovician  
*Primitia parva* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 421, table p. 158—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 305, pl. 14, fig. 4; 44, pl. 20, figs. 15a, b.

Drift (*Leptaena* limestone): Mark Brandenburg, Northern Germany.

**Primitia paucipunctata** (Jones and Holl) Silurian

*Primitia variolata paucipunctata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 419, pl. 13, figs. 6c, 6d.

*Primitia paucipunctata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 409, pl. 14, figs. 3a, 3b—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 305, pl. 14, fig. 4; pl. 15, fig. 2.

Malvern, England (Upper Wenlock shale, Tickwood beds and Woolhope); Cave Hill, Lilydale, Victoria, Australia (Yeringian).

**Primitia pennsylvanica** Jones = **Eukloedenella pennsylvanica**

**Primitia perforata** Barrande = **Ulrichia perforata**

**Primitia perminima** Ulrich Ordovician

*Primitia perminima* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 131, pl. 7, fig. 7—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1032.

Trenton (Upper): Covington, Ky.  
 Holotype.—U.S.N.M. No. 41436.

**Primitia** (**?Entomis**) **pila** Maurer Lower Devonian

*Primitia pila* MAURER, Abh. Grossherz. Hessisch. Geol. Landes., Darmstadt, 1, no. 2 (1885) p. 245, pl. 11, fig. 1.

Near Giessen, Germany.

**Primitia plana** Krause = **Apatochilina plana**

**Primitia plana** Gürich Middle Devonian

*Primitia plana* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 383, pl. 14, figs. 2a, b—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 161, 527.

Dabrowa, Poland.

**Primitia plana tuberculata** Krause = **Apatochilina plana tuberculata**

**Primitia plicata** Krause

Ordovician

*Primitia plicata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 286, pl. 22, fig. 1—ANDERSSON, Ofv. Kön. Vet.-Akad. Förh., no. 2 (1893) p. 128—SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, 19, pt. 4 (1906) p. 220 (fig. 48).

Müggellheim, North Germany (drift, *Ceratopsis rostrata* bed); Bohemia.

**Primitia postturgida** Ulrich and Bassler

Devonian

*Primitia postturgida* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 515, pl. 95, fig. 4.

Oriskany (Shriver): 21st Bridge, near Keyser, W. Va.  
Holotype.—U.S.N.M. No. 53299.

**Primitia? praerupta** Steusloff

Silurian

*Primitia praerupta* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 785 pl. 58, fig. 14.

Drift (*Beyrichia* limestone): Neue-Brandenburg, Germany.

**Primitia protenta** Jones

Silurian

*Beyrichia protenta* JONES, Edinburgh Geol. Soc., Tr., 2 (1874) p. 322.  
*Primitia protenta* JONES, Geol. Mag., dec. 2, 1 (1874) p. 2, text fig. 3—HARKNESS and NICHOLSON, Geol. Soc. London, Quart. Jour., 33 (1877) p. 468—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, appendix (1881) p. 410—JONES, Geol. Soc. London, Quart. Jour., 9 (1893) p. 289.

Peeblesshire, Scotland; Westmoreland, England.

**Primitia prunella** Barrande

Ordovician (D3)

*Primitia prunella* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 8 (1869) p. 223—BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 550, pl. 26, figs. 5, 6; pl. 34, figs. 10, 11—TROMELIN and LEBESCONTE, Assoc. Franc. Avanc. Sci., C. R. (1875—1876) p. 638—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73; Ann. Mag. Nat. Hist. ser. 5, 10 (1882) p. 359; Geol. Soc. London, Quart. Jour., 49 (1893) p. 300.

Koenigshof, etc., Bohemia.

**Primitia? punctata** Jones

Silurian

*Primitia punctata* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 193, pl. 7, fig. 9—CHAPMAN, *ibid.*, ser. 7, 7 (1901) p. 148; Roy. Soc. Victoria, Pr., n. s., 17, pt. 1 (1904) p. 301, pl. 13, figs. 2a-c—HEDE, Sver. Geol. Unders., ser. C, no. 305, Arsb., 14, 1920, no. 7 (1921) p. 49, 98.

Much Wenlock, etc., Shropshire, England (Shales over Wenlock limestone and Lower Wenlock shales, Buildwas beds); Mulde, Gotland (Middle Gotlandian); Cave Hill, Lilydale, Victoria (Yeringian).

**Primitia punctata** Steusloff

Silurian

*Primitia punctata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 786 pl. 58, fig. 11.

Drift (*Beyrichia* limestone): Neue-Brandenburg, Germany.

**Primitia(?) punctatissima** (Salter Mss.) Jones, Monthly Micr. Jour. (1870) p. 4, 188, refers to a Cambrian branchiopod.

**Primitia pusilla** Jones and Holl

Silurian

*Primitia pusilla* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 424, pl. 13, figs. 11a, 11b; *ibid.*, ser. 6, 3 (1889) p. 385; Geol. Soc. London, Quart. Jour., 49 (1893) p. 291.

Wenlock: Near West Malvern, England.

**Primitia pyriformis** Matthew = **Indiana pyriformis**, a Cambrian branchiopod

**Primitia rectangularis** Alth

Silurian

*Primitia rectangularis* ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 64, pl. 5, fig. 24—SIEMIRADSKI, Beitr. Pal. Geol. Oster-Ungarns, 19 (1906) p. 220 (fig. 48).

Podolia, Russia; Bohemia.

**Primitia renulina** Jones and Holl

Silurian

*Primitia renulina* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 419, pl. 13, figs. 5a, 5b; *ibid.*, ser. 4, 3 (1869) p. 221, pl. 15, figs. 6c, 6d—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 14; Geol. Mag., n. s., dec. 2, 8 (1881) p. 73—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48—VOGDÉS, New York Acad. Sci., Ann., 5 (1891) pl. 2, figs. 14a, b; San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 14.

Wenlock limestone: Crofts, Malvern, England.

**Primitia reticristata** Jones

Silurian

*Primitia reticristata* JONES, Sil. Ostrac. Gotland (1887) p. 5; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 406, pl. 22, fig. 15—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 495, pl. 30, figs. 8, 9—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 149; Roy. Soc. Victoria, Pr., 17, n. s., pt. 1 (1904) p. 303—HEDE, Sver. Geol. Unders., ser. C, no. 305, Arsbl., 14, 1920, no. 7 (1921) p. 32, 36, 49, 98.

Fröjel and Mulde, Gotland (Lower and Middle Gotlandian); Mark Brandenburg, North Germany (drift); Cave Hill, Lilydale, Victoria, Australia (Yeringian).  
Topotypes.—U.S.N.M. No. 82413.

**Primitia reticulata** Steusloff = *Eurychilina reticulata***Primitia roemeriana** Jones and Holl

Silurian

*Primitia roemeriana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 422, pl. 13, figs. 8a, b—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 37 (loc. occ.)—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73, 74—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 109 (fig. 357)—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 408—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Crofts, near Malvern, etc., England (shales over Wenlock limestone); North Germany (drift).

**Primitia rossica** Bonnema = *Ctenobolbina rossica***Primitia rudis** Ulrich

Ordovician

*Primitia rudis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 136, pl. 10, text figs. 8a-c—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1032—RUEDEMANN, N. Y. State Mus., Bull. 272 (1926) p. 139, pl. 23, figs. 3-5.

Covington, Ky., etc., (Eden-Economy); near Rome, etc., N. Y. (Frankfort, Whetstone Gulf).  
Holotype and plesiotype.—U.S.N.M. Nos. 41345, 34536.

**Primitia rugosa** Steusloff

Silurian

*Primitia rugosa* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 783, pl. 58, fig. 16—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 408.

Drift (Borkholm limestone): Neue-Brandenburg, Germany.

**Primitia rugosa** Jones and Holl = *Cytherella?* *rugosa***Primitia rugulifera** (Jones)

Silurian

*Beyrichia rugulifera* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 242, pl. 9, fig. 4—JONES and HOLL, *ibid.*, ser. 3, 16 (1865) p. 419—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1032.

*Lissatrypa phoca* fauna: Beechey Island, Lancaster Sound, Arctic America.

**Primitia salteriana** Jones and Holl

Ordovician

*Beyrichia strangulata* var. B. (part) JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 172, pl. 6, fig. 20.



*Primitia salteriana* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 417; *ibid.*, ser. 4, 2 (1868) p. 59—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73.

Caradoc: Sholes Hook, South Wales.

**Primitia sancti-patricii** Jones and Holl Ordovician

*Primitia sancti-patricii* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 56, pl. 7, fig. 4—JONES, SALTER, and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, 2nd ed. appendix (1881) p. 409.

Caradoc: Ireland; North Wales.

**Primitia sanctipauli** Ulrich = **Euprimitia sanctipauli**

**Primitia (Barychilina?) sandbergeri** Matern Upper Devonian

*Cypridina serrato-striata* SANDBERGER and SANDBERGER, Verst. Rhein. Schicht. Nassau, 1850–1856 (1856) p. 4, Atlas, pl. 1, fig. 2.

*Entomis serratostrata* ZITTEL, Handb., 2 (1884) p. 744—GÜRICH, Leitfossilien (1908) p. 169, pl. 47, fig. 9c.

*Primitia sandbergeri* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 28, pl. 2, fig. 17a–b.

Schorrenbachtal, etc., Slate Mts., Germany; Belgium.

**Primitia scaphoides** Jones Lower Devonian

*Primitia scaphoides* JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 377, pl. 16, fig. 3.

Campbellton, New Brunswick.

**Primitia schmidtii** Krause = **Eurychilina schmidtii**

**Primitia schmidtii ornata** Krause = **Eurychilina schmidtii ornata**

**Primitia scitula** Jones Devonian

*Primitia scitula* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 91, pl. 11, figs. 41a, b—WHITEAVES, Geol. Surv. Canada, Contr. Can. Pal., 1, pt. 3 (1891) p. 246 (loc. occ.)—JONES, Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 60.

Hay River and McKenzie River, Canada.

**Primitia scotica** Jones and Kirkby = **Glyptopleura scotica**

**Primitia sculptilis** Ulrich = **Halliella sculptilis**

**Primitia seelyi** Whitfield = **Isochilina seelyi**

**Primitia semicircularis** Jones and Holl = **Bythocypris semicircularis**

**Primitia semicordata** Jones and Holl Ordovician

*Beyrichia strangulata* var. B. (part) JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 172, pl. 6, fig. 21.

*Primitia semicordata* JONES and HOLL, *ibid.*, ser. 3, 16 (1865) p. 417; *ibid.*, ser. 4, 2 (1866) p. 59.

Caradoc: Sholes Hook, South Wales.

**Primitia semicultrata** Chapman Silurian

*Primitia semicultrata* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 301, pl. 13, figs. 4a–c.

Yeringian: Cave Hill, Lilydale, Victoria.

**Primitia seminalis** Girty Mississippian

*Primitia seminalis* GIRTY, New York Acad. Sci., Ann., 20 (1910) p. 233; U. S. Geol. Surv., Bull. 539 (1915) p. 135—ROTH, Okla. Geol. Surv., Circ. 18, chart (1929).

Fayetteville shale and Batesville sandstone: northern Arkansas.

**Primitia seminulum** (Jones) = **Halliella seminulum****Primitia sigillata** (Jones)

Silurian

*Beyrichia sigillata* JONES, Ann. Mag. Nat. Hist., ser. 3, 1 (1858) p. 242, pl. 9, fig. 5.

*Primitia sigillata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 418—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1032.

Lissatrypa phoca fauna: Beechey Island, Lancaster Sound, Arctic America.

**Primitia simplex** (Jones)

Ordovician

*Beyrichia simplex* JONES, Geol. Soc. London, Quart. Jour., 9 (1853) p. 161, pl. 7, fig. 7; Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 173, pl. 6, fig. 25 (var.? 26, 27); *ibid.*, ser. 3, 1 (1858) p. 247—BOCK, Neues Jahrb. Min., Geol., Pal. (1867) p. 592—CANAVARI, Soc. Toscana Sci. Nat., Pisa, Pr. Verb., 11, art. 5 (1899) p. 150.

*Primitia simplex* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 417; *ibid.*, ser. 4, 2 (1868) p. 59—TROMELIN, Soc. Agric. Sci. Arts. Sarthe, Bull., 21 (1871) p. 634—TROMELIN and LEBESCONTE, Assoc. Franc. Avanc. Sci., C. R. (1875–1876) p. 638; Soc. Geol. France, Bull., ser. 3, 4 (1875–1876) p. 588—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 376, woodcut, fig. 1—BORN, Abh. Senck. Nat. Ges., 36 (1918) p. 347.

Serra de Bussaco, near Coimbra, Portugal; France.

**Primitia simplex lloydiana** JONES

?Cambrian

*Primitia simplex lloydiana* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 348, pl. 20, fig. 2.

*Primitia lloydiana* JONES, *ibid.*, ser. 6, 3 (1889) p. 385.

St. Johns, Newfoundland. Probably refers to a Cambrian branchiopod.

**Primitia simplex milneana** JONES

?Cambrian

*Primitia simplex milneana* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 358, pl. 20, fig. 3.

*Primitia milneana* JONES, *ibid.*, ser. 6, 3 (1889) p. 385.

St. Johns, Newfoundland. Probably refers to a Cambrian branchiopod.

**Primitia simplex sanctojohannesiana** JONES

?Cambrian

*Primitia simplex sanctojohannesiana* JONES, Ann. Mag. Nat. Hist., ser. 5, 8 (1881) p. 348, pl. 20, fig. 1.

St. Johns, Newfoundland. Probably refers to a Cambrian branchiopod.

**Primitia simulans** Miller = **Primitiella simulans****Primitia simulans** Ulrich

Mississippian

*Primitia simulans* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 201—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 469.

Chester: Chester, Ill.  
Holotype.—U.S.N.M. No. 41425.

**Primitia ? socialis** Barrande

Devonian (F2)

*Primitia socialis* BARRANDE, Syst. Sil. Centre Bohême, suppl. (1872) p. 551, pl. 26, fig. 11—TROMELIN and LEBESCONTE, Soc. Geol. France, Bull., ser. 3, 4 (1875–1876) p. 607.

Konieprus, Bohemia; France.

**Primitia solvensis** Jones = **Indiana solvensis** a Cambrian branchiopod.**Primitia sparsinodosa** Whidborne

Devonian

*Primitia sparsinodosa* WHIDBORNE, Dev. Fauna England, Paleontogr. Soc., 3, pt. 1 (1896) p. 16, pl. 3, figs. 4–6.

Saunton Hotel, South England.

**Primitia (Barychilina) splendens** (Waldschmidt) Upper Devonian

*Cypridina splendens* WALDSCHMIDT, Deutsch. Geol. Ges., Zeitschr., 37 (1885) p. 926, pl. 40, fig. 6.

*Primitia splendens* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 26 pl. 1, figs. 5a-c.

Wildungen, etc., Slate Mts., Germany.

**Primitia (?Eurychilina) strangulata** (Salter) Ordovician

*Beyrichia strangulata* SALTER, McCoy's British Pal. Rocks and Fossils, appendix A (1852) p. ii, pl. 1, E, fig. 1—JONES, Geol. Soc. London, Quart. Jour., 9 (1853) p. 161; Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 171, pl. 6, fig. 18; *ibid.*, ser. 3, 1 (1858) p. 247—EICHWALD, Leth. Ross., 1 (1860) p. 1347—SCHMIDT, Arch. Nat. Liv.-Ehst.-und Kurlands., ser. 1, 2 (1858-1861) p. 193—HARKNESS, Geol. Soc. London, Quart. Jour., 21 (1865) p. 243 (note), 248—BOCK, Neues Jahrb. Min. (1867) p. 592—EMERSON, Narr. 2nd Arctic Exp. made by Charles F. Hall, appendix 3, 45th Congr., 3rd sess., Sen. doc. 47 (1879) p. 581—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, 2nd ed., appendix (1881) p. 409—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 383.

*Primitia strangulata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 416; *ibid.*, ser. 4, 2 (1868) p. 59—LINNARSSON, Kongl. Svenska Vet. Akad. Handl., 8, no. 2 (1869) p. 85, 88, pl. 2, fig. 69—NICHOLSON and LYDEKKEK, Man. Pal., 1 (1879) p. 507, fig. 361 F—REMELE, Deutsch. Geol. Ges., Zeitschr., 38 (1886) p. 244—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 407—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 1, 5, 9; Sitz. Ges. Naturf. Freunde Berlin (1889) p. 13, 14—MARR, Geol. Mag., n. s., dec. 3, 9 (1892) p. 109—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 289, 290—KOKEN, Die Leitfossilien (1896) p. 381—RAVN, Danmark's Geologiske Undersogelse, 11a, no. 10 (1899) p. 49—TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15 (no. 3, 1918) (1919) p. 50—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 409, 410.

*Eurychilina strangulata* ULRICH, Geol. Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal. (1879) p. 52 (gen. ref.).

*Beyrichia strangulata* var. a, JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 172, pl. 6, fig. 19.

*Primitia strangulata* var. a, JONES and HOLL, Am. Mag. Nat. Hist., ser. 3, 16 (1865) p. 417.

Coniston limestone: Waterhead, Lancashire, and Westmoreland, England; North Wales.  
Caradoc: Robeston Wathen, Pembrokehire, England.

**Primitia strangulata** Linnarsson (not Slater) = **Eurychilina bursa**

**Primitia strangulata crenulata** Schmidt Ordovician

*Beyrichia strangulata crenulata* SCHMIDT, Arch. Nat. Liv.-Ehst.-und Kurlands., ser. 1, 2 (1858-1861) p. 194.

*Primitia strangulata crenulata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 223.

Paggar and Borkholm, Esthonia.

**Primitia? striata** Krause Silurian

*Primitia? striata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 496, pl. 31, figs. 4, 5—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 305, pl. 15, fig. 3.

Mark Brandenburg, North Germany (drift-Enerinurus limestone); Cave Hill, Lilydale, Victoria, Australia (Yeringian).

**Primitia striata** Jones = **Primitiella striata**

**Primitia subaequata** Ulrich Mississippian

*Primitia subaequata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 202, pl. 14, figs. 8a-c—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 480.

Chester (Clare): Claxton Postoffice, Caldwell County, Ky.  
Holotype.—U.S.N.M. No. 41421.

**Primitia subtrigonalis** Chapman

Silurian

*Primitia subtrigonalis* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17, pt. 1 (1904) p. 301, pl. 13, fig. 1.

Yeringian: Cave Hill, Lilydale, Victoria.

**Primitia sulcata** Krause

Ordovician

*Primitia sulcata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 6, pl. 1, fig. 2; *ibid.*, 43 (1891) p. 516—KOKEN, Die Leitfossilien (1896) p. 381.

Drift (white limestone): Mark Brandenburg, North Germany.

**Primitia tarda** Barrande

Devonian (F2)

*Primitia tarda* (Barrande) JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 223—BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 552, pl. 24, figs. 15–18—TROMELIN and LEBESCONTE, Soc. Geol. France, Bull., 3, ser. 4 (1875–1876) p. 607—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 507, fig. 361 G.

Konieprus, Bohemia; France.

**Primitia tatei** Jones = **Bernix tatei****Primitia tenera** Linnarsson = **Primitiella tenera****Primitia tersa** Jones and Holl

Silurian

*Primitia tersa* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 421, pl. 13, figs. 3a–c; *ibid.*, ser. 5, 17 (1886) p. 410 (loc. occ.)—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Wenlock: West Malvern, Dudley, and Ironbridge, England.

**Primitia timida** Barrande

Ordovician (D3)

*Primitia timida* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 553, pl. 27, fig. 11—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 294.

Trubin, Bohemia.

**Primitia tolli** Bonnema

Ordovician

*Primitia tolli* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 16, pl. 1, figs. 1–14—HADDING, Kongl. Fysiog. Sällsk. Handl., n. s., 24, no. 15 (1913) p. 67, pl. 6, figs. 10–11—BONNEMA, Sci. K. Akad. Wet., Amsterdam, Pr., 16 (1913) p. 71–73, figs. 1–2, p. 1108–1109; Berh. Geol. Mynb. Gen. (geol. ser.) 3 (1916) p. 15, pl. 1, figs. 1, 2—TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. 2, 15, no. 3 (1918–1919) p. 52, pl. 2, fig. 13—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 440—BONNEMA, Jour. Pal., 4 (1930) p. 118, figs. 1, 2; Zeitschr. Geschiefbeforschung, 9, no. 1 (1933) p. 27, figs. 2, 3.

