

REPORT

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OF THE



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FOR THE

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HELD AT

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become a serious strain upon the resources of the Society, more especially now that the aids from the Association and from private sources have already been continued for the period which had been assigned to them.

The Committee have reason to believe that these abstracts supply an important need for the advancement of our science, and that they are highly valued by the members of the Society and other chemists.

They confidently trust that the Society may be able to carry on the important work which has been thus auspiciously commenced; and they congratulate the Association on the service which it has rendered to science by supplying to that enterprise the aid which was absolutely needed in its infancy.

Report on Dredging off the Coast of Durham and North Yorkshire in 1874. By GEORGE STEWARDSON BRADY, C.M.Z.S., and DAVID ROBERTSON, F.G.S.

A BRIEF account of the dredging undertaken by us on the coast was presented to the British Association last year, but no attempt was then made to give lists or detailed observations. The following Report embraces lists of all that came under our notice in the groups of Mollusca, Entomostraca (Ostracoda and Copepoda), Polyzoa, Hydrozoa, Spongozoa, and Foraminifera. Amongst Echinodermata our captures did not include any species requiring special notice, whilst among the larger Crustacea (Decapoda) the only species of unusual occurrence in the district were *Stenorhynchus longirostris*, Fabr., *Portunus depurator*, Linn., and *Ebalia tumefacta*, Mont. Several species belonging to an interesting group of minute Crustaceans not hitherto noticed in the British seas (Isopoda Remigantia of G. O. Sars) were taken, but we are not yet able to name more than one or two of them with certainty. Special attention was given to the Acarides, a large number of which were obtained, and amongst them some previously undescribed species which have been figured and described by one of us in the 'Proceedings of the Zoological Society' for the present year. But the greatest number of novelties occurred amongst the Copepoda, 28 species of this group being new to science, and 11 new to British records.

The Mollusca, Ostracoda, and Foraminifera of the Northumberland and Durham coasts had been so fully investigated by the Dredging-Expeditions of the Tyneside Naturalists' Field-Club, undertaken with the help of the British Association in the years 1862, 1863, 1864, that little was left to be done in those branches. But, as might be expected, notwithstanding that much of the ground had already been well searched, we are now able to add to the number of species noted in the previous Reports, while, on the other hand, some species contained in the earlier lists are absent from ours*.

To the list of Testaceous Mollusca prepared by the late Mr. Alder from the

* It must be noticed, however, that the area embraced in our dredgings of last year (1874), though of nearly similar extent, is not quite identical with that investigated by the Tyneside Field-Club in the years 1862-64. The present Report refers to the coast of Durham and the northern part of Yorkshire as far as Scarborough, while those of the earlier expeditions embraced the seaboard of the two counties of Durham and Northumberland, thus reaching nearly sixty miles further north, while, on the other hand, our last year's explorations went about thirty-five miles further south than those of ten years ago.

*** indicates prevailing, ** moderately common, * rare species, those indications referring only to the localities under which they appear. Those marked with the prefixed asterisk are new to the district.

Genera and Species.	7 miles off Marsden; 33 fa.	30 miles off Sunderland; sand and gravel. 40-45 fa.	14 miles off Seabam; 35 fa.	4 miles off Hawthorn; 20 fa.	5 miles off Castle Eden; coarse gravel. 20 fa.	5 miles off Hartlepool; muddy sand. 20 fa.	8 miles off Staiths; shells and gravel. 25 fa.	5 miles off Red Cliff; gravel and dead shells. 30 fa.	5 miles off Robin Hood's Bay; zoophytes and gravel. 30 fa.	3 miles off Scarborough; sandy. 17 fa.	5 miles off Scarborough; gravel and broken shells. 25 fa.
<i>Pontocypris mytiloides</i> (Norm.).....	***	**	****	**
<i>trigonella</i> , Sars
* <i>Bairdia inflata</i> (Norm.)
<i>Cythere lutea</i> , Müll.	*
<i>viridis</i> , Müll.
<i>pellucida</i> , Baird
<i>semipunctata</i> , Brady
<i>castanea</i> , Sars
* <i>albomaculata</i> , Baird
<i>tenera</i> , Brady	**
<i>convexa</i> , Baird
* <i>limicola</i> (Norm.)	**
<i>finmarelica</i> (Sars)
<i>Robertsoni</i> , Brady
<i>villosa</i> (Sars)
<i>quadridentata</i> , Baird
<i>tuberculata</i> (Sars)
<i>enaciata</i> , Brady
<i>Duncelmensis</i> (Norm.)	***
<i>Jonesii</i> (Baird)	***
<i>angulata</i> (Sars)
<i>concinna</i> , Jones
<i>Cythereidea papillosa</i> , Iosq.
* <i>elongata</i> , Brady

FORAMINIFERA.

NOTE.—The species marked (*) do not appear in the "Dredging Reports" of 1862, 1863, 1864, nor in Mr. H. B. Brady's 'Catalogue of the Recent Foraminifera of Northumberland and Durham,' published in 1865. For the most part they are new to the district, but some few had been found in the interim, though their occurrence had not been recorded; and in two or three cases forms to which specific names are now given by general consent were not distinguished from their respective types in former lists. Two of the species so marked, *Iagena trigono-marginata*, P. & J., and *Webbia lemispherica*, P., J. & B., are new to Britain.

*** indicates prevailing forms, ** indicates moderately common, * indicates rare, and refer only to the haul they were taken in.

Genera, Species, and Varieties.	7 miles off Marsden; 33 fa. muddy sand.	20 miles off Sunderland; 45 fa. land; muddy sand.	30 miles off Sunderland; 40 fa. land; gravelly.	12 miles off Seaham; 33 fa. muddy sand.	4 miles off Hawthorn; 20 fa. shelly gravel.	6 miles off Hawthorn; 20 fa. gravelly sand.	5 miles off Castle Eden; coarse gravel. 20 fa.	5 miles off Hartlepool; muddy sand. 20 fa.	8 miles off Staiths; broken shells and gravel. 25 fa.	5 miles off Red Cliff; large gravel and broken shells. 25-30 fa.	4 miles off Robin Hood's Bay; broken shells and zoophytes. 30 fa.	5 miles off Robin Hood's Bay; stones and <i>Ulogyrum implexa</i> . 25 fa.	Off Scarborough; sandy bottom. 17 fa.	Off Scarborough; broken shells and gravel. 25 fa.
<i>Cornuspira foliacea</i> , Phil.														
<i>Biloculina ringens</i> , Lamk.														
— <i>depressa</i> , D'Orb.														
— <i>elongata</i> , D'Orb.														
<i>Triloculina trigonula</i> , Lamk.														
— <i>oblonga</i> , Mont.														
— <i>tricarinata</i> , D'Orb.														

Suborder IMPERFORATA.

Family MILIOLIDA.

three years' dredgings of the Tyneside Naturalists' Field-Club, we are now able to add 21 species.

From the same dredgings 19 species of Ostracoda were catalogued by Mr. Norman, but five years later the number was increased to 47 by Mr. G. S. Brady. Our present list includes 71 species, one of which, *Cytherideis Hilda*, is new to science.

The Rev. A. M. Norman, who accompanied us during part of the dredging-expedition, has kindly examined and reported on the Polyzoa, Hydrozoa, and Spongozoa. Among the Polyzoa is one interesting form new to the British seas, *Bugula fruticosa*, Packard; one Hydrozoon new to the east coast, *Lafoëa pocillum*, Hincks; and two undescribed sponges, *Hymeniacidon virgulatus* and *Halichondria virgea*, both of which are here described by Dr. Bowerbank.

The Foraminifera from the earlier dredgings were ably worked out by Mr. H. B. Brady, and numbered 70 species, a total subsequently increased to 74, or perhaps rather more. The list will now, with the additions we have made, comprise 94 species, or rather more than 60 per cent. of the recorded British Foraminifera.

But apart from the number of species obtained there is much of interest in their distribution, as may conveniently be seen in the annexed Tables. It was shown by Mr. Alder* that the Testaceous Mollusca of the Northumberland coast present a distinctly boreal character, which is shared more or less by the whole invertebrate fauna; but it may be remarked with regard to the Ostracoda that this character is by no means so apparent. It will be seen from the Table that *Cythere lutea*, *C. viridis*, *C. angulata*, *Cytheridea punctillata*, and *Cytherura nigrescens* are absent or rare. All these species are characteristically boreal, and strongly represented in the Posttertiary ("Glacial") clays of Scotland. At the same time it is interesting to note that although *Cythere lutea* and *Cytherura nigrescens* are absent or rare in the dredgings from this coast, they are extremely common between tide-marks, where they must be subject to much greater variation of temperature. But if a low temperature were specially congenial to these species, we should expect to find them further out at sea, where they certainly lived in great abundance during the deposition of our Posttertiary clays. It is a curious fact that these two species are confined almost entirely to the littoral and Laminarian zones of the east coast, but are abundant in deep water on the west, as, for instance, in the Frith of Clyde. On the whole, then, we must conclude that the Ostracoda and Foraminifera of the north-east coast of England do not present that marked arctic character which has been noticed in a considerable group of the Northumbrian Mollusca; but that there is, on the contrary, a marked absence of some typically northern forms which are abundant in the warmer seas of the western coast. Nor can we suppose that a cold arctic current is the only or even perhaps the chief agent in the continued existence of this peculiar Northumbrian molluscan fauna, else we could scarcely fail to have had an equally well-marked development of arctic types amongst other groups of invertebrata whose organization renders them even more easy of distribution. We must therefore, in the absence of more accurate information, look to some strictly local circumstances as having been the chief causes of the retention of the species in question over particular circumscribed areas.

* Natural-History Transactions of Northumberland and Durham, 1865.

TESTACEOUS MOLLUSCA.

The letters c, mc, r, mr, signifying common, moderately common, rare, moderately rare, refer only to the hauls in which the species were taken. Those marked * are new to the district.

BRACHIOPODA.

Argiope capsula, Jeff. 4 miles off Robin Hood's Bay, 30-35 fathoms; bottom broken shells and zoophytes.

CONCHIFERA.

- Anomia ephippium*, Linn.: mr. Small in most of the gatherings where the ground was hard.
- —, var. *aculeata*, Müll.: mr. Small in most gatherings on hard ground.
- Pecten pusio*, Linn.: mc. 4-6 miles off Hawthorn and Redcliff, 20-30 fa.; gravel and dead shells.
- *opercularis*, Linn.: mr. The living all small in various gatherings.
- *tigrinus*, Müll.: mc. Off Hawthorn, Staiths, Redcliff, and Robin Hood's Bay, 20-37 fa.; gravelly.
- *similis*, Laskey: mr. 5 miles off Redcliff, 30 fa.; gravel and dead shells.
- *striatus*, Müll.: mr. Off Castle Eden and Redcliff, 20-30 fa.; gravelly.
- * — *varius*, Linn. Dead, off Robin Hood's Bay, 30 fa.; gravel, dead shells, and zoophytes.
- Mytilus edulis*, Linn.: r. Dead shell, off Redcliff, 30 fa.; gravel and dead shells.
- *modiolus*, Linn.: mc. Small, none above an inch, 6 miles off Hawthorn, 37 fa.; sandy gravel.
- Lima Loscombi*, G. B. Sow.: mr. Hawthorn and Redcliff, 20-37 fa.; sandy gravel and dead shells.
- *subauriculata*, Mont.: mr. 5 miles off Redcliff, 30 fa.; sandy gravel and dead shells.
- Modiolaria discors*, Linn.: mr. 6 miles off Hawthorn, 20 fa.; sandy gravel.
- *nigra*, Gray: r. Dead valves, off Staiths, 25 fa.; gravelly.
- *marmorata*, Forbes. In the *Ascidia mentula*, off Seaham, 35 fa.; gravelly sandy mud.
- Crenella decussata*, Mont.: c. 14 miles off Seaham, 35 fa.; sandy mud.
- Arca tetragona*, Poli: r. Small, 5 miles off Castle Eden, 20 fa.; coarse gravel.
- Nuculus nucleus*, Linn.: Hawthorn and Redcliff, 20-30 fa.; sandy gravel and dead shells.
- *tenuis*, Mont.: c. Fry 20 miles off Sunderland, 45 fa.; muddy sand.
- *nitida*, Sow. Dead shell, with the last.
- Leda (caudata) minuta*, Müll.: mc. In most of the gatherings.
- * *Pectunculus glycymeris*, Linn. A dead shell, 5 miles off Redcliff, 30 fa.; gravel and dead shells.
- Cardium echinatum*, Linn. Dead valves, 5 miles off Robin Hood's Bay, 30 fa.; gravelly.
- *exiguum*, Gmel.: r. With the above.
- *edule*, Linn.: r. Dead valves, off Durham coast.
- *fasciatum*, Mont. Off Hawthorn and Castle Eden, 20-27 fa.; sandy gravel.
- *norvegicum*, Spengl.: mr. Dead valves, 6 miles off Hawthorn, 20 fa.; sandy gravel.
- Lucina borealis*, Linn.: r. 8 miles off Staiths, 25 fa.; sandy gravel and dead shells.
- Axinus flexuosus*, Mont.: r. 5 miles off Hartlepool, 35 fa.; muddy sand.
- * *Diplodonta rotunda*, Mont. 6 miles off Hawthorn, 37 fa.; sandy gravel.
- Kellia suborbicularis*, Mont.: mr. Off Hawthorn and Redcliff, 20-30 fa.; sandy gravel.
- Montacuta substriata*, Mont.: mc. Off Redcliff and Robin Hood's Bay, 30 fa.; gravel and dead shells.
- Cyprina islandica*, Linn.: mr. Small, off Marsden and Redcliff, 30-33 fa.; gravel and muddy sand.
- Astarte sulcata*, Da Costa: c. 5 miles off Hartlepool, 35 fa.; muddy sand.
- *compressa*, Mont.: mc. With the above.
- *triangularis*, Mont.: mr. With the above.

- Venus exoleta*, Linn. Dead valves, 6 miles off Hawthorn, 20 fa. ; sandy gravel.
 — *linctæ*, Pult. : mr. Off Marsden, 33 fa. ; muddy sand.
 — *fasciata*, Da Costa : mc. Off Redcliff and Robin Hood's Bay, 30 fa. ; gravelly.
 — *casina*, Linn. : mc, and large. 14 miles off Seaham, 35 fa. ; sandy mud.
 — *ovata*, Penn. : mc. Large, off Hartlepool and Redcliff, 30 fa. ; muddy sand and gravel.
 — *gallina*, Linn. : mc. Off Redcliff, 30 fa. ; gravelly.
Tapes virgineus, Linn. : mc. Off Hawthorn and Castle Eden, 20 fa. ; sand and gravel.
Lucinopsis undata, Penn. : r. Off Hartlepool, 36 fa. ; muddy sand.
Tellina crassa, Gmel. Off Hawthorn, dead shells, 20 fa. ; sandy gravel.
 * — *tenuis*, Da Costa : mr. Off Redcliff, 30 fa. ; gravel and dead shells.
 — *pusilla*, Phil. : mr. With the above.
 * — *fabula*, Gron. : mc. Large, off Seaham, 35 fa. ; sandy mud.
Psammobia tellinella, Lamk. : mr. 14 miles off Seaham, Hawthorn, 35 fa. ; sandy mud and gravel.
 — *ferroensis*, Chem. : mc. Off Hawthorn, 20 fa. ; sandy gravel.
Mactra subtruncata, Da Costa : r. Castle Eden, 20 fa. ; gravelly.
 — *elliptica*, Brown. Off Hawthorn and Redcliff.
 * — *stultorum*, Linn. A valve, off Scarborough, 17 fa. ; sandy.
Scrobicularia prismatica, Mont. : mc. Off Seaham, 35 fa. ; sandy mud.
 — *alba*, Wood : r. With the above.
Solen pellucidus, Penn. 20 miles off Sunderland, 45 fa. ; muddy sand.
 * — *ensis*, Linn. A broken valve, off Redcliff, 30 fa. ; gravelly.
Thracia papyracea, Poli : mr. Off Hawthorn, 20 fa. ; sandy gravel.
 — —, var. *villosiuscula*, Macq. : r. With the above.
Næra cuspidata, Olivi. One young, covered with sand, off Seaham, 35 fa. ; sandy mud.
Corbula gibba, Olivi : mc. Off Sunderland and Seaham, 35–45 fa. ; muddy sand.
Mya truncata, Linn. Valves, and some fry between Castle Eden and Redcliff, 20–35 fa. ; gravelly.
Saxicava rugosa, Linn. : mc. None large, in most of the gatherings.
 — *arctica*, Linn. : r. Redcliff, 30 fa. ; gravel and dead shells.
 * *Pholas crispata*, Linné. Fragment of large shell, between Castle Eden and Redcliff, 20–35 fa. ; gravelly.

SOLENOCONCHIA.

- Dentalium entalis*, Linn. : c, and large. Off Hawthorn, 20 fa. ; sandy gravel and other gatherings.
 * — *tarentinum*, Lamk. : r. Small, dead, off Hartlepool, 35 fa. ; muddy sand.

GASTEROPODA.

- Chiton cinereus*, Linn. : r. Off Staiths, 25 fa. ; gravel and dead shells.
 — *marmoreus*, Fabr. : r. Robin Hood's Bay, 30 fa. ; gravel and zoophytes.
Tectura virginea, Müll. : r. Off Castle Eden, 20 fa. ; coarse gravel.
Emarginula fissura, Linn. : mr. Off Redcliff, 30 fa. ; gravel and dead shells.
Capidus hungaricus, Linn. : mr. Small, off Seaham and Robin Hood's Bay, 35 fa. ; sandy mud and gravel.
 * *Trochus magnus*, Linn. : r. Dead, off Hawthorn, 20 fa. ; sandy gravel.
 — *tumidus*, Mont. : mc. Off Redcliff, 30 fa. ; gravelly and dead shells, mostly small.
 — *cinerarius*, Linn. : r. Off Castle Eden, 20 fa. ; coarse gravel.
 — *Montacuti*, Wood : r. Off Redcliff, 30 fa. ; gravel and dead shells.
 — *millegranus*, Phil. : c. Off Castle Eden and Redcliff, 20–30 fa. ; gravel and dead shells.
 — *zizyphinus*, Linn. : c. Off Castle Eden and Redcliff, 20–30 fa. ; gravel and dead shells.
 * — —, var. *Lyonsii*, Leach. With the above.
 * *Lacuna crassior*, Mont. : r. Off Castle Eden, 20 fa. ; coarse gravel.
 — *pallidula*, Da Costa : r. Off Staiths, 25 fa. ; gravel and dead shells.
Rissoa punctura, Mont. : mc. Off Marsden and Seaham and Hawthorn, 20–35 fa. ; sandy gravel.

- Rissoa parva*, Da Costa : mc. Durham and Northumberland coasts, 20-30 fa.
 ———, var. *interrupta*. More common.
 ——— *striata*, Adams : mc. In most of the gatherings.
 ——— *vitrea*, Mont. : r. Off Hawthorn, 35 fa. ; sandy gravel.
 * ——— *soluta*, Phil. : mc. Obtained with the above.
Cæcum glabrum, Mont. : mc. Off Seaham and Redcliff, 30-35 fa. ; sandy mud and gravel.
Turritella terebra, Linn. Off Marsden and Seaham, 35 fa. ; muddy sand.
Scalaria Trevelyana, Leach : mc. Off Redcliff and Robin Hood's Bay, 30-35 fa. ; gravelly.
Actis ascaris, Turton : r. Off Scarborough, 17 fa. ; sandy.
 * *Odostomia rissoides*, Hanley : r. Off Hawthorn, 20 fa. ; sandy gravel.
 * ——— *acuta*, Jeff. : mr. Off Hartlepool and Scarborough, 25-35 fa. ; muddy sand and gravel.
 ——— *unidentata*, Mont. : r. Off Hawthorn, 20 fa. ; sandy gravel.
 ——— *obliqua*, Alder : r. Off Marsden, 35 fa. ; muddy sand.
 * ———, var. *Warrenii*, Thompson. Off Hawthorn.
 ——— *indistincta*, Mont. : mc. Off Robin Hood's Bay, 30 fa. ; gravelly.
 ——— *interstincta*, Mont. : r. Off Castle Eden, 20 fa. ; gravelly.
 ——— *spiralis*, Mont. : mc. Robin Hood's Bay, 30 fa. ; gravelly.
 ——— *lactea*, Linn. : mc. Redcliff, 30 fa. ; gravel and dead shells.
 * ——— *acicula*, Phil. : mc. Off Hawthorn and Scarborough, 20-25 fa. ; sandy gravel.
Stilifer Turtoni, Brod. : mr. Off Sunderland and Seaham, 20-35 fa. ; on spines of *Echinus pictus*.
Eulina distorta, Desh. : c. Off Hawthorn, 20 fa. ; sandy gravel.
 ———, var. *gracilis*. With the above.
 ——— *bilineata*, Alder : mc. Off Seaham and Hartlepool, 35 fa. ; muddy sand.
Natica islandica, Gmel. : r. Off Redcliff, 30 fa. ; gravel and dead shells.
 ——— *grænländica*, Beck : r. 20 miles off Sunderland, 45 fa. ; muddy sand.
 ——— *Alderi*, Forbes : mc. Small, in most of the gatherings.
 ——— *Montacuti* (*Montagu*), Forbes : mr. In a few of the gatherings.
Velutina lævigata, Penn. : mr. Off Robin Hood's Bay, 30 fa. ; gravel and zoophytes.
Aporrhais pes-pelecani, Linn. : mc. Off Marsden and Sunderland, 33-45 fa. ; muddy sand.
Buccinum undatum, Linn. Obtained with the above, the shells thin and small with high ridges.
Trophon truncatus, Ström : mc. Redcliff and Robin Hood's Bay, 30-35 fa. ; gravelly.
Fusus gracilis, Da Costa : mc. 7 miles off Marsden, 30 fa. ; muddy sand.
 ——— *antiquus*, Linn. : mc. With the above, mostly small, some large.
 ——— *propinquus*, Alder : mr. Off Marsden, 33 fa. ; muddy sand.
Nassa incrassata, Ström : mc. Hawthorn and Redcliff, 20-30 fa. ; sand and gravel.
Defrancia linearis, Mont. : mc. Redcliff, 30 fa. ; gravel and dead shells.
 * ——— *purpurea*, Mont. Obtained with the above.
Pleurotoma brachystoma, Phil. : mr. Off Marsden, 33 fa. ; muddy sand.
 ——— *turricula*, Mont. : mc. Off Redcliff, 30 fa. ; gravel and dead shells.
 ——— *Trevelyana*, Turton : mc. Off Robin Hood's Bay, 30 fa. ; gravel and zoophytes.
Cypræa europæa, Mont. : r. Dead shell in several gatherings.
Cylichna umbilicata, Mont. : mc. Castle Eden and Redcliff, 20-30 fa. ; gravelly.
 ——— *cylindracea*, Penn. : c. With the above.
 * *Utriculo mammillatus*, Phil. : mr. With the above.
 ——— *truncatulus*, Brug. : mc. Off Sunderland and Redcliff, 30-45 fa. ; muddy sand and gravel.
 ——— *obtusus*, Mont. : r. Off Sunderland, 45 fa. ; muddy sand.
 * *Actæon tornatilis*, Linn. : mc. All small, none more than $\frac{1}{4}$ inch, off Hawthorn 20 fa. ; sandy gravel.
Philine scabra, Müll. : mr. Off Marsden, 33 fa. ; muddy sand.

PTEROPODA.

- * *Spiralis retroversus*, Flem. : r. 5 miles off Redcliff, 30 fa. ; gravel and dead shells.

Subclass ENTOMOSTRACA.

Order COPEPODA.

Calanus finmarchicus (Gunner). Occurs in almost every dredging.

*— *longiremis* (Claus). One specimen found in a depth of 35 fa., off Robin Hood's Bay.

Dias longiremis, Lilljeborg. Abundant in many dredgings, and occurred more or less in all.

Temora longicornis (Müller). Occurred in most of the dredgings.

Isias clavipes, Boeck. In a depth of 35 fa., off Robin Hood's Bay.

Centropages hamatus (Lilljeborg). Found in many of the dredgings.

Cyclops littoralis, Brady. In a depth of 45 fa., 20 miles east of Sunderland.

Thorellia brunnea, Boeck. Off Robin Hood's Bay and Staiths, 25–35 fa.

Cyclopsyllus elongatus, nov. gen. et sp. In a depth of 27 fa., off Hawthorn; sandy bottom.

**Misophria pallida*, Boeck. In company with the preceding species.

Lophophorus insignis, nov. gen. et sp. One specimen taken in the same dredging as the preceding.

Longipedia coronata, Claus. Abundant in almost every dredging.

Ectinosoma curticornis, Boeck. Almost always in company with the preceding, and equally abundant; both species prefer sandy ground.

*— *Sarsii*, Boeck. Off Robin Hood's Bay, 35 fa.

— *erythrops*, nov. sp. In depths of 20–35 fa., off Hartlepool, Red Cliff, Staiths, and Robin Hood's Bay; but always scarce.

— *tenuis*, nov. sp. Off Hawthorn, 27–37 fa.

Zosime (?) *fusiformis*, nov. sp. Off Red Cliff, 35 fa.

— *spinulosa*, nov. sp. Off Hartlepool.

**Bradya typica*, Boeck. Four specimens, off Hartlepool; sandy bottom.

Spio brunnea, nov. gen. et sp. Off Hawthorn, 27 fa.; sandy bottom.

**Amygone falcata*, Norman. Off Marsden, 25 fa.; off Robin Hood's Bay, 35 fa.

— *longimana*, Claus. One specimen, taken off Hawthorn, 27 fa.

*— *sphærica*, Claus. One specimen, off Red Cliff, about 35 fa.

Pterothrix sordida, nov. gen. et sp. 20 miles off Sunderland, 45 fa.; muddy sand: and 5 miles off Hartlepool; sand.

Tetragoniceps longiremis, nov. gen. et sp. In 30 fa., off Staiths and Robin Hood's Bay.

**Stenhebia rostrata* ? (Claus). In 35 fa., off Red Cliff and Robin Hood's Bay.

— *hispida* (Norman). Off Marsden, 30 fa.

— (?) *ima*, Brady. Off Marsden, Seaham, Staiths, and Red Cliff, 20–30 fa.

**Ameira longipes*, Boeck. 20 miles off Sunderland, 45 fa.; and off Staiths, 35 fa.

— *curticornis*, nov. sp. Off Marsden, 30 fa.; 20 miles off Sunderland, 45 fa.

Idya furcata (Baird). Occurred more or less commonly in all the dredgings.

Delavalia reflexa, nov. sp. 5 miles off Hartlepool; sandy bottom.

— *robusta*, nov. sp. Off Staiths and Robin Hood's Bay, 30–35 fa.

Laophonte dubia, nov. sp. Off Marsden, 30 fa.; off Hartlepool.

— *Hodgii*, Brady. Off Hawthorn, 27 fa.; and off Hartlepool.

Cletodes pectinata, nov. sp. Off Sunderland, Seaham, Hartlepool, Red Cliff, and Robin Hood's Bay, in depths of 20–45 fa.

— *propinqua*, nov. sp. Off Marsden, 25 fa.

— *longicaudata*, nov. sp. 5 miles off Hartlepool; sandy bottom.

— *subnigra*, nov. sp. Off Robin Hood's Bay, 35 fa.

Harpacticus chelifer (Müller). Off Marsden, 25 fa.; muddy sand.

— *crassicornis*, nov. sp. Off Robin Hood's Bay, 35 fa.

Zaus ovalis (Goodsir). Off Staiths and Red Cliff, 30–35 fa.

Alteutha bopyroides, Claus. Common in all the dredgings.

Thalestris longimana, Claus. Dredged off Scarborough.

— *helyolandica*, Claus. 6 miles off Hawthorn, 27 fa.

— *rufocincta*, Norman. Off Hawthorn and Red Cliff, 27–35 fa.

**Dactylopus flavus*, Claus. Off Hawthorn, Red Cliff, Staiths, and Robin Hood's Bay, 27–35 fa.

— *tisboides*, Claus. Off Red Cliff and Robin Hood's Bay, 30–35 fa.

Dactylopus tenuiremis, nov. sp. 20 miles off Sunderland, 45 fa.; and off Red Cliff, Staiths, and Robin Hood's Bay, 30-35 fa.

— *nanus*, nov. sp. 20 miles off Sunderland, 45 fa.; muddy sand.

— *cinctus*, Claus. Off Red Hill, 35 fa.

Rhizothrix curvata, nov. gen. et sp. Off Robin Hood's Bay, 35 fa.

Jurinia minuta, nov. sp. Off Hawthorn, 27 fa.

✓ *Cyclopicera nigripes*, nov. sp. In many dredgings, 3-5 miles off shore, in depths of 20-35 fa.

* *Notodelphys ugilis*, Thorell. 1 specimen, off Hawthorn, 27 fa.

Lichomolgus fucicolus (Brady). In several dredgings from Marsden to Scarborough, 20-35 fa.

— *liber*, nov. sp. Off Marsden, Scarborough, and Hawthorn, 20-27 fa.

— *Thorollii*, nov. sp. Off Marsden, Hawthorn, and Robin Hood's Bay, 20-35 fa.

✓ * *Artotroga orbicularis*?, Boeck. Off Red Cliff, Staiths, and Robin Hood's Bay, 20-35 fa.

✓ *Dyspontius Normani*, nov. sp. 3 specimens taken, 6 miles off Hawthorn, 27 fa.; sand.

✓ *Solenostoma scutatum*, Brady and Robertson. Off Red Cliff, Staiths, Robin Hood's Bay, and Hawthorn, 27-35 fa.

✓ *Ascomyzon calvum*, nov. sp. Off Staiths, 30 fa.

✓ — *ornatum*, nov. sp. Off Scarborough and Robin Hood's Bay, 16-35 fa.

The number of Copepoda noted in this list is 63, of which 28 are new to science, and 11 (marked here with an asterisk) are hitherto unrecorded as British species. It is but right, however, to add that several of these, though undescribed, were previously known to us. Still the result of the dredging in this department is extremely interesting, more especially in the considerable number of new species which it has brought to light belonging to the curious groups called by Thorell Pæcilostoma and Siphonostoma. The list of marine Copepoda published by Mr. Brady in 1872, in the 'Natural-History Transactions of Northumberland and Durham,' and including all then known as inhabiting the shores of those two counties, both littoral and pelagic, comprised only 49 species; so that our present list of 63 species taken over an area of similar extent, and from dredged material only, must, we think, be looked upon as highly satisfactory.

The dissection and delineation of these minute creatures is extremely tedious, and we have not as yet been able to complete the work so far as to warrant us in giving descriptions of the various new species.

On the Polyzoa, Hydrozoa, and Spongozoa. By the Rev. A. M. NORMAN, M.A.

POLYZOA.

Scrupocellaria scruposa (Linn.).

— scabra (Van Ben.).

Cellularia Peachii, Busk.

Menipea ternata (Ellis & Sol.).

Bugula avicularia (Pallas).

— purpurotineta, Norman.

— flabellata (J. V. Thompson).

— Murrayana (Bean).

— fruticosa, Packard.

Frustra foliacea, Linn.

— truncata, Linn.

Carbasea papyrea (Pallas).

Gemellaria lorculata (Linn.).

Membranipora pilosa (Linn.).

— Flemingii, Busk.

Lepralia reticulata, Macg.

— auriculata, Hassall.

— concinna, Busk.

— linearis, Hassall.

— ciliata (Linn.).

— nitida (Fabr.).

— Peachii, Johnst.

— ventricosa, Hassall.

Cellepora avicularis, Hincks.

— ramulosa, Linn.

— dichotoma, Hincks.

Crisia eburnea (Linn.).

— denticulata (Lamk.).

Crisidia cornuta (Linn.).

HYDROZOA.

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|--|--|
| Hydractinia echinata (<i>Fleming</i>). | Sertularella polyzonias (<i>Linn.</i>). |
| Eudendrium ramosum (<i>Linn.</i>). | — tenella, <i>Alder</i> . |
| Tubularia indivisa, <i>Linn.</i> | Diphasia rosacea (<i>Linn.</i>). |
| — coronata, <i>Abildgaard</i> . | — attenuata, <i>Hincks</i> . |
| Clytia Johnstoni (<i>Alder</i>). | — fallax (<i>Johnston</i>). |
| Obelia geniculata (<i>Linn.</i>). | — tamarisca (<i>Linn.</i>). |
| — longissima (<i>Pallas</i>). | Sertularia filicula, <i>Ellis & Sol.</i> |
| Campanularia Hincksii, <i>Alder</i> . | — abietina, <i>Linn.</i> |
| — verticillata (<i>Linn.</i>). | — fusca, <i>Johnston</i> . |
| Lafoëa dumosa (<i>Fleming</i>). | Hydrallmania falcata (<i>Linn.</i>). |
| — pocillum, <i>Hincks</i> . | Thuiaria articulata (<i>Pallas</i>). |
| Calycella syringa (<i>Linn.</i>). | — thuia (<i>Linn.</i>). |
| Filellum serpens (<i>Massall</i>). | Plumularia pinnata (<i>Linn.</i>). |
| Coppinia arcta (<i>Dalyell</i>). | — setacea (<i>Ellis</i>). |
| Halecium halecinum (<i>Linn.</i>). | — Catharina, <i>Johnston</i> . |
| — Beanii, <i>Johnston</i> . | — frutescens, <i>Ellis & Sol.</i> |

SPONGOZOA.

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|------------------------------------|--|
| Grantia ciliata, <i>Johnston</i> . | Hymeniacion ficus (<i>Johnston</i>). |
| Polymastia robusta, <i>Bow.</i> | Halicondria panicea, <i>Johnston</i> . |
| — mamillaris (<i>Johnston</i>). | — virgea, <i>Bow.</i> , n. sp. |
| Microciona fictitia, <i>Bow.</i> | Isodictya lurida, <i>Bow.</i> |
| Hymeniacion coccineus, <i>Bow.</i> | Spongionella pulchella (<i>Sowerby</i>). |
| — virgulatus, <i>Bow.</i> , n. sp. | |

Among the Polyzoa is *Bugula fruticosa* of Packard*, first described by Packard from Labrador, and subsequently by Smitt from Spitsbergen and Finmark, but not previously found in our seas. I entirely agree with Smitt in considering it to be a form, though a very interesting one, of *Bugula Murrayana*. It differs from the ordinary state of that species in being more delicate in structure, the branches and branchlets much narrower, commonly with only one or two rows of cells, and the cells armed with only few spines, typically one only at the superior and outer angle.

The Hydrozoan *Lafoëa pocillum*, Hincks (Hist. Brit. Hydr. Zooph. p. 204, pl. xi. fig. 2), is a recently described species, which has not previously been found on the east coast. Its known habitats were Labrador and Oban.

Two Sponges are pronounced by Dr. Bowerbank to be undescribed, and subjoined will be found descriptions which have been drawn up by that gentleman. He has named the species *Hymeniacion virgulatus* and *Halicondria virgea*.

“*Halicondria virgea*, Bowerbank, n. sp.

“Sponge massive, sessile, more or less nodulous. Surface smooth. Oscula simple, dispersed. Pores inconspicuous. Dermal membrane abundantly spiculous; tension-spicula acute, very long and slender, numerous, fasciculated; retentive spicula bidentate, equianchorate, large, few in number, and the same form, small and numerous. Skeleton—rete more or less regular; fibres rarely multispiculous, seldom more than trispiculous; areas large; spicula subfusiformi-acuate, basally spinous. Interstitial membranes spiculous; spiculæ same as those of the dermis; tension-spicula of rare occurrence; retentive spicula rather numerous.

* *Menipca fruticosa*, Packard, List of Labrador Marine Animals, p. 9, pl. i. fig. 3, = *Cellularia quadridentata*, Lovén, MS. 1834 (*vide* Smitt), = *Bugula Murrayana* forma *quadridentata*, Smitt, Kritisk Förteckning öfver Skandinaviens Hafs-Bryozoer, p. 292, pl. xviii. figs. 23–27.

“Colour, in the dried state, dark purple.

“*Hab.* Coast of Durham, 30 to 35 fathoms (*Rev. A. M. Norman*).

“Examined in the dried state.”

“*Hymeniacidon virgulatus*, Bowerbank, n. sp.

“Sponge virgultose, slender. Surface smooth. Oscula simple, dispersed. Pores inconspicuous. Dermis abundantly spiculous; spicula acute, slender, same size as those of the skeleton, dispersed. Skeleton rather open and cavernous; spicula acute, long and slender.

“Colour, in the dried state, cream-white.

“*Hab.* Coast of Durham, in 20 to 30 fathoms (*Rev. A. M. Norman*).

“Examined in the dried state.”

Report on Observations of Luminous Meteors during the year 1874-75, by a Committee, consisting of JAMES GLAISHER, F.R.S., of the Royal Observatory, Greenwich, R. P. GREG, F.G.S., F.R.A.S., C. BROOKE, F.R.S., Prof. G. FORBES, F.R.S.E., WALTER FLIGHT, D.Sc., F.G.S., and Prof. A. S. HERSCHEL, F.R.A.S.

THE operations of the Committee during the past year were restricted to collecting and recording occasional observations of meteors, without renewing periodical requests to observers to watch for the meteor-showers of best known dates and characters of annual recurrence. The list of collected accounts of luminous meteors is therefore less ample, but not less remarkable and important, than in former years. The falls of aërolites (as will be seen in the concluding Appendix) which have been placed on record since the last Report are more than ordinarily numerous and interesting. A mass of meteoric iron fell on the 24th of August, 1873, at Marysville, California, and is one of the very few metallic irons the actual descent of which has been witnessed. In the following month, on the 23rd of September, 1873, a number of meteorites fell near Khairpur, in the Punjab; and it is also related that in the month of December in the same year, while the British army halted on the banks of the Prah, an aërolite fell in the market-place of Coomassie, and was regarded by the native population as a portent of evil. On the 14th and 20th of May, 1874, aërolites fell at Castalia, in North Carolina (U.S.A.), and at Virba, in Turkey, the last of which was noted in the last Report; and examinations of both of these meteorites have now been made. The last stone-fall of the past year took place near Iowa (U.S.A.) on the 12th of February, 1875; and of this meteorite also special analyses were made in the United States, of which some unforeseen results were lately announced by their author, Mr. A. W. Wright, as will be described in the last part of this Report. In comparison with meteoric irons, it was found that this meteorite gave off, by gentle heating in a vacuum, carbon oxides as occluded gases in greater abundance than hydrogen, which is the principal gaseous constituent of meteoric irons; and it was observed that the electric spectrum of the gaseous products resembled very closely that found most frequently in comets, and even in one condition to exhibit most distinctly the green nitrogen line coinciding with a conspicuous line in the sun's corona. A meteor of unusual size appeared over Victoria, in Australia, on the 14th of