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THE GODTHAAB EXPEDITION 1928

LEADER: EIGIL RIIS-CARSTENSEN

SCAPHOPODA, PLACOPHORA, SOLENOGASTRES, GASTROPODA PROSOBRANCHIATA, LAMELLIBRANCHIATA

BY

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WITH 19 FIGURES IN THE TEXT

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INTRODUCTION

The Zoological main purpose of the "Godthaab"-Expedition 1928 was to undertake trawlings in great depths in Davisstræde and in Baffins Bugt, i.e. in the deep sea basins south and north of the submarine ridge (about 600 m below surface) between Cape Walsingham in Baffinland and Holsteinsborg in W. Greenland. For this purpose a series of transverse cruises from the W. Greenland to the N.E. American Artic coast was carried out, and when—in every such transverse cruise—the ship reached the coastal areas of W. Greenland or East America, dredgehauls and collections from the shelf were also secured. These collections therefore brought together a material from geographically and ecologically widely different areas, viz. from 1) The coastal waters of Labrador, 2) The coastal waters of Baffinland, 3) American coastal waters north of, and including, Lancaster Sound, 4) The coastal waters of West-Greenland from Julianehaab to Etah, 5) The deep sea south of the Cape Walsingham-Holsteinsborg-ridge, and 6) The isolated, high-arctic deep sea basin north of this ridge.

The map fig. 1 shows all localities from which the molluscan groups treated here were collected by the "Godthaab"-Expedition 1928, i. e. 48 localities in which were collected 86 species (viz.: 1 scaphopod, 3 placophores, 2 solenogastres, 51 prosobranchs, and 29 lamellibranchs). The opisthobranchs have been treated in a special paper by H. Lemche (Medd. om Grønland, vol. 80, no. 7, 65 pp., København, 1941).

In order to evaluate these collections the scattered records in literature from all these areas have to be considered, and it therefore seems reasonable to give at first a review of our present knowledge of the marine molluscan fauna in each of these areas.

I. The coastal waters of Labrador: The first list of mollusca was given by Packard (1863, Caribou Island) and contains the names of 69 species, viz. 32 prosobranchs, 35 lamellibranchs, and 2 placophores, all valid today. In another paper (1867) Packard adds 16 valid species more, viz. 11 prosobranchs and 5 lamellibranchs to those already known and in 1884 Katherine Bush (with an additional list by Packard)

adds 17 valid species more, viz. 11 prosobranchs, 5 lamellibranchs, and 1 placophore, supplemented by one further prosobranch published by DALL (1887) in his report on the molluscs from Turner- and Ungava Bay. In 1901 WHITEAVES added to our knowledge by recording 7 species of

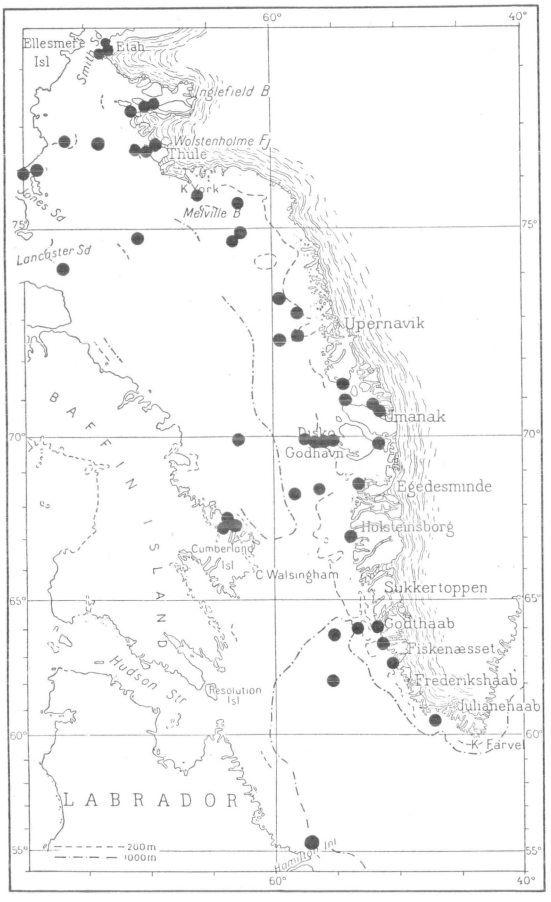

Fig. 1. Map showing all the localities within the Davisstræde and Baffins Bugt area in which mollusca have been collected by the "Godthaab"-Expedition 1928.

mollusca, viz. 3 prosobranchs, 3 lammellibranchs and 1 placophore new to the area,and JOHNSON adds 12 species more, viz. 8 prosobranchs, and 4 lamellibranchs in 1926, and 8 additional species, viz. 4 prosobranchs, and 4 lamellibranchs in 1934. The list of RICHARDS (1936) from James Bay between 51° and 50° N. lat. did not add any new species to those already known. Thus till now 129 valid species, viz. 69 prosobranchs, 56 lamellibranchs, and 4 placophores were known from the area.—Along the coast of Labrador the "Godthaab"-Expedition 1928 collected mol-

luscs in one locality only, viz. St. 14, i.e. 20 miles off Hamilton Inlet (50°00′ N. 56°34′ W.), 314 m, sand, gravel, small stones, 1 dredge-haul, but this single haul yielded specimens of 19 different species: viz. 16 prosobranchs, and 3 lamellibranchs, two prosobranch and one lamelli-

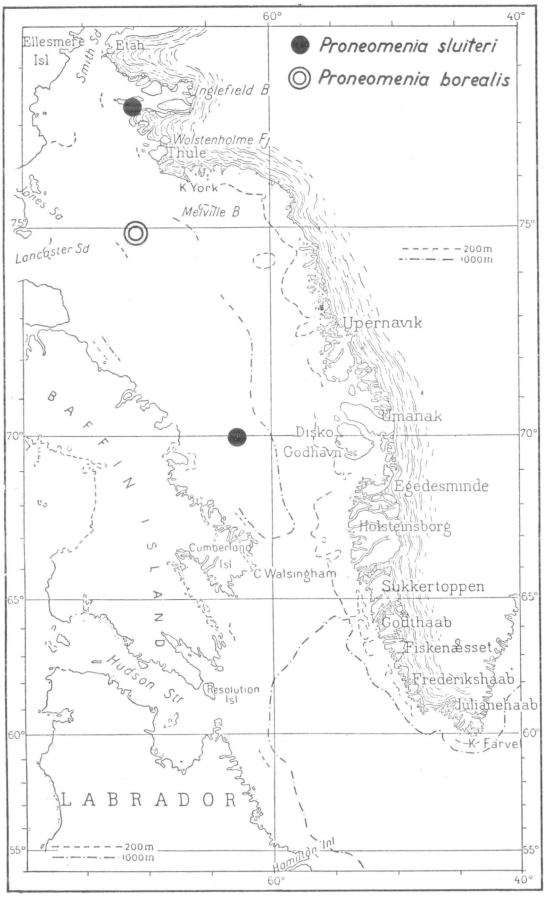

Fig. 2. Map showing the localities of *Proneomenia sluiteri* HUBRECHT and *Proneomenia borealis* (DANIELSEN & KOREN) in the Baffins Bugt.

branch being hitherto unknown from Labrador. The complete list for Labrador up to the present day comprising 133 species, viz. 72 prosobranchs, 57 lamellibranchs and 4 placophores, is given in this paper pp. 107—111.

II. The coastal waters of Baffinland: are less well investigated than those of Labrador. HANCOCK (1846) was the first to describe marine molluscs from this area: 30 species, viz. 15 prosobranchs and 15 lamellibranchs, all valid today. DALL (1879) treated the collections from the "Hawgate"-Expedition, which adds 12 valid species, viz. 7 prosobranchs,

4 lamellibranchs and 1 placophore to HANCOCK's list. PFEFFER (1886) added 3 species more of prosobranchs to those already known. These 3 publications all deal with mollusca collected in one and the same narrow locality: The Cumberland Sound (about 66°30′ N. 67°—68° W.), and the only marine mollucs hitherto published from any other locality off Baffinland are *Onchidiopsis kingmaruensis* (RUSSELL 1942, Lake Harbour Fjord), and *Macoma moësta* (AD. JENSEN 1905). Thus, 47 valid species, viz. 26 prosobranchs, 20 lamellibranchs, and 1 placophore were hitherto known from the area.—The "Godthaab"-Expedition 1928 adds a new locality: St. 166, i. e. Totness Road, Exeter Sound, where shore-collections, dredgings and trawlings were made down to 200 m depth. From this locality, 20 species, viz. 12 prosobranchs and 8 lamellibranchs were collected, 3 species of the prosobranchs found being new to the area. The complete list for the Baffinland coastal area up to the present day comprising 50 species, viz. 29 prosobranchs, 20 lamellibranchs and 1 placophore, is given in this paper pp. 107—111.

III. The N.E. American coastal waters north of (and including) Lancaster Sound: The first to give a list of marine molluscs from these inaccessible parts of the Polar Sea was SUTHERLAND (1852), who from the Barrow Strait, (i.e. where Lancaster Sound meets the Wellington Channel) records 15 species, viz. 6 prosobranchs, 8 lamellibranchs,—and 1 placophore the synonymy of which is doubtful and which is therefore disregarded here. A few years later REEVE (1855) published his list from the Wellington Channel, Northumberland Sound, Port Refuge, Port Eden and Parry Islands and added 23 species, viz. 12 prosobranchs, 9 lamellibranchs, and 2 placophores to those already mentioned by SUTHERLAND. In 1877 SMITH (with a supplement by JEFFREYS the same year) treated a material collected between 79°25′ and 82°30′ N. lat., comprising a. o. Grinnell-land, and added 10 more species, viz. 5 prosobranchs, 4 lamellibranchs, and 1 placophore to the list. Then 42 years lapsed before BAKER (1919) treated a collection from the west coast of Grinnell-land (81°30′ N.) adding, however, only one lamellibranch (dead shells only) to those already known. Thus, till now 48 valid species, viz. 23 prosobranchs, 22 lamellibranchs and 3 placophores, were known from this area.—The "Godthaab"-Expedition 1928 has collected molluscs in two coastal localities within these seas, viz., in Jones Sound (St. 116, 80 m) and in Smith Sund (St. 114, 85 m), while two other stations (St. 119 and 131) in Jones Sound and off Lancaster Sound respectively were outside the shelf. In St. 114 and 116, 20 species, viz. 11 prosobranchs, 8 lamellibranchs, and 1 placophore were collected, and out of these 6 prosobranchs and 1 lamellibranch proved to be new to the area. The complete list for this coastal area up to the present

day comprising 55 valid species, viz., 29 prosobranchs, 23 lamellibranchs, and 3 placophores, is given in this paper pp. 107—111.

IV. The coastal waters of West-Greenland from Julianehaab to Etah: as far as their molluscan fauna is concerned, are among the best examined arctic areas of the world. Besides many new facts the review by Posselt & Ad. S. Jensen (1898) of the mollusca of the West-Greenland shelf comprises also previous records on mollusca from this area, which, therefore, will not be reviewed again here. This paper deals with the area from the southernmost point of Greenland and up to, and including, Upernavik; it is based on so large collections, that renewed investigations from these areas will hardly add much to the number of species already known. After Posselt & Ad. S. Jensen's paper in 1898 new collections of molluscs from these well known areas have actually been added to the old ones in the Copenhagen Museum. Thus Nordmann 1911 and Stephensen 1912 procured extensive collections from Nordre Strømfjord (Holsteinborg-area), and from Kvanefjord (Frederikshaab area) and Bredefjord (Julianehaab-area) respectively, and in 1908 during the "Tjalfe"-Expedition and i 1925 by an expedition with the "Dana" Ad. S. Jensen procured extensive collections of mollusca from the banks off Godthaab-Sukkertoppen-Holsteinsborg. These collections, though ecologically most interesting, have only been examined roughly, but sufficiently to show that they do not contain any great number of species new to the areas. The working up in detail of these collections has therefore been postponed to the benefit of collections from less known areas, viz., the Faroes, Iceland and East-Greenland.

The marine molluscan fauna of the northernmost part of the W. Greenland coasts: the Melville Bugt and the Thule-Etah areas was, however, still very deficiently known, when Posselt and Ad. S. Jensen wrote their paper, but two papers published later significantly added to our knowledge of the mollusca in these northern areas. Thus Baker (1919) gave a list of 24 species from the Crocker Land Expedition to N.W. Greenland and Grinnelland, viz., 13 prosobranchs, 10 lamellibranchs, and 1 placophore from the Thule-Etah-area, 16 of which, viz. 11 prosobranchs, 4 lamellibranchs, and 1 placophore were hitherto unknown from this region. Vibe (1950) in his list of the marine fauna from the Thule-district, mentions 39 species of mollusca, viz., 19 prosobranchs, and 20 lamellibranchs, 22 of which, viz., 12 prosobranchs, and 10 lamellibranchs, are new to the area. To this must be added one more species of prosobranch: *Margarita grossvenori* described from off Etah, 30 fathoms, by Dall (1926).—The "Godthaab"-Expedition 1928 collected molluscs in 6 shallow water localities (from the shore to 275 m, viz.

Sts. 72, 86, 97, 99a, 107 and 108) along the coast from the middle of Melville Bugt to Etah. Several other stations (sts. 73, 77, 81, 90, 99 and 112) taken close to the same coast-stretch were too deep (from 450 to 930 m) to be reckoned to the shelf fauna. From the 6 shallow-water localities 19 species. viz. 10 prosobranchs and 9 lamellibranchs are present, 8 of which, viz. 5 prosobranchs and 3 lamellibranchs are new to the area.

Along the well known coast of W. Greenland from Julianehaab in the south and to (and including) the Upernavik area in the north, the "Godthaab"-Expedition 1928 has collected molluscs in 15 localities on the shelf (i.e. from the shore to about 400 m depth), 46 species in all, comprising 24 prosobranchs, 19 lamellibranchs and 3 placophores. Not a single of these 46 species was new to the said area which proves the thoroughness of the previous investigations along this coast stretch. Three species only, viz., *Sipho kröyeri*, *Bela exarata* and *Portlandia frigida* were taken in a more northern locality, and two species only, viz. *Skeneopsis planorbis* and *Volutopsis norvegica* in a more southern locality than hitherto known within the area of Julianehaab-Upernavik. A list of distribution of the molluscs within the different areas of the W. Greenland coast from Julianehaab to Etah is given on pp. 103—106.

V. The deep-sea south of the Cape Walsingham-Holsteinborg ridge: In the literature of mollusca only two stations are known from the very deep sea within this area viz., 59°10′ N, 50°25′ W., 3200 m, and 63°9′ N. 56°43′ W., 2010 m ("Valorous"-Expedition). From these two stations 15 species are available, viz. 14 lamellibranchs and 1 scaphopod, which in this area have never been taken closer to the surface than the depths indicated above, i.e. they are restricted to the deep sea. Four other species, viz., 2 prosobranchs, 1 lamellibranch, and 1 scaphopod have never been taken closer to the surface than 750 m. The submarine ridge between Cape Walsingham and Holsteinsborg has its deepest part about 600 m below the surface, and accordingly all the species living only at depths greater than 600 m are by this ridge isolated from the deep Baffins Bugt-basin north of this treshold.—The "Godthaab"-Expedition 1928 only made two trawl hauls in deep water South of the ridge, viz. st. 179 and st. 180 at 1200 and 2750 m depth respectively. These two hauls together did not contain more than 3 species of mollusca, viz., the prosobranchs *Buccinum hydrophanum*, *Bucc. abyssorum* and *Sipho latericeus*; the two latter were new to the area. Only one of these, viz. *Bucc. abyssorum* seems to be exclusively associated with the deep sea, while the others have been taken in more shallow water also and thus seem to be able to cross the ridge. See the lists on p. 101.

VI. The isolated, high-arctic deep sea basin north of the Cape Walsingham-Holsteinborg ridge: is the most interesting area examined by the "Godthaab"-Expedition 1928. In this area not a single sample of molluscs had been taken from depths greater than that of the ridge (600 m), until the "Godthaab" started its investigations. The "Godthaab" took two trawl hauls, viz., at st. 54 (1880 m depth) and st. 135 (1200 m depth) from the very deep sea, together containing 3 molluscs, viz. *Sipho krampi* n. sp., *Proneomenia sluiteri* and *Proneomenia borealis*, all hitherto unknown from these regions. The "Godthaab" further trawled in 9 localities which, though not belonging to the very deep sea, were situated at greater depths than the ridge, viz. at st. 64 (850 m), st. 77 (820 m), st. 87 (790 m), st. 90 (930 m), st. 99 (672 m), st. 119 (610 m), st. 131 (680 m), st. 143 (685 m), and st. 144 (733 m depth) and in which, accordingly, an isolated fauna element might be expected. In these stations 19 species of mollusca were found viz., 11 prosobranchs, 6 lamellibranchs, 1 scaphopod, and 1 solenogastre. All these species except two, viz. *Acrybia glacialis* and *Periploma abyssorum*, have, however, been taken in more shallow water also within this area, thus being able to cross the ridge and not being isolated from the more southern fauna. Of the two species taken at greater depth than the ridge and which might be expected to comprise a new, isolated fauna element, *Acrybia glacialis* is new to science, while *Periploma abyssorum* is known from deep water also south of the ridge. This seems to show that this high-arctic deep sea basin contains an edemic fauna element, together with many widely distributed species. The endemic fauna element seems, however, to be very poor, comprising till now only 2 species, viz. *Sipho krampi* and *Acrybia glacialis*, both new to science.

Further, the "Godthaab" north of Holsteinsborg and south of the Melville Bugt secured molluscs from 6 stations, situated between 400 and 600 m depth, i.e. at greater depths than the shelves, but in more shallow water than the Cape Walsingham-Holsteinborg ridge, viz. at st. 73 (450 m), 81 (490 m), 112 (580 m), 159 (480 m), 154 (540 m), and 160 (410 m). From these stations 12 species are available, viz. 6 prosobranchs and 6 lamellibranchs all of them previously known from the shelf also.

The spelling of the geographical names is in accordance with the maps and with the wishes of the editorial committee, and needs a few explanatory remarks: Sund = sound, Bugt = bay, Havn = harbour; Ø = island, Kap = cape, and Pynt = point.

In the synopsis of the species the word "animal" is used when soft parts are preserved. When only empty shells are present, the term "shell" is employed.

SYSTEMATIC ACCOUNT OF THE MOLLUSCA COLLECTED BY THE "GODTHAAB"

I. Scaphopoda.

Siphonodentalium vitreum (M. SARS).

Dentalium vitreum M. SARS 1851, p. 178.
Siphonodentalium vitreum G. O. SARS 1878, p. 103 and 342, pl. 7, fig. 2a—c.

West Greenland records:

Siphonodentalium vitreum J. G. Jeffreys 1877a, pp. 155—156.
Siphonodentalium vitreum POSSELT & JENSEN 1898, p. 105.

Arctic East American records: none.

Material:

St. 119. Jones Sound, N. of Baffinland (75°54′ N., 81°01′ W.), 610 m, 2 adult animals.—St. 131. Off Lancaster Sound, Baffinland (74°12′ N., 77°00′ W.), 680 m, 2 adult animals.

The species, hitherto unknown from Baffinland, seems to have its main distribution here in deep water.

Further distribution: *Siphonodentalium vitreum* is known from W. Greenland, East Greenland, Spitzbergen, Jan Mayen, the Finmark, the Barents Sea, the Siberian Ice Sea, reaching towards the south and in deep water to Martha's Vineyard, Southern Ireland and Western Portugal.

II. Placophora.

Tonicella marmorea (FABR.).

Chiton marmoreus FABRICIUS 1780, p. 420.
Boreochiton marmoreus G. O. SARS 1878, p. 116, pl. 8, fig. 3.
Tonicella marmorea ODHNER 1915, p. 47.

West Greenland records:

Chiton marmoreus FABRICIUS 1780, p. 420.
Chiton ruber MØLLER part. 1842, p. 16.
Chiton marmoreus MØRCH 1877, p. 440.
Chiton marmoreus JEFFREYS 1880, p. 126.
Chiton (*Boreochiton*) *marmoreus* POSSELT & JENSEN 1898, p. 111.
Tonicella marmorea BAKER 1919, p. 490.

Arctic East American records:

A. Labrador:

Chiton marmoreus PACKARD 1863, p. 415.
Chiton marmoreus PACKARD 1867, p. 283.
Tonicella marmorea BUSH 1884, p. 241.
Tonicella marmorea JOHNSON 1926, p. 25.

B. Baffinland:

Chiton (Tonicella) marmoreus DALL 1879, p. 146.

Material:

St. 33 A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, epifauna, 4 adult animals.—St. 32 A. Off Herrnhut point at Godthaab, 10—20 m depth, bottom?, 3 adult animals.

The species is very abundant in the littoral and sublittoral zones along the whole W. Greenland coast, where it is known from Nanortalik to Etah (BAKER 1919).

Further distribution: *Tonicella marmorea* is common in Arctic seas, where it is circumpolar. In boreal seas it reaches the Sound, the Belts and the British Isles.

Trachydermon albus (LINNÉ).

Chiton albus LINNÉ 1767, p. 1107.
Lophyrus albus G. O. SARS 1878, p. 114, pl. 8, fig. 2.
Trachydermon albus ODHNER 1915, p. 49.

West Greenland records:

Chiton albus FABRICIUS 1780, p. 422.
Chiton albus MØRCH 1877, p. 440.
Chiton (Lophyrus) albus POSSELT & JENSEN 1898, p. 107.

Arctic E. American records:

A. Labrador:

Chiton albus PACKARD 1863, p. 415.
Chiton albus PACKARD 1867, p. 283.
Trachydermon albus BUSH 1884, p. 241.
Trachydermon albus JOHNSON 1926, p. 25.

C. North of Baffinland:

Chiton albus REEVE 1855, p. 396.

Material:

St. 33 A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 8 adult animals.—St. 47. Off the West coast of Disko island (69°41′ N. 55°01′ W.), 70 m, 2 adult animals.—St. 116. Jones Sound between Baffinland and Ellesmereland, 80 m depth, 2 adult animals.

Like the preceding species *T. albus* is abundant along large parts of the W. Greenland coast, where it is found in the littoral zone from

Frederikshaab to Ritenbenk. "Godthaab" st. 33A and st. 47 are both situated inside the area from which it had been recorded previously, while the species is new to the Jones Sound area.

Further distribution: The species is circumpolar and known from a great number of localities in the Arctic as well as from more temperate seas, its southern limit being near the British Islands, the Sound, and the Danish Belts.

Trachydermon ruber (LOWE).

Chiton ruber LOWE 1825, p. 101, pl. 5, fig. 2.
Boreochiton ruber G. O. SARS 1878, p. 116, pl. 8, fig. 4.
Trachydermon ruber ODHNER 1915, p. 50.

West Greenland records:

Chiton ruber MØLLER part., 1842, p. 16.
Chiton ruber MØRCH 1877, p. 440.
Chiton (Boreochiton) ruber POSSELT & JENSEN 1898, p. 110.

Arctic East American records:

A. Labrador:
Trachydermon ruber BUSH 1884, p. 241.
Trachydermon ruber JOHNSON 1926, p. 25.
Lepidochiton ruber ruber JOHNSON 1934, p. 13.

C. North of Baffinland:
Chiton ruber REEVE 1855, p. 396.

Material:

St. 33. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, epifauna-haul, 1 young animal.—St. 32 A. Off Herrnhut point, Godthaab, 10—20 m depth, 1 adult animal.

Thus this species is known from exactly the same localities as *Tonicella marmorea*, from which it is easily distinguishable by the calcareus corpuscles of the mantle edge. The species is known throughout the West Greenland coast between Julianehaab and Prøven, but does not seem to be very common in any locality.

Further distribution: *Tr. ruber* is circumpolar and distributed from the arctic regions to Japan, Gulf of Maine, the British Islands and the Sound in the South.

III. Solenogastres.

Proneomenia sluiteri HUBRECHT.

Proneomenia sluiteri HUBRECHT 1880.
Proneomenis sluiteri PILSBRY & SHARP 1898, in TRYON, p. 294, pl. 431, figs. 17—23.

West Greenland and Arctic East American records: none.

Material (cfr. fig. 2).

St. 54. Baffins Bugt, directly West of Disko island (69°50′ N. 61°36′ W.), 1880 m depth, 2 halfgrown animals.—St. 87. Between Thule and Etah (77°05′5″ N. 71°13′ W.), 790 m depth, 3 adult animals.

The animals at st. 54 were 60 and 61 mm long and at st. 87: 71, 81 and 88 mm long respectively. All the specimens had distinct spicules placed at right angles to each other in the integument. The species is new to Greenland.

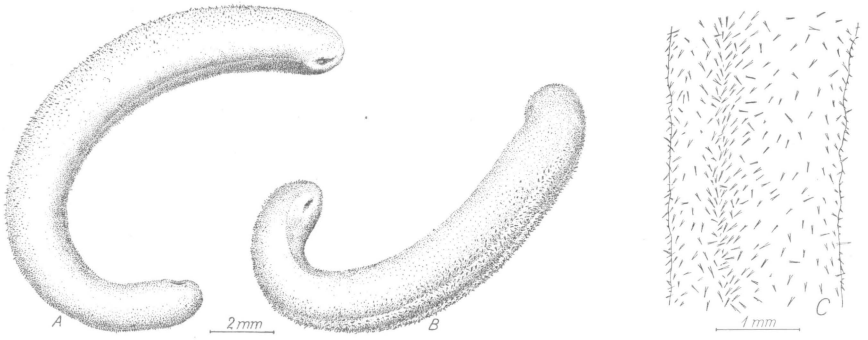

Fig. 3. *Proneomenia borealis* (Danielssen & Koren). *A* and *B*: Whole animal seen in different views. *C* part of dorsal side to show the needle shaped calcareous spines. "Godthaab"-Expedition 1928, st. 135. (Drawn by Poul H. Winther).

Further distribution:

This species hitherto seems to have been recorded only from the Barents Sea, where the typical form as well as the var. *langi* Simroth occur at depths greater than 135 m. The findings off West Greenland therefore are of fairly great interest, since the species has a much wider range of distribution than hitherto known. As both W. Greenland localities are situated in deep water north of the Holsteinsborg—Cape Walsingham ridge, *P. sluiter* has been proved to occur also in true Arctic seas.

Proneomenia borealis (Koren & Danielsen)
(Fig. 2, page 5, and fig. 3).

Solenopus borealis Kor. & Dan. 1877.
Solenopus borealis G. O. Sars 1878, p. 327.
Proneomenia borealis Hansen 1889.
Proneomenia borealis Pilsbry & Sharp 1898, in Tryon, p. 295.

West Greenland and Arctic East American records: none.

Material:

St. 135. Northern part of Baffin Bay (74°41′ N. 70°30′ W., i.e. between Melville Bugt and Lancaster Sound), 1200 m depth, 1 adult animal.

The present specimen had a length of 18 mm, the greater diameter being 2 mm. Though the species has never been figured it could easily be determined by the following characteristics (cfr. fig. 3): The rounded anterior end, the fine sharp line on the back, and the short, needle-shaped calcareous spicules mentioned in the original description. The species is new to the area examined by the "Godthaab"-Expedition; it has not previously been recorded from so great depths. Figs. 3a—c show the specimen taken by the "Godthaab".

Further distribution: This species hitherto seems to have been recorded from the Norwegian coast only, where it has been taken at Lofoten and in the cold area along the West coast at depth from about 75 to 800 m. For this species, also, the find off W. Greenland indicates a much wider distribution than hitherto known, and the species is new to the Arctic deep sea.

IV, Gastropoda prosobranchiata.

Acmaea testudinalis (MÜLLER).

Patella testudinalis MÜLLER 1776, p. 237.
Tectura testudinalis GOULD & BINNEY 1870, p. 267, fig. 529.

West Greenland records:

Patella testudinalis FABRICIUS 1780, p. 385.
Tectura testudinalis MØRCH 1877, p. 440.
Tectura testudinalis JEFFREYS 1880, p. 126.
Acmaea testudinalis POSSELT & JENSEN 1898, p. 114.

Arctic East American records:

A. Labrador:
Tectura testudinalis PACKARD 1863, p. 415.
Tectura testudinalis PACKARD 1867, p. 283.
Acmæa testudinalis BUSH 1884, p. 241.
Acmæa testudinalis DALL 1887, p. 206.
Acmæa testudinalis WHITEAVES 1901, p. 155.
Acmæa testudinalis JOHNSON 1926, p. 131.
Acmæa testudinalis testudinalis JOHNSON 1934, p. 64.
Acmæa testudinalis RICHARDS 1936, p. 539.

B. Baffinland:
Acmæa testudinalis DALL 1879, p. 146.
Tectura testudinalis PFEFFER 1886, p. 44.
Acmæa testudinalis REEVE 1855, p. 395.

Material:

St. 32A. Off the Ny Herrnhut point, Godthaab, 10—20 m depth, 1 half-grown animal.—St. 42A. Egedesminde, on the shore, on rocks, 7 adult animals.

This species is distributed along the whole West Greenland coast

from Nanortalik to Melville Bugt and is one of the most abundant species in the littoral zone. Thus both localities in which the species was taken by the "Godthaab", are situated inside the area from which the species was already known.

Further distribution: *A. testudinalis* is circumpolar, but nevertheless, seems to be absent from the most High-Arctic regions. Thus, it is unknown from Spitzbergen and from East Greenland N. of Angmagssalik. POSSELT's record of these species from Hekla Havn in Scoresby Sund (1898, p. 115) no doubt is erroneous, since the species has never been refound there during the intensive collections in this fjord-area in recent years (cf. THORSON 1944, p. 10—11). Its southernmost areas of distribution are Japan, Gulf of Maine, the British Islands, and the Bay of Kiel.

Lepeta coeca (MÜLLER).

Patella coeca MÜLLER 1776, p. 237.
Lepeta coeca G. O. SARS 1878, p. 123, pl. 20, fig. 17.
Lepeta coeca ODHNER 1912, p. 32, pl. 2, figs. 2—17.

West Greenland records:

Patella coeca MØLLER 1842, p. 16.
Lepeta coeca JEFFREYS 1877c, p. 231.
Lepeta coeca MØRCH 1877, p. 440.
Lepeta coeca POSSELT & JENSEN 1898, p. 117.
Lepeta cæca BAKER 1919, p. 502.
Lepeta coeca VIBE 1950, p. 108.

Arctic E. American records:

A. Labrador:

Lepeta cæca BUSH 1884, p. 241.
Lepeta cæca JOHNSON 1926, p. 131.
Lepeta cæca JOHNSON 1934, p. 65.
Patella cerea REEVE 1855, p. 395.
Lepeta cæca SMITH 1877, p. 139.

Material:

Middle part of W. Greenland: St. 47 and 48. Off Disko island (69°41′ N. 55°15′ W.), 70—120 m depth, 5 adult and 2 young animals.—St. 145. Spraglebugt, Umanak, 10 m depth, stones, 3 adult animals.—St. 61. Off Upernavik (72°33′5″ N. 57°36′ W.), 190 m depth, 1 adult animal.—Etah-Thule-Ellesmereland area: St. 87, off Kap Powlett (77°05′5″ N. 71°13′ W.), 790 m depth, 1 adult animal.—St. 97. Smith Sund off Etah (78°16′ N. 73°28′ W.), 290 m depth, stones, 1 adult animal.—St. 107. Off Thule (76°24′8″ N. 69°38′ W.), 165 m depth, stones, 2 adult shells.—St. 114. Smith Sound (76°40′ N. 74°20′ W.), 85 m depth, 6 adult animals.—St. 116, Jones Sund, Ellesmereland (76°08′ N. 80°53′ W.), 80 m depth, 8 adult animals.—Baffinland area: St. 166, Totness Road, Exeter Sound, about 100 m depth, stones, 1 adult animal.

Lepeta coeca is widely distributed along the W. Greenland coast where it is known from Julianehaab in the south to Etah in the north. It has not, however, been recorded previously from Jones Sound and Smith Sund, but as it was taken by the "Alert and Discovery"-Expeditions off Grinnelland, its occurrence in these areas could be expected. The depth at st. 87 (790 m) seems to be one of the greatest depths at which the species has hitherto been taken, (greatest depth hitherto known: 1229 m ("Valorous"-Expedition, JEFFREYS 1877c).

Further distribution: The species, which is circumpolar, seems to be one of the most common species in Arctic seas, where—in contrast to *Acmaea testudinalis*—it also occurs at Spitzbergen and N.E. Greenland. Towards the south it extends to Japan, Cape Cod, Scotland and the Sound, and—in the deep sea—to Culebra-Island in West India.

Margarita helicina (PHIPPS).

Turbo helicinus PHIPPS 1774, p. 195.
Margarita arctica MIDDENDORFF 1851, p. 203, pl. 17, figs. 13—16.
Margarita helicina ODHNER 1912, pp. 50—54, pl. 3, figs. 26—34.

