X.—*Report on the Recent Foraminifera of the Malay Archipelago collected by Mr. A. Durrand, F.R.M.S.—Part XII.*

By Fortescue William Millett, F.R.M.S.

(*Read October 16th*, 1901.)

Plate XIV.

Lagena marginata var. *semimarginata* Reuss, plate XIV. fig. 1.

Lagena No. 64 Von Schlicht, 1870, Foram. Septarienthones von Pietzpuhl, p. 11, pl. iv. figs. 4–6; and No. 65, p. 11, pl. iv. figs. 10–12. *L. marginata* var. *semimarginata* Reuss, 1870, Sitzungsber. k. Akad. Wiss. Wien, vol. lxii. p. 468. *L. marginata* var. *semimarginata* (Reuss) Fornasini, 1891, Foram. Plioc. del Ponticello di Savena, pl. ii. fig. 11. *L. marginata* var. *semimarginata* (Reuss) Morton, 1897, Proc. Portland Soc. Nat. Hist., vol. ii. p. 117, pl. i. fig. 5.

In this form the curved spines of the foregoing variety are still more depressed, and extend inwardly, forming a broad keel on either side of the neck, which keel may or may not be continued in the shape of a narrow band around the periphery of the test.

It is not uncommon in Area 2; and as figured by Von Schlicht and F. W. O. Rymer Jones, some of the specimens are rounded at the base, whilst others are acuminate.

Lagena staphyllearia Schwager sp., plate XIV. fig. 2.

Fissurina staphyllearia Schwager, 1866, Novara-Exped., Geol. Theil, vol. ii. p. 209, pl. v. fig. 24. *Lagena vulgaris* var. *spinicosto-*

EXPLANATION OF PLATE XIV.

Fig. 1. — *Lagena marginata* var. *semimarginata* Reuss. × 100.
„ 2. „ *staphyllearia* Schwager sp. × 100.
„ 3. „ *marginata* var. *seminiformis* Schwager. × 100.
„ 4. „ *marginato-perforata* Seguenza. × 100.
„ 5, 6. „ *Elcockiana* sp. n. × 135.
„ 7. „ *squamoso-marginata* Parker and Jones. × 100.
„ 8, 9. „ *lagenoides* Williamson sp. × 100.
„ 10, 11, 12. „ *formosa* Schwager. × 100.
„ 13. „ *bicarinata* Terquem sp. × 100.
„ 14, 15, 16. „ *auriculata* Brady. × 135.
„ 17. „ *quadrangularis* Brady. × 100.
„ 18. „ *Orbignyana* var. *calcar* Millett. × 135.
„ 19. „ „ „ *Walleriana* Wright. × 100.
„ 20. „ „ „ *castrensis* Schwager. × 100.
„ 21. „ „ „ *pulchella* Brady. × 100.
„ 22. „ „ „ *variabilis* Wright. × 135.
„ 23. „ „ „ *clathrata* Brady. × 100.

marginata Rymer Jones, 1872, Trans. Linn. Soc., vol. xxx. p. 57, pl. xix. figs. 34, 35. *L. staphyllearia* (Schwager) Brady, 1884, Chall. Rept., p. 474, pl. lxix. figs. 8–11. *L. staphyllearia* (Schwager) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 331, pl. x. figs. 50, 51, 99. *L. staphyllearia* (Schwager) Flint, 1899, Rep. U.S. Nat. Mus. for 1897 (1899), p. 307, pl. liv. fig. 1.

In the examples of this species described by Schwager, the periphery is rounded as in *L. lævigata*, but in most of the figures given by other authors, the margin is shown carinate as in *L. marginata*.

The Malay specimens, which are very few in number, and are found only in Area 2, are of the latter form.

Regarding the distribution of the species, Brady writes: "In the North and South Atlantic *L. staphyllearia* has only been observed at great depths, namely at four Stations, ranging from 2200 to 2750 fathoms; but in the Southern Ocean and the South Pacific it occurs also from time to time in shallow water near the coast-line."

Dr. Egger records it from various 'Gazelle' Stations ranging from the West Coast of Africa to New Guinea, and at depths varying from 57 to 1720 fathoms.

The 'Albatross' locality, according to Flint, is the Caribbean Sea near Aspinwall, 896 fathoms.

Lagena marginata var. *seminiformis* Schwager, plate XIV. fig. 3.

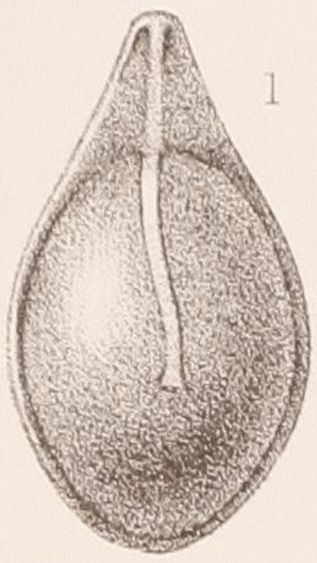
Miliola stiligera (?) Ehrenberg, 1854, Mikrogeologie, pl. xxxi. fig. 6. *Lagena seminiformis* Schwager, 1866, Novara-Exped., Geol. Theil, vol. ii. p. 208, pl. v. fig. 21. *Entosolenia marginata* (?) Chimmo, 1878, Nat. Hist. Euplectella, p. 21, pl. vi. fig. 20. *Fissurina diptera* Seguenza, 1880, Atti R. Accad. Lincei, ser. 3, vol. vi. p. 332, pl. xvii. fig. 37. *L. seminiformis* (Schwager) Jones, 1895, Palæont. Soc., p. 200, pl. vii. fig. 10.

In this variety the apertural curved spines are still further developed, and form a broad wing which embraces usually the whole of the peripheral margin of the test.

It is a marked peculiarity of the Malay Archipelago forms of *L. marginata* that they show a strong tendency to a duplication of the marginal carina, the space between the two keels being either void or filled up with cellular matter. This, under ordinary circumstances, might be considered a valid reason for treating the two forms as distinct species; but seeing that the arrangement prevails in nearly every form of *L. marginata* and its allies, it may be looked upon in the present instance as a local peculiarity, bearing in mind, however, the great extent of the region involved.

