Family GORGONELLIDAE

**Scirpearia funiculina** (Duchassaing and Michelotti, 1864)

South of Mobile, Ala. from *Albatross* stations 2387, 2388, 2389.

Family CHRYSOGORGIIDAE

**Chrysogorgia elisabethae** F. M. Bayer, 1951

Near Havana, Cuba: Univ. of Iowa Expedition.

**Chrysogorgia elegans** (Verrill, 1883)

Off Cape San Blas, Fla., *Albatross* station 2397.

SE. of Aransas Pass, Tex., *Oregon* station 548: 27° 01.4′ N., 96° 16.8′W., 200–280 fathoms, April 18, 1952; and station 549: 26° 58.5′ N., 96° 06.7′ W., 300–400 fathoms, April 18, 1952.

Family ISIDIDAE

**Acanella eburnea** (Pourtalès, 1868)

South of Apalachicola, west of Tampa, Fla., *Oregon* station 489: 27° 44′ N., 85° 09′ W., 254 fathoms, September 27, 1951.

From south of Choctawhatchee Bay, Fla., to south of Mobile, Ala., from *Albatross* stations 2384, 2392, 2394, 2397, 2400.

Order PENNATULACEA

Family RENILLIDAE

**Renilla mülleri** Kölliker, 1872

6 miles off Pass à Loutre, La., March 13, 1931: J. C. Pearson.

Corpus Christi, Tex.: C. T. Reed.

Family FUNICULINIDAE

**Funiculina quadrangularis** (Pallas, 1766)

South of Pensacola, Fla., *Albatross* station 2394.

Family PROTOPTILIDAE

**Protoptilum** sp. cf. **thomsoni** Kölliker, 1872

South of Mobile, Ala., *Oregon* station 314: 29° 15.5′ N., 87° 53′ W., 175 fathoms, April 27, 1951.

SE. of Pass à Loutre, La., *Oregon* station 126: 29° 02′ N., 88° 34.5′ W., 195 fathoms, September 23, 1950.

Family UMBELLULIDAE

**Umbellula güntheri** Kölliker, 1880

South of Mobile, Ala., *Albatross* station 2379.

Family VIRGULARIIDAE

**Virgularia mirabilis** (Linnaeus, 1758)

South of Mobile, Ala., *Albatross* station 2387.

Off Galveston, Tex., *Grampus* station 10470: 29° 03′ N., 94° 26′ W., 9 fathoms, February 28, 1917.

ZOOLOGY.—*New Recent foraminiferal genera from the tropical Pacific.* ALFRED R. LOEBLICH, JR., U. S. National Museum.

The taxonomic portion of this paper is the third of a series resulting from a projected revision of the classification of the smaller Foraminifera. Many species have questionably been placed in well-defined genera and others have been placed in genera that have been so broadly defined as almost to constitute families. This latter procedure has certainly been detrimental to the study of Foraminifera, as students often wonder what system, if any, is followed in such classifications. This was admirably shown by Redmond (1949, p. 19) in a discussion as to what constitutes the genus *Eponides*. Redmond refigured the original illustrations of *Nautilus repandus* Fichtel and Moll, the genotype species of *Eponides*, and also several illustrations by later authors, of specimens that they referred to *Eponides repandus* (Fichtel and Moll). It is clearly evident from these figures that they bear little relation to the genus *Eponides* as defined by Montfort and based on Fichtel and Moll's *Nautilus repandus*. Furthermore, a search of the literature shows that *Eponides*, as the term is currently used, is a "waste-basket" genus, and so many unrelated forms are included as to make it almost useless as a generic unit. In replying to Redmond's paper, Hofker (1950, p. 15) states, "The difficulty indicated by C. D. Redmond once again indicates the impossibility of observing the rules of nomenclature in dealing with the foraminifera." In a description offered by Hofker (1950, p. 16) he states that the genotype of *Eponides* may be *Eponides repandus* from the coast of Chile or *Eponides frigidus* from North America. To take up the first point by Hofker no easier path to chaos could be followed in a study of the Foraminifera, or for that matter in the study of any group, than to disregard the rules of nomenclature. If any stability is to be maintained in classification, these rules must be adhered to. Otherwise the classification would be subject

