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ART. X.—*A Classification of the Foraminifera.*

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Introduction.

Until about the close of the period marked by the issue of Dr. H. B. Brady's monograph on the "Challenger" Foraminifera there was a gradual development of a plan of classification based primarily on the form of the test. This was of necessity an artificial method of classification, inasmuch as family names, such as Textulariidae, embraced both arenaceous and hyaline kinds; other families again had their plans of growth duplicated in adjacent ones.

Neumayr (1887) regarded the Astrorhizidae as the earliest forms; and, from this, three principal legions proceeded, the branches of the Miliolines, the Nodosarines and the Rotalines, each with their arenaceous isomorphs.

Ludwig Rhumbler (1895) made a great advance in classification, for he had closely studied the phylogenetic relationships of many of the genera. His conclusions are largely embodied in the latest classifications of Cushman and Galloway, and many are utilized in the present plan.

As Neumayr had already suggested, Rhumbler postulated that the most primitive forms were simple arenaceous tubes; these were succeeded by the sandy spiral tubes (Ammodiscidae) and, later, by the hyaline spiral forms (Spirillinidae). Rhumbler regarded the subarenaceous *Nodosinella* and the coiled and segmented *Endothyra*, as an offshoot from the sandy-tubed stock, which further passed into Rotaliidae and Nodosariidae.

Eimer and Fickert (1899) suggested a classification which was based on form only, the shell structure being regarded as merely of secondary importance. These morphological types were foreshadowed by d'Orbigny's earlier arrangement of Stichostègues, Helicostègues, &c.

Schubert (1907 and 1920) formulated a partial classification based both on morphology and phylogeny, and illustrated the relationships of several important groups.

A great advance was made, however, by Cushman (1925), who formulated a scheme partly based on the earlier work of Rhumbler and Schubert, and showed the affinities of the genera

much more completely than previous authors. This classification was completed in 1928 (Cushman, 1928). Cushman (1933, p. 54) rightly points out that "An ideal classification should be based upon the known phylogeny of a group as shown by the fossil record and coupled with the ontogeny of the individual, as shown in its complete development, together with what may be learned of the morphology and physiology of the group." He assumes that the simplest forms were chitinous, and from these myxothecid forms (Rhumbler), the sand-encrusted types were evolved with, later on, hyaline modifications. We are inclined to reverse this sequence, though the appearance of the two groups, hyaline and arenaceous, was almost simultaneous, as *Spirillina* and *Lituotuba* have been found by us in the Cambrian.

In Cushman's second edition (1933), many genera described since 1928 were included, and changes were made in the position of some of the earlier genera.

Galloway (1928, p. 224) points out, in regard to the sequence of the calcareous and arenaceous forms respectively, that "many chitinous and calcareous forms, some of the Lagenidae, Miliolidae and Rotaliidae, show a tendency to develop an agglutinated test on the chitinous or calcareous base, but no known foraminifera have an arenaceous young stage followed by a calcareous stage in its ontogeny." The results of detailed work amongst fossil forms have convinced us that the calcareous and arenaceous foraminifera were primarily derived from chitinous types. Of these two groups the hyaline must have appeared first if the test were naturally moulded on the protoplasm. This seems to be supported by the fact that the oldest representatives of the foraminifera (Lower Cambrian, of Nuneaton, England, and the Baltic) are found in the form of glauconite casts or grains, with the hyaline test often still adhering to them.

Galloway (1933) adopted the principles enunciated by Cushman, but, as a result of his interpretation of the phylogeny, the classification differs very considerably from those in previous publications. He regards "the families as derived from similar, but more primitive ancestors, rather than from arenaceous or tubular, or other specialized or degenerate forms."

The present authors differ from Cushman by grouping the arenaceous after the perforate calcareous types. We have placed the whole order in three super-families, viz., the Allogromioidea (chitinous), the Spirillinoidea (hyaline or perforate types), and the Ammodiscoidea (arenaceous, porcellanous and subarenaceous forms).

A re-sorting of certain of Cushman's family groups has been made, and their number reduced where the generic relationships appear to warrant it. In any classification, the arrangement of families in sequence must be based on a more or less artificial plan, reticulated rather than divergent, as exemplified in the

same way in taxonomic arrangements of other groups of the animal kingdom. The inclusion of a larger number of genera within the family Rotaliidae is one of the more important changes. We have also regarded the family of the Nummulitidae as the most highly specialized of the foraminifera, in view of the complex canal system formed in the more highly developed genera. The genera constituting Cushman's sub-families Cassidulininae and Ehrenbergininae, in the family Cassidulinidae are here placed next to the Buliminidae, where it appears to us their affinities lie rather than in the Rotaliidae.

With a few minor exceptions, we have accepted the genera which Cushman has been at such pains to establish according to the rule of priority, but there are a few notable changes. The genus *Robulus* is merged into *Lenticulina*, on account of the inconstant character of the aperture. *Neusina*, *Jullicenella* and *Rhaphidoscene* are omitted on account of their hydroid or spongoid affinities, whilst *Botellina*, formerly included in the family Neusinidae, here obliterated, is removed to the Rhizamminidae. In view of the constant stream of new genera still being published, it has been considered advisable to include only those which date to the end of 1934.

Order FORAMINIFERA.

Super-family ALLOGROMIOIDEA.

Family.	Sub-family.	Genus.	Time-range.
Fam. I.— ALLOGROMIIDAE	Myxothecinae ..	<i>Schultzeella</i> Rhumbler, 1903 ..	Recent (Marine)
		<i>Myrotheca</i> Schaudinn, 1893 ..	Recent (Marine)
		<i>Boderia</i> Strebil Wright, 1867 ..	Recent (Marine)
		<i>Plagiophrys</i> Claparède and Lachmann, 1859 ..	Recent (Freshwater)
	Allogromiinae ..	<i>Dactylosaccus</i> Rhumbler, 1894 ..	Recent (Marine)
		<i>Allogromia</i> Rhumbler, 1903 ..	Recent (Marine)
		<i>Lieberkühnia</i> Claparède and Lachmann, 1859 ..	Recent (Marine and Freshwater)
		<i>Shepherdella</i> Siddall, 1880 ..	Recent (Marine)
		<i>Rhynchosaccus</i> Rhumbler, 1894 ..	Recent (Marine)
		<i>Rhynchogromia</i> Rhumbler, 1894 ..	Recent (Marine and Freshwater)
		<i>Diplogromia</i> Rhumbler, 1903 ..	Recent (Freshwater)
		<i>Diaphorodon</i> Archer, 1869 ..	Recent (Freshwater)
		<i>Amphitrema</i> Archer, 1870 ..	Recent (Freshwater)

Super-family SPIRILLINOIDEA (ALL MARINE).

Family.	Sub-family.	Genus.	Time-range.
Fam. II.— SPIRILLINIDAE	<i>Spirillina</i> Ehrenberg, 1843 ..	Cambrian—Recent
		<i>Archæadiscus</i> Brady, 1873 ..	Carboniferous
		<i>Terebralina</i> Terquem, 1866 ..	Jurassic
		<i>Turrispirillina</i> Cushman, 1927 ..	Jurassic—Recent
		<i>Conicospirillina</i> Cushman, 1927 ..	Jurassic
		<i>Trocholina</i> Paalzow, 1922 ..	Jurassic
		<i>Paalzowella</i> Cushman, 1933 ..	Jurassic

Super-family SPIRILLINOIDEA (ALL MARINE)—continued.

