

FISSURELLIDAE IN JAPAN (2)*

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With Plate II

This is the second of a series of papers dealing with the Fissurellid fauna of Japan. Part I (HABE, *Illust. Cat. Jap. Shells*, 17, pp. 109-120, 1951) contained the genera *Macroschisma*, *Scutus*, *Zeidora*, *Rimula*, *Fissurisepta* and *Puncturella*. The part given here reports on the species of the genera *Emarginula*, *Laeviemarginula*, *Emarginella*, *Tugali*, *Tugalina*, *Montfortula* and *Montfortia*.

Genus *Emarginula* LAMARCK 1801

1801 *Emarginula* LAMARCK, *Syst. Anim. s. Vert.*, p. 69.

1810 *Emarginulus* MONTFORT, *Conchyl. Syst.*, p. 74.

Type species: *Emarginula conica* LAMARCK (monotypy).

Emarginula fujitai n. sp.

(Pl. II, Figs. 32, 33)

1929 *Emarginula foveolata* FUJITA, *Venus*, 1 (3), p. 88, pl. 3, fig. 10 and textfig. 1, non SCHEPMAN 1908.

1929 *Emarginula foveolata* KURODA, *l. c.*, p. 93.

Shell rather large, attaining up to 25 mm. in length, deeply sculptured, white, highly conical, the height being about four-fifths of the shell length; anterior slope convex and posterior slope concave, immediately below the apex, then extending downward in a straight line to the margin; apical whorl small, smooth and polished, close to a little below the summit, bent down posteriorly and situated at the posterior third of the length of the shell; anal fasciole narrow,

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with numerous arched lamellae; fissure rather short and about one-sixth the length of the anterior slope; sculpture consists of about 30 strong primary ribs, radiating from the apex to the margin and secondary ribs alternating with them; numerous concentric cords dividing the spaces between the ribs into deeply excavated coarse square pits, thus giving the surface a foveolate appearance; interior of the shell chalky white; margin crenulated by the terminations of the ribs.

Height 14.8 mm., length of aperture 21.5 mm., breadth of aperture 16.0 mm. (figured type specimen deposited in the Geological Institute of Kyoto University).

Height 18.2 mm., length of aperture 25.6 mm., breadth of aperture 18.7 mm. (examined specimen collected from Wakayama Pref., Honshu by Mr. Akibumi TERAMACHI).

Type locality: Tateyama Bay, Bōsō Peninsula, Honshu.

Distribution: Tateyama Bay and off Wakayama Pref., Honshu and Tosa Bay, Shikoku.

Fossil occurrence: Moeshima in the Kagoshima Bay, Kyushu (Pleistocene).

Remarks: This species was erroneously recorded as *E. foveolata* SCHEPMAN from Tateyama Bay by Mr. Tadashi FUJITA, to whom the specific name is dedicated. In the former the shell is more highly conical and the aperture elliptical in shape, not distinctly narrowed anteriorly.

Emarginula hataii n. sp.

(Pl. II, Figs. 13, 20)

1940 *Emarginula foveolata* NOMURA et HATAI, Saito Ho-on Kai Mus. Res. Bull. 19, p. 59, non SCHEPMAN 1908.

Shell medium in size, reaching 13 mm. in length, solid, milky white, the height being about 60% of the shell length; aperture elongate elliptical in shape; anterior slope strongly, convexly arched and posterior slope concave immediately below the apex, more weakly concave downward; apical whorls one and one half in number, and placed strongly down the shell and situated at the posterior end; anal fasciole narrow, distantly crossed by transverse lamellae; fissure long and narrow, slightly shorter than one half of the anterior slope; radial sculpture consists of 21 to 27 widely spaced primary ribs, and in addition to them, there occur secondary ribs between each two of them; concentric sculpture consists of widely spaced cords forming small nodules, where they intersect the ribs; these cords divide the spaces between the ribs into coarse and deep square pits; two radial ribs, a little more highly elevated than the rest, border the fasciole

and the fissure; margin crenulated by the terminations of ribs; interior of shell chalky white.

Height 8.0 mm., length of aperture 12.8 mm., breadth of aperture 9.0 mm. (figured type specimen).

Height 8.2 mm., length of aperture 12.8 mm., breadth of aperture 8.5 mm. (paratype specimen).

Height 6.3 mm., length of aperture 11.4 mm., breadth of aperture 8.3 mm. (examined specimen from off Tugaru Beninsula, Aomori Pref., Honshu; Sôyômaru station No. 646, 123 m. in depth).

Height 6.8 mm., length of aperture 12.4 mm., breadth 8.6 mm. examined specimen from off Noto Peninsula, Honshu, about 100 fathoms in depth).

Height 6.6 mm., length of aperture 12.6 mm., breadth of aperture 8.6 mm. (examined specimen from off Noto Peninsula, Honshu).

Type locality: Kyuroku-jima, Aomori Pref., Honshu (210 m. and 150 m. in depth).

Distribution: Japan Sea (off Noto Peninsula to off Tugaru Peninsula).

Remarks: This new species was reported as *E. foveolata* SCHEPMAN from Kyuroku-jima, Aomori Pref., Honshu by Sitihei NOMURA and Kotora HATAI, but both species are quite different in shape. *E. fujitai*, also reported as *E. foveolata* by Tadashi FUJITA from Tateyama Bay, Honshu, differs from this new species in the larger and higher conical shell with the pointed apex and the short fissure. I take pleasure in naming this for Dr. Kotora HATAI.

Emarginula fragilis YOKOYAMA

(Pl. II, Figs. 21, 22)

1920 *Emarginula fragilis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39 (6), p. 98, pl. 6, fig. 10.

1929 *Emarginula fragilis* FUJITA, Venus, 1 (3), p. 88, pl. 3, fig. 9 and textfig. 2.

1929 *Emarginula fragilis* KURODA, l.c., 1 (3), p. 94.

Height 10.5 mm., length of aperture 16 mm., breadth of aperture 11.5 mm. (figured specimen collected from off Wakayama Pref., Honshu).

Height 10.1 mm., length of aperture 17.7 mm., breadth of aperture 12.0 mm. (examined specimen collected by Mr. Akibumi TERAMACHI from off Wakayama Pref., Honshu).

Height 10.6 mm., length of aperture 16.7 mm., breadth of aperture 11.4 mm. (examined specimen collected from Sagami Bay, Honshu by Mr. Ryosuke KAWAMURA).

Height 7.8 mm., length of aperture 13.8 mm., breadth of aperture 9.8 mm.

(examined specimen collected from Sagami Bay).

Type locality: Harashita, Shimo-miyata, Kanagawa Pref., Honshu.

Distribution: Sagami Bay and off Wakayama Pref., Honshu and Tosa Bay, Shikoku.

Fossil occurrence: Type locality (Pleistocene).

Emarginula regia n. sp.

(Pl. II, Figs. 30, 31)

Shell large, exceeding 33 mm. in length and 20 mm. in height, conical, its height being two-thirds of the shell length, colour ashy grey, probably due to the long stay in the mud; aperture broadly ovate; anterior slope straight or feebly convex, posterior slope somewhat concave below the apex, extending downward in a straight line to the margin; apical whorls small, smooth, coiled down a little below the summit and situated at about the posterior third of the shell length; anal fasciole narrow, formed by very closely set transverse lamellae; fissure also narrow, one-fourth of the length of the anterior slope; sculpture compact, consists of numerous closely set radial ribs; at the apical area there are about 40 primary ribs, but below numerous finer ribs are intercalated between them, thus the total number of ribs attaining more than 100; also numerous concentric lamellae intersect the radiating ribs, giving scaly aspects on the point of intersection of ribs; margin crenulated by the terminations of the ribs.

Height 19.3 mm., length of aperture 32.9 mm., breadth of aperture 27.0 mm. (figured type specimen collected by Mr. Akibumi TERAMACHI).

Height 21.2 mm., length of aperture 36.3 mm., breadth of aperture 29.5 mm. (paratype specimen).

Type locality: Tosa Bay, Shikoku (about 100 fathoms in depth).

Remarks: *Emarginula hawaiiensis* DALL is the nearest ally of this new species in the general appearances, but may be easily distinguished from this in having the apex situated more posteriorly.

Emarginula crassicosata SOWERBY

- 1863 *Emarginula crassicosata* SOWERBY, Thes. Conch., 3, p. 214, pl. 246, figs. 41, 42.
 1873 *Emarginula crassicosata* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 6, fig. 38.
 1890 *Emarginula crassicosata* PILSBRY, Man. Conch., 12, p. 259, pl. 29, figs. 30-32.
 1913 *Emarginula crassicosata* THIELE, Conch. Cab., 2 (4a), p. 68, pl. 8, fig. 10.
 1935 *Emarginula crassicosata* OTUKA, Bull. Earthq. Res. Inst., 13 (4), p. 846, pl. 53, figs. 21a, b.

1951 *Emarginula crassicosata* Is. TAKI, HIRASE's Handb. Illust. Shells, pl. 63, fig. 1.

Height 5.2 mm., length of aperture 10.6 mm., breadth of aperture 7.7 mm. (examined specimen collected by Mr. Akibumi TERAMACHI from Noto Peninsula, Honshu).

Height 5.7 mm., length of aperture 11.5 mm., breadth of aperture 8.1 mm. (examined specimen collected by Mr. Masatoyo OKAMOTO from Kanezaki, Munakata-gun, Fukuoka Pref., Kyushu).

Type locality: unknown.

Distribution: Kyushu; Shikoku and Honshu.

Fossil occurrence: The Oti Graben in Southern Noto Peninsula, Honshu (Pleistocene).

Remarks: This is the commonest species in our coast.

Emarginula hosoyai n. sp.

Shell medium in size, about 11 mm. in length, solid, pale cream yellow in colour, height being about 60% of the length: aperture elliptical; anterior slope convex; posterior slope slightly concave or straight; apical whorls one and one half in number and are reduced to a small hook; the position of apical whorls close to a little below the summit and situated at the posterior end; anal fasciole narrow, provided with transverse lamellae; fissure narrow, its length being one-fifth of the anterior slope; sculpture consists of about 40 radiating ribs from the apex; below secondary ribs appear between each two of the primary ribs; numerous concentric cords divide the spaces between ribs into small square pits.

Height 8.2 mm., length of aperture 13.6 mm., breadth of aperture 10.1 mm. (type specimen collected by Mr. Akibumi TERAMACHI).

Height 4.5 mm., length of aperture 8.6 mm., breadth of aperture 6.0 mm. (paratype).

Height 4.8 mm., length of aperture 8.9 mm., breadth of aperture 6.5 mm. (examined specimen collected by Mr. Kakujiro HOSOYA from the Sagami Bay, 50 fathoms in depth).

Height 5.1 mm., length of aperture 8.9 mm., breadth of aperture 6.6 mm. (examined specimen from the Sagami Bay).

Type locality: Tosa Bay, Shikoku (about 70 fathoms in depth).

Distribution: Sagami Bay and off Wakayama Pref., Honshu and Tosa Bay, Shikoku.

Remarks: This new species differs quite sharply from *E. hataii* to which it

appears to be nearest in relationship; the former has more densely set square pits on the cream yellow shell. This species is named in honour of Mr. Kakujiro Hosoya, who is a famous collector of shells of Sagami Bay.

Emarginula teramachii n. sp.

(Pl. II, Figs. 14, 23)

Shell medium in size, reaching about 10 mm. in length; dull white, probably due to its existence in the mud, highly conical; the height being about 70% of the shell length; anterior slope gently convex and posterior slope concave immediately below the apex, then extending downward in a straight line to the margin; aperture elliptical in shape; apical whorls small, smooth and polished, hooked down posteriorly and situated at the posterior end; anal fasciole long and narrow; fissure narrow, shorter than one-third of the length of the anterior slope; sculpture consists of about 15 primary radial cords and at a short distance from the apex, secondary ribs appear between each two of the primary ribs; forming nodules on the point of intersection, dividing the spaces between ribs into deeply excavated square pits, giving the shell a lattice-like appearance; margin crenulated by the terminations of the ribs.

Height 6.7 mm., length of aperture 9.5 mm., breadth of aperture 7.0 mm. (the largest paratype specimen collected by Mr. Akibumi TERAMACHI).

Height 6.2 mm., length of aperture 8.6 mm., breadth of aperture 6.2 mm. (figured type specimen).

Height 5.6 mm., length of aperture 7.5 mm., breadth of aperture 5.5 mm. (paratype specimen).

Type locality: Tosa Bay, Shikoku (about 70 fathoms).

Remarks: *Emarginula adamsiana* SOWERBY somewhat relates to this new species in its shape, but has the sculpture on the shell decidedly coarser than in the latter. *Emarginula choristes* DALL from off Gwajajima, south of Kyushu, is another allied one, but it has a larger shell with the sculpture differing from that of this new species. The specific name is dedicated to Mr. Akibumi TERAMACHI who is an expert of the shell collecting in Japan.

Emarginula choristes DALL

1925 *Emarginula choristes* DALL, Proc. U. S. Nat. Mus., 66 (17), p. 16, pl. 26, figs. 1, 4.

Height 18 mm., length of aperture 17 mm., breadth of aperture 12 mm.

Type locality: Gwajajima, south of Kyushu (361 fathoms in depth).

Emarginula adamsiana SOWERBY

- 1863 *Emarginula adamsiana* SOWERBY, Thes. Conch., 3, p. 214, pl. 246, figs. 27, 28.
 1873 *Emarginula adamsiana* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 4, fig. 29.
 1890 *Emarginula adamsiana* PILSBRY, Man. Conch., 12, p. 260, pl. 28, fig. 32.
 1913 *Emarginula adamsiana* THIELE, Conch. Cab., 2 (4a), p. 63, pl. 7, fig. 13.

Height 3.0 mm., length of aperture 6.0 mm., breadth of aperture 4.25 mm.
 (after THIELE).

Type locality: Japan.

Emarginula tosaensis n. sp.

Shell rather large for the genus, attaining 18 mm. in length, rather solid, pale yellow in colour, sometimes ornamented with broad radial patterns, the height being about 50% of the length of shell; aperture elliptical in shape; anterior slope long, gently convex and the posterior slope short, straight except for the part below the apex which is concave; apical whorls small and smooth, coiled down the summit and situated near the posterior end; anal fasciole long and narrow; the fissure also narrow, but rather short, about one-fourth of the anterior slope; sculpture rather compact, consisting of about 30 radial ribs, below secondary ribs appear between each two of the primary ribs; numerous concentric cords which are a little lamellae on the point of intersection resulting numerous small square pits; margin denticulate; interior of the shell white and polished.

Height 8.7 mm., length of aperture 18.0 mm., breadth of aperture 12.8 mm.
 (type specimen collected by Mr. Akibumi TERAMACHI).

Height 8.0 mm., length of aperture 14.7 mm., breadth of aperture 10.8 mm.
 (paratype specimen).

Height 6.5 mm., length of aperture 14.5 mm., breadth of aperture 9.9 mm.
 (paratype specimen).

Height 8.1 mm., length of aperture 16.7 mm., breadth of aperture 11.9 mm.
 (paratype specimen).

Height 6.7 mm., length of aperture 13.6 mm., breadth of aperture 9.5 mm.
 (examined specimen collected from Moeshima in the Kagoshima Bay, Kyushu).

Type locality: Tosa Bay, Shikoku (about 70 fathoms).

Fossil occurrence: Moeshima in the Kagoshima Bay, Kyushu (Pleistocene).

Remarks: this new species resembles *Emarginula hosoyai*, but may be distinguished from the latter in having the larger and lower conical shell with

the radial colour markings. *Emarginula maculata* SOWERBY is somewhat close to the young specimen of this species.

Emarginula maculata A. ADAMS

- 1863 *Emarginula maculata* A. ADAMS, Thes. Conch., 3, p. 215, pl. 246, figs. 31, 32.
 1873 *Emarginula maculata* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 5, fig. 32.
 1890 *Emarginula maculata* PILSBRY, Man. Conch., 12, p. 263, pl. 28, fig. 4.
 1915 *Emarginula maculata* THIELE, Conch. Cab., 2 (4a), p. 95, pl. 11, figs. 18, 19.

Height 3.4 mm., length of aperture 7.5 mm., breadth of aperture 5.6 mm.
 (after SOWERBY's figures).

Type locality: Goto Islands, Japan.

Emarginula japonica SOWERBY

- 1863 *Emarginula japonica* SOWERBY, Thes. Conch., 3, p. 216, pl. 246, figs. 43, 44.
 1873 *Emarginula japonica* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 8, fig. 59.
 1890 *Emarginula japonica* PILSBRY, Man. Conch., 12, p. 264, pl. 28, fig. 18.
 1915 *Emarginula japonica* THIELE, Conch. Cab., 2 (4a), p. 94, pl. 11, figs. 14, 15.

Height 5.2 mm., length of aperture 10.2 mm., breadth of aperture 7.0 mm.
 (after A. ADAMS' figures).

Type locality: Japan.

Remarks: This is a small purplish shell and has never been rediscovered since.

Emarginula concinna A. ADAMS

(Pl. II, Figs. 10, 15)

- 1852 *Emarginula concinna* A. ADAMS, Proc. Zool. Soc. London, 19, p. 85.
 1863 *Emarginula concinna* A. ADAMS, Thes. Conch., 3, p. 212, pl. 246, figs. 34, 39, 40.
 1873 *Emarginula concinna* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 2, fig. 13.
 1890 *Emarginula concinna* PILSBRY, Man. Conch., 12, p. 257, pl. 28, figs. 5, 6.
 1909 *Emarginula concinna* CONTURIER, Jour. de Conchyl., 55, p. 172.
 1913 *Emarginula concinna* THIELE, Conch. Cab., 2 (4a), p. 61, pl. 7, fig. 10.

Height 2.6 mm., length of aperture 7.3 mm., breadth of aperture 4.7 mm.
 (figured specimen collected by Mr. Akibumi TERAMACHI from Ryukyu group).

Height 2.4 mm., length of aperture 6.7 mm., breadth of aperture 4.1 mm.
 (examined specimen from Ryukyu group).

Type locality: Unknown.

Distribution: Ryukyu group and Honshu.

Emarginula compta n. sp.

(Pl. II, Figs. 11, 12)

Shell small, reaching 7 mm. in length of shell, height being about 60 to 65% of the length; ashy white, maculated with four square blackish patches, one in front of the apex and one below the summit, the other two on both side slopes, but sometimes lacking partly or all of them; apical whorl smooth and polished, bent a little below the summit and reduced to a small hook, situated at the posterior end; anterior slope strongly convex and posterior slope straight; anal fasciole narrow and with numerous arched transverse lamellae; fissure also narrow and rather short, one-fifth of the length of the anterior slope; sculpture consists of about 30 primary ribs radiating from the apex to the margin, secondary ribs alternate with them; the distantly placed concentric cords cross the surface of the shell, forming nodules where they intersect the ribs dividing the spaces between the ribs into square pits; in addition to them numerous densely set concentric threads cover all over the surface of the shell, forming the delicate texture; margin crenulated.

Height 4.3 mm., length of aperture 7.1 mm., breadth of aperture 4.8 mm. (the largest paratype specimen collected by Mr. Akibumi TERAMACHI from Ryukyu group).

Height 2.8 mm., length of aperture 4.8 mm., breadth of aperture 3.3 mm. (figured type specimen).

Height 3.5 mm., length of aperture 6.1 mm., breadth of aperture 4.4 mm. (paratype specimen).

Type locality: Okinawa, Ryukyu group.

Remarks: This new species is very peculiar in the coloration of the shell and differs distinctly from any other species.

Emarginula scabriuscula A. ADAMS

- 1852 *Emarginula scabriuscula* A. ADAMS. Proc. Zool. Soc. London, 19, p. 83.
1863 *Emarginula scabriuscula* A. A. DAMS, Thes. Conch., 3, p. 213, pl. 246. fig. 36.
1873 *Emarginula scabriuscula* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 5, fig. 30.
1890 *Emarginula scabriuscula* PILSBRY, Man. Conch., 12, p. 268, pl. 28, fig. 31.
1915 *Emarginula scabriuscula* THIELE, Conch. Cab., 2 (4a), p. 82, pl. 10, figs. 3, 4.

Height 3.1 mm., length of aperture 7.3 mm., breadth of aperture 5.0 mm. (after A. ADAMS' figures).

Type locality: Unknown.

Remarks: This species was reported as occurring in Japan by A. ADAMS, but has never been rediscovered from our seas.

Emarginula imaizumi DALL

- 1926 *Emarginula imaizumi* DALL, Proc. Biol. Soc. Washington, **39**, p. 65.
 1926 *Emarginula* (*imaizumi* var ?) *imella* DALL, Proc. Biol. Soc. Washington, **39**, p. 65.

Height 4 mm., length of aperture 13 mm., breadth of aperture 8.6 mm.

Type locality: Imaizumi, Kagoshima Bay, Kyushu.

Emarginula punctata A. ADAMS

- 1852 *Emarginula punctata* A. ADAMS, Proc. Zool. Soc. London, **19**, p. 84.
 1863 *Emarginula punctata* A. ADAMS Thes. Conch., **3**, p. 215, pl. 246, figs. 29, 30.
 1873 *Emarginula punctata* SOWEBY, Conch. Icon., **19**, *Emarginula*, pl. 5, fig. 31.
 1890 *Emarginula punctata* PILSBRY, Man. Conch., **12**, p. 263, pl. 28, fig. 33.
 1915 *Emarginula punctata* THIELE, Conch. Cab., **2** (4a), p. 93, pl. 11, figs. 11, 12, 13.

Height 3.7 mm., length of aperture 6.3 mm., breadth of aperture 5.0 mm.
 (examined specimen collected from Shirahama, Wakayama Pref., Honshu).

Height 3.5 mm., length of aperture 5.8 mm., breadth of aperture 4.7 mm.
 (examined specimen collected by Mr. Akibumi TERAMACHI from the Ryukyu group).

Type locality: San Nicholas, Island of Zebu, Philippines (under stones in the lower water).

Distribution: Philippines; Formosa; Ryukyu and Amami groups: Kyushu; Shikoku and Honshu.

Emarginula attilis GOULD

- 1859 *Emarginula* (*Clypidina*) *attilis* GOULD, Proc. Boston Soc. Nat. Hist., **7**, p. 162.

Height 4 mm., length of aperture 5 mm., breadth of aperture 4 mm.

Type locality: Kagoshima Bay (10 fathoms in depth).

Remarks: This species somewhat resembles *Emarginula punctata* A. ADAMS.

Emarginula variegata A. ADAMS

- 1852 *Emarginula variegata* A. ADAMS, Proc. Zool. Soc. London, **19**, p. 84.
 1863 *Emarginula variegata* A. ADAMS Thes. Conch., **3**, p. 215, pl. 245, figs. 9, 10.
 1873 *Emarginula variegata* SOWERBY, Conch. Icon., **19**, *Emarginula*, pl. 4, fig. 22.
 1890 *Emarginula variegata* PILSBRY, Man. Conch., **12**, p. 263, pl. 28, fig. 12.
 1915 *Emarginula variegata* THIELE, Conch. Cab., **2** (4a), p. 92, pl. 11, figs. 5, 6.
 1941 *Emarginula fuliginea* KURODA, Mem. Fac. Sci. Agr. Taihoku Imp. Univ., **22** (4), p. 72, pl. 13 figs. 1, 2,

Height 4.9 mm., length of aperture 10.0 mm., breadth of aperture 7.6 mm.

(examined specimen collected from Tanegashima, south of Kyushu).

Height 4.8 mm., length of aperture 9.8 mm., breadth of aperture 7.3 mm.
(examined specimen from Tanegashima).

Type locality: Philippines.

Distribution: East Indies; Philippines; Formosa; Ryukyu and Amami groups
and Kyushu.

Emarginula pileata GOULD

1859 *Emarginula pileata* GOULD, Proc. Boston Soc. Nat. Hist., 7, p. 162.

Height 4 mm. length of aperture 5 mm., breadth of aperture 4 mm.

Type locality: Loo Choo (=Ryukyu).

Genus *Laeviemarginula* HABE 1953

1953 *Laeviemarginula* HABE, Illust. Cat. Jap. Shells, 23, p. 183.

Type species: *Laeviemarginula membranacea* HABE (monotypy).

Laeviemarginula membranacea HABE

(Pl. II, Figs. 16, 17)

1953 *Laeviemarginula membranacea* HABE, Illust. Cat. Jap. Shells, 23, p. 183.

Height 4.7 mm., length of aperture 19.8 mm., breadth of aperture 13.6 mm.
(figured type specimen).

Type locality: Okinawa, Ryukyu group.

Genus *Emarginella* PILSBRY 1890

1890 *Emarginella* PILSBRY, Man. Conch., 12, p. 269.

Type species: *Emarginula cuvieri* AUDOUIN (monotypy).

Emarginella incisula (A. ADAMS)

1952 *Emarginula incisula* A. ADAMS, Proc. Zool. Soc. London, 19, p. 84,

1863 *Emarginula incisula* A. ADAMS, Thes. Conch., 3, p. 211, pl. 245, fig. 2.

1873 *Emarginula incisula* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 3, fig. 18.

1890 *Emarginula incisula* PILSBRY, Man. Conch., 12, p. 265, pl. 28, fig. 1.

1905 *Emarginula incisula* HEDLEY, Proc. Linn. Soc. N. S. Wales, 30, p. 521.

1915 *Emarginula (Emarginella) incisula* THIELE, Conch. Cab., 2 (4a), p. 98, pl. 11, fig. 26.

Height 4.6 mm., length of aperture 15.8 mm., breadth of aperture 9.0 mm.
(examined specimen collected by Dr. Tokubei KURODA from Amami O-Shima).

Type locality : Unknown.

Distribution : East Indies ; Amami group.

Emarginella planulata (A. ADAMS)

(Pl. II, Figs. 24, 26)

- 1852 *Emarginula planulata* A. ADAMS, Proc. Zool. Soc. London, 19, p. 86.
 1863 *Emarginula planulata* A. ADAMS, Thes. Conch., 3, p. 211, pl. 245, fig. 1.
 1873 *Emarginula planulata* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 3, fig. 20.
 1890 *Emarginula planulata* PILSBRY, Man. Conch., 12, p. 264, pl. 28, fig. 15.
 1915 *Emarginula (Emarginella) planulata* THIELE, Conch. Cab., 2 (4a), p. 28, pl. 11, fig. 27.

Height 9.7 mm., length of aperture 25.3 mm., breadth of aperture 17.0 mm. (figured specimen collected from Wakayama Pref., Honshu by Mr. Akibumi TERAMACHI).

Height 9.5 mm., length of aperture 30.1 mm., breadth of aperture 20.2 mm. (examined specimen collected from Hirado, Nagasaki Pref., Kyushu by Dr. Tokubei KURODA).

Type locality : Singapore (coarse sand and shells, 7 fathoms in depth).

Distribution : Singapore ; Philippines ; Kyushu and Honshu.

Emarginella eximia (A. ADAMS)

(Pl. II, Figs. 3, 4)

- 1852 *Emarginula eximia* A. ADAMS, Proc. Zool. Soc. London, 19, p. 86.
 1863 *Emarginula eximia* A. ADAMS, Thes. Conch., 3, p. 212, pl. 246, fig. 63.
 1890 *Emarginula eximia* PILSBRY, Man. Conch., 12, p. 267, pl. 28, fig. 26.
 1915 *Emarginula eximia* THIELE, Conch. Cab., 2 (4a), p. 89, pl. 10, figs. 22, 23.

Height 3.3 mm., length of aperture 10.5 mm., breadth of aperture 7.3 mm. (figured specimen collected from the Ryukyu group by Mr. Akibumi TERAMACHI).

Height 3.1 mm., length of aperture 10.7 mm., breadth of aperture 7.1 mm. (examined specimen collected from the Ryukyu group).

Type locality : San Nicholas, Island of Zebu, Philippines (under stones in the lower water).

Distribution : Philippines and Ryukyu group.

Emarginella okinawaensis n. sp.

(Pl. II, Figs. 5, 6)

Shell white, depressed, not attaining 13 mm. in length, the height being about

35~45% in the length of shell; apical whorls are turned backwards and downward and is not hooked; that place about at the middle of shell; anterior slope slightly concave and posterior slope straight or a little convex; anal fasciole narrow and raised; fissure very short, about one-sixth the length of the anterior slope; the primary radial ribs are strong, about nine in number; the secondary ribs intercalated between them; concentric cords are very strong and place distantly on the shell where they give the large excavated square mesh; the crenulations of the margin caused by the primary ribs being particularly large.

Height 4.5 mm., length of aperture 12.9 mm., breadth of aperture 10.1 mm. (figured type specimen).

Height 4.5 mm., length of aperture 11.7 mm., breadth of aperture 9.6 mm. (paratype specimen).

Height 5.2 mm., length of aperture 11.8 mm., breadth of aperture 9.0 mm. (paratype specimen).

Height 3.9 mm., length of aperture 10.9 mm., breadth of aperture 8.6 mm. (paratype specimen).

Type locality: Okinawa, Ryukyu group.

Remarks: This new species approaches to *Emarginella sculptilis* A. ADAMS from the Philippines in the general appearance, but has no colour spots between each of the large ribs on the surface of the shell. *Emarginella crassilabrum* A. ADAMS is another allied one.

Tugali GRAY 1843

1843 *Tugali* GRAY. Dieffenbach Travel in New Zealand, 2, p. 240.

1857 *Tugalia* GRAY, Guide Moll. Brit. Mus., p. 163.

Type species: *Tugali elegans* GRAY (monotypy).

Tugali decussata A. ADAMS

(Pl. II, Figs. 25, 29)

1852 *Tugali decussata* A. ADAMS, Proc. Zool. Soc. London, 19, p. 89.

1863 *Tugalia decussata* A. ADAMS, Thes. Conch., 3, p. 222, pl. 249, fig. 12.

1870 *Tugalia decussata* REEVE, Conch. Icon., 17, *Tugalia*, sp. 6.

1890 *Submarginula decussata* PILSBRY, Man. Conch., 12, p. 286, pl. 43, figs. 88.

1915 *Emarginula (Tugalia) decussata* THIELE, Conch. Cab., 2 (4a), p. 103, pl. 12, fig. 13.

1915 *Emarginula angustata* THIELE, l. c., p. 108, pl. 15, figs. 27, 28.

1951 *Tugali decussata* ls. TAKI, HIRASE's Handb. Illust. Shells, pl. 63, fig. 5.

Height 5.0 mm., length of aperture 13.3 mm., breadth of aperture 9.3 mm. (examined specimen collected from Shirahama, Wakayama Pref., Honshu).

Height 4.6 mm., length of aperture 14.3 mm., breadth of aperture 9.9 mm.
(figured specimen collected from the same).

Type locality: Philippine islands.

Distribution: Philippines; Kyushu; Shikoku and Honshu.

Tugali scutellaris A. ADAMS

(Pl. II, Fig. 1)

- 1852 *Tugali scutellaris* A. ADAMS, Proc. Zool. Soc. London, **19**, p. 89.
1863 *Tugalia scutellaris* A. ADAMS, Thes. Conch., **3**, p. 222, pl. 14, figs. 8, 9.
1870 *Tugalia scutellaris* REEVE, Conch. Icon., **17**, *Tugalia*, fig. 1.
1890 *Submarginula (Tugalia) scutellaris* PILSBRY, Man. Conch., **12**, p. 286, pl. 43,
figs. 81, 82.
1915 *Emarginula (Tugalia) scutellaris* THIELE, Conch. Cab., **2** (4a), p. 104, pl. 12, fig. 14.

Height 3.3 mm., length of aperture 14.8 mm., breadth of aperture 10.5 mm.
(figured specimen collected by Mr. A. TERAMACHI from Wakayama Pref., Honshu).

Type locality: Bais, Philippines.

Distribution: Philippines and Wakayama Pref., Honshu.

Tugali vadososinuata (YOKOYAMA)

(Pl. II, Figs. 35, 36)

- 1922 *Emarginula vadososinuata* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, **44** (1),
p. 117, pl. 6, fig. 5.
1939 *Tugalia vadososinuata* TIBA, Venus, **9**, p. 44 with textfig.

Height 35.5 mm., length of aperture 27.1 mm., breadth of aperture 12.9 mm.
(figured specimen collected from off Iwate Pref., Honshu by Mr. Ryosuke
KAWAMURA).

Type locality: Shito, Ichihara gun, Chiba Pref., Honshu. (fossil).

Distribution: Hokkaido and Northern Honshu.

Tugali (?) gigas (v. MARTENS)

(Pl. II, Figs. 34)

- 1881 *Submarginula gigas* v. MARTENS, Conch. Mittheil., **2**, p. 103, pl. 19.
1890 *Submarginula gigas* PILSBRY, Man. Conch., **12**, p. 286.
1915 *Emarginula (Tugalia) gigas* THIELE, Conch. Cab., **2** (4a), p. 101, pl. 12, figs. 81,
8-10.
1929 *Tugalia gigas* TOBA, Venus, **1** (5), p. 194.
1947 *Tugali gigas* HIRASE et KURODA, Illust. Encycl. Fauna Japan (rev. ed.), p. 1193,
fig. 3400.
1951 *Tugali gigas* Is. TAKI, HIRASE's Handb. Illust. Shells, pl. 63, fig. 4.

Height 25.6 mm., length of aperture 93 mm., breadth of aperture 58.4 mm., (examined specimen collected from Iwate Pref., Honshu).

Height 21.6 mm., length of aperture 86.5 mm., breadth of aperture 52.9 mm. (figured specimen collected from Iwate Pref., Honshu).

Type locality: Northern Honshu.

Distribution: Northern Honshu and Hokkaido.

Genus *Tugalina* HABE 1953

1953 *Tugalina* HABE, *Illust. Cat. Jap. Shells*, 23, p. 183.

Type species: *Tugalina radiata* HABE (monotypy).

Tugalina radiata HABE

(Pl. II, Fig. 2)

1953 *Tugalina radiata* HABE, *Illust. Cat. Jap. Shells*, 23, p. 183.

Height 1.7 mm., length of aperture 14.5 mm., breadth of aperture 10.2 mm. (figured type specimen).

Height 2.0 mm., length of aperture 10.5 mm., breadth of aperture 8.0 mm. (paratype specimen).

Type locality: Okinawa, Ryukyu group.

Genus *Montfortula* IREDALE 1915

1915 *Montfortula* IREDALE, *Trans. Proc. New Zealand Inst.*, 47, p. 433.

Type species: *Emarginula rugosa* QUOY et GAIMARD (original designation).

Montfortula pulchra (A. ADAMS)

(Pl. II, Fig. 7)

1852 *Emarginula pulchra* A. ADAMS, *Proc. Zool. Soc. London*, 19, p. 85.

1863 *Emarginula pulchra* A. ADAMS, *Thes. Conch.*, 3 p. 219, pl. 246, figs. 50, 51.

1860 *Emarginula picta* DUNKER, *Mal. Bl.*, 6 p. 226.

1861 *Emarginula picta* DUNKER, *Moll. Jap.*, p. 23, pl. 3, fig. 5.

1874 *Emarginula pulchra* SOWERBY, *Conch. Icon.*, 9, *Emarginula*, pl. 2, fig. 7.

1890 *Subemarginula pulchra* PILSBRY, *Man. Conch.*, 12, p. 282, pl. 28, fig. 28.

1916 *Clypidina pulchra* THIELE, *Conch. Cab.*, 2 (4a), p. 132, pl. 15, fig. 11.

1926 *Subemarginula cratitoides* YOKOYAMA, *Jour. Coll. Sci. Imp. Univ. Tokyo*, 45, p. 36, pl. 2, fig. 10.

1945 *Clypidina (Montfortula) pulchra* HABE, *Jap. Jour. Malac.*, 14, pl. 1, fig. 1.

1951 *Clypidina picta* IS. TAKI, HIRASE'S *Handb. Illust. Shells*, pl. 63, fig. 3.

Height 6.3 mm., length of aperture 13 mm., breadth of aperture 9.6 mm.
(figured specimen collected from Shirahama, Wakayama Pref., Honshu).

Height 8.1 mm., length of aperture 13.4 mm., breadth of aperture 9.6 mm.
(examined specimen collected from Kochi Perf., Shikoku).

Type locality: Isle of Camaguan, Philippines (on exposed rocks, lower water).

Distribution: Philippines; Kyushu; Shikoku and Honshu.

Montfortula (pulchra var.) polygonalis (A. ADAMS)

(Pl. II, Figs. 8, 9)

- 1952 *Emarginula polygonalis* A. ADAMS, Proc. Zool. Soc. London, 19, p. 91.
1862 *Emarginula (Clypidina) textilis* GOULD, Proc. Boston Soc. Nat. Hist., 7, p. 163.
1863 *Emarginula polygonalis* A. ADAMS, Thes. Conch., 3, p. 217, pl. 247, fig. 78; pl. 248, fig. 90.
1873 *Emarginula polygonalis* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 2, fig. 6.
1890 *Subemarginula (Clypidina) polygonalis* PILSBRY, Man. Conch., 12, p. 281, pl. 29, figs. 34, 35.
1916 *Hemitoma polygonalis* THIELE, Conch. Cab., 2 (4a), p. 117, pl. 15, fig. 5.

Height 7.3 mm., length of aperture 13.2 mm., breadth of aperture 9.6 mm.
(figured specimen collected from Tokunoshima, Amami group).

Type locality: Catanuan, Philippines.

Distribution: Philippines, Ryukyu and Amami groups.

Genus *Montfortia* RÉCLUZ 1843

- 1843 *Montfortia* RÉCLUZ, Rev. Zool., p. 259.

Type species: *Emarginula australis* QUOY et GAIMARD (designated by Iredale 1915).

Montfortia oldhamiana (NEVILL)

(Pl. II, Figs. 18, 19)

- 1869 *Emarginula oldhamiana* NEVILL, Jour. Asist. Soc. Bengal, 38, p. 162, pl. 17, fig. 17.
1873 *Emarginula oldhamiana* SOWERBY, Conch. Icon., 19, *Emarginula*, fig. 69.
1890 *Subemarginula oldhamiana* PILSBRY, Man. Conch., 12, p. 277, pl. 41, figs. 32, 33.
1916 *Hemitoma oldhamiana* THIELE, Conch. Icon., 2 (4a), p. 117, pl. 13, fig. 18.

Height 8.7 mm., length of aperture 14 mm., breadth of aperture 9.5 mm.
(figured specimen collected from Shirahama, Wakayama Pref., Honshu).

Type locality: Ceylon.

Distribution: Ceylon and Wakayama Pref., Honshu.

Subgenus *Montfortista* IREDALE 1919

1929 *Montfortista* IREDALE, Mem. Queensland Mus., 9 (3), p. 269.

Type species: *Montfortia excentrica* IREDALE (original designation).

Montfortia (*Montfortista*) *panhi* (QUOY et GAIMARD)

(Pl. II, Figs. 27, 28)

- 1834 *Emarginula panhi* QUOY et GAIMARD, Voy. de l' Astrol., p. 327, pl. 68, figs. 7, 8.
 1850 *Emarginula clathrata* A. ADAMS et REEVE, Voy. Samarang, Moll., p. 69, pl. 11, fig. 6.
 1852 *Subemarginula panhiensis* ADAMS, Proc. Zool. Soc. London, 19, p. 90.
 1863 *Emarginula panhiensis* SOWERBY, Thes. Conch., 3, p. 218, pl. 247, figs. 73, 74, 75.
 1873 *Emarginula panhiensis* SOWERBY, Conch. Icon., 19, *Emarginula*, pl. 6, fig. 43.
 1890 *Emarginula tricarinata* PILSBRY, Man. Conch., 12, p. 277, pl. 29, figs. 73-79.
 1916 *Hemitoma panhiensis* THIELE, Conch. Cab., 2 (4a), p. 116, pl. 13, figs. 12, 13.
 1947 *Hemitoma* (*Montfortista*) *panhi* HIRASE et KURODA, Illust. Encycl. Fauna Japan (rev. ed), p. 1194, fig. 3402.
 1951 *Hemitoma panhi* Is. TAKI, HIRASE's Handb. Illust. Shells, pl. 63, fig. 2.

Height 11.4 mm., length of aperture 18.3 mm., breadth of aperture 13 mm. (the largest examined specimen collected from Ryukyu group by Mr. A. TERAMACHI).

Height 9.8 mm., length of aperture 16.1 mm., breadth of aperture 8.7 mm. (examined specimen from the same locality).

Height 8.4 mm., length of aperture 14.6 mm., breadth of aperture 8.5 mm. (figured specimen from the same locality).

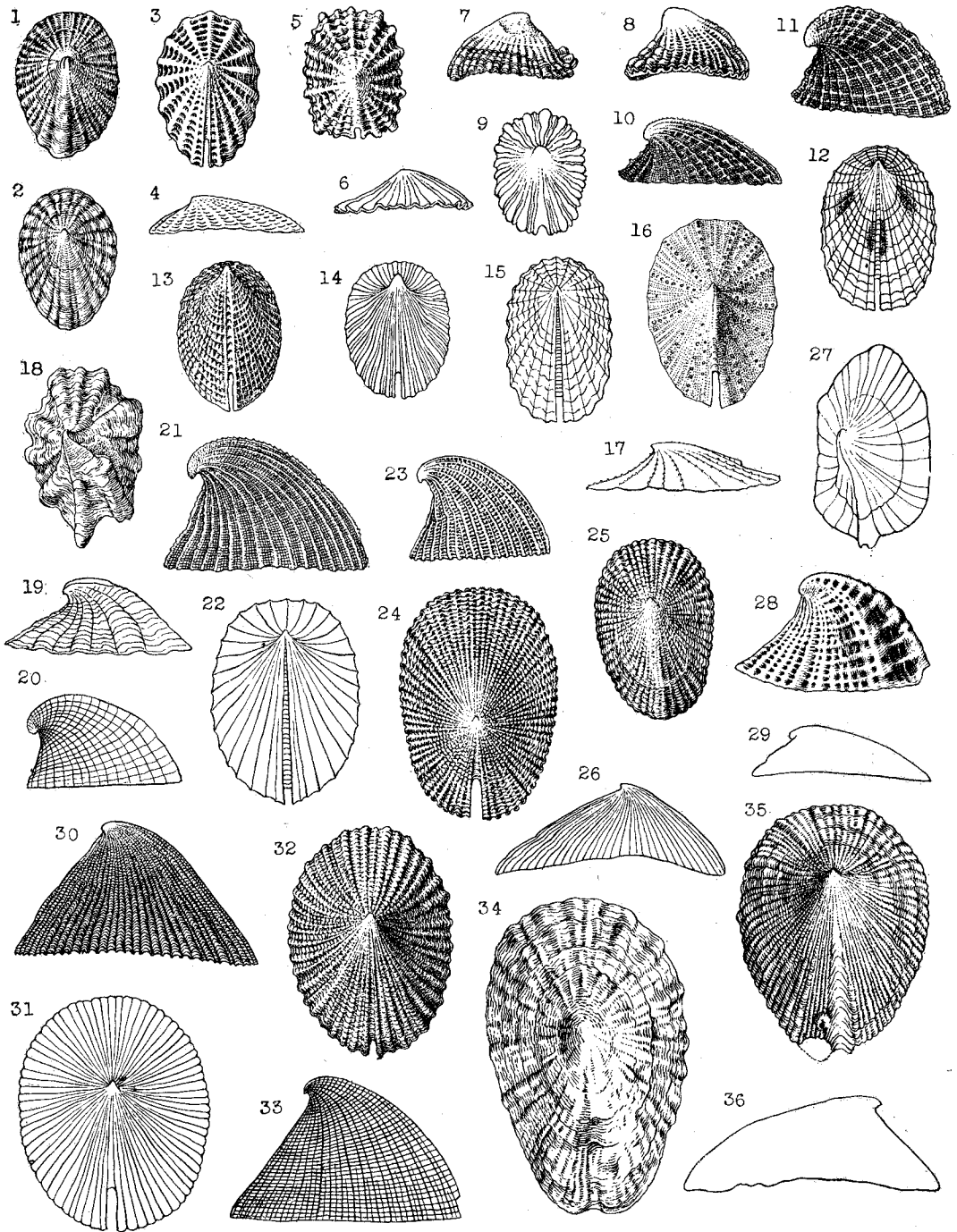
Type locality: Tonga Tabu, South Pacific Ocean.

Distribution: Tonga Tabu; Palao Island; Philippines; Ryukyu and Amami groups.

EXPLANATION OF PLATE II

(all figures unequally magnified)

- Fig. 1. *Tugali scutellaris* A. ADAMS.
2. *Tugalina radiata* HABE.
3, 4. *Emarginella eximia* (A. ADAMS).
5, 6. *Emarginella okinawaensis* n. sp. (type specimen).
7. *Montfortula pulchra* (A. ADAMS).
8, 9. *Montfortula (pulchra var.) polygonalis* (A. ADAMS).
10, 15. *Emarginula concinna* A. ADAMS.
11, 12. *Emarginula compta* n. sp. (type specimen).
13, 20. *Emarginula hataii* n. sp. (type specimen).
14, 23. *Emarginula teramachii* n. sp. (type specimen).
16, 17. *Laeviemarginula membranacea* HABE (type specimen).
18, 19. *Montfortia oldhamiana* (NEVILL).
21, 22. *Emarginula fragilis* (YOKOYAMA).
24, 25. *Emarginella planulata* (A. ADAMS).
25, 29. *Tugali decussata* (A. ADAMS).
27, 28. *Montfortia (Montfortista) panhi* (QUOY et GAIMARD).
30, 31. *Emarginula regia* n. sp. (type specimen).
32, 33. *Emarginula fujitai* n. sp. (type specimen).
34. *Tugali (?) gigas* (v. MARTENS).
35, 36. *Tugali vadososinuata* (YOKOYAMA).



T. HABE: FISSURELLIDAE IN JAPAN (2).