



FORAMINIFERA, from Dog's Bay, Connemara.

1. *Gaudryina rudis* nov. x 40.
2. *Lagena squamosa* var. *Montagui*, Alcock x 75.

To face p. 51.]

THE FORAMINIFERA OF DOG'S BAY, CONNEMARA.

BY JOSEPH WRIGHT, F.G.S.

(Plate 2.)

THE September number of the *Irish Naturalist* for 1895 was entirely devoted to an account of the excursion of the Field Club Union to Galway in July of the same year. Among the reports then published of the specimens collected during the excursion, was one by myself on the Foraminifera of Dog's Bay. This list was hastily prepared when a very small portion only of the shore-sand had been examined, and although it could not be looked on as complete, I thought it best that it should appear in the same number as the other reports. At the time I had hoped to have been able to examine the remaining material with little delay, but other engagements prevented my doing so until now.

The sand at Dog's Bay is almost entirely composed of small molluscan shells, with Foraminifera, Ostracoda, and other marine organisms; it is in consequence much lighter than ordinary sand. It extends for a long distance beyond high water mark, being blown inland by the prevailing westerly winds.

The following list of 124 species and varieties consists for the greater part of Foraminifera which are widely distributed around the British coasts. *Massilina secans* and *Truncatulina lobatula* are the prevailing forms, the former occurring in great abundance in the coarser floatings whilst the latter is even still more abundant in the finer ones.

The porcellanous Foraminifera are well represented, many of the species occurring in considerable numbers. The hyaline forms are however by far the most abundant. The *Lagenæ* are very numerous and in great variety, twenty-two species having been obtained. *Polymorphinæ* are also plentiful, some of the species, as *P. communis*, *P. compressa*, and *P. lactea* often attaining large dimensions. The Arenacea are very rare, only three species having been found; of these one specimen was obtained of *Valvulina fusca*, two of *Haplophragmium globigeriniforme*, and twenty of *H. canariense*.

Lagena acuticosta, *Miliolina circularis*, and *Polystomella macella* are new to the British fauna, and *Gaudryina rudis* is new to science. The following species have been hitherto recorded in the British Isles only from the west coast of Ireland; they

have all been previously obtained in dredgings taken off Bantry Bay in 1885, during the first cruise of the s.s. "Lord Bandon," viz. :—*Spiroloculina tenuiseptata*, *Textularia concava*, *Bulimina Buchiana*, *Lagena fimbriata*, *Nodosaria* (Gl.) *rotundata*, *Globigerina rubra*, and *Gypsina globulus*.

Dr. Alcock, in his "Natural History of Connemara,"¹ enumerates sixty-one species and varieties of Foraminifera from this locality, all of which, with the exception of *Trochammina inflata* and *Nonionina umbilicatula*, have been obtained from the sand which I examined. He also found, at a subsequent period, a specimen of *Lagena crenata*, which was figured by Balkwill and Wright in "Foraminifera of Dublin Bay and Irish Sea."² This rare and lovely *Lagena* was found in a number of the Lord Bandon gatherings at depths varying from 44 to 214 fathoms, also at Hone Island between tides.

To my friend Mr. Robert Welch I am greatly indebted for the quantity of sand and floatings which he placed in my hands for examination, as also for the very accurate and artistic drawings which accompany this paper. I have likewise to express my thanks to Messrs. E. Collier and R. Standen, of Manchester, for kind assistance rendered also in collecting material.

LIST OF SPECIES.

Biloculina irregularis, d'Orb.—Common.

ringens (Lamk.)—Very rare.

var. **elongata**, d'Orb.—Rare.

depressa, d'Orb.—Common.

Spiroloculina planulata (Lamk.)—Common.

excavata, d'Orb.—Rare.

canaliculata, d'Orb.—Rare.

tenuiseptata, Br.—Rare.

Millolina trigonula (Lamk.)—One poor specimen.

tricarinata (d'Orb.)—Very rare.

