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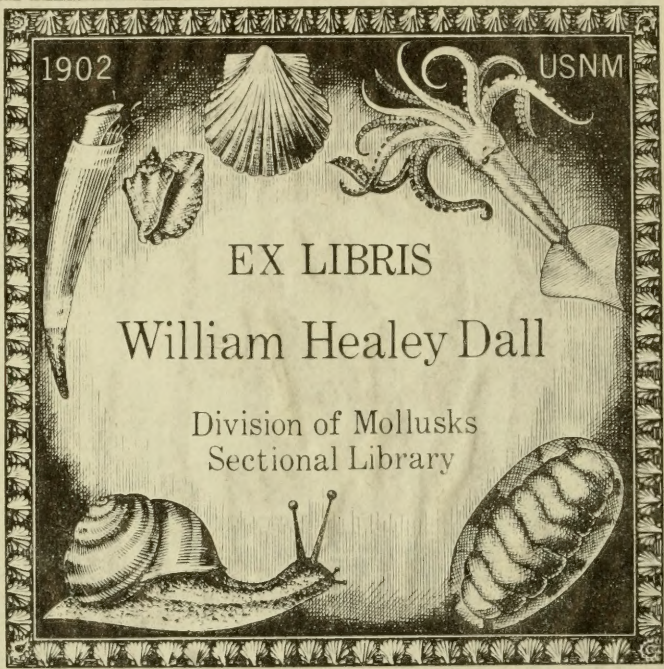
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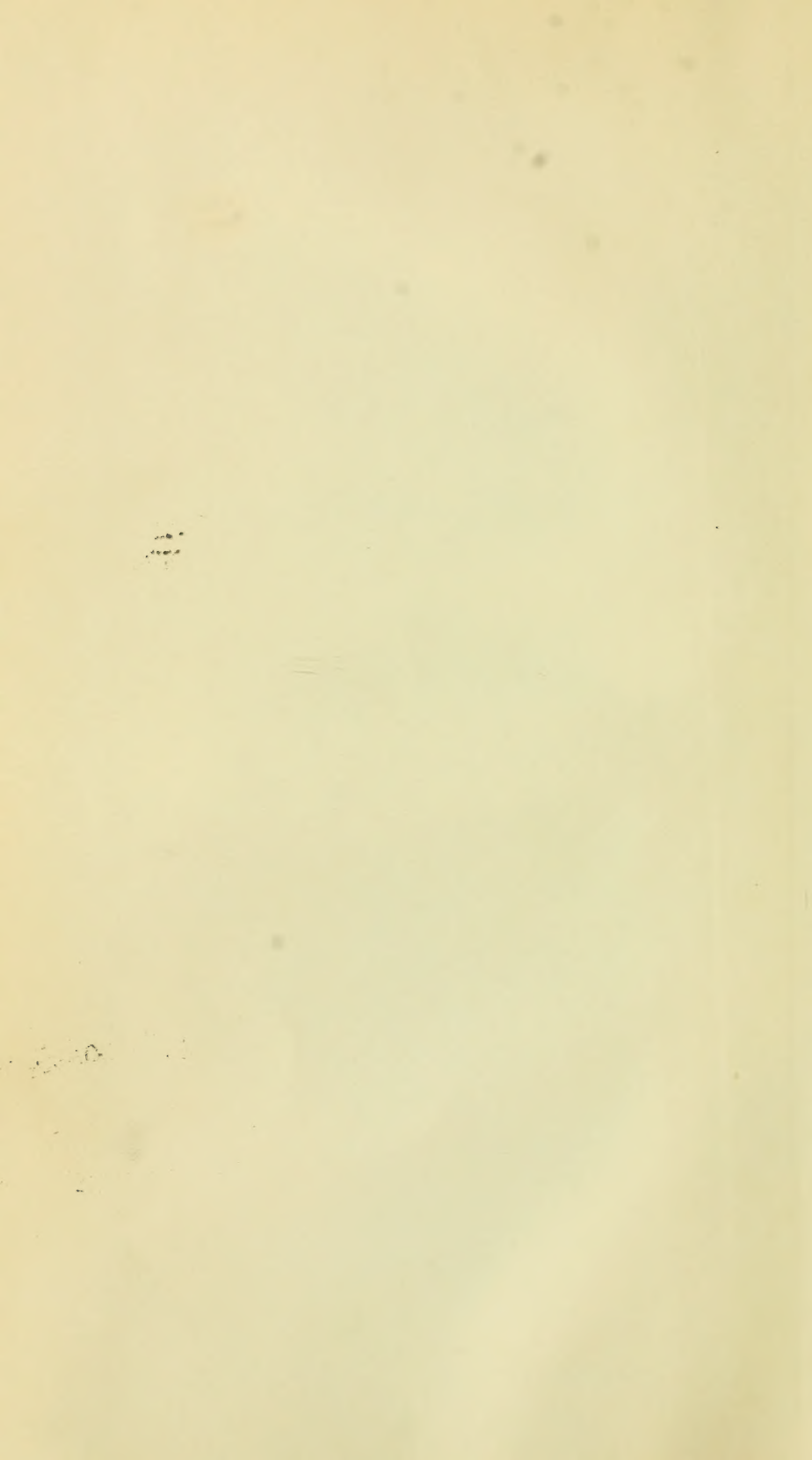






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# CATALOGUE

OF THE

# Marine Mollusks of Japan

WITH DESCRIPTIONS OF NEW SPECIES  
AND NOTES ON OTHERS  
COLLECTED BY

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FREDERICK STEARNS

BY

HENRY A. PILSBRY

Conservator Conchological Section of the Academy of Natural Sciences of Philadelphia



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DETROIT

PUBLISHED BY FREDERICK STEARNS

1895





## PREFACE.

THIS catalogue grew from the research incidental to the identification of the mollusca procured by Mr. Frederick Stearns during two visits to Japan. A portion of the collection made in 1889-'90 having been submitted to the writer for identification, it was found to contain a number of new and interesting species, some of which were described and figured in the *Proceedings of the Academy of Natural Sciences of Philadelphia* for 1891, and in the *The Nautilus*. A catalogue of this collection (pp. 20, 1 plate) was prepared by Mr. Stearns, and widely circulated among naturalists.

A much more extensive collection was secured by Mr. Stearns upon his second visit to Japan, and it was found necessary to review so considerable an amount of conchological literature in its identification, that it seemed desirable to collate the references to Japanese mollusks subsequent to the date of Dunker's excellent work, *Index Molluscorum maris Japonici*, as well as those not contained in that catalogue, and, together with descriptions and figures of the new forms discovered by Mr. Stearns, to publish a new catalogue of Japanese marine mollusca. The present volume contains about 500 species more than Dunker's *Index*, although a considerable number of forms enumerated by him are herein considered synonyms or are rejected from the Japanese list. 40 species and 8 varieties believed to be new are described, including some of which diagnoses have already appeared in the *Nautilus*, and the species of certain families, such as *Patellidæ*, *Fissurellidæ*, etc., are somewhat critically revised. In the families *Rissoidæ*, *Eulimidæ* and *Pyramidellidæ* a considerable number of forms collected by Mr. Stearns remain unidentified. Although some of them are doubtless new, the literature of these groups has been so overloaded with Arthur Adams' descriptions which do not describe, that intelligent work upon the Japanese forms is impossible. The literature of descriptive zoology furnishes but few instances of work more superficial and worthless than that of this industrious dilettante.

(iii)

The work consists of three portions: a list of marine mollusks which have been stated to inhabit Japan from Yezzo to Kiushiu, with references to description or figures of most species, and enumeration of the special localities at which each species has been found by previous naturalists or by Mr. Stearns. This is followed by a catalogue of the Inland mollusks taken by Mr. Stearns in Japan; and finally a list of mollusks of the Loo Choo group procured by Mr. Stearns is given.

I have identified the specimens collected in Japan; those from the Loo Choo Islands were identified partly by Mr. Stearns, partly by myself (see p. 160).

Recent investigations have added no very important facts to the general conclusions of Lischke regarding the status of the Japanese mollusk fauna in comparison with the Indo-Pacific faunas. The percentage of species peculiar to Japan has been considerably increased, however, and probably will be further augmented; although no doubt recent political events have added a considerable number of tropical species to what must hereafter be considered Japanese seas.

The classification used in the following pages while not entirely that of any one of the manuals, it is hoped will be found convenient for reference. The current generic nomenclature has been revised in certain cases; and for perhaps the first time in the century, certain Linnæan names, such as *Lima lima* and *Delphinula delphinula* have been restored to their rightful places.

It may be noticed that some new specific names employed herein resemble the names of certain localities or islands of the Japanese Empire; but we must here explicitly declare that between such specific and geographic names no necessary connection exists; and the former, except where the contrary is stated, should be taken as mere arbitrary or meaningless words. They will, therefore, not be subject to change on account of modifications in the current mode of transliteration from Japanese to the Roman character, nor from other causes.

Philadelphia, August, 1895.

H. A. P.



# INTRODUCTION.

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DURING 1889-'90, the publisher of this Catalogue spent nearly a year in Japan, and some weeks in China. The journey was in quest of health and the pleasure of travel. Much time was devoted to making a typical collection of Japanese art work of many kinds. I had been, for some years before visiting Japan, much interested in its history, political evolution, and in the marvellous delicacy of many of its art products, and had studied and collected the latter with interest.

The result was a collection of over fifteen thousand objects in metal, lacquer, pottery, bronzes, fabrics, etc. This collection has been catalogued, mounted and presented to the Detroit Museum of Art.

Being also interested in natural history, I attempted to make a collection of the mollusks of the country, commencing first with such species as I found in the markets of Tokyo and Yokohama, and finally employing an intelligent Japanese fisherman—Morita Seto—who traversed the entire east coast from Tokyo, along Sagama and Saruga and the coasts of the Provinces Kii, Awa and Toza, along the north shore of the Inland Sea as far as Bingo, and, by aid of the fisherfolk, obtained nearly a thousand forms of marine life.

An account by Mr. J. E. Ives of the Echinoderms, Crustacea and Pycnogonida collected, will be found in *Proc. Acad. Nat. Sci. Philadelphia* for 1891, p. 210, plates VII–XII; and some of the Mollusks are described and illustrated by Mr. Pilsbry in the same volume, pp. 165, 471, plates IV, XVII, XVIII, XIX.

The Japanese fishermen, by the use of drag and dredge-nets, gather not only fish, but largely mollusks, working in water sometimes as deep as thirty fathoms.

The region visited lies between 33° and 36° north latitude, and 132° and 141° east longitude, on the east coast of the Japanese Islands. Here the Kuro-Shiwo or "Pacific Gulf Stream" flows north-easterly, and the presence of this warm current accounts, possibly, for the occasional finding of strictly tropical species.

In December, 1891, I set out upon a winding journey around the world, first spending the winter on the Hawaiian Islands, where I made some collections of shells, thence proceeded to Japan, where the following summer was passed. Here I traveled more extensively than during my former visit, the itinerary covering almost the entire length of the Empire, from the Province of Satsuma in the south, to Sapporo, the capital of the Island of Yezo, in the north.

Profiting by the experience of my first visit, I availed myself of the assistance of coast-fishermen in collecting the rarer forms of mollusks, and, while the territory covered does not greatly exceed that of the earlier visit, much new material was obtained.

My Japanese collector, Morita Seto, spent a year—1891-2—in the Loo Choo Islands, collecting shells. But, as the fauna of that Archipelago is more closely allied to that of the Indo-Pacific region than the fauna of the Japanese waters, the results of the expedition were not so valuable as anticipated.

In conclusion it should be stated that I have spent an active business life as a manufacturing pharmacist, until circumstances permitted me within recent years to retire from active work in that profession, and devote my advanced years to travel, and to at least a superficial study of natural history; and hence I beg to be considered only as an amateur in conchology, and the public will understand that whatever of scientific merit this volume possesses, is due to my friend and editor Prof. H. A. Pilsbry.

NOTE:—Very many of the species enumerated in this Catalogue, to which my name is attached as collector, may be had in exchange by conchologists and collectors. Upon application, printed lists of such duplicates will be forwarded. Many species of which but few specimens were obtained upon my first visit, were found more abundantly on the second.

FREDERICK STEARNS,  
Detroit, Michigan,  
U. S. A.



# List of Abbreviations Used for the Principal Authorities Cited.

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## I. WORKS ON THE FAUNA OF JAPAN AND NORTH-EAST ASIA.

*Mal. Ross.* Beiträge zu einer Malacozoologia Rossica, von Dr. A. Th. von Middendorff. St. Petersburg, 1847.

*Sib. Reise.* Dr. A. Th. von Middendorff's Reise in den Aussersten Norden und Osten Sibiriens. II, Zoologie, Mollusken, bearbeitet von A. Th. von Middendorff. St. Petersburg, 1851.

*Amurl. Moll.* Reisen und Forschungen im Amur-Lande, in den Jahren 1854-1856, etc., von Dr. Leopold v. Schrenck. II, Mollusken des Amur-Landes und des Nordjapanischen Meeres. St. Petersburg, 1867.

*Moll. Jap.* Mollusca Japonica, a Guilielmo Dunker, Stuttgart, 1861.

*J. M. C.* Japanische Meeres-Conchylien, von Dr. C. E. Lischke, I, II, III, Cassel, 1869-1874.

*Faun. Jap.* Fauna Molluscorum extramarinorum Japoniæ, etc., von Dr. W. Kobelt. Frankfurt a. M., 1880.

*Index.* Index Molluscorum maris Japonici, a Guilielmo Dunker, 1882.

## II. MONOGRAPHIC AND ICONOGRAPHIC WORKS.

*Man. Conch.* Manual of Conchology, by George W. Tryon, Jr., Philadelphia, 1878-1895. First series, Marine Univalves, Vols. I-X by Tryon; X-XVI, by H. A. Pilsbry. Second series, Terrestrial Mollusks, Vol. I-IV by Tryon; V-X by Pilsbry.

*Conch. Cab.* Systematisches Conchylien-Cabinet von Martini und Chemnitz, Zweite Ausgabe. Later and more useful volumes by Philippi, Pfeiffer, Dunker, Roemer, Clessin, von Martens, Kobelt, Brot, Weinkauff.

*Abbild.* Abbildungen und Beschreibungen neuer oder wenig gekannter Conchylien, von Dr. R. A. Philippi, I, II, III, 1845-1851.

*Conch. Icon.*, or *C. Icon.* Conchologia Iconica, or Illustrations of the Shells of Molluscous Animals, by Lovell Reeve, Vols. I–XX, 1843–1878; later volumes by G. B. Sowerby.

*Thes.* Thesaurus Conchyliorum, by G. B. Sowerby, London, 1847–1887.

*Nov. Conch.*, or *Novit. Conch.* Novitates Conchologicæ. Cassel.

### III. JOURNALS AND PROCEEDINGS OF SOCIETIES.

*Am. Journ. Conch.* American Journal of Conchology, edited by Geo. W. Tryon, Jr., Philadelphia, 1865–1872.

*Ann. Mag.* The Annals and Magazine of Natural History, London.

*Bull. Soc. Zool. Fr.* Bulletin de la Société Zoologique de France, Paris.

*Jap. Ceph.* Japanska Cephalopoder, af A. Appellöf; in Kongliga Svenska Vetenskaps-Akademiens Handlingar (new series) XXI, No. 13. Stockholm, 1886.

*Journ. de Conch.* Journal de Conchyliogie, publié sous la direction de H. Crosse et P. Fischer, Paris.

*Nautilus.* The Nautilus, a monthly journal devoted to the interests of conchologists. Edited by H. A. Pilsbry and C. W. Johnson, Philadelphia.

*P. Z. S.* Proceedings of the Zoological Society of London, 1830–1895.

### IV. VOYAGES AND MISCELLANEOUS.

*Astrol.* Voyage de Découvertes de l'Astrolabe, exécuté par ordre du Roi pendant les années 1826–1829, etc. Zoologie, par MM. Quoy et Gaimard, Paris, 1832.

*Chall. Rep.* Challenger Reports, Cephalopoda, Vol. XVI, by W. E. Hoyle; Gastropoda and Scaphopoda, Vol. XV, by R. Boog Watson; Pelecypoda, Vol. XII, by E. A. Smith.

*U. S. Expl. Exped.*, or *Expl. Exped.* United States Exploring Expedition, etc. Vol. XII, Mollusca and Shells, by Augustus A. Gould. Boston, 1852.

*Otia.* Otia Conchologica; Descriptions of Shells and Mollusks, from 1839 to 1862, by Augustus A. Gould, M. D. Boston, 1862.

*Zool. Samarang* or *Voy. Samarang.* The Zoology of the Voyage of H. M. S. Samarang, etc. Mollusca by Arthur Adams and Lovell Reeve. London, 1848.



## CEPHALOPODA.

### ARGONAUTIDÆ.

*Argonauta argo* Linné.

Several specimens collected by Stearns, Tokyo, etc.

*Argonauta hians* Solander (+*gondola* and *owenii* Ads. & Rve., Zool. Samarang)

Both the earless and eared forms collected by Mr. Stearns, Kishu coast and Inland Sea.

*Argonauta boettgeri* Malzan. J. de Conch., 1881, p. 163, pl. 6, f. 7.

A single specimen collected by Mr. Stearns agrees well with the description and figures of this species, but is slightly less compressed. Its habitat has not been known hitherto.

### OCTOPODIDÆ.

*Octopus vulgaris* Lam.

Nagasaki (App.).

*Octopus membranaceus* Q. & G. Astrol., pl. 6, f. 5.

Japan.

*Octopus globosus* Appellof. Jap. Ceph., p. 7, pl. 1, f. 4, 5.

Nagasaki (App.).

*Octopus macropus* Risso. Chall. Rep., Vol. 16, p. 95.

Yokohama (Chall.).

*Octopus cuvieri* d'Orb. Appellof, Japanska Ceph., pl. 1, f. 6; Orb., Hist. Nat. Ceph., p. 18, pl. 1, 27.

Nagasaki (App.); compare *O. macropus*.

*Octopus ocellatus* Gray. Jap. Ceph., p. 8, pl. 1, f. 1-3.

Nagasaki (App.).

*Octopus fang-siao* d'Orbigny. Ceph. Acét., p. 70.

Japan.

### SEPIOLIDÆ.

*Inioteuthis morsei* Verrill. Jap. Ceph., p. 15, pl. 2, f. 15, 16; pl. 3, f. 16, 19, 20, 23. Chall. Rep., p. 112. Pl. XIV, figs. 1-9.

Kobé and Tokyo Bay, 8-14 fms., mud (Chall.); Bay of Yedo (Verrill); Nagasaki (App.).

*Iniotheuthis japonica* Fér. & Orb. Man. Conch., I, p. 157.

*Promachoteuthis megaptera* Hoyle. Chall. Rep., Vol. 16, p. 120, pl. 14, figs. 10-14. Wood cut 3.

S. Enoshima, 1875 fath., blue mud (Challenger).

#### SEPIIDÆ.

*Sepia hercules* Pilsbry. Pl. 1, figs. 1, 2. The Nautilus, VII, p. 144, April 2, 1894.

Shell having the general form of that of *S. esculenta* Hoyle but more convex ventrally; chitinous margin narrow; dorsal surface tuberculate-rugose as in *esculenta*, but more coarsely so, the posterior part having the tubercles very deeply separated, flat-topped, and leaning backward; dorsal surface evenly rounded, with no trace of a median longitudinal rib. Ventral surface as in *esculenta*, but the striation is much closer although the shell is triple the size. Last loculus has an index of 22. Inner cone well developed, its limbs arising about one-third the length of the shell from the posterior end, gradually rising along the sides, posteriorly reflexed and appressed on the outer cone, leaving below a narrow small cavity. The anterior edge of the inner cone does not form a shelf across the posterior end of the outer cone as is the case in *esculenta*, and the cavity is much smaller, shallower and narrower than in a specimen of *esculenta* 155 mill. in length. Spine very stout, conical, its root excavated ventrally. Color, white in the middle, faint pink at the sides; whitish beneath.

Length 425 mill.; greatest breadth 160 mill.; length of spine 19 mill.

This species is the giant of the genus, the shell being about 16½ inches long. It is allied to *S. esculenta* Hoyle, but differs as above indicated. The dorsal slope does not descend abruptly to the spine as in that species. Of *S. esculenta* a good many specimens are before me collected by Mr. Stearns. They agree well with the "Challenger" specimens. The size of *esculenta* is moderately constant, shells seen by Hoyle, Appellöf and myself being from 155 to 163 mill. long (about 6½ inches).

A second specimen from the Luchu Is. exhibits the same characters throughout.

*Sepia esculenta* Hoyle. Hoyle, Challenger Rep., xvi, p. 129, pl. 17, f. 1-5; pl. 18, f. 1-61.

Yokohama (Challenger; Stearns).

The specimens of the shell agree well with Hoyle's figures.

*Sepia andreanoides* Hoyle. Hoyle, l. c., p. 139, pl. 21, f. 11-19.

Purchased in the market, Yokohama (Challenger); Ika Coast (Stearns).

*Sepia andreana* Steenstrup. Steenstrup, Vidensk. Selsk. Skr., X, No. 7, pl. 1, f. 11-19, 1875.

Japan (Stp.).

*Sepia* n. sp.

A species of Rochebrune's section *Doratossepion*, allied to *S. andreana* Stp., *S. andreanoides* Hoyle and *S. kubiensis* Hoyle, but crimson above. Yeda coast (Stearns).

*Sepia peterseni* Appellof. Jap. Ceph., p. 23, pl. 2, f. 1-6; pl. 3, f. 21.

*Sepia kubiensis* Hoyle. Chall. Rep., Vol. 16, p. 142; pl. 18, figs. 7-14. Wood cut 7. Kobé Bay, 8 fath., mud.

*Sepia (Metasepia) tullbergi* Appellof. Jap. Ceph., p. 26, pl. 2, f. 7-14. Nagasaki.

*Sepiella maindroni* de Rochebrune. Chall. Rep., Vol. 16, p. 149, pl. 22, figs. 1-10. Inland Sea, Japan.

#### LOLIGINIDÆ.

*Sepioteuthis lessoniana* Fér. Jap. Ceph., p. 31. Nagasaki.

*Sepioteuthis sinensis* Orbigny. Japan.

*Loligo edulis* Hoyle. Chall. Rep., Vol. 16, p. 152, pl. 23. Yokohama Market (Challenger).

*Loligo kubiensis* Hoyle. Chall. Rep., Vol. 16, p. 154, pl. 25, figs. 1-10. Kobé Bay, 8 fath., mud (Challenger).

*Loligo japonica* Steenstrup. Chall. Rep., Vol. 16, p. 157; pl. 24, figs. 7-15. Yokohama Market, (Challenger).

*Loligo bleekeri* Keferstein. Jap. Ceph., p. 31, pl. 1, f. 7-10. Nagasaki.

*Loligo ? sumatrensis* d'Orbigny. Jap. Ceph., p. 32, pl. 1, f. 11; pl. 3, f. 11-15. Japan (App.).

*Loligo ? sp.*

Numerous very large "pens" measuring 31 cm. in length, and resembling those of *Loligo* were brought by Mr. Stearns from Yokohama.



## OMMASTREPHIDÆ.

*Ommastrephes pacificus* Steenstrup. Jap. Ceph., p. 35, pl. 3, f. 8-10.

Japan (App.).

*Ommastrephes bartramii* Lesueur.

Japan (teste Mitsukuri & Ikeda). Seems a very doubtful identification.

*Architeuthis* n. sp.? Mitsukuri & Ikeda. The Zool. Mag., Tokyo, vii, p. 39, pl. 10.

Bay of Tateyama, Prov. Awa, E. side Bay of Tokyo.

*Megateuthis martensii* Hilgendorf. Sitzungsber. Ges. naturforsch. Fr. Berl., 1880, p. 65.

Yedo (Hilg.).

*Todarodes pacificus* Steenstrup. Chall. Rep., Vol. 16, p. 163, pl. 28, figs. 1-5.

Inland Sea.

## TODARIDÆ.

*Gonatus fabricii* (Lichtenstein) Steenstrup. Chall. Rep., Vol. 16, p. 174, pl. .

Japan.

## CRANCHIIDÆ.

*Loligopsis* (?) *chrysophthalmus* Tilesius. Man. Conch., p. 164.

Japan.

## NAUTILIDÆ.

*Nautilus pompilius* has been reported from Japan by Dunker, but its occurrence there is doubtful.

## PTEROPODA.

As these mollusks are wholly pelagic in habits, the number occurring in Japanese waters will probably be larger than given below. For literature see Pelseneer, Report on Pteropoda coll. by Challenger.

## PTEROPODA GYMNOSOMATA.

Several species of *Pteropoda gymnosomata* have been collected in the N. Pacific east of Japan, but we are still ignorant of the species which actually occur in Japanese waters. See Challenger Report, Vol. XIX, part lviii, p. 65.

## PTEROPODA THECOSOMATA.

## LIMACINIDÆ.

*Limacina inflata* d'Orbigny.

Corea Strait, (St. John).

*Limacina lesueuri* d'Orbigny.

Pacific E. of Japan,

*Limacina bulimoides* d'Orb. Same locality.

"*Agadina*" *stimpsoni* A. Ad. (=larval Gastropoda). Chall. Rep. Pter. Thec., p. 38, pl. 1, f. 11-14.

Kino-Osima (Ad.).

"*Agadina*" *gouldii* A. Ad.

Kino-Osima (Ad.).

#### CAVOLINIIDE.

*Creseis virgula* Rang. Bay of Yedo.

*Creseis acicula* Rang. China Sea, E. of Japan.

*Hyalocylis striata* Rang. China Sea, off E. Japan.

*Styliola subula* Q. & G. Off E. Japan.

*Clio pyramidata* Linné. Off E. Japan.

*Clio cuspidata* Bosc. Off E. Japan.

*Cuvierina columnella* Rang. Off E. Japan.

*Cavolinia trispinosa* Lesueur. Off Japan.

*Cavolinia quadridentata* Lesueur. China Sea, off S.-E. Japan.

*Cavolinia globulosa* Rang. China Sea.

*Cavolinia gibbosa* Rang. Same locality.

*Cavolinia tridentata* Forskal. Same locality.

*Cavolinia uncinata* Rang. Yedo.

*Cavolinia inflexa* Lesueur. Corea Strait, Yokohama.

#### PULMONATA.

##### SIPHONARIIDE.

*Siphonaria atra* Quoy & Gaimard. Q. & G., Voy de l'Astrol., pl. 25, figs. 41, 42.  
*S. cornuta* Gld., U. S. Expl. Exped., pl. 357, fig. 467. *S. coreensis* Ads. & Rve.,  
Zool. Samarang, pl. 13, f. 1a, 1b.