West Greenland records:

Trochus helicinus FABRICIUS 1780, p. 393.
Margarita helicina STIMPSON 1864, p. 140.
Margarita helicina MØRCH 1877, p. 439.
Trochus helicinus JEFFREYS 1880, p. 126.
Margarita helicina POSSELT & JENSEN 1898, p. 122.
Margarita helicina BAKER 1919, pp. 502—03.
Margarita helicina VIBE 1950, p. 108.

Arctic E. American records:

A. Labrador:
Margarita helicina PACKARD 1863, p. 415.
Margarita helicina and *M. campanulata* PACKARD 1867, p. 284.
Margarita helicina BUSH 1884, p. 241.
Margarita campanulata PACKARD, in BUSH, 1884, p. 244.
Margarita helicina DALL 1887, p. 206.
Margarita helicina WHITEAVES 1901, p. 157.
Margarites helicina JOHNSON 1926, p. 131.

B. Baffinland:
Margarita helicina DALL 1879, p. 146.

C. North of Baffinland:
Margarita helicina SUTHERLAND 1852, p. CCI.
Trochus helicinus JEFFREYS 1877e, p. 240.

Material:

St. 33A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 1 adult animal.—St. 166. Totness Road, Exeter Sound, Baffinland, on shore, 1 adult animal.

This species es extremely common in the littoral zone all along

the West Greenland coast, from Julianehaab to Etah, and is also known from Grinnelland and Labrador. The two localities from the "Godthaab"-Expedition are situated within regions from which the species is already known.

Further distribution: *M. helicina* seems to be known from all areas examined along the Arctic coasts and thus is circumpolar. Its southern limit is near Vancouver, Cape Cod, the British Islands and the Kattegat.

Margarita groenlandica (CHEMNITZ).

Trochus groenlandicus CHEMNITZ 1781, p. 108, fig. 1671.
Margarita undulata GOULD & BINNEY 1870, p. 280, fig. 541.
Margarita groenlandica ODHNER 1912, pp. 56—62, pl. 4, figs. 4—27.

West Greenland records:

Trochus cinerarius FABRICIUS 1780, p. 391.
Margarita undulata MØLLER 1842, p. 8.
Margarita undulata MØRCH 1877, p. 439.
Trochus umbilicalis JEFFREYS 1880, p. 126.
Margarita groenlandica POSSELT & JENSEN 1898, p. 126.
Margarita umbilicalis BAKER 1919, pp. 503—504.
Margarita groenlandica VIBE 1950, p. 108.

Arctic E. American records:

A. Labrador:

Margarita undulata PACKARD 1863, p. 415.
Margarita undulata PACKARD 1867, p. 284.
Margarita Groenlandica BUSH 1884, p. 241.
Margarita umbilicalis DALL 1887, p. 206.
Margarita umbilicalis and *M. undulata* WHITEAVES 1901, p. 158.
Margarites umbilicalis var. *spiralis* and *M. groenlandica* with var. *incarnata* JOHNSON 1926, p. 131.
Margarites grænlandica and *M. umbilicalis umbilicalis* JOHNSON 1934, p. 72.

B. Baffinland:

Margarita umbilicalis HANCOCK 1846, p. 325.
Margarita umbilicalis DALL 1879, p. 146.
Margarita umbilicalis PFEFFER 1886, p. 43.

C. North of Baffinland:

Margarita undulata and *M. umbilicalis* SUTHERLAND 1852, p. CCI.
Margarita umbilicalis REEVE 1855, p. 393.
Trochus umbilicalis SMITH 1877, p. 138.
Trochus umbilicalis JEFFREYS 1877e, p. 240.

Material:

Middle part of West Greenland: St. 145, Spraglebugt, Umanak, about 10 m depth, stones, 2 adult animals with smooth shells.—Etah-Thule-Ellesmereland area: St. ?, Thule harbour, 6—10 m depth, 1 adult animal (smooth shell).—St. 86. Off Thule (76°30′ N. 68°54′ W.), 80—180 m depth, 4 adult animals (smooth shells).—St. 107. S.W. of

Thule (76°24′ 8″ N. 69°38′ W.), 160 m depth, 7 adult smooth-shelled animals and 1 adult animal with spiral-structured shell.—St. 114. Between Thule and Ellesmereland (76°40′ N. 74°20′ W.), 85 m depth, about 50 adult animals (smooth shells).—St. 116. Jones Sound (76°08′ N. 80°53′ W.), 80 m depth, 10 adult animal (smooth shells).—St. 97. Off Etah, Smith Sund (78°16′ N. 73°28′ W.), 290 m depth, 5 very large, spiral-structured animals.—Baffinland area: St. 166. Totness Road, Exeter Sound, on shore, 3 very large animals with smooth shells.—St. 166C. Totness Road, Exeter Sound, about 100 m depth, stones, 2 adult animals (smooth shells).

Between the typical form and the var. *umbilicalis* (BROD. & SOWB.) all transitions are found. *M. groenlandica* is distributed in the littoral zone all along the W. Greenland coasts from Nanortalik in the south to Etah in the north, and no doubt is the most common gastropod-species along the West Greenland coasts. Since the species is also known from Grinnelland (SMITH 1877), and Baffinland (REEVE, 1855, PFEFFER, 1886 and JEFFREYS, 1877), all the finds of the "Godthaab" are placed within the area of distribution already known for this species.

Further distribution: *M. groenlandica*, which is circumpolar, is known from all Arctic coastal areas examined. Its distribution is mainly arctic, but the species extends towards the south to Cape Cod, Scotland, the North Sea, and Bergen.

Margarita cinerea (COUTHOUY).

Turbo cinereus COUTHOUY 1839, p. 99, pl. 3, fig. 9.
Margarita cinerea G. O. SARS 1878, p. 134, pl. 9, fig. 1, pl. 21, fig. 4.
Margarita cinerea ODHNER 1912, pp. 62—67, pl. 4, fig. 32, 35, 36, pl. 5, fig. 1, 2.

West Greenland records:

Trochus cinerarius FABRICIUS 1780, p. 391.
Margarita striata MØLLER 1842, p. 8.
Margarita cinerea STIMPSON 1864, p. 140.
Trochus cinereus JEFFREYS 1877c, p. 236.
Margarita cinerea MØRCH 1877, p. 439.
Margarita cinerea POSSELT & JENSEN 1898, p. 129.
Margarites cinerea BAKER 1919, p. 505.

Arctic E. American records:

A. Labrador:
Margarita cinerea PACKARD 1863, p. 415.
Margarita cinerea PACKARD 1867, p. 283.
Margarita cinerea BUSH 1884, p. 241.
Margarita cinerea and var. *grandis* WHITEAVES 1901, p. 159.
Margarites cinerea with var. *maxima* JOHNSON 1926, p. 131.
Margarites cinerea grandis JOHNSON 1934, p. 73.

B. Baffinland:
Margarita sordica Hancock 1846, p. 324.

Material:

St. 14. Off Hamilton Inlet, Labrador (55°08′ N. 56°34′ W.), 314 m depth, 1 adult animal.—St. 166. Totness Road, Exeter Sound, Baffinland, about 100 m depth, stones, 1 adult animal.—St. 116. Jones Sound, Ellesmereland (76°08′ N. 80°53′ W.), 80 m depth, 3 adult animals.—St. 33A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 1 adult and 1 halfgrown animals.

The species is distributed all along the West Greenland coast from Julianehaab to Etah and has also previously been taken in the Baffins Bugt and off Labrador. Jones Sound, where the specimens of the "Godthaab" (st. 116) were taken, seems, however, to be the northernmost locality from which the species is known.

Further distribution: *M. cinerea* is circumpolar, and it is known from a great number of localities in the Arctic seas. Towards the south it reaches to Cape Cod, the Hebrides, Ireland and Bergen.

Solariella varicosa (Mighels & Adams).

Margarita varicosa Mighels & Adams 1844, p. 46, pl. 4, fig. 14.
Machaeroplax varicosa G. O. Sars 1878, p. 139, pl. 9, fig. 2.
Solariella varicosa Odhner 1912, pp. 69—79, pl. 5, figs. 6—14.

West Greenland records: none.

Arctic E. American records:

A. Labrador:
Margarita varicosa Packard 1867, p. 284.
Machæroplax varicosa Bush 1884, p. 241.
Solariella varicosa Whiteaves 1901, p. 160.
Solariella varicosa Johnson 1926, p. 131.
Solariella vericosa Johnson 1934, p. 71.

Material:

St. 14. Off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, 1 halfgrown animal.

This species, which seems to be totally absent from Greenland, has previously been taken off Labrador (East coast from Forteau Bay to Dead Island, K. J. Bush, 1884), where it has hitherto been known only from small depths (1—36 m). The absence of the species off W. Greenland (it is also unknown from E. Greenland) is the more striking, since its further areas of occurrence in the Arctic seem to indicate a circumpolar distribution.

Further distribution (cfr. fig. 4, p. 20): The species is known from Spitsbergen, from the Russian and Siberian Ice Sea, the Berings Sea,

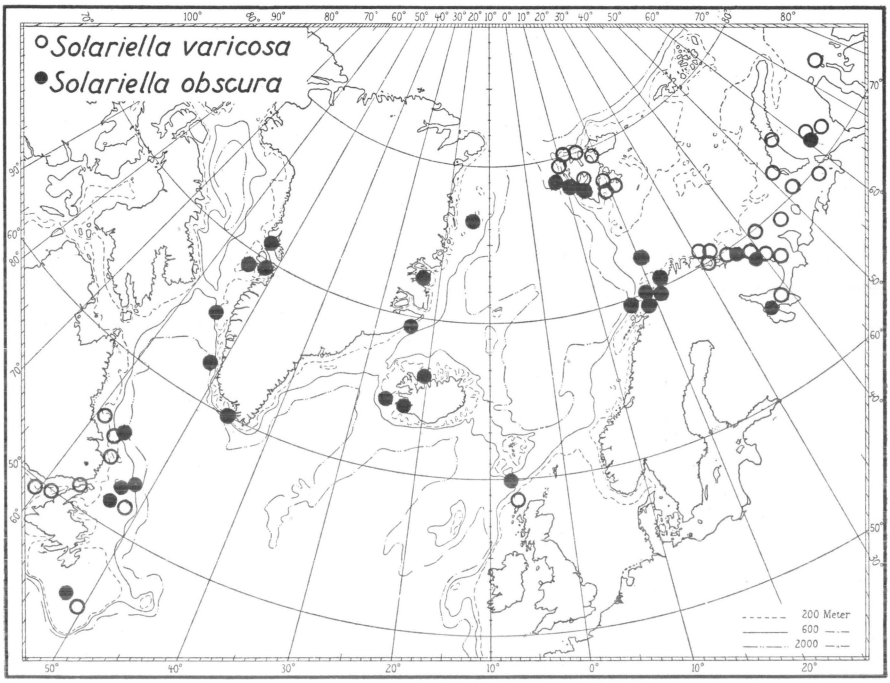

Fig. 4. Map showing the North-Atlantic distribution of *Solariella varicosa* (MIGH. & ADAMS), and *Solariella obscura* (COUTH.).

Labrador and St. Lawrence Gulf. Its southern limit seems to be near Japan, Nova Scotia, the Hebrides and Vadsø (Norway).

Solariella obscura (COUTHOUY).

Turbo obscurus COUTHOUY 1839, p. 100.
Machaeroplax obscurus G. O. SARS 1878, p. 137, pl. 9, fig. 5.
Solariella obscura var. *finmarchica* ODHNER 1912, p. 70, pl. 5, figs. 35—36, pl. 7, fig. 15.

West Greenland records:

Solariella obscura ODHNER 1912, p. 72.
Solariella lævis BAKER 1919, p. 505.

Arctic E. American records:

A. Labrador:
Machæroplax obscura BUSH 1884, p. 241.
Solariella obscura obscura JOHNSON 1934, p. 65.

Material:

St. 14. Off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, 1 half-grown shell.

In Posselt & Jensen's review of the West Greenland's mollusca, this species has been overlooked, as shown by Odhner (1912), since the species has been taken off West Greenland at least from Julianehaab to Umanak, and, if *lævis* Friele should be regarded as a variety of this species (cfr. Pilsbry, in: Manual of Conchology, 1889), also from Etah. From Labrador, where our specimen—a shell only—has been found, the species was not known, its hitherto northernmost record along the North East American coast being the banks of New Foundland. The specimen found is closely similar to Sars' figure and to specimens collected and identified by Sars in the Zoological museum of Copenhagen. It therefore belongs to var. *finmarchica* Odhner with which Sars' "*Machaeroplax obscurus*" is identical.

Further distribution (cfr. fig. 4) *S. obscura* is circumpolar and known from a great number of arctic localities, where it has been taken down to 900 m depth. Towards the south, it reaches only New England and the seas between the Hebrides and the Faroes, and Vadsø (Norway).

Natica clausa Broderip & Sowerby.

Natica clausa Brod. & Sowb. 1829, p. 360.
Natica affinis G. O. Sars 1878, p. 160, pl. 21, figs. 12—13, pl. 12, fig. 1.
Natica clausa Odhner 1913, p. 14, pl. 3, figs. 1—3, 5—14, 16, 17, pl. 5, figs. 7—14.

West Greenland records:

Natica septentrionalis Møller 1842, p. 7.
Natica clausa Stimpson 1864, p. 140.
Natica affinis Jeffreys 1877d, p. 318.
Natica affinis Mørch 1877, p. 438.
Natica affinis Jeffreys 1880, p. 126.
Natica affinis Posselt & Jensen 1898, p. 142.
Natica clausa Odhner 1913, p. 18.
Natica clausa sive affinis Vibe 1950, p. 108.

Arctic E. American records:

A. Labrador:
Natica clausa Packard 1863, p. 416.
Natica clausa Packard 1867, p. 285.
Natica clausa Bush 1884, p. 239.
Natica clausa Johnson 1926, p. 132.
Natica clausa clausa Johnson 1934, p. 93.

C. Lancaster Sound and farther North:
Natica septentrionalis Reeve 1855, p. 393.
Natica affinis Smith 1877, p. 138.

Material:

St. 33A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 2 adult, 1 halfgrown animals.—St. 14. Off Hamilton Inlet,

Labrador (55°00′ N. 56°34′ W.), 314 m depth, 1 half-grown animal.—St. 116. Jones Sound, Ellesmereland (76°00′ N. 80°53′ W.), 80 m depth, 1 adult animal.

Since the species is known from the West Greenland coast between Natortalik and Prøven, and is also recorded from Grinnelland (SMITH, 1877) and Labrador, the finds of the "Godthaab" are all within the area from which the species was already known. All specimens taken by the "Godthaab" seem to belong to the typical form.

Further distribution: *N. clausa* is circumpolar, and is abundant in nearly all Arctic seas. It also occurs outside the Arctic, in deep water off Portugal, in the Mediterranean, off New England, round the Faroes, and all along the Norwegian coast.

Lunatia pallida (BRODERIP & SOWERBY).

Natica pallida BROD. & SOWB. 1829, p. 372.
Lunatia groenlandica G. O. SARS 1878, p. 158, pl. 21, fig. 15.
Lunatia pallida ODHNER 1913, p. 13, pl. 3, figs. 15, 19—37, pl. 4, figs. 1—8, pl. 5, figs. 16—18.

West Greenland records:

Natica groenlandica MØLLER 1842, p. 7.
Natica groenlandica MØRCH 1877, p. 438.
Natica groenlandica POSSELT & JENSEN 1898, p. 139.
Lunatia pallida ODHNER 1913, p. 35.

Arctic E. American records:

A. Labrador:
Natica (Lunatia) groenlandica PACKARD 1867, p. 285.
Lunatia Grænlandica BUSH 1884, p. 239.
Lunatia grænlandica WHITEAVES 1901, p. 165.
Natica groenlandica RICHARDS 1936, p. 540.

B. Baffinland:
Natica Grænlandica HANCOCK 1846, p. 332.

C. Lancaster Sound and farther north:
Natica Grænlandica REEVE 1855, p. 393.

Material:

St. 139. N.W. of Umanak, West Greenland (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, 1 adult animal.—St. 107. Kap Parry, between Kap York and Thule (76°24′ N. 69°38′ W.), 165 m depth, stones, 1 adult animal.—St. 131. Off the east mouth of Lancaster Sound (74°12′ N. 77°00′ W.), between Baffinland and North Devon, 680 m depth, 1 adult shell.—St. 166. Totness Road, Exeter Sound, Baffinland, 75—200 m depth, soft clay, 2 adult shells.—St. 166. Totness Road, Exeter Sound, Baffinland, about 100 m depth, stones, 2 adult animals.

The species is distributed all along the West Greenland coast from Julianehaab to Upernavik and it is also known from Baffins Bugt and from Labrador. The occurrence at Kap Parry between Kap York and Thule and off Lancaster Sound are, however, more northern than the previously known localities for this species in these areas.

Further distribution: *Lunatia pallida* is circumpolar and abundant in most Arctic coastal areas. Towards the South it reaches to Japan, New England, Great Britain, Ostende and the Sound.

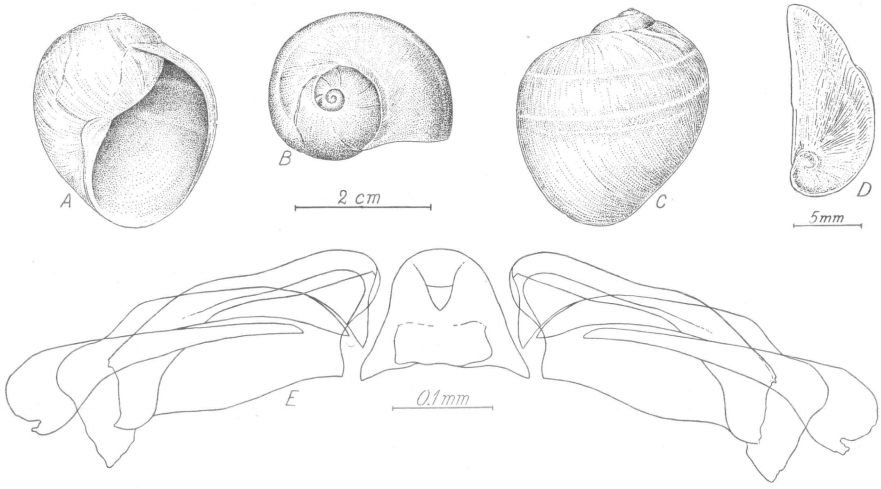

Fig. 5. *Acrybia glacialis* n. sp. Type specimen. *A* seen from the aperture, *B* from the apex, *C* from the back, *D* Operculum, seen from outside, *E*. Radula. (Drawn by Poul H. Winther).

Acrybia glacialis n. sp. (fig. 5).

Diagnosis: Shell globose, thin; spire flattened, much depressed; whorls $3^1/_2$ in number, convex, evenly rounded, and evenly increasing in size. Embryonic whorls 2, milky white, smooth, glossy; apex flattened, suture only slightly impressed. No umbilicus present; columella quite straight and forming a mere film on the body whorl above the straight part. Aperture rectangular-elliptical, outer lip thin. Shell nearly smooth, with dense, very fine transverse lines of growth, parallel to the edge of the lip, and—like it—advancing as they approach the suture. On the body whorl two white spiral stripes appear, one running at the upper part of the whorl—about 7 to 8 mm beneath the suture—the other running parallel to it, but in the middle of the whorl, 5 mm beneath the upper stripe. Epidermis pale brownish-white, smooth and very thin.

Operculum (fig. 5D) very thin, pale carneous, length 14 mm, greatest breadth 7 mm. When the animal is stretched out the operculum is quite hidden under the shell.

Animal: Preserved in alcohol. Apparently yellowish-white. No eyes could be seen.

Radula (fig. 5 E): as usual in the genus *Acrybia* H. & A. ADAMS, the median tooth has 1 cusp only. Even in other respects the radula is very similar to that of *Acrybia flava* GOULD.

From the nearest related species—*Acrybia flava* GOULD—this species can easily be distinguished by its much more flattened spire, its curious rectangular-elliptical aperture (in *A. flava* the outer lip meets the preceding whorl at an acute angle, in *A. glacialis* it meets the preceding whorl at a nearly right angle), and by having no umbilicus.

The shell measures: In length 23 mm, breadth $21^1/_2$ mm, length of body whorl $22^1/_4$ mm, length of aperture $19^3/_4$ mm, breadth of aperture 12 mm.

The type locality of this interesting species is: "Godthaab", st. 119. Jones Sound between North Devon and Ellesmereland (75°54′ N. 81°01′ W.), August 17th 1928, 610 m depth, 1 adult (♀) animal (cfr. the map fig. 14, p. 51). Type specimen: in the Zoological Museum of the University of Copenhagen. The locality is especially interesting in being a deep water locality north of the ridge between Cape Walsingham and Holsteinsborg. As this large, peculiar form has not previously been mentioned in the literature it probably is an endemic high-arctic deep water form.

Marsenina glabra (COUTHOUY).

Oxynoe glabra COUTHOUY 1839, p. 90, pl. 3, fig. 16.
Marsenina micromphala BERGH 1853, p. 350, pl. 4, figs. 1—17.
Marsenina prodita G. O. SARS
Marsenina micromphala G. O. SARS
Marsenina groenlandica G. O. SARS
} 1878, pp. 151—152, pl. 12, fig. 5, pl. 21, figs. 10 and 11.
Marsenina glabra ODHNER 1913, pl. 51, pl. 1, figs. 7—11, pl. 5, figs. 30—31.

West Greenland records:

Marsenina micromphala MØRCH 1877, p. 438.
Marsenina groenlandica MØRCH 1877, p. 438.
Marsenina micromphala POSSELT & JENSEN 1898, p. 136.
Marsenina groenlandica POSSELT & JENSEN 1898, p. 137.

Arctic E. American records:

A. Labrador:

Marsenina glabra WHITEAVES 1901, p. 167.
Marsenina glabra JOHNSON 1926, p. 132.

Material:

St. 114. Between Thule and the South East coast of Ellesmereland (76°40′ N. 74°20′ W.), 85 m depth, 1 adult animal belonging to the var. *prodita* (LOVÉN).

In determining the collection of *Marsenina*, I have followed ODHNER (l. c.) who regards all North Atlantic *Marsenina*-forms as varieties of the same species. Two of these varieties: var. *micromphala* and var. *groenlandica* (MØLLER) have previously been taken off Southern West Greenland, while the var. *prodita* found by the "Godthaab" is new to this area.

Further distribution: *Marsenina glabra* with the said variety is known from large areas of the Arctic seas. It seems, however, to be absent in the Arctic sector of the Pacific ocean. Towards the south it only extends to the Eastern coast of Canada (Maine) and Iceland. The var. *prodita* is known from Finmarken, Spitzbergen, Danmarksstræde, and the American Atlantic coast (Eastport, Maine).

Capulacmaea radiatum (M. SARS).

Capulus radiatus M. SARS 1851, p. 64.
Pilidium commodum MIDDENDORFF 1851, p. 214, pl. 17, figs. 4—11.
Pilidium radiatum G. O. SARS 1878, p. 144, pl. 8, fig. 6.

West Greenland records:

Pilidium radiatum JEFFREYS 1877d, p. 321.
Pilidium radiatum POSSELT & JENSEN 1898, p. 133.

Arctic E. American records:

Material:

St. 87. Off Cape Powlett (77°21′ N. 70°00′ W.), between Thule and Etah, 790 m depth, 1 adult animal.—St. 90. Off Cape Powlett (77°17′ N. 69°59′ W.), 930 m depth, 1 adult animal.—St. 97. Off Etah, Smith Sund (78°16′ N. 73°28′ W.), 185 m depth, 1 adult animal.

This gastropod, which in its whole area of distribution seems to be fairly rare, has previously been taken at 3 stations off W. Greenland, all off Holsteinsborg (22—450 m depth); it was, however, unknown from other areas of W. Greenland, and is still unknown from the Baffins Bugt and Labrador. The 3 stations at which the species has been found by the "Godthaab" are interesting in being situated close to each other —two of them in great depths—and in being the northernmost records of the species hitherto known.

Further distribution: The distribution of this species is only little known. It seems, however, to be circumpolar and to reach to Japan and to the sea south of Iceland.

Velutina undata BROWN, var. *zonata* GOULD.

Velutina zonata GOULD 1841, p. 242, fig. 160.
Marvillia undata, forma *typica* G. O. SARS 1878, p. 147, pl. 21, figs. 7a—c.
Velutina undata var. *zonata* ODHNER 1913, p. 55, pl. 2, figs. 2, 10, pl. 5, figs. 27—28.

West Greenland records:

Velutina (*Morvillia*) *Zonata* SMITH 1878, p. 227—228.
Velutina zonata POSSELT & JENSEN 1898, p. 135.
Velutina undata var. *zonata* ODHNER 1913, pp. 56—57.
Velutina zonata VIBE 1950, p. 108.

Arctic E. American records:

A. Labrador:
Velutina undata JOHNSON 1926, p. 132.

B. Baffinland:
Velutina zonata HANCOCK 1846, p. 331.

Lancaster Sound and farther north:
Velutina (*Morvillia*) *zonata* var. *grandis* SMITH 1877, p. 137.

Material:

St. 139. North West of Umanak, West Greenland (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, 1 adult (fragmentary) animal. —St. 166. Totness Road, Exeter Sound, Baffinland, depth ?, 1 young animal.—St. 14. Off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 1 young animal.

Velutina undata, though sparsely, has been taken along the West Greenland coast from Arsuk at Julianehaab in the south to Thule and Franklin Pierce Bay (79°25′ N.) in the north. It is also known from the Labrador coast. Thus all the finds of the "Godthaab" are inside the area of distribution from which it was previously known.

Further distribution: The species is circumpolar and known from a long series of localities even in the most high-arctic seas (East Greenland, Franz Josephs Land). Towards the south it extends to Cape Cod and Lofoten. In addition, it has been taken in deep water east of Iceland (FRIELE 1902) and round the Faroes and the Hebrides (JEFFREYS 1883), but is unknown from the coastal waters of these islands.

Velutina velutina (MÜLLER).

Bulla velutina O. F. MÜLLER 1776, p. 242.
Helix laevigata PENNANT 1777, p. 122, pl. 86, fig. 139.
Velutina velutina ODHNER 1913, p. 60, pl. 1, figs. 17—26, pl. 5, figs. 22—24.

West Greenland records:

Helix haliotoides FABRICIUS 1870, p. 390.
Velutina haliotoides MØLLER 1842, p. 10.
Velutina haliotoides MØRCH 1877, p. 438.
Velutina laevigata POSSELT & JENSEN 1898, p. 133.
Velutina velutina ODHNER 1913, pp. 62—63.
Velutina laevigata VIBE 1950, p. 108.

Arctic E. American records:

A. Labrador:

Velutina haliotoides PACKARD 1863, p. 284.
Velutina lævigata BUSH 1884, p. 239.
Velutina lævigata WHITEAVES 1901, p. 166.
Velutina laevigata JOHNSON 1926, p. 132.
Velutina lævigata JOHNSON 1934, p. 95.

Material:

St. 114. Between Ellesmereland and Thule (76°40′ N. 74°20′ W.), 85 m depth, 1 adult animal.

Off West Greenland the species is hitherto known from Julianehaab to Upernavik, where is seems to be abundant everywhere. "Godthaab"s locality is thus situated about 400 km more to the north than previously known along these coasts. It has previously been taken off the American Arctic coast (Labrador), and it seems to occur within the whole area examined, except the bottom areas at depths greater than 1000 m.

Further distribution: *V. velutina* is circumpolar and arctic-boreal. From the Arctic seas, where it is common, it is known from a great number of localities, and towards the south it reaches the Sound and Kieler-Bay, South-England and Spain (deep water). Along North East America it extends to Marthas Vineyard (VERRILL 1883) south of Cape Cod.

Littorina saxatilis (OLIVI).

Turbo saxatilis OLIVI 1792, p. 172, pl. 5, fig. 3a—d.
Turbo rudis MATON 1797, p. 277.
Littorina saxatilis DAUTZ. & FISCHER 1912, p. 187, pl. 9, fig. 1—32, pl. 10, fig. 130.
Littorina rudis var. *groenlandica* G. O. SARS 1878, p. 165, pl. 9, figs. 10a—b.

West Greenland records:

Nerita littorea FABRICIUS 1780, p. 403.
Littorina groenlandica MØLLER 1842, p. 9.
Littorina groenlandica MØRCH 1877, p. 437.
Littorina rudis JEFFREYS 1880, p. 126.
Littorina rudis var. *groenlandica* POSSELT & JENSEN 1898, p. 231.

Arctic E. American records:

A. Labrador:

Littorina vestita PACKARD 1863, p. 415.
Littorina vestita PACKARD 1867, p. 284.
Littorina rudis BUSH 1884, p. 240.
Littorina grönlandica DALL 1887, p. 203.
Litorina rudis WHITEAVES 1901, p. 172.
Litorina rudis JOHNSON 1926, p. 133.
Littorina saxatile saxatile JOHNSON 1934, p. 102.

B. Baffinland:
Littorina tenebrosa HANCOCK 1846, p. 324.
Litorina grönlandica DALL 1879, p. 146.

Material:

St. ? Færingehavn, West Greenland, on shore, 29 animals, all belonging to var. *groenlandica* MENKE.

The species is known all along the West Greenland coast from Julianehaab to Upernavik, and along the American coast from Prince Edwards Land and Labrador, and its occurrence off Færingehavn could therefore be expected.

Further distribution: *L. saxatilis* is circumpolar, but is absent in the coldest parts of the Arctic seas (off N.E. Greenland, North Spitzbergen, Franz Joseph land etc.). Towards the south it extends to the Mediterranean, the Black Sea, the Canary Islands (unpublished), New Yersey and Japan.

Littorina obtusata LINNÉ.

Littorina obtusata LINNÉ 1767, p. 1232.
Littorina obtusata MEYER & MÖBIUS 1872, pl. opposite to p. 14.

West Greenland records:

Littorina obtusata MØRCH 1857, p. 8.
Littorina obtusata var. *littoralis* or *limata* JEFFREYS 1877c, p. 238.
Littorina obtusata MØRCH 1877, p. 437.
Littorina obtusata var. *littoralis* JEFFREYS 1880, p. 126.
Littorina obtusata POSSELT & JENSEN 1898, p. 229.

Arctic E. American records:

A. Labrador:
Littorina palliata and *L. littoralis* PACKARD 1863, p. 415.
Littorina palliata PACKARD 1867, p. 284.
Littorina obtusata JOHNSON 1934, p. 102.

Material:

St. ? Færingehavn, W. Greenland, on shore, 2 half-grown animals.

These young specimens, one of which had a light-yellow shell, show somewhat more tendency to a spire than is normal for *L. obtusata* in boreal seas. Also in its structure it seems to form a transitional stage to *L. palliata* (SAY), which is common along the coast of W. Greenland from Julianehaab to the Melville-Bugt. KNUDSEN (1949) has, however, shown, that *Littorina palliata* is only a variety of *Littorina obtusata*, since transitional forms are fairly common.

Further distribution: The species is known from Greenland, Spitzbergen, Novaya Zemlya, the Russian Lapmark and Iceland, but is absent from the true high-arctic coastal areas. Towards the south it reaches the Baltic and the Mediterranean.

Aporrhais occidentalis Sowb.

Aporrhais occidentalis Sowerby 1842, p. 21.
Aporrhais occidentalis Gould 1841, p. 298, fig. 205.

West Greenland records:

Aporrhais occidentalis Mørch 1857, p. 10.
Aporrhais occidentalis Mørch 1877, p. 438.
Aporrhais occidentalis Posselt & Jensen 1898, p. 215.

Arctic E. American records:

A. Labrador:
Aporrhais occidentalis Packard 1867, p. 285.
Aporrhais occidentalis Bush 1884, p. 240.
Aporrhais occidentalis labradorensis Johnson 1934, p. 111.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 2 adult, 2 half-grown, 1 young animals.

Relatively few specimens are known of this species, from West Greenland 3 specimens only. It has, however, previously been taken off Labrador.

Further distribution: Besides from West Greenland and Labrador the species is known only from the areas round the New Foundland-banks, Sable Island and Eastport.

Turritellopsis acicula (Stimpson).

Turitella acicula Stimpson 1851, p. 15.
Turritellopsis acicula G. O. Sars 1878, p. 186, pl. 10, fig. 14a—b.

West Greenland records:

Turritellopsis acicula Posselt & Jensen 1898, p. 219.

Arctic E. American records:

A. Labrador:
Turritella acicula Packard 1863, p. 416.
Turritella acicula Packard 1867, p. 285.
Turritellopsis acicula Bush 1884, p. 240.
Turritellopsis acicula Whiteaves 1901, p. 174.
Turritellopsis acicula Johnson 1926, p. 133.
Turritellopsis acicula Johnson 1934, p. 103.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°08′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 2 adult animals (length of shells: 17 and $16^1/_2$ mm respectively), 2 adult shells.

