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TRANSACTIONS OF THE SOCIETY.

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

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

(*Read 15th March*, 1899.)

Plate V.

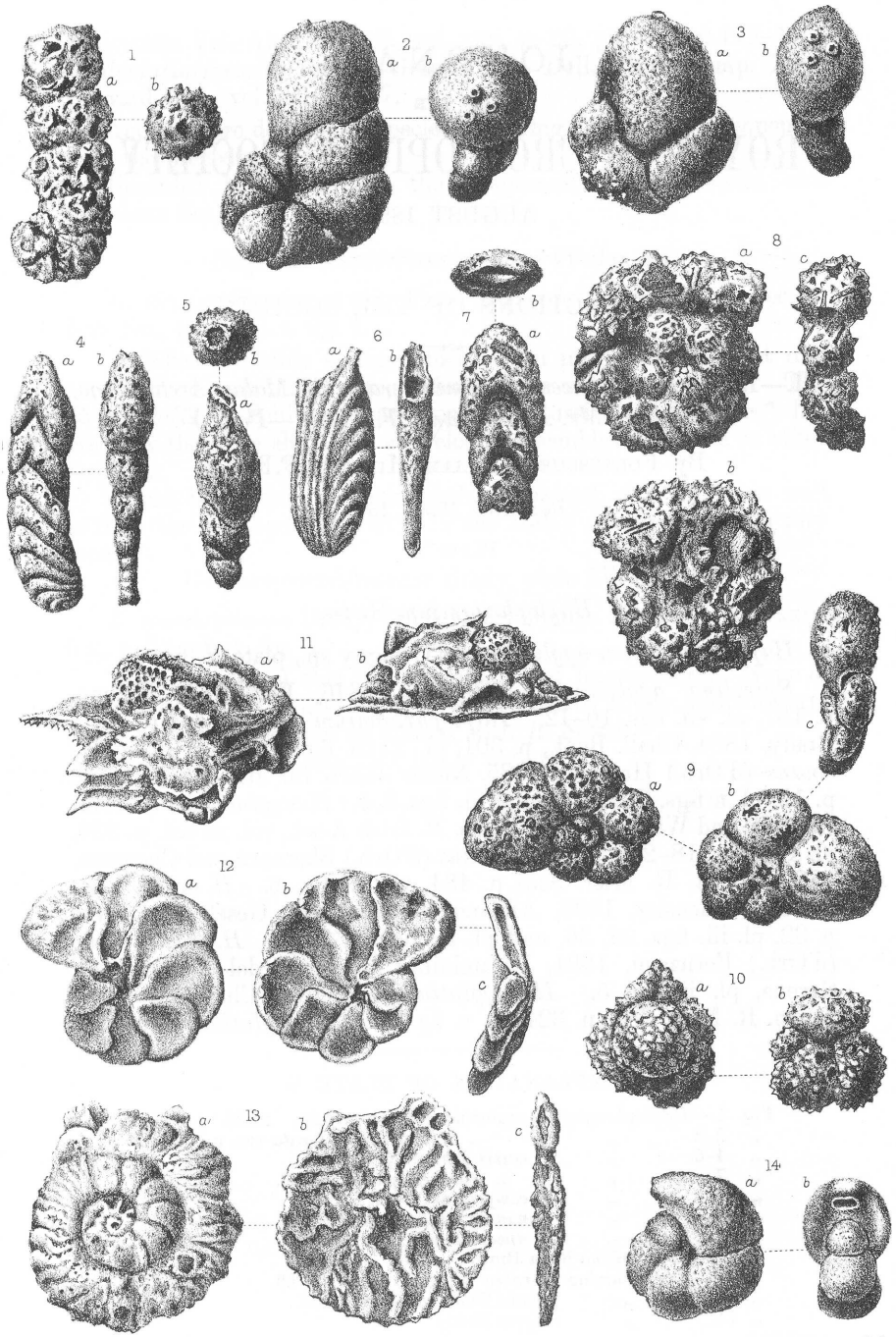
Haplophragmium Reuss.