to unlimited changes from day to day based on the whims of individual workers. To consider the second point made by Hofker, according to the rules of nomenclature the genotype of *Eponides* can only be *Nautilus repandus* as known to Fichtel and Moll and can not be based on specimens later studied from the coast of Chile. As to *Eponides frigidus* Cushman, cited as a possible genotype by Hofker, the types of this species have never been figured. All figures of this species published by Cushman and others have been in error as none of them agree in character with the cotypes that are in the National Museum collections. Furthermore, this species could not be the genotype species of *Eponides* as it fits neither Montfort's original description of *Eponides* nor the present concept of *Eponides* of the majority of authors. Actually it is more closely related to *Discopulvinulina* Hofker. Hofker has done much to clarify the problems in the Rotaliidae by his clear description of various genera, but it is felt that his solution for the genotype of *Eponides* is in error. What is needed is a restudy of Fichtel and Moll's types or redefinition based on topotype specimens. Should this be impossible, *Eponides* must remain as a genus based on *Nautilus repandus* and the multitude of dissimilar forms referred to *Eponides* should be redescribed and placed in appropriate genera. One such form is here described as a new genus, as it is completely distinct from the type figures and description of *Eponides repandus* and from all other forms referred to *Eponides* by later workers. A second new genus in the family Textulariidae is described as a result from a study of one of the peculiar forms assigned to *Textularia*. This has been another genus to which almost all biserial forms (regardless of apertural characters, wall structure, or other features) have been referred in the past.

Family Textulariidae

**Tawitawia** Loeblich, n. gen.

Genotype (type species): *Textularia immensa* Cushman, 1921.

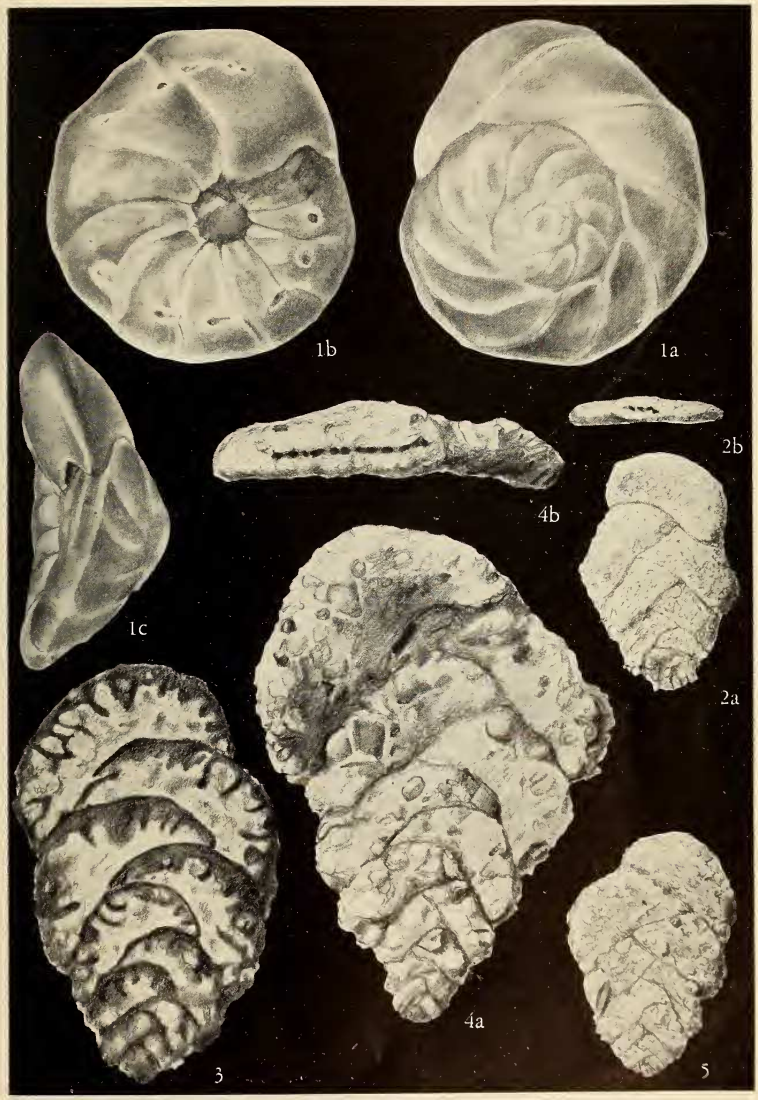
Test large, flattened, biserial; chambers numerous, low, strongly overlapping at the center of the sides; wall coarsely arenaceous, thick, with pillars projecting downward into the interior from the roof of the chambers, giving a labyrinthine interior; aperture terminal, consisting of an elongate series of irregular slits separated completely by pillars across the opening or only partially by projections from one side, aperture does not extend as far as the inner margin of the chamber.

