

NEW SPECIES AND VARIETIES OF FORAMINIFERA FROM  
THE PHILIPPINES AND ADJACENT WATERS.

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The species and varieties of foraminifera described briefly here are believed to be new and are from the rich material dredged by the fisheries steamer *Albatross* in the Philippine cruise. Figures and fuller notes will be published later in the finished work on this collection.

**BATHYSIPHON RUFESCENS**, new species.

Test elongate, very slightly if at all curved, very slightly tapering, slender, wall marked by annular rings, surface rough, very light yellowish or reddish brown, dull.

Diameter up to 0.5 mm.; length up to 15 mm.

*Type-specimen*.—(Cat. No. 9098, U.S.N.M.) from *Albatross* station D 5236, in 494 fathoms, Pacific Ocean, off eastern coast of Mindanao.

**BATHYSIPHON FLAVIDUS** deFolin, var. **GIGANTEUS**, new variety.

Variety differing from the typical mainly in size, the test being much larger, up to nearly 3 mm. in diameter and 40-50 mm. in length, the wall smooth and polished instead of dull as in the smaller, typical form.

*Type-specimen*.—Cat. No. 9099, U.S.N.M. from *Albatross* station D 5609, in 1,092 fathoms, Gulf of Tomini, Celebes.

**BATHYSIPHON PAPYRACEUS**, new species.

Test much elongate, irregularly curved, cylindrical, of even diameter; wall thin, friable, of sponge-spicules with a small amount of cement, white in color with the surface of light grayish-green in irregular bands; lines of growth very prominent.

Diameter up to 3 mm.; length up to 50 mm.

*Type-specimen*.—(Cat. No. 9100, U.S.N.M.) from *Albatross* station D 5247, in 135 fathoms, Gulf of Davao.

**RHABDAMMINA ABYSSORUM** W. B. Carpenter, var. **RADIATA**, new variety.

Test with a globular central chamber from which radiate numerous arms, with annular constrictions, largest diameter of the arms near the central chamber thence tapering toward the outer end; wall of fine texture, smooth, reddish brown in color.

*Type-specimen*.—(Cat. No. 9101, U.S.N.M.) from *Albatross* station D 5654, in 805 fathoms, Gulf of Boni.

**SACCAMMINA SPHAERICA** G. O. Sars, var. **CATENULATA**, new variety.

*Saccamina sphaerica* H. B. BRADY (part), Rep. Voy. *Challenger*, Zoology, vol. 9, 1884, p. 253, pl. 18, fig. 16.

Test with a wall like that of typical *S. sphaerica* in structure, but several chambers present, joined together in a linear series. The largest chamber adherent.

One specimen almost exactly like the figured specimen of Brady was found at *Albatross* D 5637, in 700 fathoms, off Bouru Island. In the figure given by Brady a pebble forms the base for attachment, in our specimen it is attached to another foraminifer.

*Type-specimen*.—(Cat. No. 9150, U.S.N.M.) from *Albatross* station D 5637, in 700 fathoms, Bouru Island.

**DENDROPHYRA ATTENUATA**, new species.

Test elongate, compressed, consisting of a central, elongated body with slightly projecting, apertural branches on either border, irregularly alternating; wall composed of sand grains with many spicules; color light gray.

Length up to 15 mm.

*Type-specimen*.—(Cat. No. 9102, U.S.N.M.) from *Albatross* station D 5670, in 1,181 fathoms, Macassar Strait.

**AMMODISCUS INCERTUS** d'Orbigny, var. **DISCOIDEUS**, new variety.

Variety differing from the typical in having the sides rapidly increasing in diameter, the width of the coils in side view very much less than in the typical and the border in apertural view very broadly rounded, the periphery often nearly straight in the central portion.

Diameter of microspheric specimens up to 2.5 mm.

*Type-specimen*.—(Cat. No. 9103, U.S.N.M.) from *Albatross* station D 5658, in 510 fathoms, Gulf of Boni.

The microspheric form of this variety is only about one-half the size of the microspheric form of the typical.

**HAPLOPHRAGMOIDES SPHAERILOCULUM**, new species.

Test biconvex, composed of about three coils, chambers comparatively few, five in each coil, subspherical, sutures deeply depressed; wall composed of fine sand grains with a reddish-brown cement, the sutures and umbilical depression more or less filled with a light col-

ored, fine, amorphous material; aperture a narrow slit at the base of the chamber.