Haplophragmium agglutinans d'Orbigny sp., plate V. fig. 1.

Spirolina agglutinans d'Orbigny, 1846, For. Foss. Vienne, p. 137, pl. vii. figs. 10–12. *Haplophragmium agglutinans* (d'Orb.) Brady, 1884, Chall. Rept., p. 301, pl. xxxii. figs. 19–26. *H. agglutinans* (d'Orb.) Haeusler, 1885, Neues Jahrb. für Min., Beil. Bd. iv. p. 13, pl. i. figs. 22, 23, and pl. ii. figs. 3, 4. *H. agglutinans* (d'Orb.) Balkwill and Wright, 1885, Trans. R. Irish Acad., vol. xxviii. p. 330, pl. xiii. figs. 18–20. *H. agglutinans* (d'Orb.) Sherborn and Chapman, 1889, Journ. R. Micr. Soc., p. 484, pl. xi. fig. 8. *H. agglutinans* (d'Orb.) Haeusler, 1890, Abhandl. schweiz. pal. Gesell., vol. xvii. p. 32, pl. iii. figs. 32, 36, and pl. iv. figs. 5, 6, 18. *H. agglutinans* (d'Orb.) Fornasini, 1891, Foraminiferi Pliocenici del Ponticello di Savena, pl. ii. fig. 5. *H. agglutinans* (d'Orb.) Chapman, 1892, Journ. R. Micr. Soc., p. 324, pl. v. fig. 14. *H. agglutinans* (d'Orb.)

EXPLANATION OF PLATE V

Fig. 1.—*Haplophragmium agglutinans* d'Orbigny sp. × 90.
„ 2, 3. „ „ var. *triperforata* var. n. × 90.
„ 4–6. „ *cassis* Parker sp. × 90.
„ 7. „ „ or ? *Reophax*. × 60.
„ 8. „ *compressum* Goës. × 60.
„ 9. „ *nanum* Brady. × 90.
„ 10. „ *anceps* Brady. × 90.
„ 11.—*Placopsilina bulla* Brady. × 45.
„ 12.—*Trochammina ochracea* Williamson sp. × 60.
„ 13. „ *plicata* Terquem sp. × 135.
„ 14. „ *ringens* Brady. × 90.



F.W. Millett del. ad nat.

West, Newman lith.

FORAMINIFERA OF MALAY ARCHIPELAGO

Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II. vol. xviii. p. 260, pl. iv. figs. 16, 36. *H. agglutinans* Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 23, pl. v. figs. 140, 141. *H. agglutinans* (d'Orb.) Chapman, 1895, Ann. and Mag. Nat. Hist., ser. vi. vol. xvi. p. 313, pl. xi. fig. 2.

The specimens are all minute, and although they occur at most of the Stations, are not very numerous.

Haplophragmium agglutinans var. *triperforata* var. n., plate V. figs. 2, 3.

Having the general form of the type, this varies in two respects; the shell wall, instead of being rough through the coarseness of the incorporated sand-grains, is smooth as in the genus *Trochammina*; this smoothness however does not arise from an excess of cement, but from the fineness of the material employed. In place of the simple aperture there are always three perforations with raised borders, arranged in the form of a triangle. As shown by fig. 3, these perforations exist in the spiral as well as in the uniserial chambers. The interior is quite smooth and not at all labyrinthic; hence its affinities seem to be with *Haplophragmium* rather than with *Lituola*. It is not uncommon at Station 9, and occurs also, but very sparingly, at Station 5.

Its nearest ally appears to be the *H. lituolinoideum* of Goës from the Gulf of Mexico.*

Haplophragmium pseudospirale Williamson sp.

Proteonina pseudospiralis Williamson, 1858, Rec. Foram. Gt. Britain, p. 2, pl. i. figs. 2, 3. *Haplophragmium pseudospirale* (Will.) Siddall, 1879, Catal. Brit. Rec. Foram., p. 4. *H. pseudospirale* (Will.) Balkwill and Wright, 1885, Trans. R. Irish Acad., vol. xxviii. p. 330, pl. xiii. figs. 6–8. *H. pseudospirale* (Will.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 260, pl. v. figs. 41, 42. *H. pseudospiralis* (Will.) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 23, pl. v. figs. 142–151. *H. pseudospirale* (Will.) de Amicis, 1895, Naturalista Siciliano, Anno xiv. p. 9, pl. i. fig. 11.