The species is well known from the Labrador coast, but the West

Greenland record by POSSELT & JENSEN (l. c.) seems dubious: "3 partly broken shells, found among specimens of *Turritella reticulata*, without other locality than Greenland".

Further distribution: Off the American coast the species towards the south reaches Cape Cod. It is furthermore known from the Norwegian East Finmark coast, where it lives at relatively smaller depths (8—18 m, SARS 1878).

Turritella erosa COUTHOUY.

Turritella erosa COUTHOUY 1839, p. 103, pl. 3, fig. 1.
Turritella erosa GOULD & BINNEY 1870, p. 317, fig. 585.

West Greenland records:

Turritella polaris MØLLER 1842, p. 16.
Turritella erosa MØRCH 1877, p. 437.
Turritella erosa JEFFREYS 1877c, pp. 239—40.
Turritella erosa JEFFREYS 1880, p. 126.

Arctic E. American records:

A. Labrador:
Turritella erosa PACKARD 1863, p. 415.
Turritella erosa PACKARD 1867, p. 285.
Turritella erosa BUSH 1884, p. 240.
Turritella erosa WHITEAVES 1901, p. 174.
Tachyrhynchus erosa JOHNSON 1926, p. 133.
Tachyrhynchus erosa JOHNSON 1934, p. 103.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 1 shell-fragment inhabited by *Phascolion strombi*.

Further distribution: The species is distributed along the West Greenland coast from Julianehaab to Melville Bugt and is also known from Labrador. It is circumpolar, its southern limits being near Japan, Cape Cod, S.W. Greenland and Spitzbergen.

Skeneopsis planorbis (FABRICIUS).

Turbo planorbis FABRICIUS 1780, p. 394.
Skenea planorbis GOULD & BINNEY 1870, p. 296, fig. 563.

West Greenland records:

Turbo planorbis FABRICIUS 1780, p. 394.
Skenea planorbis MØRCH 1877, p. 437.
Skenea planorbis POSSELT & JENSEN 1898, p. 221.

Arctic E. American records: none.

Material:

St. ? Færingehavn, between Godthaab and Fiskenæsset, West Greenland, on shore, 1 adult animal.

This species has hitherto off West Greenland been known with certainty only from Sukkertoppen to Godhavn. The find in Færingehavn, 200 km more to the south than the Sukkertoppen supports the view that the species occurs along the greater part of the West Greenland, coast, but was overlooked because of its tiny size.

Further distribution: Cape Cod to Labrador, Nova Scotia, Iceland, Spitzbergen, the Faroes, the Finmark to the Mediterranean, Madeira.

Trichotropis borealis Brod. & Sowb.

Trichotropis borealis Brod. & Sowb., 1829, p. 395.
Trichotropis borealis Collin 1887, p. 458, pl. 40, fig. 3.

West Greenland records:

Trichotropis atlantica Møller 1842, p. 12.
Trichotropis borealis Mørch 1875, p. 127.
Trichotropis borealis Posselt & Jensen 1898, p. 168.
Trichotropis borealis Baker 1919, p. 506.
Trichotropis borealis Vibe 1950, p. 108.

Arctic E. American records:

A. Labrador:

Trichotropis borealis Packard 1863, p. 417.
Trichotropis borealis Packard 1867, p. 289.
Trichotropis borealis Bush 1884, p. 240.
Trichotropis borealis Whiteaves 1901, p. 175.
Trichotropis borealis Johnson 1926, p. 133.
Trichotropis borealis costellata Johnson 1934, p. 106.

C. Lancaster Sound and farther North:

Trichotropis costellatus? Sutherland 1852, p. CCI.
Trichotropis borealis Smith 1877, p. 136.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 3 young animals.— St. 49. Off Disko island (69°43′ N. 56°20′ W.), West Greenland, 155 m depth, gray clay, 1 adult animal.

The species is common all along the West Greenland coast to Etah in the north and has earlier been taken off Labrador.

Further distribution: *Tr. borealis* is circumpolar. It is known from a great number of localities in the Arctic, where it occurs even

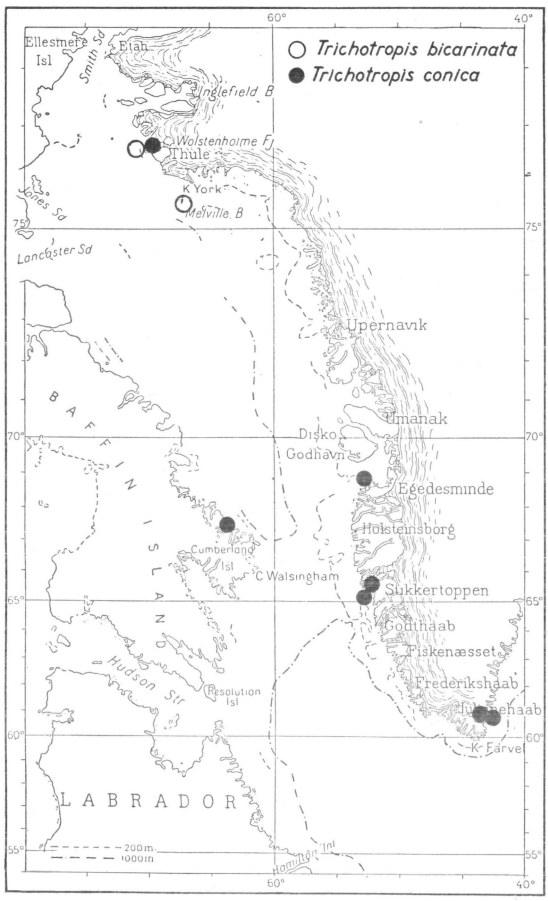

Fig. 6. Map showing all localities hitherto known of *Trichotropis bicarinata* BROD. & SOWB. and *Trichotropis conica* MØLLER within the Davis stræde and Baffin Bugt areas.

in the most high-arctic seas (the East Greenland fjords, Siberian Ice sea, etc.). To the south it reaches the British Columbia and Oregon, Cape Cod and Great Britain.

Trichotropis conica MØLLER.

Trichotropis conica MØLLER 1842, p. 12.
Trichotropis conica G. O. SARS 1878, p. 163, pl. 13, fig. 3.

West Greenland record:

Trichotropis conica MØLLER 1842, p. 12.
Trichotropis conica MØRCH 1875, p. 127.
Trichotropis conica POSSELT & JENSEN 1898, p. 170.

Arctic E. American records: none.

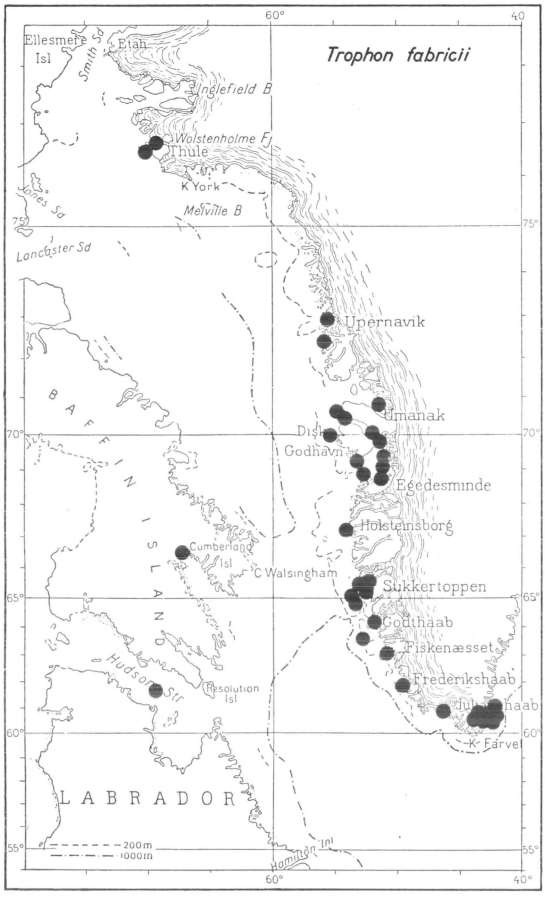

Fig. 7. Map showing all localities hitherto known of *Trophon fabricii* MØLLER within the Davis stræde and Baffins Bugt areas.

Material:

St. 86. Off Thule, West Greenland (76°36′ N. 68°54′ W.), 80—180 m depth, 1 adult animal.—St. 166. Totness Road, Exeter Sound, Baffinland, about 100 m depth, stones, 1 adult animal, 1 adult shell.

Since the species off West Greenland has not been taken more northerly than Egedesminde, the record from Thule means a "revision" of its northern limit by about 900 km. It, therefore, seems likely that the species—though sparsely—occurs along the whole West Greenland coast (cfr. fig. 6). Also the locality off Baffinland is new and more northerly than previously known (Cape Sable, Nova Scotia off the East American coast).

Further distribution: Besides from the said locality the species is known from East Greenland (very abundant in the North East Greenland fjords), Jan Mayen and the West Finmark.

Trichotropis bicarinata BROD. & SOWB. (cf. fig. 8).

Trichotropis bicarinata BROD. & SOWB. 1829, p. 374, pl. 9, figs. 4—8.
Trichotropis tenuis E. A. SMITH 1878, p. 226, fig.
Trichotropis tenuis HÄGG 1905, p. 39, pl. 1, figs. 1—2.

West Greenland record:

Trichotropis bicarinata var. *tenuis* POSSELT & JENSEN 1898, pp. 169—170.

Arctic E. American records:

C. Lancaster Sound and farther North:
Trichotropis tenuis SMITH 1877, p. 135.

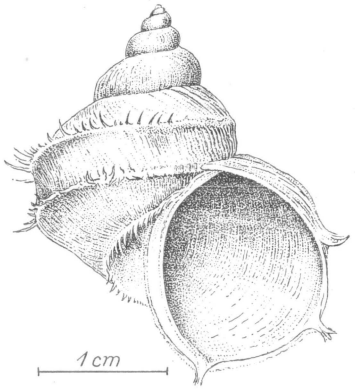

Fig. 8. *Trichotropis bicarinata* BROD. & SOWB. "Godthaab"-Expedition 1928, st. 86. (Drawn by POUL H. WINTHER).

Material:

St. 86. Off Thule, West Greenland (76°36′ N. 68°54′ W.), 80—180 m depth, hard bottom, 1 adult animal (cfr. fig. 8).

From West Greenland hitherto one specimen only has been known of this species. It was taken at about 500 m depth in the Melville Bugt (cfr. fig. 6, p. 32). This specimen reminds a good deal of SMITH's figure, but nevertheless seems to be a transitional form between this and the typical *Tr. bicarinata.*

Further distribution: This very rare species, apart from the above records, is known only from East Greenland, Icy Cape and from the Berings Sea.

Trophon fabricii MØLLER.

Trophon Fabricii MØLLER 1842, p. 14.

West Greenland records:

Trophon Fabricii MØLLER 1842, p. 14.
Trophon craticulatum STIMPSON 1864, p. 140.
Trophon Fabricii JEFFREYS 1877d, p. 325.

Murex (Trophon) craticulatus Mørch 1877, p. 439.
Trophon Fabricii Posselt & Jensen 1898, p. 174.
Boreotrophon craticulatus Baker 1919, p. 506.

Arctic E. American records.

A. Labrador:
Trophon Fabricii Whiteaves 1901, p. 179.
Trophon craticulata Johnson 1934, p. 117.

B. Baffinland:
Fusus Fabricii Hancock 1846, p. 331.

C. Lancaster Sound and farther North:
Trophon Fabricii Reeve 1855, p. 395.

Material:

St. 47. Off Disko island, West Greenland (69°41′ N. 55°01′ W.), 70 m depth, 1 adult, very typical animal (length of shell $23^1/_2$ mm).—St. 86. Off Thule, West Greenland (76°36′ N. 68°54′ W.), 80—180 m depth, 1 adult animal (length of shell 38,5 mm).—St. 107. Off Thule, West Greenland (76°24′ N. 69°38′ W.), 165 m depth, stones, 1 adult animal (length of shell, $37^1/_2$ mm) overgrown with living bryozoan colonies and numerous Foraminifera.

The species occurs in West Greenland waters from Julianehaab to Etah (cfr. fig. 7, p. 33).

Further distribution: Along the American East coast the species is known from Baffinland (Cumberland Sound) and Labrador. Furthermore it is known from the Wellington Channel, St. Lawrence Bay, Iceland, Spitzbergen, the Finmark, and the Berings Sea, and thus must be supposed to be circumpolar.

Posselt & Jensen (l. c.) point out that this species is identical with "*Tritonium craticulatum*" Fabricius from 1780, but that this name should be disregarded, since Linné used the name *Murex craticulatus* for another species of the genus *Trophon*.

Trophon truncatus (Strøm).

Buccinum truncatum Strøm 1767, p. 369, pl. 16, fig. 26.
Trophon truncatus G. O. Sars 1878, p. 246, pl. 15, fig. 9.

West Greenland records:

Tritonium clathratum Fabricius 1780, p. 400.
Trophon clathratum Møller 1842, p. 14.
Trophon clathratum var. *truncata* Jeffreys 1877d, p. 325.
Murex (Trophon) truncatus Mørch 1877, p. 439.
Trophon truncatus Posselt & Jensen 1898, p. 175.

Arctic E. American records:

A. Labrador:
Trophon truncatus Johnson 1926, p. 134.

B. Baffinland:
Trophon truncatus DALL 1879, p. 146.

Material:

St. 47. Off Disko island, West Greenland (69°41′ N. 55°01′ W.), 70 m depth, 1 adult animal.

Off West Greenland the species is known from Frederikshaab to Ritenbenk, and the record from Disko is thus within the known area of occurrence.

Further distribution: The species is known from Spitzbergen (occurrence of living specimens dubious), the Murman coast, the Barents Sea, the Siberian Ice Sea, but is absent from East Greenland and North West Greenland. In boreal seas it is widely distributed. Its southern limit is near New England, Great Britain and Denmark.

Trophon clathratus (LINNÉ).

Murex clathratus LINNÉ 1767, p. 1223.
Tritonium gunneri LOVÉN 1847, p. 12.
Trophon clathratus var. *gunneri* G. O. SARS 1878, p. 247, pl. 15, fig. 11 a—b.

West Greenland records:

Tritonium clathratum FABRICIUS 1780, p. 400.
Trophon banffii MØLLER 1842, p. 14.
Trophon clathratum STIMPSON 1864, p. 140.
Trophon clathratus JEFFREYS 1877d, p. 325.
Murex (*Trophon*) *truncatus* var. *Banffii* MØRCH 1877, p. 439.
Trophon clathratus JEFFREYS 1880, p. 126.
Trophon clathratus with var. *gunneri* POSSELT & JENSEN 1898, p. 176.

Arctic East American records:

A. Labrador:
Trophon scalariforme PACKARD 1863, p. 417.
Trophon scalariforme PACKARD 1867, p. 289.
Trophon clathratus BUSH 1884, p. 239.
Trophon clathratus WHITEAVES 1901, p. 178.
Trophon clathratus and *scalariformis* JOHNSON 1926, p. 134.
Trophon scalariformis JOHNSON 1934, p. 117.

B. Baffinland:
Trophon clathratus PFEFFER 1886, p. 43.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 1 adult, 1 half-grown specimens (length of shells 29 and 22½ mm respectively).— St. 33A. Off Holsteinsborg harbour, inside the islands, 22—35 m depth, 1 half-grown animal (length of shell 16 mm).

All the specimens belong to var. *gunneri* (LOVÉN). The species was

previously taken off the West Greenland coast, where it occurs from Julianehaab to Prøven (var. *gunneri* from Godthaab to Ritenbenk), and has also been taken from Labrador and Baffinland. The localities found by the "Godthaab" are within its already known area of occurrence.

Further distribution: The species is circumpolar and known from a long series of localities in the Arctic seas. Its total absence from the N.E. Greenland fjords is strange, but it has been found in other high-arctic seas (the Siberian Ice sea, the waters round Franz Joseph's land etc.). To the south it reaches Japan, Puget Sound, New England the Hebrides and Bohuslän (W. Sweden).

Astyris (*Pyrene*) *rosacea* (Gould).

Buccinum rosaceum Gould 1840, p. 197.
Pyrene rosacea G. O. Sars 1878, p. 251, pl. 16, fig. 1.

West Greenland records:

Mangelia Holböllii Møller 1842, p. 12.
Columbella (*Astyris*) *rosacea* Mørch 1877, p. 439.
Astyris rosacea Posselt & Jensen 1898, p. 171.

Arctic East American records:

A. Labrador:
Astyris rosacea Bush 1884, p. 239.
Astyris rosacea Whiteaves 1901, p. 179.
Mitrella rosacea Johnson 1934, p. 120.

Material:

St. 114. Between Ellesmereland and Thule in West Greenland (76°40′ N. 74°20′ W.), 85 m depth, 1 adult animal.

This locality is the northernmost record of the species hitherto known along the West Greenland coast, where it has previously been known from the coast between Fiskenæsset and Prøven. Off the American coast its most northern locality known till now is Labrador.

Further distribution: *Astyris rosacea* is also known from S.E. Greenland, Spitzbergen, the Finmark, the Murman coast, the White Sea and Nowaya Zemlya and to the south it reaches Cape Cod, the Faroe Channel, and Bergen (Norway).

Buccinum hancocki Mørch (cfr. fig. 9, p. 38).

Buccinum groenlandicum Hancock 1846, p. 329, pl. 5, figs. 8—9.
Buccinum Hancockii Mørch 1877, p. 438.
Buccinum Hancockii Pfeffer 1886, p. 30, figs. 6a, b.

West Greenland records:

Buccinum Hancockii MØRCH 1877, p. 438.
Buccinum ekblawi BAKER 1919, pp. 512—513, pl. 26, figs. 7—8, pl. 27, fig. 2.

Arctic E. American records:

B. Baffinland:
Buccinum Hancocki PFEFFER 1886, p. 30.

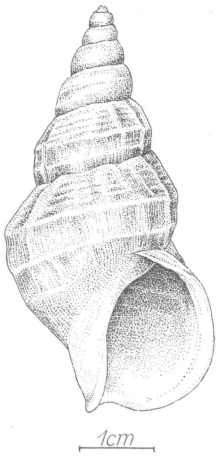

Fig. 9. *Buccinum hancocki* MØRCH. "Godthaab"-Expedition 1928, st. 166. Natural size. (Drawn by POUL H. WINTHER).

Material:

St. 166. Totness Road, Exeter Sound, Baffinland, on shore, 1 adult and 1 half-grown animals.

The two specimens agree well with HANCOCK's figure (l. c.), the larger specimen taken by the "Godthaab" being, however, a little more slender. The "Godthaab" specimens are also in good agreement with the description and figures of PFEFFER (l. c.). Apart from the typical *Buccinum*-operculum and the short sipho the whole shell in colour as well as shape and structure reminds astonishingly of a variety of *Neptunea despecta*. I do not agree with POSSELT & JENSEN's views (1898, p. 214): that this form has to be regarded as a variety of *Buccinum glaciale* L. The two specimens at my disposal lack the distinct spiral sculpture, so characteristic of *B. glaciale* (cf. KOBELT 1883, p. 65), and the whole shape is so remarkable, that *B. hancocki* no doubt must be regarded as a distinct species.

Further distribution (cfr. fig. 10, p. 42): The narrow area of occurrence of this species is remarkable, since hitherto it has only been taken along the W. coast of the Davisstræde. Even from here there are three records only, viz. HANCOCK's from 66°30′ N. 68° W., 12—15 fms.,

PFEFFER's from Cumberland Sound (66°35′ N., 67°19′ W.), no depth indicated, and now the specimens of the "Godthaab"-Expedition. BAKER's figures of *B. ekblawi* agree, however, so closely with the specimens of *B. hancocki* taken by the "Godthaab" that the identity of these two "species" can hardly be doubted. Accordingly *B. hancocki* is also recorded from Etah, N.W. Greenland, though only empty shells. Judging from the depths in which the species has hitherto been taken, viz. 12—15 fms. and on shore, it seems reasonable to assume that the species is a pronounced shallow water form. New records of the species will therefore be of great interest.

Buccinum groenlandicum CHEMNITZ.

Buccinum groenlandicum CHEMNITZ 1788, p. 182, pl. 152, fig. 1448.
Buccinum groenlandicum PFEFFER 1886, pp. 25—26, (good description of the Greenlandic *forma normalis*).
Buccinum groenlandicum G. O. SARS 1878, p. 259, pl. 25, fig. 1.

West Greenland records:

Tritonium undatum FABRICIUS 1780, p. 395.
Buccinum cyaneum MØLLER 1842, p. 11.
Buccinum cyaneum STIMPSON 1864, p. 140.
Buccinum groenlandicum JEFFREYS 1877d, p. 323.
Tritonium groenlandicum MØRCH 1877, p. 438.
Buccinum groenlandicum var. *tenebrosum* JEFFREYS 1880, p. 125.
Buccinum cyaneum BAKER 1919, p. 510, pl. 26, fig. 4, pl. 27, fig. 5.
Buccinum groenlandicum with var. *coerulea* VIBE 1950, p. 108.

Arctic E. American record:

A. Labrador:
Buccinum Grænlandicum PACKARD 1867, p. 287.
Buccinum cyaneum DALL 1887, p. 206.
Buccinum cyaneum WHITEAVES 1901, p. 183.
Buccinum cyaneum JOHNSON and *B. groenlandicum* JOHNSON 1926, p. 134.
Buccinum cyaneum cyaneum and *B. grænlandicum* JOHNSON 1934, p. 122.

B. Baffinland:
Buccinum cyaneum and *B. Grænlandicum* HANCOCK 1846, pp. 328—329.
Buccinum tenebrosum and *B. grönlandicum* DALL 1879, p. 146.
Buccinum grönlandicum and *B. tenebrosum* PFEFFER 1886, pp. 25—26.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 12 half-grown and 7 young animals, belonging to the var. *tenebrosa* HANCOCK, and 1 adult animal, the shape of which reminded somewhat of *Buccinum undulatum* MØLLER.—St. ? Off Ny Herrnhut point, Godthaab, West Greenland, 10—20 m depth, 2 half-grown animals belonging to the forma *normalis*.

—St. 107. Off Thule, West Greenland (76°24′8″ N. 69°38′ W.), 160 m depth, stones, 2 adult animals belonging to the *forma normalis*.

The species has previously been taken off Labrador and also along the whole West Greenland coast between Julianehaab and Etah. The record from Thule is thus within the known area of distribution.

Further distribution: *Buccinum groenlandicum* is circumpolar and known in numerous varieties from a great number of localities in the Arctic: West and S.E. Greenland, Spitzbergen, Franz Joseph Land, the Barents Sea, the Murman coast, the White Sea, the Siberian Ice Sea, the Bering Strait, Labrador etc. To the south it reaches British Columbia, Nova Scotia, Iceland, and the Finmark.

Buccinum sericatum HANCOCK.

Buccinum sericatum HANCOCK 1846, p. 328, pl. 5, fig. 6.
Buccinum sericatum KOBELT 1883, p. 50, pl. 88, fig. 9.

West Greenland records:

Buccinum sericatum E. A. SMITH 1877, p. 134.
Buccinum groenlandicum var. *sericatum* JEFFREYS 1880, p. 125.
Buccinum groenlandicum var. *sericatum* POSSELT & JENSEN 1898, p. 202.

Arctic E. American records:

B. Baffinland:
Buccinum sericatum HANCOCK 1846, p. 328.

C. Lancaster Sound and farther North:
Buccinum sericatum SMITH 1877, p. 134.

Material:

St. 73. Melville Bugt, 450 m depth, 1 animal, (fragmentary).—St. 114. Between Ellesmereland and Thule, West Greenland, 85 m depth, 2 adult, 3 half-grown animals.—St. 166. Totness Road, Exeter Sound, Baffinland, on shore, 4 adult, 1 half-grown animals.

The specimens taken by the "Godthaab" closely resemble specimens from W. Greenland identified by POSSELT and kept in the collections of the Copenhagen Museum. I find it, however, reasonable to regard this very characteristic form as a distinct species and not as a variety of *Buccinum groenlandicum*. The species is distributed all along the N.W. coast of Greenland and has also previously been taken off Baffinland.

Further distribution: *Buccinum sericatum* is known from West Spitzbergen, the Barents sea, the Kara sea, the West Finmark, and, as mentioned above, from West Greenland and Baffinland.

Buccinum micropoma Ad. Jensen.

Buccinum micropoma Ad. Jensen (in Thorson 1944, pp. 100—101, fig. 11).

West Greenland and Arctic E. American records: none.

Material:

St. 114. Between Ellesmereland and Thule, West Greenland (76°40′N. 74°20′ W.), 85 m depth, 1 adult, fragmentary animal.

Further distribution (cfr. fig. 10, p. 42): Besides from the Thule area the species is known from East Greenland, where it occurs along all coasts from Angmagssalik to Danmarks Havn and seems to be especially frequent in the northern areas, which is in good agreement with its apparent absence from S.W. Greenland.

Buccinum belcheri Reeve.

Buccinum Belcheri Reeve 1855, p. 394, pl. 33, fig. 7.

West Greenland records:

Buccinum Belcheri, var. E. A. Smith 1878, p. 224—225.
Buccinum Belcheri Posselt & Jensen 1898, p. 194.
Buccinum belcheri Baker 1919, p. 509, pl. 26, fig. 3, pl. 27, fig. 6.

Arctic E. American records:

B. Baffinland:
Buccinum belcheri Dall, 1879, p. 145;

C. Lancaster Sound and farther North:
Buccinum Belcheri Reeve 1855, p. 394.
Buccinum Belcheri Smith 1877, p. 133.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°00′ N. 56°34′W.), 314 m depth, sand, gravel, small stones, 1 half-grown animal.—St. 114. Between Ellesmereland and Thule, West Greenland (76°40′ N. 74°20′W.), 85 m depth, 1 adult, fragmentary animal.

While the specimen from st. 114 agrees closely with Reeve's figure (Apex however broken) the specimen from st. 14 differs somewhat and more resembles the form, in which the species has been found in East Greenland (cf. Thorson 1935, pp. 27—29, 1944, pp. 93—96) and which I, after having seen the typical *B. belcheri*, feel declined to regard as a distinct species. The species is previously known from Greenland up to Etah and Port Refuge, and from Dobbin-Bay (Grinnell land), and its occurrence in these localities therefore was to be expected.

Further distribution (cfr. fig. 10, p. 42): East Greenland?, Jan Mayen, and the Finmark.

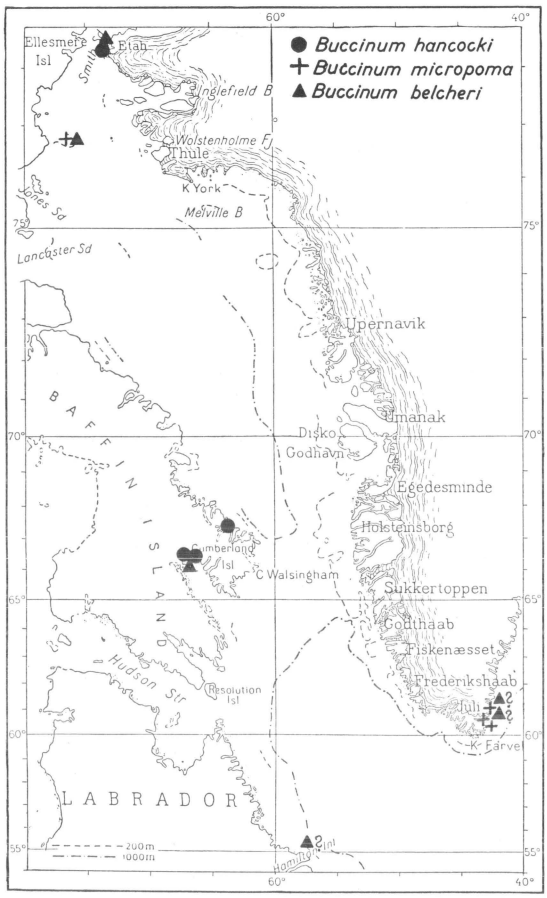

Fig. 10. Map showing all localities known for *Buccinum hancocki* MØRCH, *Buccinum micropoma* AD. JENSEN, and *Buccinum belcheri* REEVE within the Davis stræde and Baffins Bugt areas.

Buccinum hydrophanum HANCOCK.

Buccinum hydrophanum HANCOCK 1846, p. 325, pl. 5, fig. 7.
Buccinum hydrophanum G. O. SARS 1878, p. 261, pl. 24, fig. 8.
Buccinum hydrophanum FRIELE 1882, p. 31, pl. 3, figs. 20—21.
Buccinum hydrophanum DAUTZ. & FISCHER 1912, p. 133—135, pl. 8, figs. 16—20.

West Greenland records:

Tritonium hydrophanum MØRCH 1877, p. 438.
Buccinum hydrophanum JEFFREYS 1880, p. 125.
Buccinum hydrophanum POSSELT & JENSEN 1898, pp. 207—208.
Buccinum hydrophanum BAKER 1919, pp. 513—514, pl. 27, fig. 1.
Buccinum tumidulum BAKER 1919, p. 514, pl. 26, fig. 5.
Buccinum hydrophanum VIBE 1950, p. 109.

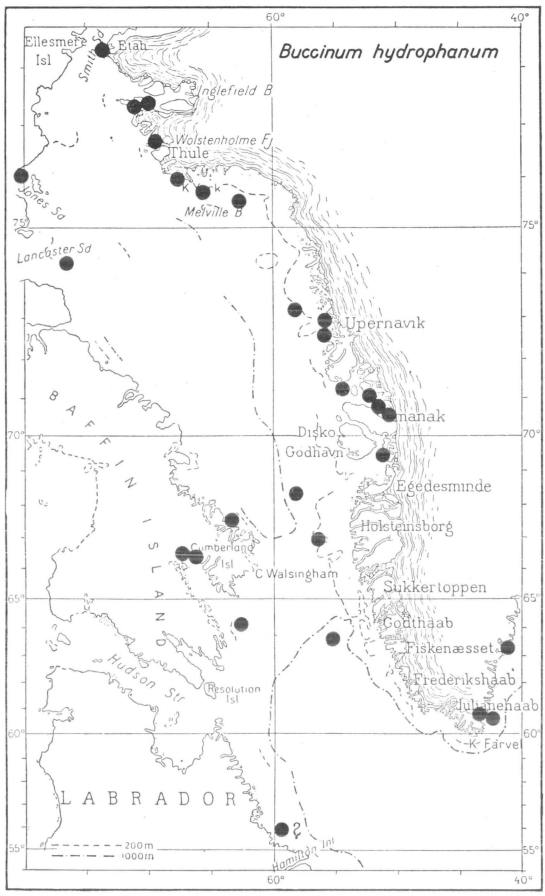

Fig. 11. Map showing all localities hitherto known of *Buccinum hydrophanum* Hancock within the Davis stræde and Baffins Bugt areas.

Arctic E. American records:

A. Labrador:

Buccinum hydrophanum Johnson 1934, p. 122.

B. Baffinland:

Buccinum hydrophanum Hancock 1846, p. 325.
Buccinum hydrophanum Pfeffer 1886, p. 32.

C. Lancaster Sound and farther North:

Buccinum hydrophanum Reeve 1855, p. 394.
Buccinum hydrophanum Smith 1877, p. 133.

Material:

Middle part of West Greenland: St. 179. Off the southern part of Fyllas Banke (63°36′ N., 55°15′ W.), 1200 m depth, clay and stones, 1 adult shell.—St. 160. Between Egedesminde and Baffinland

(68°17′ N. 58°14′ W.), 410 m depth, 2 adult animals (with fairly thick shells).—St. 143. North of Umanak (70°53′ N. 54°00′ W.), 700 m depth, soft, dark clay, 1 adult animal.—St. 64. North-West of Upernavik (73°12′ N. 58°08′ W.), 850 m depth, 1 adult animal.—Etah-Thule-Ellesmereland-area: St. 77. Melville Bugt (75°26′ N. 62°26′ W.), 820 m depth, 16 adult animals.—St. 81. Melville Bugt (75°35′ N. 66°25′ W.), 490 m depth, 8 adult animals.—St. 86. Off Thule (76°36′ N. 68°54′ W.), 80—180 m depth, hard bottom, 10 adult animals, belonging to the *forma normalis*, and 1 adult, belonging to the var. *carinata* POSSELT.—St. 87. 3.5 miles off Kap Powlett (77°05′5″ N. 71°13′ W.), 790 m depth, 1 adult animal.—St. 90. Off Kap Powlett (77°17′ N. 69°59′ W.), 930 m depth, stones, 3 adult animals.—St. 99. Smith Sund off Etah (78°14′ N. 74°20′ W.), 672 m depth, 1 adult animal.—Baffinland area: St. 119. Jones Sound (75°54′ N. 81°01′ W.), 610 m depth, soft clay, 1 adult animal.—St. 131. Off Lancaster Sound (74°12′ N. 77°00′ W.), 680 m depth, 7 adult animals.—St. 166. Totness Road, Exeter Sound, Baffinland, 75—200 m depth, soft mud, 3 adult, 3 half-grown and 3 young animals.

