



TITLE:

REPORT ON THE MOLLUSCA CHIEFLY
COLLECTED BY THE S. S. SOYO-MARU OF
THE IMPERIAL FISHERIES EXPERIMENTAL
STATION ON THE CONTINENTAL SHELF
BORDERING JAPAN DURING THE YEARS
1922-1930 -PART1. CEPHALASPIDEA-

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REPORT ON THE MOLLUSCA CHIEFLY COLLECTED BY THE
S. S. SÔYÔ-MARU OF THE IMPERIAL FISHERIES
EXPERIMENTAL STATION ON THE CONTINENTAL SHELF
BORDERING JAPAN DURING THE YEARS 1922-1930

PART 1. CEPHALASPIDEA*

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With Plate XXXVIII

Numerous specimens of molluscan shells were collected from the surrounding seas of Japan by the S. S. Sôyô-maru of the Imperial Fisheries Experimental Station (now the Tokai Regional Fisheries Research Laboratory) and other ships during the years 1922-1930, but they have never been reported completely till now. The materials are deposited in various museums, such as the Saitô Hô-on Kai Museum at Sendai, the Geological Institute of Tokyo University and the Zoological Institute of Kyoto University.

As far as I am aware, the 22 species have hitherto been described as new species in various Japanese journals, based on this collection. They are:

Nucula cyrenoides KURODA, 1929 (Nuculidae)¹⁾; *Ancistrolepis fujitai* KURODA, 1931 (Buccinidae)²⁾; *Dentalium marukawai* OTUKA, 1933 (Dentaliidae)³⁾; *Calliostoma (Tristichotrochus) soyoae* IKEBE, 1942 (Trochidae)⁴⁾; *Myadora soyoae* HABE, 1950 (Myochamidae)⁵⁾; *Myadora japonica* HABE, 1950 (Myochamidae)⁶⁾; *Schizotrochus soyoae* HABE, 1951 (Scissurellidae)⁷⁾; *Fissurisepta soyoae* HABE, 1951 (Fissurellidae)⁸⁾; *Turritella andenensis tsushimaensis* KOTAKA, 1951 (Turritellidae)⁹⁾; *Laevicirce soyoae* HABE, 1951 (Veneridae)¹⁰⁾; *Poromya castanea* HABE, 1952 (Poromyidae)¹¹⁾; *Dermatomya tenuiconcha soyoae* HABE, 1952 (Poromyidae)¹²⁾; *Cetoconcha japonica* HABE, 1952

1) Venus, 1(3), App. p. 7; 2) *l. c.*, 2(5), p. 223; 3) *l. c.*, 4(3), p. 159; 4) Jap. Jour. Geol. Geogr., 18(4), p. 260; 5) Illust. Cat. Jap. Shells, 4, p. 25; 6) *l. c.*, 4, p. 27; 7) *l. c.*, 11, p. 66; 8) *l. c.*, 18, p. 116; 9) Short Paper IGPS, 3, p. 81; 10) Genera Jap. Shells, 2, p. 160; 11) Illust. Cat. Jap. Shells, 21, p. 156; 12) *l. c.*, 21, p. 158.

* Contributions from the Seto Marine Biological Laboratory, No. 223.

(Poromyidae)¹³); *Divalucina soyoae* HABE, 1952 (Lucinidae)¹⁴); *Eoscaplander fragilis* HABE, 1952 (Triclididae)¹⁵); *Tindaria soyoae* HABE, 1953 (Mallettiidae)¹⁶); *Limopsis soyoae* HABE, 1953 (Limopsidae)¹⁷); *Notomyrtea soyoae* HABE, 1953 (Lucinidae)¹⁸); *Trophonopsis delicatus* KURODA, 1953 (Muricidae)¹⁹); *Trophonopsis polycyma* KURODA, 1953 (Muricidae)²⁰); *Trophonopsis crystallinus* KURODA, 1953 (Muricidae)²¹); *Limopsis crassula* HABE, 1953 (Limopsidae)²²).

In this first report the Cephalaspid group of Opisthobranchiate molluscs is dealt with by the writer. Thirty seven species belonging to this group were obtained from 63 stations in all (see Appendix). Of these four species and one subspecies are new to science.

My hearty thanks are due to Dr. Denzaburo MIYADI and Dr. Tokubei KURODA for their kind direction and encouragement in the course of this study.

Class GASTROPODA

Subclass OPISTHOBRANCHIA

Order TECTIBRANCHIA

Superfamily Cephalaspidea

Family Pupidae

Genus *Pupa* RÖDING 1798

1. *Pupa strigosa* (GOULD)

(Pl. XXXVIII, Fig. 25)

1859 *Buccinulus strigosus* GOULD, Proc. Boston Soc. Nat. Hist., 7, p. 141.

1871 *Tornatella strigosa* LISCHKE, Jap. Meer. Conchyl., 2, p. 104, pl. 5, figs. 12, 13.

1882 *Buccinulus fraterculus* DUNKER, Index Moll. Mar. Japan, p. 161, pl. 13 figs. 21-23.

Locality: St. 433, Off Goto Islands, Kyushu, 168 m.

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

Remarks: This is one of the commonest species in the shallow water.

Genus *Acteon* MONTFORT 1810

2. *Acteon siebaldii* (REEVE)

(Pl. XXXVIII, Fig. 26)

1842 *Tornatella siebaldii* REEVE, Proc. Zool. Soc. London, p. 61.

1865 *Tornatella siebaldii* REEVE, Conch. Icon., sp. 11.

13) *l. c.*, 21, p. 159; 14) *l. c.*, 21, p. 160; 15) *Venus*, 17(2), p. 76; 16) *l. c.*, 17(3), p. 136; 17) *l. c.*, 17(3), p. 137; 18) *l. c.*, 17(3), p. 138; 19) *l. c.*, 17(4), p. 186; 20) *l. c.*, 17(4), p. 187; 21) *l. c.*, 17(4), p. 188; 22) *Illust. Cat. Jap. Shells*, 25, p. 202.

Localities: St. 252, Sagami Bay, Honshu, 289 m; St. 259, Suruga Bay, Honshu, 188 m; St. 286, Enshu-nada, Honshu, 123 m.