*Remarks.*—This genus differs from *Textularia* Defrance in the labyrinthine interior and the multiple aperture which is terminal in position. It differs from *Cribrostomum* Möller in being flattened and in having a single row of apertures rather than many scattered over the terminal portion of the chamber. It resembles *Polychasmina* Loeblich and Tappan in the apertural character, but is biserial rather than uniserial. *Septigenerina* Keijzer has vertical internal pillars but these are much fewer in number, the test has a coiled base and the aperture is typically textularian. It differs from *Cribrotextularia* Loeblich and Tappan in having a single row of apertural slits, rather than scattered pores over the apertural surface, and in having a labyrinthic interior.

The present genus is monotypic. However, Lalicker and McCulloch (1940, pl. 15, figs. 18d, e, not figs. 18a–c) figured a specimen as *Textularia panamensis* Cushman that very probably belongs to this genus as it shows a similar chamber arrangement with strongly overlapping

Figs. 1a–c.—*Paumotua terebra* (Cushman): *1a*, Dorsal view of holotype (USNM 26160) showing backward curving, raised, and thickened sutures; *1b*, ventral view showing more direct sutures, umbilicus, apertural reentrant, and supplementary apertures in line with the aperture, increasing in size as added; *1c*, edge view showing low spire and aperture. × 72.

Figs. 2a–5.—*Tawitawia immensa* (Cushman): *2a*, Side view of megalospheric hypotype (USNM P. 825c) showing biserial test with final chamber tending to be centrally placed; *2b*, top view showing multiple aperture that does not extend to the inner margin of the final chamber, × 15; 3, sectioned hypotype (USNM P. 826) showing biserial character of test and vertical pillars projecting downward from the chamber roof into the cavity, × 33; *4a*, side view of microspheric hypotype (USNM P. 825a) showing low and broad biserially arranged and strongly overlapping chambers; *4b*, top view showing linear arrangement of the multiple aperture that does not extend to the inner margin of the chamber, × 15; 5, side view of megalospheric hypotype (USNM P. 825b) showing biserial character of test, × 15. (All figures camera-lucida drawings by Sally D. Lee, scientific illustrator, Smithsonian Institution.)




FIGS. 1–5.—(See opposite page for legend.)

chambers and a linear series of apertural slits. However, as there is no evidence as to its internal structure it cannot be referred with certainty to *Tawitawia*. The holotype of *Textularia panamensis* does not show these characters, but is typically textularian.

**Tawitawia immensa** (Cushman)

Figs. 2a–5

*Textularia immensa* Cushman, U. S. Nat. Mus. Bull. 100, vol. 4: 118, pl. 24, figs. 4a, b. 1921.

