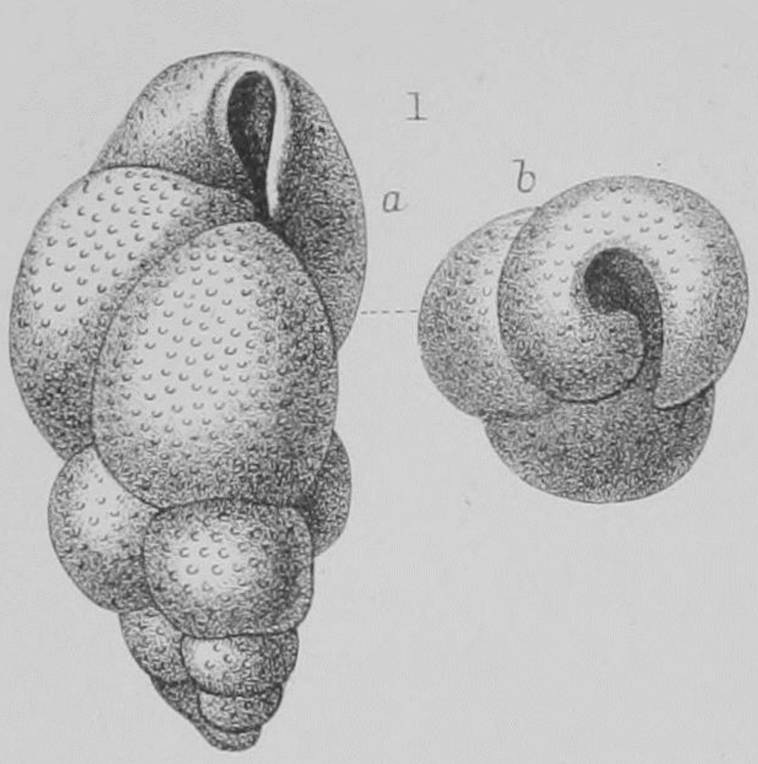

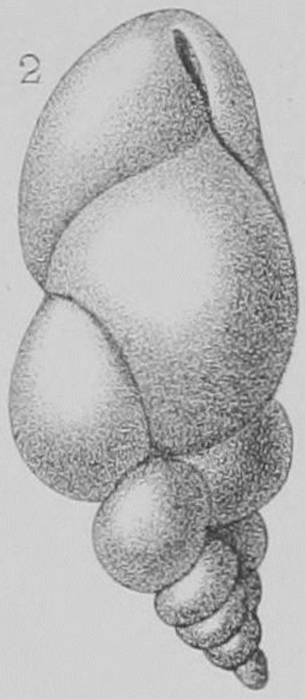

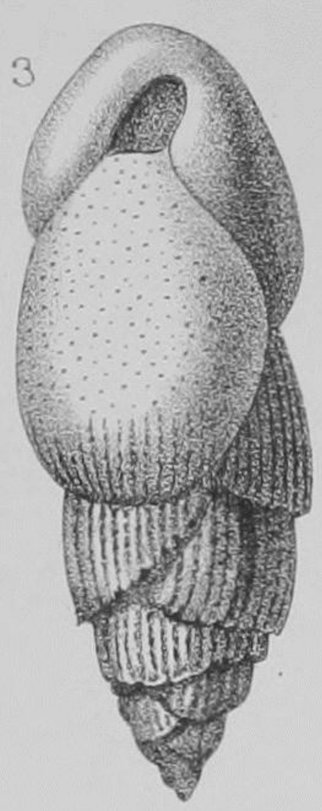

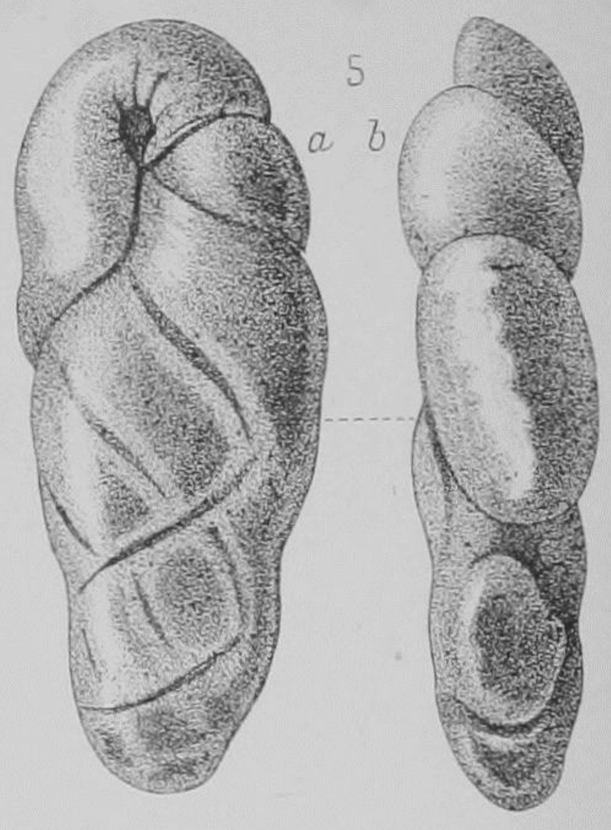

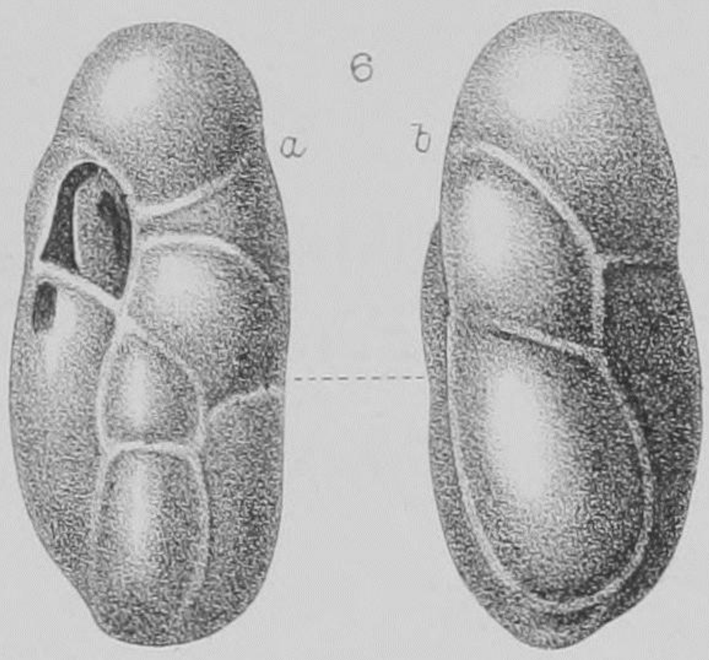

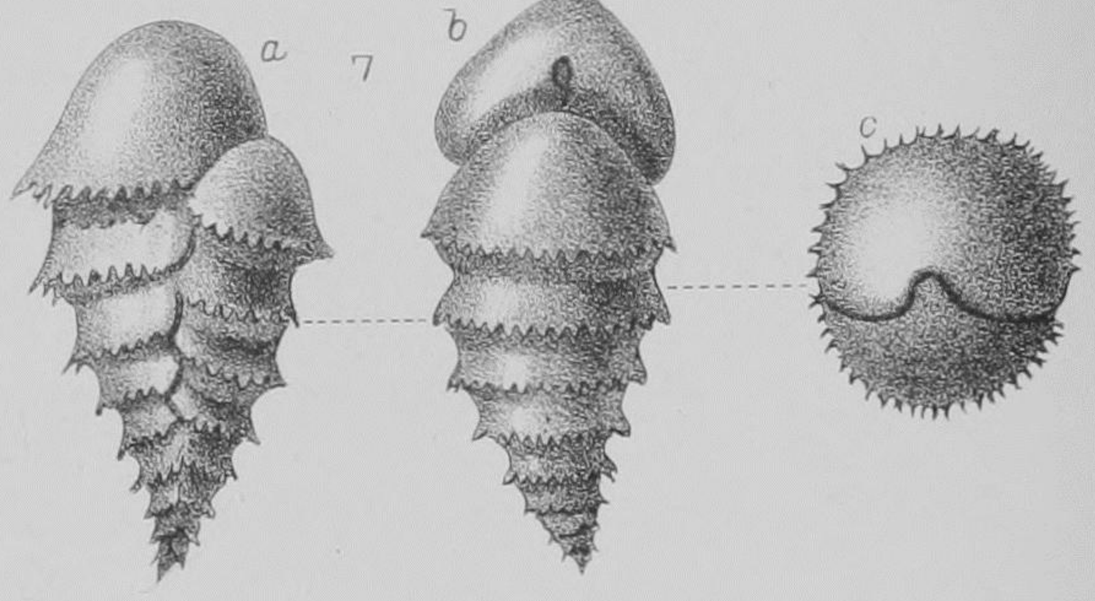

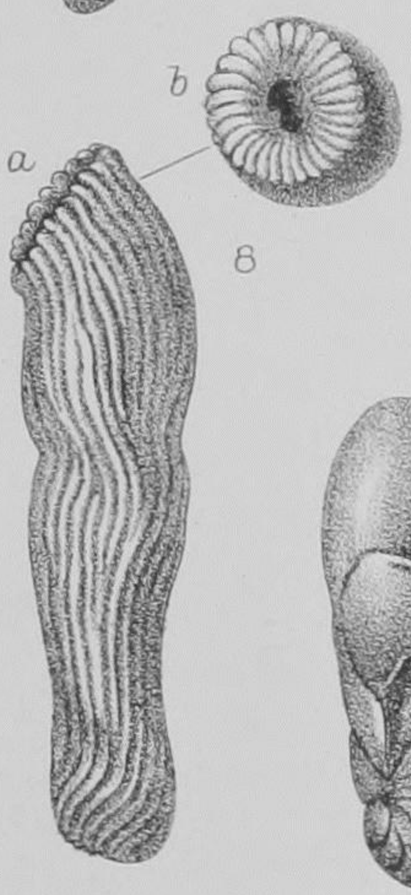

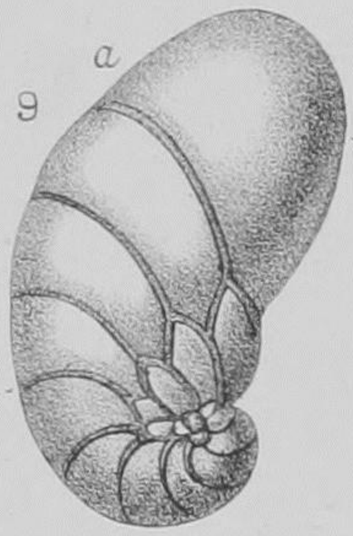

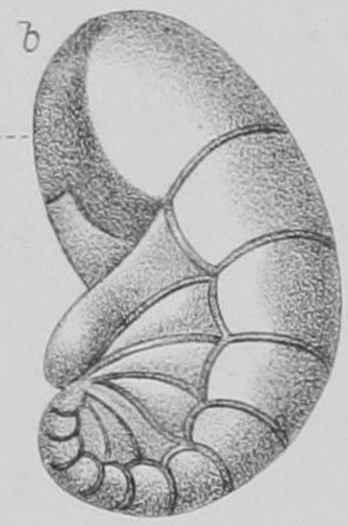

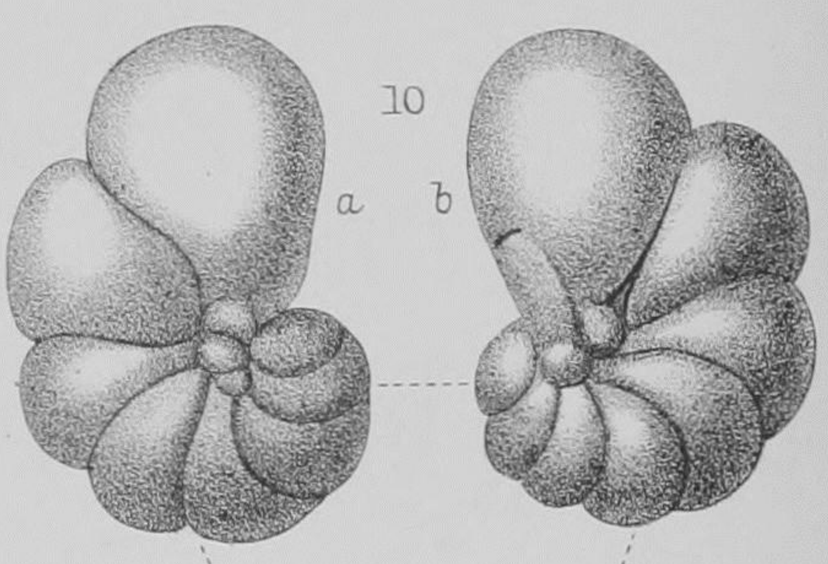

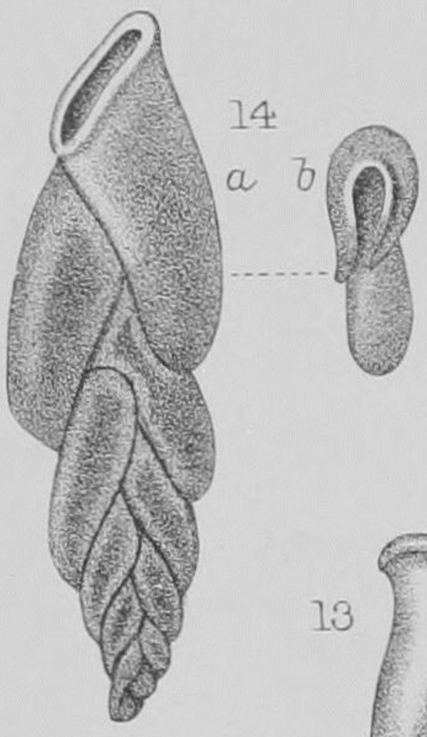

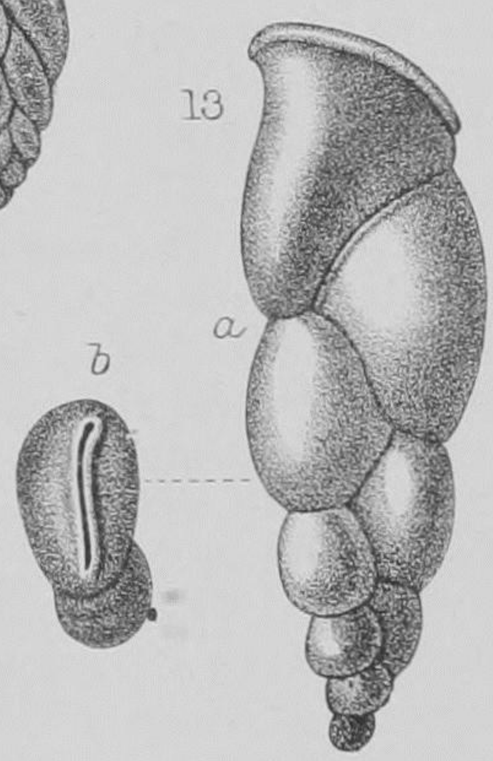

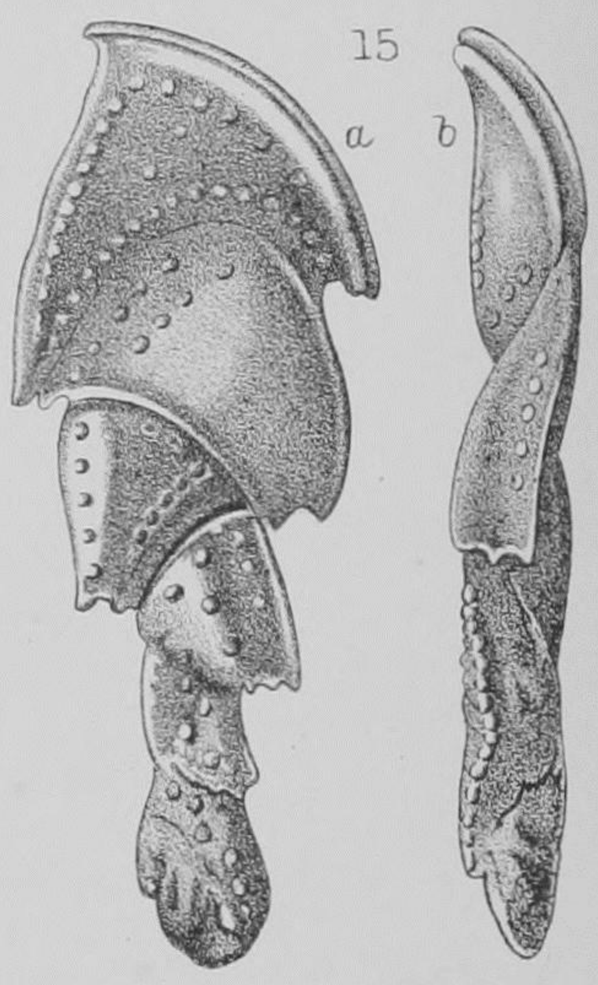

F.W.Millett. del. ad nat.

West, Newman lith.

FORAMINIFERA OF MALAY ARCHIPELAGO.

JOURNAL
OF THE
ROYAL MICROSCOPICAL SOCIETY.
JUNE 1900.

TRANSACTIONS OF THE SOCIETY.

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

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

(*Read* 16*th May*, 1900.)

Plate II.

Sub-family **Bulimininæ.**

Bulimina pupoides d'Orbigny.

