

Deep-sea chitons of the genus *Stenosemus* (Mollusca: Polyplacophora) from Fiji and Solomon Islands

B.I. SIRENKO

Zoological Institute, Russian Academy of Sciences, Universitetskaya nab. 199034, St. Petersburg, RUSSIA. E-mail: marine@zin.ru

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ABSTRACT. Three new species of the genus *Stenosemus* collected near Fiji and Solomon Islands of the central Pacific are described here. *Stenosemus fijiensis* sp. nov. from Fiji differs from the congeneric species by a unique sculpture of the central areas of tegmentum, consisting of triangular pits and light brown spots on valves. *S. philippei* sp. nov. and *S. solomonensis* sp. nov., both from the Solomon Islands, differ from other the species of the genus by having a head of major lateral tooth of radula bicuspidate with small outer denticle, shape and sculpture of dorsal spicules and sculpture of tegmentum.

Introduction

There are twenty one species in the genus *Stenosemus* Middendorff, 1847 [Sirenko, 2016]. Most of them have been described during the last 30 years, owing to several deep-sea investigations undertaken by scientists from several countries [O'Neil, 1987; Kaas, Van Belle, 1990; Kaas, 1991, 1993; Sirenko, 1994, 2008; Van Belle, Dell'Angelo, 1998; Carmo-na-Zalvide *et al.*, 2001; Clark, 2002; Schwabe, 2008]. The richest materials were collected on several deep-sea expedition of the Muséum national d'Histoire naturelle (MNHN) under the direction of Philippe Bouchet.

Materials and methods

Specimens studied here were collected in three expeditions – MUSORSTOM 10, SALOMON 1 and SALOMONBOA 3 – led by the MNHN, on the R/V *Alis* in 1998, 2001 and 2007.

Specimens were prepared for scanning electron microscope (SEM). They were boiled in 7% KOH for 10-15 minutes, then boiled twice in fresh water. Several valves (usually valves I, IV, V and VIII), the anterior half of the radula and a portion of the girdle were then studied under FEI SEM Quanta 250 Scanning Electron Microscope. The rest of the radula and girdle were dried and embedded in Canada balm for examination under a light microscope.

Abbreviations: BL – body length. MNHN – Muséum

national d'Histoire naturelle, Paris. Stn. – station. ZISP – Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia.

Taxonomy

Class Polyplacophora Gray, 1821
Subclass Loricata Schumacher, 1817
Order Chitonida Thiele, 1910
Family Ischnochitonidae Dall, 1889

Genus *Stenosemus* Middendorff, 1847

Lophyrus G.O. Sars, 1878 (non *Lophyrus* Poli, 1791, nom. null.); *Chondropleura* Thiele, 1906; *Lepidopleuroides* Thiele, 1928; *Lophyrochiton* Jakovleva, 1952.

Type species: *Chiton albus* Linnaeus, 1767, subsequently designated by Winckworth, 1926

Genus distribution and range: All oceans in cold and temperate waters, usually not more than 14°C, intertidal to 4572 m. Miocene-Recent.

Stenosemus fijiensis sp. nov.
(Figs 1-4)

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Type material. Holotype (MNHN IM-2000-32557) and paratype (MNHN IM-2000-32558), both incomplete and now disarticulated consisting of SEM stub of 2-3 valves part of perinotum and radula, mount of part of perinotum and radula and vial with other valves.

Type locality. Fiji, to south from Viti Levu Island, 18°18'S, 178°02'E, depth 238-244 m.

Etymology. Named after Fiji, the type locality.

Material examined. Fiji, to south from Viti Levu Island, MUSORSTOM 10, N/O *Alis*, stn. DW 1373, 18°18'S, 178°02.1'E, 238-244 m, holotype, BL – 5.0 mm, 17.08.1998; stn. DW 1383, 18°18'S, 178°02'E, 230-251 m, paratype, BL – 6.0 mm, 18.08.1998, leg P. Bouchet and Richer de Forges.

Distribution. Fiji, 230-251 m.

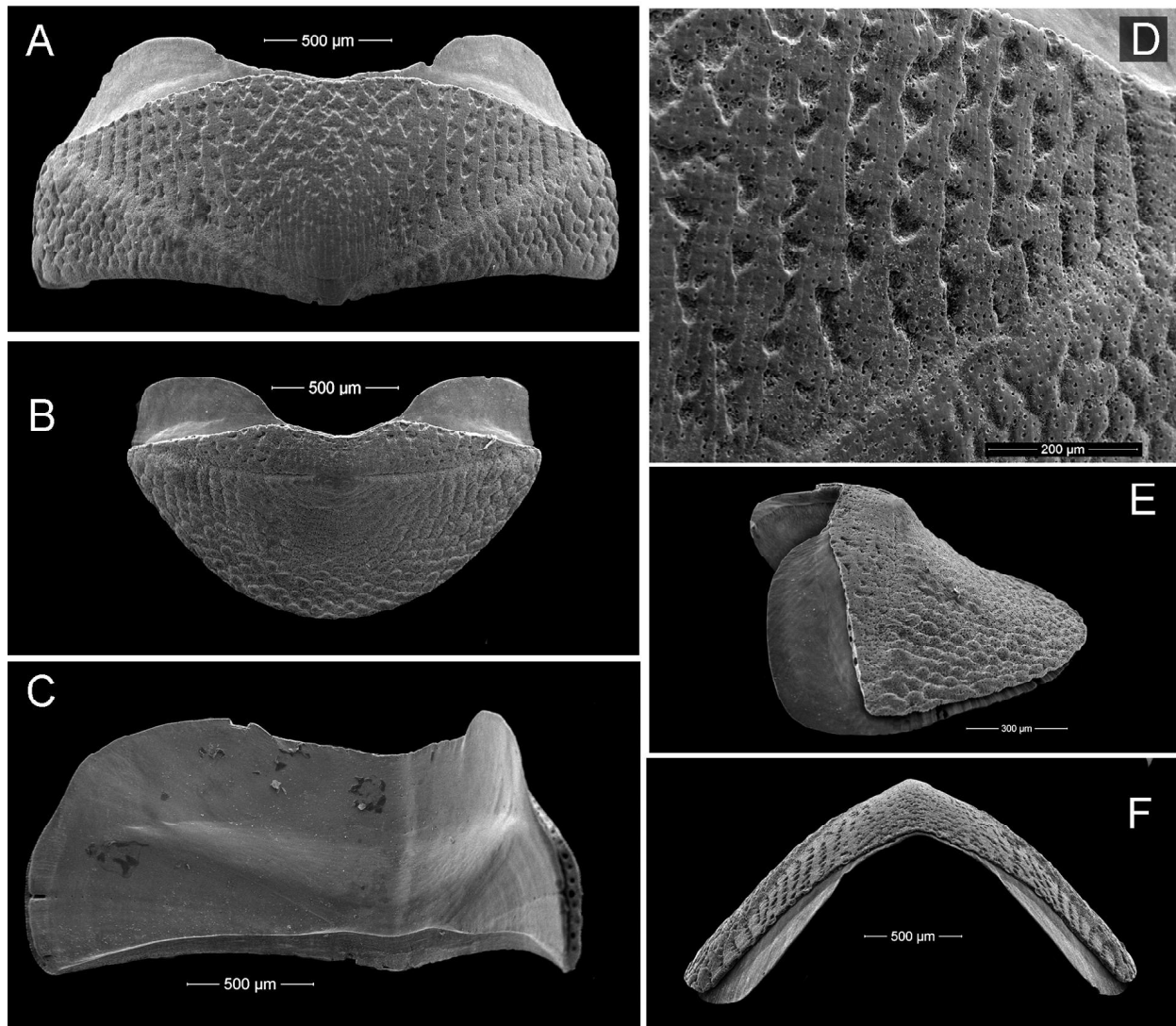


FIG. 1. *Stenosemus fijiensis* sp. nov., holotype (MNHN IM-2000-32557), BL – 5.0 mm: **A.** Valve V, dorsal view. **B.** Valve VIII, dorsal view. **C.** Valve IV, ventral view. **D.** Valve V, tegmentum sculpture in central area. **E.** Valve VIII, lateral view. **F.** Valve V, rostral view.

РИС. 1. *Stenosemus fijiensis* sp. nov., голотип (MNHN IM-2000-32557), BL – 5.0 мм: **A.** Щиток V, с дорсальной стороны. **B.** Щиток VIII, с дорсальной стороны. **C.** Щиток IV, с вентральной стороны. **D.** Щиток V, скульптура тегмента на центральном поле. **E.** Щиток VIII, вид сбоку. **F.** Щиток V, вид спереди.

Diagnosis. Animal of small size, BL up to 6.0 mm, oval, shell rather elevated, distinctly carinated, intermediate valves not beaked, central area of intermediate valves with shallow, mainly triangular pits arranged in a random manner on jugal part and forming longitudinal rows on pleural portion of the valves, lateral areas sculptured with flattened, densely spaced without definite pattern granules. Girdle dorsally covered with juxtaposed, bent, smooth spicules with granules on top. Head of major lateral tooth of radula unicuspid.

[**Диагноз:** Животное мелких размеров, длина тела до 6.0 мм форма тела овальная, раковина довольно приподнятая, отчетливо килеватая, промежуточные щитки без клюва, центральное поле промежуточных щитков с не-

глубокими, преимущественно треугольными углублениями, распределенными беспорядочно на югальной части и формирующими продольные ряды на плевральных частях щитков, латеральные поля скульптурированы плоскими, плотно стоящими, расположенными без особого порядка гранулами. Перинотум дорсально покрыт налегающими друг на друга, изогнутыми, гладкими спикулами с гранулами на вершине. Наконечник крючковой пластинки радулы однозубцовый.]