Diameter about 2 mm.

*Type-specimen*.—(Cat. No. 9104, U.S.N.M.) from *Albatross* station D 5637, in 700 fathoms, in Pitt Passage.

**CYCLAMMINA COMPRESSA**, new species.

*Cyclammina cancellata* (part) CUSHMAN, Bull. 71, U. S. Nat. Mus., pt. 1, 1910, p. 111, fig. 171 (not figs. 168–170).

Test nautiloid, biconvex, compressed, peripheral margin subacute, umbilicus often notably excavated; chambers numerous, 14 to 16 in the last formed coil, usually 15; sutures subangular in the middle in side view, clearly depressed, surface smooth when perfect; aperture and color as in *C. cancellata*.

Diameter up to 3.5 mm.

*Type-specimen*.—(Cat. No. 9105, U.S.N.M.) from *Albatross* station D5470, in 560 fathoms off the east coast of Luzon.

**CYCLAMMINA PAUCILOCLATA**, new species.

Test compressed, nautiloid, biconvex, peripheral margin subacute, umbilical region depressed, chambers 10 to 11 in number, sutures nearly straight to somewhat curved; surface smooth when perfect; supplementary apertural pores few in number.

Diameter up to 2 mm.

*Type-specimen*.—(Cat. No. 9106, U.S.N.M.) from *Albatross* D5538, in 256 fathoms, between Negros and Siquijor, Philippines.

**NODOSARIA (GLANDULINA) LAEVIGATA** d'Orbigny, var. **STRIATULA**, new variety.

Variety differing from the typical in having the surface ornamented with numerous very fine longitudinal costae.

*Type-specimen*.—(Cat. No. 5107, U.S.N.M.) from *Albatross* D5236, in 494 fathoms, Pacific Ocean, east coast of Mindanao.

**NODOSARIA PYRULA** d'Orbigny, var. **LONGI-COSTATA**, new variety.

Variety with the whole of the chamber body ornamented by longitudinal costae even connecting across the connecting necks; aperture with the costae running to the edge of the opening.

*Type-specimen*.—(Cat. No. 9108, U.S.N.M.) from *Albatross* D5388, in 226 fathoms, between Burias and Luzon, Philippines.

**NODOSARIA ANTENNULA**, new species.

Test elongate, slightly arcuate, composed of numerous short chambers, sutures projecting, of clear shell material, proloculum bulbous, apertural end of chamber tapering to a rounded point, wall smooth.

Length up to 8 mm.

*Type-specimen*.—(Cat. No. 9109, U.S.N.M.) from *Albatross* D5236 in 494 fathoms, Pacific Ocean, east coast of Mindanao.

**NODOSARIA SUBPOLYGONA, new species.**

Test elongate, only very slightly tapering except in the microspheric form, polygonal in end view, chambers numerous, not at all inflated, sides parallel or nearly so, sutures very slightly, if at all depressed, apertural end with a short stout neck, aperture large, circular; surface ornamented by six raised ridges giving a hexagonal appearance in end view.

Length up to 5 mm.

*Type-specimens*.—(Cat. No. 9110, U.S.N.M.) from *Albatross* D5318 in 340 fathoms, China Sea, vicinity of Formosa.

**NODOSARIA SUBSCALARIS, new species.**

Test elongate, composed of few chambers, mucronate at the apical end, earlier chambers close set, the later ones often somewhat separated, inflated, sutures depressed, surface ornamented with numerous (up to 40) longitudinal costae, apertural end with a thick, tapering neck with 9 or 10 prominent, plate-like costae extending from the upper end of the ornamentation of the body of the chamber to the apertural end of the neck; aperture small, rounded.

Length up to 5 mm.

*Type-specimens*.—(Cat. No. 9111, U.S.N.M.) from *Albatross* D5178 in 78 fathoms, vicinity of Romblon, Philippines.

**NODOSARIA SUBSCALARIS, new species, var. PAUCICOSTATA, new variety.**

Variety differing from the typical in the lesser number of costae (12–25) and in the apertural characters which in the variety consist of a stout, nearly cylindrical neck, with about 15 costae which are continuations of the costae of the body portion.