The typical form with obscure segmentation is rare, but at several of the Stations there are numerous examples which have the sutures well marked, and which differ from *H. agglutinans* only in the compression of the test. Of the figures by Goës referred to above, 148 and 149 represent this form.

In the 'Challenger' Report the only localities given by Brady for this species are about the coasts of the British Isles; but in the 'Summary of the Scientific Results' it is reported from Station 172A (Tongatabu). The Gazelle Station is off West Australia.

* Bull. Mus. Comp. Zool. Harvard Coll., vol. xxix. 1896, p. 32, pl. iii. figs. 17–20.

Haplophragmium cassis Parker sp., plate V. figs. 4–6 and ? 7.

Lituola cassis Parker, 1870, Canadian Naturalist n.s., vol. v. p. 177, fig. 3. *Haplophragmium cassis* (Parker) Brady, 1884, Chall. Rept., p. 304, pl. xxxiii. figs. 17–19. *H. cassis* (Parker) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 261, pl. v. figs. 55, 56. *H. cassis* (Parker) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 24, pl. v. figs. 152–157.

The Malay specimens of this species are very variable in form, some of them being extremely compressed, and composed of numerous chambers.

Fig. 3 represents one of numerous fragments which have precisely the shell structure of *H. cassis*, and may be the final chambers of an abnormal form. An inclination to this rectilinear arrangement of the chambers is observable in fig. 4. On the other hand, it may be a species of *Reophax*, with the plan of growth and chevron-shaped chambers of a *Frondicularia*.

This and the typical form occur only at Station 9, where they are not uncommon.

The species is not represented in the 'Challenger' dredgings. Egger's specimens were procured from the West Coast of Africa, near the equator.

Haplophragmium compressum Goës, pl. V. fig. 8.

Lituolina irregularis var. *compressa* Goës, 1882, K. Svenska Vet.-Akad. Handl., vol. xix. p. 141, pl. xii. figs. 421–423. *Haplophragmium emaciatum* Brady, 1884, Chall. Rept., p. 305, pl. xxxiii. figs. 26–28. *H. emaciatum* (Brady) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 262, pl. v. figs. 53, 54. *H. emaciatum* (Brady) Chapman, 1895, Ann. and Mag. Nat. Hist., ser. vi. vol. xvi. p. 315, pl. xi. fig. 6. *H. compressum* (Goës) Goës, 1896, Bull. Mus. Comp. Zool. Harvard College, vol. xxix. p. 31.

There can be but little doubt that Goës is correct in associating Brady's *H. emaciatum* with his own previously described *H. compressum*, and he is probably right in considering the form a variety of the *H. fontinense* of Terquem.

The Malay specimens are unusually robust and well developed, but their range is very limited.

Haplophragmium canariense d'Orbigny sp.

Nonionina canariensis d'Orbigny, 1839, Foram. Canaries, p. 128, pl. ii. figs. 33, 34. *Haplophragmium canariense* (d'Orb.) Siddall, 1879, Catal. Rec. Brit. Foram., p. 4. *Nonionina* (*Lituola*) *canariensis* (d'Orb.) or *N. Jeffreysi* (Will.) Schlumberger, 1882, Feuille des Jeunes Naturalistes, Ann. xii. p. 39, pl. ii. figs. 6, 7. *H. canariense* (d'Orb.) Haeusler, 1885, Neues Jahrb. für Min., Beil. Bd. iv. p. 12, pl. i. figs. 17–20. Idem, 1890, Abhandl. schweiz. pal. Gesell., vol. xvii.

p. 34, pl. iv. figs. 1–3. *H. canariense* (d'Orb.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 261, pl. v. figs. 27–29. *H. canariense* (d'Orb.) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 20, pl. v. figs. 95–101. *H. canariense* (d'Orb.) Chapman, 1895, Ann. and Mag. Nat. Hist., ser. vi. vol. xvi. p. 314, pl. xi. fig. 5.