Description. Holotype very small, body length 5.0 mm, width 3.2 mm, head valve is absent, several intermediate valves broken. Valves rather elevated (dorsal elevation 0.4), carinated, side slope slightly convex, not beaked. Color of tegmentum in preservation white with light brown spots of different size and shape from stripe (on lateral areas of interme-

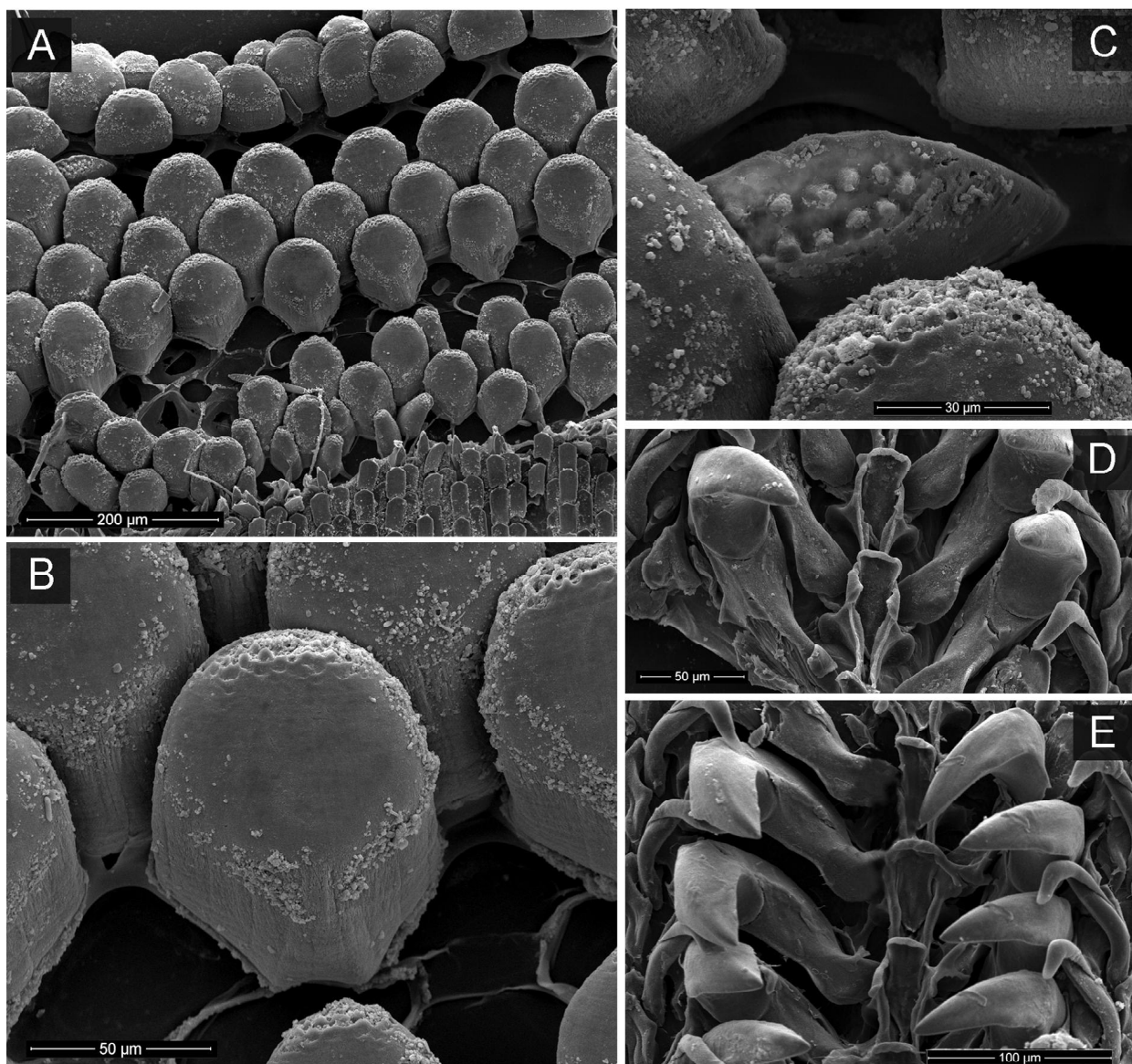


FIG. 2. *Stenosemus fijiensis* sp. nov., holotype (MNHN IM-2000-32557), BL – 5.0 mm: A. Dorsal spicules, marginal spicules and ventral scales. B,C. Dorsal spicules. D, E. Radula.

РИС. 2. *Stenosemus fijiensis* n. sp., голотип (MNHN IM-2000-32557), BL – 5.0 мм: А. Дорсальные спикулы, маргинальные спикулы и вентральные чешуйки. В, С. Дорсальные спикулы. D, E. Радула.

diate valves) to about rectangular blotch (on central areas), girdle with band of light brown color.

Head valve of the paratype semicircular, sculptured with small, flattened, densely spaced granules arranged in a random manner. Intermediate valves broadly rectangular, front margin convex, side margins little convex, posterior margin concave at both sides of not indicated apices, central area with shallow, mainly triangular pits arranged in a random manner on jugal part and forming about ten longitudinal rows on pleural portion of the valves, lateral areas sculptured with flattened, densely spaced without definite pattern granules. Tail valve noticeably smaller than head valve (observed in paratype specimen)], mucro decidedly antemedian at about one

fourth of the valve's length, little elevated, posterior slope slightly concave, antemucronal area sculptured with shallow, mainly triangular pits arranged in a random manner, postmucronal area sculptured with flattened granules like lateral areas of intermediate valves.

Articulamentum thin, translucent, brown spots of the tegmentum are seen through it, apophyses broadly triangular with rounded top, connected across the wide sinus by a short jugal plate with several slits, ratio of width of apophyses to width of jugal sinus 1.2, insertion plates short, slit formula ?/1/6, teeth short, sharp, slit rays distinct, eaves narrow and solid.

Girdle relatively narrow, about 0.4 mm in width

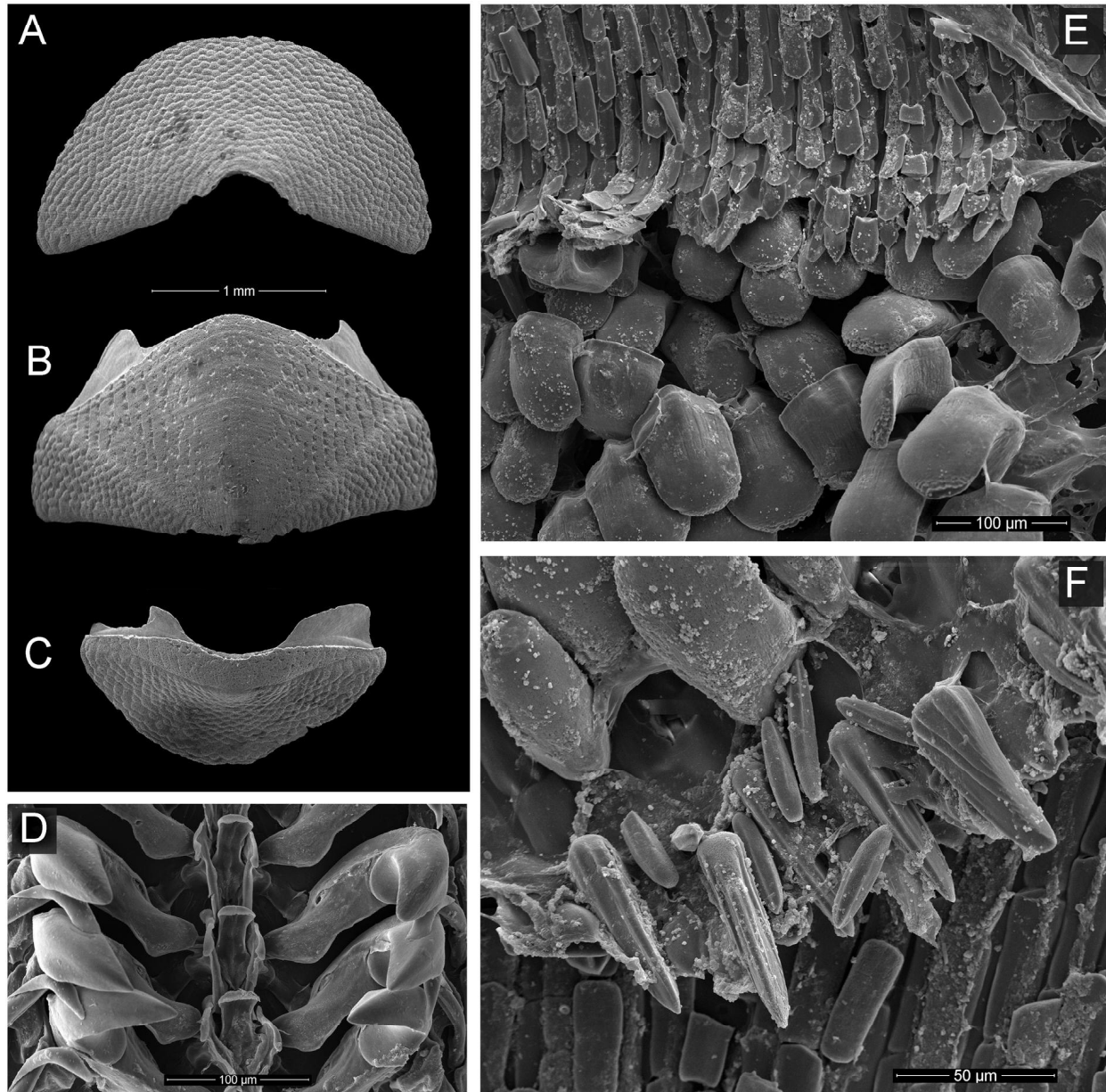


FIG. 3. *Stenosemus fijiensis* sp. nov., paratype (MNHN IM-2000-32558), BL – 6.0 mm: **A.** Valve I, dorsal view. **B.** Valve II, dorsal view. **C.** Valve VIII, dorsal view. **D.** Radula. **E, F.** Dorsal spicules, marginal spicules and ventral scales.