Distribution: Honshu.

3. *Acteon kawamurai* HABE

(Pl. XXXVIII, Fig. 5)

1952 *Acteon kawamurai* HABE, Jap. Jour. Malac. (Venus), 17, pp. 70, 76, textfig. 1

Locality: St. 431, SW of Nagasaki, Kyushu, 152 m.

Distribution: Honshu (Sagami Bay) and Kyushu.

Family Ringiculidae

Genus *Ringicula* DESHAYES 1838

4. *Ringicula niinoi* NOMURA

1939 *Ringicula niinoi* NOMURA, Jap. Jour. Geol. Geogr., 16, p. 14, pl. 2, figs. 15a, b.

Localities: St. 252, Sagami Bay, 289 m; St. 255, Off Izu Peninsula, 263 m; St. 417, Off Satsuma Peninsula, Kyushu, 192 m; St. 484, Off Aburadani Bay, Yamaguchi Pref., Honshu, 93 m; St. 488, NW of Shimane Peninsula, Honshu, 406 m; St. 503, Off Oki Islands in the Japan Sea, 146 m; St. 520, Off Shimane Peninsula, Honshu, 75 m.

Distribution: Kyushu; Shikoku and Honshu.

Subgenus *Ringiculina* MONTEROSATO 1884

5. *Ringicula (Ringiculina) pilula* HABE

(Pl. XXXVIII, Fig. 3)

1950 *Ringicula (Ringiculina) pilula* HABE, Illust. Cat. Jap. Shells, 2, p. 10, pl. 2, fig. 11.

Localities: St. 203, Kumano-nada, Honshu, 249 m; St. 205, Kumano-nada, 224 m; St. 255, Off Shimoda, Izu Peninsula, 263 m; St. 331, Off Cape Ashizuri, Shikoku, 344 m.

Distribution: Shikoku and Honshu (Pacific side).

6. *Ringicula (Ringiculina) teramachii* HABE

1950 *Ringicula (Ringiculina) teramachii* HABE, Illust. Cat. Jap. Shells, 2, p. 9, pl. 2, fig. 6.

Locality: St. 221, Tosa Bay, Shikoku, 209 m.

Distribution: Shikoku.

7. *Ringicula (Ringiculina) yokoyamai* TAKEYAMA

1935 *Ringicula (Ringiculella) yokoyamai* TAKEYAMA, Venus, 5, p. 74, pl. 5, figs. 19, 20 and

pl. 6, figs. 21-25.

Localities: St. 432, West of Nagasaki, Kyushu, 148 m; St. 433, West of Nagasaki, 168 m; St. 459, West of Tsushima, between Kyushu and Korea, 115 m.

Remarks: Only dead specimens have been collected at the three stations, but they do not seem to be recent form but a fossil one. This species is very common in the deposits of Pliocene and Pleistocene of Japan.

Family Hydatinidae

Genus *Bullina* FERUSSAC 1822

8. *Bullina nobilis* HABE

(Pl. XXXVIII, Fig. 32)

1950 *Bullina nobilis* HABE, *Illust. Cat. Jap. Shells*, **3**, p. 19, pl. 3, fig. 11.

Locality: St 247, Off Atami, Sagami Bay, 159-128 m.

Distribution: Kyushu; Shikoku and Honshu.

Remarks: The specimen from St. 247 was erroneously recorded as *Bullina virgo* HABE by the writer (1950).

Family Atyidae

Genus *Limulatys* IREDALE 1936

9. *Limulatys angustatus* (GOULD)

(Pl. XXXVIII, Fig. 22)

1859 *Haminea angustata* GOULD, *Proc. Boston Soc. Nat. Hist.*, **7**, p. 139.

1952 *Limulatys angustatus* HABE, *Illust. Cat. Jap. Shells*, **20**, p. 140, pl. 21, fig. 21.

Locality: St. 4, Off Katsuura, Bôso Peninsula, 287 m.

Distribution: Kyushu and Honshu.

Genus *Liloa* PILSBRY 1921

10. *Liloa porcellana* (GOULD)

1859 *Atys porcellana* GOULD, *Proc. Boston Soc. Nat. Hist.*, **7**, p. 138.

1882 *Cylichna semisulcata* DUNKER, *Index Moll. Mar. Japon.*, p. 163, pl. 13, figs. 7-9.

1928 *Cylichna incisula* YOKOYAMA, *Imp. Geol. Surv. Japan, Rep. No. 101*, p. 122, pl. 19, fig. 1.

Locality: St. 4, Off Katsuura, Bôso Peninsula, 287 m.

Distribution: Kyushu; Shikoku and Honshu.

Family Retusidae

Genus *Retusa* BROWN 1827

Subgenus *Coelophysis* FISCHER 1883

11. *Retusa (Coelophysis) minima* YAMAKAWA

(Pl. XXXVIII, Fig. 19)

1911 *Retusa minima* YAMAKAWA, Jour. Geol. Soc. Tokyo, 18, p. 47, pl. 11, figs. 21-24.

Localities: St. 4, Off Katsuura, Bôso Peninsula, 287 m; St. 326, Off Cape Ashizuri, Shikoku, 393 m; St. 520, Off Shimane Peninsula, Honshu, 75 m.

Distribution: North China; Kyushu; Shikoku and Honshu.

12. *Retusa (Coelophysis) succincta* (A. ADAMS)

1862 *Tornatina succincta* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9(50), p. 154.

1927 *Retusa cucurbitina* YOKOYAMA, Jour. Fac. Sci. Imp. Univ. Tokyo, (2) 1 (10), p. 449, pl. 51, fig. 4.

1939 *Retusa perucurbitina* NOMURA, Jap. Jour. Geol. Geogr., 16(1-2), p. 25, pl. 2, figs. 2a, b.

Locality: St. 477, Off Fusan, Korea, 99 m.

Distribution: Kyushu; Shikoku and Honshu.

Genus *Pyrunculus* PILSBRY 1894

13. *Pyrunculus obesus* HABE

(Pl. XXXVIII, Fig. 6)

1950 *Pyrunculus obesus* HABE, Illust. Cat. Jap. Shells, 2, p. 13, pl. 2, fig. 12.

