

REPORT ON THE MOLLUSKS COLLECTED BY L. M. TURNER AT
UNGAVA BAY, NORTH LABRADOR, AND FROM THE ADJACENT
ARCTIC SEAS.

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The Arctic regions have such a uniform mollusk-fauna, and, especially in the vicinity of Greenland, have been so often and so thoroughly searched for mollusks that it was not to be expected that the small collection which Mr. Turner was able to make should contain anything new or remarkable. At most, it might afford some interesting facts bearing on geographical distribution and the special fauna of Labrador.

My surprise, therefore, was great, when on examining the specimens in spirits, I found examples of a mollusk not only new to science as a species, but belonging to a generic group which does not appear to be known. Moreover, the specimen best developed was over half an inch in length.

PULMONATA.

Limnæa palustris Müller, var. **vahlîi**, Beck.

Limnæa vahlîi (Beck) Möller, Ind. Moll. Grönl., p. 4, 1842.

Abundant and tolerably uniform; collector's numbers 4026, 4118, and 4181; Museum numbers 73737.

Collected in small pools and streams on the uplands near Fort Chimo, June and July, 1883.

Limax (Agriolimax) hyperboreus Westerlund.

Limax hyperboreus Westerlund, Sib. L. & F. W. Moll., p. 121. Binney, Bull. U. S. Nat. Mus., No. 28, p. 473, fig. 516, 1885.

Not uncommon, also found throughout the Arctic shores of North America and Eastern Siberia.

Collector's numbers, 1798, 5859; Museum number, 73738; collected May 16, 1883, and July 23, 1884, under stones, in moist places, in willow thickets, &c., at Fort Chimo, Ungava Bay.

Zonites (Conulus) chersina Say, var. **egena**, Say.

Helix chersina Say, Journ. Acad. Nat. Sci., II, p. 156, 1821.

Helix egena Say., l. c., V, p. 120, 1825.

Helix fabricii Beck, Index, p. 21, 1837.

Arctic America and Greenland, Europe, and Siberia. Collector's number, 5859, with the preceding species; Museum number 73760.

There is nothing to distinguish these northern specimens of *chersina*, var. *egena*, from those found in similar latitudes in other regions. *Z. fulvus* of authors is found varying in a similar manner in Europe where

the analogue of *egena* has been called *Z. mortoni* by Jeffreys. The name *fabricii* should be dropped, as the Greenland specimens do not differ from those of Alaska or Kamchatka or Labrador, except as individuals vary among themselves. Were the original application of the name *fulvus* entirely free from doubt, it should, of course, take precedence of *chersina*.

Pupa decora Gould.

Pupa decora Gould, Proc. B. S. Nat. Hist., II, 263, 1847, Lake Superior.

Pupa borealis Morelet, J. de Conchyl., VII, p. 9, 1858. Kamchatka, Binney, l. c., p. 189, fig. 189, 1885.

A few specimens clearly referable to this species were obtained with the two preceding species. Collector's number, 5859; Museum number, 73739.

This would seem to be distinct from *Pupa Hoppii* Möller, but I have not been able to examine specimens of the latter.

PTEROPODA.

Clione limacina Phipps.

Clio limacina Phipps, Voy. N. Pole, app., p. 195, 1774.

Clione borealis Pallas.

Collector's numbers, 108, 159; Museum number, 73740.

Taken on the voyage to Ungava Bay in north latitude 56°, and west longitude 60° off the Labrador coast July 13, 1882, swimming at the surface.

Limacina helicina Phipps.

Clio helicina Phipps, l. c., p. 195; Martens, Spitz. English edition, p. 141, t. Q. fig. e.

Abundant, with the preceding same general region, ten to twenty-five miles off the Labrador coast, from 6 a. m. to 8 p. m., the weather being cloudy.

Collector's numbers 99, 102, 106; Museum number, 73741.

MARINE GASTROPODA.

LITORINIDÆ.

Litorina grönlandica Mörch.