РИС. 3. *Stenosemus fijiensis* sp. nov., паратип (MNHN IM-2000-32558), BL – 6.0 мм: **A.** Щиток I, с дорсальной стороны. **B.** Щиток II, с дорсальной стороны. **C.** Щиток VIII, с дорсальной стороны. **D.** Радула. **E, F.** Дорсальные спикулы, маргинальные спикулы и вентральные чешуйки.

near valve V, covered dorsally with curved, bulbous, smooth spicules with granules on top, rather wide $130 \times 95 \mu\text{m}$ on mid-girdle and smaller $51 \times 22 \mu\text{m}$ near margin. Marginal spicules are of several types: long, narrow spicules $60\text{--}118 \times 5\text{--}7 \mu\text{m}$ on top of long bristles, flattened sharp pointed spicules $60 \times 23 \mu\text{m}$ with feather-like ribs, sharp pointed spicules $68 \times 20 \mu\text{m}$ with three longitudinal ribs, small pointed spicules $50 \times 8 \mu\text{m}$ with one obsolete rib, flattened triangular scales $70 \times 25 \mu\text{m}$ with 2-3 thin, obliquely ribs, numerous small spicules $20 \times 5 \mu\text{m}$ on short chitinous bristles, and short pointed

scales $18 \times 13 \mu\text{m}$. Ventrally the girdle is covered with radiating rows of elongate, straight scales $66 \times 12 \mu\text{m}$.

Radula of the holotype is 1.9 mm long and has 19 transverse rows of mature teeth. Central tooth somewhat longer than wide, narrowed in the middle with small blade, head of major lateral tooth unicuspid.

Because both type specimens were damaged it was not possible to count the number of gills.

Remarks. The paratype of this species has a head valve with the same granulated sculpture like

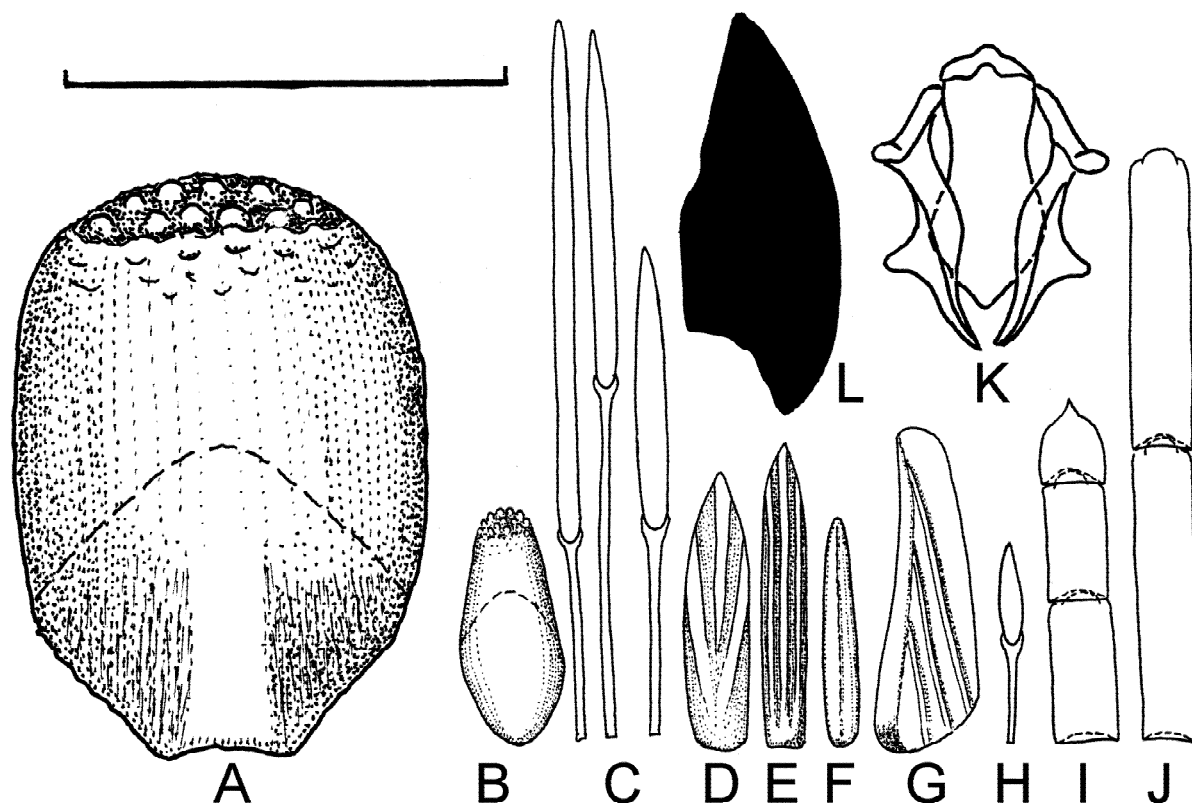


FIG. 4. *Stenosemus fijiensis* sp. nov., holotype (MNHN IM-2000-32557), BL – 5.0 mm (A-D, G-L) and paratype (MNHN IM-2000-32558), BL – 6.0 mm (E, F): A. Dorsal spicule in mid-girdle. B. Dorsal spicules near margin. C. Marginal spicules on long bristles. D. Marginal spicule with feather-like ribs. E. Marginal spicule with longitudinal ribs. F. Marginal spicule with one obsolete rib. G. Marginal scales with three thin, oblique ribs. H. Small marginal spicule on short chitinous bristle. I. Short marginal pointed scales. J. Ventral scales. K. Central and first lateral teeth of radula. L. Head of major lateral tooth of radula.

РИС. 4. *Stenosemus fijiensis* sp. nov., голотип (MNHN IM-2000-32557), BL – 5.0 мм (A-D, G-L) и паратип (MNHN IM-2000-32558), BL – 6.0 мм (E, F): A. Дорсальная спикула из средней части перинотума. B. Дорсальная спикула на краю перинотума. C. Маргинальные спикулы на длинных щетинках. D. Маргинальная спикула с перьевидными ребрами. E. Маргинальная спикула с продольными ребрами. F. Маргинальная спикула с одним слабым ребром. G. Маргинальная чешуйка с тремя тонкими, косыми ребрами. H. Маленькая маргинальная спикула на короткой хитиновой щетинке. I. Короткие маргинальные заостренные чешуйки. J. Вентральные чешуйки. K. Центральный и первый латеральный зубы радулы. L. Коронка крючкового зуба радулы.

lateral and postmucronal areas of intermediate and tail valves. Unfortunately the condition of other valves of the paratype are worse than valves of the holotype. The new species has unique sculpture of the central area of intermediate valves, which is different from sculpture of other congeneric species.

Stenosemus philippi sp. nov.

(Figs 5 A, B; 6-8)

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Type material. Holotype (MNHN IM-2000-32559) now disarticulated, consisting of SEM stub of valves I, V, VIII, part of perinotum and radula, mount of part of perinotum and radula and vial with other valves and 2 paratypes (MNHN IM-2000-32560 and ZISP 2277).

Type locality. Solomon Islands, 8°33'S, 160°42'E, depth 399-700 m, (SALOMON 1, stn. CP1783)

Etymology. Named after the taxonomist of molluscs Philippe Bouchet (MNHN) for his great enthusiasm in collecting of mollusks.

Material examined. Solomon Islands, SALOMON 1, N/O Alis, stn. CP1783, 8°33'S, 160°42'E, depth 399-700 m, holotype (MNHN), BL – 14 mm, 29.09.2001; SALOMON 2, N/O Alis, stn. DW 2265, 7°55'S, 156°53'E, depth 537-590 m, 2 paratypes (MNHN and ZISP 2277), BL – 17-18 mm, 04.11.2004.

Distribution. Solomon Islands, 399-700 m.