Test free, large, broad and flattened, rhomboid in outline, quadrate in section, periphery truncate; chambers numerous, low and broad, biserially arranged, and each overlapping the preceding for a considerable distance, final chamber in a few specimens tending to be central in position, chambers flat to slightly depressed centrally; sutures distinct in the later portion of the test, slightly depressed or occasionally left raised on the flat sides of the test by a slight collapse of the chambers, marked by constrictions at the margins of the test, curved and strongly arched upwards; wall coarsely arenaceous, with large grains in a ground mass of finer material, labyrinthic in structure with vertical pillars projecting downward from the chamber roof into the cavity; aperture an elongate closely spaced series of irregular slits, separated by small pillars or projections from the sides, terminal in position on the final chamber.

Length of holotype 6.27 mm, breadth 3.69 mm, thickness 0.57 mm, length of paratype (USNM P. 824) 5.49 mm, breadth 3.07 mm, thickness 0.62 mm. Length of paratype (USNM 12145) 2.44 mm, breadth 1.82 mm, thickness 0.29 mm. Length of hypotype of Fig. 4 (USNM P. 825a) 5.43 mm, breadth 3.80 mm, thickness 0.81 mm, length of hypotype of Fig. 5 (USNM P. 825b) 2.76 mm, breadth 1.90 mm, thickness 0.29 mm. Length of hypotype of Fig. 2 (USNM P. 825c) 2.60 mm, breadth 1.72 mm, thickness 0.31 mm. Length of unfigured hypotypes varies from 2.08 to 5.98 mm.

*Remarks.*—According to the original description (Cushman, 1921, p. 119) this species was based upon two specimens from two localities, and the species was described as rare. A third specimen was labeled as a paratype in his collection but not mentioned in the original description. Examination of material from *Albatross* station D. 5576 (from which the original paratype was recorded) by the present writer has produced 22 additional specimens which have made possible a more complete description of this species. Cushman stated (1921, p. 118): ". . . wall thick, of rather coarse angular sand grains imbedded in an unusually large amount of light gray cement," but he apparently did not note its labyrinthine character, which can only be observed in thin sections, and which can be seen in the section shown here as Fig. 3.

In the original description Cushman (1921, p. 118) stated: ". . . aperture consisting of a series of small openings running from the inner margin of the apertural face to the highest point at the distal end of the test, about 20 in number." However, examination of the holotype, 2 paratypes, and 22 hypotype specimens shows the aperture to be restricted to the terminal portion of the final chamber and does not extend to the inner margin of the chamber.

The labyrinthine walls and the distinctive aperture separate this form from the genus *Textularia*.

*Types and occurrence.*—Holotype (USNM 8502) and paratype (USNM P. 824) from *Albatross* station D. 5567, Dammi Island (N.) N.81°W. 9 miles, lat. 5°48′00″ N., long. 120°33′45 E.; from fine sand at 268 fathoms, bottom temperature 52°F. Paratype (USNM 12145), figured hypotypes (USNM P. 825a–c and P. 826), and unfigured hypotypes (USNM P. 827 a–r) all from *Albatross* station D. 5576 north of Tawi Tawi, Mount Dromedario (Tawi Tawi) S.22°W., 17.2 miles; lat. 5°25′56″ N., long. 120°03′39″ E.; from sand at 277 fathoms, bottom temperature 53.3°F.

Family ROTALIIDAE

**Paumotua** Loeblich, n. gen.

Genotype (type species): *Eponides terebra* Cushman, 1933.

Test free, trochoid, planoconvex, ventral side flattened and umbilicate, dorsal side in a low spire, chambers numerous; wall calcareous, hyaline; aperture a low arch at the front margin of the final chamber, between the periphery and umbilicus on the ventral side, supplementary apertures in a row paralleling the periphery and in line with the main aperture, on the ventral side, consisting of one or more open pores or slits which increase in size and number as chambers increase in size.

