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To Miss Mary J Rathbun
with kind regards
from T. S.

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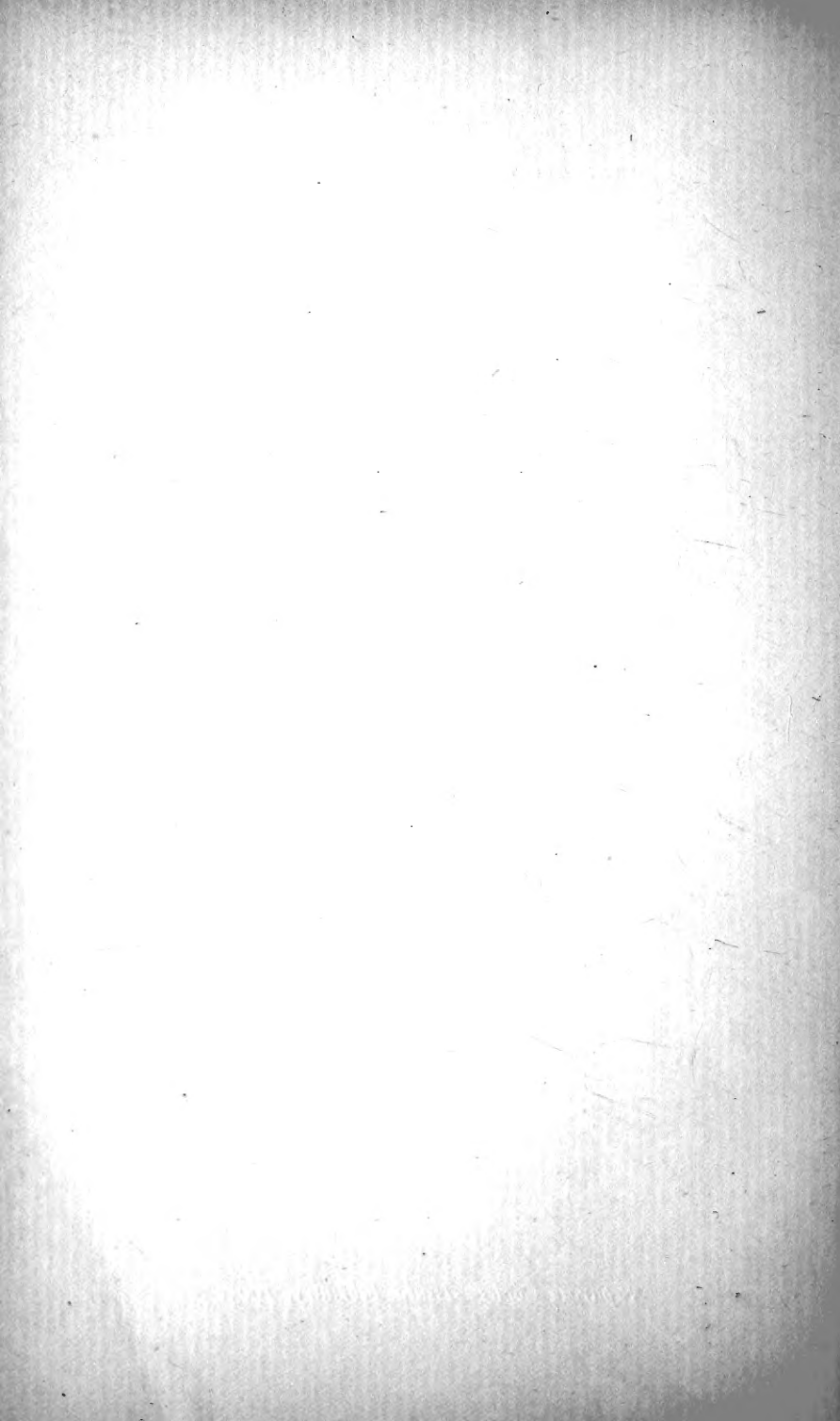
ON SOME ENTOMOSTRACA FROM THE
GULF OF ST. LAWRENCE.