Localities: St. 352, Off Tanabe, Wakayama Pref., Honshu, 154 m; St. 432, West of Nagasaki, Kyushu, 148 m; St. 433, South of Goto Islands, Kyushu, 168 m.

Distribution: Kyushu; Shikoku and Honshu.

Remarks: This species stands close to *Pyrunculus pyriformis* (A. ADAMS) from China, but does not constrict so strongly below the vertex and lacks the transverse striations at the upper and lower parts of the shell.

14. *Pyrunculus phialus* (A. ADAMS)

(Pl. XXXVIII, Fig. 7)

1862 *Atys (Sao) phiala* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9 (50), p. 160.

1911 *Cylichna sibaensis* YAMAKAWA, Jour. Geol. Soc. Tokyo, 18, p. 39, pl. 11, figs. 25-29.

Localities: St. 4, Off Katsuura, Bôso Peninsula, 287 m; St. 212, Off Tanabe Bay, Wakayama Pref., Honshu, 181 m; St. 363, Kumano-nada, 439 m; St. 417, Off Makurazaki, Kagoshima Pref., Kyushu, 192 m; St. 471, Off Aburadani Bay, Yamaguchi Pref.,

Honshu, 90 m; St. 483, North of Aburadani Bay, 130 m; St. 484, Off Aburadani Bay, 93 m; St. 488, North of Misima, Yamaguchi Pref., Honshu, 406 m; St. 503, Off Oki Islands in the Japan Sea, 146 m; St. 520, Off Shimane Peninsula, Honshu, 75 m.

Distribution: China; Kyushu; Shikoku and Honshu.

Genus *Volvulella* NEWTON 1891

15. *Volvulella tokunagai* MAKIYAMA

1927 *Volvulella acuminata tokunagai* MAKIYAMA, Mem. Coll. Sci. Kyoto Imp. Univ., (B) 3, p. 141.

1946 *Rhizorus tokunagai* HABE, Jap. Jour. Malac., 14 (5-8), p. 185, fig. 5.

Locality: St. 395, Off Tanabe Bay, Wakayama Pref., Honshu, 46 m.

Distribution: Honshu.

16. *Volvulella ovulina* (A. ADAMS)

(Pl. XXXVIII, Fig. 30)

1862 *Volvula ovulina* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9 (50), p. 156.

1875 *Volvula angustata* SMITH, l. c., (4) 16, p. 144 (non A. ADAMS, 1850).

1922 *Volvula acutaeformis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44 (1), p. 26, pl. 1, fig. 9.

Localities: St. 211, Off Tanabe Bay, Honshu, 190 m; St. 212, Off Tanabe Bay, 181 m; St. 259, West of Izu Peninsula, 188 m; St. 326, Off Okinoshima, Shikoku, 390 m; St. 371, Off Atsumi Peninsula, Honshu, 84 m; St. 468, East of Tsushima between Kyushu and Korea, 112 m; St. 471, West of Aburadani Bay, Yamaguchi Pref., Honshu, 90 m; St. 480, East of Fusan, Korea, 280 m; St. 483, North of Aburadani Bay, 130 m; St. 484, Off Aburadani Bay, 93 m; St. 486, North of Mishima in Japan Sea, 139 m; St. 488, North of Mishima, 406 m; St. 491, North of Mishima, 112 m; St. 493, Off Hamada, Shimane Pref., Honshu, 124 m.

Distribution: According to the sketch of the type specimen of this species made by Dr. Jiro MAKIYAMA, the shell deposited in the British Museum (Natural History) shows that *Volvula ovulina* A. ADAMS is identical with *V. acutaeformis* YOKOYAMA.

17. *Volvulella radiola* (A. ADAMS)

1862 *Volvula radiola* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9, p. 155.

1920 *Volvula acuminata* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39 (6), p. 26, pl. 1, fig. 2.

1939 *Rhizorus aomoriensis* NOMURA, Jap. Jour. Geol. Geogr., 16 (1-2), p. 26, pl. 1, figs. 9a, b.

Locality: St. 493, Off Hamada, Shimane Pref., Honshu, 124 m.

Distribution: Honshu.

18. *Volvulella kinokuniana* (HABE)

1946 *Rhizorus kinokunianus* HABE, Jap. Jour. Malac., 14 (5-8), p. 186.

Locality: St. 503, Off Oki Islands in Japan Sea, 146 m.

Distribution: Honshu and Shikoku.

Family Triclididae

Genus *Eoscapander* HABE 1952

19. *Eoscapander fragilis* HABE

(Pl. XXXVIII, Fig. 28)

1952 *Eoscapander fragilis* HABE, Jap. Jour. Malac. (Venus), 17, pp. 75, 76, textfigs. 7, 8.

Locality: St. 15, Off Inubôzaki, Honshu, 216 m.

Distribution: The Pacific coast of northern Honshu.

Genus *Bucconia* DALL 1890

20. *Bucconia teramachii* n. sp.

(Pl. XXXVIII, Figs. 1, 2)

Description: Shell rather small for the genus, thin, dull white, swollen, broadly ovate, narrowed on both ends: spire concealed; vertex concave, but not perforated; body whorl sculptured with many spiral grooves which are very distinctly punctulate; aperture dilate, narrowed posteriorly; upper margin extending beyond the apex in the form of an obtuse process; outer margin regularly arcuate; basal margin rounded; columellar margin somewhat thickened and arcuate; umbilical slit present.

Length 9.0 mm, breadth 5.9 mm (figured type specimen collected from Tosa Bay, Shikoku by Mr. Akibumi TERAMACHI and deposited in the Zoological Institute, Kyoto University).

Locality: St. 255, East of Izu Peninsula, 263 m.

Distribution: Shikoku and Honshu.

Remarks: The nearest ally of this new species is *Bucconia attenuata* (SCHEPMAN) from East Indies which has a larger and more attenuated shell. The aperture of the latter is more dilate anteriorly.

21. *Bucconia japonica* (A. ADAMS)

(Pl. XXXVIII, Figs. 20, 21)

1862 *Scaphander japonica* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9, p. 156.