Kuckers, Esthonia (Kuckers—C2); Scania, Sweden (Lower Dicollograptus shale); drift of North Germany (Orthoceras limestone).

Topotypes.—U.S.N.M. Nos. 58375, 82363.

**Primitia? transiens** Barrande

Ordovician (D1)

*Primitia transiens* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 553, pl. 27, fig. 13.

St. Benigna, Bohemia.

**Primitia trigonalis** Jones and Holl

Silurian

*Primitia trigonalis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 421, pl. 13, figs. 4a, b—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17, pt. 1 (1904) p. 300, pl. 15, fig. 8.

Near West Malvern, England (Wenlock); Cave Hill, Lilydale, Victoria (Yeringian).

**Primitia tumidula** Ulrich

Early Silurian

*Primitia tumidula* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 655, pl. 43, figs. 62–65—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 303—GRABAU and SHIMER,

North American index fossils (1910) p. 345, text fig. 1658, m, m' n—WADE, Geol. Soc. London, Quart. Jour., **67** (1911) p. 452—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 1033—LADD, Iowa Geol. Surv., Ann. Rept. 1928, **34** (1931) p. 395.

Richmond (Maquoketa): 3 miles north of Spring Valley, Minn.; Iowa; ?Llandovery, England. Cotypes.—U.S.N.M. No. 41342.

**Primitia ubiqua** Gürich

Middle Devonian

*Primitia ubiqua* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., 2nd ser., **32** (1896) p. 382—SOBOLEW, Mat. Geol. Russl. Her. Kais. Min. Ges., **24** (1909) p. 393.

Near Kielce, Poland.

**Primitia ulrichi** Jones = **Primitiella ulrichi**

**Primitia ulrichiana** Jones

Ordovician

*Primitia ulrichiana* JONES, Geol. Soc. London, Quart. Jour., **49** (1893) p. 300, pl. 14, fig. 1—WADE, *ibid.*, **67** (1911) p. 452.

Girvan, Ayrshire, Scotland (Middle Bala); Llandovery, England.

**Primitia umbilicata** Jones and Holl

Silurian

*Primitia umbilicata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. **3**, **16** (1865) p. 420, pl. 13, figs. 2a-d; *ibid.*, ser. **4**, **3** (1869) p. 220, pl. 15, figs. 6a, 6b; *ibid.*, ser. **5**, **17** (1886) p. 410 (loc. occ.)—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., **3** (1892) p. 158.

Near Malvern (Aymestry), Abberley (Ludlow), and Dudley Tunnel, England (Upper Wenlock shales); Brandenburg, Germany (drift).  
Topotypes.—U.S.N.M. No. 82365.

**Primitia umbilicata** Kummerow

Ordovician

*Primitia umbilicata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 420, 440, pl. 20, fig. 14.

Drift (Gray limestone): Near Krielow, Northern Germany.

**Primitia (Ulrichia?) umbonata** Krause = **Eurychilina umbonata**

**Primitia unicornis** Jones = **Primitiella unicornis**

**Primitia uphami** Ulrich

Ordovician

*Primitia uphami* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 651, pl. 43, fig. 66—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 1033.

Trenton (Prosser): Cannon Falls, Minn.  
Holotype.—U.S.N.M. No. 41344.

**Primitia uralica** Tschernyschew

Lower Devonian

*Primitia uralica* TSCHERNYSCHEW, Com. Géol. St. Petersburg, Mém., **4**, no. 3 (1893) p. 18, pl. 1, fig. 11.

Iss River, east side of Urals, Russia.

**Primitia valida** Jones and Holl

Silurian

*Primitia valida* JONES and HOLL, Ann. Mag. Nat. Hist., ser. **5**, **17** (1886) p. 409, pl. 14, fig. 7—JONES, Sil. Ostrac. Gotland (1887) p. 4; Ann. Mag. Nat. Hist., ser. **5**, **19** (1887) p. 193, pl. 6, fig. 7; *ibid.*, ser. **6**, **1** (1888) p. 405—CHAPMAN, Ann. Mag. Nat. Hist., ser. **7**, **7** (1901) p. 147 (loc. occ.)—KRAUSE, Deutsch. Geol. Ges., Zeitschr., **43** (1891) p. 516—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., **3** (1892) table p. 158—HEDE, Geol. För. Stockholm, Förh., **41** (1919) p. 138, pl. 6, fig. 2; Sver. Geol. Unders., ser. C, no. 305, Arsb., **14**, 1920, no. 7 (1921) p. 36, 37, 41, 42, 49, 58, 98.

Woolhope, Ironbridge, etc., England (Upper Wenlock shale, Tickwood beds, and shales over Wenlock limestone); Fröjel, Mulde, etc., Gotland, (Lower and Middle Gotlandian); North Germany (drift).

**Primitia valida angustata** Jones and Holl Silurian

*Primitia valida angustata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 410, pl. 14, fig. 4—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 148 (loc. occ.).

Shropshire, England (shales over Wenlock limestone); Mulde, Gotland (Middle Gotlandian).

**Primitia valida breviata** Jones and Holl Silurian

*Primitia valida breviata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 140, pl. 14, figs. 8a, 8b—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 148 (loc. occ.).

Shropshire, England (shales over Wenlock limestone); Mulde, Gotland (Middle Gotlandian).

**Primitia variolata** Jones and Holl Silurian

*Primitia variolata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 418, pl. 13, figs. 6a, 6b—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73, 74—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 408—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

Shales over Wenlock limestone: Ironbridge, etc., Shropshire, England.

**Primitia variolata paucipunctata** Jones and Holl = **Primitia paucipunctata****Primitia (Barychilina) variostriata** (Clarke) Upper Devonian

*Entomis variostriata* CLARKE, Neues Jahrb. Min., Geol., Pal. (1884) p. 184, pl. 4, fig. 3—JONES, Ann. Mag. Nat. Hist., ser. 6, 6 (1890) p. 323, pl. 11, figs. 5-7; *ibid.*, ser. 5, 15 (1895) p. 63—CLARKE, N. Y. State Mus., Mem. 6 (1904) p. 344, text fig. 13—ZAMJATIN, Lamell. des Domanik (1911) pl. 2, fig. 21—KINDLE, Canada Dept. Mines, Mus., Bull. 29 (geol. ser. no. 36) (1919) p. 2, 3, 7, pl. 2, figs. 1, 2, 3—PAECKELMANN, Preuss. Geol. Landes., Jahr., 1920, 41 (1921) p. 112—BURGESS, Mus. Comp. Zool., Bull., 72, no. 5 (1931) p. 200.

*Primitia variostriata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 25, pl. 1, fig. 32-d.

Bicken, Donsback, etc., Slate Mts., Germany; Livingston County, N. Y. (Naples); Mackenzie River and Alberta, Canada (Simpson and Kiln shales).

**Primitia ventricosa** Tolmachoff Devonian

*Primitia ventricosa* TOLMACHOFF, 2nd Arctic Exp. *Fram*, 1898-1902, no. 38 (1926) p. 30, pl. 1, figs. 24-25.

Vostre Borgen, Ellesmereland, Arctic America.

**Primitia vestita** Whidborne Devonian

*Primitia vestita* WHIDBORNE, Mon. Dev. Fauna South England, Pal. Soc., 3, pt. 1 (1896) p. 19, pl. 3, fig. 14.

Pilton, South England.

**Primitia(?) walcotti** Jones = **Barychilina walcotti****Primitia whitfieldi** Jones = **Primitiella whitfieldi****Primitia (Barychilina) wildungensis** Matern Upper Devonian

*Entomis variostriata* JONES, Ann. Mag. Nat. Hist., ser. 6, 6 (1890) p. 343, pl. 11, fig. 8.

*Primitia wildungensis* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 27, pl. 1, figs. 4a, c.

Wildungen, etc., Slate Mts., Germany.

**Primitia yassensis** Chapman Middle Devonian

*Primitia yassensis* CHAPMAN, Roy. Soc. New South Wales, Jour. and Pr., 47 (1913) p. 245, pl. 9, figs. 1-3.

Taemas near Yass, New South Wales.

**PRIMITIELLA** Ulrich (Primitiidae)

Genotype: *P. constricta* Ulrich

*Primitiella* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 647—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 279—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 33—GRABAU and SHIMER, North American index fossils (1910) p. 344—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 297—BASSLER, Zittel-Eastman Textb. Pal., 2d ed. (1913) p. 737; U. S. Nat. Mus., Bull. 92 (1915) p. 1033—MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 18.

***Primitiella bellula*** (Jones) Devonian

*Isochilina bellula* JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 92, pl. 11, figs. 16a, b—WHITEAVES, Geol. Surv. Canada, Contr. Can. Pal., 1, pt. 3 (1891) p. 246.

Hay River, Canada.

***Primitiella canadensis*** Bassler Silurian

*Aparchites unicornis* ULRICH, Geol. and Nat. Hist. Surv. Canada, Contr. Micro-Pal., Cambro-Sil. Rocks of Canada, pt. 2 (1879) p. 505, pl. 9, fig. 11.

*Primitiella canadensis* BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 345.

Richmond: Cape Henry, Anticosti (Vaureal); Stony Mt., Manitoba (Stony Mt.).

***Primitiella cicatricosa*** Matern Upper Devonian

*Primitiella cicatricosa* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 19, pl. 1, figs. 6a-b.

Kohlenwald, etc., Slate Mts., and Thuringia, Germany.

***Primitiella claypolei*** (Jones) Ordovician

*Leperditia claypolei* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 25, pl. 3, figs. 17a-c.

*Primitiella claypolei* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1033.

Trenton (Fulton): Cincinnati, Ohio, and vicinity.

Topotypes.—U.S.N.M. No. 41474.

***Primitiella constricta*** Ulrich Ordovician

*Primitiella constricta* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 647, pl. 43, figs. 48-52—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1033—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 297, 298, text fig. 15 (fig. 1)—BASSLER, Tenn. State Geol. Surv., Bull. 33 (1932) pl. 10, fig. 13.

*Primitia constricta* MILLER, North American geol. pal., 2d appendix (1897) p. 789 (gen. ref.).

Black River: High Bridge, Ky. (Lowville); Minneapolis, Minn. (Platteville).

Cotypes.—U.S.N.M. Nos. 41462, 41463.

***Primitiella cornuta*** Kummerow Ordovician

*Primitiella cornuta* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 420, 440, pl. 20, fig. 13.

Drift (Orthoceras limestone): East Prussia, Germany.

Topotypes.—U.S.N.M. No. 82366.

***Primitiella corrugata*** (Krause) Ordovician

*Primitia corrugata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 386, pl. 21, fig. 12—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 440.

Drift (algal limestone): North Germany.

***Primitiella elongata*** (Krause) Ordovician, Silurian

*Primitia elongata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 494, pl. 30, figs. 4a, b; *ibid.*, 44 (1892) p. 386, pl. 21, fig. 16; *ibid.*, 48 (1896) p. 933, pl. 25, fig. 9

—KOKEN, *Die Leitfossilien* (1896) p. 381—CHAPMAN, *Ann. Mag. Nat. Hist.*, ser. 7, 7 (1901) p. 148—KUMMEROW, *Preuss. Geol. Landes., Jahrb.*, 1923 (1924) p. 407, 440.

Ordovician (gray and algal limestone): Mark Brandenburg, North Germany (drift); Mulde, Gotland (Gotlandian); Holland.  
Topotypes.—U.S.N.M. No. 82368.

**Primitiella elongata nuda** (Jones) Ordovician, ?Silurian

*Primitia elongata nuda* JONES, *Geol. Soc. London, Quart. Jour.*, 49 (1893) p. 298, pl. 13, fig. 6—CHAPMAN, *Roy. Soc. Victoria, Pr.*, n. s., 17, pt. 1 (1904) p. 304, pl. 14, fig. 3.

Girvan, Ayrshire, Scotland (Middle Bala); Cave Hill, Lilydale, Victoria, Australia (Yeringian).

**Primitiella elongata parallela** (Chapman) Silurian

*Primitia elongata parallela* CHAPMAN, *Geol. Surv. New South Wales, Rec.*, 9, pt. 2 (1920) p. 98, pl. 16, figs. 1-3.

Ten miles east-southeast Fifield, New South Wales.

**Primitiella equilateralis** Ulrich and Bassler Silurian

*Primitiella equilateralis* ULRICH and BASSLER, *Md. Geol. Surv.*, Silurian vol. (1923) p. 505, pl. 37, fig. 28.

Clinton (*Drepanellina clarki* zone): 7 miles west of Lewiston, Pa.  
Holotype.—U.S.N.M. No. 63606.

**Primitiella fabacea** (Jones) Devonian

*Isochilina fabacea* JONES, *Geol. Soc. London, Quart. Jour.*, 46 (1890) p. 22, pl. 2, fig. 11—GRABAU, *Buffalo Soc. Nat. Sci., Bull.*, 6 (1899) p. 307, text fig. 349—RAYMOND, *Carnegie Mus., Ann.*, 3 (1904) p. 173 (loc. occ.)—WOOD, *N. Y. State Mus., Bull.*, 49, *Pal. Pap.*, 2 (1901) p. 142-145, 180—GRABAU and SHIMER, *North American index fossils* (1910) p. 342, text fig. 1657a.

*Primitiella fabacea* ULRICH, *Geol. Minn.*, 3, pt. 2 (1894) p. 647.

Ludlowville and Stafford: Eighteen Mile Creek, etc., N. Y.

**Primitiella fillmorensis** Ulrich Ordovician

*Primitiella fillmorensis* ULRICH, *Geol. Minn.*, 3, pt. 2 (1894) p. 649, pl. 45, figs. 26-30—BASSLER, *U. S. Nat. Mus., Bull.*, 92 (1915) p. 1033.

*Primitia fillmorensis* MILLER, *North American geol. pal.*, 2d appendix (1897) p. 789 (gen. ref.).

Black River (Decorah): Fountain, Minn.  
Holotype.—U.S.N.M. No. 41476.

**Primitiella glauconitica** Kummerow Ordovician

*Primitiella glauconitica* KUMMEROW, *Preuss. Geol. Landes., Jahrb.*, 1923 (1924) p. 419, 440, pl. 20, fig. 11.

Drift (Glauconite limestone): Voigtsdorf, Northern Germany.  
Topotypes.—U.S.N.M. No. 82367.

**Primitiella humilior** (Jones) Ordovician

*Primitia humilior* JONES, *Geol. Soc. London, Quart. Jour.*, 46 (1890) p. 5, pl. 4, fig. 5.

Bala: Near Welshpool, Montgomeryshire, North Wales.

**Primitiella (Octonaria) inornata** (Ulrich) Devonian

*Aparchites inornatus* ULRICH, *Cincinnati Soc. Nat. Hist., Jour.*, 13 (1891) p. 182, pl. 16, figs. 3a-c.

*Primitiella inornata* ULRICH, *Geol. Minn.*, 3, pt. 2 (1894) p. 647.

Onondaga: Falls of the Ohio, Louisville, Ky.



- Primitiella intermedia** Matern Upper Devonian  
*Primitiella intermedia* MATERN, Preuss. Geol. Landes., Abh., **118** (1929) p. 22, pl. 1, fig. 8.  
 Donsbach, etc., Slate Mts., Germany.
- Primitiella kegei** Matern Upper Devonian  
*Primitiella kegei* MATERN, Preuss. Geol. Landes., Abh., n. s., **118** (1929) p. 20, pl. 1, figs. 7a-d.  
 Donsbach, etc., Slate Mts., Germany.
- Primitiella kuckersiana** Bonnema Ordovician  
*Primitiella kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, **2** (1909) p. 33, pl. 3, fig. 10-14—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 440.  
 Kuckers, Esthonia (Kuckers—C2); Northern Germany (Drift-Orthoceras and Leptaena limestones.)
- Primitiella laevis** (Jones) Silurian  
*Primitia laevis* JONES (part), Sil. Ostrac. Gothland (1887) p. 4; Ann. Mag. Nat. Hist., ser. 6, **1** (1888) p. 404, pl. 2, fig. 12.  
 Middle Gotlandian; Fröjel, Gotland.
- Primitiella limbata** Ulrich Ordovician  
*Primitiella limbata* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 638, pl. 43, figs. 53-56—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 1033.  
*Primitia limbata* MILLER, North American geol. pal., 2nd appendix (1897) p. 789 (gen. ref.).  
 Black River (Decorah): Minneapolis, Minn.  
 Cotypes.—U.S.N.M. No. 41350.
- Primitiella mitis** (Jones) Devonian  
*Aparchites mitis* JONES, Geol. Surv. Canada, Contr. Can. Micr.-Pal., pt. 3 (1891) p. 91, pl. 11, figs. 15a, b—WHITEAVES, Geol. Surv. Canada., Contr. Can. Pal., **1**, pt. 3 (1891) p. 246 (loc. occ.).  
 Athabasca River, Canada.
- Primitiella? orientalis** Reed Lower Paleozoic  
*Primitiella(?) orientalis* REED, Pal. Indica, n. s., **6**, mem. 1 (1915) p. 85, pl. 12, fig. 27.  
 Panghsa-pye beds: Northern Shan States.
- Primitiella procera** Kummerow Ordovician  
*Primitiella procera* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, **44** (1924) p. 419, 440, pl. 20, figs. 12a-c.  
 Drift (Orthoceras limestone): East Prussia, Germany.  
 Topotypes.—U.S.N.M. No. 82366.
- Primitiella reichi** Matern Upper Devonian  
*Primitiella reichi* MATERN, Preuss. Geol. Landes., Abh., n. s., **118** (1929) p. 20, pl. 1, figs. 9a-c.  
 Donsbach, etc., Slate Mts., Germany.
- Primitiella simulans** Ulrich Ordovician  
*Primitiella simulans* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 648, pl. 43, figs. 26-28—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 1033.  
*Primitia simulans* MILLER, North American geol. pal., 2nd appendix (1897) p. 789.  
 Black River (Decorah): Fountain, Minn.  
 Cotypes.—U.S.N.M. No. 41475.

- Primitiella stoningtonensis** Hussey Early Silurian  
*Primitiella stoningtonensis* HUSSEY, Mus. Geol. Univ. Mich., Contr., **2**, no. 8 (1926) p. 175, 183, pl. 1, fig. 6.  
 Richmond: Stonington, Mich.
- Primitiella stricta** (Jones) Silurian  
*Primitia laevis* JONES (part), Sil. Ostrac. Gothland (1887) p. 4.  
*Primitia stricta* JONES, Ann. Mag. Nat. Hist., ser. 6, **1** (1888) p. 405, pl. 22, fig. 13.  
 Middle Gotlandian: Fröjel, Gotland.
- Primitiella tenera** (Linnarsson) Silurian  
*Primitia tenera* LINNARSSON, Ofv. Kon. Vet.-Akad. Förh., **26** (1869) p. 196; Kongl. Sven. Vet. Akad. Handl., **8**, no. 2 (1869) p. 85, pl. 2, fig. 70—EMERSON, Narr. Arctic Exp. made by Charles F. Hall, appendix 3, 45th Congr., 3d sess., Senate doc. 47 (1879) p. 580—JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 8.  
*Primitiella tenera* TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. **2**, (no. 3, 1918) (1919) p. 47, 91, pl. 2, figs. 1-3.  
 Röstånga, Scania, Sweden (Dalmanites beds); Frobisher Bay, Canada.
- Primitiella ulrichi** (Jones) Ordovician  
*Primitia ulrichi* JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 6, pl. 4, figs. 1a-c, 2, 3—AMI, Geol. Surv. Canada, Rept., n. s., **14**, 1904, n. s. (1905) p. 87.  
*Primitiella ulrichi* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 647—BASSLER, U. S. Nat. Mus., Bull. **92** (1915) p. 1034.  
 Trenton (Collingwood): Collingwood, Ottawa, etc., Ontario.  
 Topotypes.—U.S.N.M. No. 41457.
- Primitiella umbilicata** Kummerow Ordovician  
*Primitiella umbilicata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 420, pl. 30, fig. 14.  
 Drift: Spitzen Berg, Krielow, Germany.
- Primitiella unicornis** (Ulrich) Ordovician, ?Silurian  
*Leperditia unicornis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., **2** (1879) p. 10, pl. 7, figs. 4-4b.  
*Primitia unicornis* JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 7, pl. 4, figs. 8-13—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., **17** (1904) p. 306, pl. 15, figs. 4a-c.  
*Primitiella unicornis* ULRICH, Geol. Minn., **3**, pt. 2 (1894) p. 647-649, pl. 43, figs. 75-77—WHITEAVES, Geol. Surv. Canada, Pal. Foss., **3**, pt. 2 (1895) p. 126 (loc. occ.)—GRABAU and SHIMER, North American index fossils (1910) p. 344, text fig. 1658, j-k—WADE, Geol. Soc. London, Quart. Jour., **67** (1911) p. 452, pl. 36, figs. 4, 5—BASSLER, Zittel-Eastman Textb. Pal., 2nd ed., **1** (1913) p. 738, fig. 1425a; U. S. Nat. Mus., Bull. **92** (1915) p. 1034—TROEDSSON, Lunds Univ. Årsskr., Ny Följd., Avd. **2**, **15** (no. 3, 1918) (1919) p. 47, 91—RUEDEMANN, N. Y. State Mus., Bull. **272** (1926) p. 137, pl. 23, fig. 6.  
 Cincinnati, Ohio, and vicinity (Top of Trenton); New York (Canajoharie and Whetstone Gulf); ?Lilydale, Australia (Yeringian); Montgomeryshire, Wales (Bala).  
 Holotype and pleisotype.—U.S.N.M. No. 41467.
- Primitiella variolata** Ulrich and Bassler Devonian  
*Primitiella variolata* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 518, pl. 95, figs. 9, 10.  
 Oriskany (Shriver): 21st Bridge, near Keyser, W. Va.  
 Holotype.—U.S.N.M. No. 53298.
- Primitiella whitfieldi** (Jones) Ordovician  
*Primitia whitfieldi* JONES, Geol. Soc. London, Quart. Jour., **46** (1890) p. 9, pl. 3, figs. 24a-b.