Buccinum hydrophanum is a pronounced arctic species, since in high-arctic regions it migrates to shallow water (3—20 m depth at N.E. Greenland, Franz Joseph land etc.), while in the more southern part of its area of distribution it occurs only at greater depths. The species seems to be totally absent off the S.W. Greenland coast but is known along the American coast to Labrador in the south (JOHNSON 1934).

Further distribution: The map fig. 11, p. 43 shows the occurrence of the species in our area. The south limit is: near Newfoundland, between the Faroes and the Hebrides (deep water), and off the East-Finmark.

Buccinum finmarkianum VERKR.

Buccinum finmarkianum VERKRÜZEN 1875, p. 237, pl. 8, figs. 1—5.
Buccinum finmarchianum G. O. SARS 1878, p. 262, pl. 13, fig. 10.
Buccinum finmarchianum KOBELT 1883, p. 24, pl. 77, figs. 1—8.
Buccinum sarsi PFEFFER 1886, p. 40, fig. 3.

West Greenland records:

Buccinum humphreysianum MØLLER 1842, p. 12.
Tritonium perdix MØRCH 1877, p. 438.
Buccinum perdix POSSELT & JENSEN 1898, p. 203.
Buccinum cyaneum perdix BAKER 1919, p. 511.
Buccinum finmarchianum VIBE 1950, p. 109.

Arctic E. American records:

B. Baffinland:
Buccinum Sarsii PFEFFER 1886, p. 40.

Material:

St. ?. Off Thule, West Greenland, depth ?, 2 adult animals. The specimens agreed well with PFEFFER's figure of *B. sarsi* (l. c.), which must be regarded as a variety of *B. finmarchianum.*

The species is previously known along the whole West coast of Greenland from Kap Farvel to Thule.

Further distribution: Off the N.E. American coast the species is known from Baffinland in the north to Newfoundland and the Gulf of St. Lawrence in the South. Furthermore, it is known from Iceland, Jan Mayen, Spitzbergen, and the Finmark-Lofoten.

Buccinum tenue GRAY.

Buccinum tenue GRAY 1839, p. 128, pl. 36, fig. 19.
Buccinum tenue KOBELT 1883, p. 39, pl. 81, figs. 4—5.
Buccinum tenue DAUTZ. & FISCHER 1912, p. 137—138, pl. 6, figs. 10—13.

West Greenland records:

Buccinum scalariforme MØLLER 1842, p. 11.
Buccinum scalariforme STIMPSON 1864, p. 140.
Tritonium scalariforme MØRCH 1877, p. 438.
Buccinum tenue JEFFREYS 1877d, p. 324.
Buccinum tenue JEFFREYS 1880, p. 125.
Buccinum tenue POSSELT & JENSEN 1898, p. 212.
Buccinum tenue VIBE 1950, p. 109.

Arctic E. American records:

A. Labrador:
Buccinum scalariforme PACKARD 1863, p. 417.
Buccinum tenue PACKARD 1867, p. 288.
Buccinum tenue WHITEAVES 1901, p. 184.
Buccinum tenue JOHNSON 1934, p. 122.

C. Lancaster Sound and farther north:
Buccinum scalariforme REEVE 1855, p. 394.

Material:

The middle part of West Greenland: St. 33A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 1 half-grown animal.—St. 154. Off Ritenbenk (69°44′ N. 51°22′ W.), 540 m depth, hard, gray clay, 2 half-grown animals.—St. 139, north of Umanak (71°21′ N. 54°29′ W.), 47 m depth, soft, dark clay, about 30 adult and young animals.—Etah-Thule-Ellesmereland area: St. 87. 3.5 miles off Kap Powlett (77°05′5″ N. 71°13′ W.), 790 m depth, 4 adult 2 half-grown animals.—St. 114. Between Ellesmereland and Thule (76°40′ N. 74°20′W.), 85 m depth, 1 adult animal.—Labrador area: St. 14. About 20 miles off Hamilton Inlet (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 2 half-grown, 2 young animals.

Off the West Greenlandic coast the species is known from Julianehaab in the south to Thule in the North. It has previously been known from Labrador.

Further distribution: Along the American coast *B. tenue* has been taken from the Hudson Strait to Newfoundland. It is absent off East Greenland, but is known from Iceland, Spitzbergen, the Finmark, Franz Joseph Land, the Barents Sea, Nowaya Zemlya, the Siberian Ice Sea, and the Berings Sea.

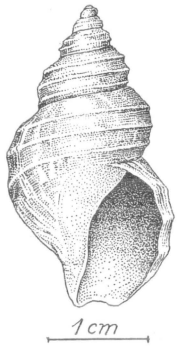

Fig. 12. *Buccinum abyssorum* VERRILL & SMITH. "Godthaab"-Expedition 1928, st. 180. (Drawn by POUL H. WINTHER).

Buccinum abyssorum VERRILL & SMITH (cfr. fig. 12).

Buccinum abyssorum VERRILL & SMITH, in VERRILL 1884, p. 167, pl. 31, figs. 11, 11a and 11b.

West Greenland and Arctic E. American records: none.

Material:

St. 180. Between the Hudson Strait and Frederikshaab, West Greenland (62°06′ N. 55°00′ W.), 2750 m depth, clay, bottom temperature 1.98° C., 1 adult animal, 2 fragmentary shells (cfr. the map fig. 14, p. 51).

As VERRILL's description seems to me not quite exhaustive and as the animal from the "Godthaab"-Expedition is extremely well preserved I find it reasonable to redescribe the species:

Diagnosis (cfr. fig. 12): Shell moderately elongated, rather thin and translucent; spire high, suture fairly deep, whorls six or seven, strongly convex except near the suture, where they are flattened, Apex mammilliform, only slightly oblique; $1^1/_2$ embryonic whorls, quite smooth and of a milky-white colour. On the second whorl three very sharp spiral ribs or carina appear, being still more distinct on the third, fourth and fifth whorls. On the body whorl these three spiral ribs are less sharp, and under them two more, not very pronounced, spiral ribs appear.

The secondary striation consists of delicate, closely disposed spiral stria; on the body whorl nine to twelve of these striæ are to be found between two of the spiral ribs. No longitudinal folds, ribs or undulations are present. On the third and fourth whorls a very great number of radial striæ are seen in the spaces between the spiral ribs. Aperture fairly small. Outer lip thin, with shoulders, where the spiral ribs end. Columella translucent, white, straight and very short. Operculum rounded-triangular, with the nucleus nearly at the margin: colour reddish-brown, with yellowish lines of growth. Inside aperture white-translucent. Periostracum thin, yellow cream-coloured.

Length of shell 29 mm; greatest breadth of shell 17 mm, length of aperture 13 mm, breadth of aperture from columella to outer lip $8^1/_2$ mm, length of body whorl 20 mm.

The species has never before been taken in Greenland waters.

Further distribution: *B. abyssorum* is a true deep water form. Nearly all localities hitherto known are situated at depths greater than 1000 m. It is distributed in deep water off the N. American Atlantic coast from 40° N. to off N. Carolina. The locality in which it was taken by the "Godthaab" is thus by far the most northernly place from which the species has hitherto been recorded, but even this locality is situated a long distance south of the treshold Cape Walsingham-Holsteinsborg, which separates the High-Arctic deep water fauna from the North-Atlantic one.

Neptunea despecta (Linné).

Murex despectus Linné 1767, p. 1222.
Neptunea despecta G. O. Sars 1878, p. 267, pl. 14, figs. 4a—c.
Neptunea antiqua Dautz. & Fischer 1912, p. 68—75, pl. 1, fig. 9, pl. 2, fig. 1—9, pl. 3, fig. 1—2.

West Greenland records:

Tritonium despectum Fabricius 1780, p. 396.
Fusus carinatus Møller 1842, p. 14.
Fusus (Neptunea) despectus Mørch 1877, p. 438.
Neptunea despecta Posselt & Jensen 1898, p. 191.
Neptunea despecta Vibe 1950, p. 108.

Arctic E. American records:

Fusus tornatus Packard 1863, p. 417.
Fusus tornatus Packard 1867, p. 289.
Fusus tornatus Packard, in: Bush, 1884, p. 244.
Neptunea despecta var. *tornata* Whiteaves 1901, p. 187.
Chrysodomus despectus var. *tornatus* Johnson 1926, p. 135.
Neptunea despecta Richards 1936, p. 540.

Material:

St. 188. The bank off Julianehaab, West Greenland (60°22′ N.

47°27′ W.), 120 m depth, gravel and sand, 1 adult animal, belonging to the var. *carinata* LAMARCK.

The species is distributed along the West Greenland coast from Nanortalik to Umanak, and st. 188 thus is inside its known area of distribution.

Further distribution: *Neptunea despecta* is circumpolar and known from a great number of localities in the Arctic seas (East Greenland, Spitzbergen, Franz Joseph Land, Nawaya Zemlya, the Kara Sea, the Siberian Ice Sea, the Berings Strait, the Sea north of Alaska etc.). To the south it reaches Japan, Cape Cod and Portugal.

Volutopsis norvegica (CHEMNITZ).

Strombus norvegicus CHEMNITZ 1788, p. 218, pl. 157, figs. 1497—1498.
Volutopsis norvegica G. O. SARS 1878, p. 268, pl. 15, figs. 1a—b.
Volutopsis norvegica DAUTZ. & FISCHER 1912, p. 64, pl. 1, fig. 5.

West Greenland records:

Fusus (*Volutopsius*) *norvegicus* var. *Largillierti* MØRCH 1857, p. 13.
Fusus (*Volutopsis*) *norvegicus* var. *Largillierti* MØRCH 1877, p. 438.
Volutopsis norvegica POSSELT & JENSEN 1898, p. 189.

Arctic East American records: none.

Material:

St. 188. The bank off Julianehaab, West Greenland (60°22′ N. 47°27′ W.), 120 m depth, gravel, sand, 2 adult animals.—St. 96. Off Etah, West Greenland (78°16′ N. 73°28′ W.), 290 m depth, stones, 1 fragmentary shell.

The species, which seems to be fairly rare in this area, has previously been taken from 3 West Greenland localities only, situated between Godthaab in the south and Prøven in the north. The records of the "Godthaab" thus are as well far south and north of its hitherto known area of distributions off West Greenland, where the species—though sparsely—occurs all along the coast stretch from Kap Farvel to Etah (cfr. fig. 13, p. 50).

Further distribution: *Volutopsis norvegica* is known from East Greenland, Spitzbergen, Jan Mayen, the Barents Sea, the Murman coast, the Bering Sea, and a series of other Arctic seas. To the south it reaches New Foundland, Great Britain, and Lofoten.

Sipho togatus (MØRCH).

Fusus (*Siphonorbis*) *togatus* MØRCH 1869, p. 398.
Fusus (*Siphonorbis*) PFAFFI MØRCH 1876, p. 369.
Neptunea (*Sipho*) *curta* FRIELE 1882, p. 14, pl. 1, fig. 26, pl. 2, figs. 1—11.
Sipho togatus DAUTZ. & FISCHER 1912, pl. 3, figs. 12—13.

West Greenland records:

Fusus (Siphonorbis) togatus & Pfaffi MØRCH 1877, p. 438.
Fusus Sabini JEFFREYS 1877d, p. 327.
Sipho togatus POSSELT & JENSEN 1898, p. 184.

Arctic E. American records:

B. Baffinland:

Fusus Sabini HANCOCK 1846, p. 330.

Material:

Middle part of West Greenland: St. 160. Between Egedesminde and Baffinland (68°17′ N. 58°14′ W.), 410 m depth, 3 adult, 1 half-grown animals (1 adult with an actinian on its shell)—St. 64. N.W. of Upernavik (73°12′ N. 58°08′ W.), 850 m depth, 1 adult animal.—Etah-Thule-Ellesmereland-area. St. 73. Melville Bugt (74°52′5″ N. 62°12′ W.), 450 m depth, 1 young animal.—St. 77. Melville Bugt (75°26′ N. 62°26′ W.), 820 m depth, 1 half-grown, 1 adult animal.—St. 81. Melville Bugt (75°35′ N. 66°25′ W.), 490 m depth, 4 adult animals.—St. 87. 3.5 miles off Kap Powlett (77°05′5″ N. 71°13′ W.), 790 m depth, 7 adult, 1 young animals (1 adult with an actinian on its shell).—St. 90. Off Kap Powlett (77°17′ N. 69°59′ W.), 930 m depth, 2 adult animals.—St. 99. Off Etah (78°14′ N. 74°20′ W.), 672 m depth, 1 adult animal.—St. 112. Between Thule and Ellesmereland (76°32′5″ N. 74°20′ W.), 580 m depth, 1 adult animal.—American Coast North of Baffinland: St. 119. Jones Sound (75°54′ N. 81°01′ W.), 610 m depth, 5 adult animals.—St. 131. Off Lancaster Sound (74°12′ N. 77°00′ W.), 680 m depth, 9 adult, 4 young animals.

Sipho togatus (cfr. fig. 13, p. 50) has previously been taken off West Greenland from 64°53′ N. in the southern to 72°04′ N. in the north. All the "Godthaab"-Expedition localities from Melville Bugt, Thule and Etah are thus situated more to the north than previous records in these areas. The same holds good of records from American side (Jones Sound, Lancaster Sound) where the species was previously known only from Baffinland (HANCOCK 1846) and from the deep water off Labrador (JEFFREYS 1877).

Further distribution: *Sipho togatus* has been recorded from a long series of Arctic areas in a great number of synonyms and varieties. (East Greenland, Spitzbergen, the Finmark, the Barent's Sea, Franz Joseph Land, Nowaya Zemlya, the Kara Sea, the Murman-coast etc.). To the south it reaches Sakhalin, Cape Cod and the deep water between the Faroes and the Hebrides.

Sipho islandicus (CHEMNITZ).

Fusus islandicus CHEMNITZ 1780, p. 159, pl. 141, figs. 1312—1313.
Sipho islandicus G. O. SARS 1878, p. 270, pl. 15, fig. 3.
Sipho islandicus DAUTZ. & FISCHER 1912, p. 87, pl. 3, figs. 8—9.

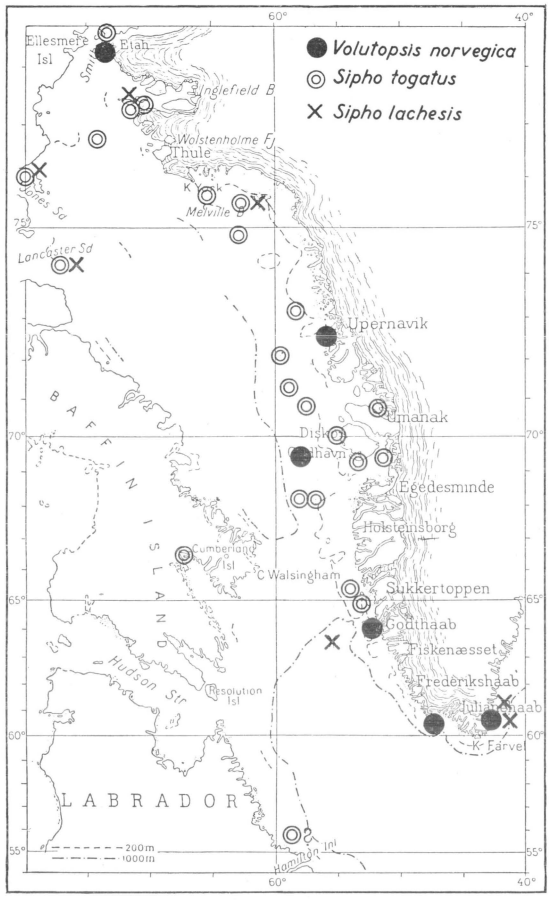

Fig. 13. Map showing all localities hitherto known of *Volutopsis norvegica* (CHEMNITZ), *Sipho togatus* (MØLLER), and *Sipho lachesis* (MØRCH) within the Davisstræde and Baffins Bugt areas.

West Greenland records:

Tritonium antiquum FABRICIUS 1780, p. 397.
Fusus (*Sipho*) *islandicus* MØRCH 1877, p. 438.
Sipho islandicus POSSELT & JENSEN 1898, p. 188.
Sipho islandicus VIBE 1950, p. 108.

Arctic E. American records:

A. Labrador:

Sipho (*Neptunea*) *islandicus* PACKARD 1867, p. 288.
Colus islandicus JOHNSON 1926, p. 135.

Material:

St. 160. Between Egedesminde and Baffinland (68°17′ N. 58°14′ W.), 410 m depth, 1 adult, and 1 young animal (the adult specimen with 2 actinians on its shell).—St. 77. Melville Bugt (75°26′ N. 62°26′ W.),

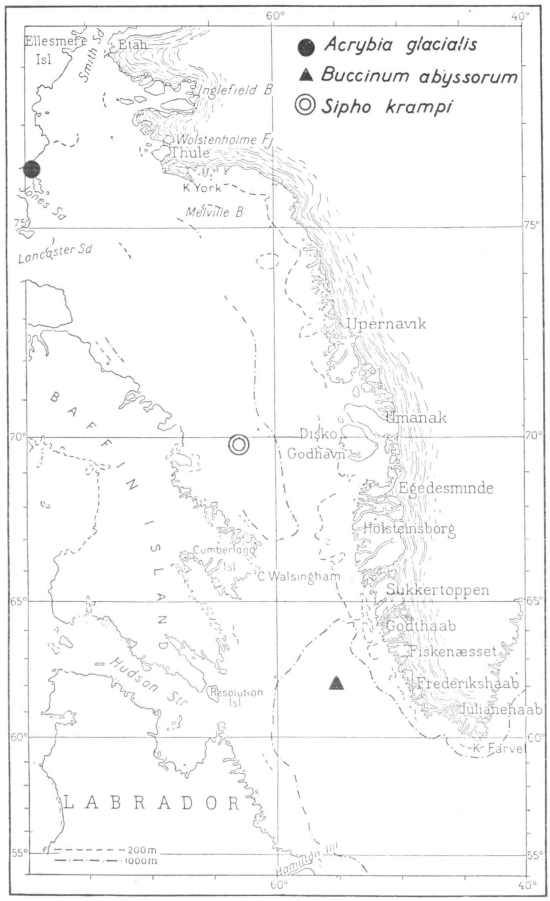

Fig. 14. Map showing all localities of *Acrybia glacialis* n. sp., *Buccinum abyssorum* Verrill & Smith, and *Sipho krampi* n. sp. within the Davisstræde and Baffins Bugt areas.

820 m depth, 1 half-grown animal.—St. 87. 3.5 miles of Kap Powlett (77°05′5″ N. 71°13′ W.), 790 m depth, 2 adult animals (one specimen with broken apex, but its minimum-height was estimated at 135 mm). —St. 131. Off Lancaster Sound (74°12′ N. 77°00′ W.), Baffinland, 680 m depth, 2 adult animals (one specimen with a broken apex, but the minimum-height was estimated at 120 mm).

The localities hitherto known for this species off West Greenland are situated between Godthaab and Thule. The records from off Lancaster Sound is interesting, since the species has never previously been taken off the American coast north of Labrador.

Further distribution: *Sipho islandicus* is known from W. Greenland, E. Greenland, Spitzbergen, and Franz Joseph Land in the north to the Gulf of Gascogne and Morocco in the south.

Sipho propinquus (ALDER).

Fusus propinquus ALDER 1848, p. 63.
Sipho propinqua KOBELT 1875, p. 79, pl. 25, fig. 8.

West Greenland records:

Fusus (*Sipho*) *propinquus* MØRCH 1857, p. 13.
Fusus (*Siphonorbis*) *propinquus* MØRCH 1877, p. 438.
Sipho (*Siphonorbis*) *propinquus* POSSELT & JENSEN 1898, p. 178.

Arctic E. American records: none.

Material:

St. 188. Off the bank of Julianehaab, West Greenland (60°22′ N. 47°27′ W.), 120 m depth, gravel and sand, 1 adult shell.

From West Greenland the species has hitherto been recorded only from the Egedesminde area (2 specimens) and thus seems to be very rare. The shell found by the "Godthaab"-Expedition closely corresponds to specimens from the Kattegat.

Further distribution: In the Arctic the species is only known from Cape Sable in Nova Scotia (VERRILL 1878, p. 210), West Greenland, and the Finmark. Its widest distribution is in the temperate North-East Atlantic sea areas, where it has been recorded from Iceland and the Norwegian West coast to the Kattegat, Great Britain, and Ireland.

Sipho lachesis (MØRCH) (cfr. fig. 15).

Fusus (*Siphonorbis*) *lachesis* MØRCH 1869, p. 397.
Sipho lachesis G. O. SARS 1878, p. 274, pl. 15, fig. 6.

West Greenland records:

Fusus (*Siphonorbis*) *lachesis* MØRCH 1877, p. 438.
Sipho (*Siphonorbis*) *lachesis* POSSELT & JENSEN 1898, p. 181.

Arctic E. American records: none.

Material:

St. 179. Off the southern end of Fyllas Banke, West Greenland (63°36′ N. 55°15′ W.), 1200 m depth, clay and stones, 1 adult shell.—St. 77. Melville Bugt (75°26′ N. 62°26′ W.), 820 m depth, 1 adult animal.—St. 87. 3.5 miles off Kap Powlett (77°05′5″ N. 71°13′ W.), West Greenland, 790 m depth, 2 adult animals.—St. 119. Jones Sound (75°54′ N. 81°01′ W.), 610 m depth, soft clay, 1 adult animal.—St. 131. Off Lancaster Sound (74°12′ N. 77°00′ W.), 680 m depth, 1 adult, and 3 half-grown animals.

From West Greenland only the type specimen described by MØRCH has hitherto been taken: off Ikerasak (about 70°30′ N.). The record of the "Godthaab"-Expedition makes its occurrence probable, though

scatteredly throughout the area. Off the American East coast inclusive of Labrador and Baffinland the species has never been found previously, and the localities: Jones Sound and Lancaster Sound therefore are of special interest (cfr. fig. 13, p. 50).

Further distribution: East Greenland, South of Spitzbergen, Franz Joseph land, the Finmark and the Barents Sea. South limit: the

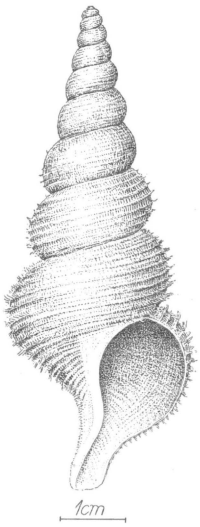

Fig. 15. *Sipho lachesis* (Mørch). Drawn from a specimen from Duséns Fjord, N.E. Greenland, 240 m depth. (Drawn by Poul H. Winther).

deep water between the Faroes and the Hebrides, and the Norwegian West coast (62°—63° N.).

Sipho turritus (M. Sars).

Tritonium turritum M. Sars 1859, p. 39.
Sipho tortuosus var. *turrita* G. O. Sars 1878, p. 272, pl. 15, figs. 4—5.
Neptunea (*Siphonorbis*) *turrita* Friele 1882, p. 20, pl. 2, figs. 24—27, pl. 5, figs. 4—5.
Siphonorbis turritus var. *distincta* Posselt 1895, p. 84, pl. 1, figs. 13—14.

West Greenland records:

Sipho turritus Vibe 1950, p. 108.

Arctic E. American records:

C. Lancaster Sound and farther north:
Fusus tortuosus Reeve 1855, p. 394.
Fusus (*Sipho*) *tortuosus*? Smith 1877, p. 132.

Material:

St. 99. Off Etah, West Greenland (78°14′ N. 74°20′ W.), 672 m depth, 1 adult shell.—St. 166, Totness Road, Exeter Sound, Baffinland,

75—200 m depth, soft mud, 1 adult animal presumably belonging to var. *distincta* POSSELT, 1 young animal, 1 adult shell.

The identification of the specimens from st. 166 seems to be safe, while it is with some doubt that I refer the shell from st. 99 to this species. The length (53.5 mm) of the shell of the adult specimen from st. 166 was much bigger than that hitherto known for *Sipho turritus*; the shape of the shell corresponds, however, fairly closely with typical specimens of these species.

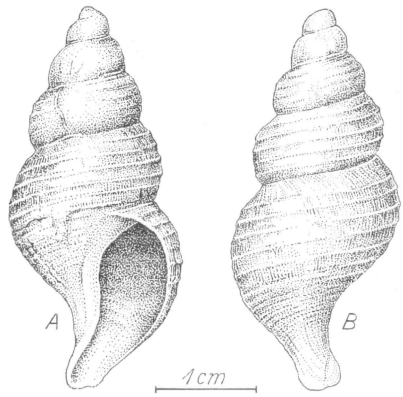

Fig. 16. *Sipho krampi* n. sp. Type specimen. *A* seen from the aperture, *B* from the back. "Godthaab"-Expedition 1928, st. 54. (Drawn by POUL H. WINTHER).

Further distribution: *S. turritus* is known from W. Greenland, Jan Mayen, Spitzbergen, the Finmark, the Barent-Sea, the Murman Coast, the Siberian Ice Sea and Alaska. To the south it reaches North Iceland and Bergen.

Sipho krampi n. sp. (cfr. figs. 16—17).

Diagnosis: Shell (fig. 16) medium-sized. Whorls fairly convex, rounded, the upper ones in all the specimens eroded, so that no structure could be seen; the lower ones with spiral lines only. Whorls $5^1/_2$—6, only very slightly shouldered. From the third whorl, where the erosion ceased, 5 or 6 rather distinct spiral ribs or carina appear, being still more distinct on the 4th whorl. The interspaces between these spiral ribs are twice as broad as the spiral ribs proper and the distance from the upper suture to the first distinct spiral rib is twice as large as the interspace between two spiral ribs. On the body whorl the spiral ribs are less distinct, and below them indistinct spiral ribs appear, so that the body whorl has altogether 10—12 not very distinct spiral ribs. On the not-eroded whorls (i.e. from the 3rd whorl to the body whorl), not the slightest sign of transverse ribs could be seen. The epidermis is

yellowish-brown to cream-coloured, quite smooth without hairs, and at great magnification shows a very fine transverse structure, corresponding to the lines of growth. The body whorl is fairly thin and semi-translucent. The other whorls appear to be more solid. Aperture long ovate, rather small. Outer lip thin, evenly rounded from the suture to the base of the canal, where it forms a sinuous curve. The canal is short, rather narrow and nearly—not quite—straight. Columella milky-white, only slightly bent. The operculum is small as compared with the aperture (greatest diameter of operculum $7^1/_2$—8 mm), colour red-brown to amber-

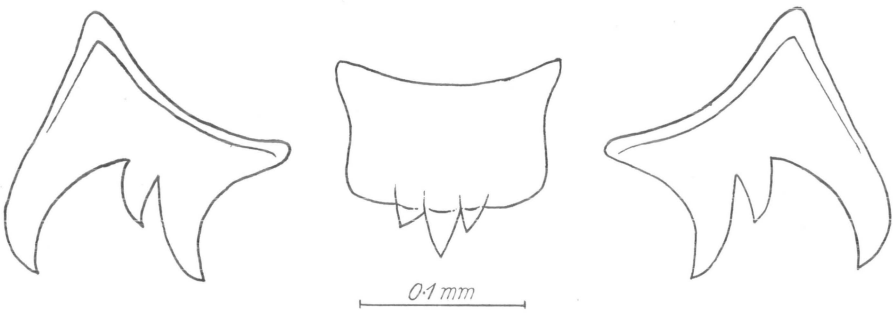

Fig. 17. *Sipho krampi* n. sp. Radula of type specimen. "Godthaab"-Expedition 1928, st. 54. (Drawn by Erik Rasmussen).

coloured. The shape is triangular-elliptical, the lower end squarely cut off, not spiral-twined.—Radula: see fig. 17.

Measurements of 7 specimens.

Length of shell	Greatest breadth of shell	Length of body whorl	Length of aperture
1. 37.5 mm	16.5 mm	26.0 mm	17.0 mm
2. 35.0 —	16.0 —	23.0 —	15.5 —
3. 36.0 —.....	16.0 —	23.0 —	15.5 —
4. 39.0 —.....	18.0 —	25.5 —	17.0 —
5. 38.5 —.....	18.5 —	24.0 —	16.0 —
6. 36.0 —.....	17.0 —	24.0 —	16.0 —
7. 35.0 —.....	15.5 —	23.0 —	16.0 —

The species, which seems to be a pronounced deep water form, reminds in appearance of *Sipho parvus* Verrill & Smith (see Verrill "Catal. Moll., Fauna of New England". Trans. Conn., Acad., vol. 6, pp. 504—505, pl. 57, figs. 20, 20a and 20b, 1882—85), but while Verrill's species is small, i.e. 6—7 whorls on 11 mm height of shell, *Sipho krampi* has only 5 to 6 whorls on 36 to 39 mm height. Further, the canal is less straight than that of *Sipho parvus* from which it also differs con-

siderably in the dentition (especially the lateral tooth) of the radula. Unfortunately, the top whorls are heavily worn so that no details of the nuclear structure can be given. The thin, delicate shell with its yellowish or grayish-white colour seems to be typical of most species of *Buccinidae*, belonging to the deep-sea fauna (also present in *Sipho parvus* and *Buccinum abyssorum*). There is also some resemblance between *Sipho krampi* and *Sipho profundicola* VERRILL & SMITH (see VERRILL: Trans. Conn. Acad., vol. 6, pp. 170—171, pl. 31, fig. 13), but *S. krampi* is more slender, has much more and, especially on the body whorl, much less distinct spiral-ribs and, on the non-eroded whorls has none of the coarse lines of growth characteristic of *S. profundicola*. The faint hairy epidermis characteristic of *S. profundicola* var. *dispar* VERRILL is lacking too. These very considerable differences in all our 8 specimens from the two species with which they can be confused, seem to remove the last doubt and to prove that *S. krampi* is a species new to science.

Material:

St. 54. Between Disko island (West Greenland), and Baffinland (69°50′ N. 61°36′ W.), July 14th 1928, 1880 m depth, 8 adult animals.

Thus, we have here a deep water species, which inhabits the bottom of the deep basin north of the submarine ridge between Cape Walsingham and Holsteinsborg, i.e. just the area, in which new endemic species were to be expected (cfr. the map fig. 14, p. 51).

The species is called after the chief Zoologist of the "Godthaab" Expedition: Dr. P. L. KRAMP. Type specimen in the Zoological Museum of the University of Copenhagen.

Sipho latericeus (MØLLER).

Fusus latericeus MØLLER 1842, p. 15.
Sipho latericeus G. O. SARS 1878, p. 276, pl. 15, fig. 8.
Sipho latericeus FRIELE 1882, p. 17, pl. 2, figs. 16—17.
Neptunea (*Sipho*) *latericea* v. *laevis* KNIPOWITSCH 1902, p. 370, pl. 8, figs. 6—8.

West Greenland records:

Fusus latericeus MØLLER 1842, p. 15.
Fusus (*Tritonofusus*) *latericeus* MØRCH 1877, p. 438.
Sipho (*Tritonofusus*) *latericeus* POSSELT & JENSEN 1898, p. 182.

Arctic E. American records:

B. Baffinland:
Fusus pellucidus HANCOCK 1846, p. 330.

Material:

St. 160. Between Egedesminde, West Greenland and Baffinland (68°17′ N. 58°14′ W.). 410 m depth, 1 adult animal.

The species has been taken along the West Greenland coast from Julianehaab to Upernavik and the new locality is thus within its known area of distribution. The specimen closely agrees with the type specimen of MØLLER, which is kept in the Copenhagen Museum and has a beautiful brick-colour.

Further distribution: Spitzbergen, the Bear-Island, the Finmark, the Barents Sea, the White Sea, the Murman Coast and the Gulf of St. Lawrence.

Sipho (Plicifusus) kröyeri (MØLLER).

Fusus kröyeri MØLLER 1842, p. 15.
Neptunea (Sipho) kroyeri FRIELE 1882, p. 16—17, pl. 2, figs. 12—15.
Sipho Kröyeri DAUTZ. & FISCHER 1912, p. 82, pl. 4, figs. 6—7.

West Greenland records:

Fusus Kröyeri MØLLER 1842, p. 15.
Fusus (Tritonofusus) Kroyeri MØRCH 1877, p. 438.
Sipho (Tritonofusus) Kröyeri POSSELT & JENSEN 1898, p. 184.

Arctic E. American records:

A. Labrador:

Buccinum cretaceum PACKARD 1863, p. 417.
Buccinum cretaceum PACKARD 1867, p. 288.
Tritonofusus cretaceus BUSH 1884, p. 238.
Tritonofusus Kroyeri WHITEAVES 1901, p. 190.
Plicifusus kroyeri JOHNSON 1926, p. 135.
Liomesus cretaceus JOHNSON 1934, p. 126.

Material:

St. 29C. Off the harbour of Ravns Storø, West Greenland, about 25 m depth, 1 young animal with very strong radial folds.

Off West Greenland the species has hitherto been taken only in the Julianehaab-area. The record from the "Godthaab" shows, however, that the species extends farther to the north along the coast than hitherto presumed.