Diagnosis. Animal small, shape oval, shell moderately elevated, distinctly carinated, intermediate valves not beaked, central area with about 16 irregular longitudinal grooves per side that are absent in jugal part, lateral areas with 3 radiating grooves crossed by narrower concentric grooves cutting

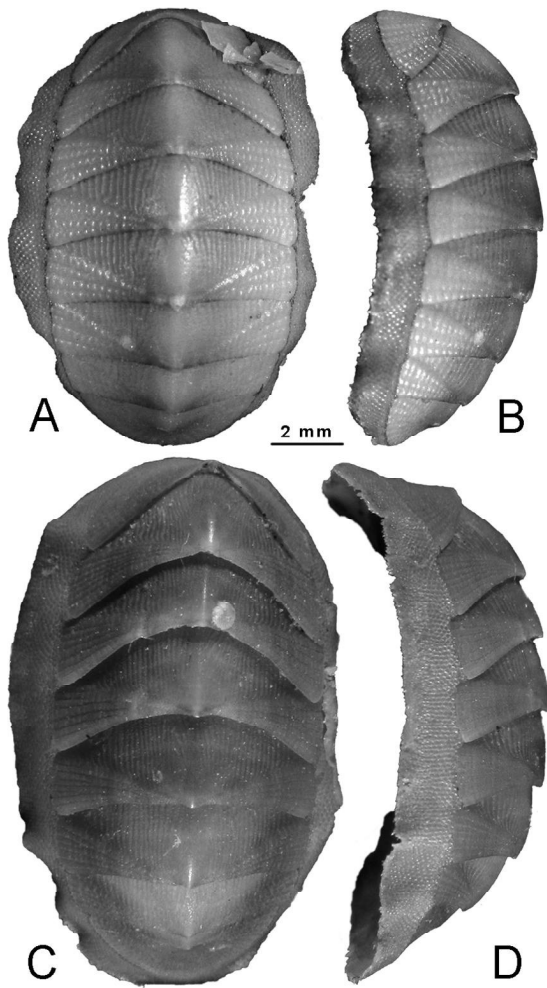


FIG. 5. *Stenosemus philippei* sp. nov., holotype (MNHN IM-2000-32559) BL – 14.0 mm (A, B) and *Stenosemus solomonensis* sp. nov. holotype (MNHN IM-2000-32561) BL – 15.0 mm (C, D): A, C. Dorsal view. B, D. Lateral view.

РИС. 5. *Stenosemus philippei* sp. nov., голотип (MNHN IM-2000-32559) BL – 14.0 мм (А, В) и *Stenosemus solomonensis* sp. nov. голотип (MNHN IM-2000-32561) BL – 15.0 мм (С, D): А, С. Вид сверху. В, D. Вид сбоку.

the ribs to transverse elongate granules. Girdle with elongate, curved, bulbous, smooth dorsal spicules. Central tooth of radula rectangular, oblong, parallel-sided, head of major lateral radula tooth bicuspid, outer denticle very small.

[**Диагноз:** Животное мелкое, форма тела овальная, раковина средне приподнятая, отчетливо килеватая, промежуточные щитки без клюва, центральное поле имеет около 16 нерегулярных продольных желобка на каждой стороне, за исключением югальной части, латеральные поля с 3 радиальными желобками, пересекаемыми узкими концентрическими желобками, разрезающими ребра на поперечные продолговатые гранулы. Перинотум с удлиненными, изогнутыми, луковичеобразными, гладкими дорсальными спикулами. Центральный зуб радулы прямоугольный, продолговатый с параллельными сторонами, наконечник крючковой пластинки радулы двухзубцовый, внешний зубец очень маленький.]

Description. Holotype small, BL – 14.0 mm, width 9.1 mm. Valves thin, moderately elevated (dorsal elevation 0.29), carinated, not beaked, side slopes straight. Color of valves and girdle white.

Head valve semicircular with broken right side [in holotype], notched in the middle, tegmentum sculptured with radiating and concentric grooves, giving it a granulose appearance, the radiating grooves somewhat wider, predominating over the narrow concentric furrows. Intermediate valves broadly rectangular, front margin convex, side margins little convex, apices not indicated, central area with about 16 irregular longitudinal grooves per side, those are absent in jugal portion, lateral areas with 3 radiating grooves crossed by narrow concentric grooves cutting the ribs into squarish to more or less transversely elongate granules. Tail valve less than head valve, mucro a little in front of the center, not swollen, antemucronal slope slightly convex, postmucronal area concave, antemucronal area sculptured with 7 grooves per side, postmucronal area sculptured with 16 radial grooves crossed by concentric grooves, like in head valve.

Articulamentum white, thin, translucent, apophyses evenly arched, not projecting much, connected across the shallow sinus by a short jugal plate with 1-2 slits, ratio of width of apophyses to width of jugal sinus 1.8, insertion plates short, slit formula 9/1/10, teeth short, sharp, slit rays distinct, eaves narrow and solid.

Girdle relatively narrow, about 1.2 mm in width near valve V, covered dorsally with elongate, curved, bulbous, smooth spicules 290 x 135 μm on mid-girdle, 126 x 97 μm near valves and 110 x 35 μm near margin. Marginal spicules are of several types: small spicules 50 x 7 μm on top of bristles, numerous small spicules 40 x 10 μm on short chitinous bristles, long, flattened spicules 116 x 19 μm with obsolete rib on short bristle, flattened triangular scales 118 x 40 μm with 2-3 thin, obliquely ribs, and short obtuse scales 48 x 29 μm . Ventrally the girdle is covered with radiating rows of elongate, straight scales 100 x 20 μm .

Radula of the holotype is 4.6 mm long and has 30 transverse rows of mature teeth. Central tooth rectangular, oblong, parallel-sided, head of major lateral tooth bicuspid, outer denticle very small.

Gills holobranchial and adanal. There are 28 gills on each side extending from valve III to valve VIII.

Gut contains mainly detritus and a few intact foraminiferans and sand.

Remarks. Several longitudinal grooves in central areas of intermediate valves of two paratypes are more and more converging towards the jugum.

The new species is similar to wide spread *Stenosemus exaratus* (G.O. Sars, 1878) and differs from the latter in having narrower jugal sinus (ratio of width of apophyses to width of jugal sinus in valve

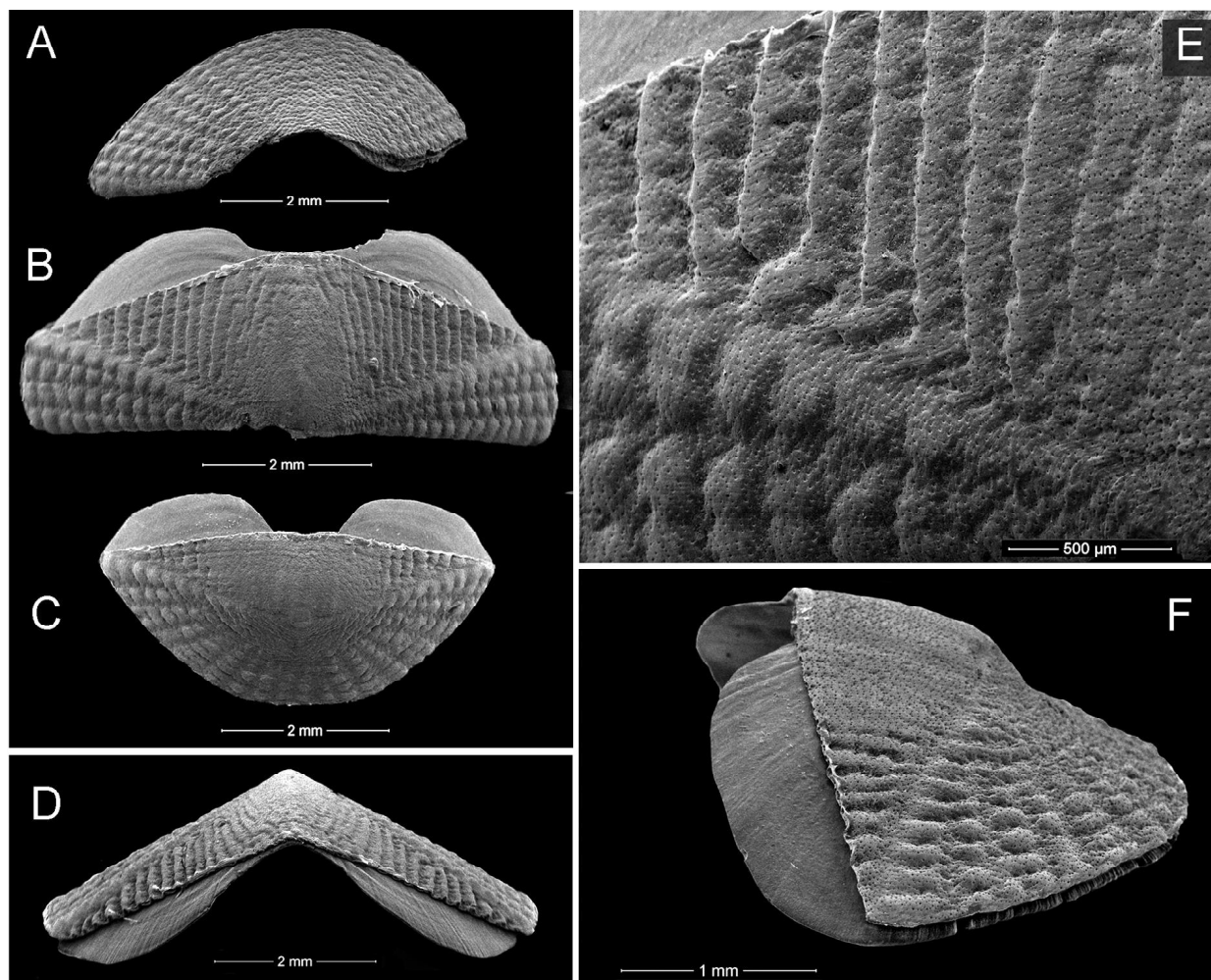


FIG. 6. *Stenosemus philippeii* sp. nov., holotype (MNHN IM-2000-32559) BL – 14.0 mm: **A.** Valve I, dorsal view. **B.** Valve V, dorsal view. **C.** Valve VIII, dorsal view. **D.** Valve V, rostral view. **E.** Valve V, tegmentum sculpture in central and lateral areas. **F.** Valve VIII, lateral view.