The examination of any considerable number of examples of this species will show that there is always going on a struggle to deviate from the nautiloid form and to become evolute, at the same time becoming more compressed and more or less acute at the margin, finally merging into such forms as *H. compressum* and *H. fontinense*.

The Malay specimens have the usual range of variation; they are very numerous, and are restricted almost entirely to Area 1.

Haplophragmium latidorsatum Bornemann sp.

Nonionina latidorsata Bornemann, 1855, Zeitschr. deutsch. geol. Gesell., vol. vii. p. 339, pl. xvi. fig. 4. *Lituolina irregularis* (Röm.) Goës, 1882, K. Svenska Vet.-Akad. Handl., vol. xix. p. 139, pl. xii. figs. 419, 420. *Haplophragmium latidorsatum* (Born.) Brady, 1884, Chall. Rept, p. 307, pl. xxxiv. figs. 7–10, 14. *H. latidorsatum* (Born.) Brady, Parker, and Jones, 1888, Trans. Zool. Soc., vol. xiv. p. 218, pl. xli. figs. 14, 22. *H. latidorsatum* (Born.) Haeusler, 1890, Abhandl. schweiz. pal. Gesell., vol. xvii. p. 35, pl. iii. figs. 37, 38. *H. latidorsatum* (Born.) Chapman, 1892, Journ. R. Micr. Soc., p. 323, pl. v. fig. 12. *H. latidorsatum* (Born.) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 21, pl. v. figs. 102–120.

In all the specimens the shell structure is coarse and the aperture simple. Its range in the Malay Archipelago is very restricted, although where it occurs the individuals are numerous.

According to Brady it is one of the commonest deep-water species of arenaceous foraminifera. Goës records it from the Pacific and from the Caribbean Sea.

Haplophragmium nanum Brady, plate V. fig. 9.

H. nanum Brady, 1881, Quart. Journ. Micr. Sci., vol. xxi. n.s. p. 50. Idem, 1881, Ann. and Mag. Nat. Hist., ser. v. vol. viii. p. 406, pl. xxi. fig. 1. *H. nanum* (Brady) Brady, Parker, and Jones, 1888, Trans. Zool. Soc., vol. xiv. p. 218, pl. xli. fig. 20. *H. nanum* (Brady) Chapman, 1892, Journ. R. Micr. Soc., p. 324, pl. v. fig. 15. *H. nanum* (Brady) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 262, pl. v. figs. 13–15. *H. nanum* (Brady) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 22, pl. v. figs. 124–127.

The specimens are all characteristic, with little or no tendency to variation. It is most abundant in Area 1.

The 'Gazelle' Stations are West Africa, Mauritius, and New

Guinea. Goës reports it from the North Atlantic and from the Arctic regions.

Haplophragmium globigeriniforme Parker and Jones.

(?) *Globigerina bulloides* (d'Orb.) Williamson, 1858, Rec. Foram. Gt. Britain, p. 56, pl. v. figs. 116–118. *Lituola nautiloidea* var. *globigeriniformis* Parker and Jones, 1865, Phil. Trans., vol. clv. p. 407, pl. xv. figs. 46, 47, and pl. xvii. figs. 96–98. *H. globigeriniforme* (P. & J.) Siddall, 1879, Catal. Brit. Rec. For., p. 64. *H. globigeriniforme* (P. & J.) Balkwill and Millett, 1884, Journ. Microscopy and Nat. Sci., vol. iii. p. 25, pl. i. fig. 5. *H. globigeriniforme* (P. & J.) Haeusler, 1890, Abhandl. schweiz. pal. Gesell., vol. xvii. p. 36, pl. iv. figs. 13, 16, 17. *H. globigeriniforme* (P. & J.) Terrigi, 1891, Mem. R. Com. Geol. d'Italia, vol. iv. p. 68, pl. i. fig. 7. *H. globigeriniforme* (P. & J.) Chapman, 1892, Journ. R. Micr. Soc., p. 324, pl. v. fig. 16. *H. globigeriniforme* (P. & J.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 260, pl. v. figs. 30, 31. *H. globigeriniforme* (P. & J.) Goes, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 22, pl. v. figs. 128–133.