Bulimina pupoides d'Orbigny, 1846, For. Foss. Vienne, p. 185, pl. xi. figs. 11, 12. *B. pupoides* (d'Orb.) Woodward and Thomas, 1885, 13th Ann. Rept. Geol. and Nat. Hist. Survey of Minnesota, p. 169, pl. iii. fig. 11. *B. pupoides* (d'Orb.) Terrigi, 1889, Mem. R. Accad. Lincei, ser. 5, vol. vi. p. 110, pl. v. fig. 6. *B. pupoides* (d'Orb.) Terrigi, 1891, Mem. R. Com. Geol. d'Italia, vol. iv. p. 72, pl. i. fig. 22. *B. pupoides* (d'Orb.) Woodward and Thomas, 1893, vol. iii. Final Rept. Geol. and Nat. Hist. Survey of Minnesota, p. 32, pl. C, figs. 21–24. *B. pupoides* (d'Orb.) Egger, 1893, Abhandl.

EXPLANATION OF PLATE II.

Fig. 1.—*Bulimina elegans* d'Orbigny. × 100.
„ 2. „ *fusiformis* Williamson. × 90.
„ 3. „ *subornata* Brady. × 135.
„ 4. „ *elegantissima* d'Orbigny. × 115.
„ 5. „ „ var. *compressa* var. n. × 115.
„ 6. „ *subcylindrica* Brady. × 75.
„ 7. „ *marginata* d'Orbigny var. *biserialis* var. n. × 90.