Further distribution: East Greenland, Spitzbergen, the Murman-coast, the Siberian Ice Sea, the Bering's Sea, and Alaska. Off the American East coast: from Labrador to New Foundland.

Admete viridula (FABRICIUS).

Tritonium viridulum FABRICIUS 1780, p. 402.
Admete viridula G. O. SARS 1878, p. 216, pl. 13, figs. 1—2.
Admete viridula KNIPOWITSCH 1901, p. 473—474, pl. 18, figs. 5—9.

West Greenland records:

Tritonium viridulum FABRICIUS 1780, p. 402.
Admete crispa MØLLER 1842, p. 15.

Cancellaria viridula JEFFREYS 1877d, p. 322.
Cancellaria (*Admete*) *viridula* and *costellifera* MØRCH 1877, p. 439.
Admete viridula POSSELT & JENSEN 1898, p. 166.
Admete viridula VIBE 1950, p. 109.

Arctic E. American records:

A. Labrador:
Admete viridula PACKARD 1863, p. 417.
Admete viridula PACKARD 1867, p. 289.
Admete Couthouyi BUSH 1884, p. 238.
Admete Couthouyi WHITEAVES 1901, p. 191.
Admete couthouyi JOHNSON 1926, p. 21.
Admete couthouyi JOHNSON 1934, p. 144.

Material:

St. 14. About 20 miles off Hamilton Inlet (55°00′ N. 56°34′ W.), Labrador, 314 m depth, sand, gravel, small stones, 2 adult and 3 half-grown animals.—St. 166. Totness Road, Exeter Sound, Baffinland, 75—200 m depth, 2 adult animals, 1 adult shell.

Off West Greenland the species is known from Nanortalik in the south to Thule in the north and has furthermore been recorded from Baffinland and Labrador.

Further distribution: *Admete viridula* is circumpolar. In the Arctic seas it is known from a long series of localities (East Greenland, Spitzbergen, the White Sea, the Finmark, the Barents Sea, Nowaya Zemlya, the Kara Sea, the Siberian Ice Sea, the Berings Sea etc.). To the south it reaches Japan, New England and the Hebrides.

Volutomitra groenlandica (BECK, MS) MØLLER.

Mitra groenlandica BECK MS, MØLLER 1842, p. 15.
Volutomitra groenlandica G. O. SARS, 1878, p. 244, pl. 23, fig. 12.

West Greenland records:

Mitra groenlandica (BECK, MS), MØLLER 1842, p. 15.
Volutomitra groenlandica MØRCH 1877, p. 439.
Volumitra groenlandica POSSELT & JENSEN 1898, p. 171.

Arctic East American records: none.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 6 adult and half-grown animals.

Off West Greenland the species is known from Julianehaab in the south to Egedesminde in the north. It has, however, not previously been taken off Labrador, but since it is known from Parry Islands

(Reeve, 1844), and from Cape Cod (Friele and Grieg 1901), its occurrence here was not surprising.

Further distribution: East Greenland, between Greenland and Iceland, Iceland and the Faroes (shells only), the Finmark, Lofoten and the Norwegian West coast.

Bela nobilis (Møller).

Defrancia nobilis Møller 1842, p. 12.
Bela nobilis G. O. Sars 1878, p. 228, pl. 16, figs. 19—20.
Bela nobilis Friele 1886, p. 5, pl. 7, fig. 8, pl. 9, figs. 13—15.

West Greenland records:

Defrancia nobilis Møller 1842, p. 12.
Pleurotoma turricula var. *nobilis* Mørch 1877, p. 439.
Bela nobilis Posselt & Jrnsen 1898, pp. 147—148.
Bela nobilis Vibe 1950, p. 109.

Arctic E. American records:

A. Labrador:
Bela scalaris Packard 1863, p. 416.
Bela nobilis, *Bela scalaris* and *B. americana* Packard 1867, pp. 285—286.
Bela scalaris Bush 1884, p. 237.
Bela nobilis and *Bela scalaris* Whiteaves 1901, pp. 192—193.
Lora nobilis, *L. scalaris* and *L. rugulata* Johnson 1926, p. 21.
Lora scalaris ecarinata Johnson 1934, p. 138.
Bela americana Richards 1936, p. 540.

B. Baffinland:
?*Fusus turricula* Hancock 1846, p. 331.

Material:

St. 14. About 20 miles off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, small stones, 2 adult animals, 1 adult shell.—St. 139. North of Umanak, West Greenland (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, 4 adult animals.

Off West Greenland the species is known from Nanortalik in the south to Thule in the north. It has also been recorded from Labrador. As previously pointed out (Thorson, 1935, p. 46), I can not in *Bela nobilis* (Møller) and *Bela rugulata* (Troschel) see anything but varieties of the same species. As, however, the individuals taken by the "Godthaab"-Expedition are typical *nobilis*, my view is of no importance in this connection.

Further distribution: The species, in which is also included *Bela rugulata* Troschel, is circumpolar. It is known from East Greenland, Spitzbergen, the Finmark, the Murman Coast, the Kara Sea, the

Barents Sea, the Berings Sea, Labrador and still more Arctic localities. To the south it reaches Oslo fjord, the Faroes and Nova Scotia.

Bela exarata (MØLLER).

Defrancia exarata MØLLER 1842, p. 12.
Bela exarata G. O. SARS 1878, p. 232, pl. 16, fig. 18.
Bela exarata FRIELE 1886, p. 19, pl. 8, fig. 24.
Bela exarata KNIPOWITSCH 1901, p. 478, pl. 18, figs. 16—17.

West Greenland records:

Defrancia exarata MØLLER 1842, p. 12.
Pleurotoma turricula var. *exarata* MØRCH 1877, p. 439.
Bela exarata POSSELT & JENSEN 1898, p. 146.

Arctic E. American records:

A. Labrador:
Bela exarata PACKARD 1867, p. 286.
Bela exarata and *Bela mitrula* BUSH 1884, p. 237.
Bela exarata WHITEAVES 1901, p. 194.

Material:

St. 139. North of Umanak, West Greenland (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, 1 adult animal.

Off West Greenland *Bela exarata* is recorded from the coast stretch from Frederikshaab (62° N.) to Umanak (70°40′ N.). Thus the record of the "Godthaab"-Expedition is the northernmost locality here in which the species has hitherto been found.

Further distribution: In the Arctic it is known from East Greenland, Spitzbergen, the Finmark, the Kara Sea, the Siberian Ice Sea, Labrador, and West Greenland. Towards the south it reaches New England, the Faroes and Ireland.

Bela cinerea (MØLLER).

Defrancia cinerea MØLLER 1842, p. 13.
Bela cinerea G. O. SARS 1878, p. 227, pl. 23, fig. 4.
Bela cinerea FRIELE 1886, p. 9—10, pl. 7, fig. 23a.
Bela cinerea ODHNER 1910, p. 11, pl. 1, fig. 19.

West Greenland records:

Defrancia cinerea MØLLER 1842, p. 13.
Pleurotoma cancellata MØRCH 1877, p. 439.
Bela cinerea POSSELT & JENSEN 1898, p. 150.

Arctic E. American records: none.

Material:

St. 131. Off Lancaster Sound, Baffinland (74°12′ N. 77°00′ W.), 680 m depth, 1 adult animal.

This is the first record of the species from the American East Coast. The specimen agreed well with some individuals collected by HOLBØLL off Holsteinsborg and determined by POSSELT as: "*Bela cinerea* MØLLER *forma excerta*". By a closer comparison with MØLLER's type specimens of *Bela cinerea*, kept in the collection of the Copenhagen Museum, it became evident, that POSSELT's specimens as well as the specimen found by the "Godthaab"-Expedition belong to MØLLER's species. MØLLER's *B. cinerea* reminds somewhat of *B. declivis* (LOVÉN) = *B. cancellata* (MIGH.), but is still more slender, and has a thinner shell, characters which agree well with the specimen taken by the "Godthaab"-Expedition. It seems to me that POSSELT is right in regarding *B. cinerea* as a species which deviates from *B. declivis*. I cannot agree in POSSELT & JENSEN's (l. c. p. 151) opinion: that "*Bela cinerea*" of SARS and FRIELE is not MØLLER's species". A comprison between MØLLER's type specimens and SARS' and FRIELE's figures seems to me to show that the difference between them only varies within the limits of specific variation.

Further distribution: West Greenland, Spitzbergen, the Finmark, Iceland and between the Faroes and Scotland.

Bela decussata (COUTHOUY).

Pleurotoma decussata COUTHOUY 1839, p. 183, pl. 4, fig. 8.
Bela conoidea G. O. SARS 1878, p. 236, pl. 12, fig. 14.
Bela decussata FRIELE 1886, p. 12, pl. 8, figs. 11—13.

West Greenland records:

Defrancia livida MØLLER 1842, p. 14.
Defrancia viridula MØLLER 1842, p. 14.
Pleurotoma borealis MØRCH 1877, p. 439.
Pleurotoma borealis var. *ventricosa* MØRCH 1877, p. 439.
Bela decussata POSSELT & JENSEN 1898, p. 152.

Arctic E. American records:

A. Labrador:
Bela decussata PACKARD 1863, p. 416.
Bela decussata PACKARD 1867, p. 286.
Bela decussata BUSH 1884, p. 238.
Bela decussata WHITEAVES 1901, p. 198.
Lora decussata JOHNSON 1926, p. 21.
Lora decussata decussata JOHNSON 1934, p. 137.

B. Baffinland:
Pleurotoma decussata HANCOCK 1846, p. 331.

Material:

St. 139. N.W. of Umanak, West Greenland (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, 1 adult animal.

The specimen most resembles the var. *finmarchianum* FRIELE, but does not, however, agree quite with this variety.

Off West Greenland the species is known from Julianehaab in the south to Upernavik in the north, the locality of the "Godthaab" thus being within its hitherto known area of distribution.

Further distribution: East Greenland, Spitzbergen, Jan Mayen, the Finmark, the Murman coast, Nowaya Zemlya, the Kara Sea, the Siberian Ice Sea, Labrador, Iceland, north of Scotland and New England.

V. Gastropoda opisthobranchiata.

The opisthobranchs have been treated in a special paper by H. LEMCHE (Medd. om Grønl., vol. 8, no. 7, 65 pp., København, 1941).

VI. Lamellibranchiata.

Yoldia hyperborea (LOVÉN) TORELL.

Yoldia hyperborea (LOVÉN) TORELL 1859, p. 149, pl. 2, figs. 6a—b.
Yoldia hyperborea ODHNER 1910, p. 18, pl. 1, fig. 23.
Yoldia hyperborea DAUTZ. & FISCHER 1912, p. 402, pl. 11, figs. 3—6.

West Greenland records:

Yoldia arctica MØLLER 1842, p. 18.
Yoldia hyperborea MØRCH 1877, p. 441.
Yoldia hyperborea POSSELT & JENSEN 1898, p. 31.
Yoldia hyperborea VIBE 1950, g. 109.

Arctic E. American records:

A. Labrador:
Yoldia sapotilla PACKARD 1863, p. 413.
Yoldia sapotilla PACKARD 1867, p. 279.
Yoldia sapotilla PACKARD, in BUSH, 1884, p. 245.
Yoldia sapotilla WHITEAVES 1901, p. 125.
Yoldia sapotilla JOHNSON 1934, p. 17.

C. North of Baffinland:
Nucula sapotilla REEVE 1855, p. 397.

Material:

St. 139. N.W. of Umanak, West Greenland (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, 2 adult animals.

Off West Greenland the species is known from Igaliko Fjord (60°45′ N.) in the south to Augpilagtoq in the north (72°53′ N.), and this record thus is within the known area of distribution.

Further distribution: S.E. Greenland, Spitzbergen, the Finmark-Lofoten, Novaya Zemlya, the White Sea, the Kara Sea, the Murman coast, the Siberian Ice Sea, and the Berings Strait. To the south to Nova Scotia and Iceland.

Yoldia trachiaeformis (Storer).

Nucula trachiaeformis Storer 1841, p. 122.
Yoldia trachiaeformis Gould & Binney 1870, p. 157, fig. 465.

West Greenland records:

Yoldia angularis Müller 1842, p. 19.
Yoldia trachiaeformis Mørch 1877, p. 441.
Yoldia trachiaeformis Posselt & Jensen 1898, p. 30.

Arctic E. American records: none.

Material:

St. 159. Between Egedesminde and Baffinland (68°31′ N. 55°52′W.), 480 m depth, 1 adult animal.—St. 154. Vaigat of Disko island (69°44′ N. 51°22′ W.), 540 m depth, hard gray clay, 2 adult, 1 half-grown animals.

This fairly rarely recorded species is known from Julianehaab in the south to Augpilagtoq (72°53′ N.) in the north. The specimens taken by the "Godthaab" were all taken within this area.

Further distribution: N.E. America to Massachusetts and Maine, and: 50° N., about 52° W.

Leda pernula (Müller).

Arca pernula Müller 1779, p. 57.
Leda permula G. O. Sars 1878, p. 35, pl. 5, figs. 1a—d.

West Greenland records:

Leda macilenta and *L. buccata* Møller 1842, p. 17.
Nuculana pernula and *N. buccata* Mørch 1877, p. 441.
Leda pernula Jeffreys 1880, p. 128.
Leda pernula Posselt & Jensen 1898, p. 43.
Leda pernula Baker 1919, p. 490.
Leda pernula Vibe 1950, p. 110.

Arctic E. American records:

A. Labrador:

Leda buccata Packard 1863, p. 413.
Leda buccata Packard 1867, p. 279.
Leda pernula with var. *Jacksoni* Whiteaves 1901, p. 124.
Leda pernula Johnson 1926, p. 22.
Leda pernula Richards 1936, p. 539.

B. Baffinland:
Leda rostrata HANCOCK 1846, p. 333.

C. North of Baffinland:
Leda buccata REEVE 1855, p. 397.
Leda pernula SMITH 1877, p. 141.

Material:

Middle part of West Greenland: St. 49. W. of Disko island (69°43′ N. 56°20′ W.), 155 m depth, stones and gray clay, 3 adult and 2 half-grown animals.—St. 50. W. of Disko island (69°44′4″ N. 57°22′ W.), 212 m depth, 4 half-grown animals.—St. 145. Spraglebugt, Umanak, depth greater than 10 m, stones, 1 adult animal.—St. 139. N.W. of Umanak (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, about 15 adult animals.—American Coast: St. 14. About 20 miles off Hamilton Inlet, Labrador, 314 m depth, sand, gravel, small stones, 2 adult and 1 half-grown animals.

Since the species has been recorded previously from Julianehaab to Etah its occurrence in West Greenland was not surprising. Also off Labrador has the species been known from a series of localities.

Further distribution: *Leda pernula* is a circumpolar species, which in the Arctic is known from a great number of localities: East Greenland, Spitzbergen, the Finmark, the Murman Coast, Novaya Zemlya, Franz Joseph Land, the White Sea, the Kara Sea, the Siberian Ice Sea, the Berings Strait, Grinnell Land, Baffinland, etc. To the south it reaches Cape Cod, Ireland, the Bay of Biscay, and the Sound (Denmark).

Leda minuta (MÜLLER).

Arca minuta MÜLLER 1776, p. 247.
Leda minuta G. O. SARS 1878, p. 36, pl. 5, figs. 2a and b.

West Greenland records:

Arca minuta FABRICIUS 1780, p. 414.
Leda minuta et *complanata* MØLLER 1842, p. 17.
Leda minuta STIMPSON 1864, p. 140.
Nuculana minuta MØRCH 1877, p. 441.
Leda minuta JEFFREYS 1880, p. 128.
Leda minuta POSSELT & JENSEN 1898, p. 41.
Leda minuta VIBE 1950, p. 109.

Arctic East American records:

A. Labrador:
Leda minuta PACKARD 1867, p. 279.
Leda minuta BUSH 1884, p. 243.
Leda minuta WHITEAVES 1901, p. 124.
Leda minuta JOHNSON 1926, p. 22.
Nuculana minuta JOHNSON 1934, p. 16.

B. Baffinland:
Leda minuta Hancock 1846, p. 383.

C. North of Baffinland:
Leda minuta var. Smith 1877, p. 142.

Material:

East Greenland area: St. 33A. Off the harbour of Holsteinsborg, inside the Islands, 22—35 m depth, 4 adult animals.—St. 47. W. of Disko island (69°41′ N. 55°01′ W.), 70 m depth, 1 adult animal and 1 adult shell.—St. 48. E. of Disko island (69°41′ N. 55°30′ W.), 120 m depth, 2 adult, 2 half-grown animals.—St. 145. Spraglebugt, Umanak, depth greater than 10 m, stones, 1 adult animal.—Etah-Thule-Ellesmereland area: St. 114. Between Thule and Ellesmereland (76°40′ N. 74°20′ W.), 85 m depth, 1 adult animal.—Baffinland area: St. 166. Totness Road, Exeter Sound, about 100 m depth, stones, 2 adult and 2 half-grown animals.

Off West Greenland *Leda minuta* has been recorded from Julianehaab to Thule and also from Grinnelland and The North-East American coast. Thus all the localities in which the species was procured by the "Godthaab" are situated within the known area of distribution of the species.

Further distribution: The species is circumpolar. In the Arctic it is known from S.E. Greenland, Spitzbergen, the Finmark, the White Sea, the Siberian Ice Sea, the Berings Sea and the seas N. of America. To the south it reaches Japan, Oregon, Fundy Bay, Ireland, Bretagne, and the Sound (Denmark).

Portlandia intermedia (M. Sars).

Yoldia intermedia M. Sars 1865, p. 38.
Portlandia intermedia G. O. Sars 1878, p. 38, pl. 4, figs. 9a—b.

West Greenland records:

Leda intermedia Jeffreys 1876, p. 191.
Portlandia intermedia G. O. Sars 1878, p. 38.

Arctic E. American records:

C. North of Baffinland:
Nucula sulcifera Reeve 1855, p. 397.

Material:

St. 64. N.W. of Upernavik, West Greenland (73°12′ N. 58°08′ W.), 850 m depth, 1 adult animal.—St. 87. Between Thule and Etah (77°05′5″ N. 71°13′ W.), 790 m depth, 1 adult animal.—St. 131. Lancaster Sound, Baffinland (74°12′ N. 77°00′ W.), 680 m depth, 3 adult animals, 1 adult shell.

Off West Greenland the species has been recorded from Julianehaab to Augpilagtoq (72°53′ N.), but has not previously been found in so northerly latitudes as between Thule and Etah.

Further distribution: *Portlandia intermedia* is a circumpolar species. In the Arctic it is known from East Greenland, Spitzbergen, the 7 Islands (81° N.), the Barents Sea, Novaya Zemlya, the Kara Sea, the Siberian Ice Sea, the Bering Strait, and the Wellington Channel. To the south it reaches the Shetland-Islands, Varanger fjord (Norway) and Bohuslän (Sweden).

Portlandia frigida (TORELL).

Yoldia frigida TORELL 1859, p. 148, pl. 1, fig. 3.
Portlandia frigida G. O. SARS 1878, p. 39, pl. 4, fig. 11a—b.

West Greenland records:

Leda frigida JEFFREYS 1877f, p. 198.
Nuculana (*Portlandia*) *frigida* MØRCH 1877, p. 441.
Portlandia frigida POSSELT & JENSEN 1898, p. 34.

Arctic East American records: none.

Material:

St. 65. N.W. of Upernavik (73°30′8″ N. 59°36′ W.), 225 m depth, 1 adult animal.—St. 72. Southern part of Melville Bugt (74°37′ N. 62°51′ W.), 275 m depth, 1 adult animal.

Off West Greenland the species was hitherto only recorded from the coast between 65°11′ N. in the south and 72°04′ N. in the north. Both "Godthaab"s localities are thus situated north of its hitherto known area of distribution.

Further distribution: The species has been recorded from many Arctic sea-areas: East Greenland, Spitsbergen, the Finmark, the Barents Sea, Nowaya Zemlya, Franz Joseph Land, the Kara Sea, the Murman Coast, the Siberian Ice Sea and Baffinland. To the south it reaches Japan, New England S. of Cape Cod, the Mediterranean and the Skagerrak.

Nucula tenuis (MONT.).

Arca tenuis MONTAGU 1808, p. 56, pl. 29, fig. 1.
Nucula expansa REEVE 1855, p. 397, pl. 33, fig. 2.
Nucula tenuis G. O. SARS 1878, p. 33, pl. 4, fig. 6a—c.

West Greenland records

Nucula tenuis MØLLER 1842, p. 17.
Nucula inflata MØRCH 1877, p. 441.
Nucula tenuis JEFFREYS 1879, p. 581.
Nucula tenuis JEFFREYS 1880, p. 128.

Nucula tenuis Posselt & Jensen 1898, p. 48.
Nucula tenuis Vibe 1950, p. 110.

Arctic E. American records:

A. Labrador:

Nucula tenuis and *Nucula expansa* Packard 1863, p. 413.
Nucula tenuis and *Nucula expansa* Packard 1867, p. 279.
Nucula tenuis var. *inflata* Bush 1884, p. 243.
Nucula tenuis Whiteaves 1901, p. 122.
Nucula tenuis Johnson 1926, p. 22.
Nucula expansa and *N. tenuis tenuis* and *N. tenuis inflata* Johnson 1934, p. 15.

B. Baffinland:

Nucula inflata Hancock 1846, p. 333.

C. North of Baffinland:

Nucula expansa Reeve 1855, p. 397.
Nucula inflata Smith 1877, p. 141.

Material:

West Greenland area: St. 48. W. of Disko island (69°41′ N. 55°30′ W.), 120 m depth, 5 adult animals.—St. 49. W. of Disko island (69°43′ N. 56°20′ W.), 155 m depth, 1 half-grown animal.—St. 50. W. of Disko island (69°44′4″ N. 57°22′ W.), 212 m depth, 1 adult animal.—St. 139. N.W. of Umanak (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, 5 adult animals.—American area: St. 116. Jones Sound (76°08′ N. 80°53′ W.), 80 m depth, 1 adult animal, 1 adult shell.—St. 166. Totness Road, Exeter Sound, 75—200 m, soft mud, 4 adult animals.

The species has previously been recorded from the whole West Greenland coast, from Parry Islands and Baffinland. Thus all localities in which it was taken by the "Godthaab" are within its known area of occurrence.

Further distribution: The species is circumpolar. Known from nearly all Arctic Sea-areas hitherto examined. Towards the south to Japan, B. Columbia, Cape Hatteras, the Mediterranean and the Sound (Denmark).

Arca pectunculoides Scacchi.

Arca pectunculoides Scacchi 1836, p. 82.
Arca pectunculoides G. O. Sars 1878, p. 43, pl. 4, fig. 2a—c.

West Greenland records:

Arca pectunculoides Mørch 1875, p. 132.
Arca pectunculoides Mørch 1877, p. 441.
Arca pectunculoides Posselt & Jensen 1898, p. 52.

Arctic E. American records: none.

Material:

St. 64. N.W. of Upernavik (73°12′ N. 58°08′ W.), 850 m depth,

about 50 adult animals.—St. 131. Off Lancaster Sound, Baffinland (74°12′ N. 77°00′ W.), 680 m depth, about 50 adult animals.

Off the West Greenland coast the species had not previously been recorded from more northerly localities than 72°04′ N., nor was it known from Baffinland. The "Godthaab" record thus adds to our knowledge of its occurrence in these areas.

Further distribution: *Arca pectunculoides* is a widely distributed species. It is known nearly from all seas in the Arctic sector of the Atlantic ocean, and the Siberian Ice Sea is its most eastern locality. To the south the species reaches West India, the Gulf of Mexico, Ireland, the Channel, the Azores and the Mediterranean.

Modiolaria nigra (GRAY).

Modiola nigra GRAY 1824, p. 244.
Modiolaria nigra MEYER & MÖBIUS 1872, p. 81, figs. 1—3.

West Greenland records:

Modiolaria striatula BECK 1851.
Modiolaria nigra MØRCH 1877, p. 442.
Modiolaria nigra POSSELT & JENSEN 1898, p. 27.
Modiolaria nigra AD. JENSEN 1912, pp. 63—64.
Modiolaria nigra VIBE 1950, p. 109.

Arctic E. American records:

A. Labrador.
Modiolaria nigra BUSH 1884, p. 243.
Modiolaria nigra WHITEAVES 1901, p. 121.
Musculus nigra JOHNSON 1925, p. 23.

B. Baffinland:
Modiola nigra HANCOCK 1846, p. 334.

C. North of Baffinland:
Modiola nigra REEVE 1855, p. 397.

Material:

St. 139. N.W. of Umanak (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, about 15 animals.—St. 166. Totness Road, Exeter Sound, Baffinland, 75—200 m depth, soft mud, 2 adult animals.

Off West Greenland the species has been recorded from Nanortalik in the south to Thule in the north, and the "Godthaab" record N.W. of Umanak thus is within its known area of distribution. It has also previously been found off Labrador and Baffinland.

Further distribution: *Modiolaria nigra* is a circumpolar species, which in the Arctic is known from E. Greenland, Spitzbergen, Franz Joseph Land, Novaya Zemlya, the Kara Sea, the Siberian Ice Sea, the

Berings Sea, the Ochotsk Sea, the Parry Islands, Baffinland, Labrador, etc. To the south it reaches Cape Hatteras, Holland, and the Sound (Denmark).

Modiolaria laevigata (GRAY).

Modiola laevigata GRAY 1824, p. 24.
Modiolaria discors var. *laevigata* AD. JENSEN 1912, p. 57, pl. 3, figs. 4a—b.

West Greenland records:

Mytilus discors FABRICIUS 1780, p. 418.
Modiola discors MØLLER 1842, p. 19.
Modiolaria lævigata STIMPSON 1864, p. 140.
Modiolaria laevigata MØRCH 1877, p. 442.
Modiolaria discors var. *lævigata* JEFFREYS 1880, p. 128.
Modiolaria laevigata POSSELT & JENSEN 1898, pp. 25—27.
Modiolaria discors var. *laevigata* and var. *substriata* AD. JENSEN 1912, pp. 57—58.
Musculus substriatus and *M. lævigatus* BAKER 1919, pp. 492—493.
Modiolaria laevigata VIBE 1950, p. 109.

Arctic E. American records:

A. Labrador:
Modiolaria laevigata PACKARD 1863, p. 413.
Modiolaria lævigata PACKARD 1867, p. 280.
Modiolaria discors BUSH 1884, p. 244.
Modiolaria lævigata DALL 1887, p. 207.
Modiolaria discors WHITEAVES 1901, p. 121.
Musculus substriatus JOHNSON 1926, p. 23.
Modiolaria lævigata JOHNSON 1934, p. 29.

B. Baffinland:
Modiola laevigata HANCOCK 1846, p. 334.
Modiolaria discors and *M. lævigata* DALL 1879, p. 146.
Modiolaria laevigata PFEFFER 1886, p. 44.

C. North of Baffinland:
Modiola (*Lanistina*) *discors* SUTHERLAND 1852, p. CCII.
Modiola lævigata REEVE 1855, p. 397.
Modiolaria lævigata SMITH 1877, p. 145.

Material:

St. ? Færingehavn, West Greenland (depth unknown), 3 adult, 1 young animals.—St. 99a. Thule harbour, 6—10 m depth, 1 adult animal.—St. 86. Off Thule (76°36′ N. 68°54′W.), 80—180 m depth, hard bottom, 1 adult animal.—St. 107. W. of Thule (76°24′8″ N. 69°38′ W.), 160 m depth, stones, 1 adult animal.—St. 114. Between Thule and Ellesmereland (76°40′ N. 74°20′ W.), 85 m depth, 1 adult, 2 half-grown, 1 young animals.—St. 166. Totness Road, Exeter Sound, Baffinland, 75—200 m depth, soft mud, 12 adult and half-grown animals.

The species has been found all along the West Greenland coast from Nanortalik to Etah. Furthermore it is known from Grinnelland

and Baffinland; thus all the localities of the "Godthaab" are within its known area of distribution.

Further distribution: *Modiolaria laevigata*, which no doubt should be regarded as a variety of *Modiolaria discors* L., is a circumpolar form, which in the Arctic has been recorded from E. Greenland, Spitzbergen, Franz Joseph Land, the Finmark, Novaya Zemlya, the Kara Sea, the White Sea, the Barents Sea, the Siberian Ice Sea, the Bering Strait, Kamtschatka, the Aleutians and Baffinland. To the south it reaches Japan, B. Columbia, Cape Cod, Iceland, and Lofoten.

Dacrydium vitreum (MØLLER).

Modiola vitrea MØLLER 1842, p. 19.
Dacrydium vitreum G. O. SARS 1878, p. 28, pl. 3, fig. 2a—b.

West Greenland records:

Modiola vitrea MØLLER 1842, p. 19.
Dacrydium vitreum MØRCH 1877, p. 442.
Dacrydium vitreum POSSELT & JENSEN 1898, p. 21.
Dacrydium vitreum AD. JENSEN 1912, pp. 53—55.

Arctic E. American records: none.

Material:

St. 72. The southern part of Melville Bugt (74°37′ N. 62°51′ W.), 275 m depth, 2 adult animals.

Dacrydium vitreum is known off East Greenland from Julianehaab in the south to 72°04′ N. Lat. The specimens taken by the "Godthaab" from Melville Bugt are from more northern localities than hitherto recorded in these waters. Off Baffinland and Labrador the species seems to be absent.

Further distribution: In the Arctic *D. vitreum* is known from East Greenland, Spitzbergen, the Finmark, the Murman Coast, the Barents Sea, Novaya Zemlya and the White Sea. To the south it reaches Nova Scotia, the Faroes, the Azores and the Mediterranean.

Pecten islandicus MÜLLER.

Pecten islandicus O. F. MÜLLER 1776, p. 248.
Pecten islandicus G. O. SARS 1878, p. 16, pl. 2, fig. 2.
Pecten islandicus AD. JENSEN 1912, p. 15, pl. 1, figs. 4a—d.

West Greenland records:

Pecten islandicus FABRICIUS 1780, p. 415.
Pecten islandicus STIMPSON 1864, p. 140.
Pecten islandicus MØRCH 1877, p. 442.

Pecten islandicus JEFFREYS 1880, p. 128.
Pecten islandicus POSSELT & JENSEN 1898, p. 14.
Pecten islandicus AD. JENSEN 1912, p. 15.
Pecten (Chlamys) islandicus BAKER 1919, p. 491.
Pecten islandicus VIBE 1950, p. 109.

Arctic E. American records:

A. Labrador:
Pecten islandicus PACKARD 1863, p. 413.
Pecten islandicus PACKARD 1867, p. 279.
Pecten islandicus BUSH 1884, p. 244.
Pecten (Chlamys) Islandicus WHITEAVES 1901, p. 116.
Pecten islandicus JOHNSON 1926, p. 23.

B. Baffinland:
Pecten Islandicus HANCOCK 1846, p. 332.

C. North of Baffinland:
Pecten (Chlamys) islandicus BAKER 1919, p. 491.

Material:

St. 188. The banks of Julianehaab, West Greenland (60°22′ N. 47°27′ W.), 120 m depth, gravel and sand, 1 half-grown animal.—St. 14. About 20 miles off Hamilton Inlet (55°00′ N. 56°34′ W.), Labrador, 314 m depth, sand, gravel, small stones, 1 half-grown animal.

Pecten islandicus has been recorded from the whole West Greenland coast to Etah in the north and has also previously been taken off Labrador.

Further distribution: North-East Greenland (relict in the inner part of the fjords), Spitzbergen, the Barents Sea, the Finmark, the White Sea, Novaya Zemlya, the Kara Sea, the Berings Strait and Baffinland. Thus the species is circumpolar. To the south it reaches Japan, B. Columbia, Cape Cod, Ireland, France and Bohuslän (Sweden).

Pecten groenlandicus SOWERBY.

Pecten groenlandicus SOWERBY 1845, p. 57, pl. 13, fig. 40.
Pecten groenlandicus G. O. SARS 1878, p. 23, pl. 2, figs. 4a—c.

West Greenland records:

Pecten groenlandicus REEVE 1855, p. 396.
Pecten groenlandicus MØRCH 1877, p. 442.
Pecten grænlandicus JEFFREYS 1880, p. 128.
Pecten groenlandicus POSSELT & JENSEN 1898, p. 9.
Pecten groenlandicus AD. JENSEN 1912, p. 31.

Arctic E. American records:

A. Labrador:
Pecten (Camponectes) Grænlandicus WHITEAVES 1901, p. 118.

B .Baffinland:
Pecten Grænlandicus HANCOCK 1846, p. 332.

C. North of Baffinland:
Pecten (Pseudamusium) grænlandicus SMITH 1877, p. 146.

Material:

Upernavik-Melville Bugt-area: St. 64. N.W. of Upernavik (73°12′ N. 58°08′ W.), 850 m depth, 7 half-grown animals.—St. 73. Melville Bugt (74°52′ N. 62°12′ W.), 450 m depth, about 20 adult animals.—St. 81. Northern part of Melville Bay (75°35′ N. 66°25′ W.), 480 m depth, 10 adult animals.—American coast area: St. 131. Off Lancaster Sound, Baffinland (74°12′ N. 77°00′ W.), 680 m depth, 5 adult animals.—St. 166c Totness Road, Exeter Sound, Baffinland, about 100 m depth, stones, about 40 animals.