Tokyo (Dkr.); Nagasaki (Lischke).

I have seen no Japanese specimens referable to this species. Perhaps the forms described by Gould and Adams and Reeve will prove distinct from the true *S. atra*.

*Siphonaria sirius* Pilsbry. Pl. VI, figs. 23, 24, 25, 26, 27, 28.

Shell oblong, polygonal, low conical with subcentral, erect apex: primary ribs all single, generally 7, strongly elevated and white; interspaces wide, dark brown, radially finely ribbed. Interior brown-

black, the larger ribs indicated by white rays; siphon occupying a single rib, never a double one. Cavity with a white callus (rarely chestnut colored), the region of the muscle impression bordered with chestnut stains. Length 22, breadth 17-19, alt. 5 mm.

Sagami, and Kashiwazaki, Boshu, Japan (Frederick Stearns!).

This species differs from *S. atra* Q. & G., *coreënsis* A. & R., and their allies in having the siphonal rib single and simple. It is probably the species identified as *S. atra* by Dunker and other writers on Japanese shells. Several hundred specimens collected by Mr. Stearns agree in the characters above given. Not one shows any tendency to double the siphonal rib.

*Siphonaria cochleariformis* Reeve. Conch. Icon., pl. 6, figs. 28 a, b.

Koshinozaki, Boshu (Stearns); Deshima (Dkr.); Nagasaki (Lischke). The specimens agree well with Reeve's figures, except that the entire interior is black-brown except for a narrow white border closely marked with dark at each rib interval.

*Siphonaria acmæoides* Pilsbry. Pl. VI, figs. 19, 20, 21, 22.

Shell oblong, nearly equilateral, but with excentric apex like *S. radiata* A. & R. (Zool. Samarang, pl. 13, fig. 2). The even surface hardly modified by the 9-16 low, wide ribs, between which it is very finely radially striated. Siphonal rib wide but low and inconspicuous. Apex spiral, bent down and appressed. Interior blackish or chestnut within the muscle impression, outside of which it is radially striped black and white, the siphonal channel extremely shallow and inconspicuous. Color outside whitish-buff, speckled and maculated with brown, or whitish on the principal ribs, the intervals black-brown. Length  $12\frac{3}{4}$ , breadth  $9\frac{1}{2}$ , alt.  $3\frac{1}{2}$  mm.

Prov. Boshu, Japan (Frederick Stearns).

This little species very closely resembles *Acmaea Heroldi* in the general form and the coloration of the interior.

## OPISTHOBRANCHIATA.

### ACTEONIDÆ.

*Solidula strigosa* Gld. J. M. C., II, pl. 5, f. 12, 13.

Loo Choo and Kagoshima (Stimp.); Nagasaki (Birileff); Tokyo Harbor (Stearns); Gozo Harbor, 6 fms. (St. John).

*Solidula fratercula* Dkr. Index, p. 161, pl. 13, f. 21-23.

Japan (Dkr.).



- Actæon siebaldi* Rve. Man. Conch., XV, p. 148, pl. 19, f. 18, 19.  
Japan (Siebold).
- Leucotina dianæ* Ad. Man. Conch., XV, p. 167, pl. 18, f. 68, 69.  
Bay of Yedo (Lischke).
- Leucotina gigantea* Dkr. Index, p. 160, pl. 2, f. 8, 9.  
Japan.
- Leucotina sulcata* A. Ad. Man. Conch., XV, p. 168.  
Corea Strait, 46 fms. (Ad.).
- Leucotina nipponensis* A. Ad.  
16 miles of Mino-Shima, off Nippon, Strait of Corea, 63 fms. (Ad.).
- Leucotina exarata* A. Ad. Man. Conch., xv, p. 168.  
Tabu-Shima, 25 fms. (Ad.).
- Leucotina inculpta* A. Ad. Man. Conch., xv, p. 169.  
St. of Corea, 46 fms. (Ad.).
- Leucotina punctata* A. Ad. Man. Conch., xv, p. 169.  
Tabu-Shima, 25 fms. (Ad.).
- Leucotina japonica* A. Ad. Man. Conch., xv, p. 169.  
Strait of Corea, off Nippon (Ad.).
- Leucotina scitula* A. Ad. Man. Conch., xv, p. 170.  
Off Mino-Shima, 63 fms. (Ad.).
- Bullina scabra* Gmel. Man. Conch., xv, p. 176, pl. 45, f. 18-22.  
Nemoto, Boshu (Stearns).

**TORNATINIDÆ.**

- Tornatina exilis* Dkr. Moll. Jap., p. 25, pl. 2, f. 14.  
Deshima (Dkr.); Nagasaki (Lischke).
- Tornatina delicatula* A. Ad. Man. Conch., xv, p. 190.  
Mino-Shima, 63 fms. (Ad.).
- Tornatina simplex* A. Ad. Man. Conch., xv, p. 193, pl. 25, f. 51.  
Japan (Ad.).
- Tornatina gracilis* A. Ad. Man. Conch., xv, p. 194, pl. 25, f. 49.  
Japan (A. Ad.).
- Tornatina fusiformis* A. Ad. Man. Conch., xv, p. 194, pl. 22, f. 27.  
Japan (A. Ad.).
- Retusa succincta* A. Ad. Man. Conch., xv, p. 222.  
Tsu-Shima, 16 fms.; Awa-Shima, low water (Ad.).

*Retusa (Pyrunculus) folliculus* A. Ad. Man. Conch., xv, p. 270.

Tabu-Shima, 25 fms. (Ad.).

*Retusa (Pyrunculus) phiala* A. Ad. Man. Conch., xv, p. 230.

Mino-Shima, 63 fms. (Ad.).

*Retusa (Pyrunculus) elliptica* Ad. Man. Conch., xv, p. 231.

Tsu-Shima, 16 fms. (A. Ad.).

*Volvula opalina, cylindrella, ovulina*, A. Ad. Man. Conch., xv, p. 239, 240.

Mino-Shima, 63 fms. (Ad.).

*Volvula spectabilis* and *radiola* A. Ad. Man. Conch., xv, p. 240.

Tabu-Shima, 25 fms. (A. Ad.).

*Volvula attenuata* A. Ad. Man. Conch., xv, p. 240.

Tsu-Shima, 26 fms. (A. Ad.).

*Volvula angustata* A. Ad. Man. Conch., xv, p. 240.

Endermo Harbor, 4-7 fms. (St. John).

#### SCAPHANDRIDÆ.

*Scaphander japonicus, cumingii, elongatus*, A. Ad. Man. Conch., xv, p. 254.

Mino-Shima, 63 fms. (A. Ad.).

*Scaphander sulcatus* A. Ad. Man. Conch., xv, p. 254.

Corea Strait, 46 fms. (Ad.).

*Scaphander sieboldi, dilatatus* A. Ad. Man. Conch., xv, p. 255.

Tsu-Shima, Japan, 26 fms. (Ad.).

The unfigured Scaphanders described from Japan by Adams may, some of them, prove to be Philines.

*Smaragdinella sieboldi* A. Ad. Man. Conch., xv, p. 260.

Takano-Shima, between tide marks (Ad.).

*Atys naucum* Linné. Man. Conch., xv, p. 263, pl. 28, f. 11-13, 16.

Deshima (Dkr.).

*Atys scrobiculata* A. Ad. Man. Conch., xv, p. 265.

Tabu-Shima, 25 fms. (Ad.).

*Atys (Alicula) porcellana* Gld. Man. Conch., xv, p. 268, pl. 28, f. 23; Ann. Mag., 1875, xvi, p. 114.

Kagoshima Bay (Stimp.), Matoza Harbor (St. John).

*Atys (Alicula) secalina* and *volvulina* A. Ad. Man. Conch., xv, p. 269, 270.

Tsu-Shima, Japan, 25 fms. (Ad.).

- Atys (Roxania) punctulata* A. Ad. Man. Conch., xv, p. 279.  
Mino-Shima 63 fms. (Ad.).
- Cylichna semisulcata* Dunker. Index, p. 163, pl. 13, f. 7-9.  
Japan.
- Cylichna japonica* and *rimata* A. Ad. Man. Conch., xv, p. 304, 305.  
Corea Strait, 46 fms. (Ad.).
- Cylichna proxima*, *lepidula*, *parallela*, *pumila*, *candidula* A. Ad. Man. Conch., xv, pp. 304-307.  
Tsu-Shima, 26 fms. (Ad.).
- Cylichna venustula*, *consobrina*, *assimilis*, *inedita* A. Ad. Man. Conch., xv, pp. 304-307.  
Mino-Shima, 63 fms. (Ad.).
- Cylichna latiuscula* A. Ad. Man. Conch., xv, p. 305.  
Tabu-Shima, 25 fms. (Ad.).
- Cylichna pertenuis* Smith. Man. Conch., xv, p. 307.  
N. lat. 42° 52', E. long. 144° 40', 48 fms. (St. John).
- Cylichna læta* Gld. Man. Conch., xv, p. 308.  
Kagoshima (Stimp.).
- Cylichna consobrina* Gld. Man. Conch., xv, p. 308.  
W. coast of Yesso.
- Cylichna concinna* A. Ad. Thes., p. 593, pl. 125, f. 142.  
Matoza Harbor, 6 fms. (St. John).

## PHILINIDÆ.

- Philina scalpta* A. Adams. Lischke, J. M. C., III, p. 76, pl. 5, f. 15, 16.  
Bay of Yedo (Lischke); Tsu-Shima (Ad.).
- Philine japonica* Lischke. J. M. C., III, p. 77, pl. 5, f. 13, 14 (P. striatella Tap.-Can., Viag. Magenta, pl. 2, f. 9).  
Bay of Yedo (Lischke) Yokohama (Tap.-Can.). Specimens collected by Stearns show *japonica* and *striatella* to be identical.
- Philine crenata* and *striolata* A. Ad. Ann. Mag., 1862, ix, p. 160, 161.  
Tsu-Shima (Ad.).
- Philine argentata* Gld. Otia Conch., p. 111.  
Hakodate Bay (Stimpson), 2-6 fath., sandy mud.
- Philine (Laona) zonata* A. Ad. Ann. Mag. N. H., 1865, p. 324.  
O-Shima; Yobuko (Ad.).



**BULLIDÆ.**

- Bulla (vernica) var. (?) ovulum* (Gld.) Sowb. Man. Conch., xv, p. 349.  
Boshiu; Luchu Is. (Stearns).

**AKERIDÆ.**

- Haminea angusta* Gld. Man. Conch., xv, p. 361.  
Simoda (Stimp.).
- Haminea strigosa* A. Ad. Man. Conch., xv, p. 362.  
Tabu-Shima, 25 fms. (Ad.).
- Haminea grisea* Smith. Man. Conch., xv, p. 362.  
Off Japan. Lat. 42° 52' N.; Long. 144° 40' E.; 48 fath.; sand  
and mud (St. John).
- Haminea cymbalum* Q. & G. Lischke, J. M. C., p. 105.  
Nagasaki (Lischke).
- Haminea constricta* A. Ad. Man. Conch., xv, p. 370.  
Japan (Schrenck).

**HYDATINIDÆ.**

- Hydatina physis* Linné. Man. Conch., xv, p. 387, pl. 45, f. 14-17.  
Yedo (Lischke); Inland Sea (Stearns).
- Hydatina albocincta* Hoeven. Man. Conch., xv, p. 388, pl. 45, f. 29, 30.  
Nagasaki (Birileff).
- Hydatina inflata* Dunker. Index, p. 162, pl. 2, f. 14-16.  
Inland Sea at Wakayama.

**RINGICULIDÆ.**

- Ringicula doliaris* Gld. Man. Conch., xv, p. 403.  
Hakodate Bay (Stimp.); Kamakura (Stearns).
- Ringicula arctata* Gld. Man. Conch., xv, p. 403, pl. 47, f. 74, 75, 79.  
Nagasaki (Birileff); Tokyo Harbor (Stearns).
- Ringicula oelertiana* Morlet. Journ. de Conchyl., 1880, p. 156, pl. 5, f. 4.  
Japan (St. John).

**APLYSIIDÆ.**

- Aplysia marginata* and *marmorea* A. Ad. Ann. Mag., 1861, p. 140.  
Port Hamilton (Ad.). Will probably occur in Japan.
- Dolabella scapula* Mart. Dkr., Index, p. 168.  
Wakayama (Dkr.).

*Phyllaplysia punctulata* Tapperone-Canefri. Viag. Magenta, p. 112, pl. 2, f. 3.  
Yokohama.

**UMBRELLIDÆ.**

*Umbrella indica* Linné. Dkr., Index, p. 169.

Japan (Dkr.).

*Bertinia bertinia* Jouss. Bull. Soc. Zool. Fr., 1883, p. 194, pl. 10, figs. 6, 8.

Japan.

[**NUDIBRANCHIATA** omitted].

**PROSOBRANCHIATA.**

(*Toxoglossa*).

**TEREBRIDÆ.**

*Terebra albozonata* Smith. Smith, P. Z. S., 1879, p. 185, pl. 19, f. 5.

Matoza Harbor (Smith); N. of Kiushiu (St. John).

*Terebra adamsii* Smith. Ann. Mag., 1875, p. 415.

Matoza Harbor, 6 fathoms.

*Terebra (Myurella) bathyrhaphe* Smith. Ann. Mag., 1875, p. 415; Challenger  
Gastrop., 1873-6, XV, p. 377, pl. XIV, fig. 9.

Gulf of Yedo 6 to 25 fathoms, soft mud and sand.

*Terebra bifrons* Hinds. Thes. Conch. I, p. 174, pl. 43, f. 57 (a small or young specimen).

S.-E. coast Prov. Kii (Stearns).

*Terebra bipartita* Gld. Otia Conch., p. 126.

Hakodate Bay (Stimpson).

*Terebra duplicata* Linné. Conch. Icon., f. 3.

Inland Sea (Stearns).

*Terebra cingulifera* Lam. Southeast coast Kii (Stearns).

*Terebra dussumieri* Kiener. Rvc., C. Icon., f. 7.

Kamakura (Stearns, young); Nagasaki (Lischke).

*Terebra evoluta* Deshayes. Rvc., Conch. Icon., XII, f. 55. Smith, P. Z. S., 1879,  
p. 183.

Ukushima, Goto Is., Matoza Harbor, (St. John); E. coast (Stearns).

*Terebra flammea* Lam. Rvc., C. Icon., f. 13.

Japan (Dkr.).

*Terebra fulgurata* Phil. C. Icon., f. 151.

Tartary Strait (Schrenck).

- Terebra gotoensis* E. A. Smith. Smith, P. Z. S., 1879, p. 183, pl. 19, f. 1.  
Goto Is. (St. John).
- Terebra jeffreyii* E. A. Smith. Smith, l. c., p. 184, pl. 19, f. 2.  
East of Kii, and between S.-W. Nippon and Shikoku (St. John)
- Terebra japonica* Smith. Ann. Mag., 1875, p. 415.  
Matoza Harbor 6 fathoms, sand.
- Terebra lischkeana* Dkr. Dkr., Index, p. 71, pl. 5, f. 13-16.  
Kamakura; Idzu (Stearns).
- Terebra loebbeckiana* Dkr. Index, p. 72, pl. 5, f. 17, 18.  
Inland Sea (Stearns).
- Terebra maculata* Linné. Tryon, Man., Vol. VII, p. 9, pl. I, figs. 9-10.  
Japan? (Dunker). One specimen found by Stearns.
- Terebra muscaria* Lamarek. Man. Vol. VII, p. 9, pl. 1, fig. 12.  
Japan (Dunker, Stearns); Nagasaki (Lischke, Tryon).
- Terebra melanaome* Smith. Ann. Mag., 1875, p. 415.  
Cape Shima 18 fathoms, sand.
- Terebra pretiosa* Rve. C. Icon., f. 30a.  
Japan (Dkr.).
- Terebra pustulosa* Smith. Smith, P. Z. S. 1879, p. 186. *T. granulosa* Smith, Ann. Mag., 1873, XI, p. 268.  
Japan (A. Ad.).
- Terebra (Myurella) polygyrata* Deshayes. Ann. Mag., 1875, p. 415. Conch. Icon., XII, sp. 146.  
Goza Harbor (St. John); Kamakura; Idzu; Kishiu; Tokyo Harbor (Stearns).
- Terebra serotina* Ads. & Rve. Ads. & Rve., Zool. Samarang, p. 30, pl. 10, f. 20.  
Nagasaki (Ad.); Kishiu, Idzu (Stearns). In my opinion the *T. mariesi* Smith, P. Z. S., 1880, pl. 48, f. 5, is a synonym.
- Terebra stearnsii* Pilsbry. Proc. Acad. Nat. Sci., Phila., 1891, p. 472, pl. 19, f. 5.  
Japan (Stearns).
- Terebra strigillata* Linn. Sowb., Thes. I, pl. 45, f. 122.  
Nemoto, Boshu, and Kamakura (Stearns); Nagasaki (Lischke).
- Terebra subtextilis* E. A. Smith. Sm., P. Z. S., 1879, p. 185, pl. 19, f. 3.  
Idzu and Kishiu (Stearns); Shikoku (St. John).



*Terebra subulata* Linn. Nagasaki (Lischke); Japan (Stearns).

*Terebra tantilla* E. A. Smith. Smith, P. Z. S., 1879, p. 185, pl. 19, f. 4. (+T. pumilio Sm., Ann. Mag. 1873, xi, p. 269).

Between Nippon and Shikoku (St. John).

*Terebra textilis* Hinds. Hinds, Voy. Sulphur, p. 34; Rve., Conch. Icon., f. 130.

E. coast of Kii (St. John); Southern Japan.

*Terebra torquata* Adams & Reeve. Voy. Samarang, p. 30, pl. 10, f. 13.

Nagasaki (Lischke); E. of Goto Is. (St. John); Japan (Stearns).

*Terebra triseriata* Gray. Dkr., Index, p. 72, pl. 5, f. 19, 20.

Inland Sea (Stearns). Specimen a third larger than that figured by Dunker.

Several other *Terebras* have been reported from Japan, but not confirmed by recent collections. *T. blanda* Dh. (C. Icon., sp. 117); *T. dilwyni* Dh. (l. c., sp. 74); *T. tristis* Dh. (l. c., sp. 102); *T. solida* Dh. (l. c., sp. 123).

#### CONIDÆ.

*Conus acutangulus* Chemnitz. Conchyl. Cab., p. 165, Taf. 14, figs. 9, 10.

Japan (Kiener).

*Conus aureus* Hwass. Japan (Stearns).

*Conus carinatus* Swains. Japan (Stearns).

*Conus catus* Brug. Japan (Stearns).

*Conus fulgetrum* Sowerby. Conchyl. Cab., p. 199, Taf. 31, figs. 6-7.

Nagasaki (Lischke).

*Conus fulmen* Reeve. Conch. Icon., sp. 215.

Nagasaki (Lischke; Rein); Inland Sea (Stearns).

*Conus hebræus* Linn. Japan (A. Ad.; Stearns); Nagasaki (Lischke).

*Conus intermedius* Reeve. C. Icon., I, f. 129.

Japan (Dkr.).

*Conus lentiginosus* Reeve.

Two Japanese specimens collected by Stearns seem in every way typical. Reeve's figure is from a small example.

*Conus lischkeanus* Weinkauff. Conchyl. Cab., p. 311, Taf. 56, figs. 2, 3.

Kiushiu (Lischke).

- Conus marmoreus* Linn. Nagasaki (Lischke); Japan (Stearns).  
*Conus miles* Linn. Tsushima (Stearns).  
*Conus miliaris* Hwass. Japan (Stearns).  
*Conus orbigny* Audouin. Rve., C. Icon., I, sp. 17 (*C. planicostatus* Sowb.).  
 Japan (Dkr.).  
*Conus pauperculus* Sowb. Dkr., Index, p. 94, pl. 2, figs. 4, 5.  
 Japan (Dkr., Stearns).  
*Conus pulicarius* Hwass.  
 Yokohama (Dkr.); Japan (Stearns); Bay of Yedo (Lischke).  
*Conus quercinus* Hwass. Japan (Stearns).  
*Conus sieboldi* Reeve. C. Icon., I, f. 269.  
 Bay of Yedo (Lischke).  
*Conus tessellatus* Born. C. Icon., f. 163.  
 Japan (Dkr.).  
*Conus textile* Linné. Nagasaki (Lischke).  
*Conus tulipa* Linn. Japan (Stearns).  
*Conus vexillum* Gmel. Japan (Stearns).

[*Conus nebulosus* Sol. One specimen of the form with spire flat except for a conical elevated mucro, was obtained by Mr. Stearns in Japan; but is probably to be regarded as an adventitious shell not belonging to that fauna].

#### PLEUROTOMIDÆ.

- Pleurotoma crispa* Lamarek. Ooshima Harbor 8 fathoms (St. John).  
*Pleurotoma grandis* Gray. Conch. Icon., fig. 13.  
 Japan (Dkr.).  
*Pleurotoma yedoensis* Jous. Bull. Soc. Zool. Fr., 1883, p. 196, pl. 10, fig. 7.  
 Japan. Is it a synonym of *P. grandis*?  
*Pleurotoma marmorata* Lam. C. Icon., f. 139 (*P. hastula* Rve.). Kiener, Coq. Viv., pl. 6, f. 11. Smith, P. Z. S., 1879, p. 186.  
 Japan (Dkr.); betw. Nippon and Shikoku, 30 fms. (St. John).  
*Pleurotoma variegata* Kiener. Coq. Viv., pl. 9, f. 1. Man. Conch., p. 164, pl. 2, f. 13.  
 Nagasaki (Lischke).  
*Pleurotoma picturata* Weinkauff. Conchyl. Cab., p. 66, pl. 14, f. 13. (*P. variegata* Rve. not Kiener).  
 Japan (Lischke).

*Pleurotoma unedo* Valenciennes. Conchyl. Cab., p. 19, pl. 4, fig. 1.

Nagasaki, Yedo Bay (Lischke); Miura, Sagami (Stearns).

*Pleurotoma cingulifera* Lam. Inland Sea (Stearns).

*Pleurotoma indica* Desh. E. Coast, S. of Tokyo Harbor (Stearns).

*Pleurotoma tuberculata* Gray. Conchyl. Cab., p. 40, pl. fig. 1, 3. Man. Conch., vi, p. 237, pl. 5, f. 66, 67, C. Icon., f. 72.

Bay of Yedo (Dkr.).

*Pleurotoma leucotropis* Adams and Reeve. A. & R., Zool. Samarang, pl. 10, f. 7.

Sagami, Tokyo (Stearns); Matoza and Ooshima Harbors, 6 to 8 fathoms, sandy mud (St. John).

I suppose this is what Dunker (Index, p. 21) calls *P. albicarinata* Sowb. (see P. Z. S., 1870).

*Pleurotoma declivis* Martens. Conchol. Mittheil., p. 39, pl. 9, f. 2.

Japan, Hakodate (Hilgendorf).

*Pleurotoma patruelis* Smith. P. Z. S., 1879, p. 188, pl. 19, f. 10, 10a. Ann. Mag. 1875, p. 419.

Gulf of Yedo, 10½ fms. (St. John); Japan Sea, lat 34° 6' N., long. 136° 15' E., 11 fms. (St. John).

*Pleurotoma sancti-ioannis* Smith. Ann. Mag. N. H. (4), xv, p. 416.

One hundred miles southeast of Yesso, 48 fms. (St. John).

*Pleurotoma triporecata* Smith. P. Z. S., 1879, p. 188, pl. 19, f. 9.

Goto Is. (St. John).

*Pleurotoma difficilis* Smith. P. Z. S., 1879, p. 187, pl. 19, f. 8.

Between S.-W. extremity Nippon and I. Shikoku, north of Kiu-shiu (St. John).

*Pleurotoma vertebrata* Smith. Ann. Mag., 1875, p. 416, P. Z. S., 1879, p. 186, pl. 19, f. 6a.

Matoza Harbor, 6 fathoms, sand (St. John), and same localities as last species.

*Pleurotoma tuberosa* Smith. Ann. Mag., N. H., (4), xv, p. 418.

Ooshima Harbor, 8 fms.; Matoza Harbor, 6 fms.; Goza Harbor, 6 fms. (St. John).

*Pleurotoma niponica* Smith. P. Z. S., 1879, p. 187, pl. 19, f. 7.

Between S.-W. extremity Nippon and I. Shikoku (St. John).

*Pleurotoma (Gemmula) fusca* Homb. & Jacq. Voy. au Pole Sud, Zool., v, p. 111, pl. 25, f. 19, 20; Man. Conch., p. 173.

Goto Is., between S.-W. extremity Nippon and I. Shikoku, 30 fms. (St. John). Tryon believes the Japanese specimens referable to *gemmata* Hinds.



*Pleurotoma? kamakurana* n. sp. Pl. 2, fig. 15, 16.

Shell fusiform, much elongated, the canal nearly as long as the spire; dull brown, with an ill-defined light band around the middle; spire attenuated, the whorls very convex, almost angular, concave above and nearly smooth, appressed at the suture. Sculptured with numerous short vertical folds which do not extend on the body whorl below the level of the upper angle of mouth, and become obsolete on its latter half; and numerous subequal, crowded spiral cords throughout. Aperture nearly half the length of shell, long-elliptical above, passing into a long, open, straight canal below. Anal sinus wide and rather shallow; outer lip gently arched forward. Alt. 53, diam. 15 mill.

Kamakura (Stearns, 2 specimens).

*Genotia Luhdorfi* Lischke. J. M. C., III, pl. 1, f. 2-4.

Bay of Yedo (Lischke); Nemoto, Boshu (Stearns).

*Genotia engonia* Watson. Challenger, Gastrop., 1873-6, XV, p. 300, pl. xx, fig. 7.

Enoshima, 345 fathoms, green mud.

*Columbarium pagoda* Lesson. Man. Conch., vi, p. 175. Dkr., Index, pl. 1, f. 8, 9, 10.

Japan.

*Drillia candens* Smith. P. Z. S., 1879, p. 192, pl. 19, f. 17.

Goto Is. (St. John).

*Drillia chocolata* Smith. Ann. Mag. N. H. (4), xv, p. 417.

Goza Harbor, 6 fms. (St. John).

*Drillia consimilis* Smith. P. Z. S., 1879, p. 188, pl. 19, f. 11.

South of Korea, 24 fms. (St. John).

*Drillia erosa* Schrenck. Amurl. Moll., p. 405, pl. 17, f. 5-7.

Bay of Castries (Schrenck); Nemoro, E. Yesso; off Cape Blunt; Yamada Harbor; E. of Yesso; 3-35 fms. (St. John).