*Remarks.*—This genus differs from *Eponides* Montfort in possessing ventral supplementary apertures. *Discopulvinulina* Hofker has ventral

supplementary apertures in the form of an arch along the sutural margin of each chamber. *Pseudoeponides* Uchio has supplementary apertures similar to those of *Discopulvinulina* along the sutural margins, and in addition has slits on the central portion of each chamber, but on the dorsal side. The present genus does not have dorsal supplementary apertures, and the ventral ones are not at the sutural margins, but across the central portion of the chambers.

**Paumotua terebra** (Cushman)

Figs. 1a–c

*Eponides terebra* Cushman, Contr. Cushman Lab. Foram. Res. **9**, pt. 4: 89, pl. 10, figs. 1a–c. 1933.

Test free, trochoid, planoconvex to concavo-convex, dorsal side with a low spire, periphery with a rounded keel; all of the 2½ whorls visible dorsally, only the 8–10 chambers of the final whorl visible ventrally, but these do not reach the center but leave a wide open umbilicus, chambers increasing very gradually in size as added; sutures distinct, curved backward on the dorsal side, raised and thickened, more gradually curved ventrally, and slightly depressed; wall calcareous, hyaline, surface smooth; aperture ventral, forming a reentrant about one-third the distance from the periphery to the umbilicus and one or more rounded to somewhat elongate supplementary apertures on the ventral side in line with the main aperture but away from the apertural margins of the chambers, increasing in size and number as the chambers enlarge, and remaining open throughout.

Greatest diameter of holotype 0.86 mm, least diameter 0.78 mm, height of spire 0.39 mm, greatest diameter of paratype 0.52 mm, height of spire 0.21 mm. Greatest diameter of hypotype 0.53 mm, height of spire 0.18 mm.

*Remarks.*—Cushman noted the peculiar supplementary apertures in his original description of the species, which was apparently based on the holotype and a single paratype. One additional unlabelled specimen was found in the collection, and all three specimens from two stations show identical development of these supplementary apertures, which could not therefore be accidental. As this feature is not found in *Eponides* Montfort, the present species is regarded as belonging to a distinct genus.

*Types and occurrence.*—Holotype (USNM 26160) from *Albatross* station H. 3931, Anu Anuraro Atoll, southeast ½ mile, Paumotu Islands, depth 405 fathoms, bottom temperature 42.5°F.; bottom coral sand, pteropod ooze, and manganese particles. Paratype (USNM 26161) and unfigured hypotype (USNM P. 828) from *Albatross* station H. 3910, southwest point Aki Aki, east 1 mile, Paumotu Islands, depth 377 fathoms; bottom temperature 43.0°; bottom coral sand.

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## ZOOLOGY.—*Fresh-water triclads (Turbellaria) of the Rocky Mountain National Park region, Colorado.* ROMAN KENK. (Communicated by Fenner A. Chace, Jr.)

The present paper is a report on the results of a brief investigation of aquatic habitats in the Rocky Mountain National Park region, Colorado. The short time at my disposal, one week, did not permit an intensive coverage of the area studied, and only places accessible by road could be visited. I am indebted to Hillory A. Tolson, John E. Doerr, David H. Canfield, and Ed Alberts, of the National Park Service, for facilitating my field work in Colorado; and to Prof. Edward G. Reinhard, Catholic University, and Dr. Doris M. Cochran, Smithsonian Institution, for kindly extending to me the use of their laboratory and office facilities in Washington, D. C.

The triclad fauna of Colorado is very little known. Ward (1904: 143) reports that numerous immature, unidentified planarians were present in a bottom haul from Dead Lake, a small water basin south-southeast of Pikes Peak. Cockerell (1927: 242) states that a dark-colored planarian is not rare in mountain springs of Colorado and that, in