Studies on Japanese Chitons (4)

Cryptoplax propior, new species.

(Pl. III, figs. 59-75)

General appearance: Body vermiform, rather short and elevated, with reduced valves, the anterior four valves loosely imbricate, the rest being slightly separated from each other. Tegmental surface longitudinally striated, brownish. Girdle wide, densely covered with brownish spicules.

Head valve (figs. 59-61): Horse-shoe shaped in outline, slightly narrower in front, the apex (fig. 60) not elevated, weakly beaked. Sculpture of tegmentum eroded and inconspicuous, however, it seems to be decorated with radial granulose ridges, deeply interrupted by a few concentric growth lines. Insertion plate well developed, smooth; slits 3, each of them connected with a radial shallow groove on its dorsal side. Interior with a number of deeply excavated muscle impressions (fig. 61).

Median valve (figs. 64, 67, 68): The valves behind the fourth are discontinuous, each being separated by an almost equidistant space, which is shorter than the length of any median valve; this forms one of the distinguishing characters of this species. All median valves rather flat, oblong and slightly beaked posteriorly. The second valve (figs. 67, 68) shorter but wider

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than the tail valve (fig. 65), jugum smooth, not sharply marked off from the latero-pleural area, which is provided with many low granules or inconspicuous longitudinal beaded ridges; sutural plate thick and short, auriculate, jugal sinus wide and shallow.

The other (3rd-7th) median valves (fig. 64) are nearly equal in length; jugum distinct, latero-pleural area with longitudinal ridges, showing a somewhat granulose feature; sutural plate much thickened, axially elongated; sinus rather shallow. Sculpture of latero-pleural area coarser than that of the second valve, though finer than in specimens of *C. japonica* of corresponding size.

Tail valve (figs. 65, 66): Jugum very distinct and smooth, sculpture of latero-pleural area similar to the median valve, viz., with about 8 somewhat beaded, axial ridges; muro retracted to the terminal, protruded far behind; sutural plate short, narrowly triangular, insertion plate thick and vertical, posterior area somewhat concave; interior beneath the muro deeply excavated.

Spicules densely clothing the girdle are of unequal sizes, slightly curved except the marginal ones; which are either very thick (330×100 µ: fig. 62) or rather slender (380×70 µ: fig. 71), bluntly pointed, and with numerous longitudinal weak striations; minor spicules (100×20 µ: fig. 69; 140×30 µ: fig. 70) also occur with the larger ones. Tufts of setae inconspicuous, probably due to unfavourable preservation of material.

Ctenidia: Merobranchial, adanal, about 20 on each side, approximately corresponding to the posterior third of the entire length of the foot (fig. 74).

Colouration: Tegmental surface generally dark brown, posterior part of each valve eroded and faintly roseate. Interior pale white, sometimes greenish in the central part. Girdle unicoloured, i.e., reddish brown throughout, without any colour band as is the case in *C. japonica*.

Radula (figs. 75, a-e): General features of the radula resemble that of *C. japonica*. Central tooth (fig. 75 a) oblong, without any appendage on its tip; centro-lateral (fig. 75 b) roughly rhombic, thin, its outer margin recurved inward, with a triangular basal plate in front; major lateral (fig. 75 c) tricuspid, its median


cusp being longest and sharp, inner cusp short and thick, almost as long as the outer one, which is slender; stalk fusiform, stout, weakly longitudinally striated; major uncinus (fig. 75 d, e) slender, oar-shaped, curving moderately inward, with rounded end.

Measurements: The specimen in spirit measures 17.4 mm. in length, 7 mm. in breadth in its contracted and curved condition; however, if stretched, it would attain a length of as much as 33 mm. Length of individual plate is as follows:

- head valve 3.3 mm.,
- second valve 3.9 mm.,
- fifth valve 4.4 mm.,
- tail valve 4.3 mm.

Angle of divergence of the second valve (fig. 68) about 120°.

Locality: Holotype was collected in Prov. Shima by Mr. Tomoharu Yamada in 1929, to whom we express our sincere thanks for his kindness in placing the material at our disposal.

Remarks: As early as in 1874, Tapparone-Canevari recorded a Chitonellus fasciatus from Japan. This name, however, has not been referred to by any subsequent authors. It seems quite probable that he had meant Pilsbry's species, which he misidentified. Later, in 1898, Pilsbry established two new species, Cryptoplax japonicus [sic] and C. rhodoplax from Japan, with insufficient descriptions. He wished to give more detailed accounts on these species if he could procure further material available for study; but this has not been realized. Thiele (1909), based on his elaborate anatomical works, placed rhodoplax as synonymous with japonica, with this view we concur. Thus, among the members of the genus Cryptoplax only C. japonica is known from Japan thus far, and the present species forms the second member of this genus occurring in Japanese waters.

The following features may be sufficient to distinguish this species from C. japonica.

3) Thiele (1909, p. 20, foot-note) has already pointed out that "plax, πλάξ" is a feminine noun.
1. The space between the 5th, 6th, 7th and 8th valves is respectively shorter than the length of each median valve.
2. Tegmental sculpture is finer than in C. japonica.
3. Sutural plate is much shorter and jugal sinus is shallower.
5. Girdle spicules are thick and blunt.
6. There are no transverse brown bands on the girdle.