*Drillia flavidula* Lamarck. Conchyl.-Cab., p. 45, pl. 10, fig. 1 to 5. Ann. Mag., 1875, p. 417.

North of Nippon in 43 fathoms, sand and mud; W. of Nippon, 3 fathoms soft mud; Goza Harbor, 6 fath. (St. John); Nagasaki (Lischke).

*Drillia flavonodulosa* Smith. P. Z. S., 1879, p. 194, pl. 19, f. 21.

Inland Sea, between Shikoku and Nippon (St. John).

*Drillia fortilirata* Smith. P. Z. S., 1879, p. 194, pl. 19, f. 22.

E. of Goto Is., and Nippon and Shikoku (St. John).

**Drillia gracilenta** Reeve. Smith, P. Z. S., 1879, p. 195, pl. 19, f. 24; Reeve, C. Icon., f. 114 (plus *P. contracta* Rve., f. 116, and *P. fusoides* Rve. f. 349).

E. coast of Kii, S. of Nippon (St. John); Kamakura and Tokyo Harbor (Stearns).

**Drillia humilis** Smith. P. Z. S., 1879, p. 193, pl. 19, f. 20.

Ojika Bay, Goto Is., 10 fms. (St. John).

**Drillia principalis** n. sp. Pl. 2, f. 17.

Shell resembling *D. jeffreysii* Smith, but decidedly more attenuated. Whorls about 13, angular convex, concave above, buff, finely mottled all over with reddish-brown, purplish on the spire, especially between the folds. Sculptured with oblique longitudinal folds (11 on penult. whorl) which stop abruptly at the shoulder and gradually decrease below; spirals rather spaced, coarse and unequal, alternating in size, absent on the concave upper surface of the whorls; the surface between liræ and over the concave anal fasciole finely spirally striate. Aperture sub-rhombic, narrowed below, slightly over one-third the shell's length; canal a little recurved. Anal sinus very deep, straight; outer lip arched forward, with a distinct sub-basal sinus. Columella moderately calloused and nearly straight below, bearing a callous tubercle above.

Alt. 53, diam. 18 mm.

Alt. 36, diam. 11 mm.

*D. jeffreysii*, while allied to this, is far broader if specimens of the same size be compared. *D. latisinuata* Smith has a wider, squarer anal sinus, with flaring posterior lobe of the outer lip. The shape of the sinus itself is different in *D. lanceolata* (Rve.) Martens. In some specimens the spiral liræ are much wider, flattened, and the folds more numerous. Inland Sea (Stearns).

**Drillia inconstans** Smith. Ann. Mag. N. H., 1875, (4), xv, p. 417.

Ooshima Harbor, 8 fms.; Tsushima Strait, 9 fms.; Matoza Harbor, 6 fms. (St. John).

**Drillia intermaculata** Smith. P. Z. S., 1879, pl. 19, f. 19.

South of Corea.

**Drillia interrupta** Lam. C. Icon., f. 51.

Deshima (Dkr.).

**Drillia japonica** Lischke. Smith, P. Z. S., 1879, p. 191, pl. 19, f. 15.

Boshiu, Kamakura, Tokyo Harbor, coast of Prov. Kii (Stearns); Nagasaki (Lischke); north of Kiushiu, 33° 56' N. lat., 130° 27' E. long. (Smith).

*Drillia jeffreysii* Smith. Ann. Mag. N. H. (4), xv, p. 417, 1875.

Goza Harbor, 3-43 fms. (St. John).

*Drillia lanceolata* Rve. Conch. Mittheil., I, p. 38, pl. 8, f. 4.

Hakodate (Hilgendorf).

*Drillia longispira* Smith. P. Z. S., 1879, p. 190, pl. 19, f. 14.

East of Goto Is. (St. John).

*Drillia?* *tokyoensis* n. sp. pl. 2, f. 5.

Shell fusiform, elongated, slender, dark chestnut-brown throughout. Whorls 6, slightly convex, separated by narrowly impressed sutures, the earlier 2 whorls smooth, the remainder strongly latticed. Spirals 15 on body-whorl, strong, equal and continuous; longitudinal ribs 22 on last whorl, about as high as the spiral cords, but wider and more rounded, disappearing on the very short canal. Penultimate whorl with 6 spiral cords. Aperture three-sevenths the total alt. of shell. Outer lip thickened by a rounded varix, within crenulated by short liræ; the anal notch deep, narrow and rounded, separated from suture by a heavy callus. Canal short and straight.

Alt. 7, diam.  $2\frac{3}{8}$  mm.

Kamakura; Tokyo Harbor (Stearns).

*Drillia nagasakiensis* Smith. P. Z. S., 1879, p. 190, pl. 19, f. 13.

West of Nagasaki, 40-58 fms. (St. John).

*Drillia obliquata* Rve. C. Icon., f. 262.

Between Nippon and Shikoku (St. John).

*Drillia peradmirabilis* Smith. P. Z. S., 1879, p. 189, pl. 19, f. 12.

Goto Is. and South of Corea (St. John).

*Drillia raricostata* Smith. P. Z. S., 1879, p. 192, pl. 19, f. 18.

W. of Nagasaki (St. John).

*Drillia reciproca* Gld. Otia Conch., p. 133.

Ooshima (Stimpson).

*Drillia sinensis* Hinds. C. Icon., f. 153.

Japan (Dkr.).

*Drillia subauriformis* Smith. P. Z. S., 1879, p. 195, pl. 19, f. 23; Dkr., Index, p. 24, pl. 4, f. 5-7.

Tokyo Harbor and Kamakura (Stearns); between Nippon and Shikoku (St. John).

*Drillia subobliquata* Smith. P. Z. S., 1879, p. 191, pl. 19, f. 16.

East of Goto Is. (St. John).



- Drillia texta* Dkr. Moll. Jap., p. 2, pl. 1, f. 19.  
 Deshima (Dkr.); Tokyo Harbor (Stearns).
- Drillia vidua* Reeve. C. Icon., f. 192.  
 Japan (Dkr.).
- Drillia (Crassispira) striata* Kiener. C. Icon., f. 144.  
 Bay of Castries (Nordmann).
- Oligotoma makimonos* Jous. Bull. Soc. Zool. Fr., 1883, p. 198, pl. 10, fig. 4.  
 Japan (Jous.); neighborhood of Gulf of Yedo (Stearns).
- Bela iessoensis* Smith. Ann. Mag., 1875, p. 419.  
 S.-E. of Yedo, lat. 42° 58' N., long. 104° 24' E., 43 fath., sand and mud. (St. John).
- Bela (Typhlomangilia) pyrria* Watson. Challenger Gastrop. 1873-6, XV, p. 316, (pl. XXV, f. 6).  
 Kobé and Yokohama, 50 fathoms, sand (Challenger).
- Lachesis japonica* A. Ad. P. Z. S., 1879, p. 198, pl. 20, f. 29.  
 Off Mino-Shima, 63 fms. (Ad.); E. of Goto Is., 58 fms. (St. John).
- Clavatula virginea* Val. C. Icon., i, f. 32 (Pleurotoma).  
 Hakodate (Lindholm).
- Surcula javana* Linné. Man. Conch., vi, p. 237 (syn. *P. nodifera* Lam., *lurida* Ads. & Rve., Zool. Samarang, pl. 10, f. 5).
- Surcula coreanica* Ads. & Rve. Zool. Samarang, pl. 10, f. 8.  
 Corea (Adams).
- Surcula kaderleyi* Lischke. J. M. C., III, pl. 1, f. 1.  
 Bay of Yedo (Lischke); Enoshima (Stearns).
- Mangilia costulata* Dkr. Moll. Jap., pl. 1, f. 20.  
 Deshima (Dkr.); Tokyo Harbor (Stearns).
- Mangilia deshayesii* Dkr. Moll. Jap., p. 3, pl. 1, f. 3.  
 Deshima.
- Mangilia filicineta* E. A. Smith. Ann. Mag., 1882, X, p. 216.  
 Japan (A. Adams).
- Mangilia lischkei* E. A. Smith. Ann. Mag., 1888 (6), II, p. 312.  
 Japan (Brit. Mus.).
- Mangilia modica* E. A. Smith. Ann. Mag., 1882, X, p. 213.  
 Japan (?).
- Mangilia pygmæa* Dkr. Moll. Jap., p. 2, pl. 1, f. 8.  
 Deshima.

*Mangilia robusticostata* Smith. P. Z. S., 1879, p. 198, pl. 19, f. 28.

Japan.

*Mangilia splendida* A. Ad. P. Z. S., 1867, p. 309, pl. 19, f. 24.

Goto Is. (Ad.).

*Citharopsis cancellata* A. Ad. Ann. Mag. 1865, p. 323.

Mino-Shima (Ad.)

*Glyphostoma obtusicostata* E. A. Smith. Ann. Mag., 1882, X, p. 304.

(?) Japan, probably.

*Clathurella crassilabrum* Rve. C. Icon., f. 118.

Hakodate (Albrecht).

*Clathurella filosa* Gld. Otia Conch., p. 134.

Ooshima (Stimpson).

*Clathurella gracilispira* Smith. P. Z. S., 1879, p. 196, pl. 19, f. 25 (Defrancia).

North of Kiushiu (St. John).

*Clathurella leuckarti* Dkr. Moll. Jap.; p. 2, pl. 1, f. 1.

Deshima (Dkr.); Tokyo Harbor and Kamakura (Stearns).

*Clathurella perinsignis* E. A. Smith. Ann. Mag., 1884, XIV, p. 322.

Japan (?).

*Clathurella octangulata* Dkr. Moll. Jap., p. 1, pl. 1, f. 8.

Deshima (Dkr.); north shore of Tango (Gaines, in Stearns coll.).

Dunker's figures are not nearly so angular at the shoulder as these specimens.

*Clathurella asperulata* E. A. Smith. Ann. Mag., 1882, X, p. 296-7.

Japan (A. Adams).

*Clathurella piperata* E. A. Smith. Ann. Mag., 1882, X, p. 298.

Straits of Corea (A. Adams).

*Clathurella rubro-apicata* E. A. Smith. Ann. Mag., 1882, X, p. 296.

Japan (?).

*Clathurella japonica* Melvill. Proc. Malac. Soc. Lond., I, p. 227, pl. 14, f. 11.

Japan (Melv.).

*Clathurella ? gainesii* n. sp. Pl. 2, f. 4.

Shell elongated, turritid, corneous-brown, the interstices of the latticed sculpture dark brown. Whorls 7, very convex, separated by deep sutures; the earlier portion of spire attenuated. Sculpture consisting of strong, broadly rounded longitudinal folds (12 on last

whorl, becoming obsolete on the base) crossed by narrow but strong spiral cords separated by intervals greater than their width, continuous over the longitudinal folds but stronger between them, in number 14 on last whorl, 4 on penultimate whorl. Aperture contained  $2\frac{1}{2}$  times in length of shell; outer lip thick, narrowly varixed outside, having several rather strong teeth within; anal notch deeper than wide, oblique, separated from suture by a thin callus only. Anterior canal very short. Alt.  $6\frac{1}{4}$ , diam.  $2\frac{2}{3}$  mm.

Kamakura (Stearns); north shore of Tango (Gaines).

This species is named in honor of Mr. W. R. Gaines, formerly of Kyoto, who received numerous marine shells from the north shore of Tango, collected by his students. It has a slight resemblance to *D. subauriformis* Smith and *D. texta* Dkr.

*Clathurella reticulosa* E. A. Smith. Ann. Mag. 1882, X, p. 297.

Japan (A. Adams).

*Daphnella* ? *arota* E. A. Smith. Ann. Mag., 1884, XIV, p. 325.

Japan and Persian Gulf (Smith).

*Daphnella fragilis* Reeve. C. Icon., f. 179.

Japan (Smith).

*Daphnella fuscobalteata* Smith. P. Z. S., 1879, p. 196, pl. 19, f. 26 ("fuscolineata" Dkr., Index, p. 25).

Betw. Nippon and Shikoku (St. John).

*Daphnella saturata* Reeve. C. Icon., I, f. 213; P. Z. S., 1879, p. 197.

North of Kiushiu (St. John).

*Daphnella subzonata* Smith. P. Z. S., 1879, p. 197, pl. 19, f. 27.

North of Kiushiu (St. John).

*Daphnella supercostata* E. A. Smith. Ann. Mag., 1882, X, p. 201.

Japan (A. Adams).

*Taranis* ? *turritispira* E. A. Smith. Ann. Mag., 1882, X, p. 306.

Japan (Smith).

*Mitromorpha lirata* A. Ad. Ann. Mag. N. H. 1865, p. 322.

Simonosaki; Seto-Uchi (Ad.).

*Zafra mitræformis* A. Ad. Ann. Mag. N. H., Nov., 1860, p. 332.

Mino-Shima (A. Ad.).

CANCELLARIIDÆ.

*Cancellaria spengleriana* Deshayes. Challenger Gastrop., 1873-6, XV, p. 273; Ann. Mag., 1875, 425; Tryon, Man., Vol. VII, p. 67, pl. 1, f. 2, 3.

Shimidzu, Akasi, Mososeki (A. Ad., Ann. Mag., 1868, p. 368);

Kobé, 8 fathoms, mud (Chall.); Lat.  $35^{\circ} 7' N.$ , long.  $136^{\circ} 55' E.$ ,

3 fath., soft mud (St. John); Nagasaki (Lischke); Inland Sea, etc. (Stearns).

*Cancellaria asperella* Lam. var. *reeveana* Crosse (= *elegans* Sowb. not Desh.). Rv., C. Icon., X, pl. 3, f. 12.

Yokohama (Stearns); Inland Sea (Dkr.); Kiusiu and Tokyo (Lischke); Seto-Uchi; Tomo (Ad.).

*Cancellaria bocageana* Crosse & Debeaux. Lischke, J. M. C., III, p. 41, pl. 2, f. 12, 13, 14.

Bay of Yedo (Lischke).

*Cancellaria nodulifera* Sowb. Dkr., Index, pl. 6, f. 24, 25. Conchyl. Cab., pl. 8, f. 1, 2.

Yokohama Bay (Stearns); Kino-o-Sima; Shimidzu (A. Ad.).

*Cancellaria semipellucida* Ad. & Rve. Zool. Samarang, p. 42, pl. 10, f. 3, 3a.

Mino-Shima, 63 fms. (A. Ad.).

*Cancellaria macrospira* Ads. & Rve. Zool. Samarang, p. 41, pl. 10, f. 2.

Mino-Shima (Ad.).

*Cancellaria fischeri* A. Adams. Ann. Mag. N. H., 1868, p. 368.

Mino-Shima (Ad.).

*Admete viridula* Fabric. Man. Conch., VII, p. 84.

Aniwa Bay, 17 fms. (Ad.); Castle Point, Manchuria.

*Admete arctica* Midd. Mal. Rossica, pl. 9, f. 12. *A. borealis* Ad., Ann. Mag., Nov., 1868, p. 369.

Aniwa Bay (Ad.).

*Admete japonica* Smith. P. Z. S., 1879, p. 216, pl. 20, f. 54.

Corea Strait (St. John).

*Admete ovata* E. A. Smith. Ann. Mag., 1875, p. 426.

Lat. 42° 52' N., Long. 144° 40' E., 48 fathoms (St. John).

*Admete globularis* E. A. Smith. Ann. Mag., 1875, p. 426.

Lat. 42° 52' N., Long. 144° 40' E., 48 fath., sandy bottom (St. John).

*Admete cancellata* Kobelt. Conchyl. Cab., p. 105, pl. 24, fig. 14.

Japan.

(*Rhachiglossa*).

#### OLIVIDÆ.

*Oliva sanguinolenta* Lamarek. Man. Conch., V, p. 79.

Japan (Rein).



*Oliva ispidula* Linné. Thes. Conch., IV, f. 240-254.

Japan.

*Oliva mustelina* Lamk. Ann. Mag., 1875, p. 426; C. Icon., f. 23.

Nagasaki (Lischke); Inland Sea (Stearns).

*Oliva rufopicta* Weinkauff. Conchyl. Cab., p. 88, pl. 23, f. 11, 12.

Japan (Loebbecke).

*Oliva paxillus* Reeve. Japan.

*Oliva elegans* Lam. Thes. Conch., f. 158-160.

Nagasaki (Lischke).

*Oliva irisans* Lam. Thes. Conch., f. 123.

Japan (Dkr.); Inland Sea (Stearns; with var. *erythrostoma*).

*Oliva carneola* Lam. Thes., f. 233-235.

Japan (Dkr.).

*Oliva tessellata* Lam. Thes., f. 222-224.

Japan (Dkr.).

*Oliva picta* Rve. C. Icon., f. 79.

Japan.

*Olivella jaspidea* Gmel. Japan (Dkr.).

*Olivella anazora* Duclos. Thes., f. 419.

Nagasaki (Lischke); Castries Bay (Nordmann).

*Olivella tergina* Duclos. Ducl., *Oliva*, pl. 2, f. 13-16.

Northern Japan (Schrenck).

*Olivella zanoeta* Duclos. Thes., f. 404.

Japan (Dkr.).

Several of the *Olivellas* named above are probably admitted to the Japanese fauna on insufficient evidence or incorrect identification. Schrenck gives *O. gracilis* B. & S. and *O. dama*, from the Bay of Castries, both probably incorrect. The following are unquestionably Japanese.

*Olivella fulgurata* Ads. & Rve. Zool. Samarang, p. 31, pl. 10, f. 12; Smith, Ann. Mag., 1875, p. 426; +*O. consobrina* Lischke, J. M. C., II, p. 62, pl. 5, f. 10, 11.

Yamada Harb., 7 fath., sand (St. John); Tokyo Harbor; Kamakura (Stearns); Nagasaki (Lischke); N. coast of Tango (Gaines).

*Olivella fortunei* (Ad.) Marratt. Pl. II, fig. 11.

Thes. Conch., IV, pl. 350, f. 422, 423.

Marratt's figures but poorly represent the magnificent specimens procured by Mr. Stearns. The large dark form shown in the figure may be called var. *japonica* Stearns.

*Olivella signata* Lischke. J. M. C., p. 44, pl. 2, f. 26, 27.

Yedo (Lischke).

*Olivella spreta* Gld. Smith, P. Z. S., 1879, p. 216, pl. 20, f. 55.

E. of Goto Is. (St. John).

*Olivella fabula* Marratt. Thes. Conch., IV, pl. 350, f. 420, 421.

The specimens collected by Mr. Stearns while agreeing perfectly with typical *fabula* in the peculiar parietal callus, are somewhat stouter, less attenuated above and fuller in the body than a specimen of *fabula* before me from Mr. Marratt. The basal callus is white, or in one shell slightly brownish. Alt. 11.5, diam. 5 mm.

I believe this quite distinct from *O. fulgurata*.

*Ancilla albo-callosa* Lischke. J. M. C., III, p. 44, pl. 2, f. 24, 25.

Nagasaki (Lischke); Deshima (Nuhu); East coast Japan above Inland Sea (Stearns).

*Ancilla inornata* Smith. P. Z. S., 1879, p. 217, pl. 20, f. 56.

Japan. Dunker identifies also *A. montrouzieri* Souv. a New Caledonian species.

#### HARPIDÆ.

*Harpa conoidalis* Lam. C. Icon., sp. 7.

Japan (Dunker).

*Harpa minor* Lam. Japan (Stearns.)

#### MARGINELLIDÆ.

*Marginella sexplicata* Dkr. M. obtusa Sowb., P. Z. S., 1870, p. 254, not in Thes., p. 374.

Japan (Dkr.).

#### VOLUTIDÆ.

*Voluta megaspira* Sowb. Thes., p. 298, f. 31, 32.

Bay of Yedo (Lischke); Bay of Hakodate (Ad.); Inland Sea (Stearns).

*Voluta rupestris* Gmel. Nagasaki (Lischke); Mino-Shima (A. Ad.).

*Voluta hamillei* Crosse. Journ. de Conch., XVIII, p. 97, pl. 1, f. 5; pl. 2, f. 1.

*Voluta vespertilio* Linn. Japan (Dkr.).

*Voluta concinna* Brod. C. Icon., f. 53.

Japan Sea (Dkr.).

*Lyria cassidula* Reeve. Dkr., Index, pl. 2, f. 10-13.

Nemoto, Boshu (Stearns); Nagasaki (Lischke); Kino-o-Shima, Tsu-Saki and Satanomosaki (A. Ad.); N. coast of Prov. Tango (Gaines, in Stearns coll.).

*Lyria nucleus* Lam. C. Icon., f. 41.

Tatiyama and Okino-Shima (Ad.).

*Volutomitra pusilla* Schrenck. Moll. Amurl., p. 445, pl. 17, f. 13-15.

Hakodate (Schrenck).

#### MITRIDÆ.

*Mitra hanleyana* Dkr. Index, p. 51, pl. 2, f. 6, 7. (M. wrighti Cr., J. C., 1878, pl. 1. f. 1).

Sea of Japan (Dkr.); Inland Sea (Stearns).

*Mitra rosacea* Rve. C. Icon., f. 321. Japan.

*Mitra flammigera* Reeve. C. Icon., f. 173.

Japan (Dkr.).

*Mitra ferruginea* Lam. Nagasaki (Lischke; Stearns).

*Mitra amphorella* Lam. Dkr., Moll. Jap., p. 8. Japan.

*Mitra scutulata* Chemn. C. Icon., f. 126.

Nagasaki (Lischke).

*Mitra cruentata* Chemn. C. Icon., f. 126. Japan (Dkr.).

*Mitra bronni* Dkr. Index, pl. 5, f. 5, 6. (M. fuseoapicata Smith, P. Z. S., 1879, pl. 20, f. 49).

E. of Kii, 48 fms.; Ooshima Harbor (St. John).

*Mitra subtruncata* Sowb. Thes., pl. 360, f. 405; P. Z. S., 1879, p. 214.

Ooshima Harbor, 8 fms. (St. John).

*Mitra secalina* Gld. Otia Conch., p. 129.

Ooshima (Stimpson).

*Mitra (Costellaria) suluensis* Ads. & Rve. Ann. Mag., 1875, p. 425; Voy. Samarang, p. 26, pl. 10, f. 27.

Ooshima Harb., 8 fath., sandy mud (St. John).

*Mitra (Costellaria) araneosa* Lam. Japan (Stearns).

*Mitra collinsoni* A. Adams. Smith, P. Z. S., 1879, p. 218, pl. 20, f. 50.

E. of Goto Is.; Ooshima; Matoza Harbor (St. John); Kino-o-Shima (Ad.).

*Mitra gotoensis* Smith. P. Z. S., 1879, p. 215, pl. 20, f. 51.

Goto Is. (St. John).

*Mitra pyramidella* A. Ad. Ann. Mag. N. H., Apr., 1862, p. 297.

Satanomosaki (Ad.).

*Mitra kraussii* Dkr. Index, p. 53, pl. 5, f. 11, 12.

Prov. Kii; Suruga (Stearns); Nagasaki (Lischke); Deshima (Nuhn); Hakodate (Schrenck).

**Mitra æmula** Smith. P. Z. S., 1879, p. 215, pl. 20, f. 52.

Goto Is. (St. John).

**Mitra inermis** Reeve. Smith, P. Z. S., 1879, p. 216, pl. 20, f. 53, 53a,

Ojica Bay, Goto Is., 5 fms. (St. John).

**Mitra porphyretica** Reeve. C. Icon., sp. 195.

Japan (Dkr.).

**Cylindromitra crenulata** Chemn. C. Icon., f. 190a.

Nagasaki (Lischke).

[One specimen of *Mitra pontificalis* was obtained by Mr. Stearns, but it was probably imported].

#### FASCIOLARIIDÆ.

**Fusus nodosoplicatus** Dunker. Lischke, Jap. Meeres-Conch., II, p. 27, pl. 3, f. 6.  
Novit Conch., p. 99, pl. 33, f. 3, 4.

Nagasaki (Lischke); Ukushima, Goto Is. (St. John).

**Fusus nicobaricus** Lam. Rve., C. Icon., IV, f. 37.

Nagasaki (Lischke); Japan (Stearns).

**Fusus perplexus** A. Adams. Ad., Journ. Linn. Soc., 1864, VII, p. 106. (*F. inconstans* Lischke, Jap. Meeres-Conch., I, pl. 2, f. 1-6; II, pl. 3, f. 1-5).

Yedo and Nagasaki (Lischke); Sagami Bay (Stearns); near Goto Is., (St. John).

**Fusus longicauda** Bory. C. Icon., IV, f. 13.

Japan (Dkr.).

**Fusus tuberosus** Reeve. Reeve, Conch. Icon., IV, f. 7.

Nagasaki (Lischke); Japan and Loo Choo Is. (Stearns).

**Fusus nigrirostratus** E. A. Smith. Smith, P. Z. S., 1879, p. 202, pl. 20, f. 34.

South of Corea (St. John).

**Fusus japonicus** Gray. Zool. Beechey's Voy., p. 115.

Japan Sea.

**Fusus spectrum** Ads. & Reeve. Zool. Samarang, p. 41, pl. 7, f. 2.

Nagasaki, Hakodate (Schrenck).

**Fusus lacteus** Dkr. Index, p. 12, pl. 3, f. 11, 12.

Japan Sea (Loebbecke coll.).

**Fusus niponicus** E. A. Smith. Smith, P. Z. S., 1879, p. 203, pl. 20, f. 12.

South of Nippon, 52 fms. (St. John).

**Fusus simplex** E. A. Smith. Smith, P. Z. S., 1879, p. 204, pl. 20, f. 35.

South of Corea, 24 fms. (St. John).



- Fusus coreanicus** Smith. L. c., p. 204, pl. 20, f. 36.  
 South of Corea (St. John).
- Fusus sieboldi** Schepman. Notes Leyd. Mus., XIII, p. 62, pl. 9, fig. 3.  
 Japan (Siebold).
- Fusus graciliformis** Sowerby. Thes., IV, pl. 411, fig. 62.  
 Japan (Sowb.).
- Fusus forceps** Perry (*turricula* Kien). Thes., IV, pl. 408, fig. 24.  
 Japan (Sowb.).
- Fusus modestus** Gld. Otia Conch., p. 121.  
 Hakodate, 10 fathoms, shelly sand (Stimpson).
- Fasciolaria trapezium** Linn.  
 Inland Sea. The elongated form, var. *audouini* Jonas, also collected by Stearns. Lischke reports it from Nagasaki.
- Fasciolaria filamentosa** Chemnitz. Conchyl. Cab., p. 136, pl. 24, fig. 1.  
 Hakodate and Takano Shima (Ad.).
- Fasciolaria glabra** Dkr. Index, p. 48, pl. 12, f. 15, 16.  
 Japan (Dkr.).
- Latirus polygonus** Gmel. Rve., Conch., Icon. Turbinella, f. 1.  
 Tatiyama (Ad.).
- Latirus rhodostoma** Dkr. Moll. Jap., p. 4, t. 1, f. 21.  
 Deshima (Nuhn); Nagasaki (Lischke).
- Latirus belcheri** Reeve. Reeve, C. Icon. Turbinella, f. 22.  
 Japan (Stearns).
- Latirus nagasakiensis** Smith. P. Z. S., 1880, p. 482, pl. 48, f. 7.  
 Japan (Maries).
- Latirus recurvirostris** Schub. & Wag.  
 A single large fresh specimen collected by Stearns, East Coast.
- Lagena smaragdula** Linn. Yokohama (Stearns).
- Peristernia pulchra** Reeve. Kominah, Boshu (Stearns).
- BUCCINIDÆ.**
- Hemifusus ternatanus** Gmel.  
 Yokohama; Tokyo to Kii coast (Stearns). Several fresh specimens with opercula.
- Hemifusus tuba** Gmelin. Conchyl. Cab., p. 41, pl. 7, f. 1, 2.  
 Nagasaki (Schrenck, A. Ad., Lischke); Deshima (Nuhn); Hakodate, Tatiyama, Tsu-Shima (A. Ad.).