Family.	Sub-family.	Genus.	Time-range.
Fam. III.— NODOSARIIDAE	Nodosariinae ..	<i>Lenticulina</i> Lamarek, 1804 .. <i>Planularia</i> DeFrance, 1824 .. <i>Hemicristellaria</i> Stache, 1864 .. <i>Saracenaria</i> DeFrance, 1824 .. <i>Marginulina</i> d'Orbigny, 1826 .. <i>Vaginulina</i> d'Orbigny, 1826 .. <i>Dentulina</i> d'Orbigny, 1826 .. <i>Nodosaria</i> Lamarek, 1812 .. <i>Chrysalogonium</i> Schubert, 1907 .. <i>Pseudoglandulina</i> Cushman, 1929 .. <i>Flabellina</i> d'Orbigny, 1839 .. <i>Kyphopyra</i> Cushman, 1929 .. <i>Frandicularia</i> DeFrance, 1824 .. <i>Geinitzina</i> Spandel, 1901 .. <i>Flabellinella</i> Schubert, 1907 .. <i>Lingulina</i> d'Orbigny, 1826 .. <i>Amphicoryne</i> Schlumberger, 1881 ..	Upper Cambrian—Recent Jurassic—Recent Jurassic—Recent Jurassic—Recent Upper Cambrian—Recent Jurassic—Recent Jurassic—Recent Upper Cambrian—Recent Cretaceous—Pliocene Jurassic—Recent Jurassic—Recent Cretaceous Permian—Recent Carboniferous and Permian Upper Cretaceous Permian—Recent Tertiary—Recent
	Lageninae ..	<i>Lagena</i> Walker and Jacob, 1798 (vel <i>Entosolenia</i> , Ehrenberg, 1848)	? Upper Cambrian; Jurassic—Recent
Fam. IV.— POLYMORPHINIDAE	Polymorphininae	<i>Eoguttulina</i> Cushman and Ozawa, 1930 <i>Quadrulina</i> Cushman and Ozawa, 1930 <i>Guttulina</i> d'Orbigny, 1826 (subgenus <i>Sigmoidina</i> Cushman and Ozawa, 1928) <i>Pyrulina</i> d'Orbigny, 1826 .. <i>Globulina</i> d'Orbigny, 1826 .. <i>Dimorphina</i> d'Orbigny, 1826 .. <i>Pseudopolymorphina</i> Cushman and Ozawa, 1928 <i>Palaeopolymorphina</i> Cushman and Ozawa, 1930 <i>Polymorphina</i> d'Orbigny, 1826 .. <i>Sigmomorphina</i> Cushman and Ozawa, 1928 <i>Sigmoidella</i> Cushman and Ozawa, 1928 <i>Glandulina</i> d'Orbigny, 1826 .. <i>Ramulina</i> Rupert Jones, 1875 .. <i>Vitriwebbina</i> Chapman, 1892 ..	Jurassic—Cretaceous Jurassic—Cretaceous Jurassic—Recent Cretaceous—Recent Cretaceous—Recent Eocene—Lower Pliocene Cretaceous—Recent Cretaceous Eocene—Recent Eocene—Recent Eocene—Recent Tertiary—Recent Jurassic—Recent Cretaceous—Eocene
	Ramulininae ..		
Fam. V.— BULIMINIDAE	Turrilinae ..	<i>Turrillina</i> Andreae, 1884 (emend. Cushman, 1928) <i>Buliminella</i> Cushman, 1911 .. <i>Buliminoides</i> Cushman, 1911 .. <i>Robertina</i> d'Orbigny, 1846 .. <i>Bulimina</i> d'Orbigny, 1826 .. <i>Neobulimina</i> Cushman and Wicken-den, 1928 <i>Globobulimina</i> Cushman, 1927 .. <i>Virgulina</i> d'Orbigny, 1826 (subgenus <i>Virgulinella</i> Cushman, 1932) <i>Bolivina</i> d'Orbigny, 1839 .. <i>Rectobolivina</i> Cushman, 1927 .. <i>Loxostomum</i> Ehrenberg, 1854 .. <i>Tubulogenerina</i> Cushman, 1927 .. <i>Bifarina</i> Parker and Jones, 1872 .. <i>Schubertia</i> A. Silvestri, 1911 .. <i>Reussella</i> Galloway, 1933 .. <i>Mimosina</i> Millett, 1900 .. <i>Trimosina</i> Cushman, 1927 .. <i>Parosina</i> d'Orbigny, 1826 .. <i>Chrysalidinella</i> Schubert, 1907 .. <i>Uvigerinella</i> Cushman, 1926 .. <i>Uvigerina</i> d'Orbigny, 1826 .. <i>Hopkinsina</i> Howe and Wallace, 1933 <i>Siphogenerina</i> Schlumberger, 1883	Jurassic—Recent Cretaceous—Recent Recent Recent Jurassic—Recent Cretaceous Tertiary—Recent Lower Cretaceous—Recent Cretaceous—Recent Tertiary—Recent Cretaceous—Recent Eocene—Miocene Cretaceous—Recent Tertiary and Recent Cretaceous—Recent Recent Recent Oligocene—Recent Miocene—Recent Miocene—Recent Eocene—Recent Eocene—Recent
	Bulimininae ..		
	Virgulininae ..		
	Reussellinae ..		
	Uvigerininae ..		

Super-family SPIRILLINOIDEA (ALL MARINE)—continued.