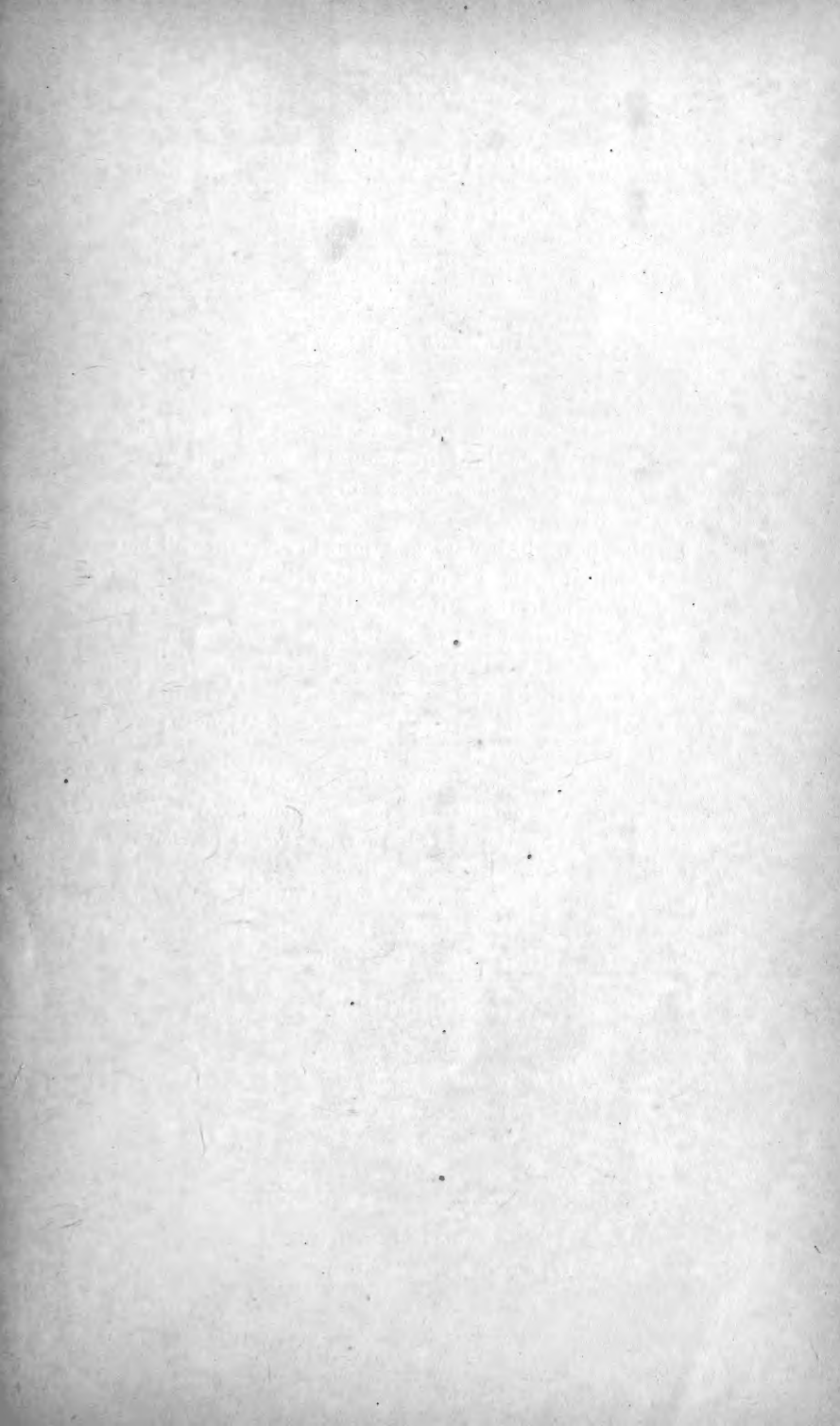
BY

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On Some Entomostraca from the Gulf of St. Lawrence.

By THOMAS SCOTT, LL.D., F.L.S.

PLATE II.