*Thatcheria mirabilis* Angas. P. Z. S., 1877, pl. 54, f. 1.

Japan (Thatcher).

*Chrysodomus arthriticus* (Val.) Bernardi. Bern., Journ. de Conchyl., 1857, p. 386, pl. 12, f. 3, 3a.

Hakodate (Bernardi; Stearns).

The specimens are smaller than Bernardi's figure, but undoubtedly the same. When not corroded the color is dark brown.

*Neptunea cumingi* Crosse. J. de C., 1862, p. 51, pl. 5, f. 12.

Bay of Talienwhan (Cuming).

Very closely allied to *C. arthriticus*, of which it is probably a variety.

*Chrysodomus bulbaceus* (Val.) Bernardi. Journ. de Conch., 1858, p. 183, pl. 7, f. 1.

Gulf of Tartary (Bern.).

The next species is very closely allied to this.

*Chrysodomus luridus* A. Ad. Dkr., Index, p. 14, pl. 3, f. 3, 4.

Aniwa Bay; Cape Tofuts (Ad).

*Chrysodomus antiquus* var. *despectus* Linné. Conchyl. Cab., p. 56, pl. 27, f. 1-5.

Bay of Yedo (Lischke).

Both *antiquus* and *despectus* have been credited to northern Japan. We have not seen Japanese specimens.

*Chrysodomus plicatus* A. Ad. Dkr., Index, p. 14, pl. 3, f. 1, 2; Kob., Conch. Cab., pl. 12, f. 4, 5.

Aniwa Bay (Ad).

*Chrysodomus* (?) *manchuricus* E. A. Smith. Ann. Mag., 1875, p. 422.

Lat. 42° 58' N., long. 145° 24' E., 48 fath., sand and mud (St. John).

*Chrysodomus pericochlion* Schrenck. Conchyl. Cab., p. 131, pl. 43, f. 4, 5.

Hakodate (Albrecht).

*Siphonalia signum* Reeve. C. Icon., III, f. 6; Dkr., Index, p. 15, pl. 3, f. 9, 10.

South Japan (Rein); Ooshima, Hakodate (A. Ad.).

*Siphonalia hinnulus* Ad. & Rve. A. & R., Zool. Samarang, p. 32, pl. 7, f. 10; Dkr., Index, p. 16.

Tsu-Saki, 35 fms.; Tatiyama (A. Ad.).

*Siphonalia cassidariæformis* Reeve. Rve., C. Icon. *Buccinum*, f. 11; Lischke. J. M. C., I, pl. 4, f. 1, 2, 6-10.

Enoshima (Stearns); Nagasaki (Lischke); W. coast Japan, and Hakodate (Stimp.); O-Shima and Simoda (A. Ad.); Goto Is. (St. John).

Lischke's figures represent the principal variations of this species, of which Mr. Stearns procured a large number of specimens.

*Siphonalia cassidariæformis* var. *ornata* A. Ad. Dkr., Index, p. 16; Lischke, J. M. C., I, pl. 4, f. 3, 4, 5.

S.-E. coast Kii, Inland Sea (Stearns).

*Siphonalia cassidariæformis* var. *concinna* A. Ad. Ad., Ann. Mag. N. H. (3), XI, p. 204, 1863; Lischke, J. M. C., I, p. .

Kuro-Shima (A. Ad.).

*Siphonalia cassidariæformis* var. *funerea* Pils. Pl. II, f. 7, 8.

Satsuma (Stearns).

Shell like the type except that the nodules are reduced to short oblique waves somewhat as in *Buccinum undatum*, and the color outside is uniform chocolate-brown. Interior strongly lirate, dark brown with a pearly lustre.

This seems distinct from any of A. Adams' species.

*Siphonalia fusoides* Reeve. Conch. Icon., Buccinum, pl. 2, f. 9; Conchyl. Cab., p. 88, pl. 23, f. 6-7.

Tokyo Bay (Lischke); Satanomosaki and Tsu-Shima (A. Ad.); S.-E. coast Kii (Stearns).

A species resembling *S. cassidariæformis* but slenderer, with less prominent nodules.

*Siphonalia spadicea* Reeve. Buccinum fusoides Rve., C. Icon., pl. 9, f. 64, not pl. 2, f. 9; B. spadicea Rve., errata; Smith, P. Z. S., 1879, p. 205, pl. 20, f. 38.

Mino-Shima, 63 fms. (Ad.); Port Hamilton, 10 fms.; S. of Nippon, 34° 12' N. lat., 136° 28' E. long.; S. of Corea, 34° 19' N. lat., 124° 57' E. long., 12 fms. (Smith).

*Siphonalia fusolineata* Pease. P. Z. S., 1860, p. 189, pl. 51, f. 3; Pilsbry, Proc. Acad. Nat. Sci., Phila., 1891, p. 473, pl. 19, f. 4.

Mino-Shima (A. Ad.); Inland Sea (Stearns).

The specimens vary much in color, some being decorated with brown spiral lines, others streaked and maculated with chestnut. It is allied to *S. fusoides* Rv., but the spire is much longer. The canal is more recurved than in *S. spadicea* Rve., which is otherwise quite similar.

*Siphonalia æstuosa* Gould. Gld., Otia, p. 123 (Neptunea).

Kagoshima (N. P. E. E.).

*Siphonalia Stearnsii* Pilsbry. Pl. II, f. 1, 2.

Shell fusiform, solid, brownish; spire conical, shorter than the aperture, consisting of 8 convex whorls, which are finely spirally

lirate, and *closely* and strongly plicate; plicæ becoming partly or wholly obsolete on the body-whorl, which is very indistinctly or not at all shouldered, and runs upward somewhat toward the aperture, causing a narrow, small posterior channel. Aperture shaped as in *S. fuscolineata* Pse. but wider, the inner lip smooth, its edge raised and free; outer lip with a wide yellow internal border, inside of which it is thick, lirate and white. Anterior canal strongly recurved, short. Alt. 46, diam. 25 mm. Oblique alt. of aperture 29 mm.

Allied to *S. longirostris* Dkr., but less elongated, with more strongly plicate spire and different aperture. I cannot see that any of A. Adams' unfigured species agree with the specimens before me. The spire is longer and more plicated than in *S. fusoides* Reeve, and the canal more recurved.

*Siphonalia longirostris* Dkr. Index, p. 16, pl. 1, f. 13, 14.

Sea of Japan (Dkr.).

*Siphonalia trochulus* Reeve. C. Icon., (Buccinum), f. 7.

O-Shima (Ad.).

*Siphonalia modificata* Reeve. C. Icon., f. 67.

Kuru-Shima, 56 fms.; Fatsijeu, 29 fms. (Ad.).

*Siphonalia comoda* A. Ad. Ann. Mag. N. H. (3), xi, 1863, p. 203.

Tsaulian (Ad.).

*Siphonalia corrugata* A. Ad. l. c., p. 204. Kino-o-Shima (Ad.).

*Siphonalia conspersa* A. Ad. l. c., p. 204. Japan (Cuming coll.).

*Siphonalia filosa* A. Ad. l. c., p. 205. China Sea (Ad.).

*Siphonalia ligata* A. Ad. l. c., p. 205. Japan (Cuming coll.).

*Siphonalia grisea* A. Ad. Simidzu (Ad.; l. c., p. 205).

*Siphonalia colus* A. Ad. Mino-Shima, 63 fathoms (Adams, l. c., p. 205).

*Siphonalia acuminata* A. Ad. Goto, 4-8 fathoms, (Adams, l. c., p. 206).

*Siphonalia pyramis* A. Ad. Satanomosaki, 55 fathoms (Adams, l. c., p. 206).

*Siphonalia mucida* A. Ad. Kuro-Shima, 35 fathoms (Adams, l. c., p. 206).

*Siphonalia nodulosa* A. Ad. Mino-Shima, 63 fathoms (Adams, l. c., p. 206).

*Siphonalia (Kellettia) kelleti* Forbes. Lischke, J. M.-C. pl. 3, f. 3, 4.

Nagasaki (Lischke); South-east coast Ise. (Stearns).

*Siphonalia hyperodon* n. sp. Pl. II, f. 6.

General contour of the shell as usual, the spire elongated, base much contracted, canal strongly recurved. Color dirty buff, with some



scattered maculæ of brown, especially below sutures, and sometimes ill-defined girdles. Whorls 9, the earlier two smooth, glossy, convex; the following five very convex, separated by deep sutures, sculptured with strong rounded longitudinal folds as wide as their intervals, about 11 to a whorl, these crossed by strong spiral cords separated by flat interspaces, about 6 on each whorl, becoming lower and more numerous below, wholly obsolete or nearly so on the latter two whorls of the shell. The lower 3 whorls are strongly angular at the shoulder, and on the last whorl the longitudinal folds are represented by strong, pointed tubercles on the angle, which number 10-12 on last whorl, the latter fifth of which is free from them. Aperture nearly half the length of shell, livid within, the upper angle narrowly sinused as in *Cantharus*, basal canal strongly recurved. Outer lip thickened outside by a low, wide varix, submargined by short, close plicæ within; inner lip moderately calloused, bearing near its posterior termination a very strong, rounded nodule. Umbilicus open; siphonal fasciole defined above by a free laminar edge.

Alt. 51, diam. 26 mm.

Alt. 43, diam. 21 mm.

Japan (Stearns, 3 specimens).

Distinguished from other species by the strong nodule on the inner lip near the posterior angle of aperture, defining a channel there. Although I have an impression that somewhere I have seen a specimen or figure of this species, I cannot now find that anything much like it has been described. A quite young specimen would probably resemble somewhat *Euthria fuscolabiata* E. A. Smith.

*Buccinum lischkeanum* Loebbecke. Conchyl. Cab., p. 35, pl. 80, f. 5, 6.

North Japan.

*Buccinum schantaricum* Midd. Sib. Reise, p. 233, pl. 10, f. 4-6.

*Buccinum middendorffi* Verkrusen. Kob., Conchyl. Cab., p. 76, pl. 89, f. 2.

Sachalin Is.

*Buccinum simplex* Midd. Kob., C. Cab., p. 77, pl. 89, f. 4, 5.

*Buccinum verkruzeni* Kobelt. Conchyl. Cab., p. 80, pl. 90, f. 1, 2.

Sachalin Is.

*Buccinum schrenkii* Verkrusen. Conchyl. Cab., p. 81, pl. 90, f. 3.

Sachalin; N. of Gulf of Geduld.

*Buccinum mirandum* Smith. Conchyl. Cab., p. 92, pl. 92, f. 4.

E. of Yedo, 11 fathoms.

*Buccinum japonicum* A. Adams. Conchyl. Cab., p. 91, pl. 92, f. 2.

Japan; Okosiri (Adams).

*Buccinum jeffreysii* Smith. Conchyl. Cab., p. 91, pl. 92, f. 10.

Japan, lat.  $42^{\circ} 58' N.$ , long.  $145^{\circ} 24' E.$ , 48 fath., sand and stone.

*Buccinum leucostoma* Lischke. Lischke, J. M. C., III, p. 38, pl. 1, f. 7, 8.

Yokohama (Stearns); Bay of Yedo (Lischke).

*Buccinum morohianum* Fischer. (*Volutharpa*) Kob., C. Cab., p. 90, pl. 92, f. 8, 9.

Northern Japan.

*Volutharpa perryi* Jay. Conchyl. Cab., p. 95, pl. 93, f. 5, 6; pl. 92, f. 5. (*Volutharpa paulucciana* Tap.-Can. Journ. de Conch., 1882, p. 24, pl. 2, f. 3, 4).

Bay of Yedo (Perry, Stearns).

*Volutharpa ampullacea* Midd. Midd., Reise, Ost. Siber., II, p. 237, pl. 8, f. 3, 4; pl. 17, f. 1-3.

Bays of Aniwa and Hakodate, and northward (Midd., Ad., Albrecht, *et al.*); Lat.  $41^{\circ} 12' N.$ , Long.  $140^{\circ} 45' E.$ , 43 fath., sand and mud (St. John).

*Volutharpa fiscoheriana* A. Adams. Ad., Ann. Mag. N. H., 1870, V, p. 442.

Strait of Corea (Ad.),

*Volutharpa limnæana* A. Ad. Ad., Ann. Mag. N. H., 1860, VI, p. 109.

Japan.

*Volutharpa salmiana* Rolle. Nachrbl., 1892, p. 52.

Japan.

*Cominella fucata* A. Ad. Proc. Linn. Soc. III, 1862, p. 107.

Japan (Cuming Coll.).

*Cominella lineolata* Dkr. (= *dunkeri* Küster). Conchyl. Cab., 2d edit., p. 86, pl. 15, f. 9-11.

Hakodate (Schrenk, Dkr.). Described from the Cape of Good Hope, but Dunker believes the Japanese shells to be the same.

*Cyllene pulchella* Ads. & Rve. Zool. Samarang. pl. 10, f. 11.

Satanomosaki (Ad.).

*Cyllene orientalis* A. Ad. P. Z. S., 1850, p. 205.

Goto Is. (Ad.).

*Cyllene glabrata* A. Ad. Satano-Mosaki (Ad., *l. c.*, p. 206).

*Cyllene fuscata* A. Ad. Kuro-Shima (A. Ad., *l. c.*, p. 205; Thes., f. 16-18).

*Cyllene gibba* A. Ad. Oki-no-Shima (A. Ad., Ann. Mag. N. H., 1870, p. 427).

*Tritonidea undosa* Linné. Yokohama (Stearns).

*Tritonidea undulata* Schepman. Notes Leyd. Mus., XIII, p. 155, pl. 9, f. 1.

Japan (Siebold); N. shore of Tango (Gaines); Konimah, Boshu (Stearns).

Some clear yellow specimens without brown lines were collected by Stearns.

*Tritonidea protea* Reeve. C. Icon., *Buccinum*, f. 51.

Nagasaki (Lischke); Tsu-Shima (A. Ad.).

*Tritonidea lignea* Rve. C. Icon., *Buccinum*, f. 57.

Nagasaki (Lischke); Seto-uchi (A. Ad.).

*Tritonidea (Cantharus) cumingiana* Dkr. Index, p. 18 (Syn.: *Buccinum ligneum* Rve., C. Icon., f. 57).

Seto-uchi (Ad.); Nagasaki (Lischke).

*Tritonidea (Cantharus) balteatus* Reeve. (C. Icon., *Bucc.*, f. 59), is a variety of this according to Dunker. Tryon makes both synonyms of *Cantharus cecillei* Phil. Tateyama (Ad.).

*Tritonidea (Cantharus) contracta* Reeve. C. Icon., f. 53; Lischke, J. M. C., II, p. 50.

Nagasaki (Lischke).

*Tritonidea (Cantharus) menkeana* Dkr. Dkr., Moll. Jap., p. 7, pl. 1, f. 7.

Deshima (Nuhn); Nagasaki (Lischke).

*Tritonidea (Cantharus) subrubiginosa* E. A. Smith. Smith, P. Z. S., 1879, p. 206, pl. 20, f. 40.

Ukushima, Goto Is., among rocks at low water (St. John).

*Tritonidea (Cantharus) marmorata* Reeve. C. Icon., III, *Buccinum*, f. 95; Schr., Amurl. Moll., p. 427.

Hakodate (Lindholm).

*Tritonidea (Cantharus) erythrostroma* Reeve. Rve., C. Icon., f. 14.

Ooshima (Ad.).

*Tritonidea (Cantharus) capensis* Dkr. Japan (Dkr.).

*Pisania cingulata* Reeve. Reeve, Conch. Icon., *Buccinum*, f. 75.

Luchu Is.

*Pisania mollis* Gould. Gld., Otia, p. 124.

Simoda (Stimpson).

*Euthria ferrea* Reeve. (*viridula* Dkr., Index, p. 19, pl. 3, f. 5-8; J. M. C., I, p. 39, pl. 5, f. 5, 6.)

Japan, Lat. 41° 12' N., Long. 140° 45' E., 43 fms.; Satsuma Bay. S. Kiu-Shiu and Goto Is. (St. John); many specimens collected by Stearns, at Enoshima; Tsu-Shima, O-Shima and Nagasaki (Ad.).

*Euthria fuscolabiata* E. A. Smith. Ann. Mag., 1875, p. 422.

Off Cape Blunt, Lat. 41° 41' N., Long. 141° E., 35 fms., (St. John).

*Euthria lirata* A. Adams. Conchyl. Cab., p. 233.

Tsusaki (Adams).

*Euthria badia* A. Adams. Conchyl. Cab., p. 233.

Tsu-Shima (Adams).

*Phos senticosus* Linné. Japan (Dkr.).

*Phos varicosus* Gld. Expl. Exped., f. 360.

Japan (Dkr.).

*Phos angulatus* Sowb. Thes., iii, p. 89, pl. 221, f. 7; Challenger Gastrop., XV, p. 222.

Japan (Siebold).

*Nassaria* (= *Hindsia*) *magnifica* Lischke. Jap. Meeres-Conchyl., II, p. 38, pl. 4, f. 11, 12; III, pl. 1, f. 5, 6. Dkr., Index, p. 38.

Sagama (Stearns); Kiusiu (Lischke).

*Eburna japonica* Sowb. Deshima (Nuhn); Nagasaki (Lischke); Sado, Tokyo Harbor, Kamakura (Stearns); Tsu-Saki, Tatiyana, Simoda (Ad.); Hakodate (Schrenck).

*Eburna formosæ* Sowb. Thes., III, pl. 291, f. 17, 18.

Formosa.

#### NASSIDÆ.

*Nassa balteata* Lischke. *N. balteata* Lischke not Pse., see J. M. C., II, p. 51; *N. japonica* Lischke not A. Ad., Jap. M. C., I, p. 61, pl. 5, f. 10, 11; (*N. mutabilis* A. Ad.? Ann. Mag., 1870, p. 425).

Yokohama (Stearns); Nagasaki (Lischke).

*Nassa sufflata* Gld. Otia Conch., p. 127.

Kagoshima (Stimpson).

*Nassa coronata* Lam. C. Icon., f. 20.

Japan (Stearns).

*Nassa* (*Alectrion*) *glans* Linné. C. Icon., f. 5; P. Z. S., 1879, p. 210.

W. of Goto Is. (St. John).

*Nassa* (*Alectrion*) *suturalis* Lam. Yokohama (Stearns, purchased).

*Nassa* (*Alectrion*) *papillosa* L. Yokohama (Stearns, purchased).

*Nassa* (*Aroularia*) *thersites* Brug. Japan (Dkr.).

*Nassa* (*Aroularia*) *gracilis* Pease. Am. Journ. Conch., III, p. 273, pl. 23, f. 4. Lischke, J. M. C., II, p. 52, pl. 4, f. 4-6.

Deshima (Nuhn); Nagasaki (Birleff).



**Nassa** (*Arcularia*) *leptospira* A. Ad.

**Nassa** (*Niotha*) *gemma* Lam. C. Icon., f. 29; Ann. Mag., 1875, p. 422.

Kii Coast (Stearns); Goza Harb., 6 fath. (St. John); Bay of Yedo (Lischke); Kagoshima (Stimp.).

Specimens of extraordinary size collected by Mr. Stearns.

**Nassa** (*Niotha*) *gemma* A. Ad. Ann. Mag. N. H., 1870, p. 425; C. Icon., f. 132.

Seto-Uchi; Akasi; Kino-Oshima (Ad.). Near *N. albescens* Dkr.

**Nassa** (*Niotha*) *stigmara* A. Ad. Ann. Mag., 1875, p. 423, C. Icon. f. 42; Syn. *N. densigranata* Rve., C. Icon., f. 181.

Ooshima Harbor, 8, fms.; E. of Goto Is. (St. John).

**Nassa** (*Niotha*) *cumingii* A. Ad. C. Icon., f. 30.

Takano-Shima, Tatiyama (Ad.).

**Nassa** (*Niotha*) *marginulata* Lamk. Ann. Mag., 1875, p. 422, C. Icon., f. 43.

Ooshima Harb., 8 fath., and a variety from Yamada Harb. (St. John); Satanomosaki (Ad.).

**Nassa** (*Niotha*) *cæolata* A. Ad. C. Icon., sp. 133.

Moso-Seki; Seto-Uchi (Ad.).

**Nassa** (*Niotha*) *livescens* Phil. Lischke, J. M. C., II, p. 52, pl. 4, f. 1-3.

Tokyo Harbor; Kiushiu (Stearns); Nagasaki and Deshima (Lischke).

Is not the *N. keineri* Dh. (Tryon, Man. Conch., IV, p. 53) synonymous with this? The large number of specimens obtained by Mr. Stearns fully connect the forms.

**Nassa** (*Niotha*) *albescens* Dkr. Phil., Abbild., p. 68, pl. 2, f. 15 (Buccinum).

Deshima (Dkr.).

**Nassa** (*Hebra*) *muricata* Q. & G. Astrol., pl. 32, f. 32, 33.

Okino-Shima, Tsaulian (Ad.); Japan (Stearns).

**Nassa** (*Hima*) *festiva* Powis. Dkr., Moll. Jap., pl. 1, f. 22, *N. luvata*, vide Lischke, J. M. C., II, p. 53.

Kiushiu, Inland Sea (Stearns); Nagasaki and Deshima (Lischke); Hakodate (Ad.); Ukushima, Goto Is. (St. John).

**Nassa** (*Hima*) *dealbata* A. Ad. P. Z. S., 1851, p. 112; C. Icon., f. 105.

Japan (Stearns). Probably a form of *N. festiva*.

**Nassa** *fuscolineata* E. A. Smith. Ann. Mag., 1875, p. 423.

Cape Shima, 18 fath., sand and broken shell (St. John); Tokyo Harbor (Stearns); N. shore of Prov. Tango (Gaines).

**Nassa (Hima) japonica** (A. Ad.) Lischke. P. Z. S., 1851, p. 110; Lischke, J. M. C., III, p. 37, pl. 2, f. 20-23. *N. tenuis* Smith, Ann. Mag., 1875, p. 423; P. Z. S. 1879, p. 211.

Cape Shima, 18 fms.; Goza and Ooshima Harbors; between Nippon and Shikoku (St. John); Bay of Yedo (Lischke); Seto-Uchi, Uruga, Kino-o-Shima, Sado (A. Ad.).

**Nassa (Hima) dominula** Tap.-Can. Viag. Magenta, p. 19, pl. 1, f. 17. (Syn.: *N. acutidentata* Smith, P. Z. S., 1879, p. 212, pl. 20, f. 46).

Yokohama (Magenta); Goto Is. (St. John).

**Nassa (Hima) luteola** Smith. P. Z. S., 1879, p. 212, pl. 20, f. 47.

Goto Is. (St. John).

**Nassa (Hima) fraterculus** Dkr. Moll. Jap., p. 17, pl. 1, f. 15. J. M. C., II, pl. iv, f. 7, 8.

Isi, Kamakura, Tokyo Harbor (Stearns); Goto Is. (St. John); Tatiyama, Hakodadi, Simoda, Nagasaki (Ad.); Deshima (Nuhn).

**Nassa (Hima) plebecula** Gld. Otia Couch., p. 128.

Ooshima (Stimpson); considered by Lischke a synonym of *N. fraterculus*.

**Nassa mustelina** Gld. Otia Couch., p. 127.

Ooshima Coast, 2 fathoms; (Stimp.).

**Nassa spurca** Gould. Ann. Mag., 1875, p. 423; Otia, p. 129.

Ooshima and Yamada Harb., 7-8 fath., (St. John).

Is the Japanese shell really Gould's species?

**Nassa dermestina** Gld. Proc. Bost. Soc. vii, p. 331; Otia, p. 128.

Hakodate (Lischke, J. M. C., 1, p. 60); Kikaia (Stimp.).

**Nassa (Zeuxis) siquijorensis** A. Adams. C. Icon., f. 53; P. Z. S., 1879, p. 210, pl. 20, f. 45, 45a.

Off Kobé, 8 to 14 fath., mud (Chall.); Seto-Uchi, Tsaulian, Tomo (Ad.); E. of Kii (St. John).

**Nassa (Zeuxis) crenulata** Brugiére. Challenger Gastrop, 1873-6. XV, p. 183; Reeve. Conch. Icon., VIII, pl. 1, f. 2.

Off Kobé, 8 fms. (Challenger).

**Nassa (Zeuxis) varicifera** A. Ad. C. Icon., f. 118.

Isi, Kamakura (Stearns); Tsaulian (Ad.); South of Corea (St. John).

Stearns' shells are a small form which may be called var. *fraterminor*, characterized by the shell having only one varix which is near the end of the penultimate whorl, and otherwise resembling *N.*

*fraterculus*. They may indeed have no especial relationship to *varicifera*, as I have not been able to compare typical specimens of that species.

*Nassa* (*Zeuxis*) *succincta* A. Ad. C. Icon., f. 80.

Seto-Uchi, Mososeki (Ad.).

*Nassa* (*Zeuxis*) *micans* A. Ad. P. Z. S., 1851, p. 106; C. Icon., f. 140; Ann. Mag., 1870, V, p. 426.

Uraga (A. Ad.).

*Nassa* (*Zeuxis*) *clandestina* A. Ad. Ann. Mag. N. H. (4), V, p. 426.

Seto-Uchi, Idzuma-Nada, Yobuko (A. Ad.).

*Nassa* *luctuosa* A. Ad. C. Icon., f. 109.

Nagasaki (Lischke).

*Nassa* *hypolia* Pilsbry. Pl. II, figs. 13, 14.