Family.	Sub-family.	Genus.	Time-range.
Fam. V.— BULIMINIDAE— continued.	Uvigerininae— continued.	<i>Siphonodosaria</i> A. Silvestri, 1924 .. <i>Angulogerina</i> Cushman, 1927 .. <i>Trifarina</i> Cushman, 1923 .. <i>Dentalinopsis</i> Reuss, 1860 .. <i>Sporadogenerina</i> Cushman, 1927 ..	Tertiary—Recent Eocene—Recent ? Cretaceous; Eocene—Recent Cretaceous Recent
Fam. VI.— CASSIDULINIDAE	..	<i>Cassidulina</i> d'Orbigny, 1826 .. <i>Cassidulinoides</i> Cushman, 1927 .. <i>Pseudobulimina</i> Earland, 1934 .. <i>Orthoplecta</i> Brady, 1884 .. <i>Ehrenbergina</i> Reuss, 1850 ..	Upper Cretaceous—Recent Eocene—Recent Recent Recent Eocene—Recent
Fam. VII.— PLEURO- STOMELLIDAE	..	<i>Pleurostomella</i> Reuss, 1860 .. <i>Pleurostomellina</i> Schubert, 1911 .. <i>Ellipsopleurostomella</i> A. Silvestri, 1903 <i>Ellipsobulimina</i> A. Silvestri, 1903 <i>Nodosarella</i> Rzehak, 1895 .. <i>Ellipsolingulina</i> A. Silvestri, 1907 <i>Ellipsoglandulina</i> A. Silvestri, 1900 <i>Gonatosphaera</i> Guppy, 1894 .. <i>Ellipsoidina</i> Seguenza, 1859 .. <i>Ellipsolagena</i> A. Silvestri, 1923 ..	Cretaceous—Recent Upper Cretaceous Cretaceous and Tertiary Miocene Cretaceous and Tertiary Tertiary Cretaceous and Tertiary Tertiary Cretaceous and Tertiary Tertiary—Recent
Fam. VIII.— HETERO- HELICIDAE	Heterohelicinae Gümbelininae .. Bolivinitinae .. Plectofrondiculariinae Eouvigerininae	<i>Heterohelix</i> Ehrenberg, 1843 .. <i>Spiroplectoides</i> Cushman, 1927 .. <i>Gümbelina</i> Egger, 1899 .. <i>Gümbelitria</i> Cushman, 1933 .. <i>Rectogümbelina</i> Cushman, 1932 .. <i>Tubitextularia</i> Sulc, 1929 .. <i>Pseudotextularia</i> Rzehak, 1886 .. <i>Planoglobulina</i> Cushman, 1927 .. <i>Ventilabrella</i> Cushman, 1928 .. <i>Bolivinoidea</i> Cushman, 1927 .. <i>Bolivinita</i> Cushman, 1927 .. <i>Bolivincella</i> Cushman, 1927 .. <i>Plectofrondicularia</i> Liebus, 1903 .. <i>Amphimorphina</i> Neugeboren, 1850 <i>Nadamorphina</i> Cushman, 1927 .. <i>Eouvigerina</i> Cushman, 1926 .. <i>Pseudouvigerina</i> Cushman, 1927 .. <i>Siphogenerinoides</i> Cushman, 1927 .. <i>Nodogenerina</i> Cushman, 1927 ..	Cretaceous Cretaceous—Recent Cretaceous—Eocene Upper Cretaceous Upper Cretaceous Upper Cretaceous Upper Cretaceous Upper Cretaceous—Lower Eocene Upper Cretaceous Upper Cretaceous Upper Cretaceous Upper Cretaceous—Recent Eocene—Recent Cretaceous—Recent Miocene—Pliocene Miocene—Pliocene Upper Cretaceous Upper Cretaceous—Eocene Upper Cretaceous Cretaceous—Recent
Fam. IX.— ROTALIIDAE	Discorbinae .. Cymbaloporinae Rotaliinae ..	<i>Patellina</i> Williamson, 1858 .. <i>Patellinoides</i> Heron-Allen and Earland, 1932 <i>Ungulatella</i> Cushman, 1931 .. <i>Patellinella</i> Cushman, 1928 .. <i>Annulopatellina</i> Parr and Collins, 1930 <i>Discorbis</i> Lamarck, 1804 .. <i>Heronallenia</i> Chapman and Parr, 1931 <i>Lamarckina</i> Berthelin, 1881 .. <i>Valvulineria</i> Cushman, 1926 .. <i>Ceratobulimina</i> Toulou, 1920 .. <i>Cymbalopora</i> Hagenow, 1851 .. <i>Cymbaloporella</i> Cushman, 1927 .. <i>Tretamphalus</i> Moeblus, 1880 .. <i>Pyropilus</i> Cushman, 1934 .. <i>Gyroidina</i> d'Orbigny, 1826 .. <i>Rotaliatina</i> Cushman, 1925 .. <i>Eponides</i> Montfort, 1808 .. <i>Planopulvinulina</i> Schubert, 1920 ..	Permian—Recent Recent Recent Lower Miocene—Recent Lower Miocene—Recent Jurassic—Recent Upper Oligocene—Recent Upper Cretaceous—Recent Cretaceous—Recent Upper Cretaceous—Recent Cretaceous—Recent Eocene—Recent Recent Recent Rhaetic—Recent Eocene ? Carboniferous; Jurassic—Recent Late Tertiary—Recent

Super-family SPIRILLINOIDEA (ALL MARINE)—*continued.*

Family.	Sub-family.	Genus.	Time-range.
Fam. IX.— ROTALIIDAE— <i>continued.</i>	Rotalline— <i>—continued.</i>	<i>Pulvinulinella</i> Cushman, 1926 ..	Cretaceous—Recent
		<i>Rotalia</i> Lamarck, 1804 ..	Cretaceous—Recent
	Pegidiinae ..	<i>Lockhartia</i> L. M. Davies, 1932 ..	Eocene
		<i>Dictyoconoides</i> Nuttall, 1925 ..	Eocene
		<i>Rugidia</i> Heron-Allen and Earland, 1928 ..	Recent
		<i>Pegidia</i> Heron-Allen and Earland, 1928 ..	Miocene—Recent
	Siphonininae ..	<i>Sphaeridia</i> Heron-Allen and Earland, 1928 ..	Recent
		<i>Physalidia</i> Heron-Allen and Earland, 1928 ..	Recent
		<i>Epistomina</i> Terquem, 1883 ..	Jurassic—Recent
		<i>Epistominoides</i> Plummer, 1934 ..	Eocene
	Baggininae ..	<i>Epistomaria</i> Galloway, 1933 ..	Eocene—Recent
		<i>Mississippiina</i> Howe, 1930 ..	Lower Oligocene—Recent
		<i>Culeites</i> Plummer, 1934 ..	Eocene
		<i>Siphonina</i> Reuss, 1849 ..	Cretaceous—Recent
	Cibicidinae ..	<i>Siphoninoides</i> Cushman, 1927 ..	Tertiary—Recent
		<i>Siphoninella</i> Cushman, 1927 ..	Eocene—Recent
		<i>Cancris</i> Montfort, 1808 ..	Tertiary—Recent
		<i>Baggina</i> Cushman, 1926 ..	Miocene—Recent
	Planorbulininae	<i>Neocribrella</i> Cushman, 1928 ..	Eocene
		<i>Anomalina</i> d'Orbigny, 1826 ..	Lower Cretaceous—Recent
		<i>Planulina</i> d'Orbigny, 1826 ..	Cretaceous—Recent
		<i>Laticarinina</i> Galloway and Wissler, 1928 ..	Eocene—Recent
	Rupertiinae ..	<i>Anomalina</i> Cushman, 1927 ..	? Miocene—Recent
		<i>Cibicides</i> Montfort, 1808 ..	Cretaceous—Recent
		<i>Rectocibicides</i> Cushman and Ponton, 1932 ..	Miocene—Recent
		<i>Dycocibicides</i> Cushman and Valentine, 1930 ..	Miocene—Recent
	Homotrematinae ..	<i>Cyclocibicides</i> Cushman, 1927 ..	Recent
		<i>Amulocibicides</i> Cushman and Ponton, 1932 ..	Miocene
		<i>Cibicidella</i> Cushman, 1927 ..	Recent
		<i>Webbina</i> d'Orbigny, 1839 (cf. <i>Placops</i> Rhumbler, 1913) ..	Recent
	Amphistegininae	<i>Planorbulina</i> d'Orbigny, 1826 ..	Eocene—Recent
		<i>Planorbulinoides</i> Cushman, 1928 ..	Recent
		<i>Planorbulinella</i> Cushman, 1927 ..	Eocene—Recent
		<i>Linderina</i> Schlumberger, 1893 ..	Upper Eocene
	Calcarininae ..	<i>Vaughanina</i> Palmer, 1934 ..	Upper Cretaceous
		<i>Chapmanina</i> A. Silvestri, 1931 ..	Eocene
		<i>Halkyardia</i> Heron-Allen and Earland, 1919 ..	Eocene—Lower Miocene
		(The position of the four preceding genera is uncertain, and they may belong to the Orbitoididae.)	
	Homotrematinae ..	<i>Acerrulina</i> Schultze, 1854 ..	Oligocene—Recent
		<i>Gypsina</i> Carter, 1877 ..	Cretaceous—Recent
		<i>Rupertia</i> Wallich, 1877 ..	Eocene—Recent
		<i>Carpenteria</i> Gray, 1858 ..	Cretaceous—Recent
	Homotrematinae ..	<i>Eorupertia</i> Yabe and Hanzawa, 1927 ..	Eocene
		<i>Victoriella</i> Chapman and Crespin, 1930 ..	Oligocene—Lower Miocene
		<i>Hofkerina</i> Chapman and Parr, 1931 ..	Lower Miocene
		<i>Homotrema</i> Hickson, 1911 ..	Recent
	Amphistegininae	<i>Sporadotrema</i> Hickson, 1911 ..	Lower Miocene—Recent
		<i>Miniacina</i> Galloway, 1933 ..	Lower Miocene—Recent
		<i>Asterigerina</i> d'Orbigny, 1839 ..	Eocene—Recent
		<i>Amphistegina</i> d'Orbigny, 1826 ..	Eocene—Recent
	Calcarininae ..	<i>Calcarina</i> d'Orbigny, 1826 ..	Cretaceous—Recent
		<i>Siderolites</i> Lamarck, 1801 ..	Cretaceous—Recent
		<i>Baculogypsinoides</i> Yabe and Hanzawa, 1930 ..	Eocene—Recent
		<i>Pellatispira</i> Boussac, 1906 ..	Eocene
	Calcarininae ..	<i>Baculogypsina</i> Sacco, 1893 ..	Upper Miocene—Recent
		<i>Arnaudicella</i> H. Douvillé, 1907 ..	Uppermost Cretaceous