*Type-specimens*.—(Cat. No. 9112, U.S.N.M.) from *Albatross* D5152, in 34 fathoms, Tawi Tawi Group, Sulu Archipelago.

**NODOSARIA MILLETTII, new species.**

*Nodosaria scalaris*, var. *separans* MILLETT, Journ. Roy. Micr. Soc., 1902, p. 520, pl. 11, figs. 11, 12 (not var. *separans* H. B. Brady).

Test elongate, nodose, consisting of a few chambers, the early ones close set, the later ones remote, chambers pyriform or elongate, elliptical in side view, very finely costate, the basal portion sometimes slightly hispid, apertural necks very long and slender, aperture with a phialine lip.

Length, up to 3 mm.

*Type-specimen*.—(Cat. No. 9113, U.S.N.M.) from *Albatross* D5281, in 201 fathoms, China Sea, off Southern Luzon.

**NODOSARIA LEPIDULA Schwager, var. HISPIDULA, new variety.**

Test differing from the typical in its larger size, and the ornamentation, which in the variety consists of a series of interrupted fine

costae, and hispid roughenings of the surface over nearly the whole surface of the chamber.

Length, up to 3 mm.

*Type-specimens*.—(Cat. No. 9114, U.S.N.M.) with the typical in considerable numbers at *Albatross* D5236, in 494 fathoms, Pacific Ocean, off eastern Mindanao.

**NODOSARIA SUBSTRIATULA, new species.**

*Nodosaria subcanaliculata* H. B. BRADY, Rep. Voy. *Challenger*, Zoology, vol. 9, 1884, p. 512, pl. 64, figs. 23, 24 (not *Dentalina subcanaliculata* Neugeboren).

Test usually consisting of four chambers, the proloculum with a globular body, an apical spine, and with definite longitudinal costae; the second chamber much more elongate, flask shaped, with a long neck; when partially covered by the third chamber becoming subcylindrical, ornamented like the proloculum; third chamber still more elongate, with a long neck, the surface ornamentation consisting of short, broken, longitudinal striae; the fourth chamber similar but remote, a large part of the neck between the two chambers visible; final chamber with the apertural neck long and slender, smooth; the apertural end with four or more flange-like costae extending up and beyond the aperture and incurving somewhat over the aperture.

Length up to 2 mm.

*Type-specimen*.—(Cat. No. 9115, U.S.N.M.) from *Albatross*, D5123, in 283 fathoms, east coast of Mindanao.

**NODOSARIA PAUCILOCULATA, new species.**

Test nodose, composed of few chambers, usually not more than five, two or three closely set, later ones remote, inflated, sutures even in the early chambers much depressed, wall ornamented by longitudinal costae, few and large, usually limited to the middle portion of the chamber and becoming obsolete toward each end, neck long, swollen toward the top, then again rapidly contracted to the aperture, in the early chambers the neck with costae, in later ones with the costae limited to the last tapering portion near the aperture.

Length up to 3.5 mm.

*Type-specimens*.—(Cat. No. 9116, U.S.N.M.) from *Albatross*, D5201, in 554 fathoms, Sogod Bay, southern Leyte, Philippines.

**NODOSARIA SUBPERVERSA, new species.**

Test elongate, subcylindrical, composed of several chambers, proloculum larger than the succeeding chambers, all chambers close set, the breadth being much greater than the length, sutures deeply constricted, wall finely marked by longitudinal striations; aperture without a neck.

Length up to 3 mm.

*Type-specimen*.—(Cat. No. 9117, U.S.N.M.) from *Albatross*, D5236, in 494 fathoms, Pacific Ocean, east coast of Mindanao.

**NODOSARIA LAEVICOSTATA**, new species.

Test elongate, arcuate, composed of but few chambers, early ones more or less rounded, closely set, ornamented with longitudinal costae, later chambers pyriform, with the last formed chamber often remote, wall smooth; apertural end tapering into an apertural neck.

Length up to 2 mm.

*Type-specimens*.—(Cat. No. 9118, U.S.N.M.) from *Albatross*, D5178, in 73 fathoms, near Romblon, Philippines.