„ 8. „ *Williamsoniana* Brady. × 60.
„ 9. „ *convoluta* Williamson. × 60.
„ 10. „ „ var. *nitida* var. n. × 60.
„ 11.—*Pleurostomella contorta* sp. n. × 75.
„ 12. „ „ young specimen. × 75.
„ 13.—*Virgulina Schreibersiana* Czjzek var. × 85.
„ 14. „ *squamosa* d'Orbigny. × 60.
„ 15.—*Bifarina Mackinnonii* sp. n. × 80.

k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 285, pl. viii. fig. 63. *B. pupoides* (d'Orb.) Egger, 1895, Jahresbericht xvi. Naturhist. Ver. Passau, p. 14, pl. iv. figs. 6–8. *B. pupoides* (d'Orb.) Flint, 1899, Rept. U.S. Nat. Mus. for 1897, p. 290, pl. xxxvii. fig. 3. *B. pupoides* (d'Orb.) Egger, 1899, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xxi. p. 49, pl. xv. figs. 1, 2. *B. pupoides* (d'Orb.) Wright, 1900, Geol. Mag., dec. 4, vol. vii. p. 100, pl. v. fig. 3.

Bulimina affinis d'Orbigny.

Bulimina affinis d'Orbigny, 1839, Foram. Cuba, p. 109, pl. ii. figs. 25, 26. *B. affinis* (d'Orb.) Sherborn and Chapman, 1886, Journ. R. Micr. Soc., vol. vi. p. 743, pl. xvi. fig. 1. *B. affinis* (d'Orb.) Rzehak, 1886, Verh. Nat. Ver. Brünn, vol. xxiv. p. 80, pl. i. fig. 2. *B. affinis* (d'Orb.) Burrows, Sherborn, and Bailey, 1890, Journ. R. Micr. Soc., p. 554, pl. viii. fig. 23. *B. affinis* (d'Orb.) Chapman, 1892, Journ. R. Micr. Soc., p. 756, pl. xii. fig. 10. *B. affinis* (d'Orb.) Woodward and Thomas, 1893, vol. iii. Final Rept. Geol. and Nat. Hist. Survey of Minnesota, p. 32, pl. C, fig. 19. *B. affinis* (d'Orb.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 285, pl. viii. fig. 71. *B. affinis* (d'Orb.) Egger, 1895, Jahresbericht xvi. Naturhist. Ver. Passau, p. 14, pl. iv. figs. 4, 5. *B. affinis* (d'Orb.) Flint, 1899, Rept. U.S. Nat. Mus. for 1897, p. 290, pl. xxxvii. fig. 2. *B. ovulum* (Reuss) Egger, 1899, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xxi. p. 50, pl. xv. fig. 46.