Cryptoplax proprius (新種) イモミシダヒ (新稱) (第 III 圈版；59-75)
木種は既知 C. japonica PILBRV (=C. rhodoplax PILBRV) ケムヒチダガヒに比して 第 5-8 突板が接近しておいて、その間隔は中間板の長さよりも短いこと、殻表の刻痕が一層板密で縫合板は著しく短く厚みが薄く、突板の尾突項が前方に突出して居り、内側上の剣は太くて短く銳く尖っておさる; 又褐色の横線状の螺旋が全在ないと考え容易に該別される。体長 17-4 時 (伸長すれば 33 時にしてもなろう)。志摩にて山田知治氏採集 (1929).

List of the known species of the genus Cryptoplax.

The following is a list of the members of this genus hitherto recorded, together with their synonymies and habitats.

Genus Cryptoplax BLAINEVILLE, 1818.

Type, Chiton larvaformis Burrow, 1815.

1. CRYPTOPLAX BURROWI (E. A. SMITH, 1854).


Wasa, East Africa (SYKE); Hulule Is, 1-6 fms, Maldives Arch. (E. A. SMITH); Straits of Macassar (BELZHE; THIELE); Sulu Arch, 15 m.; near Sulu Arch, 16-23 m; Danar Is; Banda Is, reef; near Banda, 141 m; Kei Is, reef (Siboga); Port Adelaide, S. Australia (REVEE); Port Molle (Coppinger).
2. CRYPTOPLAX CALEDONICA ROCHERBUNE, 1881.


*Cryptoplax unicifera* ROCHERBUNE (1881), l. c., p. 157.

New Caledonia (Paris Museum).

3. CRYPTOPLAX ELIOTI PILSBRY, 1900.


Apia, Samoan Is. (Sir C. ELIOT); Upolu, Samoan Is. (Hamburg Museum); East of Timor, 27-34 m. (Siboga).

4. CRYPTOPLAX EVANESCENTS COOK, 1913.


Funafuti, Ellice Is., South Central Pacific (J. S. GARDINER).

5. CRYPTOPLAX HEURTELI ROCHERBUNE, 1881.


New Caledonia (Paris Museum).

6. CRYPTOPLAX IREDALEI ASHBY, 1928.


Port Lincoln, Gulf of St. Vincent (ASHBY); North-western Tasmania (L. MAY); South Australia, Tasmania (ASHBY).

7. CRYPTOPLAX JAPONICA PILSBRY, 1901.

1. *Chitonellus fasciatus* TAMARONE-CAMERII (1874) Viaggio al globo fregata Magenta, Malac., p. 78.

*Chitonellus larviformis* THIELE (1893) Das Gebisse der Schnecken, no. 120.


*Cryptoplax japonica* THIELE (1909) Zoologica, 22 (56) : 4, 8, 54-55, pl. 6, f. 90-96.

*Cryptoplax rhodoplax* PILSBRY (1901) l. c.; THIELE (1909) l. c., p. 54-55.

Hirado, Ilizen, Japan (HIRASE); Sea of Japan (Magenta); Hakodate (HILGENDORF); Enoshima (DÖDERLEIN); Nagasaki (BUNGE).

Kyushu; Shikoku; Honshu (TAKI).

8. CRYPTOPLAX LARVAEFORMIS (BURROW, 1815).

*Cryptochiton larviformis* BLAINVILLE (1815) BURROW'S Elements of Conch., p. 190 (no description).

*Chiton larviformis* BURROW, l. c., p. 191, pl. 28, f. 2-4.


HADDON (1886) Challenger Polyploc., 37-39, pl. 3, f. 12a-12m; PILSBRY...
Chiton fasciatus Quoy et Gaimard (1834) Voy. de l’Astrolabe, Zool., 3: 408, pl. 73, f. 21-29.
Chitonellus laevis(?) Lamarck (1819) L. Lamarck’s Hist. Nat. Anim. sans Vert., (ed. 1) 6: 317; Blainville (1825) Man. Malae., p. 605, pl. 87, f. 5; Deshayes in Lamarck (1836) l. c., 481; Reeve (1847) Conch. Icon., f. 2; Reeve (1847) Conch. Syst., pl. 135, f. 3, 4 (Not of Reeve (1847) Conch. Icon., f. 1, =Choneplax striptata Sowerby.)

9. CRYPTOPLAX MICHAELSENII Thiele, 1911.

Carnarvon (C. Johnston); Shark Bay (Thiele); both in Western Australia.
10. CRYPTOPLAX MYSTICA IREDALE & HULL, 1921.
 New South Wales, Australia (IREDALE & HULL).