*Primitiella whitfieldi* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 647—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1034.

Top of Trenton: Cincinnati, Ohio, and vicinity.

**PRIMITIOPSIS** Jones (Primitiidae)

Genotype: *P. planifrons* Jones

*Primitiopsis* JONES, Sil. Ostrac. Gothland, Stockholm (1887) p. 5; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 406—MILLER, North American geol. pal., 1st appendix (1892) p. 710—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 304—GRABAU and SHIMER, North American index fossils (1910) p. 345—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 300.

**Primitiopsis bassleri** Harris

Ordovician

*Primitiopsis bassleri* HARRIS, Okla. Geol. Surv., Bull. 33 (1931) p. 91, pl. 11, figs. 2a-d; pl. 14, figs. 2a, b.

Simpson (Bromide and Tulip Creek): Quarter of a mile west of Highway 77, Arbuckle Mts., Sec. 25, T. 2 S., R. 1 E., Okla.

**Primitiopsis oblongus** (Jones and Holl)

Silurian

*Primitia oblonga* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 423, pl. 13, figs. 14a-c—ALTH, Abh. Geol. Reichs., 7, pt. 1 (1874) p. 65, pl. 5, fig. 26—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 37—KIESOW, Schrift. Naturf. Ges. Danzig, n. s., 6 (1884) p. 229, 275—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 109 (fig. 356)—SIEMIRADSKI, Beitr. Pal. Geol. Oster.-Ungarns, 19 (1906) p. 220 (fig. 48).

*Aparchites oblongus* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 493, 514, pl. 30, figs. 2a-c—KOKEN, Die Leitfossilien (1896) p. 431—BOTKE, Overg. Verh. Geol. Mijn. Gen. Nederland, geol. ser., Deel 3, Bladz. 21-30 (1916) p. 26.

*Schmidtella oblonga* ULRICH, Geol. Minn., 3 (1894) p. 640.

*Primitiopsis oblonga* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 424, pl. 20, figs. 23, 24; Centr. Min., Geol., Pal., Jahr. 1933, Abt. B, no. 1 (1933) p. 46, fig. 4.

North Germany (drift-Beyrichia limestone); Podolia; Bohemia.  
Topotypes.—U.S.N.M. No. 82370.

**Primitiopsis obsoletus** (Jones and Holl)

Silurian

*Primitia obsoleta* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 3, 16 (1865) p. 423, pl. 13, figs. 12a-c—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1877) p. 37—KIESOW, Schrift. Naturf. Ges. Danzig, 6 (1884) p. 229, 276—ROEMER, Pal. Abh., 2, pt. 5 (1885) p. 109 (fig. 356)—CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17, pt. 1 (1904) p. 303, pl. 13, fig. 8.

*Aparchites obsoletus* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 492, 512, pl. 30, figs. 1a-e—KOKEN, Die Leitfossilien (1896) p. 431—GRÖNWALL, Geol. För Stockholm Förh., 19 (1897) p. 204, 207, 208, 210, 217, 218, 220, 240—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 53, 81, 86, pl. 4, figs. 4, 5—HEDE, Sver. Geol. Unders., ser. C, no. 305, Arsb., 14, 1920, no. 7 (1921) p. 76, 97, 98.

*Schmidtella obsoletus* ULRICH, Geol. Minn., 3 (1894) p. 640.

*Primitiopsis obsoleta* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 425.

Brandenburg, etc., Germany (drift-Beyrichia limestone); Podolia; Bohemia; Gotland (Upper Gotlandian); Cave Hill, Lilydale, Australia (Yeringian).

**Primitiopsis ornatus** Péneau

Devonian

*Primitiopsis ornatus* PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 7 (1927) p. 112, pl. 3, fig. 2.

Tentaculites beds: Chateaupanne, Basse Loire, France.

**Primitiopsis pisciformis** Gürich

Middle Devonian

*Primitiopsis? pisciformis* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 385, pl. 14, fig. 7—SOBOLEW, Mat. Geol. Russ., 24 (1909) p. 326, 394.

Szydlowek, Poland.

**Primitiopsis planifrons** Jones

Silurian

*Primitiopsis planifrons* JONES, Sil. Ostrac. Gothland (1887) p. 5, text fig.; Ann. Mag. Nat. Hist., ser. 5, 1 (1888) p. 406, pl. 22, fig. 18—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 154—HEDE, Sver. Geol. Unders., ser. C, no. 281, 11, no. 2 (1917) p. 24, 29; *ibid.*, no. 305, 14 (1920–1921) no. 7, p. 49, 98—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (figs. 7–9), p. 300—BONNEMA, Zeitschr. Geschiebeforschung, 9, pt. 1 (1933) p. 34, figs. 26–28.

Middle Gotlandian: Fröjel, Mulde, etc., Gotland.  
Topotypes.—U.S.N.M. No. 82405.

**Primitiopsis planifrons ventrosa** Jones

Silurian

*Primitiopsis planifrons ventrosa* JONES, Sil. Ostrac. Gothland (1887) p. 6; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 407, pl. 22, fig. 19.

Middle Gotlandian: Fröjel, Gotland.

**Primitiopsis ? punctulifera** (Hall)

Devonian

*Leperditia punctulifera* HALL, N. Y. State Mus. Nat. Hist., 13th Ann. Rept. (1860) p. 92.

*Beyrichia punctulifera* HALL, N. Y. State Cab. Nat. Hist., 15th Rept. (1862) p. 111—CLAYPOLE, Am. Geol., 32 (1903) p. 247.

*Cythere? punctulifera* NICHOLSON, Pal. Prov. Ontario, Rept., pt. 1 (1874) p. 124.

*Cytherellina punctulifera* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 222, pl. 1, figs. 24, 25.

*Primitiopsis punctulifera* JONES, Geol. Soc., Quart. Jour., 46 (1890) p. 9, pl. 2, figs. 7a, b, 12a, b; Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 95, pl. 11, figs. 10, 11a, b—WHITEAVES, Geol. Surv. Canada, Contr. Can. Pal., 1 (1896) p. 409—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 304, figs. 243; State Geol. N. Y., 1896, 16th Rept. (1900) p. 243—WOOD, N. Y. State Mus., Bull. 49 (1901–1902) p. 173—RAYMOND, Carnegie Mus., Ann., 3 (1904) p. 173—GRABAU and SHIMER, North American index fossils (1910) p. 345, text fig. 1660 e–g.

Hamilton: Eighteen Mile Creek, etc., N. Y. (Ludlowville and Stafford); Ontario.

**Primitiopsis ? unicornis** Van Pelt

Devonian

*Primitiopsis unicornis* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 326, pl. 39, figs. 23–28.

Traverse (Bell shale): Rogers City, Mich.

**PSEUDOPARAPARCHITES** Kellett (Leperditellidae)

Genotype: *P. kansensis* Kellett

*Pseudoparaparchites* KELLETT, Jour. Pal. 7, no. 1 (1933) p. 67.

**Pseudoparaparchites kansensis** Kellett

Pennsylvanian, Permian

*Pseudoparaparchites kansensis* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 68, pl. 13, fig. 17.

Elmdale (Elmdale formation) and Cottonwood Falls, Kan. (Cottonwood).  
Holotype.—U.S.N.M. No. 85427.

**RHOMBINA** Jones, Kirkby, and Brady (Cypridinidae)

Genotype: *R. hibernica* Jones, Kirkby, and Brady

*Rhombina* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 411—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874)

p. 43—ZITTEL, Handb. Pal., 2 (1885) p. 555—JONES and KIRKBY, Geol. Assoc., London, Pr., 9 (1886) p. 500—JONES, Ann. Mag. Nat. Hist., ser. 6, 1 (1898) p. 341.

**Rhombina belgica** Jones, Kirkby, and Brady Carboniferous

*Rhombina belgica* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 411—JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874) p. 44, pl. 5, figs. 14a-d.

Limestone: Visé, Belgium.

**Rhombina devonica** Péneau Upper Devonian

*Rhombina devonica* PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8 (1928-1929) p. 178, pl. 11, fig. 5.

Clymenia beds: La Vallée, Saint-Julien-de Vouvantes, Armorican Massif, France.

**Rhombina hibernica** Jones, Kirkby, and Brady Carboniferous

*Rhombina hibernica* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 411—JONES, KIRKBY, and BRADY, British Mon. Entomostraca Carb., Paleontogr. Soc. (1874) p. 44, pl. 2, fig. 33, pl. 5, fig. 13—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 509.

Limestone: Little Island, Cork, Ireland.

### RICHTERINA Gürich (Entomidae)

Genotype: *Cytherina costata* Richter

*Cytherina* RICHTER, Beitrag Pal. Thuringer Waldes (1843) p. 19; *ibid.* (1856) p. 107; Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 772;—RZEHA, Verh. Geol. Reichs. (1881) p. 315; *ibid.* (1883) p. 137.

*Entomis* (part) JONES, Ann. Mag. Nat. Hist., ser. 6, 6 (1890) p. 320—GÜRICH, Poln. Mittelgeb. (1896) p. 347.

*Richterina* GÜRICH, Poln. Mittelgeb. (1896) p. 377; Leitfossilien, Devonian (1908) p. 169—RZEHA, Brunn. Zeit. Mahr. Land. Mus., 10 (1910) p. 159—PÄECKELMANN, Preuss. Geol. Landes., Abh., n. s., 70 (1913) p. 192; *ibid.*, n. s., 113 (1929) p. 61, 70—PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8, 1928 (1929) p. 171.

*Fossirichterina* (subgenus) MATERN, Preuss. Geol. Landes., Abh., n. s., 113 (1929) p. 70 (genotype, *R. intercostata* Matern).

**Richterina convexa** Péneau = **Richterina hemispherica**

**Richterina costata** (Richter) Upper Devonian

*Cytherina costata* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 773, pl. 21, figs. 8, 9.

*Cythere costata* BIGSBY, Flora and fauna Devonian (1878) p. 22.

*Richterina costata* PÄECKELMANN, Preuss. Geol. Landes., Abh., n. s., 70 (1913) p. 193, pl. 3, fig. 7—PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8, 1928 (1929) p. 175, pl. 10, fig. 3b.

*Richterina* (*Richterina*) *costata* MATERN, Preuss. Geol. Landes., Abh., n. s., 113 (1929) p. 62, pl. 5, fig. 54a-b.

Slate Mts., and Thuringia, Germany; Armorican Massif and South France (Clymenia beds).

**Richterina dichotoma** (Päeckelmann) Upper Devonian

*Richterina?* *costata dichotoma* PÄECKELMANN, Preuss. Geol. Landes., Abh., n. s., 70 (1913) p. 197, pl. 3, fig. 10.

*Richterina dichotoma* SCHMIDT, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 116.

*Richterina* (*Richterina*) *dichotoma* MATERN, Preuss. Geol. Landes., Abh., n. s., 113 (1929) p. 66, pl. 5, fig. 53.

Ullendahl, etc., Slate Mts., Germany.

**Richterina exornata** Matern Upper Devonian

*Cypridina costata* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 770, pl. 20, figs. 15, 16 (not pl. 21, figs. 8, 9).

*Richterina (Ritherina) exornata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 69, pl. 5, fig. 58a-b.

Weringhausen, Slate Mts., Germany.

***Richterina (Fossirichterina) gyrata* (Richter)** Upper Devonian

*Cypridina gyrata* RICHTER, Beitr. Pal. Thüringer Waldes (1848) p. 46, pl. 6, fig. 212—RICHTER and UNGER, *ibid.* (1856) p. 36, pl. 2, figs. 33, 34—RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 769, pl. 20, fig. 13.

*Entomis gyrata* JONES, Ann. Mag. Nat. Hist., ser. 4, 11 (1873) p. 415—BIGSBY, Flora and Fauna Devonian (1878) p. 27—JONES, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 187, pl. 11, figs. 4, 8, 10, 11, 12, 18; Geol. Mag., n. s., dec. 2, 8 (1881) p. 341; Ann. Mag. Nat. Hist., ser. 5, 12 (1883) p. 245, pl. 6, figs. 3a, 3b; *ibid.*, ser. 6, 6 (1890) p. 322, pl. 11, figs. 4.

*Entomis cf. gyratum* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 377—SOBOLEW, Mat. Geol., 24 (1909) p. 369.

*Richterina (Fossirichterina) gyrata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 70, pl. 5, figs. 59a-b.

Saalfeld, etc., Thuringia and Weringhausen, etc., Slate Mts., Germany (Cypridinen schiefer); near Brünn, Moravia; Russia; Poland; Devonshire, England.

***Richterina hemispherica* (Richter)** Upper Devonian

*Cytherina hemispherica* RICHTER, Thuring. Wald., 1 (1840) p. 30—VOGR, Lehrb. Geol. und Petr., 1 (1854) p. 267—ROEMER, Bronn's Leth. Geog. 1, pt. 2 (1851-1856) p. 532—LUDWIG, Neues Jahrb. Min., Geol., Pal. (1869) p. 674—RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 773.

*Richterina hemispherica* PAECKELMANN, Preuss. Geol. Landes., Abh., n. s., 70 (1913) p. 169, pl. 3, fig. 9—SCHMIDT, Senckenbergiana, 5 (1923) p. 27—PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8, 1928 (1929) p. 173, pl. 9, fig. 5, pl. 10, fig. 1.

*Richterina (Richterina) hemispherica* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 67, pl. 4, figs. 50a-b.

*Richterina coweza* PÉNEAU, Soc. Nat. Sci. Ouest France, Bull., ser. 4, 8, 1928 (1929) p. 174, pl. 9, fig. 6, pl. 10, fig. 2.

Ullendahl, etc., Slate Mts., Germany; Armoricaïn Massif, France (Clymenia beds).

***Richterina (Fossirichterina) intercostata* Matern** Upper Devonian

*Richterina (Fossirichterina) intercostata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 73, pl. 5, figs. 61a-c.

Westfeld, etc., Slate Mts., Germany; near Brünn, Moravia.

***Richterina labyrinthica* (Richter)** Upper Devonian

*Cypridina labyrinthica* RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 391, 769, pl. 20, fig. 12.

*Entomis labyrinthica* JONES, Ann. Mag. Nat. Hist., ser. 5, 4 (1879) p. 187, pl. 11, fig. 9.

Thuringia, Germany.

***Richterina minutissima* Rzehak = *Richterina (Fossirichterina) semen***

***Richterina (Fossirichterina) moravica* (Rzehak)** Upper Devonian

*Cytherina moravica* RZEHAK, Verh. Geol. Reichs. (1881) p. 315; Geol. Verh. Umgeb. Brunn. (1883) p. 187.

*Richterina moravica* RZEHAK, Zeitschr. Mahr. Land. Mus., 10 (1910) p. 162, pl. 1, fig. 42-c—PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8, 1928 (1929) p. 172, pl. 10, fig. 3.

*Richterina (Fossirichterina) moravica* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 72, pl. 5, figs. 60a-c.

Near Brünn, Moravia; Slate Mts. and Thuringia, Germany; Armoricaïn Massif, France.

**Richterina (Fossirichterina) scabra** (Gürich) Devonian

*Entomis scabra* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 377—SOBOLEW, Nat. Geol. Russ., 24 (1909) p. 369.

*Richterina* aff. *scabra* PAECKELMANN, Berg. Land. (1913) p. 195, pl. 3, fig. 5.

*Richterina scabra* PÉNEAU, Soc. Nat. Sci. Ouest France, Bull., ser. 4, 8, 1928 (1929) p. 173, pl. 10, fig. 7.

*Richterina (Fossirichterina)* aff. *scabra* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 74, pl. 4, fig. 51.

Poland; Russia; Linderhausen, Germany; Armorica Massif, France.

**Richterina (Fossirichterina) semen** (Jones) Upper Devonian

*Barychilina? semen* JONES (Sandberger Ms.) Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 63, pl. 7, fig. 5.

*Richterina minutissima* RZEHAK, Zeitschr. Mahr. Land. Mus., 10 (1910) p. 164, pl. 1, fig. 5—PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8, 1928 (1929) p. 172, pl. 9, fig. 3, pl. 10, fig. 8, pl. 11, fig. 1.

*Richterina (Fossirichterina) semen* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 71, pl. 4, fig. 52a-c.

Clymenia annulata beds: near Brünn, Moravia; Slate Mts., Germany; Armorica Massif, France.

**Richterina striatula** (Richter) Upper Devonian

*Cytherina striatula* RICHTER, Beitr. Pal. Thüringer Waldes (1848) p. 19, pl. 2, figs. 5-13—VOGT, Lehrb. Geol. und Petr., 1 (1854) p. 267—ROEMER, Bronn's Leth. Geog., 1, pt. 2 (1851-1856) p. 532—RICHTER, Deutsch. Geol. Ges., Zeitschr., 21 (1869) p. 772, pl. 21, figs. 6, 7—JONES, Neues Jahrb. Min., Jahrg. (1874) p. 180—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 377.

*Entomis angulosa* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 376, 377.

*Richterina striatula* PAECKELMANN, Preuss. Geol. Landes., Abh., n. s., 10 (1913) p. 192, pl. 3, fig. 6—SCHMIDT, Senckenbergiana, 5 (1923) p. 57—PÉNEAU, Soc. Sci. Nat. Ouest France, Bull., ser. 4, 8, 1928 (1929) p. 171, pl. 9, fig. 2, pl. 10, fig. 4.

*Richterina (Richterina) striatula* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 64, pl. 5, fig. 55a-b.

Saalfeld, etc., Thuringia and many localities in the Slate Mts., Germany; Poland; Armorica Massif, France (Clymenia beds).

**Richterina tenera** Gürich = **Nehdentomis tenera**

**Richterina vittata** (Gürich) Upper Devonian

*Entomis vittata* GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 376.

*Richterina (Richterina) vittata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 68, pl. 5, fig. 57a-c.

Humboldt kalk: Kadzielnia, Poland.

**ROPOLONELLUS** Van Pelt (Thlipsuridae)

Genotype: *R. papillatus* Van Pelt

*Ropolonellus* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 339.

**Ropolonellus papillatus** Van Pelt Devonian

*Ropolonellus papillatus* VAN PELT, Jour. Pal., 7, no. 3 (1933) p. 339, pl. 39, figs. 29, 30.

Bell shale: Rogers City, Mich.

**SAFFORDELLA** Ulrich and Bassler, 1923 = **SAFFORDELLINA**

**SAFFORDELLINA** new name (*Saffordella* Ulrich and Bassler not Dunbar, 1920)  
(Leperditidae)

Genotype: *S. muralis* Ulrich and Bassler

*Saffordella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 295.

**Saffordellina muralis** (Ulrich and Bassler) Ordovician

*Saffordella muralis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
p. 295, figs. 13 (fig. 9).

Trenton (Catheys): Nashville, Tenn.  
Holotype.—U.S.N.M. No. 41561.