Williamson's description of *Globigerina bulloides* is "Texture arenaceous, granular. Hue yellowish grey." This is correct for the present species, but not for *G. bulloides*; and according to the rules of nomenclature the species should be described as *H. bulloides* Williamson sp.; but sometimes the rule is more honoured in the breach than in the observance, and it may be excusable in the present instance to assume that Williamson had wrongly diagnosed the texture of the test.

It is abundant at a few of the Stations in both Areas, but the specimens are very small.

Haplophragmium anceps Brady, plate V. fig. 10.

H. anceps Brady, 1884, Chall. Rept., p. 313, pl. xxxv. figs. 12–15. *H. anceps* (Brady) Chaster, 1892, First Rept. Southport Soc. Nat. Sci., 1890–91, p. 57, pl. i. fig. 2.

The specimens are numerous and well distributed; although very small they are quite characteristic and, as may be inferred from Brady's remarks, resemble both *H. globigeriniforme* and *Verneuilina propinqua*.

It is one of the exceedingly interesting forms added to the list of the British Foraminifera by Dr. Chaster.

Placopsilina d'Orbigny.

Placopsilina bulla Brady, plate V. fig. 11.

P. bulla Brady, 1881, Quart. Journ. Micr. Sci., vol. xxi. n.s., p. 51. Idem, 1884, Chall. Rept., p. 315, pl. xxxv. figs. 16, 17.

P. bulla (Brady) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 28, pl. vi. figs. 211–215. *P. bulla* (Brady) Grzybowski, 1894, Rozpraw Wydz. mat. przyr. Akad. Umiej. Krakowie, vol. xxix. p. 186, pl. i. fig. 1. *P. bulla* (Brady) Goës (1894) K. Svenska Vet.-Akad. Handl., vol. xxv. p. 28, pl. v. figs. 211–215.

The solitary specimen, from Station 14, differs from the usual form in having the test composed of fragments of considerable size from various organisms, giving it the rough appearance shown in the figure. In other respects it is sufficiently characteristic, and has an aperture at each end. Some of the specimens figured by Goës indicate a relationship with *P. vesicularis*; they are from the Skagerack and Koster Island.

Sub-Family **Trochammininæ.**

Ammodiscus Reuss.

Ammodiscus incertus d'Orbigny sp.

Operculina incerta d'Orbigny, 1839, Foram. Cuba, p. 49, pl. vi. figs. 16, 17. *Ammodiscus incertus* (d'Orb.) Berthelin, 1878, Foram. Bourgneuf et Pornichet, p. 25. *Trochammina incerta* (d'Orb.) Deecke, 1886, Mém. Soc. Emul. Montbéliard, sér. iii. vol. xvi. p. (14), pl. i. fig. 9. *A. incertus* (d'Orb.) Mariani, 1889, Boll. Soc. Geol. Ital., vol. vii. p. 284, pl. x. fig. 1. *A. incertus* Sherborn and Chapman, 1889, Journ. R. Micr. Soc., p. 484, pl. xi. fig. 7. *A. incertus* (d'Orb.) Burrows, Sherborn, and Bailey, 1890, Journ. R. Micr. Soc., p. 552, pl. viii. fig. 8. *A. incertus* var. *gracilis* (Kübler and Zwingli) Wisniowski, 1890, Pamiet. Wydz. III, Ak. Umiej. Krakowie, vol. xvii. p. 10, pl. viii. fig. 11. *A. incertus* (d'Orb.) Haeusler, 1890, Abhandl. schweiz. pal. Gesell., vol. xvii. p. 55, pl. ix. figs. 1–21. *A. incertus* (d'Orb.) Crick and Sherborn, 1891, Journ. Northampton Nat. Hist. Soc., vol. vi. p. 209, pl. fig. 1. *A. incertus* (d'Orb.) Chapman, 1892, Journ. R. Micr. Soc., p. 326, pl. vi. fig. 11. (?) *A. infimus* (Strickland) Sellheim, 1893, Inaug. Diss. Friedr. Alex. Univ., p. 9, pl. fig. 1. *A. incertus* (d'Orb.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 263, pl. v. figs. 35, 36. *A. incertus* (d'Orb.) Goës, 1895, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 31, pl. vi. figs. 238, 239. *A. incertus* (d'Orb.) Chapman, 1895, Ann. and Mag. Nat. Hist., ser. vi. vol. xvi. p. 315, pl. xi. figs. 8, 9.