Localities: St. 300, Off Toizaki, Kyushu, 110 m; St. 417, Off Makurazaki, Kyushu,

110 m; St. 488, North of Mishima in the Japan Sea, 406 m.

Distribution: Kyushu; Shikoku and Honshu.

Remarks: So far as we concerned, this is the first time to figure this species.

22. *Bucconia cumingii* (A. ADAMS)

(Pl. XXXVIII, Fig. 31)

1862 *Scaphander cumingii* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9, p. 156.

Localities: St. 259, West of Izu Peninsula, 188 m; St. 325, Off Sukumo, Shikoku, 210 m.

Distribution: Shikoku and Honshu.

23. *Bucconia cumingii ventricosa* n. subsp.

(Pl. XXXVIII, Figs. 17, 18)

Description: Shell similar to the preceding species in the sculpture, but is differing in proportionally more ventricose shape and is not distinctly constricted posteriorly.

Length 7.5 mm, breadth 4.0 mm (figured type specimen collected from the Tosa Bay by Mr. Akibumi TERAMACHI and deposited in his collection).

Localities: St. 2, Off Nojimizaki, Bôso Peninsula, 176 m; St. 259, West of Izu Peninsula, 188 m.

Distribution: Shikoku and Honshu.

Genus *Abderospira* DALL 1895

24. *Abderospira punctulata* (A. ADAMS)

(Pl. XXXVIII, Fig. 24)

1862 *Roxania punctulata* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9, p. 158.

1922 *Bulla multiarata* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44, p. 29, pl. 1, fig. 14.

Locality: St. 221, Tosa Bay, 209 m.

Distribution: Shikoku and Honshu.

Genus *Adamnestia* IREDALE 1936

25. *Adamnestia japonica* (A. ADAMS)

(Pl. XXXVIII, Fig. 23)

1862 *Cylichna japonica* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9, p. 150.

1920 *Cylichna musashiensis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39, p. 27, pl. 1, fig. 4 (non TOKUNAGA, 1906).

Localities: St. 251, Off Itô, Sagami Bay, 165 m; St. 433, South of Goto Islands 168 m; St. 439, Off Danjo Islands, Kyushu, 155 m; St. 466, Between Iki and Tsushima, 110 m; St. 468, East of Tsushima, 112 m; St. 484, Off Aburadani Bay, Yamaguchi Pref., Honshu, 93 m; St. 488, North of Mishima in Japan Sea, 406 m; St. 493, Off Hamada, Shimane Pref., Honshu, 124 m; St. 494, Off Hamada, 110 m; St. 495, West of Shimane Peninsula, 146 m.

Distribution: Kyushu; Shikoku and Honshu.

26. *Adamnestia tosaensis* n. sp.

(Pl. XXXVIII, Figs. 11, 12)

Remarks: This new species closely resembles *A. japonica*, but it is distinguished by its somewhat smaller and regularly cylindrical shell which is provided with a distinct umbilicus.

Length 9.3 mm, breadth 3.6 mm (figured type specimen collected from Tosa Bay, Shikoku by Mr. Akibumi TERAMACHI and deposited in his collection).

Localities: St. 211 and 212, Off Tanabe Bay, Wakayama Pref., Honshu, 190 m and 181 m; St. 220 and 221, Tosa Bay, 234 m and 209 m; St. 259, West of Izu Peninsula, 188 m; St. 279, Senoumi, Suruga Bay, 155 m; St. 304, Off Toizaki, Kyushu, 241 m; St. 311, Off Miyazaki, Hyuga-nada, 165 m; St. 325, Off Sukumo, Shikoku, 210 m; St. 331, Off Ashizurizaki, Shikoku, 344 m; St. 352, West of Goto Islands, 154 m; St. 431, South-west of Nagasaki, Kyushu, 152 m; St. 439, Off Danjo Islands, Kyushu, 155 m; St. 444, South of Goto Island, 194 m; St. 452, West of Goto Islands, 154 m; St. 470, Off Hakata Bay, Kyushu, 73 m; St. 471, West of Aburadani Bay, Yamaguchi Pref., Honshu, 90 m; St. 477, Between Tsushima and Fusan, Korea, 99 m; St. 491, North of Mishima in Japan Sea, 112 m.

Distribution: Kyushu; Shikoku and Honshu.

27. *Adamnestia teramachii* n. sp.

(Pl. XXXVIII, Figs. 9, 10)

Description: Shell cylindrical, thin, covered with a yellowish periostracum; spire convolute; vertex deeply perforated; surface polished, weakly marked with numerous minute and densely set spiral striations throughout; aperture narrow, slightly widened below; upper margin somewhat produced posteriorly beyond the apex; outer margin straight; basal margin rounded; columellar margin oblique, thickened, forming a weak fold; umbilicus open, partly covered by the dilation of the columellar margin.

Length 4.7 mm, breadth 2.3 mm (figured type specimen collected from the Tosa Bay, Shikoku by Mr. Akibumi TERAMACHI and deposited in his collection).

Locality: St. 259, West of Izu Peninsula, 188 m.

Distribution: Shikoku and Honshu.

Remarks: This is the smallest species of this genus known from Japan and characterized by its sculpture consisting of numerous minute striations all over the surface which are not strengthened even at the terminal areas.

Genus *Eocylichna* KURODA et HABE 1952

28. *Eocylichna musashiensis* (TOKUNAGA)

(Pl. XXXVIII, Figs. 13, 14)

1906 *Cylichna musashiensis* TOKUNAGA, Jour. Coll. Imp. Univ. Tokyo, 21, p. 32, pl. 2, fig. 12.

Localities: St. 490, North of Mishima in Japan Sea, 155 m; St. 493 and 494, Off Hamada, Shimane Pref., Honshu, 124 m and 110 m; St. 549, Urashimasyo, Wakasa Bay, 115 m.

Distribution: Kyushu; Shikoku and Honshu.

29. *Eocylichna soyoae* n. sp.

(Pl. XXXVIII, Figs. 15, 16)

Description: Shell dull white, rather solid, cylindric ovate, slightly attenuated above, spire convolute; vertex broadly truncated and deeply excavated forming an angle at the border; surface sculptured with the numerous minute spiral striations throughout; aperture narrow, widened below; upper margin produced upwardly forming an angle at the top; outer margin rather straight, basal margin rounded; columellar margin short and thickened, provided by an obtuse fold at the middle; umbilical chink narrow.