Under the name of *L. seminiformis*, Egger * figures, but does not

* Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. pl. x. figs. 19, 87, 88.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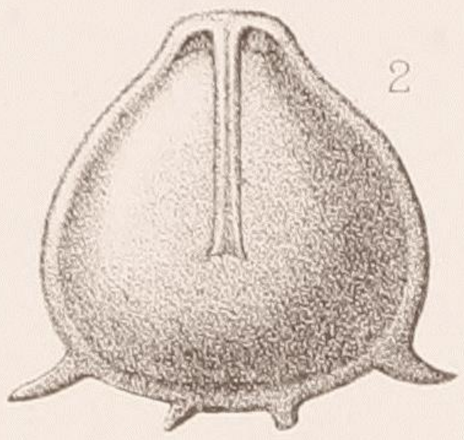
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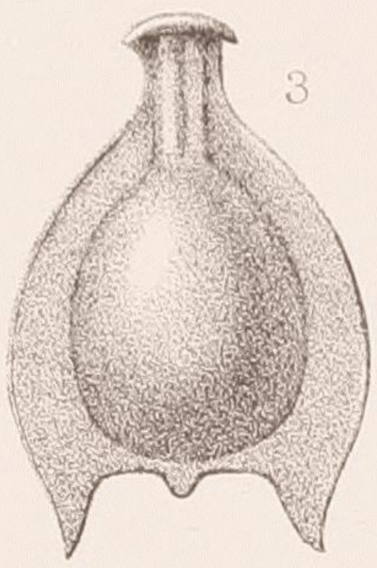
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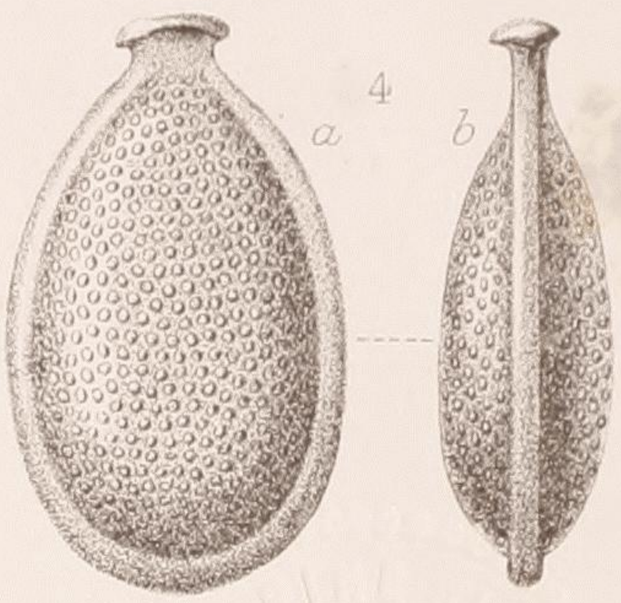
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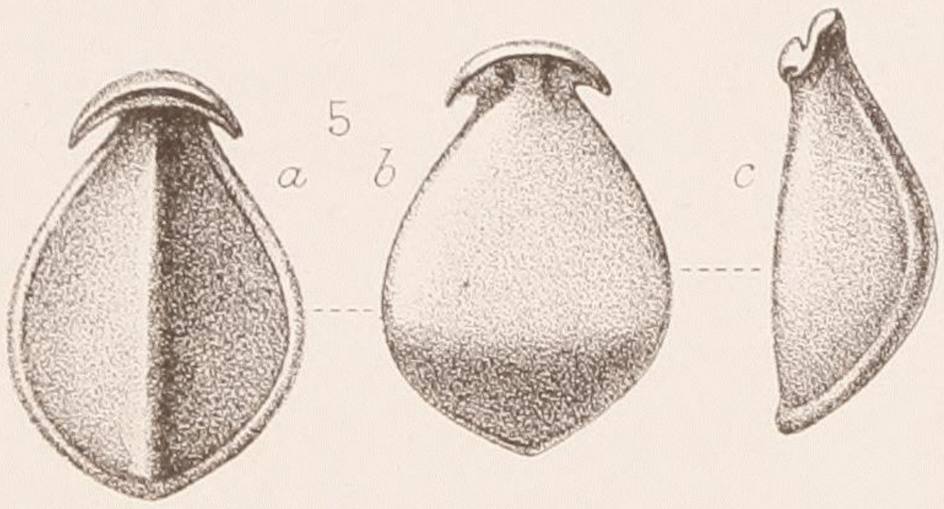
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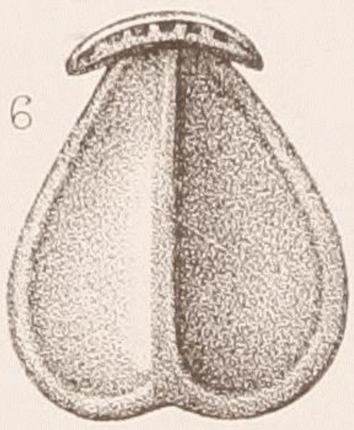
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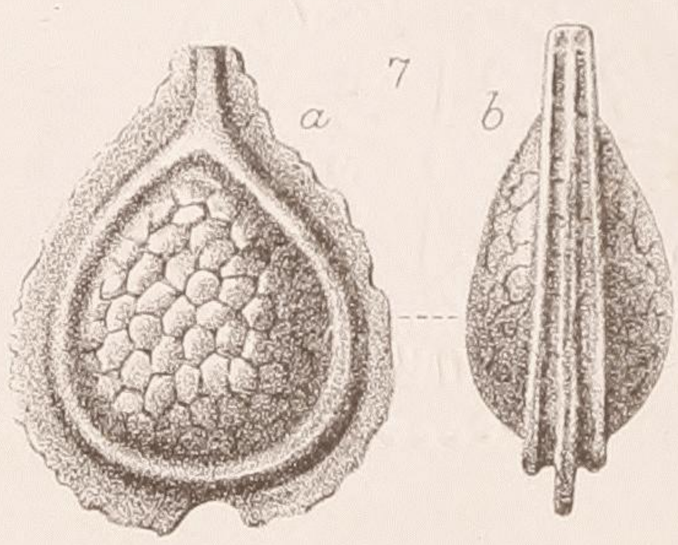
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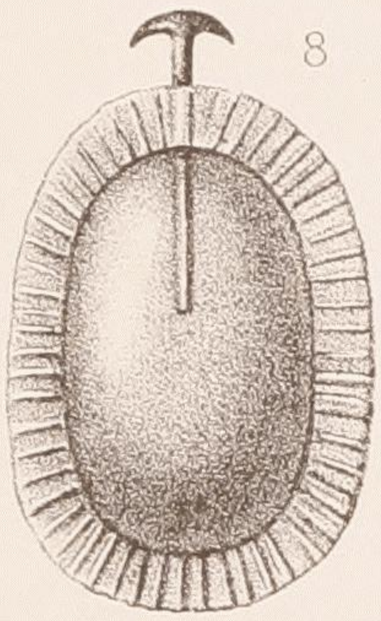