Off West Greenland the species has been recorded from Umanak in the south to Kap York in the north and it has also previously been taken off Baffinland. Thus all the localities of the "Godthaab" are within its known area of distribution.

Further distribution: *Pecten groenlandicus* is a circumpolar species which is known from North-West Greenland, East Greenland, Spitzbergen, Franz Joseph Land, Novaya Zemlya, the Kara Sea, the Siberian Ice Sea, the Murman Coast, the Finmark, and the Sea north of America. To the south it reaches New Foundland and Iceland and occurs at great depths so far to the south as off Morocco and Sudan.

Pecten imbrifer LOVÉN.

Pecten imbrifer LOVÉN 1847, p. 31.
Pecten Hoskynsi G. O. SARS 1878, p. 20, pl. 2, figs. 1a—c.
Pecten pustulosus VERRILL 1883, p. 581, pl. 42, figs. 22—22a.
Pecten imbrifer AD. JENSEN 1912, p. 25, pl. 2, figs. 1—2.

West Greenland records:
Pecten imbrifer POSSELT & JENSEN 1898, p. 12.

Arctic E. American records: none.

Material:

St. 73. The middle part of Melville Bugt (74°52′ N. 62°12′ W.), 450 m depth, 1 adult animal, 1 adult shell.—St. 81. Northern part of Melville Bugt (75°35′ N. 66°25′ W.), 490 m depth, 1 adult animal.

The species has previously been taken in the Umanak Fjord (shells only) and in the Baffins Bugt north west of Umanak (1 animal, and shells). The "Godthaab" records are thus considerably farther north than previous records from these areas and are among the very northernmost localities in which this species has been collected.

Further distribution: In the Arctic *Pecten imbrifer* has been taken off N.W. Greenland, East Greenland, Spitzbergen, the Berings Sea, the Bear Island, the Finmark, the Barents Sea, Novaya Zemlya, the Kara Sea. Like *Pecten groenlandicus* it occurs in the southern part of its area of distribution only at fairly great depths, and here it extends as far south of S. of the Faroes and Ireland.

Lima hyperborea (Jensen).

Limatula hyperborea Ad. Jensen 1905b, p. 329, figs. 1a—d.
Lima hyperborea Ad. Jensen 1912, p. 41, pl. 2, figs. 5a—e.

West Greenland and Arctic E. American records: none.

Material:

St. 72. Southern part of Melville Bugt (74°37′ N. 62°51′ W.), 275 m depth, 2 adult animals.

The single ribs on the present specimens closely remind of *Limatula subauriculata*, but their density and the shape and size of the shells agree so well with Ad. Jensen's specimens and figures of *L. hyperborea*, that the identity can hardly be questioned. This species has not previously been taken off West Greenland, but as it has been described from the East Greenlandic fjords, the climatic conditions of which remind closely of those at Thule and the northern part of Melville Bugt, its occurrence here is not surprising.

Further distribution: N.E. Greenland, Jan Mayen, Spitzbergen, the Kara Sea, and north of the Faroes. The species no doubt has a wider range of distribution than indicated in the literature, as it has undoubtedly often been confused with other, related species.

Astarte borealis (Chemnitz).

Venus borealis Chemnitz 1784, p. 26, pl. 39, figs. 412—413.
Tridonta borealis G. O. Sars 1878, p. 50, pl. 5, figs. 8a—b.
Astarte borealis Ad. Jensen 1912, p. 92, pl. 4, figs. 1a—f.

West Greenland records:

Astarte arctica Møller 1842, p. 19.
Astarte plana Stimpson 1864, p. 140.
Astarte semisulcata Mørch 1877, p. 441.
Astarte borealis Jeffreys 1880, p. 127.
Astarte borealis Posselt & Jensen 1898, p. 61.
Astarte borealis Ad. Jensen 1912, p. 92.
Astarte arctica Baker 1919, p. 495, pl. 25, fig. 10.
Astarte borealis with var. *sericea* Baker 1919, pp. 496—497.
Astarte borealis Vibe 1950, p. 110.

Arctic E. American records:

A. Labrador:

Astarte arctica BUSH 1884, p. 243.
Astarte lactea WHITEAVES 1901, p. 130.
Astarte borealis with var. *sericea* and *A. arctica* JOHNSON 1926, p. 24.

B. Baffinland:

Astarte borealis DALL 1879, p. 146.

C. North of Baffinland:

Astarte arctica SUTHERLAND 1852, p. CCII.
Astarte borealis BAKER 1919, p. 496.

Material:

St. 99a. The southern part of Thule bay, depth unknown, 1 adult shell.—St. 107. S.W. of Thule, 160 m depth, stones, 1 adult animal.—St. 114. Between Ellesmereland and Thule (76°40′ N. 74°20′ W.), 85 m depth, 1 half-grown animal, 1 adult shell.—St. 166. Jones Sound, S. of Ellesmereland (76°08′ N. 80°53′ W.), 80 m depth, 1 adult animal.

Off West Greenland *Astarte borealis* is known from Julianehaab in the south to Port Foulke (78°20′ N.) and Etah in the north. Along the American coast it has been recorded from Grinnel land, Baffinland and Labrador, and all the records of the "Godthaab"-Expedition are thus within the known areas of distribution.

Further distribution: The species is circumpolar and in the Arctic has been recorded from East Greenland, Spitzbergen, Franz Joseph Land, Novaya Zemlya, the White Sea, the Murman Coast, the Finmark, the Kara Sea, the Siberian Ice Sea, the Bering Strait, the Aleutians and the Sea north of America. To the south it reaches Nova Scotia, Iceland, Bergen, (the North Sea?) and occurs as a relict in the Danish Belts, the Sound and the Baltic.

Astarte elliptica (BROWN).

Crassina elliptica BROWN 1827, pl. 18, fig. 3.
Astarte elliptica AD. JENSEN 1912, p. 108, pl. 4, figs. 4a—g.

West Greenland records:

Astarte semisulcata MØLLER 1842, p. 19.
Astarte elliptica STIMPSON 1864, p. 140.
Astarte compressa MØRCH 1877, p. 441.
Astarte sulcata var. *elliptica* and *A. compressa* JEFFREYS 1880, p. 127.
Astarte compressa POSSELT & JENSEN 1898, p. 66.
Astarte elliptica AD. JENSEN 1912, p. 108.
Astarte elliptica VIBE 1950, p. 110.

Arctic E. American records:

A. Labrador:

Astarte semisulcata PACKARD 1863, p. 413.

Astarte compressa Packard 1867, p. 279.
Astarte elliptica Bush 1884, p. 243.
Astarte compressa Whiteawes 1901, p. 130.
Astarte elliptica Johnson 1926, p. 24.

B. Baffinland:
Astarte semisulcata Hancock 1846, p. 335.

C. North of Baffinland:
Astarte semisulcata Smith 1877, p. 142.

Material:

St. 47. W. of Disko island, West Greenland (69°41′ N. 55°01′ W.), 70 m depth, 1 half-grown shell.—St. 48. W. of Disko island (69°41′ N. 55°30′ W.), 120 m depth, 1 young animal.

Off West Greenland the species is known from Julianehaab in the south to Melville Bugt in the north. Thus all the records of the "Godthaab" are within its known area of distribution.

Further distribution: In the Arctic this species is known from West and East Greenland, Spitzbergen, Franz Joseph Land, Novaya Zemlya, the Kara Sea, the White Sea, the Murman Coast, and Hudson Bay. To the south it reaches New England, Great Britain, France, and the Baltic.

Astarte crenata (Gray).

Nicania crenata Gray 1824, p. 242.
Astarte crenata Ad. Jensen 1912, p. 113, pl. 4, figs. 5a—m.

West Greenland records:

Astarte crebricostata Mørch 1857, p. 19.
Astarte crebricostata Mørch 1877, p. 441.
Astarte crenata Jeffreys 1880, p. 127.
Astarte crenata Posselt & Jensen 1898, p. 64.
Astarte crenata with var. *subæquilatera* Ad. Jensen 1912, p. 113.
Astarte crenata with var. *inflata* Baker 1919, pp. 494—95, pl. 25, figs. 1—3.

Arctic East American records:

A. Labrador:
Astarte crebricostata and *A. crenata* Whiteaves 1901, p. 132.
Astarte crenata Johnson 1926, p. 24.

Material:

South West Greenland: St. 188. The bank off Julianehaab (60°22′ N. 47°27′ W.), 120 m depth, gravel and sand, 1 adult animal.—Middle part of West Greenland: St. 50. W. of Disko island (69°44′4″ N. 57°22′ W.), 212 m depth, 1 adult animal.—St. 64. N.W. of Upernavik (73°12′ N. 58°08′ W.), 850 m depth, about 40 adult animals.—St. 65. N.W. of Upernavik (73°30′ N. 59°36′ W.), 255 m depth, gravel and sand, 4 young animals.—St. 144. South of Agpat, Umanak (70°51′ N. 52°01′ W.),

733 m depth, soft dark clay with stones, 1 adult animal.—St. 160. Between Egedesminde and Baffinland (68°17′ N. 58°14′ W.), 410 m depth, about 70 adult animals.—St. 145. Spraglebugt, Umanak, depth greater than 10 m, stones, 1 young shell.—Melville Bugt and Thule: St. 72. Southern part of Melville Bugt (74°37′ N. 62°51′ W.), 275 m depth, 11 adult and 3 young animals.—St. 73. Southern part of Melville Bugt (74°52′ N. 62°12′ W.), 450 m depth, about 20 adult animals.—St. 77. Middle part of Melville Bugt (75°26′ N. 62°26′ W.), 820 m depth, 7 adult animals.—St. 87. 3.5 miles off Kap Powlett (77°21′7″ N. 70°00′ W.), 790 m depth, 6 adult animals.—The American coast: St. 114. Between Thule and Ellesmereland (76°40′ N. 74°20′ W.), 85 m depth, 1 adult and 1 half-grown animals.—St. 116. Jones Sound, S. of Ellesmereland (76°08′ N. 80°53′ W.), 80 m depth, about 10 adult and 10 young animals. — St. 131. Off Lancaster Sound, Baffinland (74°12′ N. 77°00′ W.), 680 m depth, about 100 adult animals.

Off the West Greenland coast the species is known from Julianehaab to Etah, and all the stations of the "Godthaab" are thus within the area, where the species has been taken previously. From Ellesmereland and Baffinland it has not been recorded before. The species has its main-area of distribution in deeper water than the preceding species.

Further distribution: East Greenland, Spitzbergen, Franz Joseph Land, the Murman Coast, the Barent Sea, Novaya Zemlya, the Kara Sea, the Siberian Ice Sea, north of America, Hudson Bay etc. To the south it reaches the Hebrides, Bergen (Norway) and Maine.

Astarte montagui (DILLWYN).

Venus montagui DILLWYN 1817, p. 167.
Astarte Montagui AD. JENSEN 1912, p. 97, pl. 4, figs. 2a—c.

West Greenland records:

Astarte striata STIMPSON 1864, p. 140.
Astarte Banksii, *A. pulchella* and *A. striata* MØRCH 1877, p. 441.
Astarte Banksii POSSELT & JENSEN 1898, p. 68.
Astarte Montagui AD. JENSEN 1912, pp. 98—99.
Astarte fabula BAKER 1919, pp. 497—98, pl. 25, fig. 4.
Astarte banksii VIBE 1950, p. 110.

Arctic E. American records:

A. Labrador:
Astarte Banksii PACKARD 1863, p. 413.
Astarte Banksii PACKARD 1867, p. 278.
Astarte Banksii BUSH 1884, p. 243.
Astarte Banksii with var. *striata* WHITEAVES 1901, p. 133.
Astarte striata and *A. fabula* JOHNSON 1926, p. 24.

B. Baffinland:
Astarte Warhami HANCOCK 1846, p. 336.

C. North of Baffinland:
Astarte fabula and *A. globosa* REEVE 1855, p. 398.
Astarte striata, *A. fabula* and *A. Warehami* SMITH 1877, pp. 143—144.
Astarte fabula BAKER 1919, p. 497.

Material:

Middle part of West Greenland: St. 47. W. of Disko island (69°41′ N. 55°01′ W.), 70 m depth, 1 half-grown animal.—St. 48. W. of Disko island (69°41′ N. 55°30′ W.), 120 m depth, 2 adult, 4 young animals.—St. 60. W. of Upernavik (72°30′ N. 59°02′5″ W.), 245 m depth, 4 adult animals.—St. 61. W. of Upernavik (72°33′5″ N. 57°36′W.), 190 m depth, 4 adult animals.—American coast: St. 114. Between Thule and Ellesmereland (76°40′ N. 74°20′ W.), 85 m depth, about 70 adult animals.—St. 166c. Totness Road, Exeter Sound, Baffinland, about 100 m depth, stones, 7 adult, 1 half-grown animals.

Off West Greenland the species is known from Julianehaab in the south to Foulke Fjord in the north. It has also previously been taken of Grinnelland and Baffinland, and all the records of the "Godthaab" thus are within its known area of distribution.

Further distribution: In the Arctic the species is known e.g. from E. Greenland, Spitzbergen, Franz Joseph Land, Novaya Zemlya, the Kara Sea, the Siberian Ice Sea, the Bering Strait, the Aleutians, and Arctic America. To the south it reaches British Columbia, Nova Scotia, Great Britain, France, the Danish Belts, and the Sound (Denmark).

Cyamium minutum (FABR.).

Venus minuta FABRICIUS 1780, p. 412.
Cyamium minutum G. O. SARS 1878, p. 65, pl. 19, figs. 14a—c.

West Greenland records:

Venus minuta FABRICIUS 1780, p. 412.
Turtonia minuta MØRCH 1877, p. 441.
Cyamium minutum POSSELT & JENSEN 1898, p. 73.

Arctic E. American records: none.

Material:

St. ? Færingehavn, S. W. Greenland, depth unknown, 1 adult animal.

Off W. Greenland the species has previously been taken from Godthaab in the south to Godhavn in the north. Its occurrence off Færingehavn therefore was not surprising.

Further distribution: *Cyamium minutum* is circumpolar, but seems to avoid the most high-arctic seas. It is known from South-West

Greenland, Iceland, Tromsø (Norway), the Bering Sea, Alaska, and Massachusetts Bay, but is absent e.g. from E. Greenland and Spitzbergen. To the south it reaches South Carolina, the Gulf of Gascogne and Spizzia.

Macoma calcaria (CHEMNITZ).

Tellina calcaria CHEMNITZ 1782, p. 140, pl. 13, fig. 136.
Macoma calcaria G. O. SARS 1878, p. 76, pl. 6, figs. 2a—b.
Tellina (*Macoma*) *calcaria* AD. JENSEN 1905a, p. 33, pl. 1, fig. 2.

West Greenland records:

Tellina calcaria MØLLER 1842, p. 20.
Tellina sabulosa MØRCH 1857, p. 18.
Macoma sabulosa Stimpson 1864, p. 140.
Tellina (*Macoma*) *calcaria* MØRCH 1877, p. 440.
Tellina calcaria JEFFREYS 1880, p. 127.
Tellina (*Macoma*) *calcaria* POSSELT & JENSEN 1898, p. 85.
Macoma calcarea BAKER 1919, p. 499.
Macoma calcaria VIBE 1950, p. 110.

Arctic E. American records:

A. Labrador:
Macoma sabulosa PACKARD 1863, p. 413.
Macoma sabulosa PACKARD 1867, p. 281.
Macoma sabulosa BUSH 1884, p. 242.
Macoma calcaria WHITEAVES 1901, p. 142.
Macoma calcaria JOHNSON 1926, p. 25.

B. Baffinland:
Tellina calcarea HANCOCK 1846, p. 335.

C. North of Baffinland:
Tellina (*Psammobia*) *calcarea* SUTHERLAND 1852, p. CCII.
Tellina proxima REEVE 1855, p. 398.
Tellina (*Macoma*) *tenera* SMITH 1877, p. 140.

Material:

Middle part of West Greenland: St. 33A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 5 adult animals.—St. 48. W. of Disko island (69°41′ N. 55°30′ W.), 120 m depth, about 20 adult animals.—St. 60. W. of Upernavik (72°30′ N. 59°02′5″ W.), 245 m depth, 1 adult animal.—St. 61. W. of Upernavik (72°33′5″ N. 75°36′ W.), 190 m depth, 2 adult animals.—St. 139. N.W. of Umanak (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, about 50 animals.—Thule area: St. 107. S.W. of Thule (76°24′8″ N. 69°38′ W.), 160 m depth, stones, 8 adult animals.—American coast area: St. 114. Between Thule and Ellesmereland (76°40′ N. 74°20′ W.), 85 m depth, 5 adult animals.—St. 116. Jones Sound, S. of Ellesmereland (76°08′ N. 80°53′W.), 80 m depth, 12 adult animals.—St. 166c. Totness Road, Exeter Sound, Baffinland, about 100 m depth, stones, 3 adult animals.

Off the West Greenland coast *Macoma calcaria* is known from Julianehaab in the south to Etah (Foulke Fjord) in the north. It has previously been recorded from Wellington Channel as well as Baffinland.

Further distribution: East Greenland, Spitzbergen, Franz Joseph Land, Novaya Zemlya, the Kara Sea, the Siberian Ice Sea, the Bering Strait, Kamtchatka, the American Arctic Coast. To the south it reaches Japan, B. Columbia, New York, Iceland and the Baltic.

Cardium groenlandicum (Chemnitz).

Cardium groenlandicum Chemnitz 1782, p. 202, pl. 19, fig. 198.
Aphrodite groenlandica G. O. Sars 1878, p. 49, pl. 5, figs. 3a—b.
Cardium (*Serripes*) *groenlandicum* Ad. Jensen 1912, p. 85, pl. 3, figs. 12a—b.

West Greenland records:

Venus islandica Fabricius 1780, p. 411.
Cardium groenlandicum Stimpson 1864, p. 140.
Cardium (*Serripes*) *groenlandicum* Mørch 1877, p. 441.
Cardium groenlandicum Jeffreys 1880, p. 127.
Cardium (*Serripes*) *groenlandicum* Posselt & Jensen 1898, p. 55.
Cardium (*Serripes*) *groenlandicum* Ad. Jensen 1912, p. 85.
Serripes grænlandicus Baker 1919, p. 498.
Cardium groenlandicum Vibe 1950, p. 110.

Arctic E. American records:

A. Labrador:
Serripes grænlandicus Packard 1863, p. 414.
Serripes Grænlandicus Packard 1867, p. 280.
Serripes Grænlandicus Bush 1884, p. 243.
Serripes Grænlandicus Whiteaves 1901, p. 129.
Serripes groenlandicus Johnson 1926, p. 25.
Serripes grönlandicus protractus Johnson 1934, p. 46.

B. Baffinland:
Cardium Grænlandicum Hancock 1846, p. 336.

C. North of Baffinland:
Cardium (*Aphrodite*) *Grænlandicum* Sutherland 1852, p. CCII.
Cardium Grænlandicum Reeve 1855, p. 398.

Material:

St. 33A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 1 adult, 5 young animals.—St. 145. Spraglebugt, Umanak, depth greater than 10 m, stones, 1 young animal.—St. 139. N.W. of Umanak (71°21′ N. 54°29′ W.), 47 m depth, dark soft clay, about 20 adult and half-grown animals.

The species has previously been recorded from the whole West Greenland coast from Frederikshaab in the south to Etah in the north.

Further distribution: In the Arctic it is known from West Greenland, East Greenland, Spitzbergen, Franz Joseph Land, Novaya Zemlya, the East Finmark, the White Sea, the Kara Sea, the Siberian Ice Sea, the Bering Strait, Kamtchatka and the Arctic American coast. To the south it reaches Japan, British Columbia, New England, South of Cape Cod, and Iceland.

Cardium ciliatum FABRICIUS.

Cardium ciliatum FABRICIUS 1780, p. 410.
Cardium ciliatum G. O. SARS 1878, p. 46, pl. 5, figs. 4 a—b.
Cardium ciliatum AD. JENSEN 1912, p. 79, pl. 3, fig. 10.

West Greenland records:

Cardium islandicum FABRICIUS 1780, p. 410.
Cardium hayesii STIMPSON 1864, p. 140.
Cardium ciliatum MØRCH 1877, p. 441.
Cardium islandicum JEFFREYS 1880, p. 127.
Cardium ciliatum POSSELT & JENSEN 1898, p. 57.
Cardium ciliatum AD. JENSEN 1912, p. 80.
Cardium ciliatum VIBE 1950, p. 110.

Arctic E. American records:

A. Labrador:
Cardium islandicum PACKARD 1863, p. 413.
Cardium islandicum PACKARD 1867, p. 278.
Cardium ciliatum BUSH 1884, p. 242.
Cardium ciliatum DALL 1887, p. 207.
Cardium (*Cerastoderma*) *ciliatum* WHITEAVES 1901, p. 128.
Cardium ciliatum JOHNSON 1926, p. 24.

B. Baffinland:
Cardium Islandicum HANCOCK 1846, p. 336.

C. North of Baffinland:
Cardium ciliatum REEVE 1855, p. 398.
Cardium islandicum SMITH 1877, p. 141.

Material:

St. ? Off Ny Herrnhut point in Godthaab, 10—20 m depth, 1 adult animal.—St. 33A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 6 young and 1 half-grown animals.—St. 49. W. of Disko island (69°43′ N. 56°20′ W.), 155 m depth, 2 young, 1 half-grown animals.—St. 154. Off Ritenbenk (69°44′ N. 51°22′ W.), 540 m depth, 1 adult animal.—St. 139. N.W. of Umanak (71°21′ N. 54°29′ W.), 47 m depth, dark soft clay, about 20 adult, half-grown and young animals.—St. 145. Spraglebugt, Umanak, depth greater than 10 m, stones, 1 young animal.

The species has previously been recorded from the whole West Greenland coast from Julianehaab to Thule.

Further distribution: In the Arctic this species is known from W. and E. Greenland, Spitzbergen, Franz Joseph Land, the East Finmark, the White Sea, the Kara Sea, Novaya Zemlya, the Bering Sea, the Aleutians, and the Arctic American Coast. To the south it reaches Japan, British Columbia, New England and Iceland.

Cardium elegantulum (Beck) Møller.

Cardium elegantulum (Beck, MS), Møller 1842, p. 20.
Cardium elegantulum G. O. Sars 1878, p. 47, pl. 5, figs. 5a—b.

West Greenland records:

Cardium elegantulum (Beck), Møller 1842, p. 20.
Cardium elegantulum Mørch 1877, p. 441.
Cardium elegantulum Posselt & Jensen 1898, p. 56.
Cardium elegantulum Vibe 1950, p. 110.

Arctic East American records: none.

Material:

St. 145. Spraglebugt, Umanak, W. Greenland, depth greater than 10 m, stones, 2 adult animals.—St. 14. Off Hamilton Inlet, Labrador (55°00′ N. 56°34′ W.), 314 m depth, sand, gravel, and small stones, 7 adult, 1 young animals.

Off West Greenland *Cardium elegantulum* is known from Julianehaab in the south to Thule in the north. The record from Umanak is thus within its known area of distribution. It seems, however, not to have been recorded previously from Labrador, where it has been taken at a depth (314 m) unusually large for this species.

Further distribution: West and S.E. Greenland, N.E. Iceland, Tromsø, Lofoten, and N.E. America.

Mya truncata L.

Mya truncata Linné 1767, p. 1112.
Mya truncata Ad. Jensen 1900, p. 147, figs. 2—8.

West Greenland records:

Mya truncata and *Mya arenaria* Fabricius 1780, p. 404.
Mya truncata Stimpson 1864, p. 140.
Mya truncata Mørch 1877, p. 440.
Mya truncata var. *uddevallensis* Jeffreys 1880, p. 127.
Mya truncata Posselt & Jensen 1898, p. 99.
Mya truncata with var. *uddevallensis* Baker 1919, pp. 499—500.
Mya truncata Vibe 1950, p. 110.

Arctic E. American records:

A. Labrador:
Mya truncata Packard 1863, p. 414.

Mya truncata PACKARD 1867, p. 282.
Mya truncata BUSH 1884, p. 242.
Mya truncata DALL 1887, p. 207.
Mya truncata WHITEAVES 1901, p. 148.
Mya truncata JOHNSON 1926, p. 25.

B. Baffinland:

Mya Uddevallensis HANCOCK 1846, p. 337.
Mya truncata DALL 1879, p. 416.
Mya truncata var. *uddevallensis* PFEFFER 1886, p. 44.

C. North of Baffinland:

Mya truncata SUTHERLAND 1852, p. CCII.
Mya truncata REEVE 1855, p. 399.
Mya truncata SMITH 1877, p. 145.

Material:

St. 145. Spraglebugt, Umanak, depth greater than 10 m, stones, 1 young animal.—St. 139. N.W. of Umanak (71°21′ N. 54°29′ W.), 47 m depth, soft dark clay, 5 adult, 1 half-grown, 1 young animals.—St. 108. S.W. of Thule (76°26′2″ N. 70°20′ W.), 165 m depth, 1 young animal.—St. ? The southern part of Thule bay, depth unknown, 1 adult, 2 half-grown animals.

Off West Greenland *Mya truncata* is known from Julianehaab in the south to Etah in the north. The species is also known from Discovery Bay and Dobbin Bay along the American Coast.

Further distribution: In the Arctic the species has been found off West Greenland, East Greenland, Spitzbergen, Franz Joseph Land, the Murman Coast, the White Sea, the Barent Sea, Novaya Zemlya, the Kara Sea, the Siberian Ice Sea, the Bering Strait and Arctic America. To the south it reaches Japan, British Columbia, Great Britain, and the Baltic.

Saxicava arctica (LINNÉ).

Mya arctica LINNÉ 1767, p. 1113.
Saxicava arctica G. O. SARS 1878, p. 95, pl. 20, figs. 8a—c.

West Greenland records:

Mya arctica and *Mya byssifera* FABRICIUS 1780, pp. 407—408.
Hiatella arctica MØLLER 1842, p. 21.
Saxicava arctica STIMPSON 1864, p. 140.
Saxicava arctica MØRCH 1877, p. 440.
Saxicava rugosa JEFFREYS 1880, p. 127.
Saxicava arctica POSSELT & JENSEN 1898, p. 94.
Saxicava arctica BAKER 1919, pp. 500—501.
Saxicava arctica VIBE 1950, p. 110.

Arctic E. American records:

A. Labrador:

Saxicava rugosa PACKARD 1863, p. 415.

Saxicava rugosa PACKARD 1867, p. 282.
Saxicava arctica BUSH 1884, p. 242.
Saxicava arctica DALL 1887, p. 207.
Saxicava rugosa WHITEAVES 1901, p. 149.
Saxicava arctica JOHNSON 1926, p. 25.

B. Baffinland:
Saxicava pholadis HANCOCK 1846, p. 337.
Saxicava arctica DALL 1879, p. 146.
Saxicava pholadis PFEFFER 1886, p. 44.

C. North of Baffinland:
Saxicava rugosa SUTHERLAND 1852, p. CCII.
Saxicava rugosa REEVE 1855, p. 399.
Saxicava arctica SMITH 1877, p. 145.

Material:

Middle part of West Greenland: St. ? Ny Herrnhut point off Godthaab, 10—20 m depth, 1 adult, 1 young animals, and 1 adult shell.—St. 33 A. Off the harbour of Holsteinsborg, inside the islands, 22—35 m depth, 2 half-grown, 2 young animals.—St. 48. W. of Disko island (69°41′ N. 55°30′ W.), 120 m depth, 1 adult animal.—St. 139. N.W. of Umanak (71°21′ N. 54°29′ W.), 47 m depth, dark soft clay, 2 adult, 2 half-grown, 2 young animals.—Thule area: St. 86. Off Thule, W. Greenland (76°36′ N. 68°54′ W.), 80—180 m depth, 1 half-grown animal.—American coast area: St. 114. Between Thule and Ellesmereland (76°40′ N. 74°20′ W.), 85 m depth, 2 halfgrown, 4 young animals.—St. 166. Totness Road, Exeter Sound, Baffinland, soft clay, 75—200 depth, 2 adult, 1 half-grown, 2 young animals.

The species has previously been recorded from the whole West Greenland coast to Etah in the north, and is also known from Baffinland.

Further distribution: *Saxicava arctica* is known from nearly all Arctic sea areas examined, and to the south—especially at greater depths—it extends also to the warmer areas of the large oceans. It has, however, often been confused with other species, and its distribution seems to be considerably less cosmopolitan than hitherto assumed (see below).

Remarks on the taxonomy of North Atlantic Species of *Saxicava*.

More than 40 years ago prof. AD. JENSEN studied the taxonomic value of the boreal and arctic species of the genus *Saxicava* in the North Atlantica. His results which are based on a large material were never published, but seem to be so interesting even nowadays that it is reasonable to publish them just as I have received them. I take this opportunity to thank prof. AD. JENSEN for entrusting me to publish and comment on his notes.

In the first part of his notes prof. AD. JENSEN, under the name *Saxicava arctica* L., gives a list of what he regards as synonyms to this name. I quote:

"*Mya arctica* LINNÉ, Syst. Nat. ed. XII, 1767, p. 1113.—*Mytilus rugosus* LINNÉ, Syst. Nat. ed. XII, 1767, p. 1156.—*Mytilus pholadis* LINNÉ, Mantissa Plantarum Altera, 1771 (Animalia p. 548).—*Saxicava rugosa* L., JEFFREYS, Brit. Conchol., III, 1865, p. 81.—*Saxicava arctica* L., SARS, Moll. Reg. Arct. Norv., 1878, p. 95, Tab. 20, Fig. 8.—*Saxicava pholadis* L., SARS, ibid., p. 95, Tab. 20, Fig. 7."

"*Mya arctica* L., FABRICIUS, Fauna groenl., 1780, p. 407.—*Mya byssifera* FABRICIUS, Fauna groenl., 1780, p. 408.—*Hiatella arctica* L., MØLLER, Index Moll. Groenl., 1842, p. 21.—*Saxicava pholadis* CHEMN., HANCOCK, Ann. Mag. Nat. Hist. XVIII, 1846, p. 337.—*Saxicava arctica* L., MØRCH, Rink's Grønland, 1857, p. 90.—*Saxicava rugosa* L., MØRCH, Medd. Naturh. Foren. 1867, p. 90; ibid. 1868, p. 218.—*Saxicava arctica* L., MØRCH, Arctic Manual, 1875, p. 131; RINK's Dan. Greenland, 1877, p. 440.—*Saxicava arctica* L., BECHER, Österreich. Polarst. Jan Mayen, 1886, III, p. 71.—*Saxicava pholadis* L., BECHER, ibid. p. 72.—*Saxicava arctica* L., POSSELT, Medd. om Grønland, XIX, 1895, p. 76; ibid. XXIII, 1898, p. 94."

Next in the notes follows the boreal and arctic distribution of this species in the North Atlantic based on the collections of the Copenhagen Museum. I quote again:

"By the Ingolf-Expedition it was taken at:

St. 1	N.W. of the Faroes..	132 Fths.	7°2 C	1 spm.	
- 55	S.O. of Iceland.....	316	-	5°9	- 4 spm. and 3 valves.
- 6	— —	90	-	7°	- 2 spm. (on a polychaete-tube) and 6 valves.
- 54	S. of Iceland.....	691	-	3°9	- 1 spm. (on a polychaete tube)
- 85	S.W. of Iceland.....	170	-		1 spm. (shell only).
- 8	W. of Iceland.....	136	-	6°	- 3 spms.
- 9	— —	295	-	5°8	- 1 spm.
- 89	— —	310	-	8°4	- 1 spm.
- 87	— —(Brede Bay)	110	-		several spms. (mostly shells)
- 86	— — —	75	-		— — — —
- 98	— —	138	-	5°9	- — — — —
-127	N. of Iceland	44	-	5°6	- 1 spm. and 2 connected valves.
-112	Norwegian Sea 1267		-		- 2 connected valves.
- 34	Davisstræde off Sukkertoppen.....	55	-	0°9	- 3 spms."

"The specimens from st. 127 show some resemblance to the forma *pholadis* (and so does the subfossil specimen from st. 112); all the other specimens belong to the typical *arctica*, as it has been described by G. O. Sars (l. c.): angular and with two spiny longitudinal ribs. The largest specimen is only 15 mm long."

"W. Greenland: The species is very common along the colonized part of the coast. Farther to the north it has been recorded by Hayes from Port Foulke (78°20′ N.), and off the American coast by the "Alert and Discovery", as high as at Discovery Bay (81°41′ N.). Off the colonized part of the west coast both the *arctica* and the *pholadis* forms occur. The maximum length (of var. *pholadis*) is 50 mm. Some specimens have as thin shell as those in Danish seas, others are more thick-shelled, but shells of such extraordinary thickness as are frequently met with along E. Greenland have only been found as empty shells and have a fossil appearance."

