Whilst watching the development of this handsome larva last season, I noticed one of them in the fourth age had the right meso-thoracic leg bitten off right up against the body. There was no trace of the femur left but only a well defined almost healed cicatrix of the amputation.

I carefully watched this larva through its final moult (the fourth), and on its emergence from the old skin there was a conical projection form the body with a black apex. The conical projection was of a paler colour than the surrounding skin.

Now, from the presence of this protuberance, two questions may be resolved—Was the pale protuberance the first formation of the new leg which ultimately developed, or was it merely an inflamed area, and the black tip the residue of the before-mentioned cicatrix?

During the fifth age this formation did not grow, and the larva spun its cocoon and pupated. When the larval skin was thrown off, the pupa was to all outward appearance minus the leg. It had a hollow groove where the leg should have been normally, just as if when the larval skin was soft, the leg had been lifted out of its place and severed off.

A few days before the moth emerged, I examined this pupa and could not find any outward trace of the development of the lost limb, but when the moth emerged there was a new leg, perfect in every way, but as is usual in the case-developments it was rather small. It has the usual number of joints, and was freely moveable.

When alive, the moth hung from my cocoon cage, and its new leg was attached like the others to the leno cover, and was extended to its full length, but when running or walking on the table, it tucked this leg under the thorax, and walked on the other five.

Another peculiarity of this moth is that the eye-spot on the edge of of the upper wing is divided into two perfect spots, though smaller ones, by what appears to be an adventitious nervure running through it from the second nervure. As is usual with abnormal forms, this moth emerged a cripple.

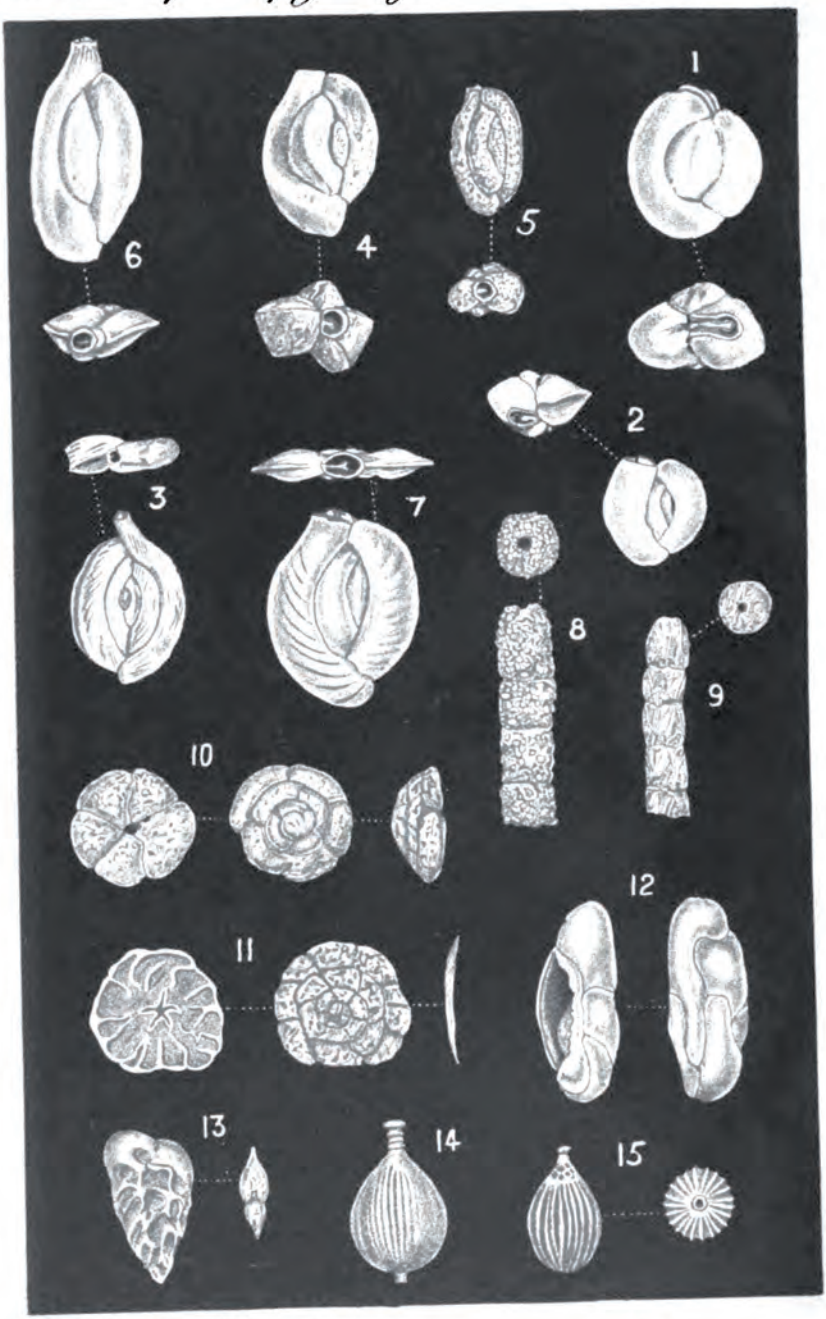
RECENT FORAMINIFERA OF JERSEY.

By Edward Halkyard, F.R.M.S.

In the early part of the year 1886, being resident in the town of St. Heliers, Jersey, during the many rambles which I was in the habit of taking on the shore, I noticed the large deposits of Foraminiferous shells left on the sands of Samarez Bay by the retiring tide. On examining, microscopically, this deposit, I

was pleased to find a considerable number of species. I therefore made excursions to other parts of the coast, and found even a greater abundance of the shells at St. Brelade's Bay. The examination of the material gathered from these two shores led to my making the list of species which I have now the honour of placing before you. At first I only intended to make the list for my own use, and to present a copy to the Société Jersiaise as a contribution to the fauna of their district, but I soon saw that, for a shore-gathering, the list was such a good one, that I determined to make a series of dredgings extending round the whole island, and so obtain materials for a more complete list. Unfortunately, the dredgings made did not yield the results which were expected, for although a large quantity of material was obtained from some dozen localities, the specimens found were comparatively few; in fact, some dredgings were entirely destitute of Foraminifera. For this reason, and also on account of the difficulty of making dredgings, I did not carry on the work all round the island, as I at first intended, but contented myself with exploring the south and east coasts only, as being the most accessible from St. Helier's. The result of my labours I now present for your consideration, and would desire here to acknowledge the great obligation I am under to Mr. J. Wright and Dr. H. B. Brady for the kind and willing assistance which they have rendered to me in identifying species with which I was not familiar. I may say that without their help this paper would have lost half of whatever value it may possess.

The geographical position of the Channel Islands places them outside the British Marine District, as defined by a Committee of the British Association in 1887. The southern limit of this district is an imaginary line drawn down the English Channel, half-way between the coasts of England and France. The Channel Islands belong, geographically, to France, being detached portions of Normandy. Both the marine and terrestrial faunas are, consequently, much more nearly allied to those of the Normandy and Brittany district than to those of Great Britain. Notwithstanding these facts, I have thought it worth while to notify such species as do not appear in Dr. Brady's "Synopsis of the British Recent Foraminifera," which was published in December, 1887. The species thus noticed, of which I give a list below, are eighteen in number, and two are varieties which appear to be new to science. The majority of the remaining sixteen are species which affect the warmer temperate seas, and judging from the state of development of the Jersey specimens, are evidently here nearly, if not quite, at their most northern limit. One species, however, *Haplophragmium nanum*, Brady, is an arctic one, and is thus pushing its way southwards.



W. F. JACKSON & SONS. SALFORD.

PLATE 1.

Figs. 1, 2.—*Miliolina seminulum*, Linné,
var. *triangularis*, d'Orb. × 17

Fig. 3.—*Miliolina bicornis*, W. & J.
spiroloculine form × 15

Fig. 4.—*Miliolina contorta*, d'Orb. × 25

Fig. 5.—*Miliolina fusca*, Brady × 30

Fig. 6.—*Miliolina ferussacii*, (?) d'Orb. × 25

Fig. 7.—*Sigmoïlina secans*, d'Orb.
var. *obliquistriata*, nov. var. × 15

Fig. 8.—*Reophax*, sp., Balkwill & Wright × 30

Fig. 9.— Do. do. do. × 50

Fig. 10.—*Trochammina inflata*, var., B. & W. × 55

Fig. 11.—*Trochammina plicata*, Terquem × 55

Fig. 12.—*Bulimina subcylindrica*, Brady × 55

Fig. 13.—*Bolivina plicata*, d'Orb. × 80

Fig. 14.—*Lagena sulcata*, Walker & Jacob
var. *Lyelli*, Seguenza × 55

Fig. 15.—*Lagena williamsoni*, Alcock × 55

PLATE 2.

Fig. 1.—*Lagena bicarinata*, Terquem × 80

Fig. 2.—*Lagena marginata*, Walker & Boys, var. *inaquilateralis*, J. Wright × 55

Fig. 3.—*Lagena curvilineata*, B. & W. × 55

Fig. 4.—*Nodosaria obliqua*, Linné × 40

Fig. 5.—*Cristellaria crepidula*, F. & M. form approaching *C. rotulata* × 30

Fig. 6.—*Spirillina vivipara*, Ehrenberg, var. *carinata*, nov. var. 55.

Fig. 7.—*Spirillina margaritifera*, Willn. × 40

Fig. 8.—*Discorbina vesicularis*, Lamk. × 40

Fig. 9.—*Discorbina wrightii*, Brady × 55

Fig. 10.—*Discorbina tuberculata*, B. & W. × 80

Fig. 11.—*Discorbina* sp.? Terquem × 55

Fig. 12.—*Rotalia nitida*, Willn. × 30

Fig. 13.—*Nonionina pauperata*, B. & W. × 55

W. F. JACKSON & SONS. SALFORD.

(List of species not in Dr. Brady's "Synopsis" marked [*] in the full list).

Spiroloculina grata, Terquem.
„ *nitida*, d'Orb.
Miliolina seminulum, var. *triangularis*, d'Orb.
„ *linneana*, d'Orb.
„ *fichteliana*, d'Orb.
Sigmoïlina secans, var. *obliquistriata*, nov. var.
Hyperammina vagans, Brady.
Haplophragmium anceps, Brady.
„ *nanum*, Brady.
Trochammina lituiformis, Brady.
Bulimina subcylindrica, Brady.
Lagena ovum, Ehrenberg.
Spirillina vivipara, var. *carinata*, nov. var.
Discorbina opercularis, d'Orb.
„ *vesicularis*, Lamarck.
„ *rugosa*, d'Orb.
Truncatulina variabilis, d'Orb.
„ *reticulata* Czjzek.

St. Brelade's and Samarez Bays were found to be the richest collecting grounds, the former yielding, from shore and dredgings, 109 species and varieties out of a total of 127 for the whole island; 14 of the 109 were found in the dredgings alone. I may mention here that in dredging amongst the Channel Islands a good many fossil specimens of Foraminifera are found, clearly derived from Tertiary strata. This is more especially the case in the neighbourhood of Guernsey than of Jersey. I have endeavoured to eliminate, as far as possible, all such specimens from the present list.

Abnormal specimens were frequently met with, as indeed they are in all gatherings, these deformities occurring chiefly in species belonging to the two genera, *Miliolina* and *Lagena*, the most frequent deformity in the former genus being that the final chamber is partially free instead of being applied throughout the whole of its length to the periphery on the ante-penultimate chamber. The most frequent monstrosity in the genus Lagena is the addition of an extra chamber, and, in rare instances, of two extra ones. This extra chamber appears in *L. sulcata* most frequently as a small one attached to the base of the neck of the specimen, and in *L. globosa* the extra chamber is generally of the same size as the first one, and is added on to its oral extremity, thus forming a *Nodosarian* shell. I have also one specimen of *L. williamsoni* possessing this character.

The following are the localities from which material was obtained and examined, and they are referred to by their numbers in the list of species:—

No. 1.—St. Catharine's Bay; shore, between tides.
„ 2.—Samarez Bay „
„ 3.—St. Aubin's Bay „
„ 4.—St. Brelade's Bay „
„ 5.—St. Owen's Bay „
„ 6.—St. Aubin's Bay (dredge), 2-4 fathoms.
„ 7.—Grouville Bay „ 4-8 fathoms.
„ 8.—Little Hole, off Gorey; depth not recorded.
„ 9.—La Roque, shallow water, and between tides.
„ 10.—East coast (dredge), 10 fathoms.
„ 11.—Twenty miles south of Jersey, depth not recorded.
„ 12.—St. Brelade's Bay (dredge), 3½-5 fathoms.

In making out the following list I have given (where possible) after each species a reference to a drawing of the same, either in Dr. Brady's Report of the "Challenger" Foraminifera, or in Professor Williamson's "Recent Foraminifera of Great Britain," both of which most valuable works may be consulted at the Free Reference Library, in King-street, in this city. When the species is not figured in one or the other of the above works, or the great dissimilarity of the Jersey specimens to those figured by the above-mentioned authors has made it desirable, I have, to the best of my ability, supplied the deficiency by appending a drawing to this paper. By this means I hope I have made the list a more useful one, especially to beginners in the study of the Formanifera.

List of Genera and Species.

Family Miliolidæ.

Nubecularia lucifuga, Defr. (Rep. Chall. Foram., plate 1, figs. 9–16).—This species is rare in Jersey, and has only been taken at four localities, being most abundant in the shore-gathering from St. Catharine's Bay, which is one in which many shallow water forms are strongly developed.

Biloculina depressa, d'Orb. (Rep. Chall. Foram., pl. 2, figs. 12, 15–17).—This form is common in many British localities, but is very rare in the collection I am now describing, five specimens only having been found at three localities, viz., Nos. 1, 4, and 7.

Biloculina ringens, Lamk. (Rep. Chall. Foram., pl. 2, figs. 7, 8).—Another common British species, which is so extremely rare in Jersey waters that only one by no means well-grown example has been found. This was obtained from the shore at St. Brelade's Bay.

Spiroloculina canaliculata, d'Orb. (Rec. Foram. Gt. Brit., pl. 7, fig. 179).—This is the commonest of the Jersey *Spiroloculinæ*, having been obtained from eight localities. The specimens are shorter and broader, and have not the produced neck shown in Professor Williamson's drawing, which is named *Spiroloculina depressa*, var. *cymbium*.

Spiroloculina acutimargo, Brady (Rep. Chall. Foram., pl. 10, figs. 12–15).—This rare species has been obtained from five localities, but is uncommon in all. It occurs most frequently in the material from Nos. 9 and 12.

Spiroloculina planulata, Lamk. (Rep. Chall. Foram., pl. 9, fig. 11).—Very rare in Jersey waters.

**Spiroloculina grata*. Terquem (Rep. Chall. Foram., pl. 9, figs. 16, 17).—This species is pretty generally distributed in the Jersey gatherings, being found in seven out of the twelve, though rare in all. The specimens are small, but characteristic.

**Spiroloculina nitida*, d'Orb. (Rep. Chall. Foram., pl. 9, figs. 9, 10).—Very rare; found only in the shore-gathering from St. Brelade's Bay. The specimens which I have referred to this species are not typical, and may only be a form of *S. planulata*, but they certainly differ widely from those which I have assigned to the latter species.

Spiroloculina limbata, d'Orb. (Rec. Foram. Gt. Brit., pl. 7, fig. 177).—Very rare; two specimens only being found.

Spirolocu'ina excavata, d'Orb. (Rep. Chall. Foram., pl. 9, figs. 5, 6).—Very rare; occurs only at Samarez Bay.

Miliolina seminulum Linné (Rep. Chall. Foram., pl. 5, fig. 6).—The typical form is common in all gatherings. There is also a sandy variety, with rounded inflated chambers, which is frequently found; this form also appears with the surface smooth, but not polished, as in the type.

**Miliolina seminulum*, var. *triangularis*, d'Orb. (pl. 1, figs. 1, 2).—Not very rare, and somewhat similar in contour to Mr. Brady's figures of *M. auberiana*, d'Orb., in Rep. Chall. Foram., pl. 5, figs. 8, 9; differing mainly from them in having the periphery rounded, and not acute. The drawings I append, both taken from Jersey specimens, will show that the edge of the chambers may sometimes become acute, so that the specimen may be hardly distinguishable from *M. auberiana*. This running of one so-called species into another occurs in innumerable instances in Foraminifera, so much so, that it is sometimes impossible to draw a line between two species when a large number of examples are examined. It follows from this that the term "species," as applied to these organisms, cannot have the same restricted

significance as when applied to beings higher in the zoological scale, but is used to denote certain strongly-marked and easily recognisable types which are often connected by minute gradations one with another.

Miliolina bicornis, W. and J. (Rep. Chall. Foram., pl. 6, figs. 9, 11, 12).—Frequent everywhere. There is a rare form of this species which follows a more or less Spiroloculine manner of growth. Three such specimens have been obtained, of which I figure one (pl. 1, fig. 3) found at St. Catharine's Bay.

Miliolina subrotunda, Montagu (Rep. Chall. Foram., pl. 5, figs. 10, 11).—Common in all localities. A variety has been found, of which the periphery is ornamented with somewhat irregular, longitudinal costæ. This form has been met with by Mr. J. Wright in several Irish localities.

Miliolina trigonula, Lamk. (Rep. Chall. Foram., pl. 3, figs. 14–16).—Frequent in nearly all the gatherings.

Miliolina labiosa, d'Orb. (Rep. Chall. Foram., pl. 6, figs. 3–5).—Occurs in most localities, frequently in some. The specimens found are not typical, the chambers being arranged in a more regular manner than in Dr. Brady's figures, thus approaching more nearly to *M. subrotunda*.

Miliolina contorta, d'Orb. (pl. 1, fig. 4).—This species is frequent in the shore-gatherings, but rare in the dredgings. The specimens are similar to the ones figured and described by Messrs. Balkwill and Millett in their paper on the Foraminifera of Galway ("Journal of the Postal Microscopical Society," vol. 3, 1884), and by them referred to *M. sclerotica*, Karrer. The surface of this species is sometimes smooth, though never polished, but is generally rough, owing to the adherence of sand-grains; in some cases it approaches very near in form to *M. ferussacii*, d'Orb.

Miliolina fusca, Brady (pl. 1, fig. 5).—A small brackish-water species, which has been found rarely at localities 1, 2, and 4. The test is sandy, and of a brownish hue.

* *Miliolina linneana* d'Orb. (Rep. Chall. Foram., pl. 6, figs. 15-20).—Rare but fairly typical specimens were found at localities 1, 3, and 4.

Miliolina tricarinata, d'Orb. (Rep. Chall. Foram., pl. 3, fig. 17).—This species is the extreme development of the tri-loculine manner of growth shown in *M. trigonula*, and moreover, the surface is generally smooth and polished, whilst that of the last-named species is dull, and sometimes almost rough. The Jersey specimens are small and rare.

Miliolina oblonga, Montagu. (Rec. Foram. Gt. Brit., pl. 7, figs. 186, 187).—Rare at localities 1, 3, and 6; frequent at 2 and 4.

**Miliolina fichteliana*, d'Orb. (Rep. Chall. Foram., pl. 4, fig. 9).—Very rare at localities 4 and 6; rather frequent at 5. This species is similar in form to stout well-developed specimens of *M. subrotunda*, but the surface is covered with fine longitudinal striæ.

Miliolina pulchella, d'Orb. (Rep. Chall Foram., pl. 6, figs. 13, 14).—Very rare; out of the four or five specimens found only one was typically well-developed.

Miliolina ferussacii, d'Orb. (Rec. Foram. Gt. Brit., pl. 7, fig. 196; et sup. pl. 1, fig. 6).—Very rare; somewhat weak specimens were found at localities 4, 5, 6, and 7. Prof. Williamson's drawing represents an angular perspective view of a specimen, and puzzled me somewhat until I obtained authentic specimens, when I at once saw the mistake I had been labouring under. Dr. Brady has referred to this species a specimen from Herm, which I submitted to him, and which was similar in all respects to the one I figure here from St. Aubin's Bay. I am hardly prepared to endorse Mr. Brady's opinion, but think that the variety under consideration is an intermediate form, between *M. seminulum* and *M. bicornis*, for, besides being smooth and polished like the first species, it approaches in form to the sharp-edged "*Brongniarti*" varieties of the latter, and indeed I have found similar specimens in Guernsey dredgings, which are slightly striate. But for this fact and its produced and rounded oral extremity, it might be thought identical with *M. venusta*, Karrer, which it nearly resembles in the cross-section, as will be seen by a reference to Plate 5, figs. 5 and 7, of the "Challenger" Monograph.

Sigmoïlina secans, d'Orb. (Rep. Chall. Foram., pl. 6, figs. 1. 2).—A very common species in shore-gatherings and shallow-water dredgings, so much so, that of the material collected at St. Catherine's Bay, quite nine-tenths of the bulk consisted of this shell. It was, until very lately, placed in the genus *Miliolina*, but in consequence of the investigations of Mons. Schlumberger on the construction of the test has been referred by him to a new genus named as above, in which it has for companions the late *Planispirina sigmoidea*, Brady, *Planispirina celata*, Costa. *Spiroloculina tenuis*, Czjzek, and a new species, *Sigmoilina edwardsi*, Schlumberger. I have not seen Mons. Schlumberger's paper, but have taken the above note from Mr. H. B. Brady's "Synopsis of the British Recent Foraminifera."

**Sigmoïlina secans*, var. *obliquistriata*, nov. var. (Pl. 1, fig. 7).—This is an extremely rare variety. I have found only two examples, both in dredgings from St. Aubin's Bay. It is similar in form to the previously-described species, with the addition of oblique somewhat-curved grooves ploughed in the surface of the last segment. These striæ are quite distinct from the lines of

growth which frequently mark the species, and which are, more or less, at right angles to the longitudinal axis of the chamber, and are indistinct, not being sharply defined as the striæ are.

Cornuspira involvens, Reuss (Rep. Chall. Foram., pl. 11, figs. 1-3).—Very rare, but generally distributed, being found at seven localities.

FAMILY ASTRORHIZIDÆ.

* *Hyperammina vagans*, Brady, (Rep. Chall. Foram., pl. 24, figs. 1-9).—Frequent at localities 1, 2, and 4; rare at 8. The specimens are small, and though an inflated primordial chamber is not visible, still there is no doubt that they belong to this species.

FAMILY LITUOLIDÆ.

? *Reophax sp.*, Balkwill and Wright (pl. 1, figs. 8, 9).—Found at localities 1, 2, 4, and 8; rare in all. These specimens, or rather fragments of specimens, are like those described and figured by Messrs. Balkwill and Wright in their paper on the Recent Dublin Foraminifera. The fragments are supposed by them to be portions of a sessile organism, which seems to be a reasonable conclusion to arrive at, from the fact that perfect examples were not met with, though the authors mention that at least 200 specimens were collected. A few similar specimens obtained by myself from material gathered at Hilbre Island were identified by Mr. J. D. Siddall as belonging to his species *Reophax moniliforme*, which he describes and figures in his "Report on the Foraminifera of the Liverpool Marine Biological Committee's District." Mr. Siddall's species is rather a doubtful one, and is therefore held in abeyance until further evidence in support of it is produced. It will be seen from the drawings of the specimens under consideration that the test is in some cases formed of a mixture of sponge-spicules and fine sand, and in others larger sand-grains alone are used. In the latter case the specimens are generally larger and more robust than in the former.

Haplophragmium agglutinans, d'Orb. (Rep. Chall. Foram., pl. 32, figs. 19-26).—Found in five localities, of which four were littoral. The specimens are typical but not large, and vary in abundance from being frequent to very rare.

Haplophragmium canariense, d'Orb. (Rep. Chall. Foram., pl. 35, figs. 1-5).—Tolerably frequent in shore-gatherings and in some dredgings, the specimens being liable to very little variation.

* *Haplophragmium anceps*, Brady (Rep. Chall. Foram., pl. 35, figs. 12-15).—Extremely rare, only one small specimen being found in the shore-gathering from St. Brelade's Bay.

Haplophragmium globigeriniforme, Parker and Jones (Rep. Chall. Foram., pl. 35, figs. 10, 11).—Very rare at localities 2, 7, and 8, only one specimen being found at each place.

* *Haplophragmium nanum*, Brady (Rep. Chall. Foram., pl. 35, figs. 6-8).—This species is very rare at localities 2 and 4, but rather commoner at 7, 8, and 9. It is easily identified, but liable to be overlooked on account of the resemblance of its superior surface to that of the symmetrical *H. canariense*.

Placopsilina cenomana, d'Orb. (Rep. Chall. Foram., pl. 36, figs. 1-3).—Extremely rare, one specimen from shore-gathering at St. Brelade's Bay. As this species is a parasitic one, being adherent to larger bodies such as molluscan shells, zoophytes, etc., it is possible that it may not be quite so rare as would appear from the single specimen found in the Jersey collections, which was a detached one. A more extended search in its known habitats might be rewarded by the discovery of many more examples of this interesting species.

Ammodiscus incertus, d'Orb. (Rep. Chall. Foram., pl. 38, figs. 1–3).—One specimen dredged in Grouville Bay.

Ammodiscus gordialis, J. & P. (Rep. Chall Foram., pl. 38, figs. 7–9).—Very rare at Samarez and St. Brelade's Bays, only three specimens which were at all typical being found.

Trochammina squamata, J. & P. (Rep. Chall. Foram., pl. 41, fig. 3).—Found in six localities, varying from very rare to frequent in abundance. The specimens are very variable in size and form.

Trochammina ochracea, Willn. (Rec. Foram. Gt. Brit., pl. 4, fig. 112, and pl. 5, fig. 113).—Found rarely at localities 10 and 12.

Trochammina inflata, Mont. (Rec. Foram. Gt. Brit., pl. 4, figs. 93, 94).—Common at St. Catharine's Bay, rare at Samarez Bay, very rare at St. Aubin's, and frequent at St. Brelade's Bay. Prof. W. C. Williamson has figured this species under the name of *Rotalina inflata*, and his drawings are excellent ones.

Trochammina inflata, var. B. & W. (pl. 1, fig. 10).—Very rare in shore-gatherings at Samarez and St. Brelade's Bays. This variety has been noted by Messrs. Balkwill and Wright in their paper on Recent Dublin Foraminifera. It occupies a position between *T. inflata* and *T. squamata*, in my opinion approaching more nearly to the latter species; at least this is the conclusion I have been led to by the examination of the Jersey specimens of the three forms, at the same time I am well aware that one must not pronounce too dogmatically on a conclusion arrived at from the examination of specimens derived from one locality only. The variety now under consideration is formed of coarser sand-grains than *T. inflata*, and the cementing medium is of an orange brown

colour. In these particulars it resembles *T. squamata*, and differs much from the former species, which is formed of sand very little coarser than mud, and is of a dull coffee-brown colour, whilst the first few chambers are dark brown. The chambers in this variety are long, narrow, and very slightly inflated, forming four or five convolutions.

**Trochammina lituiformis*, Brady (Rep. Chall. Foram., pl. 40, figs. 4–7).—Extremely rare, one specimen only found in the shore-gathering from Samarez Bay.

Trochammina plicata, Terquem (pl. 1, fig. 11).—Very rare; three specimens were found in sand dredged from St. Brelade's Bay.

FAMILY TEXTULARIDÆ.

Textularia gramen, d'Orb. (Rep. Chall. Foram., pl. 43, figs. 9, 10).—This species is by no means common in the Jersey waters, but is fairly well distributed, a few small specimens being found in seven localities.

Textularia sagittula, Defr. (Rep. Chall. Foram., pl. 42, figs. 17, 18).—This common British species is very rare in Jersey. I have obtained only five specimens from the four localities, 2, 4, 7, and 12.

Vermeuilina polystropha, Reuss (Rep. Chall. Foram., pl, 47, figs. 15, 17).—This species is common, and the specimens are large at locality 1, frequent at 3 and 9, and rare at 2, 4, and 12.

Valvulina fusca, Willn. (Rec. Foram. Gt. Brit., pl. 5, figs. 114, 115).—One somewhat doubtful specimen was found in the shore-gathering from St. Brelade's Bay.

Bulimina pupoides, d'Orb. (Rec. Foram. Gt. Brit., pl. 5, figs. 124, 125).—Frequent in shore-gatherings, but rare in dredgings.

Bulimina marginata, d'Orb. (Rec. Foram. Gt. Brit., pl. 5, figs. 126, 127).—Very rare at localities 1 and 4, and rare at No. 2. These three are the only places where this species was found.

Bulimina elegantissima, d'Orb. (Rep. Chall. Foram., pl. 5, figs. 20–22).—Extremely rare; three specimens being found at three different localities, viz., Nos. 7, 10, and 12.

**Bulimina subcylindrica*, Brady (Rep. Chall. Foram., pl. 50, fig. 16; et super pl. 1, fig. 12).—Two weak *u Bliminæ* were found which may be referred to this species; one dredged in Grouville Bay, and one in St. Brelade's Bay. I figure the one from the former locality in order that it may be compared with Dr. Brady's drawing. It will be seen that one of the chambers of my specimen is broken, but as it is the better developed of the two examples found, I have thought it desirable to give a drawing of it notwithstanding its defect.

Virgulina schreibersiana, Czjzek (Rep. Chall. Foram., pl. 52, figs. 1–3).—Frequent at localities 1, 2, and 4; rare at 3, 6, and 12.

Bolivina punctata, d'Orb. (Rep. Chall. Foram., pl. 52, figs. 18, 19). — Frequent in shore-gatherings, but less common in dredgings.

Bolivina dilatata, Reuss (Rep. Chall. Foram., pl. 52, figs. 20, 21).—Extremely rare, one only being found at Samarez Bay. This specimen is broken, and rather worn, and is perhaps a fossil.

Bolivini lævigata, Willn. (Rec. Foram. Gt. Brit., plate 6, fig. 168).—The specimens obtained closely resemble Prof. Williamson's figure of *Textularia variabilis*, var. *lævigata*, which has since been transferred to the genus *Bolivina*. It is a rare species in Jersey waters.

Bolivina plicata, d'Orb. (pl. 1, fig. 13)—Found at eight localities, but rare in all.

FAMILY LAGENIDÆ.

Lagena sulcata, W. & J. (Rep. Chall. Foram., pl. 57, figs. 23, 26, 33, 34).—The commonest of the Jersey *Lagenæ*, and found in all the localities.

Lagena sulcata, var. *interrupta*, Willn. (Rep. Chall. Foram., pl. 57, figs. 25, 27).—This variety is described by Prof. Williamson as differing from the type in "the unequal lengths and discontinuous character of the costæ." The specimens I have referred to this variety are all well marked as to the last character. It is rare compared with the previous form.

Lagena sulcata, var. *lyelli*, Seguenza (pl. 1, fig. 14).—This variety has been the subject of some dispute at various times, some authors upholding that it is not even a good variety; but in cases in which it differs from *L. sulcata*, it may be identified as the detached final chamber of *Nodosaria scalaris*, var. *separans*, Brady. My specimens do not support this latter conclusion, as they differ much in character from any specimens found which could possibly be set down as the earlier portions of the shell, and it is hardly likely that the last chamber would alone be found, and not any of the closely-connected earlier ones. The Jersey specimens also differ a good deal from the examples of *L. sulcata*, found in the same localities, being a much more neatly-formed and more globular shell, with a neat neck finished off with a phialine lip, the costæ also are somewhat rounded and not sharp-edged, as in the latter species; lastly, there is the projecting basal tube, which has, no doubt, led to this variety being considered to be a portion of a *Nodosaria*. These, as well as other slight differences, have made me feel justified in retaining for this form, a varietal name. It has been found in small numbers in six Jersey localities.

Lagena williamsoni, Alcock (pl. 1, fig. 15).—Fairly common in all localities.

Lagena squamosa, Mont. (Rep. Chall. Foram, pl. 58, figs. 28–31).—Frequent and generally distributed. There is also a variety, not quite so common, in which the areolæ are irregularly disposed, and which connects this species with the next.

Lagena hexagona, Willn. (Rep. Chall. Foram., pl. 58, figs 32, 33).—Found at localities 1, 2, 3 and 4, and varying from very rare to frequent.

Lagena lævis, Mont. (Rep. Chall. Foram., pl. 56, figs. 7–14, 30).—Frequent at localities 1, 2 and 3; rare at 4 and 12.

Lagena semistriata, Willn. (Rec. Foram. Gt. Brit., pl. 1, fig. 9, and Rep. Chall. Foram., pl. 57, figs. 14, 16, 17).—This species is frequent in all gatherings, the form figured by Prof. Williamson being the commonest.

Lagena lineata, Willn. (Rec. Foram. Gt. Brit., pl. 1, fig. 17.—Frequent in all shore gatherings.

Lagena lævigata, Reuss (Rep. Chall. Foram., pl. 114, fig. 8). —Extremely rare, only two small specimens being found at St. Catherine's Bay. British specimens are generally longer in proportion to the breadth than the figure referred to above.

Lagena clavata, d'Orb. (Rec. Foram. Gt. Brit., pl. 1, fig. 6). —Frequently met with in all gatherings.

Lagena lucida, Willn. (Rec. Foram. Gt. Brit. pl. 1, figs. 22, 23).—Frequent in all localities. A fair number of the trigonal form of this shell was found.

Lagena quadrata, Willn. (Rec. Foram., Gt. Brit., pl. 1, figs. 27, 28).—Rare at localities 1, 2 and 3; very rare at 4, 6 and 7.

Lagena bicarinata, Terquem (pl. 2, fig. 1). —Rare but generally distributed.

Lagena orbignyana, Seg. (Rep. Chall. Foram., pl. 59, figs. 1, 24–26).—Rare in shore-gatherings.

Lagena lagenoides, Willn. (Rep. Chall. Foram., pl. 60, figs. 6, 7, 9, 12–14).—Very rare at localities 1, 2, 6, 7 and 12. One specimen of the trigonal form was found at the last locality.

Lagena marginata, W. and B. (Rep. Chall. Foram., pl. 59. figs. 21–23).—Rare in all gatherings. One specimen of the trigonal form was met with at locality 4.

Lagena marginata, var. *inæquilateralis*, J. Wright (pl. 2, fig. 2).—Found at all the localities, but much rarer than the type.

Lagena aspera, Reuss (Rep. Chall. Foram., pl. 57, figs. 7–12). Extremely rare; only one specimen found in the shore gathering from Samarez Bay.

Lagena curvilineata, Balkwill and Wright (pl. 2, fig. 3).—Very rare, found only in shore gatherings from St. Catharine's and St. Brelade's Bays. This species must not be confounded with the distorted specimens of *L. sulcata*, which are so frequently met with, and in which the costæ are curved in consequence of the distortion of the whole shell.

**Lagena ovum*, Ehrenb. (Rep. Chall. Foram., pl. 56, fig. 5).—Extremely rare; one typical specimen found at Samarez Bay.

Lagena melo, d'Orb (Rec. Foram., Gt. Brit. pl. 1, fig. 31).—Very rare, typical specimens found at Samarez Bay only. Prof. Williamson figures this species under the name of *Entosolenia squamosa*, var. *catenulata*.

Lagena globosa, Mont. (Rep. Chall. Foram., pl. 56, figs. 1–3).—Frequent in all gatherings.

Nodosaria scalaris, Batsch (Rep. Chall. Foram., pl. 63, figs. 28–31).—Very generally distributed, but common nowhere. In some localities the specimens are very weak, and not striated, and have the final chamber set on more or less obliquely.

Nodosaria communis, d'Orb. (Rep. Chall. Foram., pl. 62, figs. 19–22).—Found at six localities, and ranging from "frequent" to "very rare." Some of the specimens are by no means so regular in growth as the figures given by Dr. Brady, and the primordial chamber is often larger than the adjoining one.

Nodosaria pyrula, d'Orb. (Rep. Chall. Foram., pl. 62, figs. 10–12).—Very rare at localities 1, 2, 3, 7 and 9. This species is represented by fragments, consisting of three chambers at most.

Nodosaria obliqua, Linné (pl. 2, fig. 4).—This species is frequent in the shore gathering from Samarez Bay, and very rare in those from St. Brelade's and St. Owen's Bays. The specimen figured is from the second locality.

Vaginulina legumen, Linné (Rep. Chall. Foram., pl. 66, figs. 13–15).—Very rare in shore gatherings from Samarez and St. Brelade's Bays.

Cristellaria crepidula, Fichtel and Moll. (Rep. Chall. Foram., pl. 67, figs. 17, 19, 20; et sup., pl. 2, fig. 5).—Frequent at all localities. Besides typical specimens, a variety has been found, of which I append a drawing. This variety has strongly-marked sutures, slightly inflated chambers, and besides being more hyaline, seems to have a thicker shell-wall than the type.

Polymorphina lactea, W. and J. (Rec. Foram. Gt. Brit., pl. 6, figs. 147, 153-5).—Frequent in most localities, and common in some.

Polymorphina gibba, d'Orb. (Rep. Chall. Foram., pl. 71, fig. 12).—This species is hardly separable from the previous one, the chief difference being that it has the sutures flush, instead of being excavated. It occurs rarely at localities 1 and 2, and more frequently at 4 and 7.

Polymorphina rotundata, Bornem. (Rep. Chall. Foram., pl. 73, figs. 5-8).—Found at the first five localities on the list, the degree of abundance ranging from "frequent" to "very rare."

Polymorphina concava, Willn. (Rec. Foram. Gt. Brit., pl. 6, figs. 151, 152).—This species was found at six localities, and is rather frequent in the shallow water dredgings from St. Brelade's Bay. The specimens are small, and the shell very thin.

Polymorphina lactea, var. *oblonga*, Willn. (Rec. Foram. Gt. Brit., pl. 6, fig. 149).—Frequently found at localities 2, 4, and 5; rare at 1, very rare at 3.

Polymorphina compressa, d'Orb. (Rec. Foram. Gt. Brit. pl. 6, figs. 145-6).—This common British species is very rare in Jersey, having been met with only in shore-gatherings from Samarez and St. Brelade's Bays.

Polymorphina problema, d'Orb. (Rep. Chall. Foram. pl. 72, fig. 20).—Extremely rare; only one typical specimen found at St. Brelade's Bay.

Polymorphina soraria, Reuss (Rep. Chall. Foram., pl. 71, figs. 15, 16).—Very rare in shore gatherings from Samarez and St. Brelade's Bays.

Uvigerina angulosa, Willn. (Rec. Foram. Gt. Brit. pl. 5, fig. 140).—Found at seven stations, but the number of specimens was small, and they were poorly developed. This species takes the place in shallow water of the nearly related *U. pygmæa*, which does not flourish in our seas at less depths than 25 fathoms.

Uvigerina canariensis, d'Orb. (Rep. Chall. Foram., pl, 74, figs. 1-3).—Extremely rare; one specimen being found in the shore gathering from Samarez Bay, and one in sand dredged in Grouville Bay.

Family Globigerinidæ.

Globigerina bulloides, d'Orb. (Rec. Foram. Gt. Brit., pl. 5, figs. 116-118).—This species is rare in Jersey, though found in most of the gatherings examined.

FAMILY ROTALIDÆ.

Spirillina vivipara, Ehrenb. (Rep. Chall. Foram., pl. 85, figs. 1–5).—Occurs very rarely at localities 2, 4, 7, 8, 11, and 12.

**Spirillina vivipara*, var. *carinata*, nov. var. (pl. 2. fig. 6).—About half-a-dozen specimens of this variety were found in the dredgings from St. Brelade's Bay. It differs from the type species in having the periphery carinated, though the keel is not entire, but irregularly crenated: this, however, may be caused by accidental fracture. The tube is not closely coiled, but each convolution is applied to the carina of the previous one, the carina being repaired and strengthened so that it is now entire. The diagramatic section on plate 2 will illustrate sufficiently this feature.

Spirillina margaritifera, Willn. (pl. 2, fig. 7).—This species was found in seven localities, and is rare in all. The specimens differ so much from Prof. Williamson's drawing in his monograph on the Recent Foraminifera of Great Britain that I have thought it advisable to append to this paper a drawing of one of them.

Patellina corrugata, Willn. (Rec Foram. Gt. Brit., pl. 3, figs. 86–89).—Rare, but generally distributed.

Discorbina globularis, d'Orb. (Rep. Chall. Foram., pl. 86, figs. 8, 13).—Common everywhere.

Discorbina rosacea, d'Orb. (Rep. Chall. Foram., pl. 87, figs. 1, 4).—Very rare in seven localities.

Discorbina orbicularis, Terq. (Rep. Chall. Foram., pl. 88, figs. 4–8).—Rare at localities 3, 9, 11, and 12; very rare at 2 and 4.

**Discorbina opercularis*, d'Orb. (Rep. Chall. Foram., pl. 89, figs. 8, 9).—One small, though undoubted specimen was found in the shore gathering from Samarez Bay. It is quite possible that this is a fossil derived from some Tertiary strata, but, until others are met with, which show more clearly their fossil origin, I feel justified in placing it in this list.

Discorbina bertheloti, d'Orb. (Rep. Chall. Foram., pl. 89, figs. 10–12).—Frequent at locality 2; rare at 3, 4, and 12; very rare at locality 7.

**Discorbina vesicularis*, Lamarck (Rep. Chall. Foram., pl. 87, fig. 2; et sup pl. 2, fig. 8).—Found only in the shore gathering from St. Catherine's Bay. The specimens are fairly numerous but not very typical, still, in some cases, the astral flaps are distinct and easily recognised. The home of this species is in the warmer temperate seas. I have in my collection fine specimens from New South Wales. I figure a Jersey specimen to show the state of development the species attains here.

Rotalia beccarii, Linné (Rec. Foram., Gt. Brit., pl. 4, figs. 90-92).—Common everywhere on the Jersey coast.

Rotalia nitida, Willn. (Rec. Foram. Gt. Brit., pl. 4, figs. 106-108, et sup. pl. 2, fig. 12).—Frequent in shore-gatherings. It has been suggested that the proper place for this species is in the genus *Discorbinæ*, and, judging from the examination of the Jersey specimens of the small brown form generally found on British coasts, I should unhesitatingly give my verdict in favour of this transfer. I find also in the Jersey collections another form of the species, of which I give a drawing, and which it would be equally advisable to remove from the genus *Rotalia*.

Gypsina inhærens, Schultze (Rep. Chall. Foram., pl. 102, figs. 1-6).—Well-developed specimens of this species are frequent at St. Catharine's Bay, and occur more rarely at localities 2, 3, 4, and 12.

FAMILY NUMMULINIDÆ.

Nonionina depressula, W. and J. (Rec. Foram. Gt. Brit., pl. 3, figs. 70, 71).—Frequent in all gatherings.

Nonionina stelligera, d'Orb. (Rep. Chall. Foram., pl. 109 figs. 3-5).—Very rare at localities 2, 4, 7, 9, and 12.

Nonionina turgida, Willn. (Rep. Chall. Foram., pl. 109, figs. 17-19).—Only two small specimens were found in material dredged in Grouville Bay.

Nonionina pauperata, Balkwill and Wright (pl. 2, fig. 13).—Rare at localities 2, 4, and 8; very rare at 9 and 10).

Polystomella crispa, Linné (Rec. Foram. Gt. Brit. pl. 3, figs. 78-80).—Common in all Jersey gatherings.

Polystomella striato-punctata, F. and M. (Rec. Foram. Gt. Brit., pl. 3 figs. 81, 82).—Frequent in all localities. The strong smooth specimens figured by Prof. Williamson, and which are most common on the coasts of this part of England, are less frequent in Jersey than the thin-shelled distinctly-perforated ones, which are generally of a brownish colour.

On analysing the foregoing list, it will be seen to consist of 127 species and varieties, belonging to 35 genera, which represent eight families. The species are distributed as follows:—

Family.		Genera		Sp. & var.
Miliolidæ	represented by	6	comprising	27
Astrorhizidæ	,,	1	,,	1
Lituolidæ	,,	5	,,	15
Textularidæ	,,	6	,,	13
Lagenidæ	,,	6	,,	39
Globigerinidæ	,,	1	,,	1
Rotalidæ	,,	8	,,	25
Nummulinidæ	,,	2	,,	6

Rotalia beccarii, Linné (Rec. Foram., Gt. Brit., pl. 4, figs. 90-92).—Common everywhere on the Jersey coast.

Rotalia nitida, Willn. (Rec. Foram. Gt. Brit., pl. 4, figs. 106-108, et sup. pl. 2, fig. 12).—Frequent in shore-gatherings. It has been suggested that the proper place for this species is in the genus *Discorbinæ*, and, judging from the examination of the Jersey specimens of the small brown form generally found on British coasts, I should unhesitatingly give my verdict in favour of this transfer. I find also in the Jersey collections another form of the species, of which I give a drawing, and which it would be equally advisable to remove from the genus *Rotalia*.

Gypsina inhærens, Schultze (Rep. Chall. Foram., pl. 102, figs. 1-6).—Well-developed specimens of this species are frequent at St. Catharine's Bay, and occur more rarely at localities 2, 3, 4, and 12.

FAMILY NUMMULINIDÆ.

Nonionina depressula, W. and J. (Rec. Foram. Gt. Brit., pl. 3, figs. 70, 71).—Frequent in all gatherings.

Nonionina stelligera, d'Orb. (Rep. Chall. Foram., pl. 109 figs. 3-5).—Very rare at localities 2, 4, 7, 9, and 12.

Nonionina turgida, Willn. (Rep. Chall. Foram., pl. 109, figs. 17-19).—Only two small specimens were found in material dredged in Grouville Bay.

Nonionina pauperata, Balkwill and Wright (pl. 2, fig. 13).—Rare at localities 2, 4, and 8; very rare at 9 and 10).

Polystomella crispa, Linné (Rec. Foram. Gt. Brit. pl. 3, figs. 78-80).—Common in all Jersey gatherings.

Polystomella striato-punctata, F. and M. (Rec. Foram. Gt. Brit., pl. 3 figs. 81, 82).—Frequent in all localities. The strong smooth specimens figured by Prof. Williamson, and which are most common on the coasts of this part of England, are less frequent in Jersey than the thin-shelled distinctly-perforated ones, which are generally of a brownish colour.

On analysing the foregoing list, it will be seen to consist of 127 species and varieties, belonging to 35 genera, which represent eight families. The species are distributed as follows:—

Family.		Genera		Sp. & var.
Miliolidæ	represented by	6	comprising	27
Astrorhizidæ	,,	1	,,	1
Lituolidæ	,,	5	,,	15
Textularidæ	,,	6	,,	13
Lagenidæ	,,	6	,,	39
Globigerinidæ	,,	1	,,	1
Rotalidæ	,,	8	,,	25
Nummulinidæ	,,	2	,,	6

The family *Rotalidæ* is the best represented numerically as to genera and the *Lagenidæ* as to species, the genus *Lagena* alone showing a record of 23 species and varieties. Though the genus *Discorbina* is represented by 11 species only, this is a far better record than that of *Lagena*, for the British list of the former genus contains only eight species, whilst the British *Lagenæ* number 35. The genus *Spiroloculina* is also well represented by seven species against a total British list of six.

The entire absence of *Orbulina universa*, d'Orb.; *Lagena costata*, Willn.; and *Cassidulina lævigata*, d'Orb.; all of which are not uncommon British species, is, I think, worthy of note.

It may be interesting to compare the Jersey list of Foraminifera with Prof. Williamson's List of Recent British Foraminifera, which is a fairly representative one of a gathering from our coasts. This list, being revised according to present views, and fossil specimens being eliminated, is found to contain 96 species, of which number 67 are found in Jersey. On analysing Prof. Williamson's list, 31 species are found which are more or less rare, leaving 65 which one may fairly expect to find in any shore gathering from these shores. This number is very nearly that of the species which are common to both the lists under consideration.

HYDRA FUSCA.

By William Harvey, Constantinople.

I NOTICE in Mr. Dunkerley's paper on Hydra (in Report for 1883-4), he speaks of the Hydra as sometimes turning inside out "of its own accord," and also of having *turned* them inside out *himself*. A short time ago I saw a Hydra turn itself inside out, and I will copy the note I made in my book at the time.

"*Hydra fusca*.—Noticed a small specimen had swallowed a very large water flea (*Daphnia schafferi*); the difference in size would be something like a man swallowing an elephant! I placed the Hydra in a cell, and put it under 2-in. with black-ground illumination. The Hydra was stretched to such an extent that the Daphnia *with young* could be seen almost as plainly as if free. The Hydra then fixed its tail on the cover glass, and remained in