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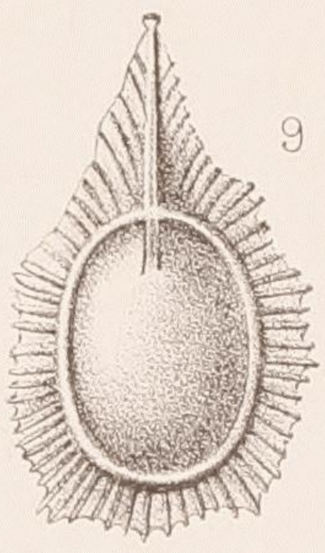
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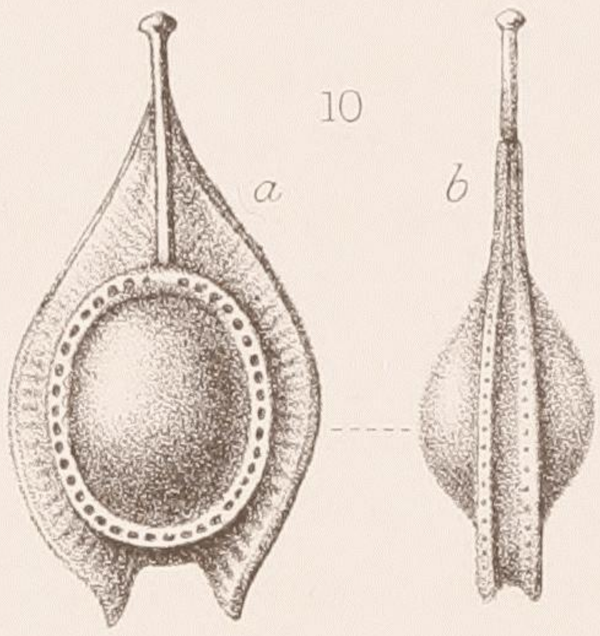
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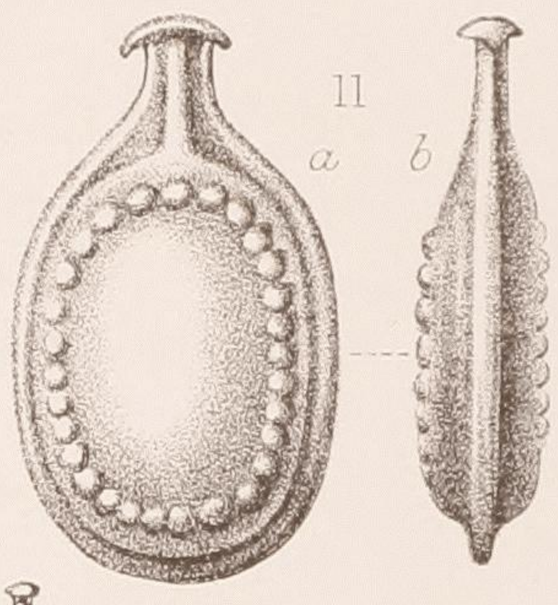
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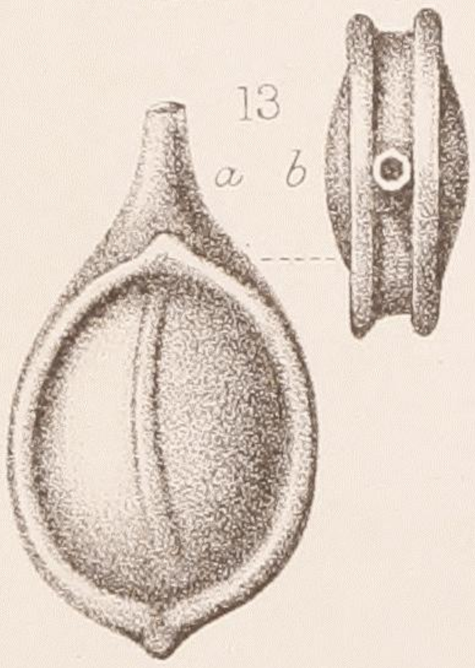
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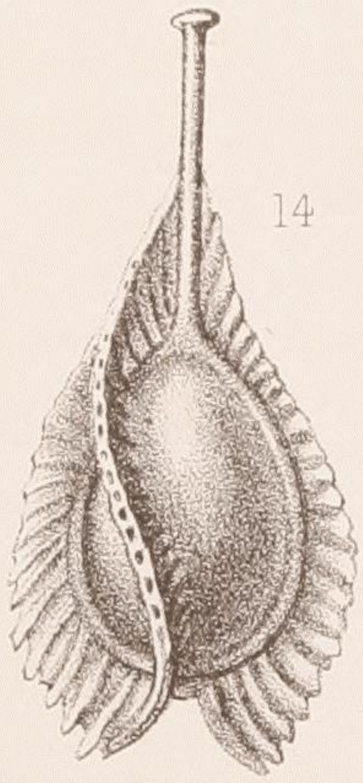
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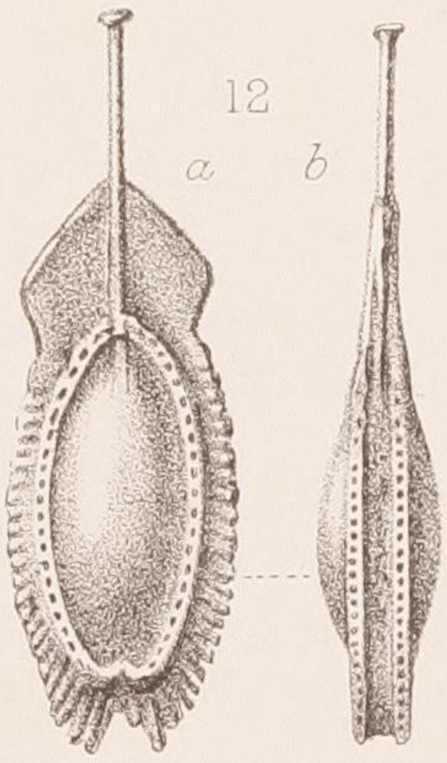
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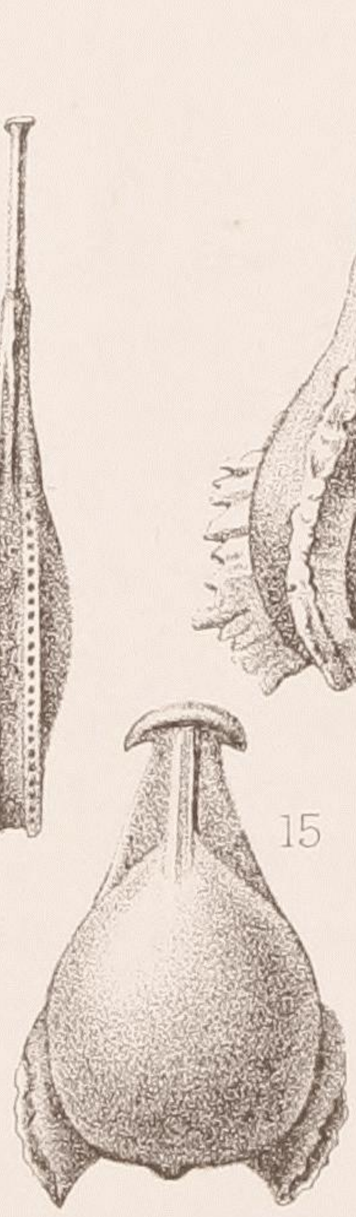
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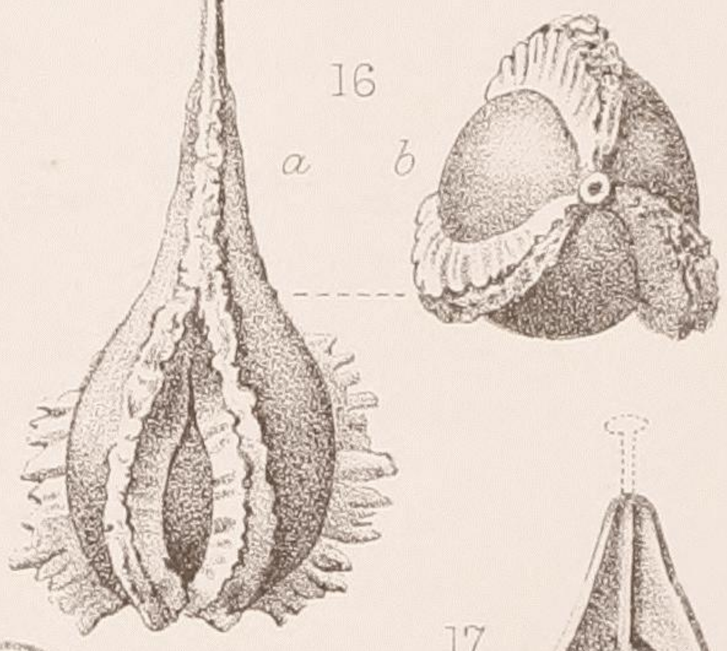