РИС. 6. *Stenosemus philippeii* sp. nov., голотип (MNHN IM-2000-32559) BL – 14.0 мм: **A.** Щиток I, с дорсальной стороны. **B.** Щиток V, с дорсальной стороны. **C.** Щиток VIII, с дорсальной стороны. **D.** Щиток V, спереди. **E.** Щиток V, скульптура тегмента на центральном поле. **F.** Щиток VIII, вид сбоку.

V 1.8 in *S. philippeii* sp. nov. and 1.2 in *S. exaratus*), central tooth of radula parallel-side (vs. somewhat pinched in the middle in *S. exaratus*), head of major lateral tooth bicuspid (vs. unicuspid in *S. exaratus*).

The new species differs from *S. mexicanus* (Kaas, 1993) (from Gulf of Mexico) and *S. delicatus* (Kaas, 1991) (from New Caledonia) by having less numerous grooves on all areas of valves and bicuspid head of major lateral tooth of radula.

S. philippeii sp. nov. differs from *S. solomonensis* sp. nov. in having smooth jugal portion of central area (vs. grooved in *S. solomonensis*) 16 longitudinal grooves per side (vs. 23 in *S. solomonensis*), 3 grooves in lateral areas (vs. 6 in *S. solomonensis*), narrower and not striated spicules

(vs. wide, flattened, striated spicules in *S. solomonensis*).

Stenosemus solomonensis sp. nov.

(Figs 5C, D; 9-13)

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Type material. Holotype (MNHN IM-2000-32561) now disarticulated consisting of SEM stub of valves I, V, VIII, part of perinotum and radula, mount of part of perinotum and radula and vial with other valves.

Type locality: Solomon Islands, 8°33'S, 160°42'E, depth 399-700 m, (SALOMON 1, stn. CP1783).

Etymology. Named after the Solomon Islands.

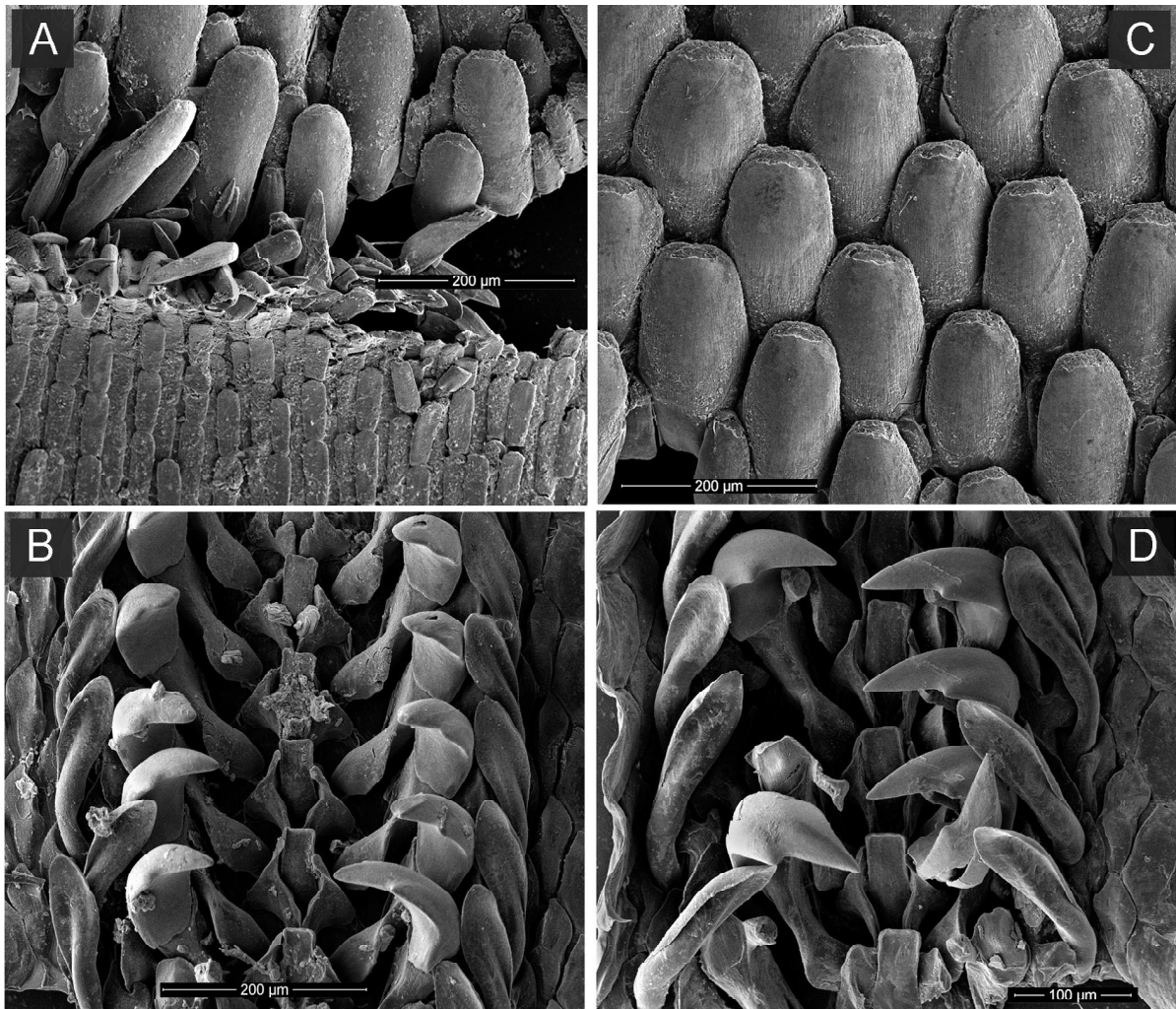


FIG. 7. *Stenosemus philippeii* sp. nov., holotype (MNHN IM-2000-32559) BL – 14.0 mm: A. Dorsal and marginal spicules and ventral scales. B, D. Radula. C. Dorsal spicules.

РИС. 7. *Stenosemus philippeii* sp. nov., голотип (MNHN IM-2000-32559) BL – 14.0 мм: А. Дорсальные и маргинальные спикулы и вентральные чешуйки. В, D. Радула. С. Дорсальные спикулы.

Material examined. Solomon Islands, SALOMON 1, N/O Alis, stn. CP1783, 8°33'S, 160°42'E, depth 399-700 m, holotype, BL – 14 mm, 29.09.2001; SALOMONBOA 3, N/O Alis, stn. DW 2775, 9°23'S, 160°57'E, depth 282-427 m, 1 paratype (MNHN IM-2000-32562), BL – 12 mm, 12.09.2007.

Distribution. Solomon Islands, 399-427 m.

Diagnosis. Animal small, shape oval, shell rather elevated, distinctly carinated, intermediate valves not beaked, central area with about 23 irregular longitudinal grooves per side including jugal part, lateral areas with 6 radiating grooves crossed by narrower concentric grooves cutting the ribs to transverse elongate granules. Girdle covered dorsally with rather wide, curved, striated spicules with granules on top. Central tooth of radula twice as long as wide, somewhat pinched in the middle, head of major lateral radula tooth bicuspid, outer denticle very small.

[**Диагноз:** Животное мелкое, форма тела овальная,

раковина довольно приподнятая, отчетливо килеватая, промежуточные щитки без клюва, центральное поле имеет около 23 нерегулярных продольных желобка на каждой стороне, включая югальную часть, латеральные поля с 6 радиальными желобками, пересекаемыми узкими концентрическими желобками, разрезающими ребра на поперечные продолговатые гранулы. Перинотум дорсально покрыт довольно широкими, изогнутыми, бороздчатыми спикулами с гранулами на вершине. Центральный зуб радулы заужен посередине, его длина в два раза больше ширины, наконечник крючковой пластинки радулы двухзубцовый, внешний зубец очень маленький]

Description. Holotype small, BL – 15.0 mm, width 9.0 mm. Valves thin, rather elevated (dorsal elevation 0.29), carinate, not beaked, side slopes convex. Color of valves and girdle white.

Head valve semicircular, tegmentum sculptured with about 40 radiating and several concentric grooves, giving it a granulose appearance. Intermediate valves broadly rectangular, front margin convex, side margins convex, apices not indicated,