Length 6.2 mm, breadth 3.0 mm (figured type specimen collected from Tosa Bay by Mr. Akibumi TERAMACHI and deposited in his collection).

Localities: St. 4, Off Katsuura, Bôso Peninsula, 287 m; St. 12, Off Irubôzaki, 325 m; St. 199, Off Nakirizaki, Shima Peninsula, Honshu, 207 m; St. 205, Off Kinomoto, Kumano-nada, Honshu, 224 m; St. 207, Off Shionomisaki, Kii Peninsula, 229 m; St. 212, Off Tanabe, Wakayama Pref., Honshu, 181 m; St. 221 and St. 240, Tosa Bay, 209 m and 192 m; St. 255, East of Izu Peninsula, 263 m; St. 259, West of Izu Peninsula, 188 m; St. 295, North of Tanegashima, South of Kyushu, 154 m; St. 300, Off Toizaki, Kyushu, 110 m; St. 326, Off Okinoshima, Shikoku, 393 m; St. 347, Off Kannoura, Shikoku, 126 m; St. 363, Off Owase, Kumano-nada, 439 m; St. 417, Off

Makurazaki, Kyushu, 192 m; St. 432, West of Nagasaki, Kyushu, 148 m; St. 433, South of Goto Islands, Kyushu, 168 m; St. 451 and 452, West of Goto Islands, 187 m and 154 m; St. 468, East of Tsushima, 112 m; St. 470, Off Hakata Bay, Kyushu, 73 m; St. 477, Off Fusan, Korea, 99 m; St. 488, Mishima in Japan Sea, 406 m; St. 493, Off Hamada, Shimane Pref., Honshu, 124 m; St. 495, West of Shimane Peninsula, 146 m; St. 504, Off Oki Islands in Japan Sea, 106 m; St. 546, Off Tsuruga, Wakasa Bay, 101 m.

Distribution: Kyushu; Shikoku and Honshu.

Genus *Cylichna* LOVÉN 1847

30. *Cylichna consobrina* (GOULD)

(Pl. XXXVIII, Fig. 29)

1859 *Cylichna consobrina* GOULD, Proc. Boston Soc. Nat. Hist., 7, p. 141.

1875 *Haminea grisea* SMITH, Ann. Mag. Nat. Hist., (4) 16, p. 118.

Locality: St. 490, Off Hamada, Shimane Pref., Honshu, 155 m.

Distribution: Hokkaido and Honshu.

31. *Cylichna nipponensis* NOMURA et HATAI

1940 *Cylichna nipponensis* NOMURA et HATAI, Saitô Hô-on Kai Museum, Res. Bull., 19, p. 72, pl. 3, figs. 8a, b.

Localities: St. 652, Off Matsumae, Southern Hokkaido, 110 m; St. 658, Off Shiriyazaki, Northernmost of Honshu, 113 m.

Distribution: Northern Honshu and Hokkaido.

Genus *Acteocina* GRAY 1847

Subgenus *Tornatina* A. ADAMS 1850

32. *Acteocina (Tornatina) exilis* (DUNKER)

1860 *Bulla exilis* DUNKER, Malak. Bl., 6, p. 222.

1864 *Tornatina exilis* DUNKER, Moll. Jap., p. 25, pl. 2, fig. 14.

Locality: St. 4, Off Katsuura, Bôshû Peninsula, 287 m.

Distribution: Amami group; Kyushu; Shikoku and Honshu.

Subgenus *Truncacteocina* HABE MS.

33. *Acteocina (Truncacteocina) oyamai* HABE MS.

1954 *Acteocina (Truncacteocina) oyamai* HABE, Bull. Biogeogr. Soc. Japan. (in press).

Localities: St. 452, West of Goto Islands, Kyushu, 154 m; St. 493, Off Hamada,

Shimane Pref., Honshu, 124 m.

Distribution: Kyushu; Shikoku and Honshu.

Genus *Decolifer* IREDALE 1937

34. *Decolifer longispirata* (YAMAKAWA)

1911 *Tornatina longispirata* YAMAKAWA, Jour. Geol. Soc. Tokyo, 18, p. 41, pl. 10, figs. 8-10.

Locality: St. 520, Off Shimane Peninsula, Honshu, 75 m.

Distribution: Honshu.

Family Philinidae

Genus *Philine* ASCANIUS 1772

35. *Philine japonica* LISCHKE

(Pl. XXXVIII, Fig. 4)

1874 *Philine japonica* LISCHKE, Malak. Bl., 19, p. 105.

1874 *Philine japonica* LISCHKE, Jap. Meer. Conchyl., 3, p. 77, pl. 5, figs. 13, 14.

1874 *Philine striatella* TAPPARONE-CANEFRI, Zool. Viaggio Globo R. Fregata Magenta, Malac., p. 109, pl. 2, fig. 9.

1922 *Philine pygmaea* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44, p. 28, pl. 1, fig. 13.

Locality: St. 298, Off Shibushi Bay, Kyushu, 117 m.

Distribution: Kyushu; Shikoku and Honshu.

36. *Philine kurodai* HABE

(Pl. XXXVIII, Fig. 27)

1946 *Philine kurodai* HABE, Jap. Jour. Malac., 14, p. 188, figs. 1, 2.

Localities: St. 12, Off Inubōzaki, Honshu, 325 m; St. 483, North of Aburadani Bay, Yamaguchi Pref., Honshu, 130 m.

Distribution: Shikoku and Honshu.

37. *Philine scalpta* A. ADAMS

(Pl. XXXVIII, Fig. 8)

1862 *Philine scalpta* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9 (50), p. 160.

1945 *Philine miyadaii* HABE, Jap. Jour. Malac., 14, p. 189.

Locality: St. 488, North of Mishima in Japan Sea, 406 m.

Distribution: Kyushu, Shikoku and Honshu.

Appendix

Detailed dredging and hydrographic records relative to the survey of the S. S. Sôyô-maru and other ships were published in the following three reports: Annotation of the Oceanographical Research, Vol. 3, No. 1, pp. 1-13, pls. 1-2 (1925), *Ibid.*, Vol. 3, No. 2, pp. 1-17, pl. 3 (1929) and Semi-annual Report of Oceanographical Investigation, Imp. Fish. Exper. Station, No. 48, pp. 259-277, pl. 4 (1931). The station records at which molluscs dealing with in this paper were collected have been assembled from these sources.

Table 1. List of stations at which Cephalaspid molluscs were chiefly collected by the S.S. Sôyô-maru during the years 1922-1930.

Station No.	Date	Locality		Depth (m)	Bottom Water Temp. (C°)	Bottom character	Species of Cephalaspids
		Lat. N.	Long. E.				
2	1926 June 16	34° 49' 40"	139° 51' 40"	176	—	R	<i>Bucconia cumingii</i> <i>ventricosa</i> <i>Eocylichna soyoae</i>
4	do	34 57 30	140 06 00	287	8.9	S	<i>Limulatys angustatus</i> <i>Liloa porcellana</i> <i>Retusa minima</i> <i>Pyrunculus phialus</i> <i>Acteocina exilis</i>
12	June 23	35 34 45	141 13 35	325	7.2	m. S	<i>Eocylichna soyoae</i> <i>Philine kurodai</i>
15	June 24	35 59 00	140 59 25	216	8.2	m. S	<i>Eoscaplander fragilis</i>
199	1927 July 11	34 10 30	136 54 30	207	9.7	s. M	<i>Eocylichna soyoae</i>
203	July 12	33 59 20	136 21 40	249	11.0	m. S	<i>Ringicula niinoi</i> <i>Ringicula pilula</i>
205	do	33 47 30	136 09 30	224	11.3	M. S. Sh	<i>Ringicula pilula</i> <i>Eocylichna soyoae</i>
207	July 13	33 30 40	135 57 15	229	11.7	S	<i>Eocylichna soyoae</i>
211	July 14	33 33 30	135 19 00	190	14.8	G. Sh	<i>Volvulella ovulina</i> <i>Adamnestia tosaensis</i>
212	do	33 37 50	135 10 30	181	14.3	f. S	<i>Pyrunculus phialus</i> <i>Volvulella ovulina</i> <i>Adamnestia tosaensis</i> <i>Eocylichna soyoae</i>
220	July 19	33 07 20 33 15 20	134 10 00 134 01 00	234	11.8	S. Sh	<i>Adamnestia tosaensis</i>
221	July 20	33 20 30	135 54 00	209	14.1	m. S	<i>Ringicula teramachii</i> <i>Abderospira punctulata</i> <i>Adamnestia tosaensis</i> <i>Eocylichna soyoae</i>
240	Nov. 6	35 10 30	139 32 35	192	15.2	f. S?	<i>Eocylichna soyoae</i>
247	Nov. 8	35 09 20	139 10 35	159 128	17.3	M	<i>Bullina nobilis</i>
251	Nov. 9	34 59 30	139 10 00	165	15.8	c. S. Sh	<i>Admnestia japonica</i>
252	do	34 56 40	139 09 50	289	11.6	m. S	<i>Acteon siebaldii</i>
255	Nov. 10	34 46 15	139 05 00	263	13.5	G. m. S. Sh	<i>Ringicula niinoi</i> <i>Bucconia teramachii</i> <i>Eocylichna soyoae</i>

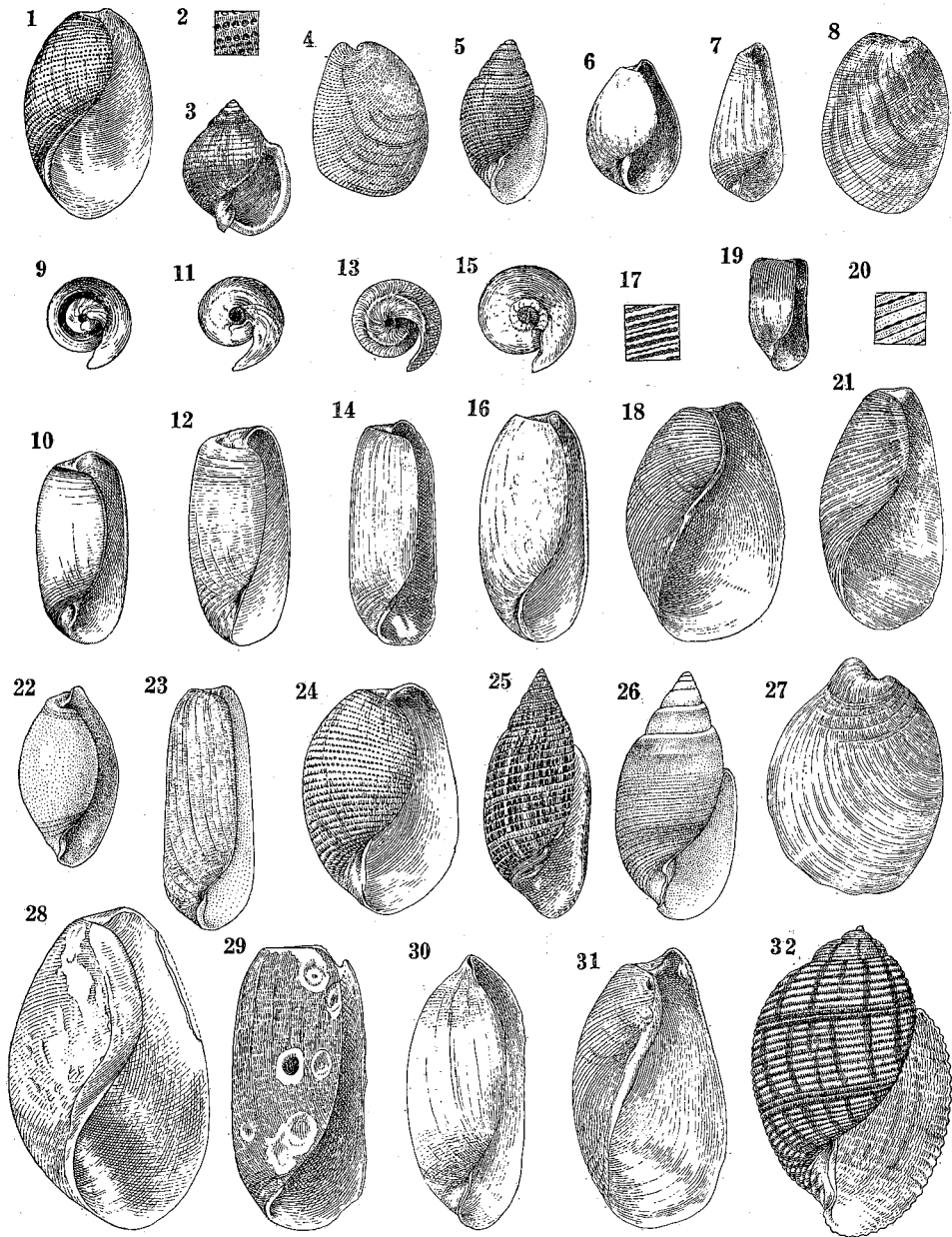
Station No.	Date	Locality		Depth (m)	Bottom Water Temp. (C°)	Bottom character	Species of Cephalaspids
		Lat. N.	Long. E.				
259	1927 Nov. 15	34° 41' 15"	138° 43' 00"	188	12.0	s. M	<i>Acteon siebaldii</i> <i>Volvulella ovulina</i> <i>Bucconia cumingii</i> <i>Bucconia cumingii ventricosa</i> <i>Adamnestia tosaensis</i> <i>Adamnestia teramachii</i> <i>Eocylichna soyoae</i>
279	1928 July 2	34 42 10	138 30 40	155	12.3	G. S. Sh	<i>Adamnestia tosaensis</i>
286	July 4	34 36 10	138 26 30	123	14.3	s. M	<i>Acteon siebaldii</i>
295	July 11	30 55 00	131 03 50	154	18.5	S. Sh	<i>Eocylichna soyoae</i>
298	do	31 05 45	131 14 35	117	18.9	Sh	<i>Philine japonica</i>
300	do	31 18 50	131 19 30	110	17.5	s. M	<i>Bucconia japonica</i> <i>Eocylichna soyoae</i>
304	July 12	31 24 40	131 34 40	241	14.3	s. M	<i>Adamnestia tosaensis</i>
311	July 15	31 49 40	131 42 00	165	15.0	s. M. Sh	<i>Adamnestia tosaensis</i>
325	July 21	32 45 00	132 23 30	210	15.2	G. S	<i>Bucconia cumingii</i> <i>Adamnestia tosaensis</i>
326	do	32 40 10	132 25 15	393	7.9	M. Sh	<i>Retusa minima</i> <i>Volvulella ovulina</i> <i>Eocylichna soyoae</i>
331	July 22	32 30 15	132 46 20	344	8.1	c. S	<i>Ringicula pilula</i> <i>Adamnestia tosaensis</i>
347	July 29	33 33 00	134 26 31	126	18.8	f. S. M	<i>Eocylichna soyoae</i>
352	Aug. 1	33 39 50	135 06 30	154	16.7	S. Sh	<i>Pyrunculus obesus</i> <i>Adamnestia tosaensis</i>
363	Aug. 9	34 02 20	136 29 00	439	6.6	M	<i>Pyrunculus phialus</i> <i>Eocylichna soyoae</i>
371	Aug. 13	34 30 15	137 21 45	84	17.3	M	<i>Ringicula niinoi</i> <i>Volvulella ovulina</i>
395	Feb. 26	33 43 20	135 16 00	46	—	S	<i>Volvulella tokunagai</i>
417	1929 July 14	31 10 15	130 26 00	192	13.9	s. M. G	<i>Ringicula niinoi</i> <i>Pyrunculus phialus</i> <i>Bucconia japonica</i> <i>Eocylichna soyoae</i>

Station No.	Date	Locality		Depth (m)	Bottom Water Temp. (C°)	Bottom character	Species of Cephalaspids
		Lat. N.	Long. E.				
431	1929 July 16	32° 22' 00"	129° 25' 50"	152	16.3	Pum. Sh	<i>Acteon kawamurai</i> <i>Adamnestia tosaensis</i>
432	July 18	32 40 15	129 18 00	148	16.0	s. M. Sh	<i>Ringicula yokoyamai</i> <i>Pyrunculus obesus</i> <i>Eocylichna soyoae</i>
433	do	32 37 45	129 03 15	168	15.3	s. M. Sh	<i>Pupa strigosa</i> <i>Ringicula yokoyamai</i> <i>Pyrunculus obesus</i> <i>Adamnestia japonica</i> <i>Eocylichna soyoae</i>
439	July 19	31 52 00	128 01 00	155	15.6	S. Sh	<i>Adamnestia japonica</i> <i>Adamnestia tosaensis</i>
444	July 20	32 25 45	128 37 30	194	15.0	S. Sh	<i>Adamnestia tosaensis</i>
451	July 22	32 43 00	128 11 45	187	14.0	S. Sh	<i>Eocylichna soyoae</i>
452	do	32' 43 15	127 44 30	154	14.2	m. S	<i>Adamnestia tosaensis</i> <i>Eocylichna soyoae</i> <i>Acteocina oyamai</i>
459	July 23	34 09 00	128 49 45	115	14.6	M. S	<i>Ringicula yokoyamai</i>
466	July 25	33 52 00	129 33 15	110	17.8	c. S. Sh	<i>Adamnestia japonica</i>
468	do	34 25 40	129 47 00	112	16.1	M. S	<i>Volvulella ovulina</i> <i>Adamnestia japonica</i> <i>Eocylichna soyoae</i>
470	do	33 56 40	130 10 10	73	20.7	S. P	<i>Adamnestia tosaensis</i> <i>Eocylichna soyoae</i>
471	July 27	34 23 15	130 45 45	90	20.9	M. S. Sh	<i>Pyrunculus phialus</i> <i>Volvulella ovulina</i> <i>Adamnestia tosaensis</i>
477	July 28	34 57 25	129 06 30	99	14.3	P. M. Sh	<i>Retusa succincta</i> <i>Adamnestia tosaensis</i> <i>Eocylichna soyoae</i>
480	Aug. 8	35 28 50	130 18 20	280	1.1	m. S	<i>Volvulella ovulina</i>
483	Aug. 9	34 44 50	130 47 10	130	16.3	S	<i>Pyrunculus phialus</i> <i>Volvulella ovulina</i> <i>Philine kurodai</i>
484	do	34 29 30	131 00 20	93	21.0	S	<i>Ringicula niinoi</i> <i>Pyrunculus phialus</i> <i>Volvulella ovulina</i> <i>Adamnestia japonica</i>