Insignis, Br.—Rare.

oblonga (Montg.)—Frequent.

seminulum (Linn.)—Common.

auberiana (d'Orb.)—Frequent.

contorta (d'Orb.)—Common.

subrotunda (Montg.)—Very common.

circularis (Bornem.)—Very common.

seminuda, Rss.—Very common.

Ferussacii (d'Orb.)—Rare.

bicornis (W. & J.)—Common.

¹ *Proc. Lit. & Phil. Soc., Manchester*, 1864-5, vol. iv., no. 15.

² *Trans. R.I.A.*, 1885, vol. xxviii., p. 339, pl. xiv., fig. 18.

Massilina secans (d'Orb.)—*Quinqueloculina secans* (d'Orb.) 1826, *Ann. Sci. Nat.*, vol. vii., p. 303, No. 43; Modèle, No. 96. *Massilina secans* (d'Orb.) Schlumberger, 1893, *Mém. Soc. Zool. de France*, vol. vi., p. 218, W.C. figs. 31-34 and pl. iv., figs. 82, 83.—Most abundant.

Cornuspira involvens (Rss.)—Very rare.

Haplophragmium canariense (d'Orb.)—Common.

globigeriniforme (P. & J.)—Very rare.

Valvulina fusca (Will.)—One poor specimen.

Textularia agglutinans, d'Orb.—One specimen.

gramen, d'Orb.—Very common.

concava, Kar.—Very common.

Spiroplecta sagittula (Def.)—Rare.

Gaudryina rudis, nov. sp. Pl. 2., figs. 1 a. b. Elongate, tapering, often more or less irregular in contour, round in transverse section, coarsely arenaceous.

This species, in consequence of its rough exterior, does not show the chambers distinctly, and for the same reason its dimorphous mode of growth is not very apparent. It is generally found with the apex of the test broken off, and when such is the case three chambers are exposed in cross section; the later chambers are arranged as in *Textularia*.

Widely distributed around the Irish coast, it occurred in thirty of the Lord Bandon gatherings, South-West of Ireland, from between tides, to a depth of 110 fms.; frequent off Belfast Lough, 30-60 fms. Common at Dog's Bay.

Bullmina pupoides, d'Orb.—Frequent.

pyrula, d'Orb.—Very rare.

fusiformis, Will.—One broken specimen.

marginata, d'Orb.—Common, specimens fine.

subteres, Brd.—Frequent.

buchiana, d'Orb.—One specimen.

Virgullina schreibersiana, Cz.—One broken specimen.

Bolivina punctata, d'Orb.—Rare.

plicata, d'Orb.—Rare.

lævigata (Will.)—Rare.

difformis (Will.)—Rare.

dilatata, Rss.—Rare.

Cassidulina lævigata, d'Orb.—Very common.

crassa, d'Orb.—Very common.

Bradyi, Norman—Rare.

Lagena globosa (Montg.)—Very common.

lævis (Montg.)—Rare.

var. **clavata** (d'Orb.)—Common.

var. **gracillima** (Seg.)—Very rare.

aspera, Rss.—One small specimen.

hisplda, Rss.—Rare.

acuticosta, Rss.—One specimen.

costata (Will.)—Common.

sulcata (W. & J.)—Rare.

var. **Interrupta**, Will.—Very common.

var. **Lyellii**, Seg.—Rare.

Lagena Williamsoni (Alcock)—Very common.

striata (d'Orb.)—Rare.

lineata (Will.)—Frequent.

semistriata Will.,—Common.

semilineata Wright,—One specimen.

squamosa (Montg.)—Very common.

var. **Montagui** (Alcock). Pl. 2, fig. 2 a. b.