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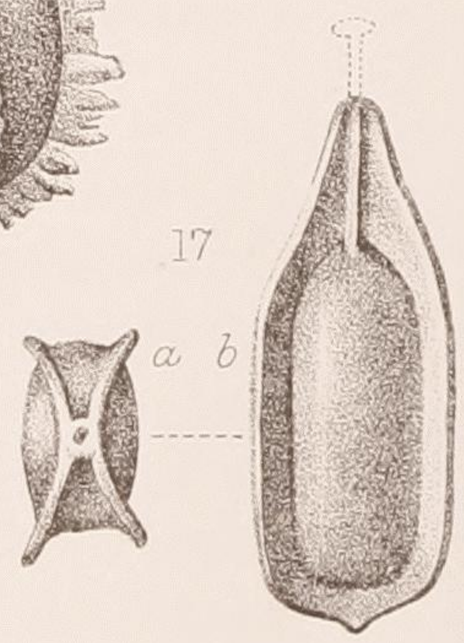
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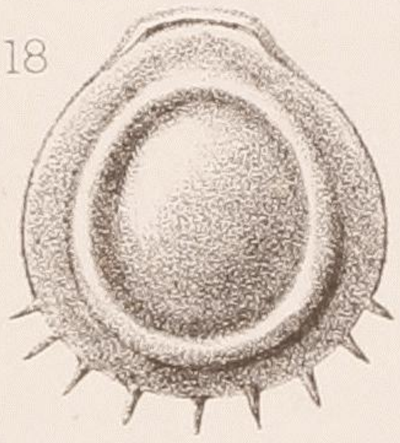
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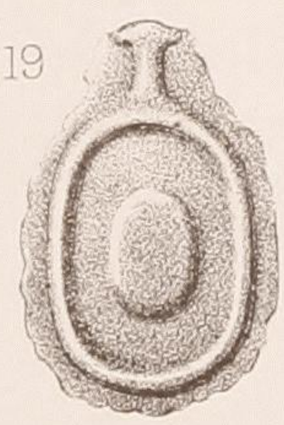
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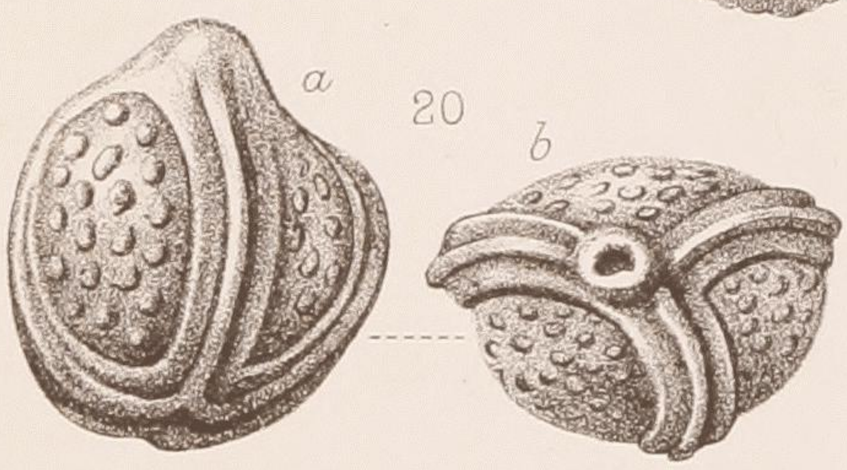
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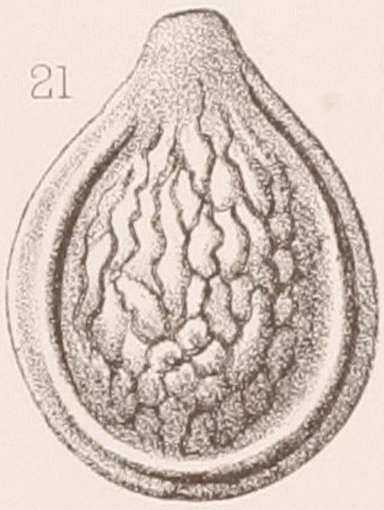
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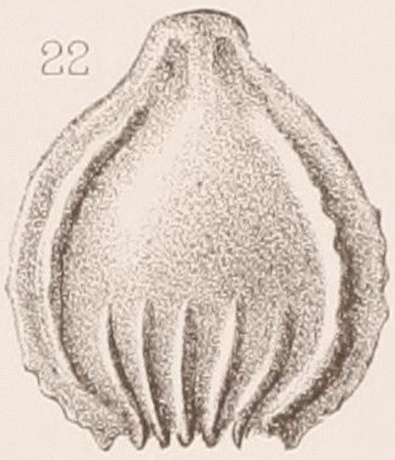
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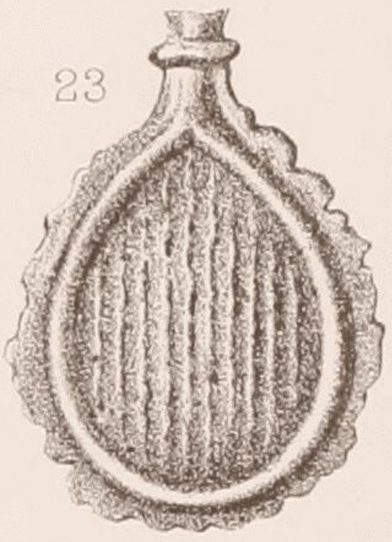
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F.W.Millett del.ad nat.