Bulimina elegans d'Orbigny, plate II. fig. 1.

Bulimina elegans d'Orbigny, 1826, Ann. Sci. Nat., vol. vii. p. 270, No. 10; Modèle, No. 9. *B. elegans* (d'Orb.) Parker, Jones, and Brady, 1865, Ann. and Mag. Nat. Hist., ser. 3. vol. xvi. p. 20, pl. ii. fig. 64. *B. elegans* (d'Orb.) Chapman, 1892, Quart. Journ. Geol. Soc., vol. xlviii. p. 516, pl. xv. fig. 9. *B. elegans* (d'Orb.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 284, pl. viii. figs. 66, 67. *B. elegans* (d'Orb.) Jones, 1895, Palæont. Soc., p. 162, fig. 17. *B. elegans* (d'Orb.) Egger, 1895, Jahresbericht xvi. Naturhist. Ver. Passau, p. 16, pl. iii. fig. 9. *B. elegans* (d'Orb.) Flint, 1899, Rept. U.S. Nat. Mus. for 1897, p. 294, pl. xxxvi. fig. 3. *B. elegans* (d'Orb.) Egger, 1899, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xxi. p. 50, pl. xv. fig. 44.

Of this group the central form is *B. elegans*, which is by far the most important in numbers as well as in distinctive characters. The aperture is always large and curiously contorted, suggesting a stage in the evolution of a complicated double aperture found in some allied species, a description of which will be given in due course. The *B. coprolithoides* of Andreae * has a somewhat similar aperture, and closely resembles this form in other respects. *B. pupoides* and

* Abhandl. Geol. Special-Karte Elsass-Loth., vol. ii. Heft 3, 1884, p. 305, pl. vi. fig. 4.

B. affinis are here variants of *B. elegans*, and are both represented by individuals feeble and few in number. In these the aperture is normal. They are all widely distributed in the Malay region, although, with the exception of *B. elegans*, they are nowhere abundant.

Bulimina elegans d'Orbigny var. *exilis* Brady.

Bulimina elegans var. *exilis* Brady, 1884, Chall. Rept., p. 399, pl. i. figs. 5, 6.

This variety has hitherto been found only in deep water, and is said by Brady to be not rare in the North Atlantic, and also to have been met with in the North and South Pacific. It does not appear to have been noticed by other observers.

In the Malay Archipelago it is very rare in its normal condition, but there are varieties of *Virgulina* closely resembling it, which are not uncommon.

Bulimina fusiformis Williamson, plate II. fig. 2.

Bulimina pupoides var. *fusiformis* Williamson, 1858, Rec. Foram. Gt. Britain, p. 63, pl. v. figs. 129, 130. *B. fusiformis* (Will.) Wright, 1900, Geol. Mag., dec. 4, vol. vii. p. 100, pl. v. fig. 5.

Is found in more or less abundance on the coasts of Great Britain, and is stated by Joseph Wright to be "common" in the Post-Glacial beds of Cheshire.

The triserial specimen figured under this name by Terquem * can hardly be assigned to this species.

The Malay examples, although neither numerous nor widely distributed, are sufficiently characteristic, and as usual, indicate an affinity with the genus *Virgulina*.

Of its existence elsewhere either in the recent or the fossil condition, there is no evidence to record.

Bulimina ovata d'Orbigny.

Bulimina ovata d'Orbigny, 1846, For. Foss. Vienne, p. 185, pl. xi. figs. 13, 14. *B. ovata* (d'Orb.) Terrigi, 1891, Mem. R. Com. Geol. d'Italia, vol. iv. p. 72, pl. i. fig. 20. *B. ovata* (d'Orb.) Egger, 1895, Jahresbericht xvi. Naturhist. Ver. Passau, p. 15, pl. iii. fig. 11. *B. ovata* (d'Orb.) Burrows and Holland, 1897, Proc. Geol. Assoc., vol. xv. p. 32, pl. ii. fig. 11. *B. ovata* (d'Orb.) Egger, 1899, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xxi. p. 49, pl. xv. fig. 45.

Is not well represented, the specimens being small and feeble as well as few in number. It appears to be restricted to Area 1.

Bulimina pyrula d'Orbigny.

Bulimina caudigera d'Orbigny, 1826, Ann. Sci. Nat., vol. vii. p. 270, No. 16; Modèle, No. 68. *B. pyrula* d'Orbigny, 1846, For.

* Ess. Plage Dunkerque, 1875, p. 37, pl. v. fig. 10.