[Read 28th April, 1903.]

THE Entomostraca which form the subject of the following observations were obtained in some tow-net gatherings submitted to me for examination by my friend, Mr. Alexander Patience, of Glasgow.

The gatherings, which were contained in several small bottles, were all obtained by means of a towing net, and were probably collected at or near the surface of the water. One of them was collected off Griffins Cove in 1872, and another in Shediac Bay in 1873. The other gatherings were simply labelled, "Towing net, Gulf of St. Lawrence, 1873." They are all in fairly good preservation, notwithstanding the length of time they have been immersed in spirit.

This, though a small collection, is of special value from the interesting species contained in it, and though no new forms have been observed, the distribution of several of the species mentioned has been considerably extended.

The number of species observed in the collection is eighteen; fourteen of them belong to the Copepoda and four to the Branchiopoda. Their names are as follow:—

COPEPODA.

Fam. CALANIDÆ.

Calanus (?) *helgolandicus*, Claus.

Fam. PARACALANIDÆ.

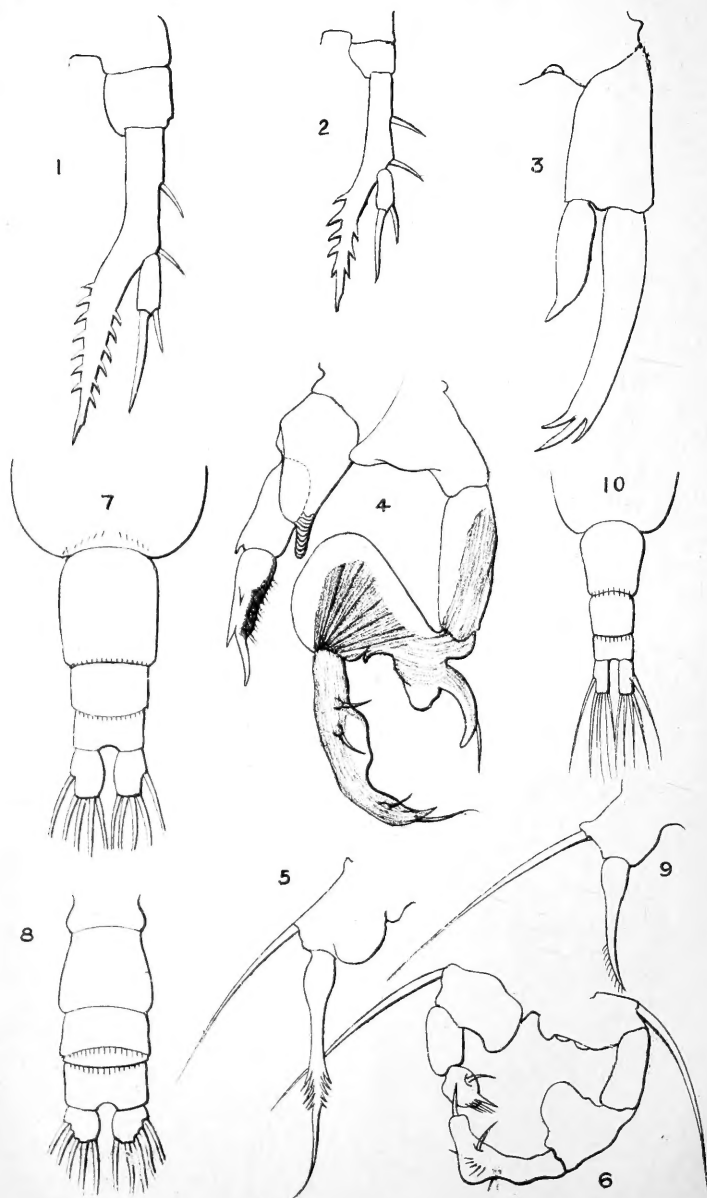
Paracalanus parvus, Claus.

Fam. PSEUDOCALANIDÆ.

Pseudocalanus elongatus, Boeck.

Fam. EUCHÆTIDÆ.

Euchæta (?) *marina*, Prestandrea.