**SANSABELLA** Roundy (Leperditellidae)

Genotype: *S. amplexans* Roundy

*Sansabella* ROUNDY, U. S. Geol. Surv., Prof. Pap., 146 (1926) p. 5—GEIS, Jour. Pal., 6, no. 2 (1932) p. 174—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 365.

**Sansabella amplexans** Roundy Mississippian

*Sansabella amplexans* ROUNDY, U. S. Geol. Surv., Prof. Pap., 146 (1926) p. 5, 6,  
pl. 1, figs. 3-5.

Marble Falls limestone: San Saba County, Texas.

**Sansabella arcuata** Latham = **Jonesina arcuata**

**Sansabella ? bolliiformis** Roundy = **Jonesina bolliiformis**

**Sansabella bradyana** Latham = **Jonesina bradyana**

**Sansabella inflata** Geis Mississippian

*Sansabella inflata* GEIS, Jour. Pal., 6, no. 2 (1932) p. 174, pl. 23, fig. 3.

Salem (Spergen) limestone: Spergen Hill, etc., Ind.

**Sansabella shumardiana** (Girty) Upper Pennsylvanian

*Entomis shumardiana* GIRTY, U. S. Geol. Surv., Bull. 389 (1909) p. 117, pl. 8,  
figs. 4, 5.

Yeso formation: San Andreas, N. Mex.

**Sansabella sulcata** Roundy Mississippian

*Sansabella sulcata* ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 6, pl. 1,  
figs. 6a, 7.

Barnett shale: San Saba County, Texas.

**Sansabella unicornis** (Girty) Pennsylvanian

*Entomis unicornis* GIRTY, U. S. Geol. Surv., Bull. 377 (1909) p. 72, pl. 5, fig. 7.

Springer formation: Ardmore quadrangle, Okla.

**SANSABELLOIDES** Harris and Lalicker = **SULCELLA**

**Sansabelloides edmistoni** Harris and Lalicker = **Sulcella edmistoni**

**Sansabelloides texana** Warthin = **Sulcella texana**

**SAVAGELLA** Geis (Kirkbyidae)

Genotype: *Kirkbya lindahli* Ulrich

*Savagella* GEIS, Jour. Pal., 6, no. 2 (1932) p. 168.

**Savagella lindahli** (Ulrich) Mississippian

*Kirkbya lindahli* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 207,  
pl. 18, figs. 6a-c—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 315—GRABAU



and SHIMER, North American index fossils (1910) p. 361, text fig. 1665, p, r—ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 7.

*Amphissites lindahli* ROTH, Wagner Free Inst. Sci., Publ., 1 (1929) p. 8, 10.  
*Savagella lindahli* GEIS, Jour. Pal., 6, no. 2 (1932) p. 168.

Columbia, Ill. (Warsaw limestone); Spergen Hill, etc., Ind. (Spergen); San Saba County, Texas (Barnett shale).  
Holotype.—U.S.N.M. No. 41356.

**Savagella rhomboidalis** (Girty)

Mississippian

*Glyptopleura rhomboidalis* GIRTY, U. S. Geol. Surv., Bull. 539 (1915) p. 136, pl. 11, fig. 3—ROTH, Okla. Geol. Surv., Circ. 18, chart (1929)—CRONEIS, Ark. Geol. Surv., Bull. 3 (1930) pl. 15, fig. 8—CORYELL and BRACKMIER, Am. Midl. Nat., 12 (1931) p. 517, pl. 2, fig. 16.

*Savagella rhomboidalis* GEIS, Jour. Pal., 6, no. 2 (1932) p. 169, pl. 24, fig. 8.

Batesville sandstone: Northern Arkansas.

**SCHMIDTELLA** Ulrich (Leperditellidae)

Genotype: *S. crassimarginata* Ulrich

*Schmidtella* ULRICH, Am. Geol., 10 (1892) p. 269—MILLER, North American geol. pal., 1st appendix (1892) p. 711—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 639—GRABAU and SHIMER, North American index fossils (1910) p. 343—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1147—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 297.

**Schmidtella acuta** Matthew = **Bradoria acuta**, a Cambrian branchiopod

**Schmidtella affinis** Ulrich

Ordovician

*Schmidtella affinis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 641, pl. 43, figs. 45–47—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1147—HARRIS, Okla. Geol. Surv., Bull. 55 (1931) p. 89, pl. 11, figs. 4a, b.

Near Cannon Falls, Minn. (Trenton, Prosser); Highway 77, Arbuckle Mts., Okla. (Tulip Creek).  
Cotypes.—U.S.N.M. No. 41296.

**Schmidtella ?? belgica** Jones

Carboniferous

*Schmidtella? belgica* JONES, Soc. Geol. Belg., Ann., 23, Mem. (1896) p. 148, pl. 1, fig. 8.

Paire (Clavier), Belgium.

**Schmidtella brevis** Ulrich

Ordovician

*Schmidtella brevis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 642, pl. 45, figs. 34, 35—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1147.

Black River (Decorah): Near Fountain, Minn.  
Holotype.—U.S.N.M. No. 41299.

**Schmidtella cambrica** Matthew = **Bradoria cambrica**, a Cambrian branchiopod

**Schmidtella crassimarginata** Ulrich

Ordovician

*Schmidtella crassimarginata* ULRICH, Am. Geol., 10 (1892) p. 269, pl. 9, figs. 27–30—MILLER, North American geol. pal., 1st appendix (1892) p. 711, text fig. 1265—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 640, pl. 43, figs. 42–44—GRABAU and SHIMER, North American index fossils (1910) p. 343, text fig. 1656, o–q—RAYMOND, Carnegie Mus., Ann., 7 (1911) p. 256, text fig. 27—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1147—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 296, text fig. 14 (figs. 3–5) p. 297—BUTTS, Geol. Ala. (1928) p. 124, pl. 30, fig. 8.

Black River (Platteville): Mineral Point, etc., Wis.; Dixon, Ill.  
Chazyan (Valcour): Valcour Island, N. Y.  
Stones River (Lebanon): Cedar Mt., Ala.  
Holotype and plesiotypes.—U.S.N.M. Nos. 41295, 71511.

**Schmidtella crassimarginata ventrilabiata** Ruedemann Ordovician  
*Schmidtella crassimarginata ventrilabiata* RUEDEMANN, N. Y. State Mus., Bull. 49, 1901 (1902) p. 75, pl. 7, figs. 12-18—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1147.

Mohawkian (Rysedorph): Rysedorph Hill, Renasselaer County, N. Y.

**Schmidtella incompta** Ulrich Ordovician  
*Schmidtella incompta* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 642, pl. 45, figs. 27, 32-33—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1148.

Black River (Decorah): Fountain, Minn.  
 Cotypes.—U.S.N.M. No. 41298.

**Schmidtella incompta subaequalis** Ulrich Ordovician  
*Schmidtella incompta subaequalis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 642, pl. 32, figs. 39-41—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1148.

Trenton (Prosser): Near Cannon Falls, Minn.  
 Holotype.—U.S.N.M. No. 41297.

**Schmidtella oblonga** Ulrich = **Primitiopsis oblongus**

**Schmidtella obsoleta** Ulrich = **Primitiopsis obsoletus**

**Schmidtella?** **pervetus** Matthew, unrecognizable, but refers to a Cambrian branchiopod.

**Schmidtella sublenticularis** (Jones) Early Silurian  
*Polycope sublenticularis* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 550, pl. 21, figs. 6a, b.

*Schmidtella sublenticularis* BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1148; Geol. Surv. Canada, Mem. 154 (1927) p. 342.

Richmond (English Head and Vaureal); English Head, etc., Anticosti.

**Schmidtella subrotunda** Ulrich Ordovician  
*Schmidtella subrotunda* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 643, pl. 45, figs. 39-42—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1148.

Black River (Decorah): Minneapolis, Minn.  
 Cotypes.—U.S.N.M. No. 41300.

**Schmidtella umbonata** Ulrich Ordovician  
*Schmidtella umbonata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 641, pl. 45, figs. 36-38—GRABAU and SHIMER, North American index fossils (1910) p. 343, text fig. 1656 r-t—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1148.

Black River (Decorah): St. Paul and Cannon Falls, Minn.  
 Cotypes.—U.S.N.M. No. 41301.

### SCOFIELDIA Ulrich and Bassler (Zygbolbidae-Drepanellinae)

Genotype: *Drepanella bilateralis* Ulrich

*Scofieldia* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 314—GRABAU and SHIMER, North American index fossils (1910) p. 356—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1152—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 309.

**Scofieldia bilateralis** (Ulrich) Ordovician  
*Drepanella bilateralis* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 671, pl. 46, figs. 35-38.

*Scofieldia bilateralis* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 314, pl. 41, figs. 16-18—GRABAU and SHIMER, North American index fossils (1910) p. 356, text fig. 1664 d-f—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1152—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 309, text fig. 19 (fig. 4).

Black River (Decorah): St. Paul, and 5 miles south of Cannon Falls, Minn.  
 Cotypes.—U.S.N.M. Nos. 41558, 41559.

**SELLULA** Wiman, a genus of Cambrian branchiopods.

**SEMINOLITES** Coryell (Bairdiidae)

Genotype: *S. truncatus* Coryell

*Seminolites* CORYELL, Jour. Pal., 2, no. 2 (1928) p. 88—HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 265—DELO, Jour. Pal., 4, no. 2 (1930) p. 173—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 32.

***Seminolites compressus*** Coryell Pennsylvanian

*Seminolites compressus* CORYELL, Jour. Pal., 2, no. 2 (1928) p. 89, pl. 11, fig. 3—CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 180, pl. 18, fig. 1.

Deep well, Seminole County, Okla. (Francis); northeast of Cisco, Texas (Wayland shale).

***Seminolites conspicuus*** Harlton Mississippian

*Seminolites conspicua* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 266 pl. 2, figs. 9a-c.

Fayetteville shale just below limestone: Craig County, Okla.  
Holotype.—U.S.N.M. No. 79369.

***Seminolites elongatus*** Coryell Pennsylvanian

*Seminolites elongatus* CORYELL, Jour. Pal., 2, no. 2 (1928) p. 88, pl. 11, fig. 2—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 32—CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 181, pl. 18, fig. 2.

Seminole and Tulsa counties, Okla. (Wewoka, Holdenville, Nowata); northeast of Cisco, Texas (Wayland shale).

***Seminolites extensus*** Coryell Pennsylvanian

*Seminolites extensus* CORYELL, Jour. Pal., 2, no. 2 (1928) p. 89, pl. 11, fig. 4—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 32.

Seminole and Tulsa counties, etc., Okla. (Francis, Nowata).

***Seminolites kosomensis*** Harlton Pennsylvanian

*Seminolites kosomensis* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 26, pl. 7, figs. 4a, b.

Johns Valley shale: Southern Oklahoma.  
Holotype.—U.S.N.M. No. 85561.

***Seminolites ovatus*** Delo Pennsylvanian

*Seminolites ovatus* DELO, Jour. Pal., 4 (1930) p. 173, pl. 13, fig. 9.

Deep well, Pecos County, Texas.  
Holotype.—U.S.N.M. No. 81801.

***Seminolites perforatus*** Harlton Pennsylvanian

*Seminolites perforatus* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 26, pl. 7, figs. 6a-c.

Johns Valley shale: Southern Oklahoma.  
Cotypes.—U.S.N.M. No. 85562.

***Seminolites pushmatahensis*** Harlton Pennsylvanian

*Seminolites pushmatahensis* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 26, pl. 7 figs. 5a, b.

Johns Valley shale: Southern Oklahoma.  
Holotype.—U.S.N.M. No. 85560.

***Seminolites subtriangularis*** Harlton Pennsylvanian

*Seminolites subtriangularis* HARLTON, Am. Jour. Sci., ser. 5, 18, no. 105 (1929) p. 266, pl. 2, figs. 8a, b.

Shale near base Wapanucka limestone: Pittsburg County, Okla.  
Holotype.—U.S.N.M. No. 79368.

**Seminolites truncatus** Coryell

Pennsylvanian

*Seminolites truncatus* CORYELL, Jour. Pal., 2, no. 2 (1928) p. 88, pl. 11, fig. 1—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 32—CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 180, pl. 18, fig. 3.

Seminole County, etc., Okla. (Wewoka, Nowata); northeast of Cisco, Texas (Wayland shale).

**SILENITES** Coryell and Booth (Bairdiidae)Genotype: *S. silenus* Coryell and Booth

*Silenites* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 265.

**Silenites bilobata** (Münster)

Carboniferous

*Cythere bilobata* MÜNSTER, Jahrb. Min. (1830) p. 65—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 3, 15 (1865) p. 409, pl. 20, figs. 10a, 10b—MOORE, Geol. Soc. London, Quart. Jour., 23 (1867) p. 494, 495—ARMSTRONG, Geol. Soc. Glasgow, Tr., 3, suppl. (1871) p. 27—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 73, 74—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48.

*Cythere (Potamocypris?) bilobata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 57, pl. 6, figs. 8–10.

*Bairdia excisa* EICHWALD, Soc. Imp. Nat. Moscou, Bull., 30 (1857) p. 311; Leth. Ross., 1 (1860) p. 1342, pl. 52, fig. 8—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 4, 15 (1875) p. 54; Geol. Soc. London, Quart. Jour., 35 (1879) p. 579.

*Bythocypris bilobata* JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536–541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 512; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 250—VENUKOFF, Soc. Belge. Geol., Pal., Hydrol., Pr.-Verb., Bull. 2 (1888) p. 302—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 303, pl. 16, fig. 3—YOUNG, Geol. Soc. Glasgow, Tr., 9, 1888–1892 (1893) p. 312—LOCZY, Wiss. Ergeb. Reise Graf. Béla Széchenyi Ostasien, 1877–1880, 3 (1899) p. 193—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490.

*Bairdia bilobata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 455.

*Silenites bilobata* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 265.

Near Hof, Bavaria (Mountain limestone); South England (limestone); North England (Yoredale); East and West Scotland (Calcareous sandstone and Carboniferous limestone); Belgium; Mongolia; Toulou, Russia (*Bairdia excisa*); ? Silurian of Shropshire, England.

**Silenites faba** (Coryell and Osorio)

Pennsylvanian

*Bythocypris faba* CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 36, pl. 5, fig. 4.

*Silenites faba* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 265.

Canyon (Nowata shale): Hughes Quarry, Tulsa County, Okla.

**Silenites gallowayi** (Coryell and Osorio)

Pennsylvanian

*Bythocypris gallowayi* CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 35, pl. 5, fig. 3.

*Silenites gallowayi* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 265 (gen. ref.).

Canyon (Nowata shale): Hughes Quarry, Tulsa County, Okla.

**Silenites silenus** Coryell and Booth

Pennsylvanian

*Silenites silenus* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 265, pl. 4, fig. 1.

Wayland shale: Graham, Texas.

**STEUSLOFFIA** Ulrich and Bassler (Beyrichiidae)Genotype: *Strepula linnarssoni* Krause

*Steusloffia* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 295; Md. Geol. Surv., Silurian vol. (1923) p. 308.

**Steusloffia acuta** (Krause)

Ordovician

*Beyrichia erratica acuta* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 499, pl. 31, fig. 18.

*Beyrichia (Steusloffia) acuta* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285, pl. 297, fig. 44, p. 299, fig. 51, pl. 38, fig. 4.

Drift (Glauconite limestone): Mark Brandenburg, Northern Germany.

**Steusloffia antiqua** (Steusloff)

Ordovician

*Beyrichia antiqua* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 777, pl. 58, fig. 28—KOKEN, Die Leitfossilien (1896) p. 382.

*Beyrichia (Steusloffia) antiqua* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285, p. 297, fig. 43, pl. 38, fig. 2.

*Steusloffia antiqua* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 407.

Drift (Orthoceras limestone): Neue Brandenburg, Germany.

**Steusloffia beyrichioides** (Jones and Holl)

Silurian

*Strepula beyrichioides* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 405, pl. 13, figs. 2, 3—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.

*Beyrichia (Steusloffia) beyrichioides* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285.

Upper Wenlock shale (Tickwood beds): Lincoln Hill, Ironbridge, England.

**Steusloffia lineata** (Krause)

Ordovician

*Strepula lineata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 15, pl. 2, fig. 3.

Drift (Orthoceras limestone): Mark Brandenburg, Northern Germany.

**Steusloffia lineata granulosa** (Steusloff)

Ordovician

*Strepula lineata granulosa* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 781, pl. 58, fig. 22—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 296, fig. 38.

*Steusloffia (Strepula) lineata granulosa* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 407.

Drift (Ordovician Beyrichia limestone): Northern Germany.

**Steusloffia lineata separata** (Steusloff)

Ordovician

*Strepula lineata separata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 785, pl. 58, fig. 23—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 407.

Drift: Neue Brandenburg, Northern Germany.

**Steusloffia linnarssoni** (Krause)

Ordovician

*Strepula linnarssoni* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 16 pl. 2, figs. 4, 5—REMLE, *ibid.*, 41 (1889) p. 786—KRAUSE, *ibid.*, 43 (1891) p. 514—521—KOKEN, Die Leitfossilien (1896) p. 384—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 409.

*Beyrichia (Steusloffia) linnarssoni* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 282, text fig. 8, p. 296, fig. 34, pl. 38, fig. 1.

*Steusloffia linnarssoni* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 306, 308, text fig. 18 (fig. 5)—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 406, 412.

Drift (Orthoceras limestone, etc.): Mark Brandenburg, North Germany.  
Topotypes.—U.S.N.M. No. 82371.

**Steusloffia reticulata** (Krause)

Ordovician

*Strepula limbata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 498, pl. 31, fig. 13 (*S. reticulata* on plate).

*Beyrichia reticulata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286, 298, fig. 45.

*Steusloffia reticulata* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 429, 441; Centr. Min., Geol., Pal., Jahr. 1933, Abt. B, no. 1 (1933) p. 48, fig. 7.

Drift (Orthoceras limestone and Backsteinkalk): Mark Brandenburg, Northern Germany.

**Steusloffia signata** (Krause) Ordovician

*Beyrichia* (*Tetradella*) *signata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 295, pl. 21, fig. 4.

*Strepula signata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 784, pl. 58, fig. 25.

*Tetradella signata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.).

*Beyrichia* (*Steusloffia*) *signata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 285, pl. 38, fig. 5.

Drift (Gray limestone): Müggelheim, Neue Brandenburg, Northern Germany.  
Topotypes.—U.S.N.M. No. 83010.

**Steusloffia simplex** (Krause) Silurian

*Strepula simplex* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 498, pl. 31, fig. 12.

*Beyrichia* (*Steusloffia*) *simplex* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 286, pl. 38, fig. 3.

Drift: Mark Brandenburg, Northern Germany.

### STREPULA Jones and Holl (Kirkbyidae)

Genotype: *S. concentrica* Jones and Holl

*Strepula* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 403—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 15—JONES, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 96—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 139, 158—MILLER, North American geol. pal., 1st appendix (1892) p. 711—KOKEN, Die Leitfossilien (1896) p. 40, 384—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 390—GRABAU, Buffalo Soc. Nat. Sci., Bull., 6 (1899) p. 305—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 277, 296, 298, 307—BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 48—GRABAU and SHIMER, North American index fossils (1910) p. 350—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1208—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 316.

**Strepula? (?Polyzygia) annulata** (Sandberger) Lower Devonian

*Beyrichia* (*Strepula*) *annulata* SANDBERGER, Jahrb. Nassauischen Ver. Nat., 42 (1889) p. 33.

*Strepula? annulata* JONES, Ann. Mag. Nat. Hist., ser. 6, 15 (1895) p. 66, pl. 7, fig. 13—LEIDHOLD, Centr. Min., Geol., Pal. (1917) p. 164–167.

Dillenberg, Nassau, Germany.

**Strepula beyrichioides** Jones and Holl = **Steusloffia beyrichioides**

**Strepula concentrica** Jones and Holl Silurian

*Strepula concentrica* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 404, pl. 13, figs. 1, 4, 6—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., 32 (1896) p. 388—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 296, fig. 35; Md. Geol. Surv., Silurian vol. (1923) p. 315, 316, text fig. 22.

Wenlock: Ironbridge and Woolhope, England.

**Strepula constans** Steusloff Ordovician

*Strepula constans* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 781, pl. 58, fig. 24.

Drift (Ordovician Beyrichia limestone): Neue Brandenburg, Germany.