Super-family SPIRILLINOIDEA (ALL MARINE)—continued.

Family.	Sub-family.	Genus.	Time-range.
Fam. X.— CHILOSTOMELLIDAE	Chilostomellinae	<i>Allomorphina</i> Reuss, 1850 .. <i>Chilostomella</i> Reuss, 1850 .. <i>Chilostomelloides</i> Cushman, 1926 ..	Upper Cretaceous—Recent Upper Cretaceous—Recent Upper Cretaceous—Miocene
	Seabrookiinae ..	<i>Seabrookia</i> Brady, 1890 ..	Recent
	Allomorphinellinae	<i>Allomorphinella</i> Cushman, 1927 .. <i>Chilostomellina</i> Cushman, 1926 .. <i>Pullenia</i> Parker and Jones, 1862 ..	Upper Cretaceous Recent Cretaceous—Recent
	Sphaeroidininae	<i>Sphaeroidina</i> d'Orbigny, 1826 ..	Cretaceous—Recent
	Globigerininae ..	<i>Globigerina</i> d'Orbigny, 1826 .. <i>Globigerinoides</i> Cushman, 1927 .. <i>Globigerinella</i> Cushman, 1927 .. <i>Hastigerina</i> Wyville Thomson, 1876 .. <i>Hastigerinella</i> Cushman, 1927 ..	Cretaceous—Recent Tertiary—Recent Cretaceous—Recent Miocene—Recent Upper Cretaceous—Recent
	Orbulininae ..	<i>Orbulina</i> d'Orbigny, 1826 ..	Tertiary—Recent
Fam. XI.— ORBULINIDAE	Pulleniatininae	<i>Pulleniatina</i> Cushman, 1927 .. <i>Sphaeroidinella</i> Cushman, 1927 ..	Oligocene—Recent Eocene—Recent
	Candeininae ..	<i>Candeina</i> d'Orbigny, 1839 ..	Late Tertiary—Recent
	Hantkenininae	<i>Schackoina</i> Thalmann, 1932 .. <i>Hantkenina</i> Cushman, 1924 ..	Upper Cretaceous Middle and Upper Eocene
	Globorotaliinae	<i>Globotruncana</i> Cushman, 1927 .. <i>Globorotalia</i> Cushman, 1927 .. <i>Cycloloculina</i> Heron-Allen and Earland, 1908 .. <i>Sherbornina</i> Chapman, 1922 ..	Upper Cretaceous—Recent Upper Cretaceous—Recent Eocene Lower Miocene
	Lepidorbbitoidinae	<i>Monolepidorbis</i> Astre, 1927 .. <i>Lepidorbbitoides</i> A. Silvestri, 1907 .. <i>Clypeorbis</i> H. Douvillé, 1915 ..	Upper Cretaceous Upper Cretaceous Upper Cretaceous
	Orbitoidinae ..	<i>Orbitoides</i> d'Orbigny, 1847 .. <i>Simplorbites</i> de Gregorio, 1882 .. <i>Actinosiphon</i> Vaughan, 1929 .. <i>Pseudorbitoides</i> H. Douvillé, 1922 .. <i>Orbitocyclina</i> Vaughan, 1929 .. <i>Asterorbis</i> Vaughan and Cole, 1932 .. <i>Lepidocyclina</i> Gumbel, 1868 ..	Upper Cretaceous Upper Cretaceous Lower Eocene Upper Cretaceous Upper Cretaceous Upper Cretaceous Middle Eocene—Middle Miocene
		S.G. <i>Polytepidina</i> , Vaughan, 1924 .. S.G. <i>Multitepidina</i> Hanzawa, 1932 .. S.G. <i>Piolepidina</i> H. Douvillé, 1915 .. S.G. <i>Lepidocyclina</i> Gumbel, 1868 ..	Middle and Upper Eocene Lower Miocene Upper Eocene Upper Eocene—Lower Miocene
		S.G. <i>Nephrolepidina</i> H. Douvillé, 1911 .. S.G. <i>Eulepidina</i> H. Douvillé, 1911 ..	Upper Eocene—Middle Miocene Middle Oligocene—Lower Miocene
	Omphalocyclinae	<i>Omphalocyclus</i> Bronn, 1852 ..	Upper Cretaceous
	Miogypsinae ..	<i>Miogypsina</i> Sacco, 1893 .. <i>Miogypsinoidea</i> Yabe and Hanzawa, 1928 .. <i>Helicolepidina</i> Tobler, 1922 ..	Oligocene—Pliocene Lower Miocene Upper Eocene
	Discocyclinae	<i>Discocyclina</i> Gumbel, 1868 .. S.G. <i>Aktinocyclina</i> Gumbel, 1863 .. S.G. <i>Asterocyclina</i> Gumbel, 1868 .. (vel <i>Orthocyclina</i> van der Vlerk, 1923)	Upper Cretaceous (Danian)—Upper Eocene Middle and Upper Eocene Middle and Upper Eocene
Fam. XIII.— NUMMULITIDAE	Nonioninae ..	<i>Nonion</i> Montfort, 1808 .. <i>Nonionella</i> Cushman, 1926 .. <i>Elphidium</i> Montfort, 1808 .. <i>Polystomellina</i> Yabe and Hanzawa, 1923 ..	Jurassic—Recent Cretaceous—Recent Jurassic—Recent Tertiary—Recent
	Nummulitinae ..	<i>Faujasina</i> d'Orbigny, 1839 .. <i>Nummulites</i> Lamarck, 1801 .. <i>Axillina</i> d'Orbigny, 1826 .. <i>Operculinella</i> Yabe, 1918 .. <i>Operculina</i> d'Orbigny, 1826 .. <i>Heterostegina</i> d'Orbigny, 1826 .. <i>Spiroclipeus</i> H. Douvillé, 1905 .. <i>Heteroclypeus</i> Schubert, 1906 .. <i>Cycloclipeus</i> Carpenter, 1856 ..	Cretaceous—Recent Eocene—Oligocene Eocene Lower Miocene—Recent Lower Cretaceous—Recent Eocene—Recent Lower Miocene Tertiary Eocene—Recent.