EXPLANATION OF PLATE II.

Figure 1.—	<i>Eurytemora herdmani</i> ,	one of the 5th feet,	-	-	-	-	-	♀ × 154.
„ 2.—	„	„	small form,	-	-	-	-	♀ × 154.
„ 3.—	<i>Labidocera æstiva</i> ,	-	-	-	-	-	-	♀ × 135.
„ 4.—	„	„	-	-	-	-	-	♂ × 106.
„ 5.—	<i>Acartia giesbrechti</i> ,	-	-	-	-	-	-	♀ × 270.
„ 6.—	„	„	-	-	-	-	-	♂ × 216.
„ 7.—	„	„	abdomen,	-	-	-	-	♀ × 106.
„ 8.—	„	„	-	-	-	-	-	♂ × 106.
„ 9.—	„	<i>clausi</i> ,	one of the 5th feet,	-	-	-	-	♀ × 270.
„ 10.—	„	„	abdomen,	-	-	-	-	♀ × 79.

Natural size of the species mentioned above—

<i>Eurytemora herdmani</i> ,	large form,	-	-	♂ 1·61 m.,	♀ 1·52 mm.
„	„	small,	„	♂ 1·14 „	♀ 1·12 „
<i>Labidocera æstiva</i> ,	-	-	-	♂ 2·49 „	♀ 2·49 „
<i>Acartia giesbrechti</i> ,	-	-	-	♂ 1·29 „	♀ 1·52 „
„	<i>clausi</i> ,	-	-	♂ 1·00 „	♀ 1·00 „

Fam. CENTROPAGIDÆ.

Centropages hamatus (Lilljeborg).*Isias clavipes*, Boeck.

Fam. TEMORIDÆ.

Temora longicornis (O. F. Müller).*Eurytemora herdmanni*, I. C. Thompson and A. Scott.

Fam. PONTELLIDÆ.

Anomalocera patersoni, Templeton.*Labidocera æstiva*, Wheeler.

Fam. ACARTIIDÆ.

Acartia clausi, Giesbrecht.*Acartia Giesbrechti*, Dahl.*Tortanus discaudatus* (I. C. Thompson and A. Scott).

Fam. CYCLOPIDÆ.

Oithona similis, Claus.

BRANCHIOPODA.

Fam. ARGULIDÆ.

Argulus alosæ, Gould.

Fam. POLYPHEMIDÆ (Cladocera).

Evadne nordmanni, Loven.*Podon polyphemoides*, Leuckart.*Podon leuckarti*, G. O. Sars.

NOTES ON THE VARIOUS SPECIES.

Calanus (?) *helgolandicus*, Claus.—*Calani* were numerous in this collection, and were apparently all of the same species, but unfortunately they were nearly all more or less immature, so that among them all I did not find a single adult male; from a careful examination of the largest and most perfect of the specimens, however, I am inclined to ascribe them to the species mentioned above. *Calanus helgolandicus* has a close resemblance to *C. finmarchicus*, even in details of structure, so that without perfect specimens the two are easily confounded. Professor G. O. Sars, in some remarks on the distribution of the two forms, says that *C. finmarchicus* seems to be characteristic of the Arctic zone, being specially abundant between Greenland and Behring Island, whereas *C. helgolandicus* has

apparently a more southern range. The island of Anticosti, in the Gulf of St. Lawrence, is situated, roughly speaking, between the 49th and 50th degrees of North Latitude, and therefore considerably south of the Arctic Circle; but, on the other hand, the cold current which comes down the Labrador coast might carry the Arctic *C. finmarchicus* as far south as the Straits of Belle Isle, where the species could find an entrance into the Gulf of St. Lawrence. Still, keeping these contingencies in view, I am inclined to consider our *Calanus* as belonging to the more southern species.

Paracalanus parvus, Claus.—A male and one or two immature female specimens of this small Calanoid were obtained in the gathering collected off Griffins Cove. Though one of the smallest of the Calanoida, the species has a wide distribution, and it is interesting to find it in this collection. The identification of the species required the dissection of the only male specimen observed.

