

Distribution of *Admete contabulata* and *Iphinopsis inflata* in the Arctic (Gastropoda: Cancellariidae)

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ABSTRACT. Only four species of the family Cancellariidae had been reported from the Arctic. However, known distribution of three of them had been limited to the extreme north of the eastern Atlantic so far. The present paper describes findings of *Admete contabulata* Friele, 1879 from the Barents and the Kara seas and *Iphinopsis inflata* (Friele, 1879) from the Pacific part of the Arctic Ocean. Lectotype for *Admete contabulata* is here designated.

Introduction

Species composition of the family Cancellariidae in the Arctic Atlantic was recently revised by Høisæter [2011]. He noticed that four species of the family are known from the Norwegian Sea and the adjacent waters, one of them — *Admete clivicola* Høisæter, 2011 was described as a new and another species — *Admete contabulata* Friele, 1879 was reinstated as a valid. Also, *Iphinopsis inflata* (Friele, 1879) and *Admete viridula* (Fabricius, 1780) were reported for the region. Known distribution of aforementioned species has been limited to the Atlantic part of the Arctic and the Barents Sea [Høisæter, 2011; Nekhaev, 2014], the only exception is *Admete viridula* reported from all Arctic seas [Bouchet, Warén, 1985; Golikov *et al.*, 2001; Kantor, Sysoev, 2006]. *Admete contabulata* was also reported from the Siberian Seas by Gorbunov [1946] but it was disregarded after the synonymizing of the later species with *Admete viridula* and needs confirmation.

During the examination of museum collections from the Arctic, several samples containing *Admete contabulata* and *Iphinopsis inflata* were found. These findings expand known range of both species. The present note describes these records.

Materials and Methods

Present paper is based on museum collections. Shells were examined with a stereomicroscope. Sculpture of embryonic shells was studied with a scanning electronic microscope after silver coating.

Abbreviations: ZIN – Zoological Institute of Russian Academy of Sciences (Saint-Petersburg, Russia), ZMB – Zoological Museum of the University of Bergen (Norway).

Results

Cancellariidae Forbes et Hanley, 1851
Admete Krøyer in Møller, 1842

Admete contabulata Friele, 1879
(Figs 1, 2, 4 A–C)

Admete contabulata Friele 1879: 276; 1886: 24–25, pl. VIII figs. 31–32; Odhner, 1915: 210; Høisæter, 2011: 496–497, figs 2, 3, 6, 7.

Type locality: Norwegian Sea, 69°46'N, 16°15'E, 1187 m, R/V *Vøring*, sta. 192.

Material examined. Type material: lectotype of *Admete contabulata*: ZMB 20724. **Other material:** Norwegian Sea, ZIN 1/49156 (1 empty shell); Arctic Ocean, 80°21.5'N, 7°03'E, 660 m, R/V *Sadko*, sta. 12/36, leg. G.P. Gorbunov, silt, 02.08.1935, ZIN 2/49157 (1 empty shell); Kara Sea, 80°45.8'N, 83°26'E, 290 m, R/V *Sadko*, sta. 54/93, leg. G.P. Gorbunov, silt, 09.09.1935, ZIN 4/49159 (2 empty shells); Kara Sea, 80°43.5'N, 68°08'E, 542 m, R/V *Sadko*, sta. 39/73, leg. G.P. Gorbunov, silt, pebbles, 30.08.1935, ZIN 3/49158 (1 empty shell); Barents Sea, Novaya Zemlya, Russkaya Gavan Bay, 76°15'N, 62°30'E, 1 m, Icebreaker *Sedov*, sta. 40, leg. G.P. Gorbunov, 10.08.1930, ZIN (1 spm.); Barents Sea, 74°31.08'N, 30°02'E, 330 m, R/V *Persey*, sta. 960, silt, concretions, 19.06.1928, ZIN (1 empty shell).

Description. Shell small for genus (Table 1) conical, fragile, with 4–5 shouldered whorls divided by deep suture. Periostracum thin, brownish. Spiral sculpture consists of frequent narrow spiral cords divided by 2–3 times wider interspaces. There are 3–4 cords on shoulder of last whorl and up to 20 cords beneath shoulder. Cords become lower towards base of shell. Axial sculpture consists of prosocline wide ribs approximately equal to interspaces. Axials developed on upper whorls and almost absent on body whorl. Growth lines proso-



FIG. 1. Known distribution of *Admete contabulata* (white figures) and *Iphinopsis inflata* (black figures). Circles – original records, triangles – published records [Bouchet, Warén, 1985; Høisæter, 2011], stars – type localities.