**NODOSARIA SPIROSTRIOLATA**, new species.

Test much elongate, very slightly tapering toward the initial end, which is broadly rounded, chambers numerous, short, elliptical in side view, sutures but slightly depressed, surface ornamented throughout with numerous (40 to 50) fine longitudinal costae, spirally arranged; apical end without a neck, broadly rounded.

Length up to 10 mm.

*Type-specimen*.—(Cat. No. 9119, U.S.N.M.) from *Albatross*, D5236, in 494 fathoms, Pacific Ocean, east of Mindanao.

**LINGULINA GRANDIS**, new species.

Test large, compressed, early portion, and in some specimens all but the final chamber distinctly keeled, chambers about eight in number, broad and short, somewhat inflated, sutures depressed, not noticed on the keel, wall smooth and shining, yellowish-brown or reddish-brown in color; aperture a very elongate slit extending half the width of the test.

Length up to 6 mm., width 3 mm.

*Type-specimen*.—(Cat. No. 9120, U.S.N.M.) from *Albatross*, D5268, in 170 fathoms, Batangas Bay, Philippines.

**CRISTELLARIA CULTRATA** (Montfort), var. **DECORATA**, new variety.

Variety differing from the typical in the addition of a distinct type of ornamentation, consisting of a large umbilical knob above the umbilical region and the sutures with costae which are gradually larger toward the periphery.

*Type-specimen*.—(Cat. No. 9121, U.S.N.M.) from *Albatross*, D5113, in 159 fathoms, China Sea off southern Luzon.

**CRISTELLARIA ROTULATA** (Lamarck), var. **UMBONATA**, new variety.

Variety with the umbonal region greatly produced by a large mass of clear shell substance standing out clearly above the rest of the test.

*Type-specimen*.—(Cat. No. 9122, U.S.N.M.) from *Albatross*, D5217, in 105 fathoms, between Burias and Luzon, Philippines.

**CRISTELLARIA ORBICULARIS** (d'Orbigny), var. **SUBCARINATA**, new variety.

Variety differing from the typical by having instead of a thin, broad keel a very narrow one, which is thickened with a rounded periphery, otherwise like the typical.

*Type-specimen*.—(Cat. No. 9123, U.S.N.M.) from *Albatross* D5654, in 805 fathoms, Gulf of Boni.

**CRISTELLARIA ORBICULARIS** (d'Orbigny), var. **SUBUMBONATA**, new variety.

Variety differing from the typical in its development of ornamental characters, having a cluster of closely set raised knobs over the umbilical region, giving a decidedly umbonate appearance in face view, remainder of the test smooth.

*Type-specimen*.—(Cat. No. 9124, U.S.N.M.) from *Albatross* D5259, in 312 fathoms, off northwestern Panay, Philippines.

**CRISTELLARIA ORBICULARIS** (d'Orbigny), var. **PAPILLATA**, new variety.

Variety with the keel reduced in width, and the earlier portion with an ornamentation consisting of fine papillæ rather evenly scattered over the surface, in later growth gradually becoming peripheral and in the last-formed chambers gradually becoming obsolete.

*Type-specimen*.—(Cat. No. 9125, U.S.N.M.) from *Albatross* D5152, in 34 fathoms, Tawi Tawi group, Sulu Archipelago.

**CRISTELLARIA CALCARATA**, new species.

Test biconvex, but much compressed, closely coiled, about 7 or 8 chambers in the last formed coil, sutures curved and marked by raised ridges running to the umbonal region, where they unite in a central boss of clear shell material, which is typically excavated in the center, forming a ring of material, periphery with a narrow keel from which are rowel-like spines, the two sides often unequal in their angles, apertural face flattened or even concave, aperture radiate.

Diameter, about 2 mm.

*Type-specimen*.—(Cat. No. 9126, U.S.N.M.) from *Albatross* D5370, in 159 fathoms, off Marinduque Island, Philippines.

**CRISTELLARIA SUBMAMILLIGERA**, new species.

*Cristellaria mamilligera* H. B. BRADY, Rep. Voy. *Challenger*, Zoology, vol. 9, 1884, p. 553, pl. 70, figs. 17, 18 (not *C. mamilligera* Karrer).—CUSHMAN, Bull. 71, U. S. Nat. Mus., pt. 3, 1913, p. 74, pl. 34, fig. 6a (not 6b which should read 5b).