Super-family AMMODISCOIDEA (ALL MARINE except the genus *Entzia*, which occurs in salt pools of Hungary).

Family.	Sub-family.	Genus.	Time-range.
Fam. XIV.— AMMODISCOIDAE	Ammodiscinae	<i>Ammodiscus</i> Reuss, 1861 ..	Silurian—Recent
		<i>Hemidiscus</i> Schellwien, 1898 ..	Carboniferous—Recent
		<i>Turritelleva</i> Rhumbler, 1903 ..	Carboniferous—Recent
		<i>Howchinia</i> Cushman, 1927 ..	Carboniferous
		<i>Ammodiscoides</i> Cushman, 1909 ..	Carboniferous—Recent
		<i>Glomospira</i> Rzehak, 1888 ..	Carboniferous—Recent
		<i>Lituotuba</i> Rhumbler, 1895 ..	Cambrian—Recent
		<i>Psammomyx</i> Döderlein, 1892 ..	Recent
		<i>Tolypammina</i> Rhumbler, 1895 ..	Carboniferous—Recent
		<i>Ammovertella</i> Cushman 1928 ..	Carboniferous—Jurassic
		<i>Ammolagena</i> Eimer and Fickert, 1899 ..	Carboniferous—Recent
		<i>Trepeilopsis</i> Cushman and Waters, 1928 ..	Carboniferous
Fam. XV.— HYPERAMMINIDAE	Hyperammininae	<i>Hyperammina</i> Brady, 1878 ..	Cambrian (?), Silurian—Recent
		<i>Hyperamminoides</i> Cushman and Waters, 1928 ..	Upper Carboniferous
		<i>Earlandia</i> Plummer, 1930 ..	Upper Carboniferous
		<i>Jarulella</i> Brady, 1879 ..	Miocene—Recent
		<i>Hippocrepina</i> Parker, 1870 ..	Upper Carboniferous, Pliocene—Recent
	Dendrophryinae	<i>Nubeculariella</i> Awerinzew, 1911 ..	Recent
		<i>Normanina</i> Cushman, 1928 ..	Recent
		<i>Saccorhiza</i> Eimer and Fickert, 1899 ..	Jurassic—Recent
		<i>Dendrophrya</i> Strehill Wright, 1861 ..	Cretaceous—Recent
		<i>Dendronina</i> Heron-Allen and Earland, 1922 ..	Recent
		<i>Haliphysema</i> Bowerbank, 1862 ..	Recent
		<i>Sagenina</i> Chapman, 1900 ..	Eocene—Recent
		<i>Psammotodendron</i> Norman, 1881 ..	Recent
		<i>Syringammina</i> Brady, 1883 ..	Recent
		<i>Ophiotuba</i> Rhumbler, 1894 ..	Recent
		<i>Dendrotuba</i> Rhumbler, 1894 ..	Recent
Fam. XVI.— SACCAMMINIDAE	Psammospherinae	<i>Psammosphera</i> F. E. Schulze, 1875 ..	Silurian—Recent
		<i>Blastammina</i> Eisenack, 1932 ..	Silurian
		<i>Sorosphaera</i> Brady, 1879 ..	Silurian—Recent
		<i>Psammophax</i> Rhumbler, 1931 ..	Recent
	Saccammininae	<i>Storthisphaera</i> F. E. Schulze, 1875 ..	Middle Oligocene—Recent
		<i>Saccammina</i> M. Sars, 1869 ..	Recent
		<i>Proconina</i> Williamson, 1858 ..	Carboniferous—Recent
		<i>Brachysiphon</i> Chapman, 1906 ..	Recent
		<i>Lagenammina</i> Rhumbler, 1911 ..	Silurian—Recent
		<i>Lagunculina</i> Rhumbler, 1903 ..	Recent
		<i>Millettella</i> Rhumbler, 1903 ..	Miocene—Recent
		<i>Marsupulina</i> Rhumbler, 1903 ..	Recent
		<i>Urmulina</i> Gruber, 1884 ..	Miocene—Recent
		<i>Pseudarcella</i> Spandel, 1909 ..	Oligocene and Miocene
		<i>Ammospheroides</i> Cushman, 1910 ..	Recent
		<i>Thurammina</i> Brady, 1879 ..	Silurian—Recent
		<i>Pelosina</i> Brady, 1879 ..	Carboniferous—Recent
		<i>Technitella</i> Norman, 1878 ..	Recent
		<i>Pilulina</i> Carpenter, 1870 ..	Recent
		<i>Protobottellina</i> Heron-Allen and Earland, 1929 ..	Recent
	Webbinellinae	<i>Webbinella</i> Rhumbler, 1903 ..	Carboniferous—Recent
		<i>Colonammina</i> Moreman, 1930 ..	Lower Palaeozoic, America
		<i>Tholosina</i> Rhumbler, 1895 ..	Silurian—Recent
		<i>Verrucina</i> Goës, 1896 ..	Recent
		<i>Urmula</i> Wiesner, 1931 ..	Recent
Fam. XVII.— RHIZAMMINIDAE	Rhizammininae	<i>Rhizammina</i> Brady, 1879 ..	Cretaceous—Recent
		<i>Marsipella</i> Norman, 1878 ..	Jurassic—Recent
		<i>Bathysiphon</i> M. Sars, 1872 ..	Silurian, Cretaceous—Recent
		<i>Hippocrepinella</i> Heron-Allen and Earland, 1932 ..	Recent
	Botellininae	<i>Botellina</i> Carpenter, 1869 ..	Recent
		<i>Schizammina</i> Heron-Allen and Earland, 1929 ..	Recent

Super-family AMMODISCOIDEA—continued.