Shell elongated, solid and thick, purplish-black with a peripheral brown or whitish girdle, not glossy; becoming ashy on the spire and with age all over. Surface dull; sculptured with numerous rounded longitudinal ribs, slightly curved, a trifle more prominent at the shoulder and not extending below the periphery, sometimes subobsolete on the body-whorl. No spiral sculpture, or a few faint cords at the base. Aperture less than half the shell's length. Outer lip with a low varix, thick, with five teeth within; throat purple-black, showing the narrow light band, which on the lip spreads upward; below it another light blotch on the lip. Columella with a white or yellow callus below, roughened by a few weak folds, and with the usual posterior fold. Alt. 12.5, diam. 7 mm. Operculum oval with entire edge.

Yesso (Stearns).

The folds are coarser and extend further down than in *luctuosa* and *succincta*; *semiplicata* is more strongly varixed with different denticulation of the aperture; *teretiusecula* differs in texture and color. This species would have been included by Tryon in *N. gaudiosa* judging from what he has considered synonyms of that species; but I am by no means prepared to endorse such wholesale lumping of species as that in his monograph of *Nassa*.

*Nassa* (*Demoulia*) *binominata* Pilsbry (n. n.).

*Desmoulea japonica* A. Ad. (not *Nassa japonica* A. Ad.). Reeve, Conch. Icon., *Nassa*, fig. 192.

Japan (A. Ad.).

On the subgenus *Demoulia* see E. A. Smith, Ann. Mag. N. H. (6), VIII, p. 320. No other species is known from Japan.

COLUMBELLIDÆ.

*Columbella hæmastoma* Sowb. Thes., I, p. 111, pl. 36, f. 5.

Gulf of Tartary (Schrenck).

*Columbella fuscata* Sowb. Ibid, p. 114, pl. 36, f. 21, 25.

Same locality. These are doubtful members of the Japan fauna.

*Columbella solidula* Reeve. C. Icon., sp. 149. Same locality.

*Columbella scripta* Lam. (*versicolor* Sowb.). Rve., Conch. Icon., f. 51; Thes., f. 41-46.

Oshima (Challenger); Tokyo Harbor (Stearns); Deshima, Nagasaki (Dkr.); Ukushima, Goto Is. (St. John).

*Columbella pardalina* Lam. var. *sagena* Reeve. Rve., Conch. Icon., pl. 26, f. 162; Lischke, J. M. C., III, pl. 2, f. 5-7.

N. shore of Tango (Gaines); Inland Sea (Stearns); Ukushima, Goto Is., E. coast Kii (St. John); Nagasaki (Lischke).

Tryon considers *Col. japonica* Rve. (C. Icon., f. 45) a form of *pardalina*.

*Columbella araneosa* Gld. Otia Conch., p. 132.

Kagoshima Bay (Stimpson).

*Columbella tenuis* Gaskoin. Ann. Mag., 1875, p. 422.

Endermo Harbor, 4-7 fath., sandy mud (St. John).

*Columbella misera* Sowb. J. M. C., I, p. 59; II, p. 48; III, p. 45, pl. 2, f. 10, 11.

Nagasaki (Lischke); Goto Is. (St. John); Kamakura, Ise and Tokyo Harbor (Stearns); N. shore of Tango (Gaines).

*Columbella pumila* Dkr. Moll. Jap., pl. 1, f. 4.

Tokyo Harbor and Kamakura (Stearns); Deshima (Dkr.); Nagasaki (Lischke).

*Columbella martensi* Lischke. J. M. C., II, pl. v, f. 1-9.

Nagasaki (Lischke); Tokyo Harbor (Stearns).

*Columbella compta* Lischke. J. M. C., II, p. 35, pl. 2, f. 8, 9.

Nagasaki (Lischke); Tokyo Harbor and Kamakura (Stearns).

*Columbella (Atilia) niveomarginata* Smith. P. Z. S., 1879, p. 208, pl. 20, f. 42.

Ukushima, Goto Is. (St. John).

*Columbella (Atilia) lischkei* Smith. P. Z. S., 1879, p. 207, pl. 20, f. 41.

North of Kiushiu, 30 fms. (St. John).



*Columbella* (*Atilia* ?) *pleurotomoides* n. sp. Pl. I, f. 6.

Shell fusiform, slender, smooth except for slight growth-lines, and on base and anterior canal numerous spiral liræ. Spire straight-sided, the sutures linear; whorls 9, flat, the body whorl swollen in the middle, rapidly contracted below into a short anterior canal. Surface not shining; light clear buff, showing under a lens close, faint, darker longitudinal lines, becoming flesh-colored on spire, the earliest whorls crimson; body whorl encircled by two girdles of small, close, lunate or squarish brown spots, one on base, the other above the periphery and ascending the spire about midway between sutures. Aperture, small, narrow, contained nearly  $2\frac{1}{2}$  times in length of shell, smooth and showing the dot-series within; outer lip thin, sharp and simple, distinctly retracted above and arched forward in the middle. Columella sinuous, being prominent in the middle, concave above and below, without folds or teeth. Alt. 11, diam.  $3\frac{1}{2}$  mm.

Banda, Boshu (Stearns).

The generic reference of this beautiful species is by no means certain, as the outer lip lacks the teeth within characteristic of *Atilia*, and is distinctly retracted above. Numerous specimens were collected.

*Columbella* (*Anachis*) *californica* Reeve. Conchyl. Cab., p. 59, pl. 8, f. 3, 4.

Japan (Dr. Guttsche).

*Columbella* (*Zafra*) *zonata* Gld. Otia Conch., p. 130.

Kagoshima (Stimpson).

*Columbella* (*Anachis*) *minuseula* Gld. Otia Conch., p. 131.

Ooshima (Stimpson) 2 vars.

*Columbella* *impolita* Sowb. Thes. Conch., p. 132, f. 127.

Suruga, Kii coast (Stearns).

*Columbella* (*Zafra*) *subvitrea* Smith. P. Z. S., 1879, p. 209, pl. 20, f. 43.

South of Nippon (St. John).

*Columbella* (*Zafra*) *mitriformis* A. Ad. Ann. Mag., VI, 1860, p. 332.

Mino-Shima, 63 fms. (Ad.).

*Columbella* *discors* Gmel. Conchyl. Cab., p. 18, pl. 2, figs. 17-18.

Nagasaki (Lischke).

*Columbella* (*Conidea*) *flava* Brug. Lischke, J. M. C., III, pl. 2, f. 1-4.

Kii, Kamakura (Stearns); Deshima (Dkr.); Goto Is. (St. John); Nagasaki (Lischke).

Mr. Stearns' shells are the form figured by Lischke, which he finally referred to *C. undata* Duclos as a variety. Beach-worn specimens are fleshy-pink, with a row of narrow brown spots below the suture.

**Amycla varians** Dkr. Mal. Bl. VI, p. 231; Moll. Jap., p. 6, pl. 1, f. 17; P. Z. S., 1879, p. 210, pl. 20, f. 44.

Tokyo Harbor, Kamakura, Yokohama (Stearns); Nagasaki (Lischke); Deshima (Nuhn); Tatiyama, Hakodate, Rifunsiri (A. Ad.); N. shore of Tango (Gaines).

**Amycla burchardi** Dkr. Index, p. 55, pl. 4, f. 3, 4.

*Amycla gausapata* Gld. and *A. achatina* Sowb. are reported from Japan by A. Adams, Ann. Mag. N. H., 1870, p. 426.

**Engina acuminata** Reeve. C. Icon., sp. 52 (*Ricinula*).

Tsu-Shima (Ad.).

**Engina mendicaria** Linné. Japan (Dkr.; Stearns).

**Engina trifasciata** Reeve. C. Icon., sp. 41. *Pusiostoma trifasciatum* Ad.

Okino-Shima (A. Ad.).

**Aesopus japonicus** Gld. Otia Conch., p. 128.

Kagoshima Bay, 5 fathoms, sand (Stimpson).

#### MURICIDÆ.

**Trophon lamellosum** Gray. Ann. Mag., 1875, p. 421.

Japan, Lat. 42° 58' N., Long., 145° 24' E., 48 fms. (St. John).

**Trophon incomptum** Gld. Otia Conch., p. 125.

Hakodate (Stimpson).

**Trophon inermis** Sowerby. Conchyl. Cab., p. 287, pl. 71, f. 12.

Japan Coast (Siebold).

**Trophon candelabrum** Rve. Conch. Icon., f. 79 (*Fusus*).

Tsusaki, 55 fathoms (Adams).

**Trophon concinnum** A. Adams. P. Z. S., 1862, p. 375.

Rifunsiri (Adams).

**Trophon tantillum** A. Adams. Ibid. Satanomosaki (Adams).

**Trophon clathratus** Linné. Sachalin Island (Schrenck); E. coast of Prov. Kii (Stearns).

**Trophon luculentus** Rve. C. Icon., (*Murex*), sp. 127; Index, p. 9, pl. 1, f. 3, 4. (*T. fimbriatus* Hinds, voy. Sulphur, pl. 1, f. 18, 19).

**Trophon pachyraphe** Smith. P. Z. S., 1879, p. 205, pl. 20, f. 37, 37a. (*Fusus*).

Ukushima, Goto Is., and N. of Kiushiu (St. John).

- Trophon crassum** Ad. P. Z. S., 1851, p. 269. (*Murex*).  
Hakodate.
- Trophon crispum** Gld. U. S. Expl. Exped., p. 229, f. 279. (*Fusus*).
- Trophon orpheum** Gld. Ibid, p. 234, f. 285. (*Fusus*).  
Okosiri (Ad.).
- Typhis arcuatus** Hinds (**T. japonicus** A. Ad.). Zool. Sulphur, p. 10, pl. 3, f. 1, 2;  
Conch. Icon., XIX, pl. 3, f. 10, a, b, c.  
Japan (Adams).
- Typhis montforti** A. Ad. Conch. Icon., Vol. 19, pl. iii, f. 15.  
Okino-Shima (Adams).
- Murex tenuispina** L. Kii Coast (Stearns); Oshima, Nagasaki (Lischke).
- Murex tribulus** Linné. Simidzu (Ad.).
- Murex aduncospinosus** (Beck) Reeve. Yokohama (Dkr.).
- Murex martinianus** Rve. Japan (Dkr.).
- Murex troschelii** Lischke. Lischke, J. M. C., I, pl. 1.  
Kii coast (Stearns); Nagasaki (Lischke).  
The primary spines are mostly longer than shown in Lischke's figures.
- Murex sobrinus** A. Adams. P. Z. S., 1879, p. 199, pl. 20, f. 30.  
Satanomosaki, 55 fms.; Goto, 48 fms.; Kuru-Shima, 29 fms.  
(Ad.); W. of Goto Is. and S. of Corea (St. John, 51-54 fms.).
- Murex pliciferus** Sowb. Dkr., Index, p. 4, pl. 4, f. 1, 2.  
Nagasaki (Lischke); Inland Sea (Stearns).
- Murex haustellum** Linn. Japan (Dkr.).
- Murex (Chicoreus) sinensis** Rve. Tokyo, Yedo, Nagasaki (Lischke); Tatiyama,  
Mososeki (A. Ad.).
- Murex (Chicoreus) penchinati** Crosse. J. de C., IX, p. 351, pl. 16, f. 6.  
Nagasaki.
- Murex ramosus** Linn. Kamakura (Stearns).
- Murex (Chicoreus) adustus** Lamk. Ann., Mag., 1875, p. 419.  
Ooshima; Tatiyama; Tsu-shima (Ad.).
- Murex (Homalocantha) rota** Sowb. Dkr., Index, p. 5, pl. 2, f. 3.  
Japan (Dkr.).
- Murex (Phyllonotus?) acanthophorus** A. Ad. Ann. Mag., 1875, p. 420.  
Hakodate, 5 fath. (St. John); Tsu-Saki (Ad.).

- Murex** (*Phyllonotus*) *coronatus* A. Ad. Thes. Conch., IV, pl. 400, f. 199.  
Cape St. John, Tsu-Saki (Ad.).
- Murex** (*Phyllonotus*) *unifasciatus* A. Ad. P. Z. S., 1862, p. 372; Index, p. 7.  
Uraga (Ad.).
- Murex** (*Pteronotus*) *pinnatus* Wood. Japan (Dkr.); China.
- Murex** (*Pteronotus*) *brachypteron* A. Ad. P. Z. S., 1862, p. 371.  
Uraga (Ad.).
- Murex** (*Pteronotus*) *gouldii* A. Ad. Ibid, p. 371.  
Tsu-Shima (Ad.).
- Murex** (*Pteronotus*) *stimpsoni* A. Ad. Thes., Vol. 4, pl. 400, f. 196.  
Uraga (Ad.).
- Murex** (*Muricidea*) *cirrosa* Hinds. Voy. Sulphur, p. 9, pl. 3, f. 17, 18; C. Icon., f. 138; P. Z. S., 1879, p. 200.  
E. of Goto Is., 58 fms. (St. John).
- Murex** (*Muricidea*) *diadema* A. Adams. Satanomosaki (Ad.).
- Murex** (*Muricidea*) *puteolus* A. Adams. Tsusaki (Ad.).
- Murex** (*Phyllonotus*) *cuspidatus* Sby. Thes., IV, pl. 400, f. 203.  
Japan (Sowb.).
- Murex** (*Pteronotus*) *speciosus* A. Ad. Thes., Vol. 4, pl. 392, f. 125.  
Yokohama (Sowb.).
- Ocenebra inermis** Sby. Thes., Vol. 4, pl. 402, f. 235. Japan.
- Ocenebra contracta** Reeve. C. Icon., f. 53 (*Buccinum*) + *B. funiculatum* Rve., l. c., f. 61.  
Japan (Stearns). Are *O. calcarea* and *innotabilis* really distinct from the half grown of this species? When adult it resembles *O. poulsoni* somewhat.
- Ocenebra calcarea** Dkr. Moll. Jap., pl. 1, f. 2. (Syn. *Urosalpinx innotabilis* Smith, P. Z. S., 1879, p. 201, pl. 20, f. 32).  
N. of Kiushiu, 30 fms. (St. John).
- Ocenebra fimbriatula** A. Ad. P. Z. S., 1879, p. 201, pl. 20, f. 31. (*Trophon fimbriatulum* Ad.).  
E. of Goto Is., 40 fms. (St. John).
- Ocenebra japonica** Dkr. Moll. Jap., p. 4, pl. 1, f. 14; Index, p. 8. (Syn.: *M. talienuhanensis* Crosse, J. de C., X, p. 56, pl. 1, f. 9).  
Deshima (Nuhn); Nagasaki (Lischke).
- Ocenebra falcata** Sby. Thes., Vol. 4, pl. 394, f. 149.  
Off Goto Is. (St. John); Kiushiu (Lischke).



*Ocinebra falcata* var. *adunca* Sowb. Rve., Conch. Icon., f. 61a.

East coast, between Tokyo and Ooshima (Stearns).

Some specimens are cream white with a subperipheral purple-brown zone; some are uniform dark purple-brown. The largest measures 66 mm. alt. Operculum purpuroid, the apex somewhat below the middle of the outer margin.

*Ocinebra (Cerostoma) eurypteron* Reeve. Voy. Samarang, pl. 8, f. 1.

Nagasaki (Lischke).

*Ocinebra (Cerostoma) emarginata* Sowb. C. Icon., III, f. 1.

Off Goto Is. (St. John); Boshu (Stearns).

*Ocinebra (Cerostoma) foliata* Martyn. Univ. Conch., pl. 66. Dkr., Index, p. 7, pl. 4, f. 10, 11.

Northern Japan (Dkr.).

*Ocinebra (Cerostoma) plorator* Adams & Reeve. Zool. Samarang, p. 38, pl. 8, f. 3.

East coast, between Tokyo and Ooshima (Stearns).

A single specimen larger than the type, but apparently this species.

Operculum similar to that of *Ocinebra adunca*.

*Ocinebra (Cerostoma) roriflua* Adams & Rve. Zool. Samarang, p. 38, pl. 8, f. 2; P. Z. S., 1879, p. 200. (Syn.: *Murex monachus* Crosse, J. de C., 1862, p. 55, pl. 1, f. 8).

Tsaulian (A. Ad.); Nagasaki (Lischke); Goto Is. (St. John).

*Ocinebra (Cerostoma) fournieri* Crosse. J. de Conch., IX, p. 352, pl. 16, f. 7.

Nagasaki (Lischke).

*Ocinebra (Cerostoma) burnettii* Ad. et Rve. Ann. Mag. 1875, p. 420; Voy. Samarang, p. 38, pl. VIII, f. 4, a, b.

Endermo Harb., 4-7 fath., sandy mud.

*Ocinebra (Cerostoma) endermonis* E. A. Smith. Ann. Mag., 1875, p. 420, Thes., IV, pl. 401, f. 213.

Endermo Harb., 47 fath., sandy mud (St. John).

*Ocinebra (Cerostoma) burnetti* Ad. & Rve. Thes., IV, pl. 392, f. 128.

Japan.

*Urosalpinx (?) birileffi* Lischke. J. M. C., II, p. 32.

Island of Oki, Boshu (Stearns); Nagasaki (Lischke).

*Rapana bezoar* Linné. Kiener, Coq. Viv., f. 42. (Purpura).

Yokohama Bay, Tokyo Harbor (Stearns); Yedo, Nagasaki (Lischke); Deshima (Nuhn); Hakodate, Simoda (A. Ad.).

**Rapana bezoar** var. **thomasiana** Crosse. Crosse, Journ. de Conchyl., 1861, p. 268, pl. 9, 10. (*R. thomasiana*).

Markets of Yokohama and Tokyo, a food mollusk (Stearns).

**Rapana bulbosa** Solander. Tryon, Man. Vol. II, p. 203, pl. lxiii, f. 336.

Japan (Dkr.); Yokohama Bay (Stearns).

**Rapana (Latiaxis) mawæ** Gray. Japan (Dkr.).

**Rapana (Latiaxis) deburghiaë** Reeve. Dkr., Index, pl. 1, f. 5-7.

Japan (Dkr.).

**Rapana (Latiaxis) lischkeana** Dkr. Index, p. 43, pl. 1, f. 1, 2; pl. 13, f. 26, 27.

Japan (Dkr.).

**Rapana (Latiaxis) japonica** Dkr. Index, p. 43, pl. 13, f. 24, 25.

Inland Sea of Japan (Dkr.).

**Rapana (Latiaxis) sallei** Jous. Bull. Soc. Zool. France, 1883, p. 187, pl. 10, f. 3.

Japan Coast.

**Purpura rudolphi** Chemn. C. Icon., f. 10.

Japan (Dkr.).

**Purpura persica** Linn. Japan (Stearns).

**Purpura luteostoma** (Chemn.) Dillw. Chemn., Conchyl. Cab., XI, p. 83, pl. 187, f. 1800, 1801 (Good).

Seta coast and Saruga coast (Stearns); Hakodate, Yedo (Lischke); Deshima (Dkr.).

*Purpura bronni* Dkr. (Moll. Jap., pl. 1, f. 23) is a rather short specimen, not completely mature. See also Lischke, J. M. C., I, pl. 5, f. 17, and II, pl. 4, f. 20. (Nagasaki, Tatiyama, Deshima).

**Purpura echinata** Blainv. C. Icon., sp. 33.

Deshima (Nuhn); Nagasaki (Lischke).

**Purpura heyseana** Dkr. Index, p. 40, pl. 13, f. 10, 11.

Sea of Japan (Dkr.).

**Purpura alveolata** Reeve. (+*P. clavigera* Küst., *tumulosa* Lischke). Lischke, J. M. C., I, p. 54, pl. 5, f. 12-16; Vol. II, p. 39.

Kamakura, I. of Oki, Boshu, Seta coast (Stearns); Ooshima (Challenger; St. John); Nagasaki (Lischke); Deshima (Dkr.).

Another synonym is *P. problematica* Baker (Proc. Rochester Acad. Sciences I, 1891, p. 135, pl. 11, f. 2, 3). So involved and difficult is the literature of this group of *Purpura* that we do not venture to say what the ultimate specific designation of the Japanese forms will be. There can be little doubt that all of Lischke's figures

cited above belong to one species. The numerous specimens collected by Mr. Stearns show both of Lischkes' forms and many intermediate between them, as well as other mutations. When completely adult there are a few widely spaced denticles within the lip, as in *P. luteostoma*, from which this form differs mainly in the blackish substance of the shell, which is conspicuously shown upon the eroded tubercles and within the aperture. Connecting specimens between this form and *luteostoma* probably occur.

*Purpura lapillus* Lin. Ann. Mag., 1875, p. 424.

Hakodate (Stearns).

*Jopas sertum* Brug. Japan (Dkr.; Stearns).

*Ricinula ricinus* Linné. Hachijoshima (Dkr.); Nagasaki (Lischke).

*Ricinula morus* Lam. Japan (Stearns).

*Sistrum undatum* Chemn. (*R. fiscellum* Reeve). Nagasaki (Lischke); Deshima (Nuhn).

*Sistrum tuberculatum* Blainv. Ann. Mag., 1875, p. 424.

Shores of Toba and Oshima (St. John).

*Sistrum musiva* Kiener. Icon. Coq. Viv. *Purpura*, pl. 9, f. 22.

Japan (Dkr.).

*Sistrum asperum* Lam. C. Icon., sp. 13 (*Ricinula*).

Japan (Dkr.).

*Sistrum sidereum* Reeve. C. Icon., sp. 14 (*Ricinula*).

Takano-Shima (Ad.).

#### CORALLIOPHILIDÆ.

*Coralliophila monodonta* Q. & G. Astrol., pl. 37, f. 9-11.

Hakodate Bay (Schrenck).

*Coralliophila costularis* Blainv. C. Icon., f. 63 (*Purpura*).

Japan (Dkr.).

*Coralliophila jeffreysi* Smith. P. Z. S., 1879, p. 213, pl. 20, f. 48.

Inland Sea, between Shikoku and Nippon, 22 fms. (St. John).

*Coralliophila stearnsii* n. sp. Pl. II, fig. 12.

Shell pure white, resembling in form *C. inflata* Dkr. Whorls 6, convex, sculptured with longitudinal folds, 11 on penult. whorl, and strong spiral cords passing over but lower on the folds, alternating in size, densely scaly, deeply separated, 7 or 8 on penult. whorl.

Aperture ovate, smooth within; umbilicus small. Alt. 18, diam. 12 mm.

Japan (Stearns).

*Leptoconchus peronii* Lam. (*Striatus* Rüpp.). Kino-o-Shima (Ad.).

*Leptoconchus schrenckii* Lischke. J. M. C., II, p. 45, pl. 4, f. 9, 10.

Nagasaki (Lischke).

*Leptoconchus rostratus* A. Ad. Dkr., Index, p. 45, pl. 6, f. 20, 21.

Kino-o-Shima, on Madrepores (Ad.); Bay of Yedo (Lischke).

*Bulbus rapa* Linné. (*Rapa papyracea* Lam., of authors). Japan (Dkr.).

(*Tænioglossa*).

#### TRITONIDÆ.

*Tritonium tritonis* L. Ohosaka (Lischke).

*Tritonium nodiferum* Lamarek.

See next species, with which this is united by Tryon, Dunker and others.

*Tritonium saulix* Reeve. Lischke, J. M. C., I, p. 45; II, p. 33, pl. 1, 2.

Inland Sea, Sagami (Stearns); Yedo, Nagasaki (Lischke); Tatiyama, Tsu-Saki, Takano-Shima, Bay of Yedo (A. Ad.).

*Tritonium (Simpulum) costatus* (Born). Challenger Gastrop, 1873-6, XV, p. 390 (Sidney). Syn. *T. (Simpulum) olearium* Auct. Tryon, Man. Vol. III, p. 11, pl. III, f. 19.

Yedo, Nagasaki (Lischke); Tatiyama (A. Ad.); all along the coast from Tokyo to Ojima (Stearns).

*Tritonium pileare* L. C. Icon., f. 23.

Japan (Stearns; Dkr.).

*Tritonium aquatile* Reeve. C. Icon., f. 24.

Nagasaki (Lischke).

*Tritonium clandestinum* (Cheun.) Lam. C. Icon., f. 13.

Japan (Dkr.).

*Tritonium labiosum* Wood. C. Icon., f. 52.

Uraga (A. Ad.).

*Tritonium dorsuosum* A. Adams. Ibid, 420.

Tatiyama (Adams).

*Tritonium lotorium* Linné. Japan (Dkr.).

*Tritonium dunkeri* Lischke. Lischke, J. M. C., I, p. 49, pl. 3, f. 1, 2.

Japan (Stearns); Nagasaki (Lischke).



- Tritonium moritinetum** Reeve. C. Icon., f. 49.  
Tatiyama (A. Ad.).
- Tritonium vespaceus** Lam. Japan (Stearns).
- Tritonium tenuiliratum** Lischke. J. M. C., III, p. 30, pl. 2, f. 18, 19.  
South coast of Japan (Lischke).
- Tritonium excavatum** Reeve. Lischke, J. M. C., III, pl. 2, f. 15-17.  
Japan, Tokyo (Stearns); Yedo and Nagasaki (Lischke).
- Tritonium lobbeckei** Lischke. J. M. C., II, p. 36, pl. 4, f. 13, 14.  
Nagasaki (Lischke).
- Tritonium reticosum** A. Adams. Ann. Mag. N. H., 1870, p. 420.  
Japan (Cuming; Adams).
- Tritonium lirostoma** A. Adams. Ann. Mag. N. H. (4), v, p. 419.  
Simidzu (Adams).
- Tritonium papillosum** A. Adams. Ibid, p. 419.  
Takano-Shima (Adams).
- Tritonium nodiliratum** A. Adams. Ibid, p. 419.  
Japan (Cuming coll.).
- Tritonium tringa** A. Adams. Ibid, p. 420.  
Uraga (Adams).
- Distortrix reticulata** Link. C. Icon., f. 41, 45, 46, 102.  
Japan (Dkr., as *Tritonium decipiens* Rve. and *reticulare* Linn.).
- Priene oregonensis** Redfield. Ann. Lyc. N. H., New York, 1846, IV, p. 165, pl. VI, f. 2.  
Bay of Yedo (Lischke); Hakodate (Stimp.); Okosiri and Aniwa Bay (A. Ad.).
- Gyrineum rana** (Linné). (*R. albivaricosa* Rve.). Tryon, Man. Vol. III, p. 38, pl. 18, f. 5, 6.  
Nagasaki (Lischke); Kii coast (Stearns).
- Gyrineum subgranosum** Beck. Seto-Uchi (Ad.).
- Gyrineum bufo** Chemn. Ind. Moll. Mor. Jap., p. 31, pl. 5, f. 3, 4 (var.).  
Kiusiu (Dkr.).
- Gyrineum lampas** Linné. C. Icon., II, pl. 10, f. 30b.  
Nagasaki (Lischke); Kii coast (Stearns).
- Gyrineum graniferum** Lam. Japan (Dkr.).
- Gyrineum affine** Brod. Rve., Conch. Icon., *Ranella*, f. 19.  
Japan (Stearns).