L. grönlandica (Chemnitz), Mörch, Moll. Grönl., No. 60, 1875; Arctic Manual, p. 126.

L. rudis var. ?

Abundant on the rocks; of various colors, brown, gray, mottled, banded, and almost white, some of quite large size. Collector's numbers, 90, 110, 149, 156, 246, 231; Museum number, 73742. Labrador's reef; rocks near mouth of George's River, July 31; shores of Ungava Bay generally; beach at Rigolet July 1, 1882; low water Davis inlet, July 17; circumpolar.

AQUILONARIA, n. g.

Shell Lioplaeiform, more or less membranous, thin, imperforate, without sculpture, but with a rough, transversely shaggy epidermis. *Operculum* subspiral, with a raised subspiral rib on the inner side. *Animal* much like *Litorina* with entire sole, short and peculiar radula (see description of the species), tissues soft and very gelatinous, with a profusion of tenacious mucus. There is no jaw, the animal is phytophagous. The mantle edge is plain, there are no opercular appendages, and the females are oviparous.

Aquilonaria Turneri, n. s. Plate III, figs. 1, 2, 3.

Shell globose-conic with five and a half full and rounded whorls regularly increasing. Shell substance white, extremely thin, and wanting near the aperture; covered with a thick, shaggy, more or less hairy, transversely rugose epidermis of a brownish color, of which the outer and anterior margins of the aperture are chiefly formed. This is tough and flexible in life, but dries out of shape when desiccated; sutures with a narrow channel except in the last whorl where the channel gradually becomes obsolete; last whorl forming more than two-thirds of the shell; aperture ovate, margin thin, not reflected; columella smooth, thin, rounding gradually into the anterior margin; inner lip without callus; base rounded, full, without any trace of an umbilicus. Operculum thin, brownish, with about three whorls, slightly transversely undulate and longitudinally finely striate; on the inner side a well-marked raised rib gyrates with the whorls near their inner edge, but does not quite reach the anterior margin of the operculum. Jaw none, radula short (about 4.00^{mm}), small, with seven longitudinal and about fifty transverse rows of teeth. Rhachidian tooth recumbent, broad, short, with a larger median and two distinct lateral cusps, beside (on each side) two less evident waves on the cutting edge. First lateral broader than long, the base with two radiating ridges, the inner one supporting four distinct cusps, the outer one with its cutting edge merely obscurely waved; second lateral, narrower, with four strong cusps; outer lateral slender with a spatulate base and simple recurved cutting edge. Soft parts very gelatinous and giving out a gelid mucus very abundantly when the preserved animal was soaked in water for dissection. Foot short, broad, bluntly rounded behind, in front squarish, the anterior edge bilamellate, the incision triangular with its apex beneath the muzzle in the median line; the upper surface over this triangle darkly pigmented, the rest of the outer surface of the animal *rina*, eyes large and very black; mantle margin smooth; opercular waxen white; muzzle short, stout, subcylindrical; tentacles as in *Litobolus* without appendages; sole without any median division as far as could be detected.

Max. lon. of shell, 14.25; of last whorl, 11.00; of aperture, 7.00; of operculum, 7.00; max. lat. of shell, 10.00; of aperture, 6.00; of operculum, 5.00 ^{mm}; these are dimensions of the largest specimen.

Habitat.—Labrador's reef, Ungava Bay; three specimens in the ooze and slime filling the crevices of the rocks; August 5, 1882, L. M. Turner. Collector's number, 238; Museum number, 73743.

Also, Arctic Ocean, north of Bering Strait, in the summer of 1885; three specimens by Captain Healy, of the U. S. R. S. Corwin; exact locality doubtful.

