

New deepwater species of Cheilostomida from the Kuril Islands and the Pacific Ocean (Bryozoa)

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Nine new species belonging to the order Cheilostomida are described: *Carbasea mawatari*, *Microporina ivanovi*, *Beania multispinosa*, *B. pseudocolumbiana*, *Notoplites gostilovskajae*, *Hippopodina bilamellata*, *Smittina subcordata*, *S. kussakini* from the Kuril Islands and *Hippomenella chepigae* from the North West Pacific.

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Holotypes and paratypes of all species described in this paper are kept in the collection of the Zoological Institute, St.Petersburg.

Family FLUSTRIDAE

Carbasea mawatari sp. n. (Fig. 1)

Holotype. No. 1/48461, colony, 4.8 × 4.7 cm, the Kuril Islands, Ketoi I., section 34, sta. 27, depth 900 m, 10.I.1985 (M.V. Kolesnikov).

Description. Colony frondose with lobate branches, bilaminar, thin, yellowish, with narrow short stalk attached by narrow base. Zooids hexagonal, large (0.95-1.25 mm long, 0.25-0.55 mm wide), transparent, with rounded distal margin. Opesia occupying the whole of frontal. Operculum semicircular. Spines, avicularia, and ovicells absent. Kenozooids equal to two zooids in length, placed along margins of colony and bearing 10-11 large pores.

Comparison. This species differs from the similar species *C. carbasea* (Ellis & Solander) in the presence of kenozooids with pores along margins of colony and in the bilaminar colony structure.

Family MICROPORIDAE

Microporina ivanovi sp. n. (Fig. 2)

Holotype. No. 1/48474, colony, 3.4 × 3.6 cm, the Kuril Islands, the Lovushki Rocks, depth 580 m, on sandy

bottom with gravel, 3.VIII.1984 (B.I. Sirenko, M.V. Kolesnikov).

Paratypes. No. 2/48475-15/48488, same data; No. 16/48489, 17/48488, the Kuril Islands, S. of Shiashkotan I., 48°25'5'' N 153°54'6'' E, depths 800-650 m, on rocky bottom, 2.VIII.1984 (B.I. Sirenko).

Description. Colony erect, sheet, pink in alcohol, branching dichotomously, without internodes, attached to substrate by dark kenozooids. Zooids large (0.9-1.2 mm long, 0.25-0.40 mm wide), arranged in chess-board pattern. Cryptocyst flat, porous, filling aperture almost to orifice and covered with membrane. Orifice nearly semioval. Margins of zooids slightly raised. At exact place of divergence of the row of zooids into two rows, a small avicularium (0.1 mm wide, 0.1 mm high) present, its mandible triangular. Another avicularium sometimes present near proximal border of zooid. Ovicells endozooidal, small (0.1 mm high, 0.25 mm wide). Lateral walls of zooid with 10 uniporous septules.

