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

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Plate IV.

ARENACEA.

Family ASTORRHIZIDÆ.

Sub-Family Astrorhizinae.

Pelosina Brady.

Pelosina rotundata Brady, plate IV. fig. 1.


EXPLANATION OF PLATE IV.

Fig. 1.—Pelosina rotundata Brady. × 60.

1, a. The same specimen laid open.

2.—Orithoquina mamilla Göös. × 40.

2, b. The same specimen laid open.

3. pisum Göös. × 40.

4.—Technitella legumen Norman var. × 75.

5, 6.—Aschenomella catenata Norman sp. × 90.

7.—(?) Jacelella or Rhabdammina. × 40.

8.—Reophax diffusiformis Brady var. magnum Bertholin. × 90.

9. ampullacea Brady. × 70.

10, 10*. pleurostomelloides sp. n. × 135.

11. juvenilis Williamson sp. × 40.

12. bacillaris Brady. × 60.

13. Scottii Chester. × 75.

14. membranacea Brady. × 75.
The solitary specimen, from Station 6, resembles that figured by Egger, being more fusiform than the ‘Challenger’ examples. The shell-wall is very thick and the internal cavity small. It is essentially a deep-water species. ‘Challenger’ Stations are: in the North Atlantic, south of Rockall Bank, and west of the Azores; in the South Atlantic, south of Pernambuco; and at a single Station in the North Pacific. Reported by Egger from West Australia.

Sub-Family Saccammininæ.

*Crithionina Goës.*


The specimens are all free, with the form symmetrical. The walls are very thick, and the cavity irregular in shape, smooth and polished. It is not abundant, but occurs at several of the Malay Stations. Found by Goës at Koster Island, in the Skagerack; 106 metres.

*Crithionina pisum* Goës, plate IV. fig. 3.


A few of the specimens may be assigned to this species, the shell-wall being much thinner and the cavity larger and not so smooth as in *C. mamilla*. It occurs at the same Stations as the latter, but is more rare.

Goës quotes it from the Gulf of Mexico; 940 fathoms.

Whilst engaged in writing these lines, there reaches me an announcement of the death of Dr. Goës. In a letter dated 27th May, 1896, referring to his last-named work, he writes, “my small essay, very probably the last of that line during my remaining life.” This unfortunately proved prophetic. Although he had relinquished the study of the Foraminifers, his loss will be deplored by all Rhizopodists. A genial correspondent, he was always ready to advise and impart information to his fellow-workers. Painstaking as well as acute in his observations, his writings will endure as a lasting monument of work well and faithfully rendered.

In grateful remembrance of many kindnesses received from him, I cannot let this opportunity pass without offering a sincere tribute to his memory.
Sub-Family Pilulininæ.

_Technitaella_ Norman.

_Technitaella legumen_ Norman, plate IV. fig. 4.


Much has been written on the subject of the powers possessed by the Foraminifera of selecting not only the material for the construction of their test, but also the size and form of the different particles. Typically, the test of _Technitaella_ should be a dense mass of spicules felted together and mixed with fine grains of sand, as is well shown in the figures by Goes. In all the Malay Archipelago specimens the test is constructed on a different plan, being simply a single layer of spicules cemented together side by side in parallel series, forming patches in which the direction of the spicules with regard to the axis of the test varies in different portions of the shell. The Marquis de Folin has figured numerous interesting examples of this form of construction, and has assigned to them the generic names of _Diosea, Trionea, Hhabdaminella_, and _Hypermaminella_. The affinity of this form with _Reophax_ is very close, and is especially apparent when considered in relation to specimens of _R. ampullacea_, formed of thin laminae, which occur in its company. In the Malay specimens the test is slightly compressed, and the general colour a light reddish brown.

It is found abundantly at several Stations in both Areas.

Sub-Family Saccamminæ.

_Psammosphera_ Schulze.

_Psammosphera fusca_ F. E. Schulze.


The specimens as usual vary considerably in size, but in all the test is composed of minute grains of sand.

It is very generally distributed in both Areas.
Sub-Family Rhabdamminae.

Aschemonella Brady.

Aschemonella catenata Norman sp., plate IV. figs. 5, 6.


Of this very variable deep-water species two specimens occur from Station 6. They partake of the characters of the form first described by Brady as A. scabra, the test being void of spicules and characteristically thin. To the other form, which in 1879 Brady ascribed to Astrorhiza catenata, may probably be assigned the Reophax armatus of Goes, both of them having the test largely composed of spicules. Goes found the species in the Pacific, 1879 fathoms (one example only), and at 463 fathoms in the Caribbean Sea.

