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SIX NEW GENERIC NAMES IN THE MYCETOZOIDA  
(TRICHIIDAE) AND FORAMINIFERIDA (FISCHERIN-  
IDAE, BULIMINIDAE, CAUCASINIDAE, AND PLEURO-  
STOMELLIDAE), AND A REDESCRIPTION OF  
*LOXOSTOMUM* (LOXOSTOMIDAE, NEW FAMILY).

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A restudy of foraminiferal genera, based on their type species, for the "Treatise on Invertebrate Paleontology," has shown that certain species require new generic taxons for their placement as they can no longer be retained in the genera to which previously they had been assigned. As no new generic names are to be included in the "Treatise," the four new genera are here briefly described. All are based on previously described species. In addition, one genus is redefined, a new family, Loxostomidae, proposed and one generic homonym in the Foraminiferida is renamed, as is a generic homonym in the Mycetozoida.

Subphylum SARCODINA Schmarda, 1871

Class RHIZOPODEA von Siebold, 1845

Subclass LOBOSIA Carpenter, 1861

Order MYCETOZOIDA de Bary, 1859

Suborder EUMYCETOZOINA Poche, 1913

Superfamily TRICHIACEA Fries, 1821

Family Trichiidae Fries, 1821

Subfamily Prototrichiinae MacBride, 1899, *nom. transl.*

Prototrichiinae Loeblich and Tappan, *nom. transl.*, herein, *ex* family Prototrichieae MacBride, 1899, North American Slime Moulds: 179, 199.

Dianemininae Loeblich and Tappan, 1961, *Jour. Paleontol.*, 35 (2): 266, *nom. subst.* and *nom. transl.* *ex* family Dianemeae MacBride, 1899, *Ibid.*: 179, 180.

In the suprageneric classification of the Rhizopodea (Loeblich and Tappan, 1961) in which were listed all family group names and syn-

onomies, the family group taxon containing the four genera *Margarita* Lister, 1894, *Dianema* Rex, 1891, *Prototricha* Rostafinski, 1876, and *Listerella* E. Jahn, 1906, was regarded as of subfamily status. Each of these four genera has been made the basis for a family name (*Dianemeae* MacBride, 1899; *Prototrichieae* MacBride, 1899; *Margaritidae* Doflein, 1909; and *Listerellaceae* E. Jahn, 1928). Because *Dianema* Rex, 1891, was shown to be a homonym of *Dianema* Cope, 1871, and renamed as *Dianemina* Loeblich and Tappan, 1961, a substitute subfamily name *Dianemininae* was proposed. However, the above-mentioned family group names based on the remaining included genera have priority over this and the family group name *Prototrichieae* is here corrected and transferred to subfamily status. Of the remaining genera, *Margarita* Lister, 1899, is also a homonym and is renamed below. *Listerella* E. Jahn, 1906, is a valid senior homonym of *Listerella* Cushman, 1933 (which was renamed *Schenckiella* by Thalmann, 1942).

**Margaritellina** Loeblich and Tappan, new name

*Margaritellina* is proposed for *Margarita* Lister, 1894, Monogr. Mycetoza: 202 (*non Margarita* Leach, 1814; *non Margarita* Leach, 1819; *non Margarita* Lea, 1836 and *non Margarita* Lea, 1838). The type species is *Physarum metallicum* Berkeley, 1837 [= *Margarita metallica* Lister, 1894], Mag. Zool. and Bot., 1:49.

Class RETICULAREA Lankester, 1885

Subclass GRANULORETICULOSIA de Saedeleer, 1934

Order FORAMINIFERIDA Zborzewski, 1834

Suborder MILIOLINA Delage and Hérouard, 1896

Superfamily MILIOLACEA Ehrenberg, 1839

Family Fischerinidae Millett, 1898

Subfamily Fischerininae Millett, 1898

**Fischerinella** Loeblich and Tappan, new genus.

*Type species: Fischerina helix* Heron-Allen and Earland, 1915, Zool. Soc. London, Trans., 20 (17): 591.