This variety occurs very fine and in considerable numbers at Dog's Bay. It differs from *L. squamosa* in being more globular, and frequently more or less compressed or irregular in contour; the raised surface reticulations are also very much smaller. I had given this variety a MS. name, but now find that it had already been named *Entosolenia Montagui* by Dr. Alcock in his "Natural History of Connemara," but it was not figured by him, and this is no doubt the reason that it came to be overlooked; he thus describes it, "a squamous form but differs from the named varieties of *E. squamosa* in having its surface really covered with a pattern like scales instead of with raised reticulations. Well-developed specimens are not at all flattened, though many are found as if crushed, and they then present an appearance resembling a dried fig; the true shape however is a perfect oval, full and well rounded at the smaller end, and from the middle of this projects a short smooth cylindrical tube. With a low power of the microscope, the whole surface of the body appears to be made up of small, almost square facets, arranged in distinct longitudinal rows; but when these are more highly magnified each flattened surface is seen to rise a little anteriorly, and to have the front border rounded so as to give exactly the appearance of a covering of scales." Generally distributed around the Irish coast, but much less common than *L. squamosa*.

Lagena hexagona (Will.)—Very common.

lævigata (Rss.)—Very rare.

lucida (Will.)—Common, trigonal forms very rare.

quadricostulata, Rss.—Very common, trigonal forms very rare.

marginata (W. & B.)—Frequent.

orbignyana (Seg.)—Very common, trigonal forms rare.

clathrata, Br.—Rare.

pulchella, Br.—Frequent, trigonal forms very rare.

fimbriata, Br.—Rare.

Nodosaria (Glandulina) rotundata, Rss.—Rare, surface marked with fine longitudinal lines.

pyrula, d'Orb.—Very rare.

communis, d'Orb.—Very rare.

scalaris (Batsch.)—Frequent.

Cristellaria rotulata (Lamk.)—Rare.

crepidula (F. & M.)—Frequent.

Polymorphina lactea (W. & J.)—Very common, a few large fistulose forms.

var. **amygdaloides**, P. B. & J.—Rare.

var. **oblonga**, Will.—Frequent.

- Polymorphina sororia**, Rss.—Rare.
lanceolata, Rss.—Very rare.
compressa, d'Orb.—Frequent, specimens fine.
communis, d'Orb.—Very common, specimens fine.
rotundata (Bornem.)—Rare.
myristiformis, Will.—Frequent.
- Uvigerina angulosa**, Will.—Frequent.
- Globigerina bulloides**, d'Orb.—Very common.
rubra, d'Orb.—Very rare.
æquilateralis, Br.—One specimen.
Inflata, d'Orb.—Very common.
- Orbulina universa**, d'Orb.—Common.
- Spirillina viripara**, Ehr.—Rare.
margaritifera, Will.—One specimen.
- Patellina corrugata**, Will.—Rare.
- Discorbina globularis** (d'Orb.)—Very common.
rosacea (d'Orb.)—Very common.
nitida (Will.)—Common.
orbicula is (Terg.)—Rare.
parisien is (d'Orb.)—Very rare.
Wrighti Br.—Rare.
Bertheloti (d'Orb.)—Rare.
- Planorbulina mediterranensis**, d'Orb.—Common.
- Truncatulina refulgens** (Montf.)—Very rare.
lobatula (W. & J.)—Most abundant.
variabilis, d'Orb.—Very common.
ungeriana (d'Orb.)—One specimen.
- Pulvinulina repanda** (F. & M.)—Very rare.
auricula (F. & M.)—Very common.
patagonica (d'Orb.)—Rare.
- Rotalia Beccarii** (Linn.)—Rare.
orbicularis, d'Orb.—One specimen.
- Gypsina vesicularis** (P. & J.)—Rare.
globulus (Rss.)—One fine specimen.
Inhærens (Sch.)—Common.
- Nonionina depressula** (W. & J.)—Very common.
pauperata, B. & W.—Very rare.
turgida (Will.)—Very rare.
stelligera, d'Orb.—Rare.
- Polystomella crispa** (Linn.)—Frequent.
macella (F. & M.)—Frequent.
striato-punctata (F. & M.)—Common.
- Operculina ammonoides** (Gron.)—Very rare.

EXPLANATION OF PLATE 2.

1. *Gaudryina rudis*, *sp. nov.*—(a) lateral aspect; (b) oral aspect. × 40.
2. *Lagena squamosa*, var. *Montagui*, Alcock—(a) lateral aspect; (b) oral aspect. × 75.

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