Family.	Sub-family.	Genus.	Time-range.
Fam. XVIII.— ASTORRHIZIDAE	..	<i>Astorrhiza</i> Sandahl, 1858 ..	Jurassic—Recent
		<i>Pseudastorrhiza</i> Eisenack, 1932 ..	Silurian
		<i>Masonella</i> Brady, 1889 ..	Recent
		<i>Rhabdammina</i> M. Sars, 1869 ..	Jurassic—Recent
		<i>Crithionina</i> Goës, 1894 ..	Silurian—Recent
		<i>Iridia</i> Heron-Allen and Earland, 1914	Eocene (?)—Recent
		<i>Vanhoeffenella</i> Rhumbler, 1905 ..	Recent
		<i>Astramina</i> Rhumbler, 1931 ..	Recent
		<i>Armoredella</i> Heron-Allen and Earland, 1932	Recent
		<i>Pelospaera</i> Heron-Allen and Earland, 1932	Recent
Fam. XIX.— OPHTHALMIDIIDAE	Cornuspirinae ..	<i>Cornuspira</i> Schultze, 1854 ..	Carboniferous—Recent
		<i>Rectocornuspira</i> Warthin, 1930 ..	Upper Carboniferous
		<i>Vidalina</i> Schlumberger, 1899 ..	Cretaceous
		<i>Hemigordius</i> Schubert, 1908 ..	Upper Carboniferous—Permian
		<i>Gordiospira</i> Heron-Allen and Earland, 1932	Recent
		<i>Orthocertella</i> , Cushman and Waters, 1928	Upper Carboniferous
		<i>Calcitornella</i> Cushman and Waters, 1928	Upper Carboniferous—Permian
		<i>Calcivertella</i> Cushman and Waters, 1928	Upper Carboniferous
		<i>Plummerinella</i> Cushman and Waters, 1928	Upper Carboniferous
		<i>Apterrinella</i> Cushman and Waters, 1928	Upper Carboniferous
		<i>Cornuspiramia</i> Cushman, 1928 ..	Recent
	Nodobaculariinae	<i>Cornuspirella</i> Cushman, 1928 ..	Recent
		<i>Cornuspiroides</i> Cushman, 1928 ..	Recent
		<i>Nodobacularia</i> Rhumbler, 1895 ..	Lias—Recent
		<i>Vertebrulina</i> d'Orbigny, 1826 ..	Eocene—Recent
	Ophthalmidiinae	<i>Ophthalmidium</i> Zwingli and Kübler, 1870	Jurassic—Recent
		<i>Spirophthalmidium</i> Cushman, 1927	Jurassic—Recent
		<i>Discospirina</i> Munier-Chalmas, 1902	Tertiary—Recent
		<i>Planispirina</i> Seguenza, 1880 ..	Cretaceous—Recent
		<i>Renulina</i> Lamarck, 1804 ..	Eocene
		<i>Planispirinella</i> Wiesner, 1931 ..	Miocene—Recent
		<i>Wiesnerella</i> Cushman 1933 ..	Recent
		<i>Trisegmentina</i> Wiesner, 1931 ..	Recent
		<i>Nubecularia</i> DeFrance, 1825 ..	Jurassic—Recent
		<i>Nubeculinella</i> Cushman, 1929 ..	Jurassic
		<i>Sinzowella</i> Cushman, 1933 ..	Miocene
	Nubeculariinae	<i>Calcituba</i> Roboz, 1884 ..	Recent
		<i>Parrina</i> Cushman, 1931 ..	Recent
		<i>Agathammina</i> Neumayr, 1887 ..	Carboniferous—Jurassic
		<i>Quinqueloculina</i> d'Orbigny, 1826 ..	Carboniferous—Recent
		<i>Massilina</i> Schlumberger, 1893 ..	Lower Cretaceous—Recent
		<i>Spiroloculina</i> d'Orbigny, 1826 ..	Jurassic—Recent
		<i>Sigmoidina</i> Schlumberger, 1887 ..	Tertiary—Recent
		<i>Nummuloculina</i> Steinmann, 1881 ..	Jurassic—Recent
		<i>Articulina</i> d'Orbigny, 1826 ..	Lower Eocene—Recent
		<i>Tubinella</i> Rhumbler, 1906 ..	Lower Miocene—Recent
		<i>Nubeculina</i> Cushman, 1924 ..	Recent
		<i>Ptychomiliola</i> Elmer and Fickert, 1899	Recent
		<i>Miliola</i> Lamarck, 1804 ..	Eocene—Lower Miocene
		<i>Heterillina</i> Munier-Chalmas and Schlumberger, 1905	Upper Eocene—Oligocene
Fam. XX.— MILIOLIDAE	..	<i>Hauerina</i> d'Orbigny, 1839 ..	Eocene—Recent
		<i>Schlumbergerina</i> Munier-Chalmas, 1882	Late Tertiary—Recent
		<i>Ammomassilina</i> Cushman, 1933 ..	Recent
		<i>Trilobulina</i> d'Orbigny, 1826 ..	Triassic—Recent
		<i>Trillina</i> Munier-Chalmas, 1882 ..	Eocene—Lower Miocene
		<i>Flintina</i> Cushman, 1921 ..	Recent
		<i>Pyrgo</i> DeFrance, 1824 ..	Jurassic—Recent
		<i>Fabularia</i> DeFrance, 1820 ..	Eocene—Lower Pliocene

Super-family AMMODISCOIDEA—continued.