Test free, trochospirally coiled; proloculus large and globular, followed by long tubular chamber of almost a complete volution, later chambers gradually shortening to 3 or 4 per volution, chambers low and broad as seen from the spiral side, extending to the umbilicus on the opposite side; spiral suture slightly depressed, intercameral sutures flush; wall very thin, delicate and fragile, surface may be ornamented by radial striae; aperture rounded at the open end of the final chamber.

*Remarks:* The type species was originally placed in *Fischerina* Terquem, and the later descriptions of *Fischerina* have been based to some extent upon this species. Thus the genus and the subfamily and family based on it were regarded as trochospiral. A restudy by the writers of the type species of *Fischerina* (*F. rhodiensis* Terquem), as based on the holotype in the Muséum National d'Histoire Naturelle, Paris, has shown it to be planispiral and evolute on both sides, with a symmetrical

equatorial aperture. *Fischerina* is therefore restricted to include only these planispiral species, and the new genus *Fischerinella* is proposed for the trochospiral forms such as *Fischerina helix*. The new genus is placed in the subfamily Fischerininae and bears the same morphologic relationship to *Fischerina* as the perforate calcareous *Conicospirillina* bears to *Spirillina*.

*Occurrence:* Recent, Kerimba Archipelago and New Zealand.

**Zoyaella** Loeblich and Tappan, new name

*Ceratina* Goës, 1894, K. Sven, Vet.-Akad. Handl., Stockholm, n.f., 25 (9): 122 (1892) (*non Ceratina* Latreille, 1802 and *non Ceratina* Menge, 1868).

*Type species:* *Ceratina trochamminoides* Goës, 1894, Ibid.: 122.

Test free, discoidal, proloculus followed by tubular second chamber, later streptospirally enrolled as in *Glomulina* Rhumbler and finally becoming planispiral and evolute, with numerous chambers per whorl; sutures depressed, radiate; wall calcareous, porcellanous; aperture a high arch at the open end of the final chamber.

*Remarks:* *Ceratina* was regarded by Galloway (1933: 111) as a synonym of *Fischerina* Terquem, 1878. Restudy by the writers of the type specimen of *Fischerina rhodiensis* showed that the genus should be restricted to forms which are planispiral throughout, and the early glomospirine or streptospiral coiling of *Ceratina trochamminoides* shows its closer relationship to *Glomulina*. The later planispiral development separates it from *Glomulina*. As *Ceratina* Goës, 1894 is a homonym of *Ceratina* Latreille, 1802 and *Ceratina* Menge, 1868, the new name *Zoyaella* is here proposed.

The genus is named in honor of Professor Zoya Z. Stschedrina of the Zoological Institute, Academy of Science U.S.S.R., Leningrad, in recognition of her contributions to the knowledge of Recent Arctic and Antarctic foraminifera.

*Occurrence:* Recent, Azores at 540 meters.

Suborder ROTALINA Delage and Hérouard, 1896

Superfamily BULIMINACEA Jones, 1875

Family Buliminidae Jones, 1875

Subfamily Pavonininae Eimer and Fickert, 1899

**Fijiella** Loeblich and Tappan, new genus

*Type species:* *Trimosina simplex* Cushman, 1929, Washington Acad. Sci., Jour., 19 (8): 158.

Test free, pyramidal and triangular in section; chambers broad and low, triserially arranged throughout; wall calcareous, coarsely perforate, surface smooth, lateral margins carinate and may be spinose; primary aperture a narrow, elongate basal slit, terminal face with a supplementary cribrate aperture.

*Remarks:* *Fijiella*, n. gen. differs from *Reussella* in the presence of

the supplementary cribrate aperture, from *Trimosina* in having a basal primary aperture and supplementary cribrate aperture rather than a single areal slit, and from *Chrysalidinella* in retaining the primary aperture and in lacking a uniserial development. In addition to the type species, *Trimosina perforata* Cushman, 1924 also belongs to the present genus.

*Occurrence:* Recent, Fiji, Tropical Pacific, at 40–50 fathoms.