Specimens are small, ill-developed, and not numerous; it occurs however in both Areas.

Although found at many 'Challenger' Stations, only one of them was in the North Pacific. The sole 'Gazelle' Station is West Australia.

Trochammina Parker and Jones.

Trochammina squamata Jones and Parker.

T. squamata Jones and Parker, 1860, Quart. Journ. Geol. Soc., vol. xvi. p. 304. *T. squamata* (P. & J.) Parker and Jones, 1865,

Phil. Trans., vol. clv. p. 407, pl. xv. fig. 30. *T. squamata* (P. & J.) Haeusler, 1885, Neues Jahrb. für Min., Beil. Bd. iv. p. 29, pl. iii. fig. 30. Idem, 1890, Abhandl. schweiz. pal. Gesell., vol. xvii. p. 65, pl. x. figs. 27–29, 40. *T. squamata* (P. & J.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 264, pl. v. figs. 4–6.

What may be called the inflated form of the species is the commonest of all the arenaceous foraminifera in the Malay Archipelago, and it occurs at most of the Stations. The specimens are small, but characteristic.

The 'Gazelle' Stations are Kerguelen and Mauritius.

Trochammina ochracea Williamson sp., plate V. fig. 12.

Rotalina ochracea Williamson, 1858, Rec. Foram. Gt. Britain, p. 55, pl. iv. fig. 112, and pl. v. fig. 113. *Trochammina squamata* (P. & J.) Parker and Jones, 1865, Phil. Trans., vol. clv. p. 407, pl. xv. fig. 31. *T. ochracea* (Williamson) Balkwill and Millett, 1884, Journ. Microscopy and Nat. Sci., vol. iii. p. 25, pl. i. fig. 7.

This form is very rare, and has been observed only at Station 3.

Hitherto it has been recorded only from the British Isles, from the Arctic Regions (Parker and Jones), and from the Channel Islands (Halkyard).

Trochammina plicata Terquem sp., plate V. fig. 13.

Patellina plicata Terquem, 1876, Anim. Plage de Dunkerque, 2me fasc., p. 72, pl. viii. fig. 9. *Trochammina plicata* (Terq.), Balkwill and Millett, 1884, Journ. Microscopy and Nat. Sci., vol. iii. p. 26, pl. i. fig. 8. *T. plicata* (Terq.) Halkyard, 1889, Trans. and Ann. Nat. Rept. Manchester Micr. Soc., p. (10) pl. i. fig. 11.

This delicate scale-like form occurs only at Station 25, and is there, as elsewhere, extremely rare.

Its general distribution is the same as that of *T. ochracea*.

Trochammina nitida Brady.

T. nitida Brady, 1881, Quart. Journ. Micr. Sci., vol. xxi. n.s., p. 52. *T. nitida* Brady, 1884, Chall. Rept., p. 339, pl. xli. figs. 5, 6. *T. nitida* (Brady) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 30, pl. vi. figs. 225–230.

At Station 6 there are some fine typical examples of this rare form; but elsewhere, although the characteristic flatness of the superior face is apparent, there are fewer chambers in the convolutions, and the relationship with *T. inflata* is in many instances well marked. Goës, who reports it from Spitzbergen, describes it as an emaciated form of *T. inflata*, and gives the number of segments in the last convolution as 6–9. In the majority of the Malay specimens the number of segments to the convolution is six; the colour is always grey.

