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1879.

SARCOPTIDÆ.

DERMALEICHUS.

One example of this genus of bird-mites, taken from *Stercorarius longicaudatus*, lat. 82° 27′, 8th July, 1876, bears the name "*D. stercorarinus*, Murray" (No. 12).

POSTSCRIPT. March 1878.

Mr. Butler has called my attention to the probability that *Mamestra*(?) *Feildeni* (*antè*, p. 112) is identical with *Anarta Richardsoni*, Curtis (*Hadena Richardsoni*, Curtis, in Appendix to Ross's Voyage,= *algida*, Lefebvre,=*septentrionis*, Walker), a widely-spread Arctic insect.

I was inclined to this opinion when working out the insects; but the contour of the wings appeared too different; though this is perhaps owing to the flattened condition of the type. The markings also do not fully accord with those of any specimen of *Richardsoni* seen by me; but the species is very variable. Having, however, been permitted to denude the anal parts in the type of *septentrionis* and in some examples of *Richardsoni*, I feel compelled to accept the opinion that *Feildeni* must be considered only a variety of *Richardsoni*.

The larva found by the Expedition cannot belong to this species; or, if it does, *Richardsoni* cannot be an *Anarta*.—R. M'L.

Preliminary Notice on the Surface-Fauna of the Arctic Seas, as observed in the recent Arctic Expedition. By EDWARD L. MOSS, M.D., late Surgeon H.M.S. 'Alert.' Communicated by Dr. J. MURIE, F.L.S.

[Read November 15, 1877.]

THE seas to the north of the Greenland settlements are subject to such varying conditions at different seasons of the year, that their surface-fauna cannot be supposed to be very constant. But, taking them as we found them, they may, for description's sake, be divided into three zoological regions:—

First. A district in the latitude of Melville Bay, temporarily, at least, monopolized by Peridinea.

Second. A north-water region, including the "north water" of

the whalers and all the other Polynias * between it and the perennial polar ice, and inhabited by Pteropods, Appendicularia, Chætognatha, and free Hydrozoa.

And, finally, a subglacial region tending, so far as surface-life is concerned, to be azoic.

Observations in the two former regions were of course limited to the voyages northward and southward; and, moreover, the towing-net was rarely available, for the ship when not surrounded by ice was under steam and making the most of her opportunity. But in the subglacial region observations, though limited to the neighbourhood of winter-quarters, were spread over a year, and were regularly made every fortnight except when sledging-work interfered. Water for examination was obtained through the "fire-hole," from beside the tide-float, from holes made to ascertain the thickness of the ice, and later in the season from cracks and fissures in the floes. It was taken from various depths, up to 47 fathoms, by means of "Buchanan's bottle;" and after being inspected with a strong light, was filtered in a siphon-tube through a plug of cotton small enough to be subsequently searched with a half-inch objective. A small tow-net with a weight attached near it was worked under the floes by raising and lowering it; but nevertheless, excepting occasional Copepoda, the only animal organism captured in winter-quarters was a phosphorescent Pleurobranch only 3 millimetres in diameter, caught on 30th November, 1875, in water of temperature 28°·2 Fahr.

While assisting Lieutenant Egerton in making temperature-soundings in Robeson Channel on 28th May, 1876, I observed two small *Beroës* sweep past, with the tide ebbing north, under the ice; but the water probably came from the south, as its temperature was 29° F. While running the gauntlet through Robeson Channel on our return, several *Nanomiæ* were seen, like coral necklets, in the water, and one was captured and sketched for future identification. In Discovery Habour medusiform gonophores of an undetermined Hydroid were obtained: they had six radial canals and numerous simple marginal tentacles. There, too, attached to uprooted Laminarians

* A term derived from the Russian, meaning a pool or lane of water in the ice, such as occurs in the breaking up of the ice in the Neva. Arctic voyagers apply it not only to the supposed "Open Polar Sea," but to express wide, open stretches of water in the frozen sea.—[Ed.]

we obtained a *Dendronotus*, with the right tentacle rudimentary, and an *Eolis**.

In Bessel's Bay the most northern specimens of *Oikopleura* were captured. These creatures were very common in Smith's Sound. In Payer Harbour, lat. 78° 44′ N., on 3rd August, 1875, as many as a dozen at a time could be counted floating past in the intensely green water, each enveloped in its "Haus." They were unusually large, measuring as much as 2·5 centims. in length, and the "Haus" about 5 centims. in diameter. The brilliant scarlet contents of their stomachs made them very conspicuous objects. The scarlet matter consisted of various-sized homogeneous globules, identical in appearance with the yelk-substance of certain nidimental ribbons common in the surface-water of Smith's Sound. One specimen of *Fritillaria* was obtained off Cape Isabella. Both these genera of Appendicularia are new to Arctic seas, though *Oikopleura* was originally discovered in Behring Straits.

The north water of Smith's Sound also abounds in *Clio borealis*, preying on *Limacina* and its fry. The *Clio* fry were belted with one interrupted and two continuous circlets of cilia.