Test biconvex, close coiled, periphery with a thin keel, sutures curved, limbate externally, ornamented by a raised ridge which ends near the umbilical region in a protuberant knob, often a distinct raised boss over the center of the umbilical region, keel entire and not denticulate in well-preserved specimens; wall between the raised ridges smooth; aperture radiate.

Diameter, up to 3 mm.; usually less.

*Type-specimen*.—(Cat. No. 9127, U.S.N.M.) from *Albatross* D5388, in 226 fathoms, between Burias and Luzon, Philippines.

**CRISTELLARIA EXPANSA, new species.**

Test biconvex, with a very wide, prominent, very thin keel, chambers with a large alar projection on the umbilical end extending beyond the umbilicus and onto the previous whorl; sutures with raised ribs ending in a knob near the umbilicus, remainder of the surface smooth; aperture radiate, apertural face concave.

Diameter, up to 3 mm.

*Type-specimen*.—(Cat. No. 9128, U.S.N.M.) from *Albatross* station D5467, in 480 fathoms, east coast of Luzon.

**CRISTELLARIA EXPANSA, new species, var. PLANULATA, new variety.**

Variety differing from the typical mainly in the lack of ornamentation characteristic of the type, and, if at all ornamented, consisting of indistinct costæ in the axis of growth; alar projections more distinct than in the type, due to the lack of ornamentation hiding the sutures, usually more compressed than in the typical.

*Type-specimen*.—(Cat. No. 9129, U.S.N.M.) from *Albatross* D5220, in 50 fathoms, between Marinduque and Luzon, Philippines.

**CRISTELLARIA COSTATA (Fichtel and Moll), var. MULTICOSTA, new variety.**

Variety very much compressed, camplanate, with the costæ along the limbate sutures obsolete; the sutures lightly depressed; the ornamentation of each chamber consisting of a large number of fine raised costæ spreading fan-like from the aperture as a center backward, and covering the entire surface of the chamber; aperture radiate, protruded.

Diameter, up to 4 mm.

*Type-specimen*.—(Cat. No. 9130, U.S.N.M.) from *Albatross* D5538, in 256 fathoms, between Negros and Siquijor, Philippines.

**CRISTELLARIA COSTATA (Fichtel and Moll), var. SUBDECORATA, new variety.**

Variety with the costæ of the sutures the predominant factor in the ornamentation, the areas between with fine costæ or striæ, anastomosing; the costæ of the sutures large and well marked, sharply raised above the surface of the test; the umbilical region covered with a thick cluster of irregular bosses; periphery with traces of a keel between the sutures.

Diameter, up to 4 mm.

*Type-specimen*.—(Cat. No. 9131, U.S.N.M.) from *Albatross* D5454, in 153 fathoms, east coast of Luzon.



CRISTELLARIA COSTATA (Fichtel and Moll), var. *SUBLAEVIS*, new variety.

Variety differing from the typical in having the ornamentation of the test so developed that the limbate sutures and their resulting costae are developed at the complete expense of the other costae of the chambers or nearly so. The costae of the sutures being very high and ending on the inner border of each in a large raised knob; peripheral margin of the test keeled, somewhat interrupted at the sutures; wall of the chambers smooth or marked with obsolescent striae in some cases.

Diameter 3–4 mm.

*Type-specimen*.—(Cat. No. 9132, U.S.N.M.), from *Albatross* D5374, in 190 fathoms, off Marinduque Island, Philippines.

## CRISTELLARIA BRADYI, new species.

*Cristellaria costata* H. B. BRADY (in part ?), Rep. Voy. *Challenger*, Zoology, vol. 9, 1884, p. 555, pl. 71, fig. 8.

Test ovate, thick, last few chambers more or less elongated; sutures hidden by the surface ornamentation which consists of longitudinal rounded costae, more or less broken especially toward the umbilical area and becoming less distinct or entirely disappearing on the last formed chambers; peripheral margin, rounded; aperture radiate.

Diameter up to 3 mm.

*Type-specimen*.—(Cat. No. 9133, U.S.N.M.), from *Albatross* D5313, in 150 fathoms, China Sea off Hong Kong.