In the specimen dissected, which was a female, the minute ova were already formed, the general anatomy recalled that of *Litorina*; the alimentary canal near its termination and the ovarian canal were nearly equal in size, the former being much more prominent in *Litorina* than the latter. The short radula, the sharply-defined spiral keel on the operculum, the form of the teeth, the profuse mucus, the character of the shell and epidermis, separate this group sufficiently from *Litorina*, which seems its nearest ally. It was certainly most unexpected to receive from the well searched Arctic waters a new form of higher rank than a species, and still more singular was the coincidence by which specimens from Labrador and Bering Strait came almost simultaneously to hand. The labels of Captain Healy's collection having become illegible during transportation, the exact spot north of Bering Strait where his specimens were collected is uncertain. He dredged at various points from St. Lawrence island north to Icy Cape on both sides of Bering Strait, but not in Kotzebue Sound. The area is within that of the purely Arctic fauna, so the exact spot is of less importance. All the dredgings were in less than 65 fathoms.

BUCCINIDÆ.

Chrysodomus spitzbergensis Reeve.

Fusus spitzbergensis Reeve, Last of the Arctic Voy., II, p. 395, pl. 32, fig. 6, a—b, 1855.

Neptunea (*Sipho terebralis*) Gould, Proc. B. S. Nat. Hist., VII, p. 326, 1860.

Sipho lividus (Mörch) Verrill, Proc. U. S. Nat. Mus., VI, 1883, p. 238, pl. IX, fig. 12.

One imperfect specimen found on the upland near Fort Chimo, Ungava Bay, where it had doubtless been carried by the ravens, as is their wont. Collector's number, 4441; Museum number, 73744.

The forms indicated by the above synonymy grade into one another and in a large series cannot be discriminated as valid species. Reeve's name has five years' precedence of that given by Dr. Gould, and according to the latter, was partly founded on the same specimen. It is found from Bering Strait to Spitzbergen, and is rather variable in sculpture and form even in the same locality.

? *Buccinum plectrum* Stimpson.

Some worn but living specimens, collected July 17, 1882, at Davis Inlet, Labrador, may belong to this species or to the next one. Collector's number, 111; Museum number, 73745.

Buccinum undatum, L. var *undulatum* Stm.

Several living specimens found with the preceding. Museum number, 73746.

Buccinum cyaneum Brugière.

B. grönlandicum Auct., as of Chemnitz.

One living specimen from Labrador's reef, Ungava Bay, near Fort Chimo. Collector's number, 226; Museum number, 73747.

As Chemnitz's name was not binomial it cannot properly take precedence of that of Brugière adopted by Stimpson.

TROCHIDÆ.

Margarita umbilicalis Brod. & Sow.

Two specimens were taken from the stomach of a codfish, caught in Nakvak Bay or inlet, October, 1883. The locality is about 90 miles south of Hudson Strait. Collector's number, 6157; Museum number, 73748.

This well distinguished species is more northern in its southern limits than *M. helicina*, and has been taken at Point Barrow, Cumberland Inlet, Melville Peninsula, and East Greenland; the latter locality from specimens sent by the second German Polar expedition and catalogued in their report as *Trochus helicinus*.

Dr. Paul Fischer rejects the generic name *Margarita* because it had been used by its author for the genus *Margaritiphora*, some years before it was applied to the present group. While the practice of using a second time names which have fallen into synonymy cannot be commended, it does not seem as if it gave sufficient ground for rejecting a name which has never been adopted in the original sense, and has been used more than half a century (and of late years universally) for the present group.

Margarita helicina Fabricius.

Common among the ooze in crevices of rocks at the Labrador's reef. August 5, 1885. Collector's number, 233; Museum number, 73749.

Universal in the Arctic in proper situations, but extending its range much further south than the preceding species.

ACMAEIDÆ.

Acmaea testudinalis Müller.

From rocks at Rigolet, Labrador, July 5, 1882, Davis Inlet, July 17, 1882; and dead where dropped by the ravens on the uplands near Fort Chimo, Ungava Bay, Labrador. Collector's numbers, 89, 110, 4043; Museum number, 73750.

This species ranges from the Alaskan coast to the north of Europe, all around the pole, in suitable localities.