Family.	Sub-family.	Genus.	Time-range.
Fam. XX.— MILIOLOIDAE— continued.	<i>Flintia</i> Schubert, 1911 .. <i>Nerillina</i> Sidebottom, 1905 .. <i>Idalina</i> Munier-Chalmas and Schlumberger, 1884 .. <i>Periloculina</i> Munier-Chalmas and Schlumberger, 1885 .. <i>Lacazina</i> Munier-Chalmas, 1882 ..	Tertiary—Recent Recent Upper Cretaceous Upper Cretaceous Upper Cretaceous
Fam. XXI.— FISCHERINIDAE	<i>Fischerina</i> Terquem, 1878 ..	Pliocene—Recent
Fam. XXII.— SORITIDAE	Peneroplinae .. Archaiasinae .. Orbitolitinae ..	<i>Peneroplis</i> Montfort, 1808 .. <i>Dendritina</i> d'Orbigny, 1826 .. <i>Spirolina</i> Lamarck, 1804 .. <i>Monalysidium</i> Chapman, 1900 .. <i>Archaias</i> Montfort, 1808 .. <i>Fallotia</i> H. Douvillé, 1902 .. <i>Orbitolites</i> Lamarck, 1801 .. <i>Operitrochilites</i> Nuttall, 1925 .. <i>Amphisorus</i> Ehrenberg, 1840 .. <i>Socites</i> Ehrenberg, 1840 .. <i>Marginopora</i> Blainville, 1830 .. Genera of doubtful relationships. <i>Craterites</i> Heron-Allen and Earland, 1924 .. <i>Broeckina</i> Munier-Chalmas, 1882 .. <i>Meandropsina</i> Munier-Chalmas, 1899 .. <i>Præsorites</i> H. Douvillé, 1902 .. <i>Rhapydionina</i> Stache, 1912 .. <i>Rhapydionina</i> Stache, 1912 ..	Eocene—Recent Eocene—Recent Eocene—Recent Recent Miocene—Recent Upper Cretaceous Eocene Eocene Oligocene—Recent Miocene—Recent Late Tertiary—Recent Recent Upper Cretaceous Upper Cretaceous Upper Cretaceous Lower Eocene Lower Eocene
Fam. XXIII.— ALVEOLINEL- LIDAE	<i>Borelis</i> Montfort, 1808 .. <i>Fuscolites</i> Parkinson, 1811 .. <i>Fosculina</i> Stache, 1883 .. <i>Fosculinella</i> Schubert, 1910 .. <i>Alveolinella</i> H. Douvillé, 1906 ..	Eocene—Recent Cretaceous—Miocene Eocene Oligocene—Miocene Upper Miocene—Recent
Fam. XXIV.— KERAMO- SPHAERIDAE	<i>Keramosphaera</i> Brady, 1882 ..	Recent
Fam. XXV.— SILICINIDAE	Siliciniinae .. Rzehakininae ..	<i>Sicilina</i> Bornemann, 1874 .. <i>Involutina</i> Terquem, 1862 .. <i>Problematica</i> Bornemann, 1874 .. <i>Rzehakina</i> Cushman, 1927 .. <i>Silicosigmoilina</i> Cushman and Church, 1929 .. <i>Miliammina</i> Heron-Allen and Ear- land, 1930 .. <i>Spirolocammina</i> Earland, 1934 ..	Lias Jurassic Jurassic Upper Cretaceous— Eocene Upper Cretaceous Recent Recent
Fam. XXVI.— LITUOLIDAE	Endothyrinae .. Haplophrag- miinae	<i>Endothyra</i> Phillips, 1846 .. <i>Bradyina</i> Möller, 1878 .. <i>Glyphostomella</i> Cushman and Waters, 1928 .. <i>Cribraspira</i> Möller, 1878 .. <i>Endothyranella</i> Galloway and Har- ton, 1930 .. <i>Ammofintina</i> Earland, 1934 .. <i>Trochamminoides</i> Cushman, 1910 .. <i>Haplophragmoides</i> Cushman, 1910 .. <i>Recurtoides</i> Earland, 1934 .. <i>Orbignya</i> Hagenow, 1842 .. <i>Cribrastomoides</i> Cushman, 1910 .. <i>Ammomarginulina</i> Wiesner, 1931 .. <i>Ammobaculites</i> Cushman, 1910 .. <i>Flabellammina</i> Cushman, 1928 .. <i>Frankeina</i> Cushman and Alexander, 1929 .. <i>Triplasia</i> Reuss, 1854 .. <i>Haplophragmium</i> Reuss, 1860 ..	Carboniferous—Trias Carboniferous Upper Carboniferous Carboniferous Carboniferous Recent Carboniferous—Recent Carboniferous—Recent Recent Cretaceous Cretaceous—Recent Cretaceous—Recent Carboniferous—Recent Cretaceous Cretaceous Cretaceous Cretaceous—Recent

Super-family AMMODISCOIDEA—continued.

Family.	Sub-family.	Genus.	Time-range.	
Fam. XXVI.— LITUOLIDAE— continued.	Lituolinae ..	<i>Discammina</i> Lacroix, 1932 ..	Recent	
		<i>Cyclammina</i> Brady, 1876 ..	Cretaceous—Recent	
		<i>Pseudocyclammina</i> Yabe and Hanzawa, 1926 ..	Cretaceous	
		<i>Choffatella</i> Schlumberger, 1904 ..	Jurassic and Cretaceous	
		<i>Dictyopsella</i> Munier-Chalmas, 1899 ..	Upper Cretaceous	
		<i>Faberinella</i> Vaughan, 1928 ..	Middle Eocene	
		<i>Litula</i> Lamarek, 1804 ..	Carboniferous—Recent	
		<i>Spirocyclina</i> Munier-Chalmas, 1887 ..	Upper Jurassic—Cretaceous	
		<i>Cyclolina</i> d'Orbigny, 1846 ..	Cretaceous	
		<i>Orbitopsella</i> Munier-Chalmas, 1902 ..	Jurassic	
	Placopsilininae ..	<i>Cyclopsinella</i> Galloway, 1933 ..	Upper Cretaceous	
		<i>Placopsilina</i> d'Orbigny, 1850 ..	Silurian—Recent	
		<i>Placopsilinella</i> Earland, 1934 ..	Recent	
		<i>Bdelloidina</i> Carter, 1877 ..	Jurassic—Recent	
	Polyphragminae	<i>Diffusilina</i> Heron-Allen and Earland, 1924 ..	Recent	
		<i>Haddonella</i> Chapman, 1898 ..	Recent	
		<i>Polyphragma</i> Reuss, 1871 ..	Cretaceous	
		<i>Stylolina</i> Karrer, 1877 ..	Miocene	
		<i>Stacheia</i> Brady, 1876 ..	Carboniferous—Jurassic	
Fam. XXVII.— LOPTUSIIDAE	<i>Loftusia</i> Brady, 1869 ..	Upper Cretaceous	
Fam. XXVIII.— REOPHACIDAE	Nodosinellinae ..	<i>Nodosinella</i> Brady, 1876 ..	Carboniferous — Cretaceous	
		<i>Saccaminopsis</i> Sollas, 1921 ..	Ordovician — Carboniferous	
	Reophacinae ..	<i>Reophax</i> Montfort, 1808 ..	Cambrian—Recent	
		<i>Sulcophax</i> Rhumbler, 1931 ..	Recent	
		<i>Hormosina</i> Brady, 1879 ..	Jurassic—Recent	
		<i>Haplostiche</i> Reuss, 1861 ..	Carboniferous (?), Jurassic—Recent	
	Aschemonellinae	<i>Kalamopsis</i> de Folin, 1883 ..	Recent	
		<i>Turriclavula</i> Rhumbler, 1911 ..	Recent	
		<i>Nodellum</i> Rhumbler, 1913 ..	Cretaceous—Recent	
		<i>Aschemonella</i> Brady, 1879 ..	Cretaceous—Recent	
		Sphaerammininae	<i>Sphaerammina</i> Cushman, 1910 ..	Recent
			<i>Ammosphaerulina</i> Cushman, 1912 ..	Recent
	Fam. XXIX.— TEXTU- LARIIDAE	<i>Spiroplectammina</i> Cushman, 1927 ..	Upper Carboniferous—Recent
			<i>Ammospira</i> Cushman, 1933 ..	Lower Oligocene—Recent
			<i>Ammobaculoides</i> Plummer, 1932 ..	Upper Cretaceous
			<i>Textularia</i> DeFrance, 1824 ..	Cambrian—Recent
			<i>Textularioides</i> Cushman, 1911 ..	Recent
			<i>Bigennerina</i> d'Orbigny, 1826 ..	Upper Carboniferous—Recent
<i>Vulvalina</i> d'Orbigny, 1826 ..			Eocene—Recent	
<i>Deckerella</i> Cushman and Waters, 1928 ..			Upper Carboniferous	
<i>Cribrostomum</i> Möller, 1879 ..			Carboniferous—Permian	
<i>Climacammina</i> Brady, 1873 ..			Carboniferous—Permian	
<i>Monogenerina</i> Spandel, 1901 ..			Permian	
<i>Cribrogenerina</i> Schubert, 1907 ..			Carboniferous—Permian	
Trochammininae		<i>Trochammina</i> Parker and Jones, 1859 ..	Carboniferous—Recent	
		<i>Rotalliammina</i> Cushman, 1924 ..	Recent	
		<i>Ammocibicides</i> Earland, 1934 ..	Eocene; Recent	
		<i>Entzia</i> Daday, 1883 ..	Recent, salt pools of Hungary	
		<i>Carterina</i> Brady, 1884 ..	Recent	
		Globotextulariinae	<i>Globotextularia</i> Eimer and Fickert, 1899 ..	Recent
	<i>Mooreinella</i> Cushman and Waters, 1928 ..		Upper Carboniferous	
	Ammosphaeroidinae	<i>Ammosphaeroidina</i> Cushman, 1910 ..	Recent	
		<i>Cystammina</i> Neumayr, 1889 ..	Recent	
	Nourinae ..	<i>Nouria</i> Heron-Allen and Earland, 1914 ..	Eocene; Recent	