## CRISTELLARIA CASSINOIDES, new species.

Test elongate, much compressed, arcuate, early chambers coiled, later ones uncoiling and forming an elongate growth several times the length of the coiled portion, inner margin slightly keeled, peripheral margin bluntly rounded, sutures with a raised portion along the central portion of the peripheral half of the test; surface otherwise smooth and unornamented; aperture radiate.

Length up to 5 mm.

*Type-specimen*.—(Cat. No. 9134, U.S.N.M.), from *Albatross* D5381, in 88 fathoms, Raygay Gulf, Luzon.

## CRISTELLARIA DORSO-COSTATA, new species.

Test composed of numerous chambers, the early ones close coiled, the later ones becoming elongate and tending toward uncoiling, test thick, periphery broadly rounded, sutures little depressed, wall smooth except toward the peripheral border where there are several rounded costae running lengthwise of the test, becoming obsolete toward the later growth; aperture radiate.

Length up to 3.5 mm.

*Type-specimen*.—(Cat. No. 9135, U.S.N.M.), from *Albatross* D5268, in 170 fathoms, off Batangas Bay, Philippines.

## CRISTELLARIA TUMIDO-COSTATA, new species.

Test very broadly convex, close coiled, chambers comparatively few in the whorl, sutures marked by a series of very strong raised ribs uniting at the umbilicus, remaining surface between the sutures marked by a series of short well-rounded, parallel costae running obliquely to the axis of growth; peripheral portion of the test also marked by a series of costae parallel to the periphery, or nearly so; apertural face flattened or concave with a broad rim about the margin; aperture radiate, at the peripheral angle of the chamber.

Diameter up to 3 mm.

*Type-specimen*.—(Cat. No. 9136, U.S.N.M.), from *Albatross* D5570, in 330 fathoms, north of Tawi Tawi, Philippines.

## CRISTELLARIA TUMIDO-COSTATA, new species, var. LABYRINTHICA, new variety.

Variety differing from the typical in its shape, which is more tumid, the periphery more broadly rounded than in the typical and the ornamentation which consists of a peripheral series of costae as in the typical, but the costae above the sutures obsolescent and the intermediary costae becoming the prominent sculpture and becoming shorter, irregular, making a labyrinth-like net work of raised ridges.

*Type-specimen*.—(Cat. No. 9137, U.S.N.M.), from *Albatross* D5567, in 268 fathoms, north of Tawi Tawi, Philippines.

## CRISTELLARIA PAUCICOSTATA, new species.

Test much compressed, composed of few chambers, peripheral border with a prominent keel; the earlier portion of the test with two sharp raised costae toward the periphery and parallel to it, becoming obsolete on the later developed chambers; remainder of surface smooth; sutures slightly depressed; aperture radiate, somewhat protruded.

Length up to 2 mm.

*Type-specimen*.—(Cat. No. 9138, U.S.N.M.), from *Albatross* D5586, in 347 fathoms, off Sibuko Bay, Borneo.

## CRISTELLARIA HELICINA, new species.

Test unequally convex, close coiled, chambers numerous, on one side coming to the umbilicus or nearly so, on the other coming only a little farther than the periphery of the previous whorl; in face view subcarinate; apertural face unequal; sutures ornamented by raised areas, obsolescent at the periphery but gradually increasing in size toward the umbilical end, becoming in some cases a distinct boss toward the umbilicus. Those of the earlier whorls fusing into a partial ring about the umbilicus; main surface of the chambers smooth and unornamented; aperture radiate and projecting, on the peripheral margin of the chamber.

Diameter up to 3 mm.

*Type-specimen*.—(Cat. No. 9139, U.S.N.M.), from *Albatross* D5272, in 118 fathoms, China Sea off southern Luzon.

**CRISTELLARIA HELICINOIDES, new species.**

Test unequally biconvex, especially in the later chambers; earlier chambers close coiled, biconvex, numerous; later chambers becoming developed more strongly on one side of the axis of growth and extending farther toward the umbilicus, giving the test a one-sided appearance, aperture in the last formed chamber with a tubular neck; wall smooth and unornamented

Diameter, up to 2.5 mm.

*Type-specimen*.—(Cat. No. 9140, U.S.N.M.) from *Albatross* D5301, in 208 fathoms, China Sea, vicinity of Hongkong.