ACEPHALA.

Mya arenaria Linné.

Rigolet, Labrador. Collector's number, 89; Museum number, 73751.

Mya truncata Linné.

Davis Inlet, Labrador. Collector's number, 110; Museum number, 73752.

Saxicava arctica Linné.

Labrador's reef, Ungava Bay, near Fort Chimo, August 5, 1885. Collector's number, 236; Museum number, 73753.

Dead shells plentiful, but living ones rare.

Cardium ciliatum Fabricius.

Collector's number, 4044; Museum number, 73754.

Fragments only. These fragments are probably subfossil. They were taken from the blue clay which forms a deposit about a mile and a quarter south of Fort Chimo on the river. The spot is known as the "Loom (or Loam?) Hole," and is a peculiarly shaped cove, or pocket, in the river bank.

Macoma tenera Leach, var. *grönlandica* Beck.

Rigolet, Labrador, July 5, 1885, and Davis Inlet. Collector's numbers, 89, 111; Museum number, 73755.

This with *T. Fabricii* and *frigida* Hanley, *inconspicua* Brod. & Sow., *fusca* Say, &c., are probably only variations of one type which appears in Northern Europe under the name of *T. balthica* Linné.

Modiolaria lævigata Gray.

Plenty on the Labrador's reef, Ungava Bay, near Fort Chimo, August 5, 1885. Collector's number, 230; Museum number, 73756.

Crenella faba Fabricius.

With the last common. Collector's number, 232; Museum number, 73757.

This species is curiously local in its range.

Mytilus edulis Linné.

Rigolet, with specimens of *Balanus balanoides* (L.) Darwin (= *ovularis* Gould, Mass. Rep., 1842), growing upon it.

Davis Inlet, Labrador, and Labrador's reef, mouth of Koksoak River, Ungava Bay, August 5, 1885. Collector's numbers, 89, 110, 224; Museum number, 73758.

The specimens from the Labrador's reef are a handsome brown on the sides, and the shell substance of the beaks is white instead of dark blue, as in the common specimens.

BRACHIOPODA.

Rhynchonella psittacea Auct.

Found, dropped by the ravens, on the uplands near Fort Chimo, about 100 feet above the sea. Collectors number, 4042; Museum number, 73759.

RECAPITULATION.

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| 1. <i>Linnaea</i> var. <i>vahlü</i> , Beck. | 13. <i>Margarita umbilicalis</i> B. & S. |
| 2. <i>Agriolimax hyperboreus</i> , Westerl. | 14. <i>Margarita helicina</i> Fabr. |
| 3. <i>Zonites</i> var. <i>egena</i> Say. | 15. <i>Acmæa testudinalis</i> Müll. |
| 4. <i>Pupa decora</i> Gould. | 16. <i>Mya arenaria</i> L. |
| 5. <i>Clione limacina</i> Phipps. | 17. <i>Mya truncata</i> L. |
| 6. <i>Limacina helicina</i> Phipps. | 18. <i>Saxicava arctica</i> L. |
| 7. <i>Litorina</i> var. <i>grönlandica</i> Mke. | 19. <i>Cardium ciliatum</i> Fabr. |
| 8. <i>Aquilonaria turneri</i> Dall. | 20. <i>Macoma</i> var. <i>grönlandica</i> Beck. |
| 9. <i>Chrysodomus spitzbergensis</i> Rve. | 21. <i>Modiolaria lævigata</i> Gray. |
| 10. <i>Buccinum plectrum</i> ? Stm. | 22. <i>Crenella faba</i> Fabr. |
| 11. <i>Buccinum</i> var. <i>undulatum</i> Möll. | 23. <i>Mytilus edulis</i> L. |
| 12. <i>Buccinum cyaneum</i> Brug. | 24. <i>Rhynchonella psittacea</i> Auct. |

Total, four pulmonates, two pteropods, nine marine gastropods, eight bivalves, and one brachiopod.