Pseudocalanus elongatus, Boeck.—Several specimens of this common and widely distributed species were obtained; they occurred in three of the samples.

Euchaeta (?) marina, Prestandrea.—This species was moderately frequent in the sample labelled "Off Griffins Cove, 1872," and one or two specimens were also observed in another sample collected in 1873. Most of the specimens were immature; no adult males were obtained, but there were one or two that had nearly reached the mature stage. Though I feel satisfied that the specimens obtained belong to *E. marina*, which is the only species they best agree with, the presence of adult males would have made identification of the species more certain.

Centropages hamatus, Lilljeborg.—This species occurred somewhat sparingly in at least two of the samples—in the sample collected off Griffins Cove and in that collected in Shediac Bay.

Isias clavipes, Boeck. A single specimen of *Isias* was obtained in the gathering collected off Griffins Cove in 1872. This appears to be a distinctly new station for the species.

Temora longicornis (O. F. Müller).—This occurred very sparingly in the samples from Griffins Cove and Shediac Bay, and in another labelled "Towing net, Gulf of St. Lawrence,

1873." It is a widely distributed form in the North Atlantic, and occurs sometimes in great abundance.

✓ *Eurytemora herdmani*, I. C. Thomson and A. Scott.*—A considerable number of specimens of this *Eurytemora* were obtained in a gathering collected by "towing net" in the Gulf of St. Lawrence in 1873; it also occurred in the samples from Griffins Cove and Shediac Bay. The species was described from specimens collected by Professor Herdman, of Liverpool, in the St. Lawrence, chiefly between Quebec and Rimouski, in August and September, 1897. Though Professor Herdman found the *Eurytemora* common between Rimouski and Quebec, it became scarcer to seaward, and none were obtained east of Anticosti Island. It would appear from this, that like the other members of the genus *Eurytemora*, the distribution of *E. herdmani* is limited to water that is more or less of a brackish character. Two forms of this species, a larger and a smaller, were obtained. The smaller differed from the larger and typical form by possessing slightly fewer spinules on the spines of the fifth foot of the female. For the purpose of distinguishing this small form it might be called variety *minor* (see Pl. II., figs. 1 and 2).

Anomalocera patersoni, Templeton.—A single example of this fine species was obtained in a gathering collected by towing net in the Gulf of St. Lawrence in 1873, but the exact locality is not given. It is a large and easily recognised species.

Labidocera aestiva, Wheeler.—Pl. II., figs. 3 and 4.—Two or three specimens of a *Pontella*-like form, which my son identifies as Wheeler's *Labidocera aestiva*, occurred in the gathering collected in Shediac Bay. The species is described by Professor Wheeler in Vol. XIX. of the Bulletin of the United States Fisheries Commission. Shediac Bay appears to be a new station for this species.

Acartia clausi, Giesbrecht.—Pl. II., figs. 9 and 10.—This species occurred very sparingly in the same gathering with the *Labidocera*, and in another collected off Griffins Cove. It was also observed in a third gathering, but the exact locality is not stated. *A. biflora* resembles somewhat closely the *Acartia*

* 1897. *Eurytemora herdmani*, Thompson and Scott, *Liverpool Biol. Soc.*, Vol. XII., p. 78, Pl. V., figs. 1-11.

clausi of Giesbrecht, but the spines of the female fifth feet are more slender and straight, or nearly so. In these Gulf of St. Lawrence specimens the spines of the female fifth feet, though moderately stout and curved, as in *Acartia clausi*, are proportionally rather more elongated than in typical specimens (see fig. 9).

Acartia Giesbrechti, Dahl. Pl. II., figs. 5-8.—A few specimens of this species—chiefly males—were obtained in the gathering from Shediac Bay. It resembles rather closely the *Acartia tonsa* of Dana, discovered by that naturalist in the South Pacific Ocean; but my son, to whom I am indebted for the identification of the species, points out that in the female *A. tonsa* each foot of the fifth pair ends in a spine, but in the female of *A. Giesbrechti* each foot of the fifth pair ends in a slender seta. The specimens were found in company with those of the *Eurytemora herdmani*, already mentioned, and as Dahl's specimens were obtained at the mouth of the River Tocantius, on the north-eastern coast of Brazil, the normal habitat of the species is probably estuarine rather than in the open sea.