РИС. 1. Известные места находений *Admete contabulata* (белые значки) и *Iphinopsis inflata* (черные значки). Кружки – новые находения, треугольники – опубликованные ранее находения [Bouchet, Warén, 1985; Høisæter, 2011], звездочки – типовые местонахождения.

cline, well-marked. Embryonic shell of 1.1–1.2 whorls, covered with numerous, dotted, very low spiral riblets. Protoconch diameter is 0.82–0.95 mm. Aperture broad, pear-shaped. Siphonal channel short, slightly inclined to left. Umbilicus very narrow. Two very weak columellar folds are usually marked. Operculum absent.

Distribution. Fig. 1 (White figures): The species was reported from the Norwegian, the Barents, and the Kara seas in 1–1338 m. Apart of the single locality in Russkaya Gavan Bay (Novaya Zemlya), *Admete contabulata* was found exclusively along

the continental slope of the Arctic and Northern Atlantic. Gorbunov [1946] also reported *Admete contabulata* from several localities north to New Siberian Islands, these samples were not found during the reexamination of ZIN collections. Odhner [1915] identified *Admete contabulata* from the Advent Bay (Isfjord, Svalbard), however the reliability of this record was doubted by Høisæter [2011].

Remarks. Friele [1879] described *Admete contabulata* in the paper, dedicated to the mollusks, collected from the waters around the Svalbard during the Norwegian North Atlantic Expedition on R/V

Table 1. Measurements (in mm) of *Admete contabulata* and *Iphinopsis inflata*.

Табл. 1. Промеры (в мм) *Admete contabulata* и *Iphinopsis inflata*.

	SH	AH	LWH	PWH	SW	AW	PWW
<i>Admete contabulata</i>							
Norwegian Sea (Fig. 2F, 4 A–C)	5.2	2.6	4.1	-	3.2	1.7	-
Arctic Ocean, 80°21.5'N, 7°03'E (Fig. 2B)	8.73	4.48	6.4	1.12	5.22	3.36	2.61
80°45.8'N, 83°26'E (Fig. 2A)	9.93	4.63	6.9	1.49	5.45	3.28	2.99
Barents Sea, 76°15'N, 62°30'E (Fig. 2D)	8.96	4.78	6.8	1.04	5.9	3.13	2.61
Barents Sea, 74°31.08'N, 30°02'E (Fig. 2C)	9.7	4.85	7.1	1.34	5.75	3.13	2.99
<i>Iphinopsis inflata</i>							
Arctic Ocean, 78°55'N, 161°58'W (Fig 3C)	8.58	4.63	6.7	1.04	5	2.69	2.39

SH – shell height, AH – aperture height, LWH – last whorl height, PWH – penultimate whorl height, SW – shell width, AW – aperture width, PWW – penultimate whorl width.



FIG. 2. Shells of *Admete contabulata*; **A.** Kara Sea, 80°45.8'N, 83°26'E, 290 m, R/V *Sadko*, sta. 54/93, 09.09.1935, ZIN 4/49159. **B.** Arctic Ocean, 80°21.5'N, 7°03'E, 660 m, R/V *Sadko*, sta. 12/36, 02.08.1935, ZIN 2/49157. **C.** Barents Sea, 74°31.08'N, 30°02'E, 330 m, R/V *Persey*, 19.06.1928. **D.** Barents Sea, Novaya Zemlya, Russkaya Gavan Bay, 76°15'N, 62°30'E, 1 m, Icebreaker *Sedov*, sta. 40, 10.08.1930. **E.** Lectotype of *Admete contabulata*, ZMB 20124. **F.** Norwegian Sea, ZIN 1/49156. Scale bar = 5 mm.

РИС. 2. Раковины *Admete contabulata*; **A.** Карское море, 80°45.8'N, 83°26'E, 290 м, НИС *Садко*, ст. 54/93, 09.09.1935, ZIN 4/49159. **B.** Северный Ледовитый океан, 80°21.5'N, 7°03'E, 660 м, НИС *Садко*, ст. 12/36, 02.08.1935, ZIN 2/49157. **C.** Баренцево море, 74°31.08'N, 30°02'E, 330 м, НИС *Персей*, 19.06.1928. **D.** Баренцево море, Новая Земля, бухта Русская Гавань, 76°15'N, 62°30'E, 1 м, ледокол *Седов*, ст. 40, 10.08.1930. **E.** Лектотип *Admete contabulata*, ZMB 20124. **F.** Норвежское море, ZIN 1/49156. Масштаб = 5 мм.

Vøringen. The single sample from the “St. 338, 146 org. [*orgulae* = fathoms]” (76°22'N, 17°13'E) was cited in the “Distribution” section of the species account. However, below Friele [1879: 276] noted that “Das unter Spitzbergen gefundene exemplar war ein ganz junges, wogegen im Jahr 1877 auf den

stationen 123, 350 F. und 192, 650 F. (West von Lofoten und Tromsø) mehrere ausgewachsene exemplare vorkamen. [The specimen, collected at Spitzbergen was very young, whereas several adult specimens were collected in 1877 from stations 123, 350 F.[fathoms] and 192, 650 F.[fathoms]

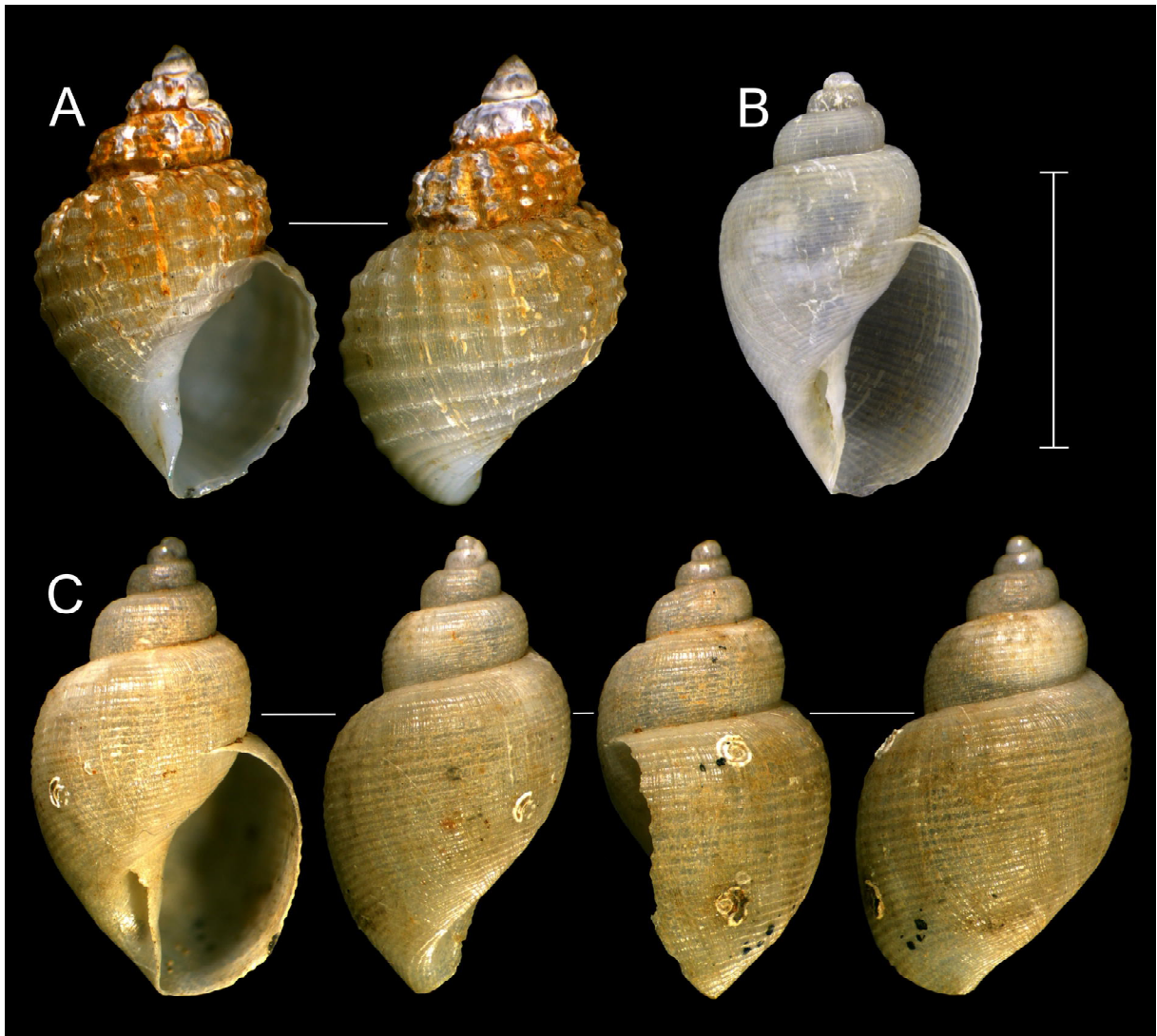


FIG. 3. Shells of Cancellariidae. **A.** *Admete viridula*, Barents Sea, Kola Bay, 17 m, 69°02.26'N, 33°02.54'E, M/S GS-440, 14.07.2006. **B.** Lectotype of *Trichotropis inflata*, ZMB 86413. **C.** *Iphinopsis inflata*, Arctic Ocean, 78°55'N, 161°58'W, 863 m, “Северный полюс – 2”, leg. M.M. Nikitin, 27.09.1950. Scale bar = 5 mm.

РИС. 3. Раковины Cancellariidae. **A.** *Admete viridula*, Баренцево море, Кольский залив, 17 м, 69°02.26'N, 33°02.54'E, ГС-440, 14.07.2006. **B.** Лектотип *Trichotropis inflata*, ZMB 86413. **C.** *Iphinopsis inflata*, Северный Ледовитый океан, 78°55'N, 161°58'W, 863 м, “Северный полюс – 2”, leg. М.М. Никитин, 27.09.1950. Масштаб = 5 мм.

(west of Lofoten and Tromsø)]”. The description is undoubtedly based on the adult shell(s) and therefore all individuals collected from the cited stations are also syntypes. Noteworthy, later Friele [1886] reported *Admete contabulata* from the stations 124, 192 and 328, instead of 123, 192 and 338. Apparently, the correct localities of the syntypes were stations 124, 192 and 338 (the zoological material was not collected at stations 123 and 328). According to Høisæter’s opinion the specimen from the Svalbard (station 338) belongs to *Admete clivicola*.

Bouchet and Warén [1985] depicted a single syntype of *Admete contabulata* as a “holotype” without any comments. Later Høisæter [2011] cited

the same shell as a lectotype designated by Bouchet and Warén [1985]. However, according to the article 74.5 of the International Code of Zoological Nomenclature, the wrong use of the term “holotype” does not constitute a valid lectotype designation. Here I designate that specimen (Fig. 2E) as a lectotype to avoid further confusions with the name *Admete contabulata*.

Admete contabulata previously was synonymized with *Admete viridula* (Fig. 3A) [Bouchet, Warén, 1985]. The former species can be recognized by a greater number of lower spiral ribs instead of several prominent cords in *Admete viridula*. See also Høisæter [2011] for more detailed comparison.

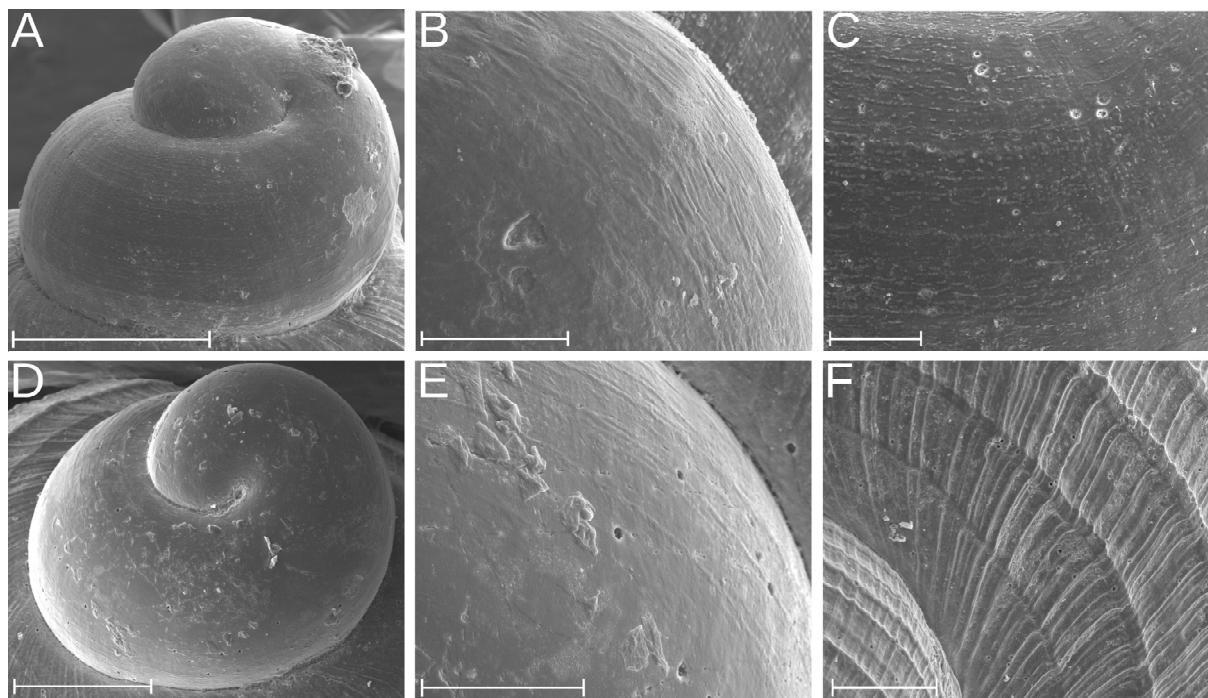


FIG. 4. Details of sculpture of Cancellariidae. A–C. Embryonic shell of *Admete contabulata*, Norwegian Sea, ZIN 1/49156 (same specimen on Fig. 2F). D–F. Embryonic (D, E) and adult (F) shell of *Iphinopsis inflata*, Arctic Ocean, 78°55'N, 161°58'W, 863 m, “Северный полюс – 2”, 27.09.1950 (same specimen of Fig. 3C). Scale bars: A, D = 0.5 mm, B, C, E = 0.1 mm, F = 0.2 mm.

РИС. 4. Детали скульптуры Cancellariidae. A–C. Эмбриональная раковина *Admete contabulata*, Норвежское море, ZIN 1/49156 (раковина на Рис. 2F). D–F. Эмбриональная (D, E) и дефинитивная (F) раковина *Iphinopsis inflata*, Северный Ледовитый океан, 78°55'N, 161°58'W, 863 м, “Северный полюс – 2”, 27.09.1950 (раковина на Рис. 3C). Масштабы: A, D = 0.5 мм, B, C, E = 0.1 мм, F = 0.2 мм.

Iphinopsis Dall, 1924
Iphinopsis inflata Friele, 1879
 (Figs 1, 3 B–C, 4 D–F)

Trichotropis inflata – Friele, 1876: 275.

Admete inflata – Friele, 1886: 25, pl. VIII, fig. 33.

Iphinopsis inflata – Bouchet, Warén, 1985: 262, figs 698–699; Høisæter, 2011: 500–502, figs 8, 9.

Type locality: Barents Sea, 74°54'2 N 21°51'2 E, 1203 m, R/V *Vøringen*, sta. 312.

Material examined: **Type material:** Lectotype (designated by Høisæter [2011]): ZMB 86413. 3 paralectotypes: ZMB 20721, from the type locality. **Other material:** Arctic Ocean, 78°55'N, 161°58'W, 863 m, silt, pebbles, “Северный полюс – 2”, sta. 7, leg. M.M. Nikitin, 27.09.1950, ZIN (1 empty shell).

Description. Shell small for genus (Table 1), thin, fragile with ca. 4.5 convex, shouldered whorls divided by deep suture. Spiral sculpture consists of frequent narrow low spiral cords divided by 2–5 times wider interspaces. Interspaces become narrower towards base of shell. There are about 25 ribs on body whorl (including base of shell). Axial sculpture represented only by straight growth lines. Protoconch consists of about 1–1.2 whorls, covered with very low almost obsolete spiral lines. Aper-

ture broad oval, siphonal canal poorly marked. Umbilicus wide, deep, partly covered by columellar lip. Outer lip rounded, inner lip with a couple of poorly marked, almost invisible columellar folds. Operculum absent.

Distribution. Fig. 1 (black figures): the Norwegian, Barents and Greenland seas, Arctic Ocean.

Remarks. Other representatives of Cancellariidae, known from the Arctic differ from *Iphinopsis inflata* by coarser spiral sculpture and presence of axial ribs at least on the upper whorls. *Iphinopsis inflata* may be recognized from species of *Curtitoma* by wide umbilicus, relatively thin shell, and absence of operculum.

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Распространение *Admete contabulata* и *Iphinopsis inflata* в Арктике (Gastropoda: Cancellariidae)

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РЕЗЮМЕ. Четыре вида семейства Cancellariidae были ранее отмечены из Арктики. Однако, известное распространение трёх из них было ограничено только крайним севером восточной Атлантики. В настоящей заметке описаны находки *Admete contabulata* Friele, 1879 из Баренцева и Карского морей, и *Iphinopsis inflata* (Friele, 1879) из притихоокеанской части Арктики. Выделен лектотип для *Admete contabulata*.