Foss. Vienne, p. 184, pl. xi. figs. 9, 10. *B. pyrula* (d'Orb.) Terrigi, 1891, Mem. Com. Geol. d'Italia, vol. iv. p. 71, pl. i. figs. 18, 19. *B. pyrula* (d'Orb.) Chapman, 1892, Journ. R. Micr. Soc., p. 756, pl. xii. fig. 9. *B. pyrula* (d'Orb.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 285, pl. viii. fig. 107. *B. cuspidata* Franzenau, 1894 (Soc. Hist. Nat. Croatia), p. 253, pl. i. fig. 23. *B. pyrula* (d'Orb.) Egger, 1895, Jahresbericht xvi. Naturhist. Ver. Passau, p. 16, pl. iv. fig. 1. *B. pyrula* (d'Orb.) Chapman, 1895, Ann. and Mag. Nat. Hist., ser. 6, vol. xvi. p. 326, pl. xii. fig. 11, *B. pyrula* (d'Orb.) Flint, 1899, Rept. U.S. Nat. Mus. for 1897, p. 290, pl. xxxvi. figs. 4, 5.

The examples of this species are few, small, and ill-developed, but they are found scattered over the whole region. They vary in the direction of *B. subcylindrica.*

Bulimina subornata Brady, plate II. fig. 3.

Bulimina subornata Brady, 1884, Chall. Rept., p. 402, pl. li. fig. 6. *B. subornata* (Brady) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 286, pl. viii. fig. 79.

The examples agree with those of the 'Challenger' dredgings in having the shell-wall conspicuously foraminated, but are devoid of the aboral stout spine, and the chambers have a tendency to overlap, in this respect resembling those of *B. marginata.* Brady writes that it "is a rare species, occurring at only two of the 'Challenger' stations, both in the Pacific, namely, the *Hyalonema*-ground south of Japan, 345 fathoms, where it is tolerably plentiful, and off Aru Islands, 800 fathoms."

There are two 'Gazelle' stations at which it occurs, both off the West Coast of Australia.

It is common in the Malay Archipelago, and is found at many of the stations in both areas.

Bulimina elegantissima d'Orbigny, plate II. fig. 4.

Bulimina elegantissima d'Orbigny, 1839, Foram. Amér. Merid., p. 51, pl. vii. figs. 13, 14. *B. elegantissima* (d'Orb.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss. Cl. II. vol. xviii. p. 289, pl. viii. figs. 101, 102. *B. elegantissima* (d'Orb.) Wright, 1900, Geol. Mag., dec. 4, vol. vii. p. 100, pl. v. fig. 6.

This variable, but at the same time easily recognised species, is very abundant in the Malay Archipelago, and is widely diffused in both areas. It occurs in all its varieties, ranging from the compact build identical with that of the sandy *B. Presli* to the elongated form figured.

As an illustration of the persistency of this species in time, it may be mentioned that there would be little difficulty in selecting from the

Malay Archipelago material specimens to match most of the forms figured by Terquem * in his work on the Foraminifera of the Paris Eocene, under the names of *B. pulchra*, *B. turbinata*, *B. intorta*, *B. ovula*, and several others.

Bulimina elegantissima var. *compressa* var. n., plate II. fig. 5.

Differs from the type chiefly in being much compressed. It is a rare variety, and seems to be restricted to Area 1.

Bulimina subteres Brady.

Bulimina Presli var. *elegantissima* (d'Orb.) Parker and Jones, 1865, Phil. Trans., vol. clv. p. 374, pl. xv. figs. 12–17. *B. subteres* Brady, 1881, Quart. Journ. Micr. Sci., vol. xxi. n.s. p. 55. *B. subteres* (Brady) Wright, 1882, Proc. Belfast Nat. Field Club, App. 1880–1881, p. 180, pl. viii. fig. 2. *B. subteres* (Brady) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 289, pl. viii. figs. 73, 74. *B. subteres* (Brady) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 46, pl. ix. figs. 445–453.

Is not very abundant, although found at several Stations in both areas. The specimens are small, but have all the characters of the species.

Bulimina subcylindrica Brady, plate II. fig. 6.

Bulimina subcylindrica Brady, 1881, Quart. Journ. Micr. Sci., vol. xxi. n.s. p. 56. *B. subcylindrica*, Brady, 1884, Chall. Rept., p. 404, pl. l. fig. 16. *B. subcylindrica* (Brady) Halkyard, 1889, Trans. and Ann. Rept. Manchester Micr. Soc., p. 64, pl. i. fig. 12. *B. subcylindrica* (Brady) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 289, pl. viii. fig. 100.

This rare form is represented by a solitary specimen from Station 30 in Area 1. Some fine specimens in my cabinet from 'Challenger' Station 185, Raine Island, have the clear shell-substance mottled with opaque white patches, identical with those so commonly found in *Pulvinulina elegans*.

Brady names six 'Challenger' Stations, three of which are in the Atlantic, and three in the South Pacific. Halkyard records a few doubtful examples from Jersey and Guernsey. The only 'Gazelle' Station is off the West Coast of Africa, north of the Equator.

Bulimina marginata d'Orbigny.

Bulimina marginata d'Orbigny, 1826, Ann. Sci. Nat., vol. vii. p. 269, No. 4, pl. xii. figs. 10–12. *B marginata* (d'Orb.) Brady, Parker, and Jones, 1888, Trans. Zool. Soc., vol. xii. p. 220, pl. xliii.

