



C.S.
Report on the Marine Invertebrata
of Mount Desert, ME.
1880. Charles W. Townsend

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MMN # 102776
Date: 1880
Description: Champlain Society report on the marine Invertebrata of Mount Desert

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June 1881

To Mr. C. Eliot, president of the
Champlain Society.

Sir,

I have the honor to
submit the following Report on the
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As investigated by me during the
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My study of the marine invertebrates at Mount Desert during August of 1880 was my first definite study in that direction, and so I am able to give but an imperfect report of the subject.

My plan of operations was as follows:
First: to study the forms of invertebrate life found between high + low water mark, or the tide fauna. Second: those forms which live on the surface of the water, or the pelagic fauna. Third: those forms living in shallow water below low water mark. My plan was to keep all specimens that could be preserved by drying and to make drawings of some of the important ones, and also to make draw-

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of all those that could not be preserved by drying. In this way I hoped to obtain a good knowledge of the forms, and also to be able to identify them afterwards. My work was almost entirely ^{without a microscope,} macroscopic, as the ^{only} microscope I had was of very low power.

First as regards the tide fauna: this I studied chiefly at Some's Sound near the Camp. Here the shore is rocky in places and gravelly, with flats of sandy mud. In the following account I will take up the groups in natural order, ^{prescribing some of the common forms} beginning with the lowest. Among the Coelenterates in the class Hydrozoa, I found two species very common, viz: *Lertulania pumila* and *Obelia commisuralis*.

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Both of these resemble seaweeds, and are found attached usually to the common rock-weed (*Fucus vesiculosus*). These and allied species, together with Briazoans, are frequently pressed and preserved as seaweeds by collectors. The Hydrozoa produce free swimming medusae, or jelly fishes, which are very minute, and these are probably some of the chief forms which occasion the "phosphorescence" in the water at night, which I will speak of later.

The Echinoderms common along the shore occur chiefly below low water mark, ^{so I will defer them till later.}

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owing to the difficulty of studying them, & to the few writings on the subject, I accomplished but little in this group.

The most common form of worm in the class annulata is the clam worm, *Nereis virens*, living in the sandy mud. In some places they are very numerous, and here a great many of the clams are the so called "mud clams", i.e. clams which have been eaten by this worm, & the space between the valves filled with mud. The clam worm is from six to ten inches long, and with each of the body segments provided with short appendages. In certain lights it looks greenish, hence its specific name of *virens*. Its

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pharynx is provided with two stout black teeth, and can be erected by the worm so as to seize its prey. The worm lives chiefly in the mud, but can ^{often} be found in numbers under stones shortly after the tide goes out. On lifting the stone the worms glide into their burrows. They are sometimes found at night swimming on the surface of the water.

Another Annelid worm abundant at + below low-water mark is *Cistenides granulatus*, which lives in ~~very~~ pretty horn-shaped tubes made by gluing together grains of sand by a substance secreted by them. These tubes, mostly empty, are found ~~every~~ where in the

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pools left by the tide near low-water line. There are numerous other annelid worms, besides many planarian + nematode worms, which live in this zone + can be found under every stone.

Of the Mollusca I found many species, of which I will only mention a few.

The most abundant and most useful member of this sub-Kingdom found there, in the class of Lamellibranchs, is the common clam, *Mia arenaria*. It inhabits almost entirely the tide zone, extending but a little way below low water mark. They are as rule rather small and with thick dark shells

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owing to the coarse gravelly mud in which they live.

Another lamellibranch, perhaps equally common with the foregoing, is the common blue mussel, *Mytilus edulis*. In Europe the same species is used as an article of food, but is rarely if ever used as such here.

Among the Gastropods there are many familiar forms, commonly called cockles and whelks, *Purpura lapillus*, *Buccinum undatum* etc. These are very fond of pricking themselves on a mussel or clam and boring a round clean cut hole, through one of their valves and then sucking out the animal within.

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This boring is done by the teeth of the
lingual ribbon. The common
cockle owes, ^{I should suppose,} its genetic name, Purpura,
to the fact that it possesses a purple
pigment in its body, with which
every one is familiar, who has used this
animal for bait, as it dyes the fin-
gers a very permanent ^{reddish} purple. Perhaps
it belongs to the same family as the
shell fish used by the Tyrians to extract
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Among the arthropods, the common
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which darts so quickly through the water. This the amphipod *Gammarus ornatus*.

I now come to the second fauna — the surface or pelagic fauna. This was but little investigated by me, as I had no towing nets. The only species I found ~~was~~ ^{were} the common red jellyfish *Cyanea arctica*, & a little brownish red crustacean, a species of *Hyperia*, that lives under the shelter of its ^{disc of the jellyfish} disc. I was particularly struck by the rarity of jelly fishes, which are so common in Massachusetts' bay in August.

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Mouth of Sours Sound, the water seemed covered with small transparent bodies looking like crustacea, but lifeless. I was puzzled to discover what they were at the time, but have since satisfied myself that they were the cast skins of the soft parts of the common rock barnacle, *Balanus balanoides*.