***Strepula corbis* Dahmer = *Zygobolba corbis***

***Strepula? costata* (Linnarsson)**

Silurian

*Beyrichia costata* LINNARSSON, Ofv. Kon. Vet.-Akad. Förh., 26 (1869) p. 194; Kon. Svern. Vet. Akad. Handl., 8 (1869) p. 85, pl. 2, figs. 67, 68—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 407—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 409.

*Beyrichia (Strepula) costata* REMELE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 786.

*Strepula costata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 499—KOKEN, Die Leitfossilien (1896) p. 384.

Gotland, Sweden (*Beyrichia* limestone); Northern Germany (drift).

***Strepula? elliptica* Steusloff**

Ordovician

*Strepula elliptica* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 778, pl. 58, fig. 21—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 407.

Drift (Kuckers): Neue Brandenburg, Northern Germany.

***Strepula irregularis* Jones and Holl**

Silurian, Devonian

*Strepula irregularis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 404, pl. 13, figs. 5, 7, 8, 9, 15—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 17—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 296, fig. 36; Md. Geol. Surv., Lower Devonian vol. (1913) p. 519, pl. 95, figs. 12–15—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1208.

Lincoln Hill, Ironbridge, Shropshire, England (Upper Wenlock shale); Cumberland, Md. (Helderbergian-Keyser).  
Plesiotypes.—U.S.N.M. No. 53281.

***Strepula kuckersiana* Bonnema = *Tetradella kuckersiana***

***Strepula kuckersiana acuta* Bonnema = *Tetradella kuckersiana acuta***

***Strepula limbata* Krause = *Steusloffia reticulata***

***Strepula lineata* Krause = *Steusloffia lineata***

***Strepula lineata granulosa* Krause = *Steusloffia lineata granulosa***

***Strepula lineata separata* Steusloff = *Steusloffia lineata separata***

***Strepula linnarssoni* Krause = *Steusloffia linnarssoni***

***Strepula lunatifera* Ulrich = *Tetradella lunatifera***

***Strepula (?Otonaria) plantaris* Jones = *Euglyphella sigmoidalis***

***Strepula quadrilirata* Ulrich = *Tetradella quadrilirata***

***Strepula reticulata* Krause = *Steusloffia reticulata***

***Strepula sigmoidalis* Jones = *Euglyphella sigmoidalis***

***Strepula sigmoides* Grabau and Shimer = *Euglyphella sigmooidalis***

***Strepula signata* Steusloff = *Steusloffia signata***

***Strepula simplex* Krause = *Steusloffia simplex***

***Strepula spriestersbachi* Dahmer**

Devonian

*Strepula spriestersbachi* DAHMER, Jahrb. Geol. Landes., 40, pt. 2 (1921) p. 217, pl. 6, figs. 10, 14.

Giengelsberg, Germany.

**SULCELLA** Coryell and Sample (Cytherellidae)

Genotype: *S. sulcata* Coryell and Sample

*Sulcella* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 274.

*Sansabelloides* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932) p. 401 (genotype, *Jonesina texana* Warthin).

**Sulcella edmistonae** (Harris and Lalicker) Permian  
*Sansabelloides edmistonii* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932)  
 p. 402, pl. 37, fig. 5.

Garrison shale: Half a mile west of Dexter, Cowley County, Kan.

**Sulcella sulcata** Coryell and Sample Pennsylvanian  
*Sulcella sulcata* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 275,  
 pl. 26, fig. 18.

Mineral Wells (East Mt. shale): Mineral Wells, Texas.

**Sulcella warthini** Coryell and Sample Pennsylvanian  
*Jonesina texana* WARTHIN (not Harlton) Okla. Geol. Surv., Bull. 53 (1930) p. 60,  
 pl. 4, fig. 10.  
*Sansabelloides texana* HARRIS and LALICKER, Am. Midl. Nat., 13, no. 6 (1932)  
 p. 402, pl. 37, figs. 4a, b.  
*Sulcella warthini* CORYELL and SAMPLE, Am. Midl. Nat., 13, no. 5 (1932) p. 275,  
 pl. 26, fig. 17.

Three miles east of Ada, Okla. (Wewoka); Mineral Wells, Texas (East Mt. shale).

### SULCUNA Jones, Kirkby, and Brady (Cypridinidae)

Genotype: *S. lepus* Jones, Kirkby, and Brady

*Sulcuna* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 411; Monthly Mier.  
 Jour., 10 (1873) p. 74—JONES, KIRKBY, and BRADY, Mon. British Entomostraca  
 Carb., Paleontogr. Soc. (1874) p. 36—ZITTEL, Handb. Pal., 2 (1885) p. 555—  
 JONES and KIRKBY, Geol. Assoc., Pr., 1885-1886, 9 (1887) p. 499—JONES, Ann.  
 Mag. Nat. Hist., ser. 7, 1 (1898) p. 341.

**Sulcuna cuniculus** Jones, Kirkby, and Brady Carboniferous  
*Sulcuna cuniculus* JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—  
 JONES, KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc.  
 (1874) p. 37, pl. 4, figs. 5, 8—JONES and KIRKBY, Geol. Soc. London, Quart. Jour.,  
 42 (1886) p. 496, 509.

Limestone: Little Island, Cork, Ireland.

**Sulcuna lepus** Jones, Kirkby, and Brady Carboniferous  
*Sulcuna lepus*, JONES, Geol. Soc. London, Quart. Jour., 29 (1873) p. 410—JONES,  
 KIRKBY, and BRADY, Mon. British Entomostraca Carb., Paleontogr. Soc. (1874)  
 p. 36, pl. 4, figs. 6, 7—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42  
 (1886) p. 496, 509.

Limestone: Little Island, Cork, Ireland.

**Sulcuna praecurrens** Jones Ordovician  
*Sulcuna praecurrens* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 304,  
 pl. 14, figs. 10, 11.

Middle Bala: Girvan, Ayrshire, Scotland.

### SYNAPHE Jones and Kirkby = BEYRICHIELLA

**Synaphe annectans** Jones and Kirkby, etc. = *Beyrichiella annectans*, etc.

### TETRADELLA Ulrich (Beyrichiidae)

Genotype: *Beyrichia quadrilirata* Hall and Whitfield

*Tetradella* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112-114—  
 MILLER, North American geol. pal., 1st appendix (1892) p. 711—ULRICH, Geol.  
 Minn., 3, pt. 2 (1894) p. 677; Zittel-Eastman Textb. Pal., 1 (1900) p. 644—ULRICH  
 and BASSLER, U. S. Nat. Mus., Pr., 35 (1903) p. 306—CUMINGS, Geol. Nat. Hist.  
 Res. Ind., 32nd Ann. Rept. (1908) p. 1041—BONNEMA, Mitt. Min. Geol. Inst.



Groningen, 2 (1909) p. 35—GRABAU and SHIMER, North American index fossils (1910) p. 353—BASSLER, Zittel-Eastman Textb. Pal., 2nd ed. (1913) p. 788; U. S. Nat. Mus., Bull. 92 (1915) p. 1263—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 311.

**Tetradella? affinis** (Jones)

Ordovician

*Beyrichia affinis* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 170, pl. 6, fig. 16—RICHTER, Deutsch. Geol. Ges., Zeitschr., 17 (1865) p. 365—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 59—JONES, Geol. Mag., n. s., dec. 2, 8 (1881) p. 343, pl. 10, fig. 4—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, 2nd ed., appendix (1881) p. 409.

*Tetradella affinis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112 (gen. ref.)—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306, 307.

Waterford, Traymore, England; North Wales; Thuringia, Germany.

**Tetradella bohémica** (Barrande)

Ordovician (D1–D4)

*Beyrichia bohémica* (Barrande) JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 91—BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 498, pl. 26, fig. 13, pl. 24, figs. 18–22—TROMELIN, Assoc. Franc. Avanc. Sci., C. R. (1875–1876) p. 638—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 20; Sitz. Ges. Naturf. Freunde Berlin (1889) p. 15—GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 387.

*Tetradella bohémica* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306.

Near Wosek (D1), Trubin (D3), Czernin (D3), Winice (D3), and Chrustenitz (D4), Bohemia.

**Tetradella bussacensis** (Jones)

Ordovician

*Beyrichia bussacensis* JONES, Geol. Soc. London, Quart. Jour., 9 (1853) p. 160, pl. 7, figs. 5, 6; Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 169, pl. 6, fig. 14—TROMELIN, Assoc. Franc. Avanc. Sci., C. R. (1875–1876) p. 638—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 19—JONES, Ann. Mag. Nat. Hist., ser. 6, 4 (1889) p. 268.

*Tetradella bussacensis* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112 (gen. ref.)—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306.

Serra de Bussaco, Portugal; England; Sweden.

**Tetradella bussacensis hispanica** (Born)

Middle Ordovician

*Beyrichia bussacensis hispanica* BORN, Abh. Senck. Nat. Ges., 36 (1918) p. 347, pl. 26, fig. 3.

Near Almaden, Spain.

**Tetradella calkeri** Bonnema

Ordovician

*Beyrichia complicata* SCHMIDT (not Salter) Arch. Nat. Liv., ser. 1, 2 (1858) p. 195. *Tetradella calkeri* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 35, pl. 3, figs. 15–22—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923, 44 (1924) p. 441.

Kuckers, Esthonia (Kuckers, C2); Northern Germany (Drift-Kuckers).  
Topotypes.—U.S.N.M. No. 53383.

**Tetradella calkeri convexa** Bonnema

Ordovician

*Tetradella calkeri convexa* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 27, pl. 3, figs. 23, 24.

Kuckers (C2); Kuckers, Esthonia.

**Tetradella carinata** Andersson = **Ctenobolbina carinata**

**Tetradella chambersi** Ulrich = **Ceratopsis chambersi**

**Tetradella cicatricosa** Warthin

Devonian

*Tetradella cicatricosa* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 209, pl. 1, figs. 4–6.

Traverse (Thunder Bay Series): Thunder Bay River, Mich.

**Tetradella complicata** (Salter)

Ordovician

*Beurichia complicata* SALTER, Geol. Surv. Great Britain, Mem., 2, pt. 1 (1848) p. 352, pl. 8, fig. 16—McCoy, in Sedgwick's Syn. Class. British Pal. Rocks (1851) p. 136, pl. 1E, fig. 3—MURCHISON, Siluria, ed. 1 (1854) p. 201, text fig. 29 (fig. 7)—JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 163, pl. 6, figs. 1–5—EICHWALD, Leth. Ross., 1 (1860) p. 1347—OWEN, Palaeontology (1860) p. 42, text fig. 9 (fig. 3); 2nd ed. (1861) p. 46, fig. 9 (fig. 3)—BOLL, Archiv. Ver. Freunde Naturg. Meckl., 16 (1862) p. 131, 147, fig. 17—HUXLEY and ETHERIDGE, Cat. Fossils Mus. Pract. Geol. (1865) p. 3, 16, 18—BOCK, Neues Jahrb. Min., Geol., Pal. (1867) p. 592—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 2 (1868) p. 59; Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 21—BAILY, Fig. Char. British Fossils, 1 (1875) p. 38, pl. 13, figs. 3a–c—TROMELIN, Assoc. Franc. Avanc. Sci., C. R. (1875–1876) p. 638—NICHOLSON and LYDEKKER, Man. Pal., 1 (1879) p. 507, fig. 361 H—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, appendix (1881) p. 487, pl. 19, fig. 9—JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 348—JONES, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 383—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 1; Sitz. Ges. Naturf. Freunde Berlin (1889) p. 15—VODGES, New York Acad. Sci., Ann., 5 (1891) pl. 2, fig. 2 (after Jones, 1870)—MARR, Geol. Mag., n. s., dec. 3, 9 (1892) p. 108—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 290—GÜRICH, Russ. Kais. Min. Ges., St. Petersburg, Verh., 32 (1896) p. 388—VOGDÉS, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 21 (after Jones, 1870).

*Tetradella complicata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112 (gen. ref.).

Montgomeryshire, Wales (Llandeilo and Bala flags); Westmoreland, England (Coniston).

**Tetradella complicata decorata** (Jones)

Ordovician

*Beurichia complicata decorata* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 165, pl. 6, fig. 6—BOCK, Neues Jahrb. Min., Geol., Pal. (1867) p. 592.

*Tetradella complicata decorata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306.

Bala: Abermarchant, Wales.

**Tetradella? digitata** (Krause)

Ordovician

*Beurichia digitata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 20, pl. 2, fig. 12; *ibid.*, 43 (1891) p. 500, pl. 31, figs. 16, 17—KOKEN, Die Leitfossilien (1896) p. 383.

*Tetradella? digitata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.)—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 39, figs. 8, 9—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 441.

Drift (Orthoceras limestone): Mark Brandenburg, Northern Germany.

**Tetradella digitata separata** (Steusloff)

Ordovician

*Beurichia digitata separata* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 41 (1894) p. 777, pl. 58, fig. 29—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 406.

*Tetradella digitata separata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306.

Drift (Orthoceras limestone): Neue Brandenburg, etc., Germany.

**Tetradella dissecta** (Krause) Ulrich = *Kiesowia dissecta***Tetradella? erratica** (Krause)

Ordovician

*Beurichia erratica* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 18, pl. 2, figs. 7, 8; *ibid.*, 43 (1891) p. 514, 521—KOKEN, Die Leitfossilien (1896) p. 383.

*Tetradella erratica* ANDERSSON, Ofv. Kon. Vet. Akad. Förh., no. 2 (1893) p. 128—ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.)—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 444.

*Beurichia (Tetradella?) erratica* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 296, fig. 37.

Drift (Orthoceras limestone): Mark Brandenburg, North Germany.  
Topotypes.—U.S.N.M. No. 82372.

**Tetradella erratica granulosa** (Krause) Ordovician  
*Beyrichia erratica granulosa* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 516.

Drift (Glauconite limestone): Mark Brandenburg, North Germany.

**Tetradella harpa** (Krause) Ordovician  
*Beyrichia (Tetradella) harpa* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 394, pl. 22, fig. 15.  
*Tetradella harpa* ANDERSSON, Ofv. Kon. Vet.-Akad. Förh., no. 2 (1893) p. 127—  
 KRAUSE, Deutsch. Geol. Ges., Zeitschr., 48 (1896) p. 936, pl. 25, fig. 4.  
*Beyrichia harpa* KOKEN, Die Leitfossilien (1896) p. 383.

Drift (*Ceratopsis rostrata* beds): Müggellheim, North Germany; Holland.  
 Topotypes.—U.S.N.M. No. 83008.

**Tetradella krausei** (Steusloff) Ordovician  
*Beyrichia krausei* STEUSLOFF, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 779, pl. 58, fig. 26—KUMMEROW, Preuss. Geol. Landes., Jahr., 1923 (1924) p. 407.

Drift: Macrurus limestone, Neue Brandenburg, Germany.

**Tetradella kuckersiana** (Bonnema) Ordovician  
*Strepula kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 48, pl. 6, figs. 16–23.

Kuckers (C2): Kuckers, Esthonia.  
 Topotypes.—U.S.N.M. No. 58384.

**Tetradella kuckersiana acuta** (Bonnema) Ordovician  
*Strepula kuckersiana acuta* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 49, pl. 6, fig. 24–26.

Kuckers (C2): Kuckers, Esthonia.  
 Topotype.—U.S.N.M. No. 58385.

**Tetradella? lacunata** (Jones and Holl) Silurian  
*Beyrichia lacunata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 359, pl. 12, figs. 18–20—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—  
 GÜRICH, Russ. Kais. Min. Ges. St. Petersburg, Verh., ser. 2, 32 (1896) p. 387.  
*Tetradella lacunata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.)—ULRICH  
 and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 307.

Wenlock (Tickwood beds, etc.): Ironbridge, Woolhope, etc., Shropshire, England.

**Tetradella lunatifera** (Ulrich) Ordovician, Early Silurian  
*Strepula lunatifera* ULRICH, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 2 (1889) p. 56, pl. 9, figs. 14–14b—LESLEY, Geol. Surv. Pa., Rept. P 4 (1890) p. 1100, 6 text figs.

*Tetradella lunatifera* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112; Geol. Minn., 3, pt. 2 (1894) p. 680, pl. 46, figs. 12–14, text figs. 51a, 51b—WHITEAVES, Geol. Surv. Canada, Pal. Foss. 3, pt. 2 (1895) p. 127—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 39, fig. 6—GRABAU and SHIMER, North American index fossils (1910) p. 353, text fig. 165 h, i—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1263; Geol. Surv. Canada, Mem. 154 (1927) p. 342.

Richmond: Stony Mt., Manitoba; Anticosti; Ohio; Indiana; Kentucky.  
 Trenton: Cannon Falls, etc., Minnesota; Iowa; Kentucky; Tennessee; etc.  
 Pleistotypes.—U.S.N.M. No. 41385.

**Tetradella mamillosa** Ulrich = **Kiesowia mamillosa**

**Tetradella marchica** (Krause) Ordovician  
*Beyrichia marchica* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 19, pl. 2, figs. 10, 11, and var. fig. 9; *ibid.*, 43 (1891) p. 491, 514, 521—KOKEN, Die Leitfossilien (1896) p. 39, text fig. 26 B.

*Tetradella marchica* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.)—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1896) p. 937—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 39, fig. 7—KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 441.

Drift (Orthoceras limestone, etc.): Mark Brandenburg, North Germany.  
Topotypes.—U.S.N.M. No. 83009.

***Tetradella marchica angustata* (Krause)** Ordovician

*Beyrichia marchica* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 19, pl. 2, fig. 9.

*Beyrichia marchica angustata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 499.

*Tetradella marchica angustata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306.

Drift: Mark Brandenburg, North Germany.

***Tetradella marchica lata* (Krause)** Silurian

*Beyrichia marchica lata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 499, pl. 31, figs. 14, 15—KIESOW, Schrift. Nat. Ges. Danzig, n. s., 8, pt. 3 (1893) p. 73.

*Tetradella marchica lata* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 306.

Drift: Mark Brandenburg, North Germany.

***Tetradella? nodulosa* Ulrich = *Beyrichia nodulosa***

***Tetradella oculifera* Ulrich = *Ceratopsis oculifera***

***Tetradella palmata* (Krause)** Ordovician

*Beyrichia palmata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 21, pl. 2, fig. 13; *ibid.*, 43 (1891) p. 516—KOKEN, Die Leitfossilien (1896) p. 383.

*Tetradella palmata* ULRICH, Geol. Minn., 3, pt. 2 (1894) p. 679 (gen. ref.).

Drift (Orthoceras limestone): Mark Brandenburg, North Germany.

***Tetradella quadrilirata* (Hall and Whitfield)** Ordovician, Early Silurian

*Beyrichia quadrilirata* HALL and WHITFIELD, Geol. Surv. Ohio, Pal., 2 (1875) p. 105, pl. 4, figs. 6, 7.

*Strepula quadrilirata* ULRICH, Geol. Surv. Canada, Contr. Can. Micro. Pal., pt. 2 (1889) p. 54, pl. 9, fig. 12—LESLEY, Geol. Surv. Pa., Rept. P 4 (1890) p. 1100, figs.

*Tetradella quadrilirata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112; Geol. Minn., 3, pt. 2 (1894) p. 679, pl. 46, figs. 1–11—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 39, figs. 4, 5—CUMINGS, Geol. Nat. Hist. Res. Ind.,

32nd Ann. Rept. (1908) pl. 53, figs. 4, 4a, p. 1048—GRABAU and SHIMER, North American index fossils (1910) p. 353, text fig. 1656, f, g—BASSLER, Zittel-Eastman

Textb. Pal. (1913) p. 738, fig. 1425j; U. S. Nat. Mus., Bull. 92 (1915) p. 1263—LADD, Iowa Geol. Surv., Ann. Rept., 1928, 34 (1931) p. 370.

*Beyrichia regularis* MILLER (not Emmons), Cincinnati Quart. Jour. Sci., 2 (1875) p. 351.

Richmond: Waynesville, Clarksville, etc., Ohio; Indiana; Kentucky; Iowa; etc.  
Black River: Kentucky; Tennessee; Minnesota; etc.  
Plesiotypes.—U.S.N.M. Nos. 41582, 41583.

***Tetradella quadrilirata simplex* Ulrich = *Tetradella simplex***

***Tetradella radians* Ulrich and Bassler = *Kiesowia radians***

***Tetradella regularis* Hussey = *Bollia regularis***

***Tetradella ribeiriana* (Jones)** Ordovician

*Beyrichia ribeiriana* JONES, Ann. Mag. Nat. Hist., ser. 2, 16 (1855) p. 169, pl. 6, fig. 15—TROMELIN, Assoc. Franc. Avanc. Sci., C. R. (1875–1876) p. 638.