* Mém. Soc. Géol. France, sér. 3, vol. ii. 1882, pl. xx.

figs. 7, 10. *B. marginata* (d'Orb.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 287, pl. viii. figs. 69, 70. *B. marginata* (d'Orb.) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 46, pl. ix. figs. 439–444. *B. marginata* (d'Orb.) Jones, 1895, Palæont. Soc., p. 165, pl. iii. figs. 5, 6. *B. marginata* (d'Orb.) Wright, 1900, Geol. Mag., dec. 4, vol. vii. p. 100, pl. v. fig. 4.

Of this well-known species there is little to be noted. It is abundant all over the Region, and the specimens exhibit the usual variations of form.

Bulimina marginata var. *biserialis* var. n., plate II. fig. 7.

Differs from the type in being biserial. It is also more symmetrical, tapering regularly from the oral to the aboral end. The crenulations of the free edge of the chambers often develope into spines. Its nearest representative amongst the triserial forms appears to be the *B. pulchella* of d'Orbigny.*

According to the definitions of the genera, this form should be placed amongst the Bolivinæ, but it is so manifestly a variety of *Bulimina marginata* that there need be no hesitation in associating it with that species.

It is less numerous and less widely distributed than the type, but occurs in both areas.

Bulimina aculeata d'Orbigny.

"Polymorpha *Pineiformia*" Soldani, 1791, Testaceographia, vol. i. part ii. p. 118, pl. cccxxvii. fig. ii., and pl. cxxx. figs. *v v*. *B. aculeata* d'Orbigny, 1826, Ann. Sci. Nat., vol. vii. p. 269, No. 7. *B. aculeata* (d'Orb.) Brady, Parker, and Jones, 1888, Trans. Zool. Soc., vol. xii. p. 220, pl. xliii. fig. 8. *B. aculeata* (d'Orb.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 287, pl. viii. figs. 72, 78. *B. aculeata* (d'Orb.) Jones, 1895, Palæont. Soc., p. 163, pl. iii. figs. 1, 2. *B. aculeata* (Czjczek) Egger, 1895, Jahresbericht xvi. Naturhist. Ver. Passau, p. 17, pl. iii. figs. 8, 10, 13, 14. *B. aculeata* (d'Orb.) Flint, 1899, Rept. U.S. Nat. Mus. for 1897, p. 291, pl. xxxvii. fig. 4. *B. aculeata* (Czjczek) Egger, 1899, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xxi. p. 53, pl. xv. figs. 5, 6, 21.

The examples all have the keeled or margined chambers characteristic of *B. marginata*, and may therefore be considered varieties of that species. The form with globular chambers and spines at the base only, which is probably derived from *B. pupoides*, is not represented.

The species is less common in the Malay Archipelago anchor-mud than *B. marginata*, which may perhaps be owing to the fact that it is more of a deep-water species.

* Foram. Amér. Mérid., 1839, p. 50, pl. i. figs. 6, 7.

Bulimina inflata Seguenza.

Bulimina inflata Seguenza, 1862, Atti Accad. Gioenia Sci. Nat., ser. 2, vol. xviii. p. 109, pl. i. fig. 10. *B. inflata* (Seg.) Andreae, 1884, Abhandl. geol. Specialkarte Elsass-Loth., vol. ii. pp. 211, 224, pl. ix. figs. 6, 7. *B. inflata* (Seg.) Brady, Parker, and Jones, 1888, Trans. Zool. Soc., vol. xii. p. 220, pl. xliii. fig. 9. *B. inflata* (Seg.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 288, pl. viii. fig. 85. *B. inflata* (Seg.) Silvestri, 1893, Atti e Rendic. Accad. Sci. Lett. e Arti dei Zelanti e PP. dello Studio di Acireale, vol. v. p. 12, pl. v. figs. 68, 69. *B. inflata* (Seg.) Flint, 1899, Rept. U.S. Nat. Mus. for 1897, p. 291, pl. xxxvii. fig. 5.

Is very rare in the Malay Archipelago, and has been observed only at Station 2 in Area 1.

Bulimina Williamsoniana Brady, plate II. fig. 8.

Bulimina Williamsoniana Brady, 1881, Quart. Journ. Micr. Sci., vol. xxi. n. s. p. 56; and 1884, Chall. Rept., p. 408, pl. li. figs. 16, 17.

This interesting species, although of well-marked characters, has been strangely overlooked by Rhizopodists, and all that is known about it seems to be comprised in the 'Challenger Report.' According to Brady it appears to be limited in its distribution to the South Pacific.

It is by no means uncommon in Torres Strait and at various places on the Australian coasts.

In the Malay Archipelago it is abundant at Station 2, and occurs also, but very sparingly, at Station 6. It has not been noted at other Stations more remote from the Australian region.

Bulimina convoluta Williamson, plate II. fig. 9.

Bulimina pupoides var. *convoluta* Williamson, 1858, Rec. Foram. Gt. Britain, p. 63, pl. v. figs. 132, 133. *B. convoluta* (Will.) Brady, 1884, Chall. Rept., p. 409, pl. cxiii. fig. 6. *B. convoluta* (Will.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 288, pl. viii. figs. 83, 84.