Professor Wheeler has recorded *Acartia tonsa* as common at Wood's Hole. The occurrence of *Acartia Giesbrechti* in the Gulf of St. Lawrence adds considerably to the distribution of the species.

Tortanus discaudatus. (I. C. Thompson and A. Scott).*—A considerable number of specimens of this somewhat curious species were obtained, especially in a gathering labelled "Towing net, Gulf of St. Lawrence, 1873." Though present in gatherings collected off Griffins Cove and in Shediac Bay, the number observed was much fewer.

The species was described from specimens collected by Professor Herdman near the island of Anticosti, in the Gulf of St. Lawrence, and it was also found plentifully in plankton collected somewhat later by the same gentleman in Pugit Sound, on the Pacific Coast. The name *Corynura* was found by Dr. Giesbrecht to be already in use, and substituted *Tortanus* in its place.

* 1897. *Corynura discaudata*, Thomson and Scott, *Trans. Liverpool Biol. Soc.*, Vol. XII., p. 80, Pl. VI., figs. 1-11.; Pl. VII., figs. 1, 2.

Oithona similis, Claus.—This species occurred very sparingly in one of the gatherings mentioned above, along with *Tortanus discaudatus*. It is a widely distributed species, and is sometimes frequent in the British seas, where it is usually referred to under the name of *Oithona spinifrons*, and sometimes *O. helgolandica*, Claus. *Oithona similis* is recorded by Dr. Giesbrecht in his Report on the Copepoda obtained in the collections brought from the Antarctic by the German Expedition in the steam yacht "Belgica." The same author has also recorded the species from the Mediterranean and from Kiel.

Argulus alosæ, Gould.*—A single somewhat immature specimen of this *Argulus* was obtained in a small sample of Copepoda collected off Griffins Cove in 1872. This specimen, though not full grown, possesses the more important characteristics by which *A. alosæ* is distinguished, and I have no hesitation in ascribing it to that species. The specimen measures fully four millimetres in length, but the length of one full grown is, according to Wilson's description, seven and a-half millimetres.

The species appears to be confined to the coasts of North America, and is found on several kinds of fishes, but that on which it was first discovered by Dr. T. W. Harris is called the Ale Wife, *Clupea vernalis*, Mitchell (*Pomolochus pseudoharengus*, Wilson). Gould, who first described the *Argulus alosæ*, considered the *Clupea vernalis* to be identical with the European *Clupea vulgaris*, Cuv. (*C. alosa*, Lin.), better known to us by the name of Allis Shad; but Mr. C. B. Wilson, whose work is referred to above, and from which the information given here is chiefly obtained, says that this fish does not occur on the American coast, while the Ale Wife is quite common, and from it have been obtained most of the recent specimens of the *Argulus alosæ*. It may, however, be of interest to mention that, according to Day's British Fishes, Vol. I., page 235, "Ale Wife" is one of the names used by the Welsh fishermen to designate both the Allis (or Allice) and the Twaite Shads.