*Gyrineum cruentatum* Sowb. Japan (Stearns).

*Gyrineum ranelloides* Rve. C. Icon., f. 10.

Kiusiu (Lischke). Tryon considers this a synonym of *cruentata*.

*Gyrineum tuberculatum* Brod. Japan (Dkr.).

*Gyrineum lamellosum* Dkr. Japan (Dkr.).

*Gyrineum (Biplex) perca* Perry (*pulchra* Gray).

Inland Sea (Stearns; 33 specimens); Kiusiu (Lischke).

#### CASSIDIDÆ.

*Cassis cornuta* Linné. Nagasaki (Lischke).

*Cassis rufa* Linné. C. Icon., pl. 8, f. 20a.

Nagasaki (Lischke).

*Cassis pila* Reeve. Rv., Conch. Icon., V, f. 21.

Japan (Stearns); Nagasaki (Lischke).

*Cassis japonica* Reeve. Rv., Conch. Icon., f. 23 a, b.

Japan (Stearns); Nagasaki (Lischke); Tatiyama, Tsusaki (A. Ad.).

This form differs from *C. pila* in having the upper surface and spire densely granulated. It is typically without varices. Some specimens lack the rows of brown blotches.

*Cassis coronulata* Sowb. C. Icon., f. 31.

Nagasaki (Lischke); Ooshima, Kii (Stearns).

*Cassis strigata* Gmel. Rve., Conch. Icon., V, f. 26.

Sagami Coast (Stearns, 25 specimens); Bay of Yedo (Lischke); Mososeki, Seto-Uchi (A. Ad.).

The specimens agree exactly with Reeves' beautiful figure, except that the inner lip exhibits some short callous wrinkles above.

*Cassis strigata* Gmel. var. Japan (Stearns).

Several shells before me differ from the type in being smaller, and having spiral grooves over the entire body-whorl. One of them lacks varices; two others have each a single varix near the beginning of the body-whorl.

*Cassis vibex* Linné. Japan (Dkr.); east coast (Stearns).

*Cassis pirum* Lam. C. Icon., f. 29 (*zeylanica* Lam.).

Japan (Dkr.).

*Cassis achatina* var. *inornata* Pils. Pl. II, fig. 17.

Japan (Stearns).

Shell oblong with conical spire, the body-whorl smooth, shouldered above, the shoulder weakly nodulous; suture broadly margined. Whorls of spire angulated and nodulous, spirally striated above the angle, the upper ones decussated by fine radial folds. Nucleus naoid, consisting of  $3\frac{1}{2}$  smooth, white, rounded whorls. Outer lip reflexed and spotted, having obscure traces of teeth below; columella smooth; base of body-whorl smooth. Alt. 65, diam. 40 mm.; alt. of aperture 46 mm.

*Oniscia macandrewi* G. B. Sowerby, Jr. Pl. II, fig. 3.

P. Z. S., 1888, p. 567, pl. 28, f. 1, 2.

Japan (Hungerford, Stearns).

Shell similar to *O. cancellata*, but broader above, ponderous, the spiral cords not in the least prickly where they cross the longitudinal ribs; the latter being stout and rounded, nearly as wide as the interspaces. Buff-white, maculated and obscurely two-banded with brown, speckled with the same, especially on the ribs and lip-varix. Aperture and columella as in *cancellata*, but sometimes lacking rugosities between the lip-teeth.

Alt. 45, diam. 29 mm.; alt. of aperture 36 mm.

Alt. 36, diam. 24 mm.; alt. of aperture 30 mm.

#### DOLIIDÆ.

*Dolium fasciatum* Martini. C. Icon., sp. 11.

Nagasaki (Lischke).

*Dolium zonatum* Green. Tr. Alb. Inst., I, p. 131 (*D. crenulatum* Phil.).

Nagasaki (Lischke); S. of Tokyo Bay (Stearns).

*Dolium lischkeanum* Küster. C. Cab. p. 71, pl. 62, f. 1.

Nagasaki (Lischke).

*Dolium tessellatum* Lam. Japan Sea (Dkr., Index, p. 57.)

*Dolium chinense* Dillw. Japan (Dkr.).

*Dolium luteostoma* Küst. Dkr., Nov. Conch., p. 104, pl. 35, 36 ("*D. japonicum*"); Index, p. 58.

East coast south of Tokyo (Stearns, young shells only); Yedo, Nagasaki (Lischke); Hakodate (Schrenck).

*Dolium perdix* Linn. Japan (Stearns).

*Dolium pomum* Linné. Japan (Dkr.).

*Pyrula reticulata* Lam. Tokyo (Dkr.); Nagasaki (Lischke); Kuro-Shima (A. Ad.); Matsu-yeno-hama Coast (Stearns).

## CYPRÆIDÆ.

The claims of some of the following species to a place in the Japanese fauna are of doubtful validity.

*Cypræa sourra* Linn. Roberts, Man. Conch., VII, pl. 2, f. 19-21.

Japan (Stearns, No. 1087).

*Cypræa testudinaria* Linné. Man. Conch., VII, pl. 1, f. 9, 10.

Nagasaki (Lischke).

*Cypræa isabella* Linné. Man. Conch., VII, p. 165, pl. 1, f. 6, 7.

Nagasaki (Lischke, Stearns).

*Cypræa carneola* Linné. Japan (Dkr.).

*Cypræa fimbriata* Gmelin. Man. Conch. VII, p. 166, pl. 5, f. 76-78.

Japan (Reeve); Deshima (Nuhn); Kino-o-Shima (Ad.); Nagasaki (Lischke).

*Cypræa macula* Ad. Roberts in Tryon, Man. Conch., VII, p. 169, pl. 4, f. 71, 72.

Japan (A. Ad.; Stearns); N. coast of Tango (Gaines, in Stearns coll.).

*Cypræa felina* Gmelin. Man. Conch., VII, p. 169, pl. 4, f. 52-55, 59, 60.

Nagasaki; Kino-o-Shima (Lischke).

*Cypræa neglecta* Sowerby. Man. Conch., VII, p. 170, pl. 4, f. 61, 62, 63.

Japan (Sowerby).

*Cypræa cylindrica* Born. Conch. Cab. p. 12, 32, pl. III. f. 6, 7; pl. IX, f. 5-7.

Japan (Weinkauff).

*Cypræa hungerfordi* Sowerby. P. Z. S., 1888, p. 208, pl. 11, f. 1-3.

Japan? (Sowb.).

*Cypræa caurica* Linné. Man. Conch., III, p. 171, pl. 5, f. 88-90.

Japan (Lischke); Satanomosaki (Ad.).

*Cypræa mauritiana* Linn. Man. Conch., VII, p. 173, pl. 7, f. 8-11.

Bay of Yedo (Lischke, Stearns); Hakodate (Schrenck).

*Cypræa caputserpentis* Linné. Man. Conch., VII, p. 173, pl. 6, f. 98-100.

Japan (McAndrew; Stearns, "very rare"); Nagasaki (Lischke); Tanabe, Kino-o-Shima, Tago and Tsu-Shima (A. Ad.).

*Cypræa arabica* Linné. Man. Conch., VII, p. 174, pl. 8, f. 18, 19.

Yedo (Lischke, Stearns); Tago (Ad.).

*Cypræa reticulata* Martyn. Man. Conch., VII, p. 174, pl. 8, f. 21, 22.

Japan (Lischke, Stearns); Kino-o-Shima (Ad.).



- Cypræa moneta* L. Roberts in Tryon, Man. Conch., VII, pl. 23, f. 60, 61.  
Japan, not common (Stearns).  
Part of the specimens are white beneath, part yellow.  
Nagasaki (Lischke) Tatiyama and Tanabe (Ad.); Hakodate (Schrenck).
- Cypræa annulus* L. Roberts, Man. Conch., VII, p. 178, pl. 11, f. 57-61.  
Nagasaki, Japan (Lischke, Stearns).
- Cypræa tigris* Linné. Man. Conch., VII, p. 180, pl. 11, f. 49.  
Yedo (Lischke); Satsuma (Stearns), rare.
- Cypræa vitellus* Linné. Japan (Dunker, Lischke, Stearns); Kino-o-Shima (A. Ad.).
- Cypræa onyx* Linné. Man. Conch., VII, p. 183, pl. 13, f. 77-81.  
Japan (Stearns); Tsu-Saki, Tatiyama, Tanabe (A. Ad.); Nagasaki (Lischke).
- Cypræa lynx* Linné. Man. Conch., VII, p. 183, pl. 14, f. 86, 87.  
Japan, quite rare (Stearns); Yedo (Lischke).
- Cypræa erronea* Linné. Roberts, Man. Conch., VII, p. 183, pl. 14, f. 88, 89.  
Southern Japan (Lischke).
- Cypræa pallida* Gray. Conchyl. Cab., p. 60, pl. 18, f. 5, 8, 11.  
Japan (Lischke, Stearns).
- Cypræa asellus* Linn. Man. Conch., VII, p. 187, pl. 16, f. 34.  
Japan (Stearns).
- Cypræa clandestina* Linné. Man. Conch., VII, p. 187, pl. 16, f. 37, 38.  
Tsu-Sima; Tatiyama; Kino-o-Shima (Ad.).
- Cypræa cribraria* Linné. Japan (Dkr.).
- Cypræa punctata* Linné. Conchyl. Cab., p. 98, pl. 30, f. 6, 9.  
Japan (Lischke).
- Cypræa lamarecki* Gray. Man. Conch., VII, p. 192, pl. 18, f. 96, 97.  
Japan (Sowerby).
- Cypræa miliaris* Gmelin. Bay of Yedo (Lischke).
- Cypræa erosa* Linné. Man. Conch., VII, p. 192, pl. 18, f. 90, 100, 1.  
Yokohama (Stearns); Tanabe and Takano-Shima (A. Ad.).
- Cypræa poraria* Linné. Man. Conch., VII, p. 193, pl. 18, f. 2, 3.  
Japan (Stearns).
- Cypræa helvola* Linné. Man. Conch., VII, p. 194, pl. 19, f. 8, 9.  
Japan (Lischke, Stearns).

- Cypræa (Pustularia) staphylæa* Linné. Man. Conch., VII, p. 196, pl. 20, f. 39-41.  
Japan (Stearns); Satanomosaki, Tatiyama, Takano-Shima (A. Ad.).
- Cypræa (Pustularia) nucleus* Linn. Man. Conch., VII, p. 197, pl. 20, f. 48, 49.  
Japan (Stearns).
- Cypræa (Epona) globulus* Linn. Yokohama (Stearns); Satanomosaki (Ad.); Dunker reports *C. cicercula*, also.
- Trivia oryza* Lamarek. Man. Conch., VII, p. 200, pl. 21, f. 82, 83.  
Japan (Lischke).
- Trivia grando* Gaskoin. Roberts, Man. Conch., VII, p. 200, pl. 21, f. 86, 87.  
Goto; Simoda (A. Ad.).
- Erato callosa* Adams & Reeve. Zool. Samarang, p. 25, pl. 10, f. 32.  
Tokyo Bay, Nagasaki (Lischke); Deshima (Nuhn).
- Erato lachryma* Gray. Thes., III, p. 82, pl. 219, f. 4-6.  
Kamakura, Tokyo Harbor, etc. (Stearns).

## OVULIDÆ.

- Ovula ovum* Linné. Man. Conch., VII, p. 246, pl. 1, f. 11, 12.  
Japan (Dkr.).
- Ovula rhodia* Ad. Conchyl. Cab., p. 180, pl. 46, f. 14, 15.  
Nemoto, Boshu (Stearns); Tokyo Bay (Lischke).
- Ovula triticea* Lam. Thes. Conch., II, p. 474, pl. 101, f. 99, 100.  
Japan (Dkr.). A doubtful species.
- Ovula lactea* Lamarek. Man. Conch., VII, p. 247, pl. 2, f. 23-25.  
Kino-o-Shima (Adams).
- Ovula pyriformis* Sowerby. Man. Conch., VII, p. 247, pl. 2, f. 43-45.  
Satanomosaki (A. Adams).
- Ovula bulla* Ad. & Rve. Zool. Samarang, p. 21, pl. 6, f. 5.  
Satanomosaki, 55 fms. (A. Adams).  
Tryon unites this and the next to *O. margarita* Sowb.
- Ovula umbilicata* Sowerby. Conchyl. Cab., p. 178, pl. 46; f. 9-12.  
Goto Is., 71 fms. (Adams).
- Ovula concinna* Adams & Reeve. Zool. Samarang, p. 22, pl. 6, f. 8.  
Mino-Shima (Adams).
- Ovula punctata* Duclos. Conchyl. Cab. p. 182, pl. 47, f. 6, 7.  
Goto Is., 48 fms. (Adams).

- Ovula bullata* Ad. & Rve. Zool. Samarang, p. 23, pl. 6, f. 12.  
Japan, Goto Is. (Adams).
- Ovula scitula* A. Adams. Conchyl. Cab., p. 185, pl. 47, f. 14, 15.  
Tsu-Shima (A. Ad.). Tryon unites this to *O. bullata*.
- Ovula striatula* Sowerby. Conchyl. Cab., p. 186, pl. 48, f. 2, 3.  
Tsu-Saki, 55 fms. (A. Ad.).
- Ovula dentata* Ad. & Rve. Zool. Samarang, p. 21, pl. 6, f. 4,  
Goto Is., 4 fms. (Adams).
- Ovula dorsuosa* Hinds. Conch. Cab., p. 187, pl. 48, f. 6, 7.  
Goto Is., 48 fms. (Adams).
- Ovula obtusa* Sowerby. Man. Conch., VII, p. 251, pl. 3, f. 87, 88.  
Mino-Shima, 63 fms. ; Kuro-Shima, 39 fms. (A. Ad.).
- Ovula formosa* Ad. & Rve. Zool. Samarang, pl. 6, f. 6 a, b.  
Kino-o-Shima (A. Adams).
- Cyphoma elongata* A. Ad. Journ. Linn. Soc., VII, p. 96.  
Goto, 48 fms. (A. Ad.).
- Volvula volva* Linn. Man. Conch., VII, p. 252, pl. 4, f. 94, 95.  
Ojima (Stearns) ; Kiusiu (Lischke) ; Satanomosaki, 55 fms. (Ad.).
- Volvula recurva* Ads. & Rve. Zool. Samarang, p. 21, pl. 6, f. 3.  
Satanomosaki, 55 fms. (Ad.).
- Volvula philippinarum* Sowerby. Thes. Conch., II, p. 481, pl. 100, f. 57, 58.  
Japan (Dkr.). Tryon makes *subreflexa* Sowb., reported by Adams  
from Tsu-Shima, a synonym, and also *carpenteri* Dkr.
- Volvula carpenteri* Dunker. Index, p. 102, pl. 13, f. 1, 2.
- Volvula adamsii* Dunker. Index, p. 102, pl. 13, f. 3, 4.
- Volvula birostris* Lamarck. Man. Conch., VII, p. 253, pl. 4, f. 10, 11.  
Japan (Sowerby).
- Volvula (Neosimnia) acuminata* Ads. & Rve. Zool. Samarang, p. 21, pl. 6, f. 1.  
Kuro-Shima, 35 fms. (Ad.).

## STROMBIDÆ.

- Strombus latissimus* Linné. Ohosaka (Lischke).
- Strombus lentiginosus* Linn. Japan (Stearns).
- Strombus aurisdianæ* var. *laevis* Perry.  
*S. aurisdianæ* (part) Linné, Dillwyn and of Sowerby, Thes., I.  
*S. laevis* Perry, Conchology, pl. 13, f. 4 (1811).

*S. "guttatus Martini,"* of authors (=Pugil flavescens, albo, *guttatus, laevis Martini*, Conch. Cab., II, p. 87, f. 840).

Japan (Dkr.).

As Linnæus included both the rough and smooth forms in his citations and cabinet under the name *auris-dianae*, it is evident that the present form must bear the name given by Perry, who first of binomial authors distinguished it. The well-known rough form with smooth mouth retaining Linnæus' term, of which *S. striatogranosus* Mörch is a synonym. If the striation of the posterior sinus of the aperture proves racially constant, this form (C. Icon., f. 36 b; Thes., f. 98, 99) may be called var. *lamarckii* Gray. The other variety, *melanostomus* Swains., is generally recognized (C. Icon., f. 37).

***Strombus aratrum* Martyn.**

*Alata aratrum* Martyn, Univ. Conch., pl. 1 (1789).

*Strombus auris Dianae Zelandiæ Novæ, etc.*, Chemn., C. Cab., X, p. 210, pl. 156, f. 1485, 1486.

*S. auris dianae* var. Gmel., Dillw.

*S. chemnitzii* Pfr. Krit. Reg. zu Mart. u. Chemn., pp. viii, 96 (1840).

*Strombus acutus* Perry, Conchol., pl. 12, f. 2 (1811).

*Strombus pacificus* Swains, Exot. Conch., pl. 17.

*Strombus "novæzelandiæ Chemn.,"* Rve., C. Icon., f. 35.

Bay of Yedo (Lischke).

The above names are absolute synonyms of *S. aratrum*. *S. australis* has been considered a variety of the above species by Tryon, but in the absence of intermediate forms may well be retained distinct, being distinguished by the characters recited below. It has not been reported from Japan.

*S. australis* Sowb., Thes., I, p. 36, pl. 9, f. 96, 97 (1847).

Coronal tubercles on body-whorl small and numerous, several strong median cords on body-whorl, and spiral sculpture much stronger throughout; columellar callus more colored; basal and upper wing processes black-tipped, and lip black-edged when fully adult; posterior sinus of aperture with two stronger cords.

***Strombus succinctus* L. var. *robustus* Sowb.** Sowb., P. Z. S., 1874, p. 599. pl. 72, f. 5, 5a.

Hong-Kong (Cuthill; Sowb.); Japan (Stearns); Tatiyama, Okino-Shima (Ad.).



**Strombus japonicus** Reeve. *Rv.*, *Conch.*, con., f. 42; Lischke, *J. M. C.*, I, pl. 5, f. 7.

Kishiu (Stearns, 70 specimens); Nagasaki (Lischke); Deshima (Nuhn); Takano-Shima and Tomo (A. Ad.).

The specimens are larger and darker colored than Reeve's figure, but agree well with Lischke's.

**Strombus urceus** Linné (*floridus* Lam.; *mutabilis* Swains). Japan (Dkr., as *flosculosus* Martini; Stearns); Kiusiu (Lischke).

**Strombus ustulatus** Schum. (*urceus* Auct. not Linn.) Japan (Dkr.; Stearns); Nagasaki (Lischke).

**Strombus dentatus** L. var. **corrugatus** Ads. & Rve. *A. & R.*, *Voy. Samarang*, *Moll.* pl. 10, f. 19.

Japan (Stearns).

**Strombus gibberulus** Linn. Japan (Stearns).

**Strombus samar** (Chemn.). *Dillw.* Tryon, *Man. Conch.*, VII, p. 121, pl. 8, f. 88.

Japan (Stearns).

**Strombus luhuanus** Linné. Tokyo (Dkr.); Nagasaki (Lischke); Takano-Shima and Tago (A. Ad.).

**Strombus isabella** Lam. Southern Japan (Lischke).

**Pterocera chiragra** Linné. *Man. Conch.* VII, p. 126. Japan (Dkr.).

**Pterocera millepeda** Linné. Japan (Dkr.).

**Pterocera lambis** Linné. Japan (Dkr.).

**Pterocera bryonia** Gmel. Nagasaki (Lischke); Hakodate (Schrenck).

**Rostellaria powisii** Petit. *Man. Conch.* VII, p. 128. Japan (Dkr.).

**Seraphs terebellum** Linné. (*Terebellum punctatum* and *subulatum* of authors).

Bay of Yedo (Lischke); Nagasaki and Yobuko (A. Ad.).

#### CERITHIIDÆ.

**Cerithium echinatum** Lam. Tryon, *Man. Conch.*, IX, pl. 20, f. 25; Dkr., *Index*, p. 106.

Japan (Stearns; Dkr.).

**Cerithium guinaicum** Phil. *Abbild.* III, pl. 1, f. 13.

Japan (Dkr.).

**Cerithium columna** Sowb. *Thes.*, pl. 178, f. 55-58.

Japan (Dkr.).

**Cerithium dialeucum** Phil. *Abbild.*, III, pl. 1, f. 5.

Nagasaki (Lischke).

*Cerithium kobelti* Dunker. Index, p. 106, pl. 4, f. 8, 9.

Japan (Dunker); Tokyo Harbor (Stearns).

*Cerithium humile* Dkr. Moll. Jap., p. 9, pl. 2, f. 17; J. M. C., III, p. 50, pl. 3, f. 18, 19, 20.

Nagasaki (Lischke); Deshima (Nuhn).

*Cerithium granosum* Kiener. Coq. Viv., pl. 4, f. 3.

Nagasaki (Lischke).

*Cerithium carbonarium* Philippi. Challenger Gastrop, 1873-6, XV, p. 531; (Syn.: *C. bornii* Rve., Conch. Icon., XV, pl. V, f. 26).

Ooshima (Challenger).

*Cerithium rugosum* Wood var. E. A. Smith, Ann. Mag., 1875, Vol. XVI, p. 106.

Ooshima (St. John).

*Cerithium (Colina) macrostoma* Hinds. Hds., Voy. Sulphur, pl. 16, f. 12.

Banda, Boshu (Stearns); Sts. of Macassar (Hds.); Dumaguete and other Philippine localities (Cuming, *et al.*).

A peculiar little species, showing great variation in the hundred or more specimens collected by Mr. Stearns. The extensive synonymy is given I believe correctly by Tryon, Man. Conch., IX, p. 142.

*Clava sinensis* Gmel. (*obeliscus* Brug.) Japan (Dkr., as *Vertagus chinensis* Chemn.).

*Clava aluco* Linné. Man. Conch. IX, p. 145, pl. 27, f. 38. Japan (Dkr.).

*Clava fasciata* Brug. Sowb., Thes., II, pl. 176, f. 6.

Japan (Stearns; 53 collected).

*Clava attenuata* Phil. Abbild., I, pl. 1, f. 2; Man. Conch. IX, p. 148.

Corea Straits (Ad.).

*Clava kochi* Philippi. Ann. Mag. N. H., 1875, XVI, p. 105; Abbild., III, pl. 1, f. 3.

Banda, Boshu (Stearns); Nagasaki (Lischke); Tango Coast (Gaines); Matoza Harb., 6 fath. (St. John).

*Clava turrita* Sby. Ann. Mag., 1875, Vol. XVI, p. 106; Man. Conch. IX, p. 147.

Ooshima, 8 fath. (St. John).

*Clava pfefferi* Dunker. Index, p. 108, pl. 4, f. 12-14.

Japan (Dkr.). Tryon considers this a synonym of *C. turritum*.

*Clava asper* Linn. Japan (Stearns).

*Clava vertagus* Linn. Japan (Stearns).

*Bittium pusillum* Dkr. Moll. Jap., p. 11, pl. 2, f. 6.

Deshima (Dkr.).

*Bittium scalatum* Dkr. Index, p. 108.

Japan (Dkr.).

*Bittium oosimense* Watson. Challenger Gastrop. XV, p. 548, pl. XXXIX, f. 1.

Ooshima (Chall.). Must be somewhat like the preceding.

*Potamides* (*Telescopium*) *telescopium* Linné. Japan (Stearns, one poor specimen).

*Potamides* (*Tympanotonos*) *fluviatilis* P. & M. Nagasaki (Lischke); Japan (Stearns).

*Potamides* (*Batillaria*) *zonalis* Brug. Lischke., J. M. C., I, pl. 6, f. 15, 16.

Tokyo Harbor (Stearns); Ooshima (St. John); Nagasaki (Lischke); Yokohama (Martens).

The following forms are closely allied.

*Potamides* (*Batillaria*) *cumingi* Crosse. *Lampania cumingi* Crosse, J. de C., 1862, p. 54, pl. 1, f. 10, 11; J. M. C., I, pl. 6, f. 11-14.

Tokyo Harbor; Bañda, Boshu (Stearns); Hakodate (Schrenck)

*Potamides* (*Batillaria*) *multiformis* Lischke. J. M. C., I, pl. 6, f. 1-10.

Tokyo Harbor (Stearns).

The specimens correspond best with Lischke's figs. 7, 8, but are white-banded at suture.

*Potamides* (*Batillaria*) *aterrima* Dkr. Index, p. 109, pl. 5, f. 7, 8.

Japan (Dkr.). Hardly distinct from the preceding. In fact all the above forms of the *P. zonalis* group should probably be considered varieties of that species. Mr. R. B. Newton has shown that *Batillaria* Bens. should replace *Lampania* Gray as a subgeneric name for these forms.

#### CERITHIOPSIDÆ.

*Cerithiopsis subreticulata* Dkr. Moll. Jap., p. 9, pl. 2, f. 10.

Deshima (Dkr.).

*Cerithiopsis rosea* A. Ad. Ann. Mag. N. H. (3), VII, 1861, p. 130.

Tsu-Shima, 16 fms. (Ad.).

*Cerithiopsis cerina, baculum, clavula* A. Ad. *Ibid.*

Mino-Shima, 63 fms. (Ad.).

*Cerithiopsis paxillus, pagodula* A. Ad. *t. c.*, p. 131.

Corea Strait, 46 fms. (Ad.).

*Seila dextroversa* Ad. & Rve. Zool. Samarang, p. 45, pl. 11, f. 31.

Tsu-Shima, 16 fms.; Corea Strait, 46 fms. (Ad.).

*Seila cingulata* A. Ad. Ann. Mag., VII, 1861, p. 131.

Tsu-Shima, 16 fms. (Ad.).

## TRIFORIDÆ.

*Triforis fusca* Dkr. Moll. Jap., pl. 2, f. 22.

Kamakura, Tatagama. Boshu, Tokyo Harbor (Stearns); Nagasaki (Lischke); Deshima (Nuhn); N. coast of Tango (Gaines).

*Triforis violacea* Q. & G. Astrol., pl. 55, f. 22, 23; Man. Conch. IX, p. 182.

Deshima (Dkr.).

*Triforis granulata* A. & R. Zool. Samarang, pl. 11, f. 33a, b.

*Triforis exilis* Dkr. Moll. Jap., p. 10, pl. 2, f. 9.

Deshima (Dkr.).

*Triforis conspersus* (A. Ad.) E. A. Smith. Ann. Mag., 1875, Vol. XVI, p. 106.