Super-family AMMODISCOIDEA—continued.

Family.	Sub-family.	Genus.	Time-range.
Fam. XXXI.— VALVULINIDAE	Tetrataxinae ..	<i>Globivalvulina</i> Schubert, 1920 ..	Carboniferous—Permian
		<i>Tetrataxis</i> Ehrenberg, 1843 ..	Carboniferous—Permian
		<i>Polytaxis</i> Cushman and Waters, 1928 ..	Carboniferous
	Valvulininae ..	<i>Ruditaxis</i> Schubert, 1920 ..	Carboniferous—Permian
		<i>Valvulinella</i> Schubert, 1907 ..	Carboniferous
		<i>Valvulina</i> d'Orbigny, 1826 ..	Jurassic—Recent
		<i>Clavulina</i> d'Orbigny, 1826 ..	Cretaceous—Recent
		<i>Cribrobulimina</i> Cushman, 1927 ..	Tertiary—Recent
		<i>Arenobulimina</i> Cushman, 1927 ..	Cretaceous—Recent
		<i>Eggerella</i> Cushman, 1933 ..	Cretaceous—Recent
		<i>Chrysalidina</i> d'Orbigny, 1839 ..	Cretaceous
		<i>Marssonella</i> Cushman, 1933 ..	Cretaceous—Recent
		<i>Dordithia</i> Plummer, 1931 ..	Cretaceous—Recent
		<i>Plectina</i> Marsson, 1878 ..	Cretaceous—Recent
		<i>Gossella</i> Cushman, 1933 ..	Recent
		<i>Martinottiella</i> Cushman, 1933 ..	Upper Cretaceous—Recent
		<i>Valvulammina</i> Cushman, 1933 ..	Eocene
		<i>Karrerella</i> Cushman, 1933 ..	Eocene—Recent
		<i>Listerella</i> Cushman, 1933 ..	Eocene—Recent
		<i>Tectulariella</i> Cushman, 1927 ..	Cretaceous—Recent
		<i>Cuneolina</i> d'Orbigny, 1839 ..	Cretaceous—Recent
		<i>Dicyclina</i> Munier-Chalmas, 1887 ..	Upper Cretaceous
		<i>Liebusella</i> Cushman, 1933 ..	Eocene—Recent
		<i>Tritaxilina</i> Cushman, 1911 ..	Eocene—Recent
		<i>Hagenowella</i> Cushman, 1933 ..	Cretaceous
		<i>Ataxophragmium</i> Reuss, 1861 ..	Cretaceous
		<i>Pernerina</i> Cushman, 1933 ..	Cretaceous
		<i>Lituonella</i> Schlumberger, 1905 ..	Middle Eocene
		<i>Coskinolina</i> Stache, 1875 ..	Middle Eocene
		<i>Dictyoconus</i> Blanckenhorn, 1900 ..	Middle Eocene
		<i>Gunteria</i> Cushman and Ponton, 1933 ..	Middle Eocene
	Orbitolininae ..	<i>Orbitolina</i> d'Orbigny, 1850 ..	Cretaceous
Fam. XXXII.— VERNEULINIDAE	<i>Verneulina</i> d'Orbigny, 1840 ..	Jurassic—Recent
		<i>Tritaxia</i> Reuss, 1860 ..	Jurassic (?); Cretaceous—Recent
		<i>Gaudryina</i> d'Orbigny, 1839 ..	Jurassic—Recent
		<i>Heterostomella</i> Reuss, 1865 ..	Cretaceous—Recent
		<i>Spiroplectinata</i> Cushman, 1927 ..	Cretaceous
		<i>Gaudryina</i> Plummer, 1931 ..	Lower Cretaceous—Recent
Fam. XXXIII.— FUSULINIDAE	Fusulininae ..	<i>Staffella</i> Ozawa, 1925 ..	Upper Carboniferous—Permian
		<i>Schubertella</i> Staff and Wedekind, 1910 ..	Upper Carboniferous—Permian
		<i>Fusulinella</i> Möller, 1877 ..	Lower Pennsylvanian of America; Moscovian of Eurasia
		<i>Wedekindellina</i> Dunbar and Henbest, 1933 ..	Lower Pennsylvanian of America
		<i>Fusulina</i> Fischer de Waldheim, 1829 ..	Lower to Middle Pennsylvanian of America; Moscovian of Russia and Eastern Asia
		<i>Fusiella</i> Lee and Chen, 1930 ..	Moscovian of China; Lower Pennsylvanian of Texas
	Schwagerininae	<i>Triticules</i> Girty, 1904 ..	Middle Pennsylvanian to Early Permian
		<i>Schwagerina</i> Möller, 1877 ..	Early Permian
		<i>Pseudofusulina</i> Dunbar and Skinner, 1931 ..	Uppermost Pennsylvanian (?); Early Permian
		<i>Palaeofusulina</i> Deprat, 1912 ..	Early Permian
		<i>Parafusulina</i> Dunbar and Skinner, 1931 ..	Early and Middle Permian
		<i>Polydiexodina</i> Dunbar and Skinner, 1931 ..	Middle and Upper Permian
	Verbeekinae ..	<i>Verbeekina</i> Staff, 1909 ..	Permian
		<i>Doliolina</i> Schellwien, 1902 ..	Permian
		<i>Pseudodoliolina</i> Yabe and Hanzawa, 1932 ..	Permian
	Neoschwagerininae	<i>Cancellina</i> Hayden, 1910 ..	Permian
		<i>Neoschwagerina</i> Yabe, 1903 ..	Permian
		<i>Yabeina</i> Deprat, 1914 ..	Permian
		<i>Sumatrana</i> Volz, 1904 ..	Permian

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