"E. Greenland: Here this species has been taken by Danish Expeditions off Angmagssalik, off Kap Dalton, in Turner Sund, and in several localities within the Scoresbysund area, in Forsblads Fjord and off the Sabine Ø, and furthermore by the German Expedition off Shannon. The depth ranges from 7—0 to 50—90 fms. The species occurs in a more or less typical *arctica* form, and in the *pholadis* form, this latter attaining a length of up to 50 mm. The thickness of the shells may vary very much; some specimens have comparatively thin shells (though somewhat thicker than in Danish seas), others have extremely thick shells."

"Jan Mayen: The Austrian Expedition took a few specimens at 140—270 m depth. The Danish Expedition 1900 procured several specimens at a depth of 15 fms. and a few more at 50—60 fms. depth. Most of them approach the *arctica* form, being mainly thick-shelled and with a maximum length of 35.5 mm."

"Iceland: Very common along the whole coast. *Pholadis* is the most common form in the littoral zone; *arctica* occurs mainly in deeper waters. Among the recent or living specimens no very thick shells have been observed (a very thick-shelled specimen found on the beach off Reykjavik had a fossil appearance), though the shells seem to be somewhat thicker than in Danish specimens. Maximum length 40 mm."

"The Faroes: Very common. Maximum length 40 mm. A few very thick shells were taken, but had a fossil appearance."

Finally, Prof. Ad. Jensen ends his notes with the following remarks of much interest in the standing discussion of the taxonomic value of the different forms of *Saxicava*:

"Remarks: The systematical details of this species seem to have been discussed more than those of any other lamellibranch. Some authors regard the species as extremely polymorphous with a cosmopolitan distribution (thus e.g. A. E. SMITH, 1877, p. 45). Other authors regard a few or several of its varieties as distinct species. Thus within the boreo-arctic region G. O. SARS and SPARRE-SCHNEIDER distinguish between a *Saxicava arctica* L. and a *S. pholadis* L.[1]), while J. COLLIN and C. G. JOHS. PETERSEN have given good reason which oppose this view."

"Having now examined shell for shell, the large collections from the Faroes, Iceland, Jan Mayen, W. and E. Greenland I feel convinced that *S. arctica* and *S. pholadis* cannot be kept separate, since not a single of the characters normally used to distinguish between them will hold good in all cases."

"If *S. arctica* always had the appearance figured by G. O. SARS (1878, pl. 20, fig. 8), there would be no difficulty in distinguishing it from *S. pholadis* (SARS, l. c., pl. 20, fig. 7). SARS, however, for his figure chose a specimen which demonstrates the appearance of *arctica* when it is young and lives in deep water. If so, the diagonal ribs are always well developed and provided with spines curved upwards. This character has e. g. been refound in numerous specimens taken at such "Ingolf"-stations at which the depth is between 55 and 691 fms., but in deep water the species will normally never surpass the juvenile stage, because it attains only a small size (maximum length of specimens from the deep "Ingolf"-stations is 15 mm). In the coastal zones, however, the *arctica* form will attain a much larger size and—sooner or later—will lose the juvenile characters; the spines will be suppressed, and the diagonal ribs will be indistinct or will totally disappear in the older part of the shell. Occasionally *S. arctica* becomes just as "smooth" as *S. pholadis* which in return may now and then show traces of diagonal ribs and which, at the juvenile stage, is often provided with ribs or spines, which even in adult specimens may be found round the umbones."

"As regards the shape of the shells all transitions may be found if a sufficiently large number of specimens is examined. The typical *arctica* is obliquely rectangular with a very short anterior end bending acutely downwards, and with the anterior dorsal area curved inwards. In big specimens, which may be identified as belonging to *arctica* by using a series of transitional stages only, I have seen the anterior part of the shell change so as to curve outward, being bluntly rounded as in *pho-*

[1]) *S. pholadis* L. is still often called *Saxicava rugosa* L., though HANLEY has informed us that "the *Saxicava rugosa* of authors is not present in the Linnean collection. The shells contained in the box thus marked in the cabinet are worn, full-aged specimens of *Saxicava arctica*" (cf. Ipsa Linnaei Chonchylia, 1855, p. 139).

ladis, and with an indistinct lunula. It furthermore may vary between a very short and a rather elongated shape."

"Even when studying the hinge no difference can be found, since typical *pholadis* may now and then have a small tooth just as conspicuous as that of *arctica* of the same length of shell."

"My impression is that *arctica* and *pholadis* do not represent distinct species, not even varieties. Very often it is very difficult to decide whether a specimen should be referred to one or the other of them. On the other hand, if typically developed, they are both very characteristic. Therefore, it does not seem reasonable to fully disregard the variations in shape within this species."

"As well known *Saxicava* either sit freely exposed, attached by a byssus to objects on the bottom, or it lives between the rhizoids of the laminarians, among calcareous algae, in holes or crevices in stones, etc. In the latter case the mussel will have to change its shape in accordance with the hollowness in which it is contained, which will often lead to malformation of the shell, which again made conchologists distinguish between several "varieties". Especially *pholadis* on its shell will often bear traces of having been "squeezed" to use Dr. C. G. Johs. Petersen's expression."

"A remarkable variation of the shell which may occur in *arctica* as well as in *pholadis* is a thickening of the shell, now and then to such a degree that the shell of one specimen may have a weight as great as several others more thin-shelled specimens[1]). As a rule the shells of *Saxicava* will be the thicker the colder the climate in which they live. And—as already mentioned—extremely thick shells will only occur in high-arctic regions (Jan Mayen and E. Greenland)[2]). In addition, specimens with extremely thick and with comparatively thin shells may occur within the same locality. Thus only six out of eighteen specimens taken off Hekla harbour in Scoresby Sound were extraordinarily thick."

Prof. Ad. Jensen, familiar with the study of northern and arctic lamellibranchs, after detailed studies of a large material, here arrives at the conclusion that in the boreal and arctic part of the N. Atlantic "*Mya arctica*", "*Mytilus rugosus*", and "*Mytilus pholadis*" all of Linnaeus 1867, are mutually connected by a series of transitional stages, and belong to one and the same species, viz. *Saxicava arctica* L. These

[1]) Such very thick shells of the *arctica* form have in literature often been mentioned as "var. *uddevallensis* Forbes". As far as I know, Forbes has, however, never named such a variety, and I suppose that a confusion has taken place here with the var. *uddevallensis* of this author belonging to *Mya truncata*.

[2]) Also off W. Greenland some extraordinarily thick specimens have been dredged but as empty shells only, and of a fossil appearance. Relatively thick shells have also been dredged several times in more southern areas (e.g. the Kattegat), but are regarded as originating from the glacial period.

results are based on studies of the structure and shape of juvenile as well as adult shells with special regard to the ecological conditions under which they have grown up.

In 1923 E. LAMY, studying the *Saxicavidae*, of "Muséum National d'Histoire Naturelle de Paris" regards "*Mya arctica*" (= "*Solen minutus*"), "*Mytilus rugosus*" and "*Mytilus pholadis*" of LINNAEUS 1767 as three distinct species which he mentions as *Saxicava arctica* L., *S. rugosa* L., and *S. pholadis* L. respectively. Also LAMY used the shape and structure of juvenile and adult shells as a basis for his conclusions, and he has done a great work to follow up a long list of synonyms referring to each of his three "species".

Thus, two conchologists both very careful and familiar with the shells they studied, arrive at completely opposite results when studying the shape and structure of the metamorphosed shells. While LAMY mentions all his three "species" as occurring off Iceland (the two latter of them even off Greenland), AD. JENSEN feels convinced that all specimens living along Iceland and Greenland belong to one species only, viz. *Saxicava arctica* L.

I should like here to call the attention of future students to a point which may help us to solve this question which seems so difficult to clear up on the basis of shell studies on the metamorphosed animals, viz. a study of the pelagic larvae taken from the plankton. It seems quite safe to conclude from their tiny egg size that all the "species" have pelagic larvae, and such pelagic larvae have been described several times (cf. fig. 18). ODHNER (1914, p. 162) mentions two types of pelagic *Saxicava* larvae from the Adriatic Sea: a more rounded larva which he refers to *S. rugosa* and a more triangular one which he refers to *S. arctica* (the latter is refigured here in fig. 18 *F*). LEBOUR (1938 p. 139, fig. 5) mentions and figures the same two types of *Saxicava* larvae from Plymouth (as *Hiatella gallicana* and *Hiatella arctica* resp, the latter refigured in this paper fig. 18 *G*), and JØRGENSEN (1946, figs. 181 and 182) refound them both in the Danish plankton (both refigured in this paper fig. 18 *B* and *H* as *S. rugosa* and *S. arctica* resp.). Also REES (1950, pl. V) figures two types of *Saxicava* larvae both refigured in this paper fig. 18 *D* (his *Hiatella gallicana*) and *E* (his *H. arctica*). Thus all students of planktonic lamellibranch larvae in the Mediterranean, the Channel area, the North Sea and Danish seas have refound the same two types of *Saxicava* larvae, viz. the rounded *rugosa* type and the triangular *arctica* type, which mutually are distinctly different, and between which no transitional stages have been found. From the colder areas of the N. Atlantic, however, only one type of *Saxicava* larvae is known. THORSON (1936, pp. 59—60) who spent a whole year in the Kejser Franz Josephs Fjord area in E. Greenland, studying the plankton, found two species only of pelagic

lamellibranch larvae there, viz. *Mya truncata* and a *Saxicava* larva, examined in thousands of specimens, all belonging to the rounded *rugosa* type (a very rough sketch of one of the largest larvae is refigured in this paper fig. 18 *A*), while the characteristic triangular *Saxicava* larvae so commonly seen in southern seas were totally absent here. These observations are supported by a recent paper by MARGARET SULLIVAN who (1948 pl. 1, fig. 5) in the cold E. Canadian waters washed by the Labrador current found one type only of *Saxicava* larvae, viz. the *rugosa* type (refigured in this paper fig. 18 *C*). Thus from the Green-

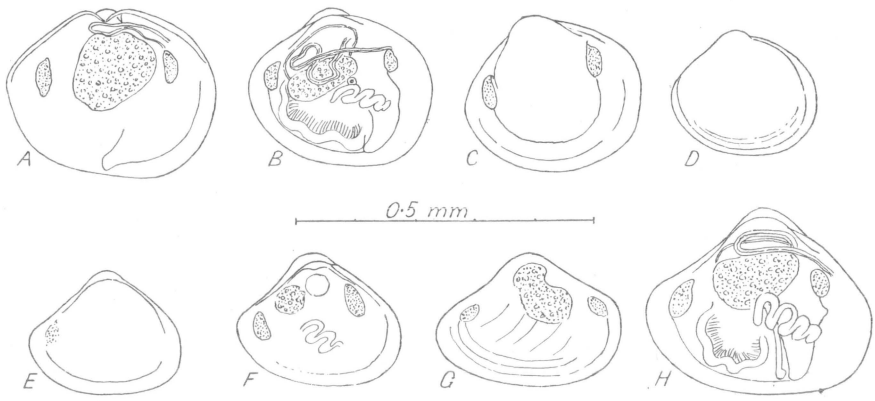

Fig. 18. Pelargic larvae of *Saxicava* (= *Hiatella*) from the Mediterranean and North-Atlantic plankton. The larvae comprise two types only, the rounded-oval type (*A*—*D*), and the triangular type (*E*—*H*). Compiled and redrawn from: *A* THORSON 1936, fig. 11 *F*, East Greenland: *B* JØRGENSEN 1946, fig. 181 *B*, Danish Seas; *C* SULLIVAN 1948, pl. 1, fig. 5, Canadian Atlantic coast; *D* REES 1950, pl. V, North sea; *E* REES 1950, pl. V, North sea; *F* ODHNER 1914, fig. 19, Adriatic sea; *D* LEBOUR 1938, fig. 5 *o*, Plymouth; *H* JØRGENSEN 1946, fig. 182 *B*, Danish seas. Figs. *A*—*D* belong to the *Saxicava rugosa* type (= *Hiatella gallicana*), while fig. *E*—*H* are regarded as the larvae of *Saxicava* (= *Hiatella*) *arctica*. For further explanation see text.

land waters, where LAMY (1923) distinguishes two species of *Saxicava*, one larval type only is known. Unfortunately, we know nothing about the larval types of *Saxicava* round Iceland, whence LAMY records all his three "species", but even from the Mediterranean and the Lusitanian areas of the Atlantic we know only two species of larvae against his three "species" of adults.

The scattered information of the larvae available at present seems to me to support the supposition of Prof. AD. JENSEN, that all *Saxicavas* of the colder, northern part of the North Atlantic belong to one and the same species, since only one larval type is known from the plankton here. LAMY's view: that the N. Atlantic *Saxicavas* comprise more than one species seems to hold good for the Mediterranean, Lusi-

tanien and North Sea areas, where, however, only two species of larvae are known—not three as might be expected according to LAMY's three "species" of adults. If future samples of pelagic larvae support this view the problem once more will be to clear up the synonomy which may lead to interesting results. If ODHNER is right in referring the triangular larvae to the *arctica* type (and he has followed them through metamorphosis, and is supported by LEBOUR, JØRGENSEN and REES) this seems to mean that *arctica* is a more southern form than *rugosa* (which should be referred to as *pholadis*), the latter being the only representative of the genus in arctic seas.

Lyonsia arenosa (MØLLER).

Pandorina arenosa MØLLER 1842, p. 20.
Lyonsia arenosa G. O. SARS 1878, p. 81, pl. 34, figs. 2a—b.
Lyonsia arenosa LECHE 1883, pl. 32, figs. 3—4.

West Greenland records:

Pandorina arenosa MØLLER 1842, p. 20.
Lyonsia arenosa MØRCH 1877, p. 440.
Lyonsia arenosa JEFFREYS 1880, p. 128.
Lyonsia arenosa POSSELT & JENSEN 1898, p. 92.
Lyonsia arenosa VIBE 1950, p. 110.

Arctic E. American records:

A. Labrador:
Pandorina arenosa PACKARD 1863, p. 414.
Pandorina arenosa PACKARD 1867, p. 282.
Lyonsia arenosa BUSH 1884, p. 242.
Lyonsia arenosa WHITEAVES 1901, p. 145.
Lyonsia arenosa JOHNSON 1926, p. 23.

B. Baffinland:
Lyonsia gibbosa HANCOCK 1846, p. 338.

C. North of Baffinland:
Pandorina arenosa REEVE 1855, p. 399.
Lyonsia arenosa SMITH 1877, p. 140.

Material:

St. 139. N.W. of Umanak, W. Greenland (71°21′ N. 54°29′ W.), 47 m depth, dark soft clay, 2 adult, 1 half-grown animals, and 2 adult shells.

Off West Greenland the species is known from Julianehaab to Thule. The record of the "Godthaab" thus is within its known area of distribution.

Further distribution: West Greenland, East Greenland, Spitsbergen, the Finmark, the Murman Coast, Novaya Zemlya, the White

Sea, the Kara Sea, the Siberian Ice Sea, the Bering Sea, the Arctic American Coast, Grinnelland, Jones Sound, and Baffinland. To the south it reaches Nova Scotia and Iceland.

Periploma abyssorum (VERRILL MS.) BUSH (cfr. fig. 19).

Periploma abyssorum (VERRILL MS) BUSH 1893, p. 227, pl. 2, fig. 12 and 13.

West Greenland and Arctic E. American records: none.

Material:

St. 131. Off Lancaster Sound, N. of Baffinland (74°12′ N. 77°00′W.),

Fig. 19. *Periploma abyssorum* (VERRILL MS.) BUSH. "Godthaab"-Expedition 1928, st. 131. (Drawn by POUL H. WINTHER).

680 m depth, 1 animal, right valve broken (length of shell 20.5 mm, height from ventral margin to beak 16 mm).

This species, which everywhere seems to be fairly rare, has not previously been taken north of the ridge: Cape Walsingham-Holsteinsborg. The record of the "Godthaab" therefore is of no small interest. According to KATHERIN BUSH (1893) the species has never been taken alive in less than 906 fathoms (i.e. 1706 m), the specimen from Lancaster Sound being also in this respect a valuable supplement. Fig. 19 shows the specimen found by the "Godthaab"-Expedition.

Further distribution: *Periploma abyssorum* has previously been known (one valve only) off Cape Hatteras, N. C. in 263 fathoms (i.e. 495 m) depth, and living and dead specimens are present from the coast stretch E. of Banquereau to off Shesapeake Bay (101—1255 fathoms).

Cuspidaria obesa (LOVÉN).

Neaera obesa LOVÉN 1847, p. 48.
Neaera glacialis G. O. SARS 1878, p. 88, pl. 16, figs. 8a—c.

West Greenland records:

Neaera cuspidata MØRCH 1877, p. 440.
Neaera obesa POSSELT & JENSEN 1898, p. 87.

Arctic E. American records: none.

Material:

Middle part of West Greenland: St. 160. Between Egedesminde and Baffinland (68°17′ N. 58°14′ W.), 410 m depth, 1 adult animal.—St. 144. N. of Disko island (70°51′ N. 52°01′ W.), 733 m depth, soft dark clay with stones, 1 adult animal.—American coast area: St. 131. Off Lancaster Sound, N. of Baffinland (74°12′ N. 77°00′ W.), 680 m depth, 2 adult, 2 half-grown animals.

The largest adult specimen had a length of 29.5 mm. Off West Greenland the species is known only between 70° and 72°04′ N. lat. It has not previously been recorded from Baffinland, and its occurrence here as well as between Baffinland and Egedesminde therefore is of no small interest.

Further distribution: East Greenland, Spitzbergen, Jan Mayen, the E. Finmark, the Murman Coast, the Barent Sea, the Kara Sea, the Siberian Ice Sea, New England, St. Lawrence-Gulf, Long Island, Chesapeak Bay, California, South of Ireland, the Kattegat, the Azores and the Mediterranean.

GENERAL REMARKS

Apart from the opisthobranchs, which have already been treated by LEMCHE (1941), the "Godthaab"-Expedition 1928 collected 84 species of testaceous mollusca: 1 scaphopod, 3 placophores, 51 prosobranchs and 29 lamellibranchs to which must be added 2 solenogastres, viz. 86 species in all.

Two of these species: *Acrybia glacialis* and *Sipho krampi*, both deep water forms taken in the isolated Baffins Bugt basin, are new to science. Four further forms were hitherto unknown from the whole area investigated, viz. *Buccinum micropoma* (hitherto no doubt overlooked and confused with *Buccinum sericatum*), *Lima hyperborea*, *Proneomenia sluiteri* and *Proneomenia borealis*, to which may be added the var. *prodita* of *Marsenina glabra.*

On the Labrador-shelf the "Godthaab" found two species hitherto unknown here, viz. *Volutomitra groenlandica* and *Cardium elegantulum*, and the collections in Exeter Sound procured 3 prosobranchs not previously recorded from the Baffin Land-coast, viz. *Lepeta coeca*, *Trichotropis bicarinata* and *Sipho turritus.*

In the coastal areas north of and including Lancaster Sound the "Godthaab" added 6 species to those already known from these inaccessible localities: *Margarita cinerea*, *Marsenina glabra*, *Velutina velutina*, *Pyrene rosacea*, *Buccinum micropoma* and *Astarte crenata.*

Eight species taken by the "Godthaab" were new to the shelf-fauna of the Melville Bugt—Thule—Etah-area, viz. *Lunatia pallida*, *Capulacmaea radiatum*, *Trichotropis conica*, *Trichotropis bicarinata*, *Volutopsis norvegica*, *Portlandia frigida*, *Dacrydium vitreum*, and *Lima hyperborea*, while no species were found along the whole coast from Julianehaab in the South to the middle of the Melville Bugt in the north, which were not previously recorded from this area.

The collections of the "Godthaab" derive from all coastal areas washed by the Davisstræde and the Baffins Bugt, and when working up and publishing this scattered material it seems reasonable to give a series of lists of the molluscan fauna of all these coastal regions and to

use these lists for a comparison between the faunas of the Arctic American East coast and of the West Greenland coast (cfr. the tables pp. 103—111).

It is a general rule that the polar-currents by the rotation of the earth, broadly speaking are forced to follow the eastern coasts of the continents on their way from the N. polar-basin to the south. Thus, the East coast of Greenland is washed by the cold Polar-current, and the North American East coast N. of Cape Cod by the Labrador current. In contrast to this the W. coasts of the North-Atlantic are mainly washed by warm currents, the European W. coast, e.g. by the Gulf-stream as high to the north as Lofoten in Northern Norway from where small branches reach Spitzbergen and the Murman coast, and also part of the S.W. Greenland coast is still somewhat influenced by the Gulf-stream (concerning the Irminger current, see p. 96.

If we compare the number of species of prosobranch known from the northernmost point of the European West coast down to and including the Bay of Biscay with the number known from the North American East coast from Ellesmere Land down to Cape Cod (i.e. down to the same latitude as was used as the southern limit along the European coast) we find that the European coast comprises more than three times as many species (465 sps.) as the corresponding E. American coast (153 sps., cfr. THORSON 1944, p. 155). This seems quite reasonable since we known that the molluscan-fauna of temperate seas (to say nothing of the tropics) is much richer than that of cold seas.—It might therefore be expected that a similar difference, though less pronounced, in the number of species could be found if we compare the high-arctic coast of East Greenland with the S.W. coast of Greenland, which has a sub-arctic to boreal climate (except the extreme southernmost part which is still influenced by the E. Greenland Polar current). A comparison of the number of species of prosobranchs (the only group treated in this paper which has recently been studied also for East Greenland, cf. THORSON 1944) from these two coasts gives a clear difference in number, viz. 101 species known from W. Greenland and 84 species from East Greenland, but this difference is much smaller than might be expected according to a comparison with the European W. coast and the North American East coast. Thus from the Norwegican coast north of and including Lofoten we know 154 species of prosobranchs (G. O. SARS 1878) and the ecological conditions along this coast correspond fairly well with conditions along S.W. Greenland nowadays and are at least as severe as those. Nevertheless about 40 species occurring along this Norwegican coast are southern species, most of them with a pelagic larval development, species which are absent from W. Greenland.

The main reason for this relatively small difference between the number of W. and E. Greenland prosobranch species must no doubt be ascribed to the fact, that the coasts of the continents form continuous coastal lines from the warm to the cold regions, while Greenland—though nearly a continent—is an island, the shallow water fauna of which is isolated from that of more southern localities by vast areas of deep sea. This deep sea must be very old, at least so old, that a shallow water connection; i.e. so shallow that is has allowed southern shore forms to invade Greenland directly, cannot have existed after the glacial-period. This again means that among the southern species, which during earlier, warmer periods have invaded the Greenland shelf, such species only have been able to survive which, during the following cold periods have found sheltered, shallow water areas in which the summer temperature was high enough for breeding and development of their larvae. Such species, persisting the cold periods as "relicts", later on when the temperature rose have been able to conquer new areas along the coast, while southern species unable to survive the periods as "relicts" perished without any chance to invade Greenland again from more southern localities, because the deep sea surrounds the island as an enormous barrier.

The remarkable climatic changes which in recent years have improved the ecological conditions considerably for southern species in Greenland (cf. Ad. S. Jensen 1939, 1944) support the views given above. We know that several species of mobile marine animals of southern origin have invaded the Greenland coasts when the temperature of the water rose, f.i. the whale *Globiceps melas*, the fishes *Gadus æglefinus*, *Brosmius brosme*, *Molva vulgaris*, and the jelly-fish *Halopsis ocellata* (cf. Kramp 1932), while till now no marine bottom invertebrates seem to have taken part in this migration, though several observers specially interested in bottom invertebrates have been on the look-out for them in recent years. We also know a striking example of a southern marine bottom invertebrate which has survived as a "relict" and now can spread over wide areas on account of the improved climatic conditions: *Asterias rubens*, the starfish which in 1895 within the whole well examined S.W. Greenland area was known to live in one locality only, viz. Ameragdla in the innermost part of the Ameralik Fjord (Godthaab-area), and which, having pelagic larvae, has now been able to spread quickly all along the coast from Julianehaab to Holsteinsborg (Mortensen 1932, "Godthaab"-Exp.). Another southern species with pelagic larvae, *Mytilus edulis*, which was known from the West Greenland coast up to the Melville Bugt, has recently been found—and rather commonly too—in the Thule-district, from where it was hitherto unknown (Vibe 1950).

We also know southern species reproducing by pelagic larvae which previously formed part of the Greenland fauna and the shells of which have been found in boreal quaternary deposits on Greenland, viz. *Cyprina islandica*, *Anomia aculeata* and *Zirphaea crispata* (cf. Ad. S. JENSEN 1905, AD. S. JENSEN & HARDER 1910, LAURSEN 1950). Today all these forms are absent in Greenland, because once extinct, they had no opportunity to migrate to Greenland again. The three last mentioned species still live along the coasts of Labrador, where temperature conditions are less favourable than along South-West-Greenland today.

By far the majority of southern species of molluscs along the North Atlantic shores reproduce by pelagic larvae which on an average spend about 3 weeks in the plankton (THORSON 1946, p. 451—457). This 3-week period is, however, too short to give any chance of reaching the Greenland shelf passively by currents, for instance from Iceland. The larvae will only cover part of the distance and then either perish or are forced to metamorphose and settle in the deep sea, where some of them may get a chance to vegetate for some time, but never to reproduce. Only one type of pelagic molluscan larvae seems to have a chance of a successful transport from for instance N.W. Iceland to East Greenland, viz. the *Echinospira*-larvae, i.e. the larvae of the prosobranchs *Velutina*, *Lamellaria*, *Capulus* etc., which, besides their normal embryonic shell, have a larger *Echinospira*-shell surrounding the latter and considerably increasing its displacement. Such *Echinospira*-larvae are known to spend a longer time in the pelagic stage than other pelagic larvae of molluscs, probably 2 months or even more, and their chances to reach the Greenland shelf before they metamorphose and settle seems fairly good. The shortest distance from which a current is moving directly towards Greenland from a more boreal place is the distance between N.W. Iceland and the outer coast of East Greenland between Angmagssalik and Scoresby sund, i.e. the area in which the "warm" Irminger current after having contacted N.W. Iceland approaches the E. Greenland coast. And just along this part of East Greenland: off Henry Land (about 69°35′ N.) and in Uttentals Sund the two only East Greenlandic specimens of *Velutina plicatilis* (= *flexilis*) were taken, which species seems to be totally absent from the well examined coast stretches of East Greenland north and south of the said area (THORSON 1944, p. 62). *Velutina plicatilis* is a southern species known to live in N.W. Iceland (THORSON 1941, p. 67) and no doubt reproducing by *Echinospira*-larvae (PELSENEER 1906, figs. 16—19). It seems resonable to combine these facts: the prolonged pelagic life of this species, the direct transport by the Irminger current from N.W. Iceland to the middle part of East Greenland and the isolated finds of two living specimens on this very part of

the coast and only there, and from this to conclude that *Echinospira*-larvae may migrate to Greenland by being passively transported over the deep sea even nowadays, while "normal" pelagic larvae of molluscs or most other groups of invertebrates spending only about 3 weeks in the plankton have hardly any chance to do this.

This failing ability of "normal" pelagic larvae to spread to Greenland is no doubt the main cause of the fact that improved ecological conditions which in recent time have favoured the Greenland coast and caused a migration of southern marine mammals, fishes and holoplanktonic animals, hitherto have not brought a single new southern bottom invertebrate to the area.

It is hardly to be doubted that several southern species of molluscs reproducing by pelagic larvae, would be able to live, to reproduce, and to maintain their population in southern West Greenland at the present day, if they had the slightest chance to invade the area. An example supporting this view is the common periwinkle, *Littorina littorea*. Till 1871 this prosobranch was totally unknown along the American coast of the Atlantic, where it was then introduced by man. First established and reproducing by pelagic eggs and larvae (Johnson 1915, p. 121) it quickly spread along the New England Coasts and Canada being recorded as early as 1884 by K. J. Bush from Labrador. And here the temperature-conditions are today more severe for the species than they would be along the S.W. Greenland coast from where the species is still totally absent because it has never been introduced.

The only place in which the Greenland shelf is at a relatively narrow distance from the shelf of a continent is in the North-West between Thule-Etah and Ellesmereland where only the comparatively narrow Smith Sound is between. The middle part of Smith Sund, however, also belongs to the deep sea, but the passage between the two coastal lines is so narrow, that it seems reasonable that pelagic larvae, if any, can spread from one coast to the other, and that adult epifauna-forms may be transported e.g. by floating algae or by birds from the American to the Greenland shelf or vice versa.—The Smith Sund region is, however, among the most high-arctic areas of the world, and the ecological conditions so severe, that most species reproducing by pelagic larvae are unable to persist here. The season for constant production of phytoplankton, i.e. the only source of food for the pelagic larvae, is 1—$1^1/_2$ months at most in these high-arctic regions, and in order to survive here a planktontrophic larva therefore has to complete its pelagic development from hatching to metamorphosis within these 1—$1^1/_2$ months at a temperature below 4—5° C. and in most cases still lower than this. This ability to complete its larval life so quickly at such low temperatures which requires a very rapid growth and a high metabolism is not com-

mon. Only a few species possess it, and pelagic larvae without this ability will perish (cf. THORSON 1950). Since most southern species known from New-England and Labrador reproduce by such pelagic larvae which are unable to compete under high-arctic conditions it seems impossible for a southern fauna-element to invade the Greenland shelf via Ellesmereland—Smith Sund—Thule. A few figures clearly show this. From the Labrador area we know 21 species (6 prosobranchs, 15 lamellibranchs) from Baffinland 3 (1 prosobranch, 2 lamellibranchs), and from the Ellesmereland area 5 (2 prosobranchs, 3 lamellibranchs) with pelagic larvae, a fact which proves that already the ecological conditions along Baffinland are too unfavourable for most of these species. Nevertheless the connection between the Ellesmere Land shelf fauna and the Thule Etah-shelf fauna seems to be a fact though southern species are unable to migrate this way. The close connection between the faunas actually living within the two areas is clearly demonstrated by the fact, that of the 55 species (29 prosobranchs, 23 lamellibranchs and 3 placophores) known from the Ellesmereland-area (i.e. N.E. American coast N. of and including Lancaster Sound) 54 (or 98.5 per cent.) are also found on the W. Greenlandic shelf.

The third way in which new species might be expected nowadays to migrate to the Greenland shelf is via the deep sea. This possibility cannot be excluded, since it is a well known fact that deep sea species living in the North Atlantic will migrate to more shallow water in the northernmost area of their distribution, simply because the temperature and food conditions in arctic areas already at a depth of 100 to 200 m below surface are very similar to those of the deep sea (cf. THORSON 1941, p. 127, 1944, pp. 168—169). Some species may also live for instance 1) on the Iceland shelf in somewhat deeper water 2) in the deep sea and again, 3) on the Greenland shelf at smaller depths than off Iceland. A few examples will illustrate this:

Species	Most shallow depth at which found alive off Iceland (THORSON 1941)	Greatest depth at which found alive in the N. Atlantic (THORSON 1941)	Most shallow depth in which found alive at W. Greenland (POSSELT & JENSEN 1898)
Sipho islandicus	60—90 m	1203 m	30 m
Sipho togatus	308 m	1230 m	28 m
Buccinum hydrophanum.	95 m	1187 m	9—18 m
Chrysodomus turtoni ...	225 m	1267 m	9—18 m

There is no doubt that all these species also occur at still greater depths in the deep sea and that the lack of records simply means a lack of a sufficiently large number of samples from these depths. On the other hand, no species with pelagic larvae are included into this group, as they are unable to develop in the deep sea (THORSON 1950, p. 26—27). This deep-sea fauna including the shelfs of Iceland and Greenland is no doubt, so old that there has been time enough for all its species, able to do so, to invade the Greenland shelf. The climatic changes along the Greenland coasts in recent years which proved so favourable for the dispersal of the southern shallow water species seem, on the contrary, to be unfavourable to an invasion via the deep sea, because the constantly low temperatures required by such deep sea species do not reach so close to the surface as in the colder period 20—30 years ago. Though the theoretical chance for an invasion of the Greenland shelf by deep sea species thus is present even nowadays it hardly seems to play any significant part.

This analysis of the recent chances of new species of marine molluscs to invade the Greenland shelf seems to show that the two routes along which new elements may still migrate, viz. from Ellesmereland via Smith Sund to Thule-Etah and from the deep sea, have already been used so long that their faunas are "in equilibrium" with that of the Greenland shelf. This two routes of migration will hardly bring any essential increase in the number of species along the Greenland coast at present. The third way of migration to Greenland: by pelagic larvae over the deep sea seems to be possibly only for a very few species of southern forms which stay especially long in the plankton, while all species with a "normal" pelagic larval stage are unable to disperse to Greenland at present. Thus the coastal areas of Greenland, as far as marine bottom invertebrates are concerned, seem to make an isolated area which nowadays can hardly be invaded from the south though the ecological conditions in S.W. Greenland nowadays are so favourable for several southern species that they would no doubt thrive very well, if they had got a chance to settle.