Cape Shima, 18 fath., sand (St. John).

*Triforis purpuratus* n. sp.

Shell purple; cylindric-fusiform, the lower three whorls of nearly equal diameter, those above tapering to form a long cone somewhat over one-third the shell's length. Whorls 10, those of the spire bearing three equal spiral series of rounded beads and a small smooth thread immediately above the suture; last whorl with four bead-series, the lower one nearly smooth, and on the base two smooth ribs with clathrate intervals. Aperture as in *T. granulata* A. & R., but tube very short, not closed. Alt. 5.4, diam. 1.8 mm.

Kamakura (F. Stearns).

*Triforis (Viriola) corrugatus* Hinds. Ann. Mag., 1875, Vol. XVI, p. 106.

Cape Shima, 18 fathoms, sand (St. John).

Not so stout a shell as the next species, judging by Singapore specimens before me.

*Triforis (Viriola) tricincta* Dkr. (*cingulata* Dkr. not Ad.; *dunkeri* Jous.) Moll. Jap., pl. 2, f. 1.

Kamakura, Tatagama, Boshu, Tokyo Harbor (Stearns); N. shore of Tango (Gaines).

Dunker's figures of a young shell give but a poor idea of the adult of this fine species. The three names given above are all founded on the one original description of Dunker.

## PLANAXIDÆ.

*Planaxis pyramidalis* Gmel. Nagasaki (Lischke, J. M. C., II, p. 70).

*Planaxis sulcatus* Born. Ann. Mag., 1875, Vol. XVI, p. 104; Man. Conch. IX, p. 276.

Shore at Ooshima (St. John).



*Planaxis cingulatus* Gld. *Otia* Conch., p. 140.

Ousima, under stones below water-mark (Stimpson).

#### TRICHOTROPIDÆ.

*Trichotropis cedo-nulli* A. Ad. Conch. Icon., Vol. 19, pl. 2, f. 7 a, b.

Mino-Shima, 63 fms. ; Goto Is., 48 fms. (Adams).

*Trichotropis bicarinata* Broderip & Sby. Conch. Icon., XIX, pl. 1. f. 2.

Aniwa Bay, 17 fms. (Ad.).

*Trichotropis borealis* Brod. & Sowb. Thes., III, p. 321, pl. 285, f. 1-3.

Castle Point, Manchuria, 37 fms. (A. Ad.).

*Trichotropis inermis* Hinds. Thes., III, p. 321, pl. 285, f. 14.

Okosiri Island, 35 fms. (A. Ad.).

*Trichotropis insignis* Middendorff. Mal. Rossica, II, p. 107, pl. 10, f. 7-9; Ann. Mag. N. H., 1875, XVI, p. 103.

Akishi, 3 to 4 fath. (St. John); Aniwa Bay (Ad.).

*Trichotropis unicarinata* Brod. & Sowb. Conch. Icon., XIX, pl. 2, f. 8.

Yamada Harbor, 7 fms. (St. John).

*Trichotropis quadricarinata* A. Ad. Conch. Icon., pl. 2, f. 9 a, b.

Mino-Shima (A. Adams).

*Separatista separatista* Dillwyn (*S. chemnitzii* A. Ad.). Dkr., Index, pl. 2, f. 1, 2.

Nemoto, Bishiu (Stearns).

#### VERMETIDÆ.

*Thylacodes imbricatus* Dkr. Moll. Jap., p. 17, pl. 2, f. 18; J. M. C., I, p. 83.

Yedo, Nagasaki (Lischke); Deshima (Nuhn); Manchurian and Japanese coasts (A. Ad.). Lives on stones.

*Thylacodes nodosorugosus* Lischke. J. M. C., I, p. 84, pl. 5, f. 1-4.

Ohosaka, on *Tridacna squamosa* (Lischke).

*Thylacodes medusæ* Pilsbry. Plates IV, and V.

Proc. A. N. S., Phila., 1891, p. 471, pl. 17, 18.

Saruga coast, on shells (Stearns).

A large species, nearly always living in clusters, attached generally to shells. The young form an irregular spiral, the whorls of which rest prone upon the base of attachment. As the tube increases in diameter it becomes carinated on the lower outer portion, or the part corresponding to the "shoulder" of the whorl in a regularly spiral gasteropod. At this stage the whorls become more laxly coiled, and when not too closely clustered, present the appearance of

such planorboid forms as *T. masier* Dh., *T. atra* Rouss, etc. This stage is shown in the cluster pictured on pl. IV. The subsequent growth is erect and but slightly spiral, the tube generally contracting slightly in diameter, and cylindrical in form. The sculpture consists of narrow longitudinal cords at rather wide intervals, the spaces being occupied by a variable number of threads, (usually three) of which the middle one is larger. Irregular growth-lines crenulate the longitudinals. This sculpture is normally developed upon all sides of the tube. Upon the latter part of the free portion it is often subobsolete. The aperture is circular in adult shells, at right angles to the tube, and white within. The external surface is of a pale brown tint. No internal septa were found in numerous broken specimens; and although the shells were apparently alive when collected, no opercula were preserved in them, the absence of this organ being one of the characteristics of *Thylacodes*.

The dimensions may be seen in the figures, which are of natural size. The diameter of the tubes at the aperture averages 13 mm.

The embryonic shell, at the time it becomes attached, is bulimiform, glossy and smooth; lying upon its side. The first whorl formed after attachment takes place is perfectly planorboid, showing the nuclear shell in the center.

This species differs from *Vermetus imbricatus* Dkr. in lacking the imbricating growth-striae of that form. As figured by Dunker *V. imbricatus* is a planorboid form, like *V. masier* Dh., *atra* Rouss, etc., but it may possibly be an immature shell.

*T. medusæ* is apparently allied to *V. polyphragmus* Sassi, *V. dentiferus* Lam. and *V. novæ-hollandiæ* Rouss, but it differs from them in having the sculpture developed over the whole circumference of the tube, not confined to its upper surface, or the part corresponding to the base of the shell in ordinary gasteropods, as it is in those species.

**Spiroglyphus planorbis** Dkr. Moll. Jap., p. 18, pl. 2, f. 16

Deshima, on *T. imbricatus*. (Dkr.).

**Siliquaria (Pyxipoma) lactea** Linné. Man. Conch., VIII, p. 191, pl. 58, f. 26.

Japan (Dkr.).

**Siliquaria (Agathirses) cumingii** Moreh. Man. Conch., VIII, p. 190, pl. 57, f. 19; pl. 58, f. 21.

Nemoto, Boshu (Stearns); Bay of Yedo (Lischke).

*Siliquaria (Agathirses) australis* Quoy. Man. Conch., VIII, p. 189.

Nemoto, Boshu; Tokyo Harbor (Stearns). Many small specimens.

*Vermetus tokyoensis* n. sp. Pl. I, figs. 9, 10, 11.

Shell small, solitary, composed of numerous very slowly enlarging whorls, oval or round in section, entirely prone, forming an irregular recumbent spiral, or an amorphous combination of spirals, all in contact, or the last free at the aperture; nearly smooth, but showing in some places irregular concentric costulæ or wrinkles; diameter of whorl at aperture  $1\frac{1}{2}$  mm. Earlier whorls showing two strong, rather sharp parietal laminae, and a very slight columellar cord; the section being rather dumb-bell shaped (fig. 10).

Tokyo Harbor (Stearns).

#### TURRITELLIDÆ.

*Turritella erosa* Couthouy. Bost. Journ. N. H., II, 1839, p. 103, pl. 3, f. 1.

Northern Japan (Schrenck).

*Turritella fascialis* Mke. Ann. Mag., 1875, XVI, p. 107.

Goza Harb., 6 fath., sandy mud (St. John).

*Turriteila gracillima* Gld. Otia Conch., p. 140.

Kagoshima Bay (Stimpson).

*Turritella bacillum* Kiener. Japan (Stearns, one dead shell).

*Turritella cerea* Reeve. C. Icon., pl. 6, f. 25.

Nagasaki (Lischke).

#### LITTORINIDÆ.

*Littorina grandis* Middendorff. Midd., Reise, p. 198, pl. 11, f. 4-10.

Bay of Castries.

*Littorina brevicula* Philippi. Conchyl. Cab., p. 100, pl. 14, f. 10, 11.

Nagasaki and Hakodate (Lischke); Endermo (St. John).

*Littorina manschurica* Schrenck. Reisen im Amurl., II, p. 333, pl. 14-20; *L. souverbiana* Crosse, J. de C., X, p. 53, pl. 1, f. 6, 7, and *L. balteata* Reeve, Icon., X, f. 71, a, b, are identical.

Northern Japan.

*Littorina malaccana* Phil. Abbild., III, p. 51, pl. 6, f. 17.

Tokyo (Dkr.).

*Littorina exigua* Dunker. Moll. Jap., p. 13, pl. 2, f. 13; Conchyl. Cab., p. 95, pl. 13, f. 13-16.

Hachijo-Shima (Satow); Nagasaki (Rein); Deshima (Nuhn); and Hakodate.

- Littorina sitchana* Phil. Abbild., III, pl. 6, f. 13, 18.  
Coast of Prov. Kii (Stearns) ; Hakodate (Schrenck).
- Littorina subtenebrosa* Midd. Reise, II, p. 202, pl. 11, f. 11, 12.  
Peninsula Segneka, Ochotch Sea. (Midd.).
- Littorina sinensis* Phil. Abbild., III, pl. 6, f. 23.  
Nagasaki (Lischke).
- Littorina strigata* Lischke. J. M. C., II, p. 73, pl. 5, f. 22.  
Nagasaki (Lischke).
- Littorina sieboldi* Philippi. Abbild., III, pl. 6, f. 3.  
Japan Sea (Siebold).
- Littorina vidua*. Otia Conch., p. 110.  
Oushima (Stimp.).
- Littorina (Hamus) granularis* Gray. Challenger Gastrop., 1873-6, XV, p. 576.  
Ooshima.
- Fossarina picta* A. Ad. P. Z. S., 1867, p. 312, pl. 19, f. 26.  
Tanabe, Oki-no-Shima (Ad.).
- Echinella* (?) *tectiformis* Watson. Challenger Gastrop., 1873-6, XV, p. 578 ; pl. XLIII, f. 1.  
Japan, 565 fathoms, green mud ; Lat. 34° 7' N., Long. 128° E.
- Echinella cecillei* Philippi. (*Littorina*). Philippi, Zeitschr., 1851, p. 78.  
Liu-Kiu Is. (Largilliert).
- Echinella cumingii* Phil. Japan (Stearns, 300 specimens).
- Lacuna latifasciata* Ad. Ann. Mag., 1863, p. 350.  
Kino-o-Shima (Ad.).
- Lacuna (Medoria) crassior* Montg. Midd., Sib. Reise, pl. 10, f. 10. 11. (*L. glacialis* Moll.).  
Japan (Dkr.).
- Lacuna (Medoria) turrita* A. Ad. Ann. Mag., 1861, p. 305 ; 1863, p. 350.  
Rifunsiri (Ad.).
- Lacuna (Epheria) divaricata* Fabr. Man. Conch., VIII, p. 266.  
Hakodate (Schrenck, as *L. vineta*).
- Lacuna (Epheria) decorata* A. Ad. Ann. Mag., 1861, 304.  
Rifunsiri (Ad.).
- Lacuna (Epheria) inflata* A. Ad. Rifunsiri (Ad., *l. c.*).
- Lacuna (Epheria) carinifera* Ad. P. Z. S., 1851, p. 225.  
Takano-Shima (Ad.).

*Lacuna* (*Epheria*) *lepidula* Ad. Ann. Mag., 1863, XI, p. 350.

Seto-Uchi, Akasi, 15 fms. (Ad.).

*Lacuna unicarinata* E. A. Smith. Ann. Mag., 1875, Vol. XVI, p. 104.

North Japan, on a littoral species of *Sargassum* (St. John).

*Lacuna* (*Cithna*) *globosa* A. Ad. P. Z. S., 1863, p. 113.

Seto-Uchi, Harima Nado (Ad.).

*Lacuna* (*Cithna*) *spirata* A. Ad. *L. c.*, same localities.

*Lacuna oxytropis* Pilsbry. Pl. VIII, fig. 1.

Shell acutely turbinate, rather thin, widely umbilicated, yellowish-brown, becoming olive on the spire; surface covered with a thin epidermis, sculptured by slight fine growth-lines only. Spire elevated, acute; whorls  $4\frac{1}{2}$ , convex, separated by deep sutures, the last whorl with an acute pinched peripheral keel, which becomes obsolete at aperture, but extends up the spire immediately above the sutures. Aperture half round, outer lip well curved, inner lip about straight, retracted in the middle, thin; umbilicus rather large and deep, excavated, brown, and rather roughly longitudinally striate within, bounded by a very acute keel. Alt.  $6\frac{1}{2}$ , diam. 5 mm.; apert. oblique alt. 4, width 3.7 mm.

Tokyo Harbor (F. Stearns).

*Lacuna smithii* Pilsbry. Pl. VIII, fig. 2.

Shell ovate, smooth, yellow, with white or white-edged apical whorls, and usually a white peripheral band; surface marked by growth-lines and some irregular wrinkles. Spire elevated but extremely obtuse; whorls 4, the latter  $1\frac{1}{2}$  demarked from the preceding by a dark line, the earlier whorls forming a depressed-globose, low-spined embryonic shell. Last whorl keeled at periphery, the keel becoming obsolete toward the lip, not visible on the whorls of the spire. Aperture oblique-ovate, inner lip arcuate and retracted in the middle; umbilicus moderate, pure white, deeply penetrating, surrounded by a very acute brown keel, excavated within. Alt. 5.6, diam. 4.2 mm.; aperture, oblique alt. 3.6, width 2.5 mm.

Tokyo Harbor (Stearns).

A very obtuse shell, less transversely inflated than *L. stenotomorphia* and with narrower umbilicus. This species is named in honor of Mr. E. A. Smith, whose contributions to our knowledge of Japanese shells have been of great extent and value.



*Lacuna stenomorpha* Pilsbry. Pl. VIII, fig. 3.

Shell small, smooth, yellow, with a white band at periphery and another below the suture; depressed, oblique, with large, open, excavated white umbilicus. Spire low, last whorl very rapidly enlarging, descending in front, rounded at periphery. Aperture ovate, oblique, small; outer lip well curved, inner lip nearly straight. Umbilicus deep, encircled by an acute keel, excavated on its inner surface. Alt. 4, diam. 4 mm.; aperture, oblique alt. 3, width 2 mm.

Tokyo Harbor (Stearns).

In this species the form approaches *Stenotis laxata*. The last whorl is marked off from those preceding by a dark line, probably indicating the end of the larval stage. This is visible in the two other species herein described, but I do not notice it in the North Atlantic or Californian *Lacunas*. This feature may indicate a section or subgenus, which may be called *Sublacuna*.

*Lacuna (Stenotis) laxata* A. Ad. Journ. de Conchyl., 1868, p. 54, pl. 4, f. 7.

Iudzuma-Nada, Inland Sea, 17 fms.; Yobuko, W. coast of Kiushiu, 14 fms. (Ad.).

#### FOSSARIDÆ.

*Fossarus costatus* Brocchi. Conch. Foss. Subap., p. 300, pl. 11, f. 11; *Fossar japonicus* A. Ad., Ann. Mag., 1861, p. 139.

Kuro-Shima, Tsu-Shima (Ad.).

*Fossarus trochlearis* A. Ad. P. Z. S., 1853, p. 187.

O-Shima (Ad.).

*Fossarus fenestratus* A. Ad. O-Shima (Ad.).

*Couthouya decussata* A. Ad. Ann. Mag., 1860, p. 410.

Mino-Shima (Ad.).

*Couthouya reticulata* A. Ad. P. Z. S., 1853, p. 186 (*Fossar*).

Seto-Uchi, Uruga (Ad.).

*Couthouya striatula* and *C. plicifera* A. Ad. Yobuko (Ad., l. c.)

*Isapis lirata* A. Ad. Ann. Mag., 1860, p. 120.

Mino-Shima, Uruga (A. Ad.).

*Isapis conoidea* A. Ad. Takano-Shima (Ad.).

*Conradia cingulifera* A. Ad. Ann. Mag., 1860, p. 410.

Mino-Shima, Uruga (Ad.).

*Conradia carinifera* A. Ad. Mino-Shima, Goto (Ad., l. c.).

*Conradia clathrata* A. Ad. Tsu-Shima, Goto (Ad.).

*Conradia pulchella* Ad. Ann. Mag., 1861, p. 307.

Tsu-Shima, Goto (Ad.).

*Conradia doliaris* Ad. Seto-Uchi (Ad., l. c.).

*Conradia tornata* A. Ad. Goto Is. (Ad., l. c.).

*Gotoina sulcifera* and *pyrgula* A. Ad. Goto Is.

**SOLARIIDÆ.**

*Solarium perspectivum* Linné. Man. Conch IX, p. 8. Nagasaki (Lischke).

*Solarium maximum* Phil. Japan (Stearns).

*Solarium quadriceps* Hinds. Nagasaki (Lischke).

*Solarium cingulum* Kiener. Hazaburo, Boshu coast (Stearns).

*Solarium conulum* var. *japonicum* P. & S. Hazaburo, Boshu coast (Stearns).

Shell similar in form to *S. conulum* Weink.; dark purple-brown above and below, the peripheral (supra-sutural) and subperipheral cords white, closely articulated with orange-brown; umbilical cord white. Alt.  $8\frac{1}{2}$ , diam. 10 mm.; sometimes larger.

*Torinia dorsuosa* Hinds. Japan (Dkr.).

**RISSELLIDÆ.**

*Rissoella omphalotropis, vesicalis, spiralis* A. Ad. Ann. Mag., VI, 1860, p. 332, 333.

Sado, 30 fms. (Ad.).

*Rissoella vitrina, hydrophana* A. Ad. (*Ibid.*). Tabu-Shima, 25 fms.

*Rissoella minima, mundula* A. Ad. (*Ibid.*). Tsu-Shima, 26 fms.

*Rissoella turgidula* A. Ad. (*Ibid.*). Corea Strait, 46 fms.

*Rissoella fulgida* A. Ad. Dkr., Index, p. 117.

**LITIOPIDÆ.**

(See Ann. Mag. N. H., 1861, p. 143; 1862, p. 296).

*Alaba picta, felina, lucida* A. Ad. Takano-Shima.

*Alaba leucosticta* A. Ad. Tabu-Shima.

*Alaba cornea* A. Ad. Awa-Shima, Takano-Shima.

*Alaba zebina, subangulata* A. Ad. Tsu-Shima.

*Alaba imbricata, inflata* A. Ad. O-Shima.

*Diala varia* A. Ad. Awa-Shima, Takano-Shima.

*Diala sulcifera* Ad. O-Shima, Tanabe.

*Diala tenuis* E. A. Smith. Ann. Mag., 1875, Vol. XVI, p. 105.

N. Japan, on a littoral species of *Sargassum*. Many specimens collected by Stearns have egg-capsules (?) on the shell, probably such as Smith mentions. The shells are larger than Smith's, length 6 mm.

*Diala simplex* E. A. Smith. Ann. Mag., 1875, Vol. XVI, p. 105.

Lat. 41° 12' N., Long. 140° 45' E., 43 fath. (St. John).

#### RISSOIDÆ.

*Rissoa (Goniostoma) pupaeformis* A. Ad. Ann. Mag., V, 1860, p. 411.

Mino Shima, 63 fms. (A. Ad.).

*Rissoa (Onoba) mundula* A. Ad. Ann. Mag., 1861, VIII, p. 136.

Corea Strait, 63 fms. (Ad.).

*Rissoa (Onoba) elegantula* A. Ad. (*Ibid.*). Gulf of Pechili, 7 fms.

*Rissoa (Onoba) elegans* A. Ad. Ann. Mag., XI, 1863, p. 348.

Seto-Uchi, 17 fms.; Yara, 9 fms. (Ad.).

*Rissoa (Onoba) procera* A. Ad. (*Ibid.*). Yara, 9 fms.; Mososeki, 7 fms. (Ad.).

*Rissoa (Onoba) mirifica* A. Ad. (*Ibid.*). Kino-o-Shima, Tanabe.

*Rissoa (Onoba) bella* A. Ad. (*Ibid.*). Yara, 9 fms.

*Rissoa (Onoba) spirata* A. Ad. (*Ibid.*). Mososeki, 7 fms.

*Rissoa (Onoba) patula* A. Ad. (*Ibid.*). Yobuko, W. coast of Kiusiu, 14 fms.

*Rissoa (Onoba) egregia* A. Ad. (*Ibid.*). Seto-Uchi, 17 fms.; Yobuko, 10 fms.

*Rissoa (Onoba) lucida* A. Ad. (*Ibid.*). O-Shima.

*Rissoa (Onoba) annulata* Dkr. Moll. Jap., p. 12, pl. 2, f. 12.

Deshima.

*Rissoa (Onoba) ferruginea* A. Ad. Dkr., Index, p. 120.

*Rissoa (Hyala) pumila* A. Ad. Ann. Mag., 1870, VI, p. 123.

Japan (Ad.).

*Rissoa (Hyala) glabrata* (Phil.) Ad. Japan (Ad.).

*Rissoa (Setia) candida* A. Ad. Ann. Mag. (3), VIII, 1861, p. 136.

Sado Island, 30 fms. (Ad.).

*Rissoa (Setia) tricineta, bifasciata* Ad. *Ibid.* Awa-Shima, in shell-sand (A. Ad.).

*Rissoa (Alvania) circinata* A. Adams. Ann. Mag. (3), VIII, 1861, p. 137.

Is. of Sado, 30 fms. (Ad.).

*Rissoa (Alvania) semicostata* A. Ad. *t. c.*, p. 137.

Mino-Shima, 63 fms. (Ad.).

- Rissoa (Alvania) tiarula* A. Ad. t. c., p. 137.  
Tabu-Shima, 25 fms. (Ad.).
- Rissoa (Alvania) ferruginea* A. Ad. t. c., p. 138.  
Hakodate Bay, 7 fms. (Ad.).
- Rissoa concinna* A. Ad. Conch. Icon., XX, pl. I, f. 9.  
Tsu-Shima, 26 fms. (Adams).
- Rissoa (Alvania) cælata, clathratula, mariella* A. Adams. Ann. Mag. (3), VIII,  
p. 137, 138.  
Tsu-Shima, 16-25 fms. (Ad.).
- Rissoa (Alvania) pura* Gld. Otia Conch., p. 146.  
Simoda (Stimpson).
- Rissoina costulata* Dkr. Moll. Jap., p. 12.  
Deshima (Dkr.); Kamakura (Stearns).
- Rissoina plicatula* Gould. Conchyl. Cab., p. 72, pl. 15b, f. 5.  
Bonin Is. (Stimpson).
- Rissoina (Rissolina) lyrata* Gld. Otia Conch., p. 145.  
Oushima (Stimpson).
- Rissoina (Rissolina) monilifera* Nevill. Moll. Ind. Mus., Calcutta, p. 79.  
Japan (A. Adams).
- Rissoina (Rissolina) canaliculata* Schwartz v. Mohrenst. Fam. der Riss., p. 55,  
f. 18.  
Japan (Dkr.).
- Rissoina (Rissolina) subfuniculata* Nev. Weink., C. Cab., pl. 15b, f. 8.  
Kachiyama (Dunker).
- Rissoina (Microstelma) dædala* A. Ad. (3), XI, 1863, p. 348.  
Goto Is., 48 fms. (A. Ad.).
- Rissoina (Phosinella) cancellata* Phil. Man. Conch., IX, p. 381,  
Japan (Dkr.).
- Rissoina (Phosinella) sagraiana* d'Orb. Moll. Cuba, II, p. 25, pl. 12, f. 4, 5.  
Deshima (Dkr.).
- Rissoina (Phosinella) nitida* A. Ad. P. Z. S., 1851, p. 226.  
Japan (Dkr.).
- Rissoina (Zebinella) concinna* A. Ad. Dkr., Index, p. 118.  
Japan (Dkr.).
- Rissoina (Zebinella) adamsiana* Wkff. Conchyl. Cab., p. 67, pl. 15a, f. 4.  
Kachiyama, 25 fath., sand (Dkr.).

- Rissoina (Moerchiella) spirata** Sowb. Man. Conch., p. 388.
- Rissoina (Moerchiella) striolata** A. Ad. P. Z. S., 1851, p. 266.  
Japan (Dkr.). A synonym of *R. spirata* Sowb. according to Tryon.
- Rissoina (Moerchiella) japonica** Wkff. Conchyl. Cab., p. 65, pl. 15a, f. 1.  
Japan (Weinkauff; Nevill).
- Rissoina (Zebina) subulina** Wkff. Conchyl. Cab., p. 66, pl. 15a, f. 3.  
Japan (A. Adams).
- Rissoina (Pyramidelloides) miranda** A. Ad. Conchyl. Cab., p. 69, pl. 15a, f. 8.  
Mino-Shima (A. Ad.).
- Rissoina (Stossichia) pseudoconcinna** Nevill. Hand-List Moll. Ind. Mus., p. 98;  
Conchyl. Cab., p. 85, pl. 15a, f. 8.  
Japan (A. Ad.). Syn.: *R. concinna* Sowb. not Ad.
- Hydrobia plicosa** E. A. Smith. Ann. Mag., 1875, Vol. XVI, p. 104.  
Auomori, 7 fathoms (St. John).
- Iravadia trochlearis** Gould. Conchyl. Cab., p. 72, pl. 15b, f. 2.  
Deshima, Nagasaki (Nuhn).
- Fenella pupoides** A. Ad. Journ. de Conch., XVI, p. 47, pl. 4, f. 5.  
Takano-Shima, Tsu-Shima (Ad.).
- Fenella fusca** A. Ad. Ann. Mag., 1860, p. 119. (*Dunkeria*).  
Tabu-Shima, Sea of Japan, 25 fathoms (Ad.).
- Fenella scabra** A. Ad. Ann. Mag., VI, 1860, p. 421. (*Dunkeria*).  
Tsu-Shima, 16 fms. (Ad.).
- Fenella ferruginea** A. Ad. Ibid. (*Dunkeria*).  
Sado, 30 fms.
- Fenella asperulata, pulchella** A. Ad. Ann. Mag., VI, 1860, p. 120 (*Dunkeria*).  
Mino-Shima, 63 fms. (Ad.).
- Fenella rufocincta** A. Ad. Ann. Mag., VIII, 1861, p. 300. (*Dunkeria*).  
Moso-Seki, Takano-Shima (Ad.).
- Fenella reticulata** A. Ad. Ann. Mag., VI, 1860, p. 422. (*Dunkeria*).  
Awa-Shima, low water (Ad.).
- Fenella craticulata** A. Ad. Mino-Shima, 63 fms. (Ad.).
- Putilla lucida** A. Ad. Man. Conch., IX, p. 396, pl. 60, f. 85.  
Goto Is. (Ad.).