11. CRYPTOPLAX OCULATA (QUOY ET GAIRDAN, 1824).
 Chiton oculatus QUOY ET GAIRDAN (1824) Voy. L’Astrolabe, 3: 410, pl. 73, f. 37, 38.
 Chitonellus fasciatus REEVES (not of Quoy and Gaimard) (1842) Conch. Syst., 2: pl. 135, f. 5 (only).
 Not Chitonellus oculatus REEVES (1847) Conch. Icon., t. 7a, 7b (= Cryptoplax striata).

 New Guinea or Vani-Koro (QUOY ET GAIRDAN); Samboangan, Philippines, in 10 fms. (Challenger); Sulu (DUPRAS); Borneo; Lucon (Paris Mus.); Sunda Straits (Utrecht Mus.); Kisier (Leiden Mus.); Ambon; Italy; New-Pommeren, Bismarck Arch. (Platte); Fringing Reef, Mér (Murray Is.); Torres Straits (MEYVILL & STANDEEN); Friendly Is. (British Mus.); Queensland (ASHBY); Algoa Bay, South Africa (BLUMRICH).

12. CRYPTOPLAX PERONI ROCHEBRUNE, 1881.
 Australia (PERON & LESEUR).

13. CRYPTOPLAX PROPRIOR IS. & IW. TAKI, 1930.
 See p. 99 of this paper.
 Prov. Shima, Japan (T. YAMADA).

14. CRYPTOPLAX ROSTRATA (REEVES, 1847).
 Chitonellus rostratus REEVES (1847) Conch. Icon., f. 6.
Sydney (Paris Mus.); New South Wales; Queensland (Ashby); Torres Strait (Reeve; this locality will be probably incorrect, after Ashby).

15. **CRYPTOPLAX ROYANA** **IREDALE & HULL, 1924.**
   Lord Howe Is., N. S. Wales (Iredale & Hull).

16. **CRYPTOPLAX STRIATA** **LAMARCK, 1819.**


   *Chitonellus oculatus* **Reeve** (1847) *Conch. Icon.,* f. 4a, b (not of Quoy and Gaimard).

   *Cryptoplax striata* var. *gunnii* **Reeve** (1847) *Conch. Icon.,* f. 7a, b (not of Quoy and Gaimard).


   Raines Is., Torres Straits (*Reeve*); Flinders Is., Queensland (J. Milligan); Newcastle, N. S. Wales (Dr. Lieffenbrach); Port Jackson, N. S. Wales. (Copping, Richardson, Jukes, King); Quarantine Station (*Ashby*); Venus Bay, Victoria (*Ashby*); Philip Is., Victoria (*Ashby*); Port Fairy, Victoria (*Iredale*); Port Lincoln, S. Australia (J. B. Harvey); Kangaroo Is., S. Australia (*Ashby*); Tasmania (*MacGillivray & Gunn*); East coast of Zanzibar; Zanzibar Channel; Khor Dongola; Natal (*Sykes*).


   *Chitonellus gunnii* **Reeve** (1847) *Conch. Icon.,* f. 5.


   King Is., Tasmania (*Ashby*); Tasmania (*Reeve; Ashby*); South Australia and Tasmania (*Smith*); Port Phillip, Victoria (*Sykes*).
16b. CRYPTOPLAX STRIATA var. WESTERNENSIS ASHBY, 1923.
Cryptoplax striata var. westernensis ASHBY (1923) Trans. Roy. Soc. S. Austr.,
Rottnest Is.; Bathurst Point; Kangaroo Is.; Western Australia (ASHBY).
17. CRYPTOPLAX SYKESI THIELE, 1909.
Cryptoplax sykesi THIELE (1909) Zoologica, 22 (56) 54, pl. 6, f. 83-86.
Gimsa Bay, Red Sea (THIELE).

Fossil species:
18. CRYPTOPLAX GATLIFFI HALL, 1905.
30, f. 7-9.
Lalifton Bank, Muddy Creek, Balcanbian (Eocene), Australia (HALL).
19. CRYPTOPLAX PRITCHARDI HALL, 1905.
Cryptoplax pritchardi HALL (1905) l. c., 391-392, pl. 30, f. 1-6.
McDonald’s Muddy Creek, Kalimnan (Miocene), Australia (HALL).

Additions and Corrections
The Venus, vol. 1, no. 5.
p. 161 line 13 from bottom, for Lepidopleurus s. str.
read Lepitochiton Gray, 1847.
p. 162 line 12 from bottom, Next to “Deshayesiella curvatus CARPENTER
MS., p. 10;”
insert the following:
1869 HADON, Challenger Polyplac., p. 9.

On the Variation of the Fossil Glycymeris yessoensis

化石 Glycymeris yessoensis の変異

On the Variation of the Fossil Glycymeris yessoensis

By J. MAKIYAMA

ABSTRACT

The material upon which this investigation is based consists of seven series of detached valves of Glycymeris yessoensis (Sowerby) obtained from the Upper Pliocene and Pleistocene rocks of this country. Series A, B, and C were collected from three fossil localities in Oga Peninsula, North Japan, and the remaining four series from the Pleistocene sands at Itabasi near Tôkyô, and three localities in Boso Peninsula. The length of the shell was measured as usual, but diameter B
Is. & Iw. Taki: Japanese Chitons.