*Tetradella ribeiriana* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112.

Serra de Bussaco, Portugal.

**Tetradella rostrata** Andersson = **Ceratopsis rostrata**

**Tetradella signata** Ulrich = **Steusloffia signata**

**Tetradella simplex** Ulrich

Early Silurian

*Tetradella quadrilirata simplex* ULRICH, Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 2 (1889) p. 55, pl. 9, fig. 13; Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 112; Geol. Minn., 3, pt. 2 (1894) p. 679, pl. 17, figs. 9-11—WHITEAVES, Geol. Surv. Canada, Pal. Fossils, 3, pt. 2 (1895) p. 127—CUMINGS, Geol. Nat. Hist. Res. Ind., 32nd Ann. Rept. (1908) p. 1049, pl. 53, figs. 5, 5a.

*Tetradella simplex* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 307—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1264; Geol. Surv. Canada, Mem. 154 (1927) p. 342—LADD, Iowa Geol. Surv., Ann. Rept. 1928, 34 (1931) p. 395.

Richmond: Stony Mt., Manitoba; Anticosti; Ohio; Indiana; Iowa; etc.  
Plesiotypes.—U.S.N.M. No. 41584.

**Tetradella subquadrans** Ulrich

Ordovician

*Tetradella subquadrans* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 115, text figs. 2a-c—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 307, pl. 39, figs. 1-3—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1264.

Trenton: Trenton Falls, N. Y.; Bellefonte, Pa.  
Holotype.—U.S.N.M. No. 41384.

**Tetradella turnbulli** Reed

Ordovician

*Beyrichia (Tetradella) turnbulli* REED, Geol. Mag., dec. 5, 7 (1910) p. 219, pl. 17, figs. 12-13a.

Dufton shales: Near Melmerby, England.

**TETRASULCATA** Matern (Beyrichiidae)

Genotype: *T. fluens* Matern

*Tetrasulcata* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 40.

**Tetrasulcata fluens** Matern

Upper Devonian

*Tetrasulcata fluens* MATERN, Preuss. Geol. Landes., Abh., n. s., 118 (1929) p. 40, pl. 2, figs. 26a-c.

Les Abannets, Belgium.

**THLIPSURA** Jones and Holl (Thlipsuridae)

Genotype: *T. corpulenta* Jones and Holl

*Thlipsura* (part) JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 213—JONES, Monthly Micr. Jour., 10 (1873) p. 77—ZITTEL, Handb. Pal., 2 (1885) p. 554—VOGDEN, New York Acad. Sci., Ann., 5 (1889) p. 5, pl. 2, fig. 3—ULRICH and BASSLER (part), Md. Geol. Surv., Silurian vol. (1923) p. 317—ROTH (part), Jour. Pal., 3 (1929) p. 352-358—SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 38.

*Craterellina* ULRICH and BASSLER (part), Md. Geol. Surv., Lower Devonian vol. (1913) p. 539, 540; *ibid.*, Silurian vol. (1921) p. 318 (genotype, *C. robusta* Ulrich and Bassler).

**THLIPSURA** Jones, 1886, et al. = **THLIPSURELLA**

**Thlipsura angulata** Jones = **Thlipsurella angulata**

**Thlipsura confluens** Swartz

Devonian

*Thlipsura confluens* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 40, pl. 10, figs. 3a-i.

Oriskany (Shriver): Hollidaysburg, etc., Pa.  
Cotypes.—U.S.N.M. Nos. 86492, 86495, 86502.

**Thlipsura corpulenta** Jones and Holl

Silurian

*Thlipsura corpulenta* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 214, pl. 15, figs. 1a-d—JONES, Monthly Micr. Jour., 4 (1870) p. 185, pl. 61, fig. 2;

Geol. Mag., n. s., dec. 2, 8 (1881) p. 74—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 401—VOGDÉS, New York Acad. Sci., Ann., 5 (1891) pl. 2, figs. 2a-e—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158—VOGDÉS, San Diego Soc. Nat. Hist., Tr., 3, no. 1 (1917) pl. 5, fig. 2—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317, text fig. 23 (fig. 6)—SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 39, pl. 10, fig. 1.

Wenlock and Woolhope (limestone and shale beds): Malvern, etc., England.  
Topotypes.—U.S.N.M. No. 83023.

***Thlipsura corpulenta scripta* Vine = *Thlipsurella v-scripta***

***Thlipsura curvistriata* Roth = *Thlipsurella curvistriata***

***Thlipsura fossata* Roth = *Thlipsurella fossata***

***Thlipsura furca* Roth**

Devonian

*Thlipsura furca* ROTH, Jour. Pal., 3, no. 4 (1929) p. 356, pl. 37, figs. 18a-c—SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 39, pl. 10, figs. 2a, b.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80664.

***Thlipsura multicurva* Roth = *Thlipsurella multicurva***

***Thlipsura multipunctata* Ulrich and Bassler = *Thlipsurella multipunctata***

***Thlipsura parallela* Roth = *Thlipsurella parallela***

***Thlipsura personata* Krause = *Thlipsurella personata***

***Thlipsura plicata* Jones = *Thlipsurella plicata***

***Thlipsura plicata bipunctata* Jones = *Thlipsurella plicata bipunctata***

***Thlipsura plicata unipunctata* Jones = *Thlipsurella plicata unipunctata***

***Thlipsura primitiva* Roth**

Devonian

*Thlipsura primitiva* ROTH, Jour. Pal., 3, no. 4 (1929) p. 358, pl. 37, figs. 19a-c.

Helderbergian (Haragan): Pontotoc County, Okla.  
Holotype.—U.S.N.M. No. 80661.

***Thlipsura robusta* (Ulrich and Bassler)**

Devonian

*Craterellina robusta* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 539, pl. 98, fig. 21; *ibid.*, Silurian vol. (1923) p. 317, 318, text fig. 23 (fig. 8).  
*Thlipsura robusta* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 42, pl. 10, figs. 4a-d.

Oriskany (Shriver): 21st Bridge, near Keyser, W. Va.; Cash Valley, Md.; Lewiston, etc., Pa.  
Holotype and plesiotypes.—U.S.N.M. Nos. 53303, 86491, 86501.

***Thlipsura robusta tricornis* Swartz**

Devonian

*Thlipsura robusta tricornis* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 43, pl. 10, figs. 5a-d.

Oriskany (Shriver): Hollidaysburg, etc., Pa.  
Cotypes.—U.S.N.M. Nos. 86496, 86505.

***Thlipsura simplex* Krause = *Octonaria simplex***

***Thlipsura tetragona* Krause = *Thlipsurella tetragona***

***Thlipsura triloba* Kummerow**

Silurian

*Thlipsura triloba* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 433, pl. 21, fig. 13.

Drift (Beyrichia limestone): Mügellheim, North Germany.

***Thlipsura tuberosa* Jones and Holl = *Thlipsurella tuberosa***

***Thlipsura v-scripta* Jones and Holl = *Thlipsurella v-scripta***

***Thlipsura v-scripta discreta* Jones = *Thlipsurella v-scripta discreta***

**THLIPSURELLA** Swartz (Thlipsuridae)

Genotype: *T. ellipsocefta* Swartz

*Thlipsurella* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 43.

*Thlipsura* JONES and HOLL (part), Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 214—JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1886) p. 402–404—ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 536; *ibid.*, Silurian vol. (1921) p. 317 (part)—ROTH (part), Jour. Pal., 3 (1929) p. 352–358.

*Craterellina* ULRICH and BASSLER (part), Md. Geol. Surv., Lower Devonian vol. (1913) p. 540—ROTH, Jour. Pal., 3 (1929) p. 362.

**Thlipsurella angulata** (Jones)

Silurian

*Thlipsura angulata* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 402, pl. 12, figs. 9a, b—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

*Thlipsurella angulata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.

Shales over Wenlock limestone: Shropshire, England.  
Topotype.—U.S.N.M. No. 83026.

**Thlipsurella crateriformis** Swartz

Devonian

*Thlipsurella crateriformis* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 50, pl. 11, figs. 2a, b.

Oriskany (Shriver): Curtin, Pa.  
Holotype.—U.S.N.M. No. 86487.

**Thlipsurella curtinensis** Swartz

Devonian

*Thlipsurella curtinensis* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 48, pl. 11, figs. 4a–c.

Oriskany (Shriver): Curtin, Pa.  
Cotypes.—U.S.N.M. No. 86490.

**Thlipsurella curvistriata** (Roth)

Devonian

*Thlipsura curvistriata* ROTH, Jour. Pal., 3, no. 4 (1929) p. 354, pl. 36, figs. 15a, b.  
*Thlipsurella curvistriata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.

Helderbergian (Haragan): Pontotoc County, Okla.  
Holotype.—U.S.N.M. No. 80660.

**Thlipsurella ehlersi** Warthin

Devonian

*Thlipsurella ehlersi* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 216, pl. 1, fig. 14.

Traverse (Upper Gravel Point stage): Charlevoix County, Mich.

**Thlipsurella ellipsocefta** Swartz

Devonian

*Thlipsurella ellipsocefta* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 46, pl. 10, figs. 6a–c.

Oriskany (Shriver): Curtin, Pa.  
Holotypes.—U.S.N.M. No. 86488.

**Thlipsurella fossata** (Roth)

Devonian

*Thlipsura fossata* ROTH, Jour. Pal., 3, no. 4 (1929) p. 355, pl. 36, figs. 16a–c.  
*Thlipsurella fossata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80663.

**Thlipsurella moorei** (Roth)

Devonian

*Craterellina moorei* ROTH, Jour. Pal., 3, no. 4 (1929) p. 362, pl. 37, figs. 22a, b.  
*Thlipsurella moorei* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 45.

Helderbergian (Haragan): White Mound, Murray County, Okla.  
Holotype.—U.S.N.M. No. 80650.

**Thlipsurella multipunctata** (Ulrich and Bassler)

Devonian

*Thlipsura multipunctata* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 536, pl. 98, fig. 8.

*Thlipsurella multipunctata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.

Oriskany (Shriver): 21st Bridge, near Keyser, W. Va.  
Holotype.—U.S.N.M. No. 53381.

- Thlipsurella muricurva** (Roth) Devonian  
*Thlipsura muricurva* ROTH, Jour. Pal., 3, no. 4 (1929) p. 356, pl. 37, fig. 17a.  
*Thlipsurella muricurva* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.  
 Helderbergian (Haragan): White Mound, Murray County, Okla.  
 Holotype.—U.S.N.M. No. 80662.
- Thlipsurella oblonga** (Ulrich and Bassler) Devonian  
*Craterellina oblonga* ULRICH and BASSLER, Md. Geol. Surv., Lower Devonian vol. (1913) p. 540, pl. 98, fig. 20.  
*Thlipsurella oblonga* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 49, pl. 11, figs. 1a-c.  
 Oriskany (Shriver): 21st Bridge near Keyser, W. Va.; Hollidaysburg, etc., Pa.  
 Holotype and plesiotypes.—U.S.N.M. Nos. 53302, 86499.
- Thlipsurella orthoclefta** Swartz Devonian  
*Thlipsurella orthoclefta* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 51, pl. 11, figs. 3a, b.  
 Oriskany (Shriver): Hollidaysburg, Pa., and Corriganville, Md.  
 Holotype.—U.S.N.M. No. 86504.
- Thlipsurella parallela** (Roth) Devonian  
*Thlipsura parallela* ROTH, Jour. Pal., 3, no. 4 (1929) p. 353, pl. 36, fig. 14a.  
*Thlipsurella parallela* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 45.  
 Helderbergian (Haragan): Pontotoc County, Okla.  
 Holotype.—U.S.N.M. No. 80657.
- Thlipsurella(?) personata** (Krause) Silurian  
*Thlipsura personata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 509, pl. 32, figs. 17, 18.  
*Thlipsurella personata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 45.  
 Drift (Encrinurus limestone): Mark Brandenburg, North Germany.  
 Topotype.—U.S.N.M. No. 83025.
- Thlipsurella plicata** (Jones) Silurian  
*Thlipsura plicata* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 402, pl. 12, fig. 10—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.  
*Thlipsurella plicata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.  
 Shales over Wenlock limestone: Shropshire, England.  
 Topotypes.—U.S.N.M. No. 83027.
- Thlipsurella plicata bipunctata** (Jones) Silurian  
*Thlipsura plicata bipunctata* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 402, pl. 12, fig. 13—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.  
*Thlipsurella plicata bipunctata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.  
 Shales over Wenlock limestone: Shropshire, England.  
 Topotype.—U.S.N.M. No. 83028.
- Thlipsurella plicata unipunctata** (Jones) Silurian  
*Thlipsura plicata unipunctata* JONES, Ann. Mag. Nat. Hist., ser. 5, 19 (1887) p. 402, pl. 12, figs. 11, 12—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 153—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158.  
*Thlipsurella plicata unipunctata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.  
 Shropshire, England (shales over Wenlock limestone); Mulde, Gotland (Middle Gotlandian).  
 Topotype.—U.S.N.M. No. 83029.
- Thlipsurella secoclefta** Swartz Devonian  
*Thlipsurella secoclefta* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 47, pl. 10, figs. 8a-c.  
 Oriskany (Shriver): Hollidaysburg, etc., Pa.  
 Cotypes.—U.S.N.M. Nos. 86489, 86499, 86500.



**Thlipsurella striatopunctata** (Roth)

Devonian

*Thlipsurella striatopunctata* ROTH, Jour. Pal., 3, no. 4 (1929) p. 352, pl. 36, figs. 13a, b.  
*Thlipsurella striatopunctata* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 45.

Helderbergian (Haragan): Pontotoc County, Okla.  
Holotype.—U.S.N.M. No. 80656.

**Thlipsurella swartzii** Warthin

Devonian

*Thlipsurella swartzii* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 216, pl. 1, fig. 15.

Traverse (Long Lake Series): Cheboygan County, Mich.

**Thlipsurella(?) tetragona** Krause

Silurian

*Thlipsurella tetragona* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 508, pl. 32, fig. 15—GRÖNWALL, Geol. För. Stockholm Förh., 19 (1897) p. 204, 210, 217, 218, 240—MOBERG and GRÖNWALL, Lunds Univ. Årsskr., Ny Följd., Avd. 1, Med. Mat. Nat. Ämnen, 5 (1909) p. 68, pl. 4, figs. 18, 19—HEDE, Sver. Geol. Unders., ser. C, no. 305, 14, no. 7 (1921) p. 76–78.

*Thlipsurella (?) tetragona* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 45.

Mark Brandenburg, North Germany (drift-Encrinurus and Beyrichia limestones); Island of Gotland (Upper Gotlandian).

**Thlipsurella tuberosa** (Jones and Holl)

Silurian

*Thlipsurella tuberosa* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 214, pl. 15, figs. 2a–c—JONES, *ibid.*, ser. 5, 19 (1887) p. 401; Geol. Mag., n. s., dec. 2, 8 (1881) p. 74—VINE, Geol. Soc. London, Quart. Jour., 38 (1882) p. 48—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

*Thlipsurella tuberosa* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.

Wenlock shale (Tickwood beds): near Ludlow, Much Wenlock, etc., England.

**Thlipsurella v-scripta** (Jones and Holl)

Silurian

*Thlipsurella v-scripta* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 214, pl. 15, figs. 3a–c—JONES, *ibid.*, ser. 5, 19 (1887) p. 403—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

*Thlipsurella corpulenta scripta* VINE, Geol. Soc. London, Quart. Jour., 28 (1882) p. 48.

*Thlipsurella v-scripta* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44, pl. 10, fig. 7.

Wenlock limestone and shales: near Malvern, Ironbridge, etc., England.

**Thlipsurella v-scripta discreta** (Jones)

Silurian

*Primitia minuta* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 29 (1876) p. 38, pl. 1, fig. 19.

*Thlipsurella v-scripta discreta* JONES, Sil. Ostrac. Gothland (1887) p. 6; Ann. Mag. Nat. Hist., ser. 6, 1 (1888) p. 404, pl. 22, figs. 9, 10—KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 518; *ibid.*, 44 (1892) p. 397, pl. 22, fig. 17—CHAPMAN, Ann. Mag. Nat. Hist., ser. 7, 7 (1901) p. 153, 158—HEDE, Geol. För. Stockholm Förh., 41 (1919) p. 138, pl. 6, fig. 1; Sver. Geol. Unders., ser. C, 14, 1920, no. 7 (1921) p. 41, 98—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 317, text fig. 23 (fig. 5).

*Thlipsurella v-scripta discreta* SWARTZ, Jour. Pal., 6, no. 1 (1932) p. 44.

Fröjel, Mulde, etc., Island of Gotland (Middle Gotlandian); Mark Brandenburg, North Germany (Drift-Encrinurus and Beyrichia beds).  
Topotypes.—U.S.N.M. No. 83024.

**TREPOSELLA** Ulrich and Bassler (Beyrichiidae)

Genotype: *Beyrichia lyoni* Ulrich

*Treposella* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 314—GRABAU and SHIMER, North American index fossils (1910) p. 356—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 312.

**Treposella lyoni** (Ulrich)

Devonian

*Beyrichia lyoni* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 190, pl. 14, figs. 2a-c, 3.

*Treposella lyoni* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 292, fig. 26, p. 314, pl. 42, figs. 1-4—GRABAU and SHIMER, North American index fossils (1910) p. 256, text fig. 1665 i-k—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 310, 312, text fig. 20 (figs. 11, 13).

Onondaga limestone: Falls of the Ohio River, Louisville, Ky.

Cotypes.—U.S.N.M. No. 41380.

**TRIBOLBINA** Latham (Beyrichiidae)Genotype: *T. carnegiei* Latham

*Tribolbina* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 358.

**Tribolbina carnegiei** Latham

Carboniferous

*Tribolbina carnegiei* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 358, text fig. 7.

Calceiferous sandstone: Scotland.

**Tribolbina gigantea** Latham = *Beyrichiana gigantea***TRICERATINA** Upton = **MONOCERATINA****Triceratina wrefordensis** Upton = *Monoceratina lewesi***ULRICHIA** Jones (Primitiidae)Genotype: *U. conradi* Jones

*Ulrichia* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 543—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 203—MILLER, North American geol. pal., 1st appendix (1892) p. 711—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 293—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 30 (1906) p. 152; U. S. Nat. Mus., Pr., 35 (1908) p. 277, 317—BONNEMA, Mitt. Minn. Geol. Inst. Groningen, 2 (1909) p. 51—GRABAU and SHIMER, North American index fossils (1910) p. 346—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1310—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 301—KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 237, 250, 251—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 31—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 368—KELLETT, Jour. Pal., 7, no. 1 (1933) p. 92—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 45.

**Ulrichia aequalis** (Jones and Holl)

Silurian

*Primitia aequalis* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 412, pl. 14, figs. 11a, 11b—JONES, *ibid.*, ser. 6, 3 (1889) p. 379, pl. 17, fig. 2—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 135—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) p. 158—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1029.

*Ulrichia aequalis* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 543; *ibid.*, 49 (1893) p. 293.

Coalbrook Dale and Ironbridge, England (Wenlock); Cap Bon Ami, Nova Scotia.

**Ulrichia aequalis** Ulrich and Bassler = **Ulrichia affinis****Ulrichia affinis** new name

Devonian

*Ulrichia aequalis* ULRICH and BASSLER (not Jones and Holl, 1886), Md. Geol. Surv., Lower Devonian vol. (1913) p. 518, pl. 95, fig. 11.

Oriskany (Shriver): 21st Bridge near Keyser, W. Va.

Holotype.—U.S.N.M. No. 53292.

**Ulrichia bidens** (Krause)

Ordovician

*Beyrichia (Ulrichia?) bidens* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 44 (1892) p. 396, pl. 22, fig. 12—JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 293—ANDERSSON, Ofv. Kon. Vet.-Akad. Förh., no. 2 (1893) p. 129.

*Ulrichia cf. bidens* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 54, pl. 6, fig. 27.

Müggellheim, etc., North Germany? (Drift-*Ceratopsis rostrata* beds); Kuckers, Esthonia (Kuckers—C2).  
Topotypes.—U.S.N.M. No. 82403.

***Ulrichia binoda*** Roth and Skinner Pennsylvanian

*Ulrichia binoda* ROTH and SKINNER, Jour. Pal., 4, no. 4 (1930) p. 334, 349, pl. 28, figs. 1-4.