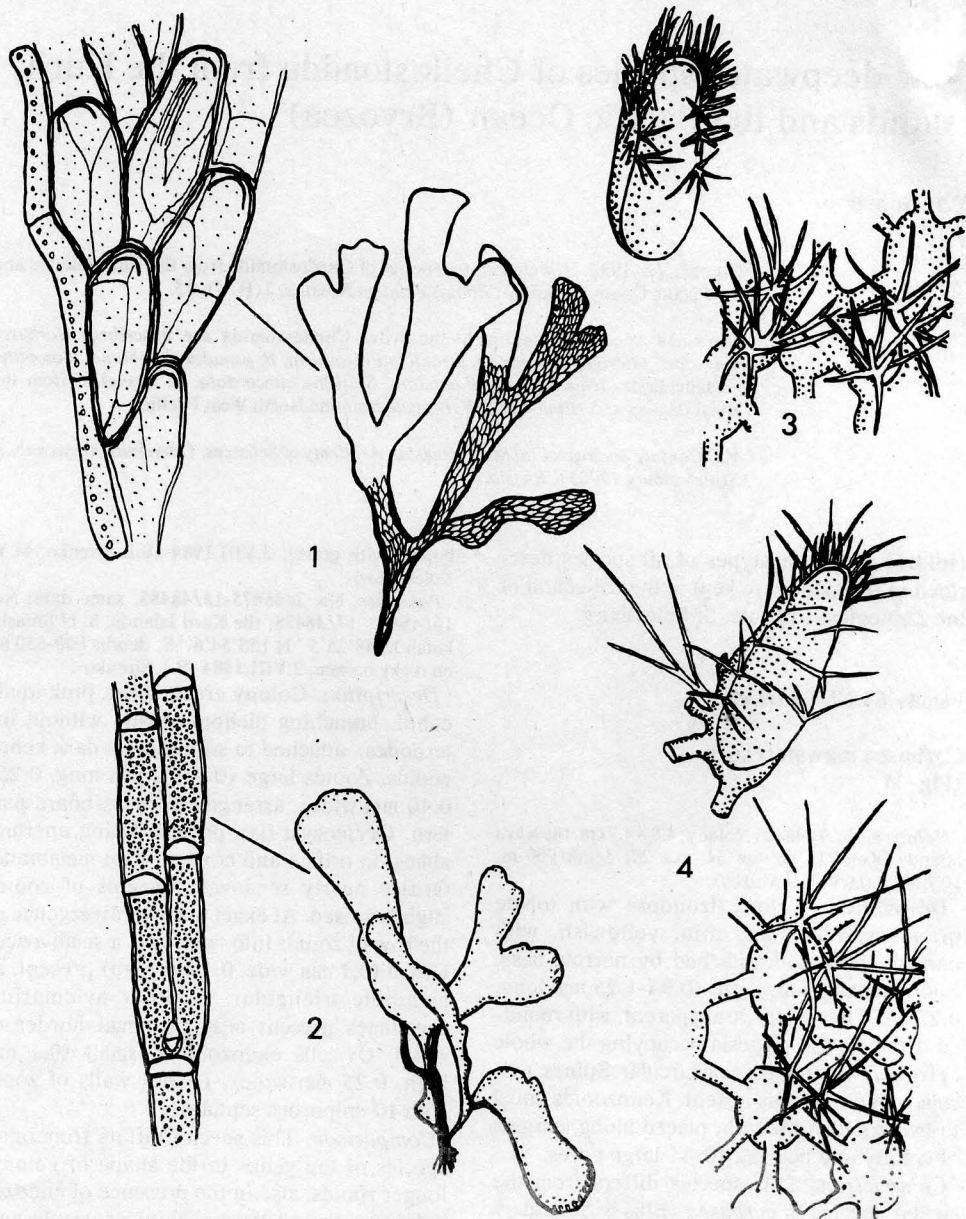
Comparison. This species differs from other species of the genus in the shape of colony, longer zooids, also in the presence of endozooidal ovicells and in the position of avicularium.

Etymology. Named after the late A.V. Ivanov, an outstanding Russian zoologist.

Family BICELLARIIDAE

Beania multispinosa sp. n. (Fig. 3)

Holotype. No. 1/48467, colony, 8.5 × 15 mm, the Kuril Islands, the Lovushki Rocks, 48°15'5'' N 154°44'



Figs 1-4. 1, *Carbasea mawatari* sp. n.; 2, *Microporina ivanovi* sp. n.; 3, *Beania multispinosa* sp. n.; 4, *Beania pseudocolumbiana* sp. n.

5' E, depth 140 m, on gravel bottom with stones, 3.VIII.1984 (B.I. Sirenko, M.V. Kolesnikov).

Paratypes. No. 2/48468-7/48473, same data.

Description. Colony encrusting, consisting of erect separated zooids connected by tubular extensions, usually forming a loosely attached

spreading spinous mat. Zooids large (1-1.2 mm long, 0.5-0.6 mm wide), curved, nearly vertical. Colony attached by tubes originating on proximal dorsal end of zooid. Each zooid boat-shaped, with rounded distal margin, aperture occupying the whole of frontal. Diameter of

zooid in proximal part about a half of its length. Dorsal of zooid inflated, frontal flat. Operculum semicircular. 4 rows of dense terminal spines strongly differing in size; the row closest to frontal consists of relatively short vertical spines. Spines also present near middle of lateral margins of zooids; these spines are bent over aperture and often branch near base in 3-4 spines. Some spines are also on dorsal. 6 short tubes originating on proximal part of zooid connect it to neighbouring zooids. Each zooid with two large, very long, pointed spines placed between tubes and branching near base. Avicularia and ovicells absent.