Superfamily CASSIDULINACEA d'Orbigny, 1839

Family LOXOSTOMIDAE Loeblich and Tappan, new family

Test biserial or may become uniserial in the later stage; wall calcareous, perforate-granular in structure; aperture primitively basal, or may become terminal, without a toothplate or internal siphon.

*Remarks:* A few genera previously placed in the Buliminacea have been shown not to possess the internal toothplates characteristic of that superfamily. Their wall structure also differs and has been reported to be composed of agglutinated calcareous grains. Examination in polarized light shows the type species of *Loxostomum* to have a perforate-granular calcareous wall. The present family includes *Loxostomum* and *Aragonia*.

*Loxostomum* Ehrenberg, 1854

*Loxostomum* Ehrenberg, 1854, Mikrogeologie: 22. *Type species:* *L. subrostratum* Ehrenberg, 1854. Fixed by subsequent designation by Cushman, 1927: 490.

*Loxostoma* Howe, 1930, Jour. Paleontol., 4: 329 (*nomen vanum*).

*Bolivinitella* Marie, 1941, Mém. Muséum Natl. Hist. Nat. n. ser., 12 (1): 189. *Type species:* *Bolivinita eleyi* Cushman, 1927 = ? *Loxostomum subrostratum*. Fixed by original designation.

Test elongate, compressed, quadrate in section, with flat or concave sides; chambers biserially arranged throughout, strongly overlapping and arched in the adult with a tendency to become uniserial; sutures limbate, arched, the sutural thickening merging laterally into the longitudinal carinae at the four margins; wall calcareous, finely perforate; aperture terminal, slit-like to ovate, commonly with a lip which may be very finely tuberculate, but lacking any internal toothplate.

*Remarks:* The synonymy of *Bolivinitella* with *Loxostomum* was noted previously by Hofker (1951: 44), who suppressed *Bolivinitella*, but also regarded *Loxostomum* as a synonym of *Bolovina*. Some of the former species of *Loxostomum* should be referred to the new genus *Coryphostoma*, and *Loxostomum* is here restricted to include only those species previously placed in *Bolivinitella*, with perforate granular wall structure.

*Loxostomum subrostratum* Ehrenberg, the type species, was originally described from the Cretaceous chalk of Meudon, figured from a specimen

mounted in balsam and viewed by transmitted light. The original figures as shown by Cushman (1937, Pl. 22, Fig. 22) are almost identical in appearance to *Bolivinita eleyi* Cushman, and in fact specimens found at Meudon were referred to *Bolivinitella eleyi* forma *typica* by Marie (1941) in describing the genus *Bolivinitella*. The specimens illustrated as *B. eleyi* by Marie (1941, Pl. 29, Figs. 282 a-c) are typical of *L. subrostratum* and the two "species" are not only congeneric, but almost certainly conspecific.

Not only has *Loxostomum* been generally misidentified, but most of the species previously placed therein (except by Ehrenberg) contain apertural toothplates, such as are found in the Bolivinitidae, whereas *L. subrostratum* does not have such apertural features and thus must be removed.

Family Caucasinidae N. K. Bykova, 1959

Subfamily Fursenkoininae Loeblich and Tappan, 1961

**Coryphostoma** Loeblich and Tappan, new genus

*Loxostomum* (part) of authors, not of Ehrenberg, 1854.

*Type species: Bolivina plaita* Carsey, 1926, Univ. Texas Bull., 2612: 26.

Test free, elongate, narrow, early chambers biserially arranged, later chambers becoming cuneiform with a tendency to become uniserial; wall calcareous, finely perforate, granular in structure; aperture loop-shaped in the early stage, extending from the base of the final chamber, becoming terminal in the adult, with internal toothplate.