Station No.	Date	Locality		Depth (m)	Bottom Water Temp. (C°)	Bottom character	Species of Cephalaspids
		Lat. N.	Long. E.				
486	1929 Aug. 11	35° 12' 20"	130° 57' 30"	139	5.1	S	<i>Volvulella ovulina</i>
488	do	35 35 20	130 46 20	406	1.7	M	<i>Ringicula niinoi</i> <i>Pyrunculus phialus</i> <i>Volvulella ovulina</i> <i>Bucconia japonica</i> <i>Adamnestia japonica</i> <i>Eocylichna soyoae</i> <i>Philine scalpta</i>
490	Aug. 12	35 39 00	131 20 10	155	3.8	M	<i>Eocylichna musashiensis</i> <i>Cylichna consobrina</i>
491	do	35 22 10	131 23 50	112	9.6	M	<i>Volvulella ovulina</i> <i>Adamnestia tosaensis</i>
493	do	34 57 00	131 52 20	124	18.1	m. S	<i>Volvulella ovulina</i> <i>Volvulella radiola</i> <i>Adamnestia japonica</i> <i>Eocylichna musashiensis</i> <i>Eocylichna soyoae</i> <i>Acteocina oyamai</i>
494	do	35 02 00	132 05 30	110	20.9	m. S	<i>Adamnestia japonica</i> <i>Eocylichna musashiensis</i>
495	Aug. 14	35 17 00	132 10 20	146	15.2	S	<i>Adamnestia japonica</i> <i>Eocylichna soyoae</i>
503	Aug. 18	36 05 05	133 16 28	146	16.3	S	<i>Ringicula niinoi</i> <i>Pyrunculus phialus</i> <i>Volvulella kinokuniana</i>
504	do	36 14 45	133 04 45	106	18.6	Sh. G	<i>Ringicula niinoi</i> <i>Eocylichna soyoae</i>
520	Aug. 23	35 43 00	133 07 30	75	23.3	S	<i>Ringicula niinoi</i> <i>Retusa minima</i> <i>Pyrunculus phialus</i> <i>Decolifer longispirata</i>
546	1930 July 20	35 48 30	135 51 35	101	13.0	s. M. G	<i>Eocylichna soyoae</i>
549	do	36 13 00	135 42 30	115	15.6	R	<i>Eocylichna musashiensis</i>
652	Aug. 24	41 27 08	140 23 00	110	14.0	G	<i>Cylichna nipponensis</i>
658	Aug. 30	41 39 00	141 33 27	113	16.3	R	<i>Cylichna nipponensis</i>

EXPLANATION OF PLATE XXXVIII

- Fig. 1. *Bucconia teramachii* n. sp. (9.0×5.0 mm).
Fig. 2. Enlarged surface sculpture of the same.
Fig. 3. *Ringicula* (*Ringiculella*) *pilula* HABE (7.0×5.0 mm).
Fig. 4. *Philine japonica* LISCHKE (6.3×5.1 mm).
Fig. 5. *Acteon kawamurai* HABE (7.2×3.8 mm).
Fig. 6. *Pyrunculus obesus* HABE (4.5×3.5 mm).
Fig. 7. *Pyrunculus phialus* (A. ADAMS) (4.4×2.3 mm).
Fig. 8. *Philine scalpta* A. ADAMS (14.8×8.8mm).
Fig. 9. *Adamnestia teramachii* n. sp. (apical view).
Fig. 10. *Adamnestia teramachii* n. sp. (4.7×2.5 mm).
Fig. 11. *Adamnestia tosaensis* n. sp. (apical view).
Fig. 12. *Adamnestia tosaensis* n. sp. (9.3×3.6 mm).
Fig. 13. *Eocylichna musashiensis* (TOKUNAGA) (apical view).
Fig. 14. *Eocylichna musashiensis* (TOKUNAGA) (12.0×4.2 mm).
Fig. 15. *Eocylichna soyoae* n. sp. (apical view).
Fig. 16. *Eocylichna soyoae* n. sp. (6.2×3.0 mm).
Fig. 17. *Bucconia cumingii ventricosa* n. subsp. (surface sculpture enlarged).
Fig. 18. *Bucconia cumingii ventricosa* n. subsp. (7.5×4.0 mm).
Fig. 19. *Retusa* (*Coelophysis*) *minima* YAMAKAWA (2.4×1.2 mm).
Fig. 20. *Bucconia japonica* (A. ADAMS) (surface sculpture enlarged).
Fig. 21. *Bucconia japonica* (A. ADAMS) (10.8×5.5 mm).
Fig. 22. *Limulatys angustatus* (GOULD) (4.6×2.5 mm).
Fig. 23. *Adamnestia japonica* (A. ADAMS) (18.2×8.5 mm).
Fig. 24. *Abderospira punctulata* (A. ADAMS) (3.5×2.5 mm).
Fig. 25. *Pupa strigosa* (GOULD) (14.8×5.9 mm).
Fig. 26. *Acteon siebaldii* (REEVE) (19.0×9.5 mm).
Fig. 27. *Philine kurodai* HABE (18.0×13.6 mm).
Fig. 28. *Eoscaplander fragilis* HABE (17.0×10.0 mm).
Fig. 29. *Cylichna consobrina* (GOULD) (12.5×5.6 mm).
Fig. 30. *Volvulella ovulina* (A. ADAMS) (6.4×3.0 mm).
Fig. 31. *Bucconia cumingii* (A. ADAMS) (7.9×4.9 mm).
Fig. 32. *Bullina nobilis* HABE (18.0×13.0 mm).



T. HABE: MOLLUSCA CHIEFLY COLLECTED BY THE SÔYÔ-MARU 1.