McCoy formation: McCoy, Eagle County, Colo.

***Ulrichia bipunctata*** Jones and Holl Ordovician

*Beyrichia bipunctata* (Salter Ms.) HUXLEY and ETHERIDGE, Cat. Fossils Mus. Pract. Geol. (1865) p. 16.

*Primitia bipunctata* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 4, 3 (1869) p. 220, text fig. 5—SALTER and ETHERIDGE, Geol. Surv. Great Britain and Mus. Pract. Geol., Mem., 3, ed. 2, appendix (1881) p. 390.

*Ulrichia bipunctata* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 293.

Llandeilo: near Builth, South Wales.

***Ulrichia bituberculata*** (McCoy) Carboniferous

*Cythere bituberculata* MCCOY, Syn. Char. Carb. Fossils, Ireland (1844) p. 165, pl. 23, fig. 10—GRIFFITH, Geol. Soc. Dublin, Jour., 9 (1860-1862) p. 48, 100.

*Beyrichia bituberculata* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1865) p. 220; Ann. Mag. Nat. Hist., ser. 3, 18 (1866) p. 43—McPHAIL, Geol. Soc. Glasgow, Tr., 3 (1871) p. 268—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 26—JONES, Ann. Mag. Nat. Hist., ser. 5, 14 (1884) p. 393—JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 511—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 311.

*Ulrichia bituberculata* JONES and KIRKBY, Roy. Dublin Soc., Tr., 6 (1896) p. 191, pl. 12, fig. 20; British Assoc. Handb. Glasgow (1901) p. 490—BATALINA, Com. Geol., Bull., 43, no. 10 (1924) p. 1320, 1334, pl. 22, figs. 1-3; pl. 23, figs. 1-6—LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 368, text fig. 15.

Cultra, County Down, Ireland; near Glasgow, etc., Scotland (Lower and Upper Limestones); North England (Yoredale); Novgorod, Russia.

***Ulrichia bivertex*** Ulrich = *Dicranella bivertex*

***Ulrichia? confluens*** Ulrich = *Beyrichiella confluens*

***Ulrichia conradi*** Jones Devonian

*Ulrichia conradi* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 544, text fig. 2; Geol. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 95, pl. 11, fig. 13—WHITEAVES, Geol. Surv. Canada, Contr. Can. Pal., 1, pt. 5 (1898) p. 409 (loc. occ.)—BASSLER, in Cleland, Wis. Geol. and Nat. Hist. Surv., Bull. 21, sci. ser., no. 6 (1911) p. 145—KINDLE, U. S. Geol. Surv., Bull. 505 (1912) p. 115, pl. 9, fig. 12—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 299, text fig. 15 (fig. 10) p. 301—KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 252—WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 213, pl. 1, fig. 10.

Theford, etc., Ontario (Hamilton); Wisconsin; Michigan (Traverse); Falls of the Ohio and Appalachian region (Onondaga).  
Plesiotype.—U.S.N.M. No. 62129.

***Ulrichia (Kloedenia?) cornuta*** (Jones and Holl) Silurian

*Primitia cornuta* JONES and HOLL, Ann. Mag. Nat. Hist., ser. 5, 17 (1886) p. 411, pl. 14, figs. 12, 13—YOUNG, Ann. Mag. Nat. Hist., ser. 6, 3 (1889) p. 379—ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 135—SMITH, Nat. Hist. Soc. Glasgow, Tr., n. s., 3 (1892) table p. 158.

*Ulrichia cornuta* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 543; *ibid.*, 49 (1893) p. 293.

Lower Wenlock shales (Buildwas beds): Shropshire, England.  
Topotypes.—U.S.N.M. No. 82990.

- Ulrichia emarginata** Ulrich Mississippian  
*Ulrichia emarginata* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 203, pl. 12, figs. 10a-c—WELLER, U. S. Geol. Surv., Bull. 153 (1898) p. 638—GRABAU and SHIMER, North American index fossils (1910) p. 346, text fig. 1658, p, q.  
 Chester: Grayson Springs, Ky.  
 Holotype.—U.S.N.M. No. 41383.
- Ulrichia fragilis** Warthin Devonian  
*Ulrichia fragilis* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) pl. 1, fig. 11.  
 Hamilton (Widder beds): Arkona, Ontario.
- Ulrichia?** *girvanensis* Jones Ordovician  
*Ulrichia girvanensis* JONES, Geol. Soc. London, Quart. Jour., 49 (1892) p. 304, pl. 14, fig. 8.  
 Middle Bala: Girvan, Ayrshire, Scotland.
- Ulrichia?** *grayae* Jones Silurian  
*Ulrichia grayae* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 304, pl. 14, fig. 9.  
 Llandovery: Girvan, Ayrshire, Scotland.
- Ulrichia interserta** Whidborne Devonian  
*Ulrichia interserta* WHIDBORNE, Devonian Fauna England, Paleontogr. Soc., 3, pt. 1 (1896) p. 23, pl. 3, fig. 24.  
 Boggy, South England.
- Ulrichia kuckersiana** Bonnema Ordovician  
*Ulrichia kuckersiana* BONNEMA, Mitt. Min. Geol. Inst. Groningen, 2 (1909) p. 51, pl. 6, fig. 10-15.  
 Kuckers (C2): Kuckers, Esthonia.  
 Topotypes.—U.S.N.M. No. 58379.
- Ulrichia marrii** Jones = *Dicranella marrii*
- Ulrichia minuta** Harris and Lalieker = *Knighina minuta*
- Ulrichia molengraaffi** Kuiper Silurian  
*Ulrichia molengraaffi* KUIPER, Over. Verh. Geol. Mijnb. Gen. Nederland Klol, geol. ser., 3 (1916) p. 120, pl. 2, fig. 13—HEDE, Sver. Geol. Unders., ser. C, no. 305, Arsb., 14, 1920, no. 7 (1921) p. 49, 98.  
 Middle Gotlandian: Mulde, Gotland.
- Ulrichia montosa** Knight Pennsylvanian  
*Ulrichia montosa* KNIGHT, Jour. Pal., 2, no. 3 (1928) p. 252, pl. 32, figs. 1a-b, pl. 33, fig. 1—WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 62, pl. 4, fig. 13—CORYELL and OSORIO, Am. Midl. Nat., 13, no. 2 (1932) p. 31.  
 St. Louis County, Mo. (Henrietta-Upper Fort Scott); Oklahoma (Wetumka, Wewoka, and Nowata), Topotypes.—U.S.N.M. No. 83981.
- Ulrichia morgani** (Jones) Ordovician  
*Primitia morgani* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 5, pl. 4, figs. 6a, b; Geol. Nat. Hist. Surv. Canada, Contr. Can. Micro-Pal., pt. 3 (1891) p. 95.  
*Ulrichia morgani* JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 543; Geol. Mag., dec. 3, 8, no. 330 (1891) p. 559.  
 Bala: Welshpool, Montgomeryshire, North Wales.

**Ulrichia nicholsoni** Jones = **Dicranella nicholsoni**

**Ulrichia nodosa** (Ulrich) Ordovician, Early Silurian

*Primitia nodosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1890) p. 134, pl. 10, figs. 11a-12b.

*Ulrichia nodosa* ULRICH, Cincinnati Soc. Nat. Hist., Jour., 13 (1891) p. 203 (gen. ref.)—GRABAU and SHIMER, North American index fossils (1910) p. 346, text fig. 1658, o, o'—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 1311; Geol. Surv. Canada Mem. 154 (1927) p. 345.

Eden-Richmond; Cincinnati, Ohio, etc.; Anticosti.  
Cotypes.—U.S.N.M. No. 41552.

**Ulrichia perforata** (Barrande) Ordovician (D1)

*Primitia perforata* BARRANDE, Syst. Sil. Centre Bohême, 1, suppl. (1872) p. 550, pl. 27, figs. 12a, b.

*Ulrichia perforata* JONES, Geol. Soc. London, Quart. Jour., 49 (1893) p. 293.

St. Benigna, Bohemia.

**Ulrichia robusta** Kellett Permian

*Ulrichia robusta* KELLETT, Jour. Pal., 7, no. 1 (1933) p. 92, pl. 15, figs. 33-40, 42—UPSON, Nebr. Geol. Surv., Bull. 8 (1933) p. 45, pl. 4, fig. 1a.

Wreford limestone; Funston, etc., Kan.  
Holotype.—U.S.N.M. No. 85449.

**Ulrichia tenuimuralis** Ulrich and Bassler Mississippian

*Ulrichia tenuimuralis* ULRICH and BASSLER, Tenn. State Geol. Surv., Bull. 38 (1932) pl. 27, figs. 11, 12.

Kinderhook (Ridgetop shale); Mt. Pleasant, Tenn.  
Holotype.—U.S.N.M. No. 41547.

**Ulrichia tuberculospinosa** Ulrich = **Cornigella tuberculospinosa**

**VOGDESELLA** Baker = **JONESELLA**

**Vogdesella obscura** Baker = **Jonesella obscura**

**WAYLANDELLA** Coryell and Billings (Bairdiidae)

Genotype: *W. spinosa* Coryell and Billings

*Waylandella* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 175.

**Waylandella bythocyproidea** (Warthin) Pennsylvanian

*Healdia bythocyproidea* WARTHIN, Okla. Geol. Surv., Bull. 53 (1930) p. 76, pl. 6, fig. 12.

Wewoka formation; 7 miles southeast of Ada, Okla.

**Waylandella cornigera** (Jones and Kirkby) Carboniferous

*Cythere cornigera* JONES and KIRKBY, Mss., Geol. Soc. Glasgow, Tr., 2 (1867) p. 223—McPHAIL, *ibid.*, 3 (1871) p. 268—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 27—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 8 (1884) p. 233, 239, pl. 12, fig. 9, 9a—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513.

*Bythocypris? cornigera* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 507; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 251, pl. 6, figs. 8, 9—YOUNG, Geol. Soc. Glasgow, Tr., 1888-1892, 9 (1893) p. 312; British Assoc. Handb. Glasgow (1901) p. 490—ROUNDY, U. S. Geol. Surv., Prof. Pap. 146 (1926) p. 8.

*Healdia cornigera* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 380 text fig. 23.

North England (Yoredale); East and West Scotland (Califerous sandstone, Lower and Upper limestones).

**Waylandella cornigera robusta** (Jones and Kirkby) Carboniferous  
*Bythocypris cornigera robusta* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 453, pl. 21, fig. 2.

Yoredale: Yorkshire, England.

**Waylandella cuneola** (Jones and Kirkby) Carboniferous

*Cythere cuneola* JONES and KIRKBY, Geol. Soc. Glasgow, Tr., 2 (1867) p. 223—CRAIG, *ibid.*, 3 (1871) p. 291—ARMSTRONG, *ibid.*, 3, suppl. (1871) p. 27—McPHAIL, *ibid.*, 3 (1871) p. 268—VINE, Yorkshire Geol. Polyt. Soc., Pr., n. s., 8 (1882-1884) p. 233, 239, pl. 12, figs. 6, 6a, 7—JONES and KIRKBY, Geol. Mag., n. s., dec. 3, 2 (1885) p. 536-541; Geol. Soc. London, Quart. Jour., 42 (1886) p. 496, 513.

*Bythocypris? cuneola* JONES and KIRKBY, Geol. Soc. London, Quart. Jour., 42 (1886) p. 507; Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 250, pl. 6, figs. 3-7—VENUKOFF, Soc. Belge Geol., Pal., Hydrol., Pr. Verb., Bull. 2 (1888) p. 302—JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 9 (1892) p. 304, pl. 16, fig. 4; Geol. Soc. Glasgow, Tr., 1888-1892, 8 (1893) p. 312; Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 454—JONES, KIRKBY, and YOUNG, Edinburgh Geol. Soc., Tr., 1898, 7, (1899) p. 437—LOCZY, Wiss. Ergeb. Reise Graf. Béla Széchenyi Ostasien, 1877-1880, 3 (1899) p. 193—JONES and KIRKBY, British Assoc. Handb. Glasgow (1901) p. 490.

*Healdia cuneola* LATHAM, Roy. Soc. Edinburgh, Tr., 57, pt. 2 (1932) p. 381, text fig. 24.

North England (Carboniferous limestone and Yoredale); East and West Scotland (Calcareous sandstone, Lower and Upper limestone); Mongolia.

**Waylandella cuyleri** Coryell and Booth Pennsylvanian

*Waylandella cuyleri* CORYELL and BOOTH, Am. Midl. Nat., 15, no. 3 (1933) p. 268, pl. 5, fig. 5.

Wayland shale: Graham, Texas.

**Waylandella fornicata** Coryell and Billings Pennsylvanian

*Waylandella fornicata* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 176, pl. 17, fig. 6.

Graham (Wayland shale): Northeast of Cisco, Texas.

**Waylandella spinosa** Coryell and Billings Pennsylvanian

*Waylandella spinosa* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 175, pl. 17, fig. 7.

Graham (Wayland shale): Northeast of Cisco, Texas.

**Waylandella waylandica** Coryell and Billings Pennsylvanian

*Waylandella waylandica* CORYELL and BILLINGS, Am. Midl. Nat., 13, no. 4 (1932) p. 176, pl. 17, fig. 8.

Graham (Wayland shale): Northeast of Cisco, Texas.

#### WELLERIA Ulrich and Bassler (Zygobolbidae-Kloedeninae)

Genotype: *W. obliqua* Ulrich and Bassler

*Welleria* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 307.

**Welleria aftonensis** Warthin Devonian

*Welleria aftonensis* WARTHIN, Mus. Pal. Univ. Mich., Contr., 4, no. 12 (1934) p. 208, pl. 1, fig. 3.

Traverse (Upper): Afton, Cheyboygan County, Mich.

**Welleria obliqua** Ulrich and Bassler Silurian

*Welleria obliqua* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 642, pl. 55, figs. 6-10.

Cayugan (Tonoloway): Keyser, W. Va.; near Hancock, etc., Md.  
 Cotypes.—U.S.N.M. Nos. 82966, 82967.

- Welleria obliqua brevis** Ulrich and Bassler Silurian  
*Welleria obliqua brevis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 643, pl. 55, fig. 13.  
 Cayugan (Tonoloway): Keyser, W. Va.; Pinto, etc., Md.  
 Holotype.—U.S.N.M. No. 82969.
- Welleria obliqua longula** Ulrich and Bassler Silurian  
*Welleria obliqua longula* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 642, pl. 55, figs. 11, 12.  
 Cayugan (Tonoloway): Keyser, W. Va.; Pinto, etc., Md.  
 Cotypes.—U.S.N.M. No. 82968.
- Welleria primitioides** Kummerow Silurian  
*Welleria primitioides* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924) p. 429, pl. 21, figs. 3, 4; Centr. Min., Geol., Pal., Jahr. 1933, Abt. B, no. 1 (1933) p. 49, fig. 9.  
 Drift (Leperditia limestone): Hasselberge near Butzow, North Germany.  
 Topotype.—U.S.N.M. No. 82373.

**XESTOLEBERIS** Sars (Cytheridae)

Genotype: *Cythere aurantia* Baird

*Xestoleberis* Sars, Ofversigt. af Norges Marine Ostracoder (1865) p. 68—BRADY, CROSSKEY, and ROBERTSON, Post-Tert. Entomostraca Scotland, Mon. Paleontogr. Soc. (1874) p. 111, 189—TERQUEM, Soc. Geol. France, Mém., 3, ser. 1, pt. 3 (1878) p. 96—BRADY, Zool. Soc. London, Tr., 10 (1879) p. 400—JONES and KIRKBY, Geol. Assoc., Pr., 1885–86, 9 (1887) p. 513—LIENENKLAUS, Deutsch. Geol. Ges., Zeitschr., 46 (1894) p. 236; *ibid.*, 52 (1900) p. 531—NAMAIS, Pal. Italica, Mem. Pal., 6 (1900–1901) p. 108—LIENENKLAUS, Ber. Senck. Nat. Ges., Frankfurt am Main (1905) p. 53—MEHES, Foldani Kozlony (Geol. Mitt.) 38 (1908) p. 539, 604—NEVIANI, Pont. Acad. Sci. Nouvi Lincei, Mem., 11, 1 sess., 1927 (1928) p. 39.

**Xestoleberis corbuloides** Jones = **Microcheilinella corbuloides**

- Xestoleberis? holliana** Chapman Silurian  
*Xestoleberis holliana* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 306, pl. 13, fig. 3.  
 Yeringian: Cave Hill, Lilydale, Victoria, Australia.

- Xestoleberis? lilydalensis** Chapman Silurian  
*Xestoleberis lilydalensis* CHAPMAN, Roy. Soc. Victoria, Pr., n. s., 17 (1904) p. 307, pl. 14, figs. 1, 5, 8.  
 Yeringian: Cave Hill, Lilydale, Victoria, Australia.

**Xestoleberis subcorbuloides** Jones and Kirkby = **Microcheilinella subcorbuloides**

**Xestoleberis wrightii** Krause = **Bythocypris robusta**

**Xestoleberis wrightii** Jones = **Pachydomella wrightii**

**Xestoleberis wrightii oblonga** Chapman = **Pachydomella wrightii oblonga**

**YOUNGIA** Jones and Kirkby = **YOUNGIELLA**

**Youngia rectidorsalis** Jones and Kirkby = **Youngiella rectidorsalis**

**YOUNGIELLA** Jones and Kirkby (Youngiellidae)

Genotype: *Youngia rectidorsalis* Jones and Kirkby

*Youngia* JONES and KIRKBY, Geol. Assoc. London, Pr., 9 (1886) p. 515; Geol. Soc. London, Jour., 42 (1886) p. 507—YOUNG, Geol. Soc. Glasgow, Tr., 9 (1893) p. 308.

*Youngiella* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 456 (*Youngia*, preoccupied)—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 315.

**Youngiella? elongata** (Jones and Kirkby) Carboniferous

*Cytherella? elongata* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 5, 18 (1886) p. 262, pl. 9, figs. 2, 3; British Assoc. Handb. Glasgow (1901) p. 489.

*Youngiella? elongata* KELLETZ, Jour. Pal., 7, no. 1 (1933) p. 105 (gen. ref.).

Lower limestone: Murrayfield, Linlithgowshire, Scotland.

**Youngiella rectidorsalis** (Jones and Kirkby) Carboniferous

*Youngia rectidorsalis* JONES and KIRKBY, Geol. Assoc., Pr., 9 (1886) p. 515; Geol. Soc. London, Quart. Jour., 42 (1886) p. 507—YOUNG, Geol. Soc. Glasgow, Tr., 9 (1888–1892) p. 312.

*Youngiella rectidorsalis* JONES and KIRKBY, Ann. Mag. Nat. Hist., ser. 6, 16 (1895) p. 455, pl. 21, figs. 5a, d; British Assoc. Handb. Glasgow (1901) p. 491—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 315, text fig. 22 (figs. 1, 2).

Downholme, Yorkshire, England (Yoredale): West Scotland.

**Youngiella wapanuckensis** Harlton Pennsylvanian

*Youngiella wapanuckensis* HARLTON, Jour. Pal., 7, no. 1 (1933) p. 24, pl. 7, figs. 3a, b.

Johns Valley shale: Southern Oklahoma.

Holotype.—U.S.N.M. No. 85555.

### ZYGOBEYRICHIA Ulrich (Zygobolbidae-Kloedeninae)

Genotype: *Z. apicalis* Ulrich

*Zygobeyrichia* ULRICH, U. S. Geol. Surv., Prof. Pap. 89 (1916) p. 290—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 308, 644.

**Zygobeyrichia apicalis** Ulrich Lower Devonian

*Zygobeyrichia apicalis* ULRICH, U. S. Geol. Surv., Prof. Pap. 89 (1916) p. 292, pl. 27, figs. 11–16—ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 308, 644.

Chapman sandstone: Chapman Township, Aroostook County, Maine.

Cotypes.—U.S.N.M. No. 83955.

**Zygobeyrichia devonica** (Jones and Woodward) Devonian

*Beyrichia* sp. ROEMER, Neues Jahrb. Min. (1863) p. 521, pl. 5, fig. 9.

*Beyrichia devonica* JONES and WOODWARD, Geol. Mag., dec. 3, 4 (1889) p. 386, pl. 11, figs. 3–5—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 536, pl. 20, figs. 1–3—FUCHS, Deutsch. Geol. Ges., Zeitschr., 59 (1907) p. 101; Centr. Min., Geol., Pal. (1911) p. 711, 716—SPRIESTERSBACH, Preuss. Geol. Landes., Jahrb. (1925) p. 400, pl. 10, figs. 2–7.

*Beyrichia (Bollia) obliqua* SANDBERGER, Jahrb. Nassauischen Ver. Nat., 42 (1889) p. 33—JONES, Geol. Soc. London, Quart. Jour., 46 (1890) p. 536.

*Beyrichia obliqua* SANDBERGER, Neues Jahrb. Min., 1 (1890) p. 184.

*Zygobeyrichia devonica* ULRICH, U. S. Geol. Surv., Prof. Pap. 89 (1916) p. 291, pl. 27, figs. 1–6.

*Beyrichia (Zygobeyrichia) devonica* REED, Geol. Mag., 57 (1920) p. 342.

Near Torquay, Devonshire, England; Germany (Upper Coblenzian); Bosphorus; Aroostook County, Maine (Chapman).

Plesiotypes and topotypes.—U.S.N.M. Nos. 41669, 83954.

**Zygobeyrichia extrema** Ulrich Lower Devonian

*Zygobeyrichia extrema* ULRICH, U. S. Geol. Surv., Prof. Pap. 89 (1916) p. 292, pl. 27, figs. 7–10.

Chapman sandstone: Chapman township, Aroostook County, Maine.

Cotypes.—U.S.N.M. No. 83953.



**Zygobeyrichia incipiens** Ulrich and Bassler Silurian  
*Zygobeyrichia incipiens* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 646, pl. 54, figs. 13, 14.

Cayugan (Wills Creek): Pinto, Md.  
 Cotypes.—U.S.N.M. No. 82970.

**Zygobeyrichia modesta** Ulrich and Bassler Silurian  
*Zygobeyrichia modesta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 647, pl. 54, fig. 12.

Cayugan (Tonoloway): 5 miles west of Hancock, Md.  
 Holotype.—U.S.N.M. No. 82973.

**Zygobeyrichia regina** Ulrich and Bassler Silurian  
*Zygobeyrichia regina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 645, pl. 54, figs. 1, 2.

Cayugan: Keyser, W. Va. (Tonoloway); Schoharie, N. Y. (Manlius).  
 Cotypes.—U.S.N.M. No. 82978.

**Zygobeyrichia tonolowayensis** Ulrich and Bassler Silurian  
*Zygobeyrichia tonolowayensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 645, pl. 54, figs. 3-5.

Cayugan (Tonoloway): Keyser, W. Va.; Pinto, etc., Md.  
 Cotypes.—U.S.N.M. No. 82971.

**Zygobeyrichia ventricornis** Ulrich and Bassler Silurian  
*Zygobeyrichia ventricornis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 646, pl. 54, figs. 6-8, 11.

Cayugan: Pinto and Flintstone, Md. (Wills Creek); Keyser, W. Va. (Tonoloway).  
 Cotypes.—U.S.N.M. Nos. 82974, 82975.

**Zygobeyrichia ventricornis obsoleta** Ulrich and Bassler Silurian  
*Zygobeyrichia ventricornis obsoleta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 646, pl. 54, figs. 9, 10.

Cayugan (Wills Creek): 3 miles northwest of Hancock and Flintstone, Md.  
 Cotypes.—U.S.N.M. Nos. 82976, 82977.

**Zygobeyrichia ventripunctata** Ulrich and Bassler Silurian  
*Zygobeyrichia ventripunctata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 645, pl. 54, figs. 15-81.

Cayugan: Keyser, W. Va.; Pinto, Md. (Tonoloway); Schoharie County, N. Y. (Manlius).  
 Cotypes.—U.S.N.M. No. 82972.

**ZYGOLBA** Ulrich and Bassler (Zygobolbidae-Zygobolbinae)

Genotype: *Beyrichia decora* Billings

*Zygobolba* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 304.

**Zygobolba anticostiensis** Ulrich and Bassler Silurian  
*Zygobolba anticostiensis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 557, pl. 64, figs. 3-7; Geol. Surv. Canada, Mem. 154 (1927) p. 347.

East Cliff, Island of Anticosti; (Anticostian, Jupiter); Cumberland, Md., and Hagans, Va. (Lower Clinton).  
 Cotypes and paratypes.—U.S.N.M. Nos. 83424, 84425.

**Zygobolba arcta** Ulrich and Bassler Silurian  
*Zygobolba arcta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 539, pl. 39, figs. 10-14.

Middle Clinton (*Mastigobolbina lata* zone): Gate City and 8 miles of south Big Stone Gap, Va.; Cumberland, Md.  
 Holotype and paratypes.—U.S.N.M. Nos. 83449-83551.

**Zygodolba bimuralis** Ulrich and Bassler Silurian

*Zygodolba bimuralis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 555, pl. 40, figs. 1-10.

Middle Clinton: Cumberland, Md.; Pennsylvania; Virginia; Tennessee.  
Cotypes.—U.S.N.M. No. 83448.

**Zygodolba buttsi** Ulrich and Bassler Silurian

*Zygodolba buttsi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 545, pl. 41, figs. 16-24.

Lower Clinton: Half a mile northwest of Frankstown, Pa.  
Cotypes.—U.S.N.M. No. 83432.

**Zygodolba carinifera** Ulrich and Bassler Silurian

*Zygodolba carinifera* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 540, pl. 39, figs. 5, 6.

Lower Clinton (*Zygodolba erecta* zone): 1½ miles southwest of Cherrytown, Pa.  
Cotypes.—U.S.N.M. No. 83443.

**Zygodolba corbis** (Dahmer) Devonian

*Strepula corbis* DAHMER, Preuss. Geol. Landes., Jahrb., 1927, 48 (1928) p. 220, figs. 1-3.

Kahleberg sandstein: Mittlerer Schalker Teich, Oberharz, Germany.

**Zygodolba curta** Ulrich and Bassler Silurian

*Zygodolba curta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 557, pl. 64, figs. 1, 2, pl. 65, fig. 27.

Lower Clinton (*Zygodolba anticostiensis* zone): Hagans, Va.  
Cotypes.—U.S.N.M. No. 83426.

**Zygodolba damesii** (Krause) Silurian

*Beyrichia damesii* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891) p. 502, pl. 32, figs. 1-3—KOKEN, Die Leitfossilien (1896) p. 433—WHIDBORNE, Devonian Fauna England, Paleontogr. Soc., 3, pt. 1 (1896) p. 21, pl. 3, fig. 16—ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) pl. 38, figs. 9-11.

*Zygodolba damesi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 533.

Drift (Encrinurus limestone): Mark Brandenburg, North Germany; ?Devonian, South England.

**Zygodolba decora** (Billings) Silurian

*Beyrichia decora* BILLINGS, Geol. Surv. Canada, Cat. Sil. Fossils Anticosti (1866) p. 67.

*Beyrichia venusta* BILLINGS, Geol. Surv. Canada, Cat. Sil. Fossils Anticosti (1866) p. 68—BASSLER, U. S. Nat. Mus., Bull. 92 (1915) p. 124.

*Zygodolba decora* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 537, pl. 39, figs. 15-22, pl. 40, figs. 11-14; pl. 64, figs. 21-25—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 346.

Jumpers, etc., Anticosti (Anticostian, Jupiter); One mile north Alton, N. Y. (Williamson shale) Gate City, Va. (*Zygodolba decora* zone of Clinton).  
Plesiotypes.—U.S.N.M. No. 83447.

**Zygodolba elongata** Ulrich and Bassler Silurian

*Zygodolba elongata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 542, pl. 40, figs. 15-17.

Lower Clinton (*Zygodolba erecta* zone): 1½ miles southwest of Cherrytown, Pa.  
Cotypes.—U.S.N.M. No. 83430.

**Zygodolba erecta** Ulrich and Bassler Silurian

*Zygodolba erecta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 539, pl. 39, figs. 1-4.

Lower Clinton (*Zygodolba erecta* zone): 1½ miles southwest of Cherrytown, Pa.  
Cotypes.—U.S.N.M. No. 83440.

**Zygobolba excavata** Ulrich and Bassler Silurian  
*Zygobolba excavata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 557, pl. 64, figs. 8-13, pl. 65, fig. 6—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 347.

Anticostian (Jupiter): East Cliff, Island of Anticosti.  
 Lower Clinton: Cumberland, Md., and Hagans, Va. (*Zygobolba anticostiensis* zone): Rochester, N. Y. (Williamson shale).  
 Cotypes.—U.S.N.M. Nos. 83444, 83445.

**Zygobolba inflata** Ulrich and Bassler Silurian  
*Zygobolba inflata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 562, pl. 65, figs. 12-27—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 349.

Anticostian (Jupiter): East Cliff, Island of Anticosti.  
 Lower Clinton: Hagans, Va.; Rochester, N. Y. (Williamson shale).  
 Holotype and paratypes.—U.S.N.M. No. 83434.

**Zygobolba inflata recurva** Ulrich and Bassler Silurian  
*Zygobolba inflata recurva* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 562, pl. 65, figs. 15, 17, 21.

Lower Clinton (*Zygobolba anticostiensis* zone): Hagans, Va.  
 Anticostian (Jupiter): East Cliff, Anticosti.  
 Holotype and paratypes.—U.S.N.M. Nos. 83435, 83436.

**Zygobolba intermedia** Ulrich and Bassler Silurian  
*Zygobolba intermedia* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 559, pl. 64, fig. 20—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 348.

Anticostian (Jupiter): Jumpers, Island of Anticosti.  
 Clinton (*Zygobolba decora* zone): One mile north of Alton, N. Y. (Williamson).  
 Holotype.—U.S.N.M. No. 83442.

**Zygobolba limbata** Ulrich and Bassler Silurian  
*Zygobolba limbata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 544, pl. 41, figs. 12, 13.

Lower Clinton (*Zygobolba erecta* zone): 1½ miles southwest of Cherrytown, Pa.  
 Holotype.—U.S.N.M. No. 83454.

**Zygobolba(?) minima** Ulrich and Bassler Silurian  
*Zygobolba (?) minima* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 553, pl. 41, figs. 10, 11.

Lower Clinton: Cumberland, Md.  
 Holotype.—U.S.N.M. No. 83452.

**Zygobolba oblonga** Ulrich and Bassler Silurian  
*Zygobolba oblonga* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 560, pl. 65, figs. 10, 11.

Lower Clinton (*Zygobolba anticostiensis* zone): Hagans, Va., and Cumberland, Md.  
 Cotypes.—U.S.N.M. No. 83437.

**Zygobolba obsoleta** Ulrich and Bassler Silurian  
*Zygobolba obsoleta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 549, pl. 41, figs. 14, 15.

Lower Clinton: Half a mile northwest of Frankstown, Pa.  
 Cotypes.—U.S.N.M. No. 83459.

**Zygobolba parifinita** Ulrich and Bassler Silurian  
*Zygobolba parifinita* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 543, pl. 41, fig. 27.

Lower Clinton (*Zygobolba erecta* zone): 1½ miles southwest of Cherrytown, Pa.  
 Holotype.—U.S.N.M. No. 83453.

- Zygobolba proluxa** Ulrich and Bassler Silurian  
*Zygobolba proluxa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 558, pl. 64, figs. 14-17.  
 Lower Clinton (*Zygobolba anticostiensis* zone): Hagans, Va.; Rochester, N. Y. (Williamson shale).  
 Cotypes.—U.S.N.M. No. 83446.
- Zygobolba pulchella** Ulrich and Bassler Silurian  
*Zygobolba pulchella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 548, pl. 41, figs. 25, 26.  
 Lower Clinton: 1½ northwest of Frankstown, Pa.  
 Cotypes.—U.S.N.M. No. 83431.
- Zygobolba rectangula** Ulrich and Bassler Silurian  
*Zygobolba rectangula* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 560, pl. 65, figs. 1-4—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 348.  
 Anticostian (Jupiter): East Cliff, Island of Anticosti.  
 Clinton: Rochester, N. Y. (Williamson shale); Hagans, Va. (*Zygobolba anticostiensis* zone).  
 Cotypes.—U.S.N.M. No. 83456.
- Zygobolba reversa** Ulrich and Bassler Silurian  
*Zygobolba reversa* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 541, pl. 39, figs. 7-9.  
 Lower Clinton (*Zygobolba erecta* zone): 1½ miles southwest of Cherrytown, Pa.  
 Cotypes.—U.S.N.M. No. 83438.
- Zygobolba robusta** Ulrich and Bassler Silurian  
*Zygobolba robusta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 558, pl. 64, figs. 18, 19—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 347.  
 Anticostian (Jupiter): Jumpers Island of Anticosti.  
 Lower Clinton (Williamson shale): One mile north of Alton, N. Y.  
 Cotypes.—U.S.N.M. No. 83427.
- Zygobolba rustica** Ulrich and Bassler Silurian  
*Zygobolba rustica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 547, pl. 41, figs. 28, 29.  
 Lower Clinton: Half a mile northwest of Frankstown, Pa.  
 Cotypes.—U.S.N.M. No. 83433.
- Zygobolba twenhofeli** Ulrich and Bassler Silurian  
*Zygobolba twenhofeli* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 560, pl. 65, figs. 5, 7-9.—BASSLER, Geol. Surv. Canada, Mem. 154 (1927) p. 349.  
 Anticostian (Jupiter): East Cliff, Island of Anticosti.  
 Cotypes and paratypes.—U.S.N.M. No. 83457.
- Zygobolba v-scripta** (Krause) Ordovician  
*Bollia v-scripta* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 41 (1889) p. 13, pl. 1,  
 figs. 17, 18; *ibid.*, 43 (1891) p. 516—KOKEN, Die Leitfossilien (1896) p. 383—KUM-  
 MEROW, Preuss. Geol. Landes., Jahrb. (1924) p. 409.  
*Beyrichia v-scripta* ULRICH and BASSLER, U. S. Nat. Mus., Pr., 35 (1908) p. 299,  
 fig. 48, pl. 38, fig. 8; Md. Geol. Surv., Silurian vol. (1923) p. 533.  
*Beyrichia* (*Bollia*) *v-scripta* KUMMEROW, Preuss. Geol. Landes., Jahrb., 1923 (1924)  
 p. 441.  
 Drift (Orthoceras limestone): Mark Brandenburg, North Germany.  
 Topotype.—U.S.N.M. No. 83429.
- Zygobolba v-scripta complanata** Krause Ordovician  
*Bollia v-scripta complanata* KRAUSE, Deutsch. Geol. Ges., Zeitschr., 43 (1891)  
 p. 516.  
 Drift: Mark Brandenburg, North Germany.

- Zygobolba williamsi** Ulrich and Bassler Silurian  
*Zygobolba williamsi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) s. 550, pl. 41, figs. 1-9—WILLIAMS, Canada Dept. Mines, Mem. 111, no. 91, geol. per. (1919) p. 37.

Clinton (Dyer Bay): 2 miles west of Cabot Head, Lake Huron, and north of Cobalt, Ontario.  
 Cotypes.—U.S.N.M. No. 83439.

**ZYGOLBINA** Ulrich and Bassler (Zygobolbidae-Zygobolbinae)

Genotype: *Z. conradi* Ulrich and Bassler

*Zygobolbina* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 305.

- Zygobolbina carinata** Ulrich and Bassler Silurian  
*Zygobolbina carinata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 566, pl. 42, figs. 11-20.

Lower Clinton: Half a mile northwest of Frankstown, Pa.  
 Cotypes.—U.S.N.M. No. 63473.

- Zygobolbina conradi** Ulrich and Bassler Silurian  
*Zygobolbina conradi* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 564, pl. 43, figs. 1-11.

Middle Clinton: New Hartford, N. Y.; Cumberland, Md.; Gate City, Va.; Armuchee, Ga.  
 Cotypes and paratype.—U.S.N.M. Nos. 63521, 63472.

- Zygobolbina conradi latimarginata** Ulrich and Bassler Silurian  
*Zygobolbina conradi latimarginata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 565, pl. 43, figs. 12-19, pl. 42, fig. 1.

Middle Clinton: Hartford, N. Y.; Pennsylvania; Maryland; Virginia.  
 Cotypes and paratype.—U.S.N.M. Nos. 63508, 63474.

- Zygobolbina emaciata** Ulrich and Bassler Silurian  
*Zygobolbina emaciata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 567, pl. 42, figs. 2-10.

Middle Clinton (*Zygobolbina emaciata* zone): 4½ miles northwest of Mercersburg, Pa.; Virginia; Maryland.  
 Cotypes.—U.S.N.M. No. 63594.

- Zygobolbina panda** Ulrich and Bassler Silurian  
*Zygobolbina panda* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 566, pl. 43, figs. 20-22.

Lower Clinton: Half a mile northwest of Frankstown, Pa.  
 Cotypes.—U.S.N.M. No. 63470.

**ZYGOSELLA** Ulrich and Bassler (Zygobolbidae-Zygobolbinae)

Genotype: *Z. vallata* Ulrich and Bassler

*Zygosella* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 305.

- Zygosella alta** Ulrich and Bassler Silurian  
*Zygosella alta* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 570, pl. 45, fig. 11.

Upper Clinton: Near Six Mile House, Md. (Locality as originally given, erroneous).  
 Holotype.—U.S.N.M. No. 63511.

- Zygosella brevis** Ulrich and Bassler Silurian  
*Zygosella brevis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923) p. 573, pl. 44, figs. 21-25.

Middle Clinton (*Zygobolbina emaciata* zone): 4½ miles northwest of Mercersburg, Pa.; Cumberland, Md.  
 Cotypes.—U.S.N.M. No. 63481.

- Zygosella cristata** Ulrich and Bassler Silurian  
*Zygosella cristata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 572, pl. 45, figs. 12-14.  
 Upper Clinton (*Mastigobolbina typus* zone): near Six Mile House, Md.  
 Holotype.—U.S.N.M. No. 63517.
- Zygosella gracilis** Ulrich and Bassler Silurian  
*Zygosella gracilis* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 573, pl. 44, figs. 11-14.  
 Middle Clinton: New River, one mile west Narrows, Va.;  $4\frac{1}{2}$  miles northwest of Mercersburg, Pa.  
 (*Zygodolbina emaciata* zone).  
 Cotypes.—U.S.N.M. No. 63506.
- Zygosella limula** Ulrich and Bassler Silurian  
*Zygosella limula* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 575, pl. 44, figs. 15-17.  
 Middle Clinton (*Zygodolbina emaciata* zone):  $4\frac{1}{2}$  miles northwest of Mercersburg, Pa.  
 Cotypes.—U.S.N.M. No. 63507.
- Zygosella macra** Ulrich and Bassler Silurian  
*Zygosella macra* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 571, pl. 45, figs. 1, 4-6.  
 Upper Clinton (*Mastigobolbina typus* zone): North of Williamsville, Va.; near Six Mile House, Md.  
 Cotypes.—U.S.N.M. No. 63514.
- Zygosella mimica** Ulrich and Bassler Silurian  
*Zygosella mimica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 574, pl. 44, figs. 18-20.  
 Middle Clinton (*Mastigobolbina lata* zone): Gap,  $1\frac{1}{2}$  miles northwest of Warm Springs, Va.  
 Cotypes.—U.S.N.M. No. 63482.
- Zygosella postica** Ulrich and Bassler Silurian  
*Zygosella postica* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 572, pl. 44, figs. 1-10.  
 Middle Clinton: One mile west of Narrows, Va.; Cumberland, Md.; Pennsylvania.  
 Cotypes.—U.S.N.M. Nos. 63502, 63505.
- Zygosella vallata** Ulrich and Bassler Silurian  
*Zygosella vallata* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol. (1923)  
 p. 569, pl. 45, figs. 1-3.  
 Upper Clinton (*Mastigobolbina typus* zone):  $1\frac{1}{2}$  miles east of Great Cacapon, W. Va.;  
 Cumberland, Md.; north of Williamsville, Va.; Pennsylvania; Cumberland Gap, Tenn.  
 Cotypes.—U.S.N.M. Nos. 63515, 63516.
- Zygosella vallata nodifera** Ulrich and Bassler Silurian  
*Zygosella vallata nodifera* ULRICH and BASSLER, Md. Geol. Surv., Silurian vol.  
 (1923) p. 569, pl. 45, figs. 7-10.  
 Upper Clinton (*Bonnaemaia rudis* zone): Mulberry Gap, Powell Mt., 5 miles northwest of Sneedville,  
 Tenn.  
 Cotypes.—U.S.N.M. No. 63493.









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