To this sub-family, and probably to the genus Jaculella, belongs a neat tapering cylindrical form without segments, of which there are several fragments, one of which is represented by pl. IV. fig. 7. The test is extremely thin, composed of sand-grains neatly fitted together and cemented after the fashion of a mosaic. Sometimes the test is curved.

Family LITUOLIDÆ.

Sub-Family Lituolineæ.

Reophax Montfort.

Reophax difflugiformis Brady.


The typical form with globose body and distinct neck, is but poorly represented both in size and number, although it is found at several Stations in both Areas.
*Reophax diastyliformis* var. *lagenarium* Berthelin, plate IV. fig. 8.


This variety, which tapers regularly from the base to the apex without a distinct neck, is so persistent, both geologically and graphically, that it seems worthy of being treated separately. It is rather more abundant than the type, and occurs at the same Stations. The test is usually of a looser structure than that of the globose form.

*Reophax amplexicauda* Brady, plate IV. fig. 9.


In all the specimens the shell-wall is very thin, being composed of little more than a single layer of broad flakes from the shells of Mollusca and other organisms, cemented together at or near their edges. It is very abundant at several of the Stations.

Elsewhere the species is of extreme rarity, the only ‘Challenger’ Station being off Christmas Harbour, Kerguelen Islands, 120 fathoms. Chapman records it from the Gault of Folkestone, and says, "It occurs frequently in one stratum only, in zone xi., 12 ft. from the top.”

*Reophax pleurostomelloides* sp. n., plate IV. figs. 10 and 10*.

Test free, monothalamous, oval; shell-wall thin and finely arenaceous; aperture a large crescent-shaped opening in a lateral depression of the test near the apex. Length, 0.20 mm.

This is an interesting isomorph of the genus *Pleurostomella*. The lateral depression varies considerably in size, sometimes occupying but a small space near the apex, at other times reaching almost to the base of the shell. Being monothalamous, with a single aperture, this species is assigned provisionally to the genus *Reophax*, from which, however, it differs in not having the aperture terminal. In regarding such forms as this and *Nubecularia dubia*, it must be felt that, in the absence of any knowledge of the character of the cell-contents, great uncertainty must exist as to their real position in nature.

It is not very abundant, but is found at several Stations in both Areas.

*Reophax fusiformis* Williamson sp., plate IV. fig. 11.

The specimens are large, and the test is formed of very coarse grains of sand; most of them have the small initial chamber which marks the transition to *R. scorpiurus*. It is tolerably plentiful, but the range is rather restricted.

*Reophax scorpiurus* Montfort.


Most of the specimens have the test composed of rough grains of sand, but in a few it is built up of thin flakes derived from organisms of various kinds. The figures by Goes, above referred to, show well the relationship of this form with *R. fusiformis*.

It is common, and widely distributed.

*Reophax bacillaris* Brady, plate IV. fig. 12.


A rare deep-water species, represented by a very few examples from Stations 5 and 6. The specimens are, however, highly characteristic.

Found at only one ‘Challenger’ Station, on the north coast of Papua, 1070 fathoms. Goes reports it from the Pacific, 1132–1201 fathoms.

*Reophax dentaliformis* Brady.

Another rare deep-water species, occurring a little more frequently than the preceding.

Recorded by Goës from the Skagerack, Baltic, Pacific, and Caribbean Sea.

*Reophax Scottii* Chaster, plate IV. fig. 13.

*R. Scottii* Chaster, 1892, First Rep. of the Southport Soc. of Nat. Sci., p. 57, pl. i. fig. 1.

A delicate flexible species which, when moist, can be bent into a curved or serpentine form, retaining the shape when dry. The *R. flexibilis* of Schlumberger, from the Russian Arctic Seas,* has precisely the same character, and closely resembles this form in other respects.

It has been recorded from Scotland, Ireland, and Malta, as well as from the Southport district. In the Malay Archipelago it is very rare.

*Reophax membranacea* Brady, plate IV. fig. 14.


The examples of this species are few and fragmentary. None of them show the transverse wrinkles mentioned by Brady, and the form of the chambers indicates an affinity with *R. Scottii*.

It occurs at a few Stations, but is very rare.