It was said above, that the molluscan fauna of the N.E. American coast N. of and including Lancaster Sound comprised 55 species of prosobranchs, lamellibranchs and placophores, 54 of which (i.e. 98.5 per cent.) were also known from the W. Greenland coast. Thus, the molluscan fauna of these two areas seems to be in nearly full "equilibrium", which was also to be expected since the areas are so near to each other and because the ecological conditions of the Ellesmereland and Thule-Etah shelves respectively are nearly identical.

The distance from the Baffinland shelf across the Baffins Bugt to W. Greenland is considerably longer than from Ellesmereland to

Thule, and as, furthermore, Baffinland is situated more southerly—much closer to the continuous continental coast of America with its southern species, its molluscan fauna might be expected to differ much more from that of West Greenland than was the case with the Ellesmereland fauna.

Out of 50 species (29 prosobranchs, 20 lamellibranchs and one placophore) hitherto known from Baffinland 48 (27 prosobranchs, 20 lamellibranchs and one placophore) are, however, also known from the West Greenland shelf, i.e. 96 per cent. of all species. This seems to prove that the Baffinland fauna is nearly as closely associated with the W. Greenland fauna as was the fauna of Ellesmereland. The explanation must be sought in the nearly high-arctic ecological conditions prevailing along this coast in spite of its situation opposite to the much more sub-arctic-boreal S.W. Greenlandic coast.

A comparison of the molluscan-fauna of Labrador with that of Baffinland, Ellesmereland and W. Greenland shows a striking difference. Among the 133 species (72 prosobranchs, 57 lamellibranchs and 4 placophores) recorded from Labrador only 89 species (56 prosobranchs, 30 lamellibranchs and 3 placophores) are known from W. Greenland, i.e. only 67 per cent. as compared with the 96 per cent. from Baffinland and the 98.5 per cent. from Ellesmereland. And here again the explanation must mainly be sought in the faunistic isolation of the Greenland shelf. Among the 129 species of prosobranchs and lamellibranchs known from Labrador 21 species are known to reproduce by pelagic larvae, i.e. 16.3 per cent., while the corresponding figure for the prosobranchs and lamellibranchs of S.W. Greenland (up to and including Egedesminde) is only 6—7 per cent. (9 out of 135 species). The difference is still more striking if the 43 species of prosobranchs and lamellibranchs known from Labrador but unknown from W. Greenland are examined, since out of these 43 species, i.e. no less than 32—33 per cent. are known to have pelagic larvae and several more of them may have pelagic larvae, but they have never been studied.

Among these Labrador-species with pelagic larvae unknown from W. Greenland there are several, which are known from both sides of the Atlantic (*Littorina littorea*, *Aclis walleri*, *Lamellaria perspicua*, *Modiola modiolus*, *Anomia aculeata*, *Anomia ephippium*, *Mya arenaria*, *Zirphaea crispata*) and others known only from the American East coast (*Lunatia heros*, *Pecten tenuicostata*, *Cardium pinnatulum*, *Gemma gemma*, *Spisula solidissima*, *Ensis directus*. For details see the list pp. 107—111.

All these remarks refer to the coastal areas round Davisstræde and Baffins Bugt. The most essential contributions of the "Godthaab" to our knowledge were, however, the collections from deep water from the isolated deep sea basin which is separated from the North Atlantic deep

sea by the submarine ridge between C. Walsingham and Holsteinsborg about 600 m belov the surface. Samples from the very deep sea in Baffins Bugt were hitherto unknown and such samples were just necessary to tell us whether this isolated basin—as had previously been supposed—was inhabited by an endemic fauna or only formed an outpost of the common North-Atlantic deep sea fauna.

From the deep sea south of the Cape Walsingham-Holsteinsborg ridge the "Godthaab" has only taken two trawl hauls (at 1200 m and 2750 m respectively) which only yielded 3 species of prosobranchs. Earlier expeditions, especially the British "Valorous"-Expedition, have, however, procured several species from great depths in these areas. Of special interest are such species, which in these areas nowadays do not live in more shallow water than about 700 m, i.e. which are unable to cross this ridge.

From the litterature (here taken from Posselt & Jensen 1898) and the "Godthaab" collections we know 16 species of mollusca which have only been taken at depths greater than 1200 mm off S.W. Greenland south of the ridge:

Buccinum abyssorum	*Portlandia messanensis*	*Glomus nitens*
Pecten fragilis	*Portlandia pusio*	*Kellia symmetros*
Limatula gibba	*Portlandia expansa*	*Axinus cycladicus*
Malletia excisa	*Portlandia jeffreysi*	*Axinus eumyarius*
Malletia cuneata	*Nucula cancellata*	*Axinus incrassatus*
		Siphonodentalium vitreum

And 4 more species, viz. *Aporrhais serresianus*, *Eulima stenostoma*, *Limopsis aurita* and *Dentalium occidentale* have in Davisstræde never been taken in water more shallow than 750 m.

All these 20 species thus seem to be unable nowadays to cross the ridge, and they are all unknown north of the ridge, which seems to be a most effective barrier for such southern deep-sea species today. The fact, that not even a single empty shell or valve of any of these 20 species is known from the 11 trawling stations of the "Godthaab" deeper than and north of the ridge seems to indicate that this ridge has an older origin than the present North-Atlantic deep sea fauna. The fact that the deep basin north of the ridge contains at least two endemic species of prosobranchs, both clearly distinct from related species and one of them, *Acrybia glacialis*, even of a feature quite unique within the *Naticidae*, seems to support this view since, such a characteristic species probably developed over a large space of time.

The 11 trawling stations of the "Godthaab" from depths greater than 600 m (i.e. deeper than the ridge) in the Baffins Bugt yielded

32 species given in the list below. Those marked with an asterisk have never been taken in more shallow water inside the Baffins Bugt:

Lepeta coeca	*Sipho lindahli*	*Nucula tenuis*
**Acrybia glacialis*	*Trichotropis borealis*	*Arca pectunculoides*
Lunatia pallida	*Bela decussata*	*Pecten groenlandicus*
**Capulacmaea radiatum*	*Bela cinerea*	*Pecten imbrifer*
Buccinum hydrophanum		*Astarte crenata*
Buccinum tenue	*Yoldia hyperborea*	*Thyasira flexuosa*
Sipho togatus	*Portlandia lucida*	*Cuspidaria obesa*
Sipho islandicus	*Portlandia intermedia*	*Lyonsiella abyssicola*
Sipho lachesis	*Portlandia lenticula*	**Periploma abyssorum*
**Sipho turritus*	*Leda pernula*	*Mya truncata*
**Sipho krampi*		*Siphonodentalium vitreum*
		**Proneomenia sluiteri*

As will be seen, only 6 of these 32 species seem to be restricted to very deep water, while all the other species appear to be common to the deep sea and the shelf in these cold areas. Out of the 6 "deep sea species" one, viz. *Sipho turritus*, is only present in the collections in one empty shell, the identity of which is somewhat doubtful (cf. p. 54). *Capulacmaea radiatum* is known off Holsteinborg (i.e. just above the submarine ridge) to live in as shallow water as 22 m, and thus cannot be reckoned among the deep-sea species. Thus, from this large deep sea basin there are only 4 species in the collections hitherto available which must be regarded as pronounced deep-sea species. Two of these, *Periploma abyssorum* and *Proneomenia sluiteri* are known from deep water also south of the ridge, while *Acrybia glacialis* and *Sipho krampi* seem to be endemic within the Baffins Bugt basin. This basin thus seems to be very poor in typical deep-sea species, much poorer than the deep water south of the ridge, and most of the species living in the deep waters of Baffins Bugt are such, which live in more shallow localities also.

The few true endemic deep sea forms in this basin, are therefore of the greatest ecological interest. As already mentioned p. 98, it is a well known fact that species, which in more southern seas are associated with the deep sea bottom, in high-arctic regions approach the surface, because the ecological conditions typical of the deep sea, viz. low and constant temperatures, poor food conditions, etc., here occur already at a depth of 100—200 m. The two species, viz. *Acrybia glacialis* and *Sipho krampi*, which even in these high-arctic regions seem to be strictly bound to the very deep sea, must accordingly be extremely sensitive to the slightest change in the biological conditions, and a closer study of their ecology would certainly prove to be most interesting, though hardly possible at present.

Table I. Distribution of the prosobranchs, lamellibranchs and placophores within the different areas of the West Greenlandic shelf (depths smaller than 400 m). Compiled from Posselt and Jensen (1898) Ad. Jensen (1912), Baker (1919), Dall (1926), Vibe (1950) and the recent collections of the "Godthaab-Exp. 1928", with a few additions from the West Greenland Fjord Investigations 1911—12 (marked with an *; see p. 7).

Species	Julianehaab-area	Frederikshaab-area	Godthaab-area	Sukkertoppen-area	Holsteinsborg-area	Egedesminde-area	Godhavn-area	Umanak-area	Upernavik-area	Melville Bugt area	Thule-Etah-area
Scissurella crispata	..	..	+	..	+	+	..	..	..	..	..
Puncturella noachina	+	+	+	+	+	+	+	+	+	..	..
Acmaea testudinalis	+	+	+	+	+	+	+	+	+	+	..
Acmaea rubella	+	+	+	+	+	+	+	+	+	..	+
Lepeta coeca	+	+	+	+	+	+	+	+	+	..	+
Margarita groenlandica	+	+	+	+	+	+	+	+	+	..	+
Margarita helicina	+	+	+	+	+	+	+	+	+	..	+
Margarita cinerea	+	+	+	+	+	+	+	+	+	..	+
Margarita vahli	..	..	+	+	+	+	+	+	+	..	+
Margarita olivacea	+	+	+	+	+	+	+	+	+	..	+
Margarita grossvenori	..	..	..	..	..	..	..	..	..	..	+
Solariella obscura	..	..	..	..	..	..	..	..	..	..	+
Moelleria costulata	+	..	+	+	+	+	+	..	..	..	..
Lacuna divaricata	+	+	+	+	+	+	+	..	..	..	..
Lacuna crassior	..	..	+	..	..	+	+	..	..	..	..
Lacuna pallidula	..	..	..	+	..	..	..	..	..	..	..
Littorina saxatilis	+	+	+	+	+	+	+	+	+	..	..
Littorina obtusa (including *L. palliata*)	+	+	+	+	..	+	+	..	+	..	..
Cingula castanea	..	..	+	+	+	+	+	+	+	..	..
Cingula arenaria	..	..	+	+	+	..	+	..	..	..	..
Cingula globulus	+	..	+	+	+	+	..	..	..	..	..
Liostomia eburnea	..	..	+	..	..	+	..	..	..	..	..
Onoba aculeus	+	+	+	+	..	+	+	..	..	..	..
Alvania scrobiculata	..	+	..	+	..	+	..	..	..	..	..
Alvania jan-mayeni	..	..	..	..	..	..	+	+	+	..	..
Alvania cruenta	..	..	..	..	..	..	+	+	..	..	..
Skeneopsis planorbis	..	..	..	+	+	+	..	..	..	..	..
Homalogyra atomus	..	..	..	+	..	..	..	..	..	..	..
Turritella reticulata	+	+	+	+	+	+	+	+	+	..	..
Turritella erosa	+	+	+	+	+	+	+	+	..	+	..
Cerithiopsis costulata	..	..	..	+	..	..	..	..	..	..	..
Turritellopsis acicula	Shells only. Area unknown.										
Scalaria groenlandica	..	..	+	..	..	+	+	..	..	..	..
Scalaria (Acirsa) borealis	+	..	+	..	..	..	+	..	..	..	..
Entocolax ludwigi	..	..	..	..	+	..	..	..	..	..	..
Trichotropis borealis	+	..	+	+	..	+	+	+	+	..	+

Table I (continued).

Species	Julianehaab area	Frederikshaab area	Godthaab area	Sukkertoppen area	Holsteinsborg area	Egedesminde area	Godhavn area	Umanak area	Upernavik area	Melville Bugt area	Thule-Etah area
Trichotropis conica	..	..	..	+	..	+	..	..	..	..	+
Trichotropis bicarinata	..	..	..	..	..	..	..	..	..	..	+
Aporrhais occidentalis	..	..	+	..	..	..	..	..	..	..	..
Amaura candida	..	..	+	..	..	+	..	..	..	..	..
Amauropsis islandica	..	..	+	+	..	+	..	..	..	..	..
Lunatia pallida	+	+	+	+	..	+	+	+	+	..	+
Lunatia nana	..	..	+	..	..	..	..	..	..	..	..
Natica clausa	+	..	+	+	+	+	+	+	+	..	+
Capulacmaea radiatum	..	..	..	..	+	..	..	..	..	..	+
Velutina velutina	+	..	+	+	+	+	+	+	+	..	+
Velutina plicatilis	..	..	..	..	+	..	..	..	..	..	..
Velutina lanigera	area unknown										
Velutina undata	..	+	+	..	..	..	..	..	..	..	+
Onchidiopsis glacialis?	..	..	+	+	..	+	..	..	..	..	..
Marsenina glabra	..	+	+	..	+	+	..	+	..	..	..
Trophon clathratus	+	+	+	+	+	+	+	+	+	..	..
Trophon fabricii	+	+	+	+	+	+	+	+	+	..	+
Trophon truncatus	..	+	+	+	+	+	+	..	..	..	..
Nucella lapillus	+	..	..	..	..	..	+	..	..	..	..
Pyrene rosacea	..	..	+	+	..	+	+	+	+	..	+
Volutopsis norvegica	+	..	+	..	..	..	+	..	+	..	+
Sipho holbølli	+	..	+	+	..	+	+	..	..	..	+
Sipho islandicus	..	..	+	..	..	..	+	..	+	..	+
Sipho propinquus	..	..	..	..	..	+	..	..	..	..	..
Sipho togatus	..	..	..	+	..	+	+	+	+	+	+
Sipho tortuosus (= turritus)	..	..	..	..	..	..	..	..	..	..	+
Sipho undulatus (= costiferus)	+	..	..	..	..	..	..	..	..	..	..
Sipho lindahli	..	..	..	..	..	..	..	+	..	..	..
Sipho lachesis	..	..	+	..	..	..	..	+	..	+	+
Sipho krøyeri	+	..	+	..	..	..	..	..	..	..	..
Sipho latericeus	+	..	+	..	..	+	+	..	+	..	..
Siphonorbis ebur	..	..	..	..	..	+	..	..	..	..	..
Chrysodomus turtoni	+	..	..	..	..	..	+	..	..	..	..
Neptunea despecta	+	..	+	+	+	+	+	+	+	..	+
Buccinum belcheri	..	..	..	..	..	..	..	..	..	..	+
Buccinum undatum	..	..	+	..	..	+	+	..	..	..	..
Buccinum undulatum	+	+	+	..	..	+	+	+	+	..	+
Buccinum groenlandicum	+	+	+	..	+	+	+	+	+	..	+
Buccinum amaliae	..	..	..	..	..	..	+	..	..	..	..
Buccinum hydrophanum	..	..	+	..	..	..	+	+	+	..	+
Buccinum ciliatum	+	+	+	+	+	+	+	+	+	..	..
Buccinum finmarchianum	+	..	+	..	+	+	+	+	+	..	+
Buccinum terrae-novae (= donovani)	+	..	..	..	..	+	+	+	+	..	..
Buccinum tenue	+	+	+	..	+	+	+	+	+	+	+

Table I (continued).

Species	Julianehaab area	Frederikshaab area	Godthaab area	Sukkertoppen area	Holsteinsborg area	Egedesminde area	Godhavn area	Umanak area	Upernavik area	Melville Bugt area	Thule-Etah area
Buccinum glaciale	+	+	..	..	..	..	..	..	..	..	..
Buccinum sericatum	..	..	..	..	..	..	..	+	+	..	..
Buccinum micropoma	..	..	..	..	..	..	..	..	..	..	+
Buccinum hancocki	..	..	..	..	..	..	..	..	..	..	+
Volutomitra groenlandica	+	..	+	+	..	+	..	..	..	..	..
Admete viridula	+	..	+	+	+	+	+	+	..	..	+
Bela pyramidalis	+	+	+	+	+	+	+	+	..	..	..
Bela rubescens	..	..	..	..	+	..	..	..	..	..	..
Bela pingeli	+	+	+	+	+	+	+	..	..	..	..
Bela incisula	+	+	+	+	+	+	+	+	..	..	..
Bela sarsi	..	..	..	..	..	..	..	..	+	..	..
Bela declivis	..	..	..	..	+	..	..	..	..	..	..
Bela elegans	+	..	+	..	+	+	+	+	..	..	..
Bela obliqua	..	..	+	..	..	..	..	..	..	..	..
Bela cinerea	..	..	+	+	+	+	..	..	..	..	..
Bela nobilis (= rugulata)	+	+	+	+	+	+	+	+	+	+	+
Bela exarata	+	+	+	+	+	+	+	+	..	..	..
Bela woodiana (= harpularia)	+	+	+	..	..	+	+	+	..	..	..
Bela trevelyana	..	+	+	..	..	+	+	+	..	+	..
Bela violacea	+	+	+	+	+	+	+	+	+	..	+
Bela tenuicostata	+	..	..	..	..	..	..	..	..	..	+
Bela decussata	+	+	+	+	+	+	+	+	+	..	..
Raphitoma amoena	..	..	..	..	..	..	..	..	+	..	..
Nucula tenuis	+	+	+	+	+	+	+	+	+	+	+
Nucula groenlandica	..	..	..	..	..	+	..	..	..	..	..
Nucula nucleus	..	..	..	..	..	+	..	..	..	..	..
Nucula delphinodonta	..	..	..	..	..	..	..	+	+	..	..
Leda minuta	+	+	+	+	+	+	+	+	+	+	+
Leda pernula	+	+	+	+	+	+	+	+	+	+	+
Portlandia arctica	..	..	..	..	..	+	+	..	..	+	..
Portlandia lucida	+	..	+	..	..	..	..	+	+	+	..
Portlandia intermedia	+	..	+	..	..	..	..	+	+	..	+
Portlandia lenticula	+	..	+	+	..	+	+	+	..	..	..
Portlandia frigida	..	..	..	+	..	..	..	+	+	+	..
Yoldia limatula (= hyperborea)	+	+	+	+	..	+	+	..	+	..	+
Yoldia thraciaeformis	+	..	..	+	+	+	..	..	+	..	..
Arca pectunculoides	+	..	..	..	..	+	..	+	+	..	..
Arca glacialis	+	..	..	..	..	..	..	+	+	..	..
Dacrydium vitreum	+	..	..	+	..	+	..	+	+	+	..
Crenella decussata	+	..	+	+	+	+	+	+	+	+	..
Modiolaria discors (incl. *laevigata*)	+	+	+	+	+	+	+	+	+	..	+
Modiolaria nigra	+	..	+	+	..	+	+	..	+	..	+
Modiolaria corrugata	..	..	+	..	..	+	+	+	..	..	+

Table I (continued).

Species	Julianehaab area	Frederikshaab area	Godthaab area	Sukkertoppen area	Holsteinsborg area	Egedesminde area	Godhavn area	Umanak area	Upernavik-area	Melville Bugt area	Thule-Etah area
Modiolaria faba	..	+	+	+	..	+	+	+	+	+	+
Mytilus edulis	+	+	+	+	+	+	+	+	+	+	+
Pecten islandicus	+	..	+	+	+	+	+	+	+	+	+
Pecten groenlandicus	..	..	..	..	..	..	..	+	+	+	+
Pecten imbrifer	..	..	..	..	..	..	..	+	+	+	..
Pecten vitreus	..	..	..	+	..	..	..	..	..	..	..
Lima hyperborea	..	..	..	..	..	..	..	..	..	+	..
Lima subauriculata	+	..	+	+	..	+	+	..	+	..	..
Astarte borealis	+	..	+	+	+	+	+	..	+	..	+
Astarte montagui	+	..	+	+	+	+	+	+	+	..	+
Astarte sulcata	+	..	..	+	..	..	..	..	+	..	..
Astarte elliptica	+	+	+	+	+	+	+	..	+	+	+
Astarte crenata	+	+	..	..	..	+	+	+	+	+	+
Cyprina islandica	..	..	..	..	..	..	?+?	..	..	..	..
Cyamium minutum	..	..	+	..	..	+	+	..	..	..	..
Thyasira flexuosa	+	+	+	+	..	+	+	+	+	..	+
Thyasira croulinensis	..	..	..	..	..	..	..	+	..	..	..
Axinulus ferruginosus	..	..	..	..	..	..	..	+	..	..	..
Axinopsis orbiculata	..	+	+	..	+	+	+	+	..	..	..
Montacuta planulata (= mølleri)	+	+	..	..	..	..	..	..	..	..	..
Montacuta dawsoni	..	..	+	..	+	+	+	..	..	..	..
Serripes groenlandicum	+	+	+	+	+	+	+	+	+	+	+
Cardium elegantulum	+	..	+	+	..	+	+	+	+	..	+
Cardium ciliatum	+	+	+	+	+	+	+	+	+	+	+
Venus fluctuosa	..	+	+	..	+	..	..	..	..	..	..
Macoma calcarea	+	+	+	+	+	+	+	+	+	+	+
Macoma baltica	+	+	..	..	..	..	+	..	..	..	..
Macoma loveni (= inflata)	..	..	..	..	+	..	..	..	..	..	..
Macoma torelli	..	..	..	..	..	..	+	..	..	..	..
Macoma moësta (= krausei)	..	..	..	..	..	..	..	+	..	..	..
Cyrtodaria kurriana	..	..	+	..	..	+	+	..	..	..	..
Saxicava arctica	+	+	+	+	+	+	+	+	+	+	+
Mya truncata	+	+	+	+	+	+	+	+	+	..	+
Teredo megotara (= denticulata)	..	+	..	..	..	..	..	..	..	..	..
Lyonsia arenosa	+	+	+	..	..	+	+	+	..	+	+
Thracia myopsis (= truncata)	+	..	+	+	..	+	+	+	..	..	..
Thracia septentrionalis	..	..	..	+	..	..	..	..	..	..	..
Cuspidaria obesa	..	..	..	..	..	..	..	+	+	..	..
Tonicella marmorea	+	+	+	+	+	+	+	+	+	..	+
Trachydermon albus	..	+	+	+	+	+	+	..	..	..	..
Trachydermon ruber	+	+	+	+	+	+	+	..	+	..	..
Chiton arcticus	..	..	..	..	..	..	+	..	..	..	..

Table II. Distribution of the prosobranchs, lamellibranchs and placophores off Labrador, Baffinland, N.E. American coast N. of and including Lancaster Sound, and West Greenland (only depths less than 400 m regarded). All records of the "Godthaab" have been regarded together with the available literature, viz. from Labrador: Packard (1863, 1867, 1884), Bush (1884), Dall (1887), Whiteaves (1901), Johnson (1926, 1934) and Richards (1936). Baffinland: Hancock (1846), Dall (1879), Pfeffer (1886). Lancaster Sound and Northwards: Sutherland (1852), Reeve (1855), Smith (1877), Jeffreys (1877) and Baker (1919). West Greenland: Posselt & Jensen (1898), Jensen (1912), Baker (1919), Dall (1926) and Vibe (1950).

Species	Labrador	Baffinland	Lancaster Sound and northwards	W. Greenland
Scissurella crispata	+	..	..	+
Puncturella noachina	+	..	+	+
Acmaea testudinalis	+	+	+	+
Acmaea rubella	+	+	..	+
Lepeta coeca	+	+	+	+
Margarita groenlandica	+	+	+	+
Margarita helicina	+	+	+	+
Margarita cinerea	+	+	+	+
Margarita vahli	..	..	+	+
Margarita olivacea	+	+	+	+
Margarita grossvenori	..	..	..	+
Solariella obscura	+	..	..	+
Solariella variosa	+	..	..	..
Moelleria costulata	+	..	..	+
Lacuna divaricata	+	..	+	+
Lacuna crassior	..	..	..	+
Lacuna pallidula	..	..	..	+
Lacuna (Aquilonaria) turneri	+	..	..	..
Littorina saxatilis	+	+	..	+
Littorina obtusata (incl. var. *palliata*)	+	..	..	+
Littorina littorea	+	..	..	..
Cingula castanea	+	..	..	+
Cingula arenaria	..	..	..	+
Cingula minuta	+	..	..	..
Cingula globulus	..	..	..	+
Liostomia eburnea	..	..	..	+
Onoba aculeus	..	..	..	+
Alvania scrobiculata	..	..	..	+
Alvania Jan-mayeni	..	..	..	+
Alvania cruenta	..	..	..	+
Alvania bryanti	+	..	..	..
Adeorbis costulata	+	..	..	..
Skeneopsis planorbis	..	..	..	+

Table II (continued).

Species	Labrador	Baffinland	Lancaster Sound and northwards	W. Greenland
Homalogyra atomus	..	..	..	+
Turritella reticulata	+	..	..	+
Turritella erosa	+	..	..	+
Cerithiopsis costulata	..	..	..	+
Turritellopsis acicula	+	..	..	+
Scalaria groenlandica	+	..	..	+
Scalaria (Acirsa) borealis	..	..	..	+
Aclis walleri	+	..	..	..
Entocolax ludwigi	..	..	..	+
Trichotropis borealis	+	..	+	+
Trichotropis conica	..	+	..	+
Trichotropis bicarinata	..	..	+	+
Aporrhais occidentalis	+	..	..	+
Amaura candida	+	..	..	+
Amauropsis islandica	+	..	..	+
Lunatia pallida	+	+	+	+
Lunatia heros	+	..	..	..
Lunatia nana	..	..	..	+
Natica clausa	+	..	+	+
Capulacmaea radiatum	..	..	+	+
Velutina velutina	+	..	+	+
Velutina plicatilis	..	..	..	+
Velutina lanigera	..	..	..	+
Velutina undata	+	+	+	+
Onchidiopsis glacialis?	..	..	+	+
Onchidiopsis corys	+	..	..	..
Onchidiopsis kingmaruensis	..	+	..	..
Lamellaria perspicua	+	..	..	..
Marsenina glabra	+	..	+	+
Trophon clathratus	+	+	..	+
Trophon fabricii	+	+	+	+
Trophon truncatus	+	+	..	+
Nucella lapillus	..	..	..	+
Pyrene rosacea	+	..	+	+
Volutopsis norvegica	..	..	..	+
Sipho holbølli	..	..	..	+
Sipho islandicus	+	..	..	+
Sipho propinquus	..	..	..	+
Sipho togatus	+	+	..	+
Sipho tortuosus (= turritus)	..	+	+	+
Sipho undulatus (= costiferus)	..	..	..	+
Sipho lindahli	..	..	..	+
Sipho lachesis	..	..	..	+
Sipho krøyeri	+	..	..	+
Sipho latericeus	..	+	..	+

Table II (continued).

Species	Labrador	Baffinland	Lancaster Sound and northwards	W. Greenland
Siphonorbis ebur	..	..	..	+
Troschelia berniciensis	+	..	..	..
Chrysodomus turtoni	..	..	..	+
Neptunea despecta	+	..	..	+
Buccinum belcheri	+	+	+	+
Buccinum undatum	+	..	..	+
Buccinum undulatum	+	+	..	+
Buccinum groenlandicum	+	+	..	+
Buccinum amaliae	..	..	..	+
Buccinum hydrophanum	+	+	+	+
Buccinum ciliatum	+	+	..	+
Buccinum finmarchianum	..	+	..	+
Buccinum terrae-novae (= donovani)	+	..	+	+
Buccinum tenue	+	..	+	+
Buccinum glaciale	+	+	+	+
Buccinum sericatum	..	+	+	+
Buccinum micropoma	..	..	+	+
Buccinum hancocki	..	+	..	+
Buccinum humphreysianum	+	+	..	..
Buccinum labradorense	+	..	..	..
Volutomitra groenlandica	+	..	..	+
Admete viridula	+	..	..	+
Bela pyramidalis	+	..	..	+
Bela rubescens	..	..	..	+
Bela pingeli	+	..	..	+
Bela incisula	+	..	..	+
Bela sarsi	+	..	..	+
Bela declivis	..	..	..	+
Bela elegans	..	..	..	+
Bela obliqua	..	..	..	+
Bela cinerea	..	..	..	+
Bela nobilis (= rugulata)	+	..	..	+
Bela exarata	+	..	..	+
Bela woodiana (= harpularia)	+	..	..	+
Bela cancellata	+	..	..	..
Bela impressa	+	..	..	..
Bela violacea	+	..	+	+
Bela tenuicostata	..	..	..	+
Bela decussata	+	+	..	+
?Bela turricola?	..	+?	..	..
Bela? syrtensis	+	..	..	..
Raphitoma amoena	..	..	..	+
Nucula tenuis	+	+	+	+
Nucula groenlandica	..	..	..	+

Table II (continued).

Species	Labrador	Baffinland	Lancaster Sound and northwards	W. Greenland
Nucula nucleus	..	..	..	+
Nucula delphinodonta	+	..	..	+
Leda minuta	+	+	+	+
Leda pernula	+	+	+	+
Leda jacksoni	+	..	..	..
Portlandia arctica	..	..	+	+
Portlandia lucida	..	..	..	+
Portlandia intermedia	..	..	+	+
Portlandia lenticula	..	..	..	+
Portlandia frigida	..	..	..	+
Yoldia limatula (= hyperborea)	+	..	+	+
Yoldia thraciaeformis	..	..	..	+
Yoldia myalis	+	..	..	..
Arca pectunculoides	..	..	..	+
Arca glacialis	..	..	..	+
Dacrydium vitreum	..	..	..	+
Crenella decussata	+	..	..	+
Modiolaria discors (= laevigata)	+	+	+	+
Modiolaria nigra	+	+	+	+
Modiolaria corrugata	+	..	..	+
Modiolaria faba	+	+	..	+
Modiolaria glandula	+	..	..	..
Mytilus edulis	+	..	..	+
Modiola modiolus	+	..	..	..
Pecten islandicus	+	+	+	+
Pecten groenlandicus	+	+	+	+
Pecten imbrifer	..	..	..	+
Pecten vitreus	..	..	..	+
Pecten tenuicostatus (= grandis)	+	..	..	..
Lima hyperborea	..	..	..	+
Lima subauriculata	+	..	+	+
Anomia ephippium	+	..	..	..
Anomia squamula	+	..	..	..
Astarte borealis	+	+	+	+
Astarte montagui	+	+	+	+
Astarte sulcata	..	..	..	+
Astarte elliptica	+	+	+	+
Astarte crenata	+	..	+	+
Astarte undata	+	..	..	..
Astarte subaequilatera (= lens)	+	..	..	..
Venericardia borealis	+	..	..	..
Cyprina islandica	..	..	..	???
Cyamium minutum	..	+	..	+
Thyasira flexuosa (= gouldi)	+	..	+	+

Table II (continued).

Species	Labrador	Baffinland	Lancaster Sound and northwards	W. Greenland
Thyasira croulinensis	+	..	..	+
Thyasira plana	+	..	..	..
Thyasira trisinuata (= obesa)	+	..	..	..
Axinulus ferruginosus	..	..	..	+
Axinopsis orbiculata	+	..	..	+
Montacuta planulata (= mølleri)	..	..	..	+
Montacuta dawsoni	..	..	..	+
Serripes groenlandicum	+	+	+	+
Cardium elegantulum	+	..	..	+
Cardium ciliatum	+	+	+	+
Cardium pinnatulum	+	..	..	..
Venus fluctuosa	+	..	..	+
Gemma gemma	+	..	..	..
Mesodesma deaurata (= jauresi)	+	..	..	..
Spisula solidissima	+	..	..	..
Spisula ovalis (= polynema)	+	..	..	..
Macoma calcarea	+	+	+	+
Macoma baltica	+	..	..	+
Macoma loveni (= inflata)	..	..	..	+
Macoma torelli	..	..	..	+
Macoma moësta	..	+	..	+
Ensis directus	+	..	..	..
Saxicava arctica	+	+	+	+
Panomya arctica	+	..	..	..
Cyrtodaria kurriana	..	+	..	+
Cyrtodaria siliqua	+	..	..	..
Mya truncata	+	+	+	+
Mya arenaria	+	..	..	..
Zirphaea crispata	+	..	..	..
Teredo megotara (= denticulata)	..	..	..	+
Lyonsia arenosa	+	+	+	+
Lyonsia granulifera	+	..	..	..
Pandora glacialis	+	..	+	..
Thracia myopsis (= truncata)	+	..	..	+
Thracia septentrionalis	..	..	..	+
Thracia conradi	+	..	..	..
Thracia papyracea	+	..	..	..
Cuspidaria obesa	..	..	..	+
Tonicella marmorea	+	+	+	+
Trachydermon albus	+	..	+	+
Trachydermon ruber	+	..	+	+
Amicula vestita	+	..	..	..
Chiton arcticus	..	..	..	+

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