Mr. J. F. Whiteaves reports the occurrence of an *Argulus*

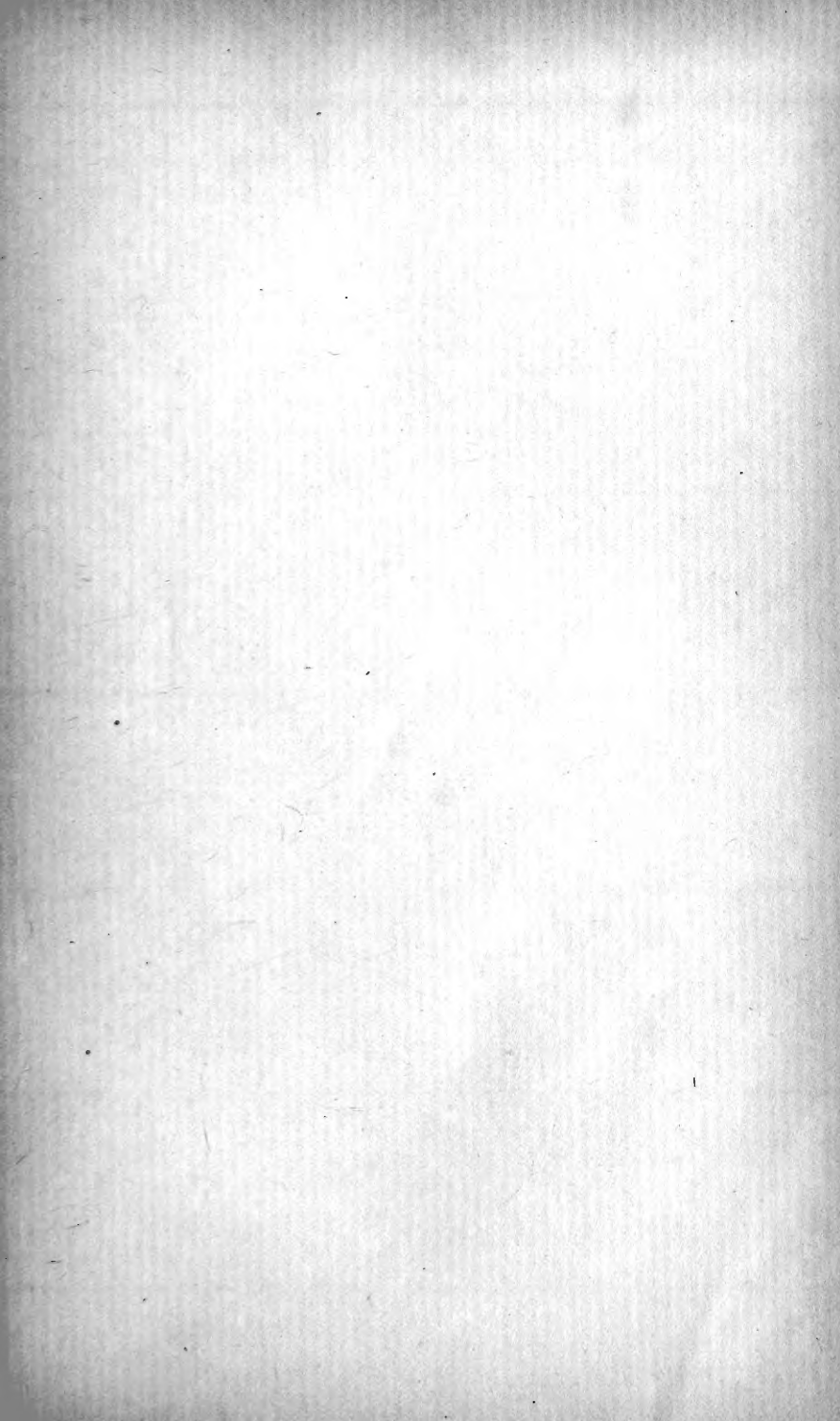
* 1841. *Argulus alosæ*, Gould, *Invertebrata of Massachusetts*, p. 340.

1902. *Argulus alosæ*, C. B. Wilson, "North American Parasitic Copepoda of the family Argulidae," *Proc. U.S.A. National Mus.*, Vol. XXV., p. 797, Pl. XII.; Pl. XXVI., fig. 80.

from the Gulf of St. Lawrence which is supposed to belong to this species, and which was found on a kind of Stickleback, *Gasterosteus biaculeatus*, Shaw.

CLADOCERA.

The three species of Cladocera observed in these gatherings from the Gulf of St. Lawrence are all common and widely distributed forms. Several examples of both *Evadne nordmanni* and *Podon leuckarti* were obtained, but the small *Podon polyphemoides* was very rare, and it was only by dissecting the one or two specimens noticed that I was sure of the species.



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