It is found in its restricted form, rather abundantly at a few Stations, mostly in Area 1.

Trochammina inflata Montagu sp.

Nautilus inflatus Montagu, 1808, Testac. Brit., Supplement, p. 81, pl. xviii. fig. 3. *Trochammina inflata* (Mont.) Carpenter, Parker, and Jones, 1862, Introd. Foram., p. 141, pl. xi. fig. 5. *T. inflata* (Mont.) Balkwill and Wright, 1885, Trans. R. Irish Acad., vol. xxviii. p. 331, pl. xiii. figs. 11, 12. *T. inflata* (Mont.) Haeusler, 1890, Abhandl. schweiz. pal. Gesell., vol. xvii. p. 65, pl. x. figs. 25, 26. *T. inflata* (Mont.) Woodward and Thomas, 1893, Geol. and Nat. Hist. Survey of Minnesota, vol. iii. p. 28, pl. D, fig. 31. *T. inflata* (Mont.) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. pl. v. figs. 10–12, 16–18. *T. inflata* (Mont.) Goës, 1894, K. Svenska Vet.-Akad. Handl., vol. xxv. p. 29, pl. vi. figs. 222–224.

In abundance this species almost equals *T. squamata*, and is rather more widely distributed. The specimens, as usual, have the primary chambers of a dark colour.

There are but few records of the occurrence of this species outside the British Isles. Brady gives no 'Challenger' Stations, but in the 'Summary of the Scientific Results' it is reported from Stations 237 and 323. Berthelin reports it from Belgium, Cherbourg, and from Bourgneuf and other places in the Bay of Biscay. Robertson procured it from the coast of Spain, and Goës from the Baltic. The 'Gazelle' stations from which it was obtained are not named.

Trochammina inflata var. *macrescens* Brady.

T. inflata var. *macrescens* Brady, 1870, Ann. and Mag. Nat. Hist., ser. iv. vol. vi. p. 290, pl. xi. fig. 5.

This variety differs from the type not only in the indentation of the chambers, but also in its tendency to the nautiloid form of growth. It occurs sparingly at a few Stations in the Malay Archipelago.

Trochammina trullissata Brady.

T. trullissata Brady, 1879, Quart. Journ. Micr. Sci., vol. xix. p. 56, pl. v. figs. 10, 11. *T. trullissata* (Brady) Haeusler, 1890, Abhandl. schweiz. pal. Gesell., vol. xvii. p. 64, pl. x. figs. 9, 11. *T. trullissata* (Brady) Egger, 1893, Abhandl. k. bayer. Akad. Wiss., Cl. II, vol. xviii. p. 265, pl. v. figs. 25, 26.

This species is very abundant, and occurs at several Stations in both Areas. The punctation or reticulation of the interior surface is not apparent.

In the 'Gazelle' examples, which are from West Africa and West Australia, the aperture is porous. Goës reports it from the Pacific and the Caribbean Sea.

Trochammina ringens Brady, plate V. fig. 14.

T. ringens Brady, 1879, Quart. Journ. Micr. Sci., vol. xix. p. 57, pl. v. fig. 12.

Of this very rare deep-water form there are a few specimens from both Areas. They are characteristic, and are easily distinguishable from *T. trullissata*.

Brady says of this species, "Its area of distribution does not appear to extend beyond the Atlantic." Goës reports it from both sides of the Isthmus of Panama.

Carterina spiculotesta Carter sp.

Rotalia spiculotesta Carter, 1877, Ann. and Mag. Nat. Hist., ser. iv. vol. xx. p. 470, pl. xvi. figs. 1–3. *Carterina spiculotesta* (Carter) Brady, 1884, Chall. Rept., p. 346, pl. xli. figs. 7–10.

Of this interesting form there is but one specimen, and that is from Station 28. It is very regular in form, and, as in *Trochammina inflata*, the primary chambers are of a dark colour.