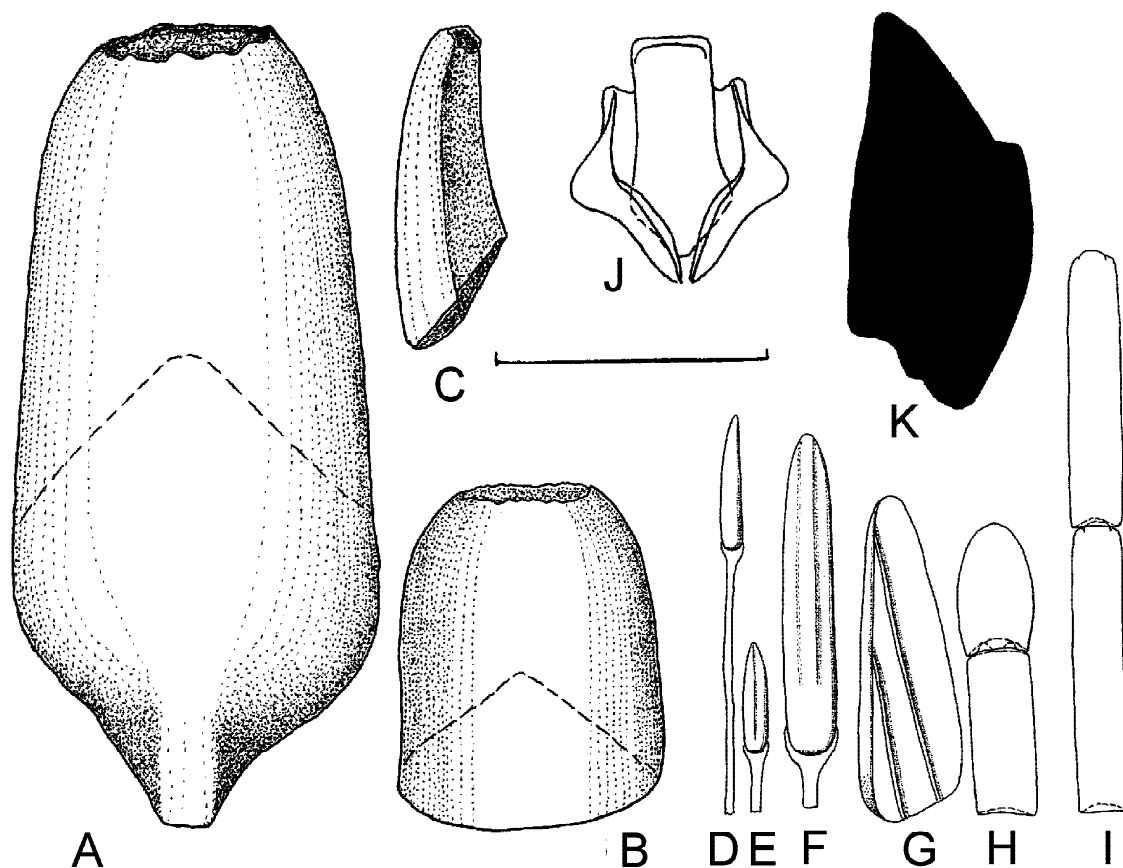


FIG. 8. *Stenosemus philippeii* sp. nov., holotype (MNHN IM-2000-32559) BL – 14.0 mm: A. Dorsal spicule in mid-girdle. B. Dorsal spicules near valves. C. Dorsal spicule near margin. D. Marginal spicule on long bristles. E. Small marginal spicule on short chitinous bristle. F. Long flattened marginal spicule with longitudinal obsolete rib. G. Marginal scales with two thin, oblique ribs. H. Short marginal obtuse scale. I. Ventral scales. J. Central and first lateral teeth of radula. K. Head of major lateral tooth of radula.

РИС. 8. *Stenosemus philippeii* sp. nov., holotype (MNHN IM-2000-32559) BL – 14.0 mm: A. Дорсальная спикула из средней части перинотума. B. Дорсальная спикула у щитков. C. Дорсальная спикула на краю перинотума на краю перинотума. D. Маргинальная спикула на длинной щетинке. E. Маленькая маргинальная спикула на короткой хитиновой щетинке. F. Длинная уплощенная маргинальная спикула с одним слабым ребром. G. Маргинальная чешуйка с двумя тонкими, косыми ребрами. H. Короткая маргинальная тупоконечная чешуйка. I. Вентральные чешуйки. J. Центральный и первый латеральный зубы радулы. K. Коронка крючкового зуба радулы.

central area with about 23 irregular longitudinal grooves per side including jugal portion, lateral areas with 6 radiating grooves crossed by narrow concentric grooves cutting the ribs into squarish to more or less transversally elongate granules. Tail valve less than semicircular, about as wide as head valve, length about half the width, front margin straight, mucro anterior, antemucronal and postmucronal slopes about stright, antemucronal area sculptured like central area of intermediate valves and postmucronal area sculptured with 30 radial grooves, like in head valve.

Articulamentum white, thin, translucent, apophyses evenly arched, rather short, connected across the shallow sinus by a short jugal plate, ratio of width of apophyses to width of jugal sinus in valve V 1.4, insertion plates short, slit formula 9/1-2/10 (valve II with 2 slits on the left side), teeth short, sharp, slit rays distinct, eaves narrow and solid.

Girdle relatively narrow, about 1.5 mm in width near valve V (width of the valve 6.0 mm), covered dorsally with curved, striated spicules with granules on top, rather wide 220 x 157 μm on mid-girdle, smaller 120 x 116 μm near valves and very small 56 x 23 μm near margin and scattered between wide spicules, opposite tail and head valves spicules arranged not quincuncially but in radial rows. Marginal spicules of several types: long, flattened spicules with obsolete longitudinal rows 96 x 18 μm , short spicules 40 x 8 μm on short or long bristles, long, triangular, flattened scales 80 x 30 μm with two obliquely ribs, and short obtuse scales 31 x 24 μm . Ventral side of girdle covered with radiating rows of elongate, rectangular scales 85 x 12 μm .

Radula of the holotype is 4.4 mm long and has 26 transverse rows of mature teeth. Central tooth twice as long as wide somewhat pinched in the

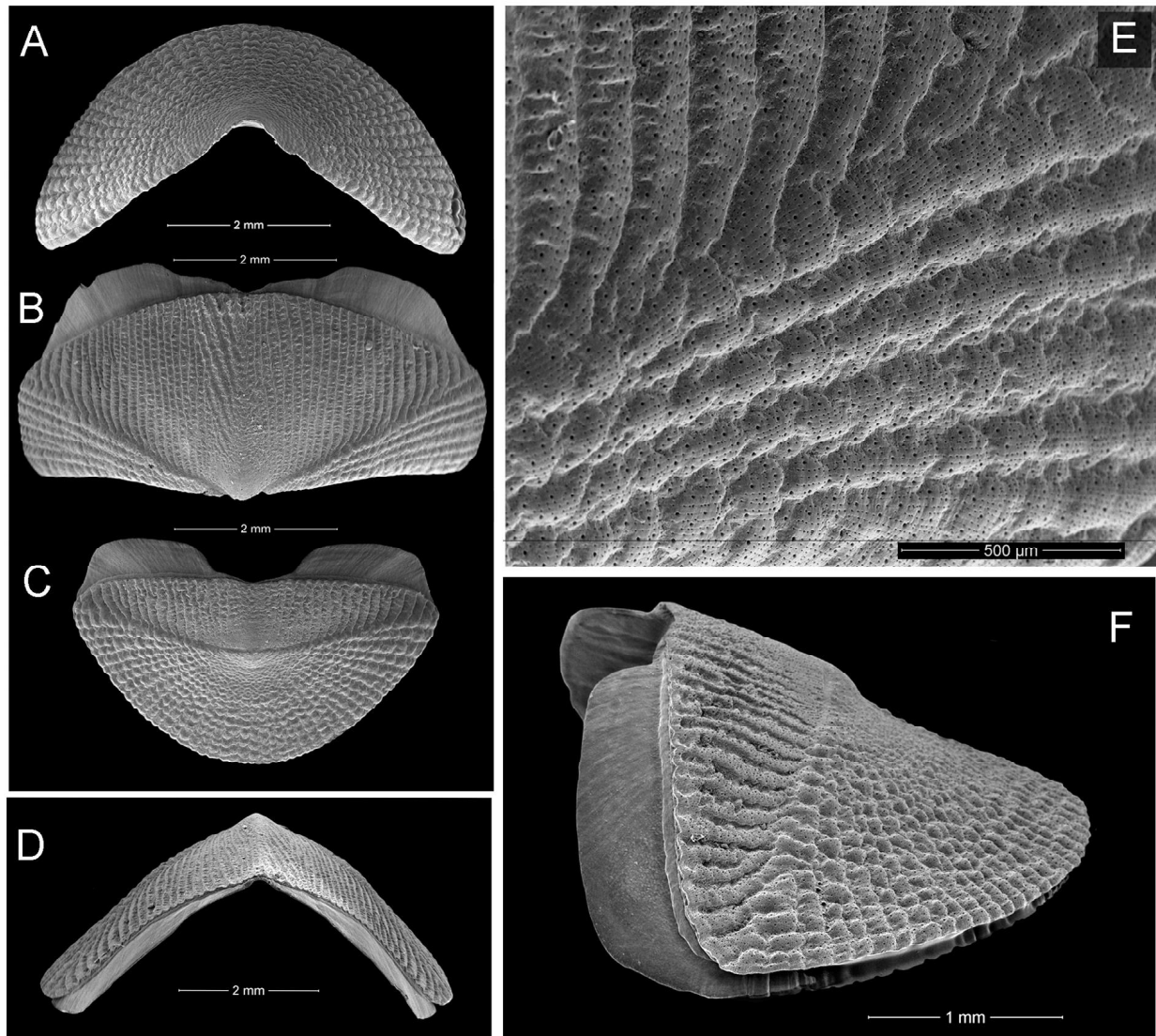


FIG. 9. *Stenosemus solomonensis* sp. nov., holotype (MNHN IM-2000-32561) BL – 15.0 mm: **A.** Valve I, dorsal view. **B.** Valve V, dorsal view. **C.** Valve VIII, dorsal view. **D.** Valve V, rostral view. **E.** Valve V, tegmentum sculpture in central and lateral areas. **F.** Valve VIII, lateral view.

РИС. 9. *Stenosemus solomonensis* sp. nov., голотип (MNHN IM-2000-32561) BL – 15.0 мм: **A.** Щиток I, с дорсальной стороны. **B.** Щиток V, с дорсальной стороны. **C.** Щиток VIII, с дорсальной стороны. **D.** Щиток V, спереди. **E.** Щиток V, скульптура тегмента на центральном поле. **F.** Щиток VIII, вид сбоку.

middle, head of major lateral tooth bicuspid, outer denticle very small.

The holotype has 21 gills per side located from valve IV to valve VIII, and arrangement of nephropore between 6-7 gills and gonopore between 7-8 gills from the end of body.

Gut contains mainly detritus, a few small foraminiferans and sand.

Remarks. The paratype was damaged by careless tissue extraction for DNA sequencing. It has 19 gills per side, its radula is 4.3 mm long and has 24 transverse rows of mature teeth. Color of tegmentum of the paratype is mostly white with irregular nut-brown markings and its girdle is white banded with nut-brown.

Stenosemus solomonensis sp. nov. is similar to

S. mexicanus, *S. delicatus*, *S. exaratus* and *S. philippii* sp. nov. by common features of valve sculpture.

New species differs from *S. mexicanus* by having bicuspid head of major lateral tooth of radula (vs. unicuspid in *S. mexicanus*), jugal plates in all intermediate valves (vs. only tail valve with jugal plate in *S. mexicanus*), granules on top of dorsal spicules (vs. no granules in *S. mexicanus*).

S. solomonensis sp. nov. differs from *S. delicatus*, by having bicuspid head of major lateral tooth of radula (vs. unicuspid in *S. delicatus*), granules on top of dorsal spicules (vs. no granules in *S. delicatus*), six radiating grooves on lateral area of intermediate valves (vs. ten in *S. delicatus*).

From *S. exaratus* new species differs by more

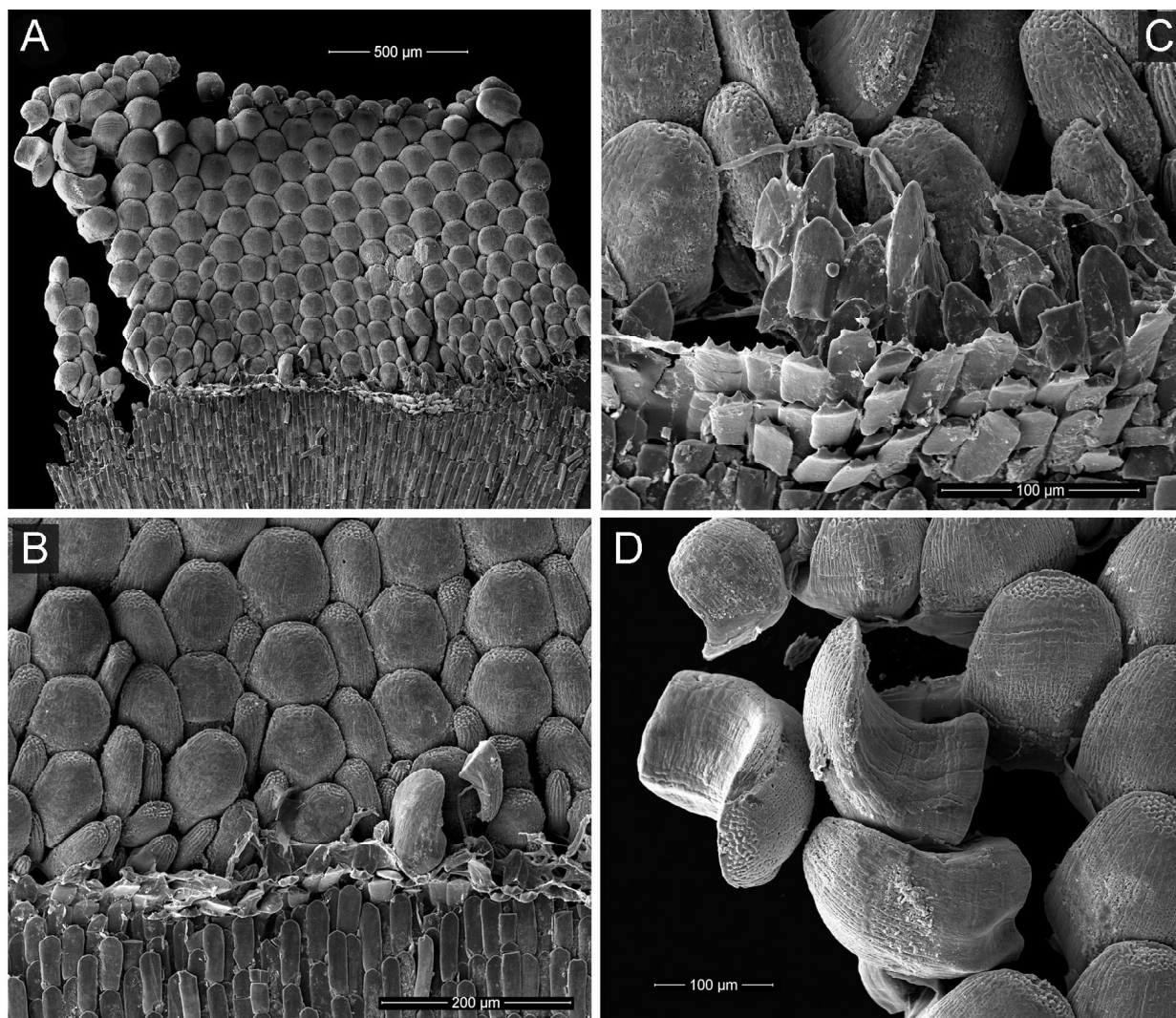


FIG. 10. *Stenosemus solomonensis* sp. nov., holotype (MNHN IM-2000-32561) BL – 15.0 mm: A-C. Dorsal and marginal spicules and ventral scales. D. Dorsal spicules.

РИС. 10. *Stenosemus solomonensis* sp. nov., голотип (MNHN IM-2000-32561) BL – 15.0 мм: A-C. Дорсальные и маргинальные спикулы и вентральные чешуйки. D. Дорсальные спикулы.

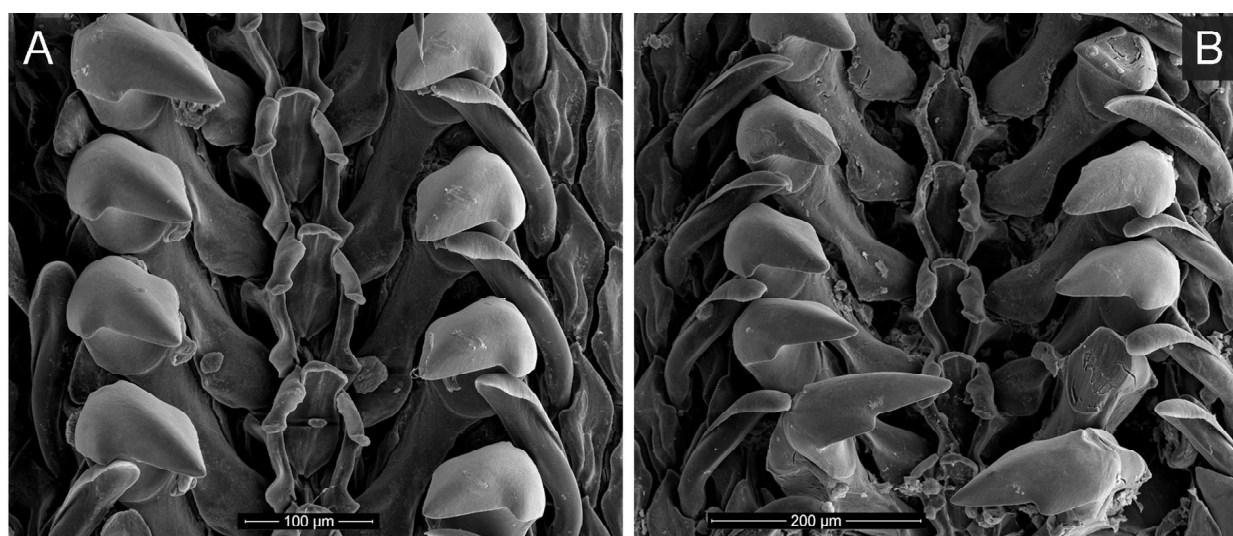


FIG. 11. *Stenosemus solomonensis* sp. nov., holotype (MNHN IM-2000-32561) BL – 15.0 mm: A, B. Radula.