I might speak here of the so called "phosphorescence", which is familiar to every one who has been on the water after dark.

Every stroke of the oar causes an intense glow of light in the dark water, & the drops which fall from the oar look like gold, while behind the boat is left a path of fire. This light is caused by the presence of innumerable forms

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of life, mostly minute, protozoa, medusae etc.
The actual cause of the light is unknown, but it is not due to phosphorus, but is found to be connected in some way with muscular action. On rainy nights it is feeble the animals avoiding the fresh surface water.

Lastly the shallow water fauna I investigated by means of a small dredge.

Among the Actinozoa, the red sea anemone, *Metridium marginatum*, is very abundant, living in great clusters on the rocks & stones below low water mark.

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kinds of Ophiurans or brittle stars. The two species of Asteroïd, Astracanthian berylinus and A. pullidus abounded, some of them growing to a large size, especially at a point on the west side of the Sound where there was a very strong current to furnish food & air. In the group of Echinoids the common sea-urchin, Strongylocentrotus dröbachiensis, in some places literally covered the bottom, so that they became a great nuisance in dredging. At one haul Mr. Davis and I counted 205 of them in the dredge.

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mark, and very seldom are they imprudent enough to allow themselves to be left high and dry by the tide. They are very interesting animals to study. The adults, from their habit of creeping always on one side, have the rows of ambulacral suckers on the upper side for the most part aborted and useless, while the lower rows remain developed. But I found two quite young cucumbers, which instead of being of a brown color, were pinkish white, and which had all five ambulacral rows nearly equally well developed. In a still younger specimen, about quarter of an inch long, only the large oral tentacles were present, the others

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forming afterwards. Our sea cucumber is a near relative of the Trepang of China, well known as an article of food, + I have heard that our species, when well cooked, is rather good eating.

In the sub-Kingdom Mollusca I will merely mention the limpet, *Pectina testudin-
alis*, which sticks so tightly to the rocks usually below ^{low} tide mark, which grows there to a very large size, ^{one measuring, $1\frac{1}{2} \times 1\frac{3}{16}$ inches.} And the pretty little nudibranch mollusks, of which I obtained two species.

In the sub-Kingdom Arthropoda + class Crustacea, besides the common shrimp, *Crangon vulgaris*, and the ~~small~~ isopod

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Idotea inornata, the later of which I found very abundant in the eel grass at Sullivan. A minute form, a species of *Caprella*, was very commonly found on sea weed.

This *Caprella* moves from place to place in a singular manner, like an inch worm.

The lobster, *Homarus americanus*, abounded in Somes Sound, as many as nine being taken in one haul in Mr. de Windt's lobster-pot.

The hermit crabs, *Eupagurus*, so interesting to watch, live in numbers just below low tide mark.

I dredged up one member of the class Arachnida, viz: *Phonichilidium maxillare*, the sea mite or spider.

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Partial list of species of Marine
Invertebrata observed at Mt. Desert. 15

Sub. Kingdom. Coelenterata

Class Hydrozoa

Order 1 Hydroidea

- Sertularia pumila* abun. on Fucus
Obelia commisuralis " " "
Tubularia one dredged in 3 or 4 fath.
Clava leptostyla common on Fucus.

Order 2 Discophora

- Cyanea arctica* rather common

Class Actinozoa

Order Loantheria

- Metridium marginatum* abundant
 ? ?

Sub. Kingdom. Echinodermata

1 Ophiuroidea

- Ophiophilis (bellis)?* rather common
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2 Asteroidea

- Asteracanthion berylinus* abundant.

- A. pallidus*.

3 Echinoidea

- Strongylocentrotus Drobachiensis* abundant

4 Holothuridea

- Pentaeta frondosa* abundant

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Class Annulata

Cistenides granulatus. Common

Nereis virens "

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Sub King. Mollusca

Class Lamellibranchiata.

Mia arenaria. Abun. *Astarte sulcata*. One in 4 fath.

Sanicava rugosa common *Mytilus edulis* Abun.

Class Gasteropoda.

Buccinum undatum. Abun. *Potina testudinalis*. Abun.

Fusus decussatus. One in Indian shell heap; *Nassa trivittata*. Common

Lunatia heros. Common. *Margarita obscura*. Abun.

Litorina litorea. rather " *Lacuna vineta*? few at Sul.

L. palliata. Abun. *Dendronotus arborescens*. com

Purpura lapillus " *Doris bilamellata*? one found.

Sub King. Arthropoda.

Class Crustacea

Homarus americanus. Common.

Idotea inornata. " 11 spec at Sullivan

Caprella Common.

Hyperia " under disc of Cyanea.

Gammarus ornatus abundant.

Crangon vulgaris "

Eupagurus "

Ballanus balanoides "

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Anno Domini 1881

Carolina Condothevondo.

Carbonaqua Cristosa.

Carathes Cosboneridos.

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