*Scaliola bella* Ad. Journ. de Conch., XVI, p. 53, pl. 4, f. 6.

Off Tabu-Shima, 25 fms.; Takano-Shima, at Tatiyama (Ad.).

*Scaliola arenosa* A. Ad. Ann. Mag., 1862, p. 421.

O-Shima, Tanabe, Simoda (Ad.).

*Scaliola glareosa* A. Ad. *l. c.*, p. 421.

Tsu-Shima, Takano-Shima (Ad.).

*Scaliola gracilis* A. Ad. *Ibid.* Goto Is. (Ad.).

#### SKENEIDÆ.

*Skenea cornuella* A. Ad. Ann. Mag., 1860, V, p. 412.

Off Mino-Shima, 63 fms. (Ad.).

#### ASSIMINEIDÆ.

*Assiminea japonica* v. Marts. Jahrb. D. M. G., 1887, p. 182.

Yokohama, brackish water.

*Assiminea castanea* West. Vega-Exp. Vetenskap. Iattag., IV, p. 210, pl. 5, f. 26.

Yokohama (Vega Exp.).

*Assiminea atomaria* Phil. Abbild., II, p. 136, pl. 2, f. 6 (Paludina).

Japan (Nevill); Tokyo Harbor, Kamakura (Stearns).

*Assiminea cincta* A. Ad. Jahrb. D. M. G., 1887, p. 169.

Japan (Paetel).

*Assiminea subcornea* Nev. Jahrb. D. M. G., 1887, p. 205.

Japan? (Nevill).

*Assiminea savatieri* Mabile (Aneulotus).

Kamakura (Stearns). The radula resembles that of *A. francesi*, but the admedian teeth are not divided as Troschel's figure shows.

#### CAPULIDÆ.

*Capulus badius* Dkr. Index, p. 124, pl. 13, f. 15-17.

Inland Sea (Dkr.).

*Capulus japonicus* A. Ad. Ann. Mag. N. H., 1861, p. 168.

Mino-Shima (Ad.).

*Capulus (Capulaemæa) dilatatus* A. Ad. Index, p. 124, pl. 12, f. 12-14; Ann. Mag., 1860, p. 422.

Mino-Shima.

*Capulus (Capulaemæa) radiatus* Sars. Man. Conch., VIII, p. 132, pl. 40, f. 86, 87  
(*Pilid. commodum* Midd.)

*Capulus (Amathina) tricostata* Gmel. Man. Conch., VIII, p. 133.

Kobé, 8 fathoms, mud (Chall.).

*Capulus (Amathina) angustata* Souv. Japan (Dkr., Index, p. 125).

*Capulus (Amathina) nobilis* A. Ad. P. Z. S., 1867, p. 312, pl. 19, f. 27.

Saghalien I.

*Crepidula grandis* Midd. Dkr., Index, p. 123, pl. 6, f. 1, 2.

Akishi, 3 fath. (St. John); Kishiu (Stearns).

*Crepidula aculeata* Gmel. Inland Sea, Kishiu and Enoshima (Stearns); Kobé, 8 to 50 fathoms (Challenger); Nagasaki (Lischke).

*Crepidula walchi* Herrm. *Calyptrea plana* Ads. & Rve. Zool. Samarang, pl. 11, f. 3.

Japan (Stearns).

*Crepidula lamellosa* A. Ad. Ann. Mag., 1862, p. 297.

Goto Is. (A. Ad.).

#### HIPPONICIDÆ.

*Hipponyx pilosus* Desh. Moll. Jap., p. 15; J. M. C., II, p. 78.

Nagasaki (Lischke); Deshima (Nuhn); Yokohama (Martens).

*Hipponyx foliaceus* Q. & G. Zool. Astrol., III, p. 439, pl. 72, f. 41-45.

Near Enoshima (Stearns).

*Hipponyx australis* Q. & G. Man. Conch., VIII, p. 136.

Deshima (Dkr.); Nagasaki (Lischke); near Enoshima, Awa coast (Stearns, abundant on *Haliotis gigantea*); Hakodate (Schrenck)

#### XENOPHORIDÆ.

*Xenophora exuta* Reeve. C. Syst., II, pl. 225, f. 9, 10.

Nagasaki (Lischke); E. Coast Nippon (Stearns).

*Xenophora pallidula* Reeve. Jap. M. C., III, pl. 3, f. 1-3.

Bay of Yedo (Lischke); E. Coast Nippon (Stearns).

*Xenophora solarioides* Reeve. Zool. Samarang, p. 50, pl. 17, f. 6.

Japan (Dkr.).

#### VANIKORIDÆ.

*Vanikoro cancellata* Lam. *Narica cancellata* Dkr., Index, p. 126.

Japan Sea (Dkr.).

*Vanikoro japonica* n. sp. Pl. I, figs. 5, 5.

Shell globose, about as high as wide, solid, white; spire convex, low; whorls 3, rapidly increasing, the last sculptured with many subequal spiral cords as wide as their microscopically spirally striated intervals, decussated by growth-wrinkles; but at its origin

showing three prominent keels. Young shells having three strong keels with latticed intervals, the pits oblong and very deep, base with two low spirals; when a diam. of 5 or 6 mm. is reached the lattice becomes more superficial, the primary keels decrease and intermediate liræ appear. Aperture large, outer lip forming a half-circle, columella less arched, moderately calloused; umbilicus penetrating to apex, but a mere perforation at all stages of growth; narrowly but distinctly grooved behind the columellar lip. Alt. 16, diam. 16 mm.

Chikewa, Boshu (Stearns).

The narrow vertical pits of the earlier whorls are peculiar, and very unlike the square pits of the young *V. cancellata*. The latter, moreover, is not tricarinate in the young state.

*Vanikoro scalarina* Gld. Otia, p. 110.

Loo Choo (Stimpson).

#### NATICIDÆ.

*Natica tæniata* Menke. Tryon, Man. Conch., VIII, pl. 4, f. 62, 64.

Chikiwa, Boshu (Stearns).

*Natica pellistigrina* Chemn. Man. Conch., VIII, p. 16, pl. 2, f. 33.

Nagasaki (Lischke); Deshima (Dkr.).

*Natica colliei* Recl. Ann. Mag., 1875, p. 427.

Matoza Harb., 6 fath., sand (St. John).

*Natica concinna* Dunker. Dkr., Moll. Jap., p. 14, pl. 2, f. 21; *N. bicincta*, Schrenck, Amurl. Moll., p. 377, pl. 17, f. 1-3.

Deshima and Yedo (Dkr.); Hakodate (Schrenck); Japan (Stearns).

Tryon considers *concinna* Dkr. and *bicincta* Sch. as synonyms of *colliei* Recl. There cannot be much doubt that the former two are specifically identical.

*Natica lurida* Phil. Chikiwa, Boshu (Stearns, typical specimens).

*Natica adamsiana* Dkr. Dkr., Index, p. 61, pl. 13, f. 5, 6; Moll. Jap., p. 14, pl. 2, f. 20.

Banda, Boshu (Stearns); Deshima (Dkr.).

*Natica janthostoma* Desh. Rve., C. Icon., pl. 18, f. 79.

Banda, Boshu (Stearns); Nemeru, E. Yedo (St. John); Yedo, Hakodate (Lischke).

*Natica clausa* Brod. & Sowb. (? *affinis* Gmel.). Shantar I. (Schrenck). Compare preceding and following forms.

*Natica operculata* Jeffreys. P. Z. S., 1885, p. 34, pl. 4, f. 7, 7a.

North Japan (St. John).

*Polinices<sup>1</sup> melanostoma* Gmel. Man. Conch. VIII, p. 50.

Japan (Stearns).

*Polinices simiæ* Desh. Rve., Conch. Icon., pl. 17, f. 76; pl. 22, f. 98a, b (Good!)

*Polinices powisianus* Recluz. Tryon, Man. Conch., VIII, p. 42; Dkr., Index, p. 62.

Yokohama (Dkr.); Nagasaki (Lischke).

*Polinices powisianus* v. *draparnaudii* Recl. Japan (Stearns).

The single specimen secured by Mr. Stearns differs from *N. powisiana* var. *draparnaudii* Recl. in having the spiral umbilical funicle very heavy and strong, much more filling the umbilicus, and the edge of the umbilicus is produced in a very strong spiral bounding rib.

*Polinices mamilla* Linn. Man. Conch., VIII, p. 49.

Nemoto, Boshu (Stearns). Lischke reports the synonym or variety *pyriformis* Recl. from Bay of Yedo.

*Polinices (Lunatia) reiniana* Dkr. Index, p. 62, pl. 4, f. 15, 16.

Japan (Dkr.).

*Polinices (Lunatia) severa* Gld. Otia Conch., p. 109.

Hakodate Bay (Stimpson).

Compare *Neverita reiniana* Dkr.

*Polinices pallidus* B. & S. Shantar I. (Schrenck).

*Polinices (Neverita) ampla* Phil. Ph., Conch. Cab. ed. 2, pl. 6, f. 2; Tryon, Manual Conch., VIII, p. 32.

Tokyo to Enoshima, Henda, Shibo, Boshu (Stearns).

The extensive synonymy of this magnificent *Neverita* has been ably discussed by Tryon.

*Amaura (Acrybia) flava* Gld. (*aperta* Lovén). Midd., Reise I, p. 206, pl. 9, f. 1-3.

*Sigaretus insculptus* Ads. & Rve. Zool. Samarang, p. 55, pl. 13, f. 10.

Wakayama, Inland Sea (Dkr.).

<sup>1</sup> Montfort, Conch. Syst., II, p. 222. This genus contains *Naticas* with corneous operculum, the term *Natica* being restricted to species with the operculum shelly. The type of *Polinices* is *Natica mamillaris* Lam.; not *N. mamilla* Linn. as Dall states; Montfort's *Polinices albus* being identical with the former species.

- Sigaretus undulatus** Lischke. Lischke, J. M. C., III, p. 54, pl. 3, f. 11-14.  
Yokohama (Stearns); Yedo (Lischke).
- Sigaretus japonicus** Lischke. Jap. M. C., III, p. 55, pl. 3, f. 15-17.  
Yedo (Lischke).
- Sigaretus (Eunaticina) papilla** Gmelin. Conchyl. Cab., p. 38, pl. 9, f. 4-6; pl. 10, f. 8.  
Yokohama (Stearns); Bay of Yedo (Lischke); Deshima (Nuhn).
- Velutina cryptospira** Midd. Man. Conch. VIII, p. 67.  
Inland Sea (Stearns).

## ADEORBIIDÆ.

(For descriptions and figures see also Man. Conch. X, p. 83-87.)

- Adeorbis planus** A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 4.  
Japan.
- Adeorbis depressus** A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 6, a, b.  
Mino-Shima (Adams).
- Adeorbis orbellus** A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 9.  
Mino-Shima (Adams).
- Adeorbis clausus** A. Ad. Conch. Icon., Vol. 19, pl. 2, f. 14 a, b.  
Mino-Shima (Adams).
- Adeorbis japonicus** A. Ad. Conch. Icon., Vol. 19, pl. 2, f. 11.  
Goto Is. (Adams).
- Adeorbis prominulus** A. Ad. Conch. Icon., Vol. 19, pl. 2, f. 13.  
Mino-Shima (Adams).
- Adeorbis nanulus** A. Ad. Conch. Icon., Vol. 19, pl. 2, f. 18.  
Mino-Shima (Adams).
- Adeorbis trochulus** A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 8.  
Goto Is. (Adams).
- Adeorbis patruelis** A. Ad. Conch. Icon., Vol. 19, pl. 2, f. 21 a, b.  
Mino-Shima (Adams).
- Adeorbis subangulatus** A. Ad. Conch. Icon., Vol. 19, pl. 2, f. 19.  
Goto Is. (Adams).
- Adeorbis carinatus** A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 10 a, b.  
Seto-Uchi (Adams).
- Archytæa suturale** A. Ad. Conch. Icon., Vol. 19, (*Adeorbis*) pl. 2, f. 15 a, b.  
Tsu-Shima (Adams).



*Archytæa corniculum* A. Ad. Conch. Icon., Vol. 19, (*Adeorbis*) pl. 2, f. 16 a, b.  
Mino-Shima (Adams).

*Archytæa diaphanum* A. Ad. Conch. Icon., Vol. 19, (*Adeorbis*) pl. 2, f. 20 a, b.  
Goto Is. (Adams).

#### IANTHINIDÆ.

*Ianthina fragilis* Lam. Bay of Yedo (Lischke).

*Ianthina fragilis* Lam. var. *planispirata* A. & R. Voy. Samarang Zool., pl. 11, f. 10.

Japan (Stearns).

*Ianthina balteata* Reeve. Bay of Yedo (Lischke).

*Ianthina exigua* Lam. Tryon, Man. Conch., IX, pl. 10, f. 17.

Japan (Stearns).

*Ianthina globosa* Swains. Tryon, Man. Conch., IX, pl. 10, f. 11-14.

Japan (Stearns); Bay of Yedo (Lischke).

Some specimens are pure white.

#### SCALIDÆ.

*Scala pallasii* Kiener. Thes., p. 83, pl. 32, f. 16;

Corea Strait, 46 fms. (Ad.); Nagasaki (Lischke).

*Scala aculeata* Sowb. Thes., p. 86, f. 35-37.

Tsu-Shima, 16 fms. (Ad.); Bay of Yedo (Lischke).

*Scala replicata* Sowb. Thes., p. 84, f. 23, 24.

Mino-Shima, 63 fms. (Ad.).

*Scala obliqua* Sowb. Thes., p. 89, f. 69.

Mino-Shima, 63 fms. (Ad.).

*Scala muricata* Kiener. Thes., p. 86, f. 29, 31, 32.

Mino-Shima, 63 fms. (Ad.).

*Scala pulcherrima* Sowb. Thes., p. 97, f. 92.

Mino-Shima, 63 fms. (Ad.).

*Scala lineolata* Sowb. Thes., p. 91, f. 45, 46, 48.

*Scala trifasciata* de Haan. Thes., f. 44.

Tokyo Harbor, Yokohama (Stearns).

*Scala latefasciata* Sowb. C. Icon., f. 117a.

Tokyo Harbor (Stearns).

*Scala japonica* Dkr. Moll. Jap., p. 13, pl. 1, f. 13.

Deshima (Nuhn).

- Scala angusta* Dkr. Moll. Jap., p. 13, pl. 1, f. 11.  
Deshima (Nuhn).
- Scala lyra* Sowb. Thes., p. 89, f. 38, 39, 81, 82.  
Bay of Yedo (Lischke).
- Scala aurita* Sowb. Kamakura, Yokohama, Tokyo Harbor (Stearns).
- Scala immaculata* Sowb. Japan (Dkr.).
- Scala acuminata* Sowb. Thes., p. 106, f. 130.  
Bay of Yedo (Lischke).
- Scala rubrolineata* Sowb. Thes., p. 91, f. 83, 84; Ad., Ann. Mag., 1861, p. 479.  
Mino-Shima, 63 fms. (Ad.).
- Scala turricula* Sowb. (?). Corea Strait, 46 fms. (Ad.); Kamakura (Stearns).  
The specimens are probably not this West Indian species, but seem nearer it than anything else.
- Scala irregularis* Sowb. Thes., p. 90, f. 40, 60.  
Mino-Shima, 63 fms. (Ad.).
- Scala trabeculata, fimbriata, optabilis, elegantula, spiralis, liliputana* A. Ad.  
Ann. Mag., 1861, p. 480, 481.  
Mino-Shima, 63 fms.
- Scala præclara* A. Ad. Corea Strait, 46 fms. (Ad., l. c.).
- Scala eximia* Ads. & Rve. Zool. Samarang, pl. 11, f. 16.  
Mino-Shima, 63 fms. (A. Ad.).
- Scala soluta* A. Ad. Ann. Mag., 1862, p. 296.  
Port Lindsay (A. Ad.).
- Scala hexagona* Sowb. Thes., p. 198, f. 67.  
Awa-Shima, in shell-sand (Ad.).
- Scala elenensis* Sowb. Thes., p. 98, f. 102.  
Mino-Shima, 63 fms. (Ad.).
- Scala casta* A. Ad. Man. Conch. IX, p. 67.  
Yokohama, Tokyo Harbor, Kamakura (Stearns).
- Scala pumila* A. Ad. Conch. Icon., XIX, pl. 11, f. 79.  
Japan (Adams).
- Scala tenuilirata* Sby. Conch. Icon., XIX, pl. 15, f. 118.  
Japan (Sby.).
- Scala (Amæa) magnifica* Sowb. Thes. p. 102, f. 103.  
Mino-Shima, 63 fms. (Ad.).

*Scala* (*Amæa*) *kieneri* Canefri. (*decussata* Sowb., not Lam.; *sowerbyi* Dkr.)  
Thes., p. 163, f. 140.

Mino-Shima, 63 fms. (Ad.).

*Scala* (*Amæa*) *immaculata* Sowb. Thes., p. 93, f. 58.

Bay of Yedo (Lischke); Tokyo Harbor (Stearns).

*Scala* (*Cirsotrema*) *sulcata* Sowb. Bay of Yedo (Lischke).

*Scala* (*Cirsotrema*) *bicarinata* Sowb., *crassilabrum* Sowb., *turbonilla* A. Ad.  
Mino-Shima, 63 fms. (Ad., Ann. Mag., 1861, VIII, p. 482, 483).

*Scala* (*Cirsotrema*) *suturalis* Hinds., *undulata* Sowb. Corea Strait, 46 fms. (Ad.).

*Scala* (*Cirsotrema*) *cribraria* A. Ad. Tsu-Shima, 26 fms. (A. Ad., Ann. Mag., 1861,  
p. 483).

*Scala* (*Constantia*) *elegans* A. Ad. (*S. jucunda* Canefri) Mino-Shima, 63 fms. (Ad.).

*Scala* (*Constantia*) *tantilla* A. Ad. Tabu-Shima (A. Ad.).

*Scala* (*Opalia*) *exquisita* A. Ad. Ann. Mag., 1864, p. 310.

Goto Is.

*Scala* (*Opalia*) *lamellosa* Lam. Tryon, Man., IX, p. 74.

Yokohama; Kamakura (Stearns).

I cannot distinguish these from Atlantic specimens.

*Scala* (*Opalia*) *ochtensis* Midd. Sib. Reese, pl. 12, f. 12-14.

Nichta Bay, Ochotch Sea.

*Crossea miranda* A. Ad. J. de Conch., XVI, 1868, p. 55, pl. 4, f. 9.

Goto Is. (Ad.).

*Crossea bellula* A. Ad. L. c. p. 56, pl. 4, f. 10. Same locality.

*Eglisia cumingii* A. Ad. P. Z. S., 1850, p. 204.

Japan (Ad.).

*Aclis* (*Iolæa*) *scitula* A. Ad. Journ. de Conch., 1868, pl. 4, f. 3.

Mino-Shima; Seto-Uchi (Ad.).

*Aclis* (*Iolæa*) *amabilis* A. Ad. O-Sima; Tanabe; Goto (Ad.).

*Aclis* (*Iolæa*) *sculptilis* A. Ad. Mino-Shima; Yobuko (Ad.).

*Aclis labiata*, *cingulata*, *lirata*, *sulcata* A. Ad. Ann. Mag., 1860, p. 118.

Off Mino-Shima, 63 fms. (Ad.).

*Aclis* (*Ebala*) *virginea*, *vestalis* A. Ad. Off Mino-Shima, 63 fms. (Ad., l. c. p. 119).

*Aclis* (*Ebala*) *scintillans* A. Ad. Sado (Ad., Ann. Mag., 1861, p. 43).

*Aclis crystallina*, *fulgida* A. Ad. Tsu-Shima (Ad., Ann. Mag., 1861, p. 43).

## EULIMIDÆ.

- Eulima robusta** A. Ad. Man. Conch., VIII, p. 271, pl. 68, f. 25.  
Mino-Shima, 63 fms. (Ad.); Kamakura (Stearns).
- Eulima mundula** A. Ad. Man. Conch., VIII, p. 272, pl. 68, f. 26.  
Tsu-Shima, 16-26 fms. (Ad.).
- Eulima clavula, curvata, stylata, pinguicula, acicularis, flexa, valida, odontoidea, chrysalida, debilis, indeflexa** A. Adams. Ann. Mag. N. H., VII, 1861, p. 125-128.  
Mino-Shima, 63 fms. (Ad.). All unfigured and wretchedly described.
- Eulima pandata, dentaliopsis** A. Ad. *l. c.* Corea Strait, 46 fms. (Ad.).
- Eulima reclinata, stenostoma, semitorta, eburnea** A. Ad., *l. c.* Tabu-Shima, 25 fms. (Ad.).
- Eulima angulata, scitula** A. Ad. *l. c.* Tabu-Shima, 25 fms. (Ad.).
- Eulima carneola** Gld. Otia Conch., p. 148.  
Oushima (Stimpson).
- Eulima cumingii** Sowb. Man. Conch., VIII, p. 267.  
Tokyo Harbor (Stearns).
- Eulima (Leiostraca) vineta** A. Ad. Man. Conch., VIII, p. 280, pl. 20, f. 77.  
Bingo-Nada; Harima-Nada (Ad.).
- Eulima (Leiostraca) nivea** A. Ad. Man. Conch., VIII, p. 281, pl. 20, f. 84.  
Tsu-Shima, 26 fms.; Goto; Mino-Shima (Ad.).
- Eulima (Leiostraca) pura** A. Ad. Man. Conch., XIII, p. 281, pl. 20, f. 85.  
Tsu-Shima, 26 fms.; Mino-Shima, 63 fms.; Asaki and Mososeki, Seto-Uchi (Ad.).
- Eulima (Leiostraca) paxillus** A. Ad. Man. Conch., VIII, p. 281, pl. 20, f. 86.  
Mino-Shima; Goto, 63 fms. (Ad.).  
Sowerby makes *Leiostraca clara* A. Ad. a synonym.
- Eulima (Leiostraca) mariæ** A. Ad. Man. Conch., VIII, p. 281, pl. 70, f. 87.
- Eulima (Leiostraca) turgidula** A. Ad. Ann. Mag. (3), VII, p. 128, 1861.  
Tsu-Shima, 16 fms.; Goto (Ad.).
- Eulima (Leiostraca) lanceata** A. Ad. *l. c.* Seto-Uchi; Mino-Shima; Goto (Ad.).
- Eulima (Leiostraca) mixta, leachii, spiculum, labiata** A. Ad., *l. c.* Mino-Shima, 63 fms. (Ad.).
- Eulima (Leiostraca) clavella** A. Ad., *l. c.* p. 129.  
Sado, 30 fms., on nullipore (Ad.).

- Eulima* (*Leiostraca*) *nitida* A. Ad., *l. c.* Okosiri, 25 fms.; Yobuko.
- Eulima* (*Leiostraca*) *mindorensis* Ads. & Rve. Zool. Samarang, pl. 11, f. 25.  
Seto-Uchi (A. Ad.).
- Eulima* (*Leiostraca*) *hastata*, *subulina*, *picturata*, *bizona* A. Ad. Journ. Linn. Soc., VII. p. 85, 87, 88.  
Goto, 48 fms. (A. Ad.).
- Eulima* (*Leiostraca*) *lepida* A. Ad. *Ibid*, p. 85.  
Seto-Uchi; Yobuko (A. Ad.).
- Eulima* (*Leiostraca*) *miranda*, *oberon*, *crystallina*, *pusio*, *nana*, *cigenda*, *inquinata*, *spretia* A. Ad. *Ibid*, pp. 85, 86, 89, 90.  
Yobuko (A. Ad.).
- Eulima* (*Leiostraca*) *metulina*, *exigua*, *circinata*, *tæniata*, *tantilla* A. Ad. *Ibid*, p. 86, 87, 88.  
Akasi, Seto-Uchi (A. Ad.).
- Eulima* (*Leiostraca*) *pistillum* A. Ad. *Ibid*, p. 86.  
Harima-Nada, Seto-Uchi (A. Ad.).
- Eulima* (*Leiostraca*) *pusilla*, *pygmæa*, *cinctella*, *scitula* A. Ad. *Ibid*, p. 86.  
Mososeki, Seto-Uchi (Ad.).
- Eulima* (*Leiostraca*) *ariel* A. Ad. Ann. Mag., 1861.  
Bingo-Nada, Seto-Uchi (Ad.).
- Eulima* (*Leiostraca*) *pumila*, *balteata*, *gracilentia* A. Ad. Journ. Linn. Soc., VII, p. 87.  
Uraga.
- Eulima* (*Leiostraca*) *bilineata* Ads. & Rve. Samarang, pl. 11, f. 24.  
Uraga; Seto-Uchi (Ad.); Tokyo Harbor (Stearns); *L. bivittata* Ads., Genera.
- Eulima* (*Leiostraca*) *lentiginosa* A. Ad. Dkr., Index, p. 90.  
O-Shima, Mososeki, Seto-Uchi.
- Eulima* (*Leiostraca*) *conspurcata* A. Ad. *Ibid*, Takano-Shima (Ad.).
- Eulima* (*Leiostraca*) *bifascialis* A. Ad. *Ibid*, p. 88.  
Bingo-Nada; Suwo-Nada (Ad.).
- Eulima* (*Leiostraca*) *interrupta* A. Ad. *Ibid*, p. 89.  
O-Shima (Ad.).
- Eulima* (*Leiostraca*) *crassula* A. Ad. *Ibid*, p. 90.  
O Shima.



- Eulima (Apicalia) gibba** A. Ad. Ann. Mag., 1862, p. 295.  
Goto Is.
- Eulima (Mucronalia) bicincta** A. Ad. Ann. Mag., 1860, p. 301.  
Mino-Shima, 63 fms. (Ad.).
- Eulima (Mucronalia) exilis** A. Ad. Ann. Mag., 1862, p. 295.  
Mososeki, Seto-Uchi (Ad.).
- Eulima (Mucronalia) lactea** A. Ad. Proc. Linn. Soc. Lond., VII, p. 91, 1864.  
Tanabe (A. Ad.).
- Eulima (Mucronalia) subula** A. Ad. Proc. Linn. Soc. Lond., VII, 1864, p. 91.  
Simoda (Ad.).
- Eulima (Selma) succiniola** A. Ad. *l. c.* O-Shima (Ad.).
- Eulima (Styliferina) orthochila** A. Ad. Ann. Mag. N. H. (3), VI, p. 335.  
Tsu-Shima, on *Asterias* (A. Ad.).
- Eulima (Styliferina) gonochