

Ti 706

were dredged up near each other, there is probably a deposit of bones at the spot whence they were obtained, similar to that of the east coast. Their discovery is of very great interest, and I am only sorry that I can add so little to their elucidation.

"J. Gwyn Jeffreys, Esq.
25 Devonshire Place."

"I am, my dear Sir,

Yours truly,

"W. BOYD DAWKINS."

P.S. I may add that, before I left Shetland, Dr. Saxby kindly undertook, at my suggestion, to ascertain whether mammalian bones deposited in the sea would be eroded, and by what means.

Preliminary Report on the Crustacea, Molluscoida, Echinodermata, and Cœlenterata, procured by the Shetland Dredging Committee in 1867. By the Rev. ALFRED MERLE NORMAN, M.A.

THE further investigation is carried on in the Shetland seas, the more deeply interesting does the study of the fauna of that portion of our country become. Dredging in the depths of those northern waters, in which there is almost invariably a heavy sea,—at one time sweeping across the Atlantic, at another rolling away from Greenland, at another (as was the case for many weeks together during the present summer) running from Spitzbergen and the ice-floes of the Arctic Ocean, accompanied by a keen, cutting north-east wind,—is not altogether pleasant work for the naturalist. Yet, trying and difficult though the dredging may be, there is none to be compared with it in the British Islands; and every fresh summer your Dredging Committee have spent in investigating the marine fauna of Shetland, they have returned home only the more convinced of the greatness of the field of research which remains to be explored. Every square mile of the sea seems to have treasures to give up unknown to us before; and the extent of the riches which lie there, one, two, three, four hundred fathoms deep, will perhaps never be known in our day. The extreme interest which attaches to the Shetland sea is the circumstance that it is the trysting place of the northern and southern faunas: the warm influence of the Gulf-stream impinging on the western coast coaxes on many a species of sunnier climes to extend its migration northwards, while the cold winds and waves which issue from the Pole and come drifting round the North Cape and Loffoden Isles, account for the many Arctic forms which, stunted in size and numerically scarce, are yet able in the equable temperature of the abyss of the Shetland waters to hold out against those southern influences so detrimental to their constitutions. The product of the dredging of the present year promises a rich harvest of additions to the British fauna; and in those classes of which I more especially undertake the examination I have already found most important results; at the same time the few notes which at this time are given must be only regarded in the light of a preliminary report. The passing of every specimen under the microscope, as must be done in the determining of all the smaller Crustacea, Hydrozoa, &c., and the dissection and mounting of every specimen of the former not at once recognized, is necessarily a work of time; and very much remains to be examined, especially among the Copepoda, Ostracoda, &c.

1868

Norman

CRUSTACEA.

First we will take the Crustacea. In my Report of Hebridean Dredging last year, I traced the genus *Xantho* northwards as far as the Isle of Mull; and I have now to record the occurrence of a young specimen of *X. rivulosa* some 350 miles further north, off the Island of Balta. A fine undescribed *Pagurus* is perhaps nearest allied to *P. cuanensis*. The hand is remarkably broad, the finger especially so, and is furnished with three much elevated ribs, one at each margin, and the third central; the margins are denticulately spined, and the wrist and upper edge of the second and third legs are also spinous; the species may be named *Pagurus tricarinatus*. Among the Mysidea are two genera not yet recorded as British. *Nematopus serratus*, G. O. Sars, differs from *Mysis* chiefly in the structure of the abdominal feet and of the central tail-plate; the species, when alive, is a beautiful little thing, having its white body prettily painted with red, and the eyes, which are large and kidney-shaped, of a brilliant ruby colour. The other genus is one which I would establish (*Gastrosaccus*) for the reception of the *Mysis sancta* of Van Beneden (= *M. spinifera*, Gües); the marsupial pouch, instead of being an appendage, as in *Mysis*, of the last two thoracic legs, is attached to the last thoracic and first abdominal feet; and the first abdominal feet in the female, instead of being the smallest, are the most fully developed, and consist of an elongated basal joint and two short branches; while in the male the third abdominal foot is the more especially developed sexual organ. *Gastrosaccus sanctus*, though now first recorded, has been for many years in my collection, and was first sent to me by Mr. Edward, of Banff, who procured it in the Moray Firth. *Mysis flexuosa*, *Spiritus, vulgaris*, *Griffithsiae* and *Didelphys*; *Diastylis lamellata*, *Iphithoë serrata*, and *Lamprops rosea* were the remaining Stomapods.

Among the Amphipoda the difficult family Lysianassidæ is well represented by *Callisoma creata*, *Anonyx longicornis*, *longipes*, *minutus*, *obesus*, and *Hollællii* (= *denticulatus*, Bate), and by three additions to our fauna,—*Anonyx nanoides* of Lilljeborg, procured among Laminariæ at Lerwick and at Hillswick, *Anonyx tumidus* of Kroyer, found in a sponge dredged thirty-five miles N.N.W. of Unst in 170 fathoms, and *Stegocephalus ampulla*, Phipps. This last truly arctic species was dredged in 60–70 fathoms in St. Magnus Bay; the single specimen procured is, as compared with Spitzbergen examples, for which I am indebted to Professor Lovén, as a pigmy to giants, bearing about the same proportionate size to its northern brethren as do the *Leda pectinata*, taken in the same spot, to their Greenland relatives. Indeed, as a rule, those arctic Amphipods, which occur also on the British coast—for example, *Gammarus locusta* and *Anathilla Sabini*—attain a much greater development within the Arctic circle. The *Anonyx tumidus*, however, of Shetland, shows no difference of size from Spitzbergen specimens. It may be questioned, however, whether this is a truly arctic species; for although long known in the north, it has recently been recorded by Professor Heller from the Adriatic Sea; and its discovery this year in Shetland gives an intermediate locality. The fact that it is an essentially parasitic species, which is never found except either in the branchial sac of Tunicata or in sponges, and that it is also an inhabitant of very deep water, may have led to its having been hitherto overlooked.

Passing over all other Amphipoda hitherto known to our fauna, I have to announce the following important additions:—a species allied apparently to