**CRISTELLARIA ITALICA DeFrance, var. ACUTO-CARINATA, new variety.**

Test similar to typical *C. italica* in its general characters, but the angles greatly extended in thin carinæ from apex to aperture, the lines of growth being apparent even in the carinæ.

Length, 3 mm.

*Type-specimen*.—(Cat. No. 9141 U.S.N.M.) from *Albatross* D5523, off Mindanao.

**VAGINULINA BRADYI, new species.**

*Vaginulina brukenthalii* H. B. BRADY, Rep. Voy. *Challenger*, Zoology, vol. 9, 1884, p. 532, pl. 66, figs. 18, 19 (not *V. brukenthalii* Neugeboren).

Test elongate, tapering toward the basal end, which is armed with one or more short spines, somewhat compressed; chambers numerous, distinct, early ones coiled, later ones in a linear series, but with the sutures oblique throughout; limbate in the central portion, not keeled, in transverse view, ovate; aperture at the dorsal side of the chamber, radiate.

Length, up to 4 mm.

*Type-specimen*.—(Cat. No. 9142, U.S.N.M.) from *Albatross* D5580, in 162 fathoms, Darvel Bay, Borneo.

**VAGINULINA ACICULA, new species.**

Test elongate, slender, tapering from a point at the initial end to the largest chamber at the apertural end, initial end with one or more short spines, chambers very numerous, rather indistinct in the early portion with oblique sutures, later becoming transverse and slightly depressed, wall smooth and polished; aperture radiate, terminal.

Length, up to 5 mm.

*Type-specimen*.—(Cat. No. 9143, U.S.N.M.) from *Albatross* D5613, in 752 fathoms; Gulf of Tomini, Celebes.

**SIPHOGENERINA BIFRONS** (H. B. Brady), var. **STRIATULA**, new variety.

Differing from the typical in having the surface ornamented with numerous longitudinal striations, rather more elongate, and the central indented portion deeper and more defined.

*Type-specimen*.—(Cat. No. 9144, U.S.N.M.) from *Albatross* D5201, in 554 fathoms, Sogod Bay, southern Leyte Island.

**SIPHOGENERINA RAPHANUS** (Parker and Jones), var. **COSTULATA**, new variety.

Variety differing from the typical in its much more cylindrical form, its few very definite costae and the very short, wide neck without a lip.

*Type-specimen*.—(Cat. No. 9145, U.S.N.M.) from *Albatross* D5143 in 19 fathoms, vicinity of Jolo.

**CHILOSTOMELLA GRANDIS**, new species.

Test broadly elliptical in side view, in end view circular; two chambers visible from the exterior; wall thick and opaque, smooth; aperture in end view semicircular with a flange-like truncated lip.

Length, up to 4 mm. and more.

*Type-specimen*.—(Cat. No. 9146, U.S.N.M.) from *Albatross* D5449, in 300 fathoms, east coast of Luzon, between San Bernardino Strait and San Miguel Bay.

**GLOBIGERINA AEQUILATERALIS** (H. B. Brady), var. **INVOLUTA**, new variety.

Variety differing from the typical in being much more closely coiled, although planospiral; the last formed coil decidedly overlapping the previous coils in side view; visible aperture instead of semicircular in the typical. in the much broader variety less delicately formed.

*Type-specimen*.—(Cat. No. 9147, U.S.N.M.) from *Albatross* D5236, in 494 fathoms, Pacific Ocean, off eastern coast of Mindanao.

**ANOMALINA POLYMORPHA** Costa, var. **CERVICORNIS**, new variety.

Test differing from the typical by having a marginal crown of short, stout, more or less branching, or bifid spines on the angular margin of the chamber.

*Type-specimen*.—(Cat. No. 9148, U.S.N.M.) from *Albatross* D5236, in 494 fathoms, Pacific Ocean, east coast of Mindanao.

**ANOMALINA POLYMORPHA** Costa, var. **SIPHONIFERA**, new variety.

Test differing from the typical by having short, tubular projections from the exterior, rather indefinitely placed, wall otherwise smooth.

*Type-specimen*.—(Cat. No. 9149, U.S.N.M.) from *Albatross* D5236, in 494 fathoms, Pacific Ocean, east coast of Mindanao.