West, Newman lith.

FORAMINIFERA OF MALAY ARCHIPELAGO.

describe, two examples whose affinities, however, seem to be rather with *L. semimarginata*.

Brady speaks of it as essentially a deep-water species.

L. seminiformis with the single keel is very rare in the Malay Archipelago; but the form with the double keel is not infrequent, and passes insensibly into *L. formosa*.

To its fossil localities may be added the Tertiary beds of St. Erth, and the Coralline Crag of Broom Hill.

Lagena marginato-perforata Seguenza, plate XIV. fig. 4.

Lagena marginato-perforata Seguenza, 1880, Atti R. Accad. Lincei, ser. 3, vol. vi. p 332, pl. xvii. fig. 34. *L. castrensis* (?) (Schwager) Brady, 1884, Chall. Rept., p. 485, pl. lx. fig. 3.

The compressed *Lagenæ* having circular markings of various descriptions on their opposite faces are very abundant in the Malay Archipelago, and all the named varieties are represented. That with a single keel is the variety of *L. marginata* named by Seguenza *L. marginato-perforata*; the double keeled form, which corresponds to *L. bicarinata*, is the *Fissurina punctata* of Seguenza; whilst the triple-keeled, which is a variety of *L. Orbignyana*, has received from Schwager the name *L. castrensis*, from Schlumberger the name *L. variolata*, and has been named by Burrows and Holland *L. lacunata*.

Although the forms which have been accepted and named are thus acknowledged, it must be urged, that even if it were zoologically correct to receive these markings as distinctive characters, yet in practice it would be highly inconvenient, as each kind of ornament, whether a dot, pit, bead, vesicle, or perforation, would have to be considered separately, in connection not only with the number of the keels, but with the position of the aperture, whether sessile or pedunculate, and with the size and plan of arrangement of the markings; thus leading to the creation of varieties in a geometrical ratio not pleasant to contemplate.

The forms named occur in abundance all over the Malay Archipelago, that with the single keel being the most numerous.

Lagena Elcockiana sp. n., plate XIV. figs. 5, 6.

Test oval or pyriform, compressed; periphery carinate or bordered. One face curved from the oral to the aboral extremity; the opposite face composed of two plane surfaces, which, projecting from the lateral margins, meet at the centre and form a straight ridge which extends from the aperture to the base of the shell. Aperture a curved slit on one side of a projecting crescent-shaped process, with recurved ends, which overlaps the face bearing the central ridge. Length 0·16 mm.

The shell is very delicate and translucent. The central ridge may be either acute or carinate, and sometimes there are a few bars across the aperture.

At first sight this might be mistaken for one of the trifacial varieties of *Lagena*; but a close examination proves that the resemblance is superficial, and that the triangular shape of the section results from the diverse form of the two opposite faces.

This variety is named after Charles Elcock, of Belfast, at the request of Mr. Durrand, and as a token of his esteem.

It is very rare in the Malay Archipelago, and is found only at a few Stations in Area 2.

Lagena radiato-marginata Parker and Jones.

Lagena radiato-marginata Parker and Jones, 1865, Phil. Trans., vol. clv. p. 355, pl. xviii. fig. 3. *Fissurina radiato-marginata* (P. and J.) Seguenza, 1880, Atti R. Accad. Lincei, ser. 3, vol. vi. p. 136. *L. radiato-marginata* (P. and J.) Brady, 1884, Chall. Rept., p. 481, pl. lxi. figs. 8, 9.

This beautiful form is very abundant in the Malay Archipelago, and occurs at several Stations in both Areas.

The specimens are fine, and are remarkably uniform in size, shape, and ornamentation.

Found by Parker and Jones on the coral reefs of Australia; and fossil at Bordeaux. Seguenza reports it from the Miocene of Southern Italy. The 'Challenger' Stations are Nares Harbour, Admiralty Islands, 37 fathoms; and Raine Island, Torres Strait, 155 fathoms.

Lagena Wrightiana Brady.

Lagena Wrightiana Brady, 1884, Chall. Rept., p. 482, pl. lxi. figs. 6, 7. *L. Wrightiana* (Brady) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 334, pl. x. figs. 42, 43.

This, although equally widely diffused in the Malay Archipelago, is less abundant than the preceding variety. It is more diversified in its characteristics, the grooves often being curved and sometimes bifurcated, and they do not always leave a smooth space in the centre of the faces.

The only 'Challenger' locality is Nares Harbour, Admiralty Islands, 37 fathoms. The 'Gazelle' Stations for the very minute examples recorded by Dr. Egger, are Mauritius, 190 fathoms; and West Australia, 196 fathoms.

Lagena squamoso-marginata Parker and Jones, plate XIV. fig. 7.

Lagena squamoso-marginata Parker and Jones, 1865, Phil. Trans., vol. clv. p. 356, pl. xviii. fig. 2. *Fissurina squamoso-marginata* (P. and J.) Seguenza, 1880, Atti R. Accad. Lincei, ser. 3, vol. vi. p. 136. *L. squamoso-marginata* (P. and J.) Brady, 1884, Chall. Rept., p. 481, pl. lx. fig. 24. *L. squamoso-marginata* (P. and J.) Dreyer, 1891, Jenaische Zeitschr. für Naturwiss., vol. xxvi. p. 396, pl. xxvii. fig. 241.

According to the figure given by Parker and Jones, this form has but one keel, and may therefore be treated as a variety of *L. marginata*. All the examples from the Malay Archipelago have the triple keel, which indicates their affinity with *L. Orbignyana*, and still more closely with *L. castrensis*, since the hexagonal areolations appear to be produced by the enlargement and crowding together of the circular surface ornaments of that variety.

The *L. squamoso-alata* of Brady* differs but little in its general form from *L. formosa*, and may be regarded as a reticulate variety of that species.

In the Malay Archipelago *L. squamoso-marginata* is rare, and is confined to Area 2.

Parker and Jones found it in the white mud of the Australian coral-reefs; and also record it fossil from the Tertiaries of San Domingo.

Brady (Chall. Rept.) writes: "The species occurs at three points in the North Atlantic, the depths varying from 422 to 816 fathoms; on the Australian coral-reefs; and on the west coast of New Zealand, 1100 fathoms."

It is recorded fossil by Seguenza from the Miocene and Pleistocene of Italy.

L. squamoso-alata, according to Brady, "has been met with at three 'Porcupine' Stations in the North Atlantic, west of Ireland, at depths of 173 fathoms, 630 fathoms, and 1445 fathoms respectively."

Lagena lagenoides Williamson sp., plate XIV. figs. 8, 9.

Entosolenia marginata var. *lagenoides* Williamson, 1858, Rec. Foram. Gt. Britain, p. 11, pl. i. figs. 25, 26. *Lagena lagenoides* (Will.) Reuss, 1862, Sitzber. k. Akad. Wiss. Wien, vol. xlvi. p. 324, pl. ii. figs. 27, 28. *L. lagenoides* (Will.) Balkwill and Millett, 1884, Journ. Micr., vol. iii. p. 82, pl. ii. fig. 11. *L. lagenoides* (trigonal) (Will.) Balkwill and Wright, 1885, Trans. R. Irish Acad., vol. xxviii. p. 341, pl. xii. fig. 22. *L. lagenoides* (Will.) Brady, Parker, and Jones, 1888, Trans. Zool. Soc., vol. xii. p. 223, pl. xliv. fig. 23. *L. serrata* Schlumberger, 1894, Mém. Soc. Zool. Fr., vol. vii. p. 258, pl. iii. fig. 7. *L. lagenoides* (Will.) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 83, pl. xiii. fig. 752. *L. lagenoides* (Will.) Jones, 1895, Palæont. Soc., p. 201. *L. lagenoides* (Will.) Morton, 1897, Proc. Portland Soc. Nat. Hist., vol. ii. p. 118, pl. i. fig. 5.

This protean variety is abundant in Area 2, and occurs sparingly at a few Stations in Area 1. Both of the forms indicated by Williamson's figures are plentiful. In the longer of the two the marginal keel or wing is double, and the interspace is more or less occupied by cellular or granular matter; in the shorter form the wing is less complex; in both, the tubular neck projects into the body of

* Chall. Rept., p. 481, pl. lx. fig. 23.

the shell, and is central and free; in these respects differing from the other compressed *Lagenæ* in which, as a rule, the entosolenian tube is attached throughout its whole length to the internal surface of one of the faces of the test. The trifacial form *L. trigono-ornata* Brady is represented by a few feeble examples.

Living, the species is widely distributed. Fossil, it has been recorded from the Miocene deposits of Sicily; from the Pleistocene of Canada; from the Coralline Crag; and from the Tertiary beds of St. Erth.