This admittedly abnormal form, although classed with the *Textularidæ*, does not possess the true Textularian plan of growth, inasmuch as the chambers do not alternate in the sense that each successive addition shifts the aperture from one side of the test to the other. The plan of growth is rather Rotaliform; a primary row of chambers having applied to it a secondary row analogous to the "asterigerine" flaps found in the genus *Discorbina*.

The aperture, which is not always apparent, consists sometimes of a horizontal slit, at other times of a small funnel-shaped depression, and is situated on the septal face of the primary chamber, at the

apex of the suture formed by the junction of the last added secondary chamber.

The typical form is very abundant at Station 13, and is found, though sparingly, at a few other Stations.

The only 'Challenger' Station is at Raine Island, Torres Strait. Dr. Egger records it from seven 'Gazelle' Stations extending from West Africa to West Australia; rare at all of them.

Bulimina convoluta var. *nitida* var. n., plate II. fig. 10.

This variety is almost purely Rotaliform, the secondary series of chambers being very small and often scarcely discernible. The aperture, like that of the type, is situated at the superior junction of the last added primary and secondary chambers, and is usually a straight horizontal slit as figured. The shell substance is opaque and lustrous, almost iridescent.

The two forms occur together, but one or the other always predominates; at Station 13 the type is abundant and the variety rare; at all the other Stations where they both occur, this is reversed.

Pleurostomella Reuss.

Pleurostomella contorta sp. n., plate II. figs. 11, 12.

Test conical, slightly compressed, rounded at the oral, pointed at the aboral extremity. Chambers short and inflated, arranged in two parallel series, each of which overlaps the other on one side; sutures oblique and depressed. Aperture a transverse fissure in the septal face of the terminal chamber, close to its junction with the last-formed chamber of the opposite series. Length 0·45 mm.

This is an anomalous species, and has little more than its flattened septal face to indicate its affinity with the genus. In the young condition, fig. 12, the characters are more marked than in the adult.

It is by no means uncommon in the Malay Archipelago, and is found at Stations in both Areas.

Virgulina d'Orbigny.

Virgulina Schreibersiana Czjzek.

Virgulina Schreibersiana Czjzek, 1848, Haidinger's Naturwiss. Abhandl., vol. ii. p. 147, pl. xiii. figs. 18–20. *V. Schreibersii* (Cz.) Malagoli, 1887, Atti Soc. Nat. Modena, ser. 3, vol. iii. p. 108, pl. i. fig. 5. *V. Schreibersiana* (Cz.) Egger, 1893, Abhandl. k. bayer. Ak. Wiss., Cl. II. vol. xviii. p. 290, pl. viii. figs. 93, 95. *V. Schreibersiana* (Cz.) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 48, pl. ix. figs. 459, 461–472. *V. Schreibersiana* (Cz.) Fornasini, 1897, Rendic. Accad. Sci. Bologna, n.s. vol. ii. pl. ii. fig. 9. *V. Schreibersiana* (Cz.) Fornasini, 1898, Mem. R. Accad. Sci. Istit. di Bologna, ser. 5, vol. vii. p. 206, pl., fig. 6. *V. Schreibersiana* (Cz.)

Morton, 1897, Proc. Portland Nat. Hist. Soc., vol. ii. p. 115, pl. i. fig. 9. *V. Schreibersiana* (Cz.) Flint, 1899, Rept. U.S. Nat. Mus. for 1897, p. 291, pl. xxxvii. fig. 6.

This species occurs in vast profusion and in great variety of form. The variety figured (plate II. fig. 13) is so numerous, so persistent in form, and so widely distributed in the Malay Archipelago, that it is deemed worthy of notice.

Virgulina squamosa d'Orbigny, plate II. fig. 14.

Virgulina squamosa d'Orbigny, 1826, Ann. Sci. Nat., vol. vii. p. 267, No. 1;—Modèle, No. 64. *V. squamosa* (d'Orb.) Goës, 1894. K. Svenska Vet.-Akad. Handl., vol. xxv. p. 47, pl. ix. figs. 454, 456, 460. *V. squamosa* (d'Orb.) Egger, 1895, Jahresbericht xvi. Naturhist. Ver. Passau, p. 19, pl. i. fig. 20.

This rather unsatisfactory form is represented by a few specimens from Station 13. In general appearance they bear some resemblance to *Bolivina nitida* Brady,* but the 'Challenger' form is more compact and less Virguline in character.

Bifarina Parker and Jones.

Bifarina Mackinnonii sp. n., plate II. fig. 15.

Test elongate, tapering towards the aboral extremity. Virguline chambers numerous and compressed into a cylindrical mass. Uniserial chambers triangular and much compressed, margins acute and carinate. Sutures limbate, forming a zigzag line. Aperture an elongated slit, terminal, and extending the full width of the chamber. Length 0·63 mm.

This interesting form is very rare. I have found a few poor specimens from the 'Challenger' dredgings from Station 185, Raine Island, and to Mr. A. Earland I am indebted for some good examples from Macassar Straits.

In the Malay Archipelago it has been noticed only at Station 22.

To the late Sir William Mackinnon, Chairman of the Board of Directors of the Netherlands India Steam Navigation Co., Mr. Durrand is indebted for the facilities afforded him for obtaining the material which forms the subject of this Report; and in recognition of this kindness, this species is respectfully dedicated to his memory.

* Chall. Rept., 1884, p. 420, pl. lii. fig. 30.

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(principally Invertebrata and Cryptogamia),

MICROSCOPY, &c.

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