Sagittæ were also common both there and in Baffin's Sea. They differed so slightly from the universal "*bipunctata*" of Quoy and Gaimard, that I include them in that species. They were, however, spineless except for the setæ on the lateral fins. In southern *Sagittæ* the spines, as Mr. Busk observes, are very easily detached, and are often absent in preserved specimens; but amongst the several large specimens captured uninjured in Melville Bay, I failed to find either spines or the bulbs from which they usually spring. Two varieties were captured, differing only in the shape of the caudal fin: in the one it was continuous, in the other interrupted at the tip. The fins are sometimes different on either side of the same animal.

It is worthy of remark that the rays of the fins occur in double series closely applied to each other; one set is sometimes seen inclined or bent in a direction not parallel to those above or below. I have since seen this double character in *Sagittæ* from the South Pacific. The cephalic hooklets were twelve in number. The anterior denticles of Krohn were four to six, and the posterior eighteen to twenty. The corneal cells surrounding the ophthalmic pigment-points formed

* Since determined as *Eolis salmonacea*, Couthouy, by Mr. Edgar A. Smith ('Annals and Magazine Nat. Hist.' 1877, xx. p. 140).

a continuous circle, and were not broken into three groups as in the *Sagittæ* described by Huxley.

The Peridinea of Melville Bay were of at least three species; without reference I can identify but one of them, namely *Ceratium tripos*. The others were comparatively rare; but this Infusorian was present in such extraordinary abundance that the cotton filters were generally choked in a few minutes. The most northern specimens were met with at our turning-point in Buchanan Strait.

The most northern living Radiolarian was an *Acanthometrina* captured in Davis Straits; but empty skeletons of *Dictyocha* were occasionally caught by the cotton filter in Baffin's Sea; and Radiolarian fragments were not uncommon in the "floeberg dust" of the far north. A Gregarina, apparently *Pyxinia*, was found entangled in a mass of awned Diatomaceæ in Allman Bay.

In connexion with the absence of surface-life under the ice, I may observe that a *Sagitta* and two Copepods exposed in a cell under the microscope and allowed to freeze were killed in a few minutes; death occurred before the more salt parts of the water crystallized. No living animal organism of any kind was found in the polar ice; but Diatomaceæ with endochrome still retaining its colour were once or twice met with in the floebergs, and were not uncommon in the large white flocculi set free to sink when the ship "rammed" her way amongst the more southern floes.

Postscript. April 1878.

The specimens of Copepoda referred to have since been named by the Rev. A. M. Norman, and the Discovery-Harbour Medusa has been placed in a new genus by Professor Allman. For both see Sir George Nares's Appendix*.

The polar *Pleurobranchia* was a young specimen of *P. rhododactyla*, Agassiz.

The *Nanomia* was probably *N. cara*, A. Agassiz. Identification, however, depends only on the sketch; for the specimen bottled by Captain Feilden has fallen to pieces.

The Appendicularia are:—

Oikopleura rufescens, Fol.
Fritillaria furcata, var., Fol.

The Melville-Bay Peridinea include:—

Ceratium tripos, var. γ (slender and unserrated), Claparède and Lachmann.

* Narrative of a Voyage to the Polar Sea, 1875–76.

Ceratium divergens, Claparède and Lachmann.
Peridineum Michælais, Ehrenberg.
P. acuminatum, Ehrenberg.
Dinophysis norwegiana, Claparède and Lachmann.

There are also "resting-spores" of Peridinea in reticulated cases and some empty shells of *Tintinnus*.—E. L. M.

On the Annelids of the British North-Polar Expedition.

By W. C. M'Intosh, M.D., LL.D., F.R.S., F.L.S.

[Read November 15, 1877.]

Captain Feilden, one of the naturalists of the late Arctic Expedition under Sir George Nares, kindly placed in my hands a small collection of Annelids dredged between latitudes 79° and 82° 30′ N. In glancing over the twenty forms in this collection it is found that eight species (or forty per cent.) are not mentioned in the paper (recently communicated to the Society) on the Annelids procured by Dr. Gwyn Jeffreys, F.R.S., when dredging in H.M.S. 'Valorous' in Davis Strait. Two of these, however, are known to inhabit the Gulf of St. Lawrence, where they were lately dredged by Mr. Whiteaves. No species new to science is present; and, with one exception, all have been previously entered in the catalogue of the Greenlandic fauna*.

The majority of the species represented in the collection have a very wide range in northern waters, many being common to the British seas and the shores of the North Atlantic generally, and on the American side stretching from the Gulf of St. Lawrence north-eastward to the polar ice beyond Smith's Sound. With two exceptions all the species occur in the seas of Spitzbergen, and one of these is Icelandic, while the second is a somewhat doubtful form. This distribution is therefore clearly marked; but it is well to bear in mind that the Annelids of the North-American shores have been only partially investigated, and that a critical revision, by one familiar with North-European forms, of what has been accomplished in this respect is yet a desideratum. On the whole, the circumpolar Annelidan fauna would appear to present considerable uniformity in regard to species.

* Arctic Manual, 1875.