*Remarks:* Because of the revision of *Loxostomum*, based on the type species, many species previously there referred were left nameless and the present generic name is proposed for them. *Coryphostoma* differs from *Loxostomum* in having an internal toothplate, being rounded in section, and in the absence of sharply keeled margins. It differs from *Rectobolivina* in having a granular rather than radially built wall, and in the later chambers being cuneate, without an elongate uniserial and rectilinear stage. *Loxostomoides* Reiss, 1957, differs in having a radially built wall, and retral processes with re-entrants and lobes or crenulations of the chamber margins along the sutures. The name is derived from *Koryphe*, Gr., top, crown, head + *stoma*, Gr., mouth, and refers to the terminal aperture.

*Geologic range:* Upper Cretaceous (Campanian), Recent.

Family Pleurostomellidae Reuss, 1860

Subfamily Wheelerellinae Petters, 1954

**Bandyella** Loeblich and Tappan, new genus

*Type species: Pleurostomella greatvalleyensis* Trujillo, 1960, Jour. Paleontol., 34 (2): 345.

Test free, short, robust; chambers triserially arranged in the early stage, later biserial, and final chambers cuneate and uniserial; wall

calcareous, perforate granular in structure; aperture subterminal, slightly excentric, with a T-shaped opening consisting of a crescentic slit just below the hooded terminus, with a short perpendicular slit extending down the face.

*Remarks:* *Bandyella* resembles *Wheelerella* Petters in being triserial in the early stage, but differs in having a T-shaped excentric or hooded aperture instead of a straight terminal slit-like aperture. *Ellipsopolymorphina* Silvestri resembles the present genus in the apertural form, but has only a biserial early stage before the uniserial later development.

The generic name is in honor of Dr. Orville Bandy, University of Southern California, in recognition of his work on Californian foraminifera.

*Geologic range:* Upper Cretaceous (Coniacian-Campanian), California.

## LITERATURE CITED

- Berkeley, M. J. 1837. Notices of British fungi, I. Mag. Zool. Bot., 1: 42-49.
- Carsey, D. O. 1926. Foraminifera of the Cretaceous of central Texas. Texas Univ. Bull., 2612: 1-56.
- Cushman, J. A. 1927. Notes on foraminifera in the collection of Ehrenberg. Washington Acad. Sci., Jour., 17: 487-491.
- . 1929. The genus *Trimosina* and its relationships to other genera of the Foraminifera. Washington Acad. Sci., Jour., 19: 155-159.
- . 1937. A monograph of the foraminiferal subfamily Virgulininae. Cushman Lab. Foram. Research, Spec. Publ., 9: 1-228.
- Ehrenberg, C. G. 1854. Mikrogeologie: 1-374.
- Galloway, J. J. 1933. A manual of foraminifera: 1-483.
- Goës, A. 1894. A synopsis of the Arctic and Scandinavian Recent marine foraminifera hitherto discovered. K. Sven. Vet.-Akad. Handl., n.f., 25 (9): 1-127.
- Heron-Allen, E. and A. Earland. 1915. The foraminifera of the Kerimba Archipelago (Portugese East Africa). Part 2. Zool. Soc. London, Trans., 20 (17): 543-794.
- Hofker, J. 1951. The foraminifera of the Siboga Expedition. Part 3. Siboga-Expeditie: 1-513.
- Howe, H. V. 1930. Distinctive new species of foraminifera from the Oligocene of Mississippi. Jour. Paleontol., 4 (4): 327-331.
- Loeblich, A. R., Jr., and H. Tappan. 1961. Suprageneric classification of the Rhizopodea. Jour. Paleontol., 35 (2): 245-330.
- MacBride, T. H. 1899. North American slime moulds. McMillan Co., New York: 1-231.
- Marie, P. 1941. Les foraminifères de la Craie à *Belemnitella mucronata* du Bassin de Paris. Mus. Natl. Hist. Nat., Mém., n. sér., 12 (1): 1-296.

- Thalman, H. E. 1942. Foraminiferal homonyms. *Amer. Midland Nat.*, 28: 457-462.
- Trujillo, E. F. 1960. Upper Cretaceous foraminifera from near Redding, Shasta County, California. *Jour. Paleontol.*, 34 (2): 290-346.