РИС. 11. *Stenosemus solomonensis* sp. nov., голотип (MNHN IM-2000-32561) BL – 15.0 мм: A, B. Радула

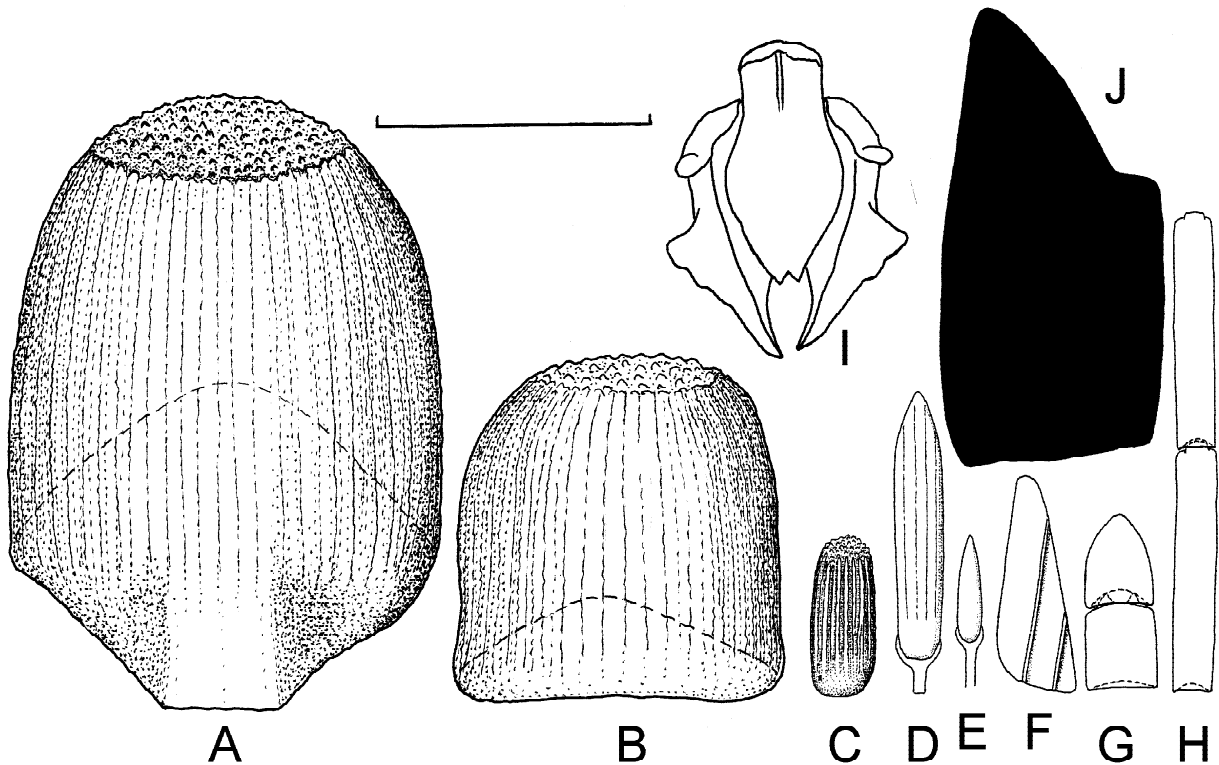


FIG. 12. *Stenosemus solomonensis* sp. nov., holotype (MNHN IM-2000-32561) BL – 15.0 mm: A. Dorsal spicule in mid-girdle. B. Dorsal spicules near valves. C. Dorsal spicule near margin. D. Marginal spicule on long bristles. E. Small marginal spicule on short chitinous bristle. F. Long flattened marginal spicule with longitudinal obsolete rib. G. Marginal scales with two thin, oblique ribs. H. Short marginal obtuse scale. I. Ventral scales. J. Central and first lateral teeth of radula. K. Head of major lateral tooth of radula.

РИС. 12. *Stenosemus solomonensis* sp. nov., holotype (MNHN IM-2000-32561) BL – 15.0 mm: A. Дорсальная спикула из средней части перинотума. B. Дорсальная спикула у щитков. C. Дорсальная спикула на краю перинотума. D. Маргинальная спикула на длинной щетинке. E. Маленькая маргинальная спикула на короткой хитиновой щетинке. F. Длинная уплощенная маргинальная спикула с одним слабым ребром. G. Маргинальная чешуйка с двумя тонкими, косыми ребрами. H. Короткая маргинальная тупоконечная чешуйка. I. Вентральные чешуйки. J. Центральный и первый латеральный зубы радулы. K. Коронка крючкового зуба радулы.

numerous grooves on all areas, bicuspid head of major lateral tooth of radula (vs. unicuspid in *S. exaratus*) and in having granules on top of dorsal spicules (vs. no granules in *S. exaratus*).

S. solomonensis sp. nov. differs from *S. philippi* sp. nov. by more numerous grooves on all areas of shell and different shape and sculpture of dorsal spicules, as it was mentioned in remarks of the latter.

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I am grateful to Julia Sigward (Queen's University Belfast, Portaferry, Northern Ireland) for her valuable corrections, Mihael Blikshteyn (Portland, Oregon, U.S.A.) for polishing my English, Alexey Miroljubov (ZISP) for his technical assistance with SEM procedures and Galina A. Kuznetsova (ZISP) for her help with the preparation of figures.

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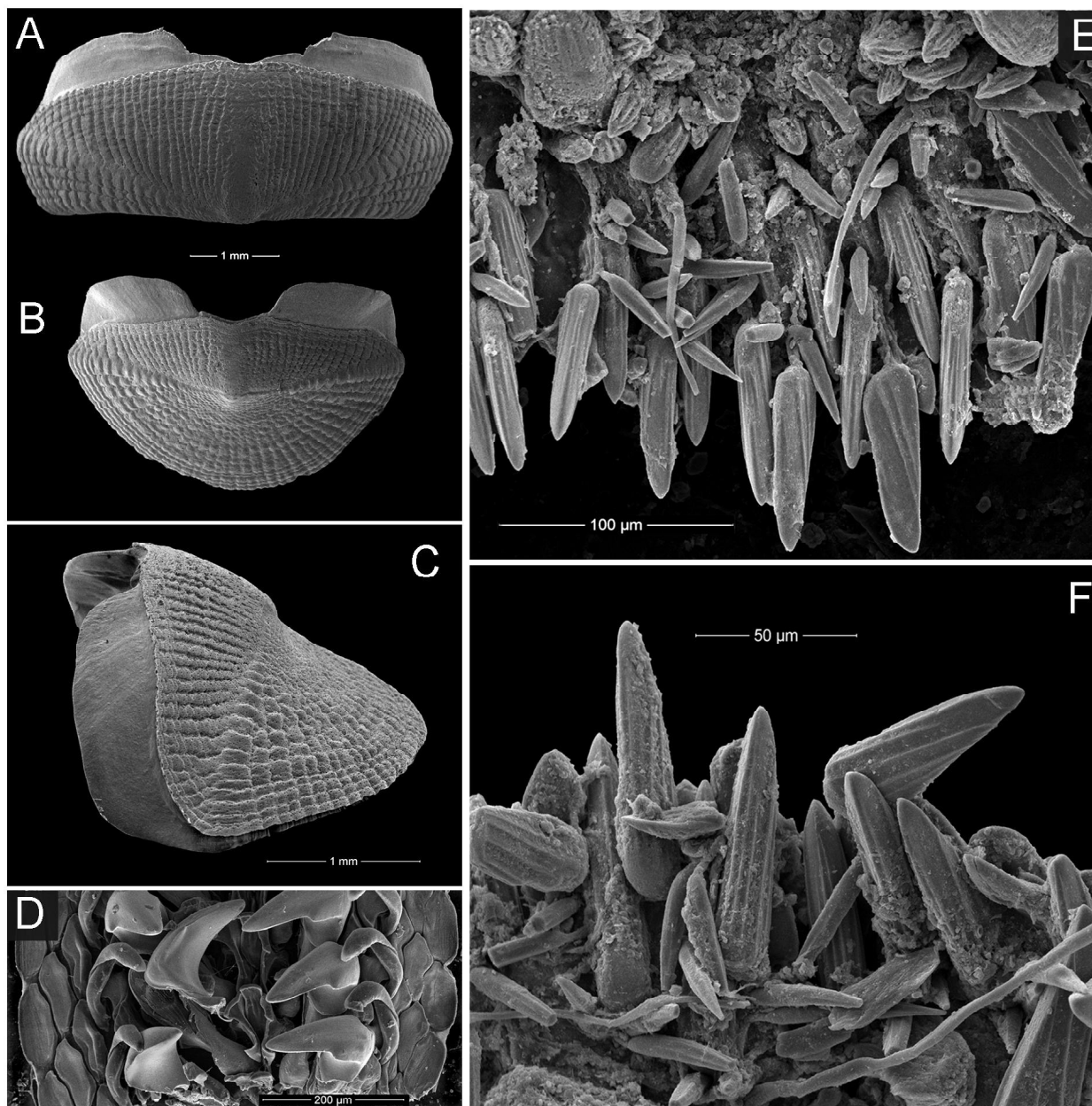


FIG. 13. *Stenosemus solomonensis* sp.nov. paratype (MNHN IM-2000-32562) BL – 12.0 mm: **A.** Valve VII, dorsal view. **B.** Valve VIII, dorsal view. **C.** Valve VIII, lateral view. **D.** Radula. **E.** DORSAL and marginal spicules and scales. **F.** Marginal spicules and scales.

РИС. 13. *Stenosemus solomonensis* sp.nov. paratype (MNHN IM-2000-32562) BL – 12.0 mm: **A.** Щиток VII, с дорсальной стороны. **B.** Щиток VIII, с дорсальной стороны. **C.** Щиток VIII, вид сбоку. **D.** Радула. **E.** Дорсальные и маргинальные спикулы и чешуйки. **F.** Маргинальные спикулы и чешуйки.

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Глубоководные хитоны рода *Stenosemus*
(Mollusca: Polyplacophora) из Фиджи и Соломоновых островов

Б.И. СИРЕНКО

Зоологический институт РАН, Университетская наб.,
1, 199034, Санкт Петербург; marine@zin.ru

Описаны три новых вида рода *Stenosemus*, собранные у островов центральной Пацифики. *Stenosemus fijiensis* sp. nov., из Фиджи отличается от родственных видов уникальной скульптурой центральных полей тегментума, состоящей из треугольных углублений и светло коричневыми пятнами на щитках. *S. philippei* sp. nov. and *S. solomonensis* sp. nov. оба из Соломоновых островов отличаются от других видов рода наличием двухзубцового наконечника крючковой пластинки радулы, формой и скульптурой дорсальных спикул, а также скульптурой тегментума.