Lagena lagenoides var. *tenuistriata* Brady.

Lagena tubulifera var. *tenuistriata* Brady, 1881, Quart. Journ. Micr. Sci., vol. xxi. n.s. p. 61. *L. lagenoides* var. *tenuistriata* Brady, 1884, Chall. Rept., p. 479, pl. lx. figs. 11, 15, 16. *L. lagenoides* var. *tenuistriata* (Brady) Balkwill and Millett, 1884, Journ. Micr., vol. iii. p. 82, pl. ii. fig. 12.

This variety is less abundant than the type, and like it, is more plentiful in Area 2.

Lagena formosa Schwager, plate XIV. figs. 10, 11, 12.

Lagena formosa (pars) Schwager, 1866, Novara-Exped., Geol. Theil, vol. ii. p. 206, pl. iv. fig. 19. *L. formosa* (Schwager) Brady, 1884, Chall. Rept., p. 480, pl. lx. figs. 10, 18–20, 8?, 17? *L. lagenoides* (Will.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 335, pl. x. fig. 85. *L. formosa* (Schwager) Jones, 1885, Palæont. Soc., p. 202, pl. vi. fig. 6.

This species seems to differ from *L. lagenoides* only in the raised border which immediately surrounds the body of the test. As in *L. lagenoides*, the form varies considerably. In the example represented by fig. 11 the raised border is composed of beads instead of the usual punctate ornament.

It is rare in the Malay Archipelago, although found in both Areas.

Group of *Lagena bicarinata*.

Lagena bicarinata Terquem sp., plate XIV. fig. 13.

Fissurina bicarinata Terquem, 1882, Mém. Soc Géol. Fr., sér. 3, vol. ii. p. 31, pl. ix. fig. 24. *Lagena bicarinata* (Terquem) Balkwill and Millett, 1884, Journ. Micr., vol. iii. p. 82. pl. ii. fig. 4; and trifacial pl. iii. fig. 9. *L. bicarinata* (Terq.) Balkwill and Wright, 1885, Trans. R. Irish Acad., vol. xxviii. p. 342, pl. xii. fig. 30. *L. bicarinata* (Terq.) Wright, 1886, Proc. Belfast Nat. Field Club, App. ix. p. 320, pl. xxvi. fig. 8. *L. bicarinata* (Terq.) Halkyard, 1889, Trans. and Ann. Rept. Manchester Micr. Soc., p. 66, pl. ii. fig. 1. *L. bicarinata* var. *placentina* Fornasini, 1901, Mem. R. Accad. Sci. Ist. Bologna, ser. 5, vol. ix. p. 51, fig. 5.

Published forms nearly allied, or possibly identical.

Fissurina marginata Seguenza, 1862, Foram. Monotal. Miocen. Messina, p. 66, pl. ii. figs. 27, 28. *F. capillosa* Schwager, 1866, Novara-Exped., Geol. Theil, vol. ii. p. 210, pl. v. fig. 25. *F. foliacea* Seguenza, 1880, Atti R. Accad. Lincei, ser. 3, vol. vi. p. 306, pl. xvii. fig. 13.

Although this species occurs in the Malay Archipelago in a variety of forms and with diverse surface ornaments, in none of them are to be found the two concentric circular costæ characteristic of the examples from the Eocene of the neighbourhood of Paris.

The form which is most abundant is that with the faces covered with minute dots, to which allusion has already been made in treating of *L. marginato-perforata*.

L. bicarinata occurs at several Stations, but is most plentiful in Area 2.

It has been found fossil in the Eocene of Paris; in the Tertiaries of St. Erth; and in the Neogene of Italy.

Lagena auriculata Brady, plate XIV. figs. 14, 15, 16.

Lagena auriculata Brady, 1881, Quart. Journ. Micr. Sci., vol. xxi. n.s. p. 61. *L. auriculata* Brady, 1884, Chall. Rept., p. 487, pl. lx. figs. 29, 33, and ? 31.

As shown by Brady's figures, this is a very variable species, and in the Malay Archipelago it occurs in many forms, ranging from a smooth test similar to that of *L. lævigata*, with a small loop on either side of the base, to the complex form with an extended neck, and provided with a luxuriant tubulated wing. This latter variety is usually much contorted, as represented by fig. 14. The trifacial variety is represented by fig. 16.

Essentially a deep-water species; being found, according to Brady, at depths of from 1370 to 2740 fathoms in the North and South Atlantic and South Pacific; whilst off Gomera, Canaries, in only 620 fathoms, the specimens were small and poorly developed. In view of these facts it is interesting to note that the species is abundant and varied in the shallow waters of the Malay Archipelago, and deficient only in size, being about one-half the length of the deep-water examples.

It occurs in more or less abundance at several Stations, and, like several other species of *Lagena*, is most plentiful in Area 2.

Lagena quadrangularis Brady, plate XIV. fig. 17.

Lagena quadrangularis Brady, 1884, Chall. Rept., p. 483, pl. cxiv. fig. 11.

This is a very rare species, and has hitherto been found only at Raine Island, Torres Strait, 155 fathoms.

Brady's figure is drawn from an imperfect specimen; I have examples from the same locality, and in these the neck is elongated and terminates in a prominent lip.

In the Malay Archipelago examples these features are not so well defined.

It has been found only at Station 25 in Area 2.

Group of *Lagena Orbignyana*.

Lagena Orbignyana Seguenza sp.

Entosolenia marginata (pars) Williamson, 1858, Rec. Foram. Great Britain, p. 10, pl. i. figs. 19, 20. *Fissurina Orbignyana* Seguenza, 1862, Foram. Monotal. Miocen. Messina, p. 6, pl. ii. figs. 65, 66. *Lagena Orbignyana* (Seguenza) Balkwill and Millett, 1884, Journ. Micr., vol. iii. p. 81, pl. iii. fig. 1. *L. Orbignyana* (Seguenza) Brady, Parker, and Jones, 1888, Trans. Zool. Soc., vol. xii. p. 222, pl. xliv. fig. 20. *L. Orbignyana* (Seguenza) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 333, pl. x. figs. 89–91. *L. Orbignyana* (Seguenza) Grzybowski, 1895, Rozprawy Wydz. Mat.-Przyr. Akad. Umiej-Krakowie, vol. xxx. p. 291, pl. x. fig. 4. *L. Orbignyana* (Seguenza) Jones, 1895, Palæont. Soc., p. 204, pl. vii. fig. 13. *L. Orbignyana* (Seguenza) Flint, 1899, Rep. U.S. Nat. Mus. for 1897 (1899), p. 308, pl. liv. fig. 4. *L. Orbignyana* (Seguenza) Egger, 1899, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xxi. p. 104, pl. v. figs. 8, 9.

Little need be said about this ubiquitous species. Here as elsewhere it occurs in great abundance and in great variety of form, the trifacial variety *L. trigono-marginata* Parker and Jones being included.

Lagena Orbignyana var. *calcar* Millett, plate XIV. fig. 18.

Lagena Orbignyana var. *calcar* Millett, 1898, Trans. R. Geol. Soc. of Cornwall, vol. xii. p. 175, pl.

Hitherto recorded only from the Tertiary beds of St. Erth. In the recent specimens the spines are smaller and more numerous.

It is very rare, and occurs only at a few Stations in Area 2.

Lagena Orbignyana var. *castrensis* Schwager, plate XIV. fig. 20.

Lagena castrensis Schwager, 1866, Novara-Exped., Geol. Theil, vol. ii. p. 208, pl. v. fig. 22. *Entosolenia variolata* Schlumberger, 1882, Feuille Jeunes Nat., p. 25, pl. i. fig. 3. *Lagena scarenænsis* Hantken, 1883, Ertek. termesz. Köreböl, vol. xiii. p. 24, pl. i. fig. 9. *L. castrensis* (Schwag.) Balkwill and Wright, 1885, Trans. R. Irish Acad., vol. xxviii. p. 341, pl. xii. figs. 20, 21. *L. castrensis* (Schwag.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 333, pl. x. figs. 71, 72. *L. lacunata* (Burrows and Holland) Jones, 1895,

Palæont. Soc., p. 205, pl. vii. fig. 12. *L. castrensis* (Schwag.) Flint, 1899, Rep. U.S. Nat. Mus. for 1897 (1899) p. 308, pl. liv. fig. 5.

This variety occurs in great abundance at many Stations in both Areas.

There is considerable diversity in the surface ornamentation, as well in the nature as in the arrangement of its components.

As a matter of convenience, in the synonymy are included all the described varieties of *L. Orbignyana* in which the surface markings are circular, without regard to their being depressions or elevations, or to any other character which they may happen to possess.

Trifacial varieties of this form are very uncommon, and for this reason an example having this character has been selected for illustration.

Lagena Orbignyana var. *Walleriana* Wright, plate XIV. fig. 19.

Lagena Orbignyana var. *Walleriana* Wright, 1886, Proc. R. Irish Acad., ser. 2, vol. iv. p. 611; and 1891, ser. 3, vol. i. p. 481, pl. xx. fig. 8.

This variety is very rare, and has been found only at Station 22, in Area 2.

Wright reports it from various Stations off the south-west of Ireland, at depths ranging from 53 to 345 fathoms.

It is not uncommon in the Tertiary beds of St. Erth; and in the fossil examples the central boss is often replaced by a ring of corresponding size.

Lagena Orbignyana var. *pulchella* Brady, plate XIV. fig. 21.

Lagena pulchella Brady, 1866, Rept. Brit. Assoc. (Nottingham) p. 70. *L. pulchella* Brady, 1870, Ann. and Mag. Nat. Hist., ser. 4, vol. vi. p. 294, pl. xii. fig. 1. *L. pulchella* (Brady) Balkwill and Millett, 1884, Journ. Micr., vol. iii. p. 81, pl. ii. fig. 13; and pl. iii. fig. 11. *L. pulchella* (Brady) Balkwill and Wright, 1885, Trans. R. Irish Acad., vol. xxviii. p. 342, pl. xii. fig. 19.

In the Malay Archipelago this variety is rare, although it occurs at Stations in both Areas.

The irregular branching or reticulated costæ proper to this form are often mixed with the circular vesicles usually found in *L. castrensis*. This is shown in the specimen selected for illustration.

Lagena Orbignyana var. *variabilis* Wright, plate XIV. fig. 22.

Lagena Orbignyana var. *variabilis* Wright, 1891, Proc. R. Irish Acad., ser. 3, vol. i. p. 482, pl. xx. fig. 9.

The Malay Archipelago examples are not so elongated as that figured by Wright, and but for the riblets would not be distinguishable

from *L. Orbignyana*. They are also smaller than the Irish specimens, and altogether more delicate in structure.

It is by no means uncommon in the Malay Archipelago, and occurs at several Stations, but most abundantly in Area 2.

Joseph Wright records it as frequent at 750 fathoms off the west coast of Ireland, and adds that he has met with it in several of the 'Porcupine' soundings from the North Atlantic.

Lagena Orbignyana var. *clathrata* Brady, plate XIV. fig. 23.

Lagena clathrata (Brady) Balkwill and Millett, 1884, Journ. Micr., vol. iii. p. 82, pl. ii. fig. 14; and pl. iv. fig. 3. *L. clathrata* Brady, 1884, Chall. Rept., p. 485, pl. lx. fig. 4.

Typical examples are rare, the parallel costæ being usually represented by lines of closely set beads; other specimens resemble *L. variabilis* in having the ribs radiating from the base.

It is found in both Areas, but always in small quantities.

The only localities recorded hitherto are shore-sands, Galway (Balkwill and Millett); and sands dredged near the islands to the south-west of New Guinea, notably off the Ki Islands, 580 fathoms; and off Aru Island, 800 fathoms (Brady).

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AND

A SUMMARY OF CURRENT RESEARCHES RELATING TO

ZOOLOGY AND BOTANY

(principally Invertebrata and Cryptogamia)

MICROSCOPY, &c.

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