Comparison. This species differs from other species of the genus in the presence of 4 rows of terminal spines.

Beania pseudocolumbiana sp. n.
(Fig. 4)

Holotype. No. 1/48491, colony encrusting on *Hippopodina bilamellata* Gontar, 3.5 × 2.5 mm, the Kuril Islands, S. of Shiashtkotan I., 48°25' 5'' N 153°54' 6'' E, depths 800-650 m, on rocky bottom, 2.VIII.1984 (B.I. Sirenko).

Paratypes. No. 7/48497-10/48500, same data; No. 2/48492-6/48496, 11/48501-12/48502, the Kuril Islands, the Lovushki Rocks, 48°15'5'' N 154°44'5'' E, depth 140 m, on gravel bottom with stones, 3.VIII.1984 (B.I. Sirenko, M.V. Kolesnikov).

Additional specimens (not included in paratypes). Many specimens from the Komandor Islands (off the Bering Island, depth 25 m, on rocky bottom).

Description. Colony encrusting consisting of erect zooids connected in proximal part by tubes. Diameter of zooid in proximal part about 1/3-1/4 its length. Zooids large (1.0-1.2 mm long, 0.35-0.40 mm wide in proximal part and 0.3 mm wide in distal part). Dorsal of zooid inflated; frontal flat. Operculum semicircular. 2 rows of terminal distal spines strongly differing in size: 12-14 short, dense vertical spines and 6-8 more dorsal long spines. Dorsal of zooid with 1-3 spines. Besides, 3-4 thin, pointed branching spines bent over aperture are present on each lateral margin of zooid. Avicularia and ovicells absent. 6 short tubes coming from proximal part of zooid connect it with adjacent zooids. Each zooid with 2 large, very long, pointed spines placed between tubes and branching near the base. Colony attached by tubes originating on proximal dorsal end of zooid.

Comparison. This species differs from the similar species *B. columbiana* O'Donoghue in the larger number of spines, in their position

and in the presence of 2 branching spines on the proximal dorsal part of zooid.

Distribution. The Kuril and Komandor Islands.

Family SCRUPOCELLARIIDAE

Notoplites gostilovskajae sp. n.
(Fig. 5)

Holotype. No. 1/48465, colony, 8 × 5 mm, the Kuril Islands, the Lovushki Rocks, depth 140 m, on gravel bottom with stones, 3.VIII.1984 (B.I. Sirenko, M.V. Kolesnikov).

Paratype. No. 2/48466, same data.

Description. Colony erect, branching dichotomously, transparent, consisting of internodes with 6-7 zooids. Zooids elongated, slightly tapering towards proximal margin (0.50-0.55 mm long, 0.25 mm wide in distal part, 0.15-0.20 mm wide in proximal part). Aperture oval (0.30 mm high, 0.25 mm wide), occupying a little more than half length of zooid, with slightly raised margin. Young zooids have 2-3 long spines at lateral corner near distal margin of aperture, old ones as a rule retain only bases of spines. Scutum absent. Frontal avicularium prominent, near proximal margin of aperture, with acute mandible directed towards proximal border of zooid. This avicularium sometimes giant, with strongly hooked rostrum and avicularium chamber occupying the whole of frontal except the aperture. Small lateral avicularium present near lateral spines. Radicles drawing along basal side of colony attach it to substrate. Ovicells absent.

Comparison. This species differs from other species of the genus in the absence of scutum, the shape and size of frontal avicularium, and in the presence of long spines.

Etymology. Named after Mrs. M.G. Gostilovskaja, a famous student of Arctic Bryozoa.

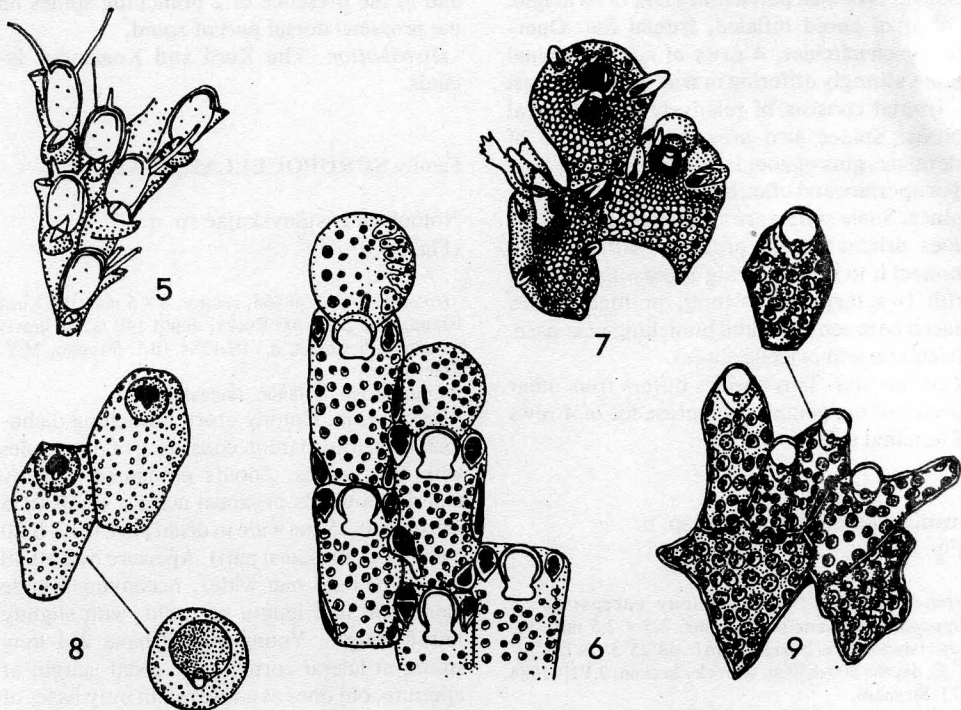
Family PETRALIIDAE

Hippopodina bilamellata sp. n.
(Fig. 6)

Holotype. No. 1/48462, colony, 5 × 4 cm, the Kuril Islands, S. of Shiashtkotan I., 48°25'5'' N 153°54'6'' E, depths 800-650 m, on rocky bottom, 2.VIII.1984 (B.I. Sirenko).

Paratypes. No. 2/48463-3/48464, same data.

Description. Colony bilaminar, very likely



Figs 5-9. 5, *Notoplites gostilovskajae* sp. n.; 6, *Hippopodina bilamellata* sp. n.; 7, *Hippomenella chepigae* sp. n.; 8, *Smittina subcordata* sp. n.; 9, *S. kussakini* sp. n.

erect, with chitinous kenozooids at base. Zooids calcareous, large (0.85-1.00 mm long), hexagonal (0.55-0.66 mm wide in midline, 0.30-0.35 mm wide in proximal part). Frontal inflated, with numerous infundibular large pores. 2-3 giant pores present near lateral margins or proximal margin of zooid. Orifice relatively large (0.25-0.30 mm high, 0.25-0.30 mm wide), rounded in distal part, with straight proximal margin. Prominent triangular condyles of various size subdivide orifice in two parts of equal width: large anter and small poster. Operculum chitinized. Peristome absent. Near each lateral margin of anter, there are two large avicularia (0.15- 0.20 mm long, 0.10-0.15 mm wide) with triangular mandibles directed proximad. Ovicells hyperstomial, large (0.45-0.55 mm high, 0.45-0.55 mm wide), prominent, slightly embedded. Frontal of ovicell with numerous pores.

Comparison. This species differs from the other species of the genus in the bilaminar erect colony, the absence of peristome, the position of avicularia, and the presence of giant pores.

Family HIPPOPORINIDAE

Hippomenella chepigae sp. n. (Fig. 7)

Holotype. No. 1/48431, fragment of colony, 3.75 × 3.75 mm, encrusting on stones, the Pacific Ocean, the North-West Ridge, 40°54'7'' N 170°33'7'' E, depth 1150 m, on stony bottom, 15. VIII.1984 (B.I. Sirenko).

Paratypes. No. 2/48432-27/48458, same data.

Description. Colony encrusting, unilaminar, white. Zooids large (0.75-1.00 mm long, 0.80-1.00 mm wide), of irregular shape, sometimes broader than long, arranged in straight lines. Frontal shagreened, inflated, with a row of large circular marginal pores. Orifice semicircular (transverse exteriorly, according to Canu & Bassler), situated near distal margin of zooid. Proximal margin of orifice concave. Distal margin of orifice with 4 large, flat spines, slightly widened to apex and sometimes with teeth at apex. Mucro placed near proximal margin of orifice, salient, varying in shape and size, sometimes higher than spines. Ovicells globose (0.25 mm high, 0.30 mm wide), never

closed by operculum. 2 avicularia present near each lateral margin of orifice, with mandible directed laterally-distally. Besides, 1 or 2 avicularia present in proximal halves of zooids near each lateral margin. All avicularia middle-sized or large (0.17-0.37 mm long, 0.120 - 0.175 mm wide), with spatulate mandible.

Comparison. This species differs from the similar species *H. transversa* (Canu & Bassler) in the presence of only 4 orificial spines and 2-4 spatulate avicularia.

Etymology. Named after the late Mrs. V.M. Chepiga, hydrobiologist.

Family SMITTINIDAE

Smittina subcordata sp. n.

(Fig. 8)

Holotype. No. 1/48460, colony, 9 × 5.5 mm, encrusting on stone, the Kuril Islands, the Lovushki Rocks, 47°44'9" N 154°39'8" E, depth 1400 m, on rocky bottom with stones, 1.VIII.1984 (B.I. Sirenko).

Description. Colony encrusting, unilaminar, consisting of large hexagonal zooids (0.8-1.1 mm long, 0.6-0.7 mm wide) arranged in straight radiating lines. Frontal slightly inflated, with numerous pores differing in size. Orifice present near distal margin of zooid. Primary orifice with lyrula and sinus on proximal margin. Peristome wide, strongly calcareous, with small pores. Secondary orifice rounded (0.15 mm high, 0.1 mm wide), with sinus on proximal margin. Small, oval, nearly vertical suboral avicularium present inside sinus of secondary orifice. Lyrula small, semi-oval. Ovicells absent.

Comparison. This species differs from the similar species *S. cordata* Osburn in the pres-

ence of pores at peristome, larger zooids, and in the shape of lyrula.

Smittina kussakini sp. n.

(Fig. 9)

Holotype. No. 1/48459, colony, 6 × 4 cm (2 cm high), the Kuril Islands, the Lovushki Rocks, 48°15'5" N 154°44'5" E, depth 140 m, on gravel bottom with stones, 3.VIII.1984 (B.I. Sirenko).

Description. Colony erect, bilaminar, forming meandering vanes locally contacting with one another. Young zooids large, hexagonal (0.92-1.10 mm long, 0.62-0.80 mm in most wide part), with slightly raised margins, arranged in chess-board pattern. Frontal inflated, with large deep pores, covered by glistening film. Orifice rounded (0.15-0.17 mm high, 0.15-0.17 mm wide), with small quadrangular lyrula on proximal margin. A small oval suboral avicularium present near proximal margin of orifice; it is slightly raised above frontal due to small lunate avicularian chamber. Sometimes avicularium absent. Ovicells absent. In older parts of colony, in consequence of calcification, orifices of zooids and avicularia absent, only flat kenozooids of irregular shape and differing size, with pores and meandering raised margins covered by glistening film are present.

Comparison. This species differs from the similar species *S. bella* (Busk) in the erect colony, absence of peristome, presence of kenozooids, and in larger size of pores.

Etymology. Named after the hydrobiologist and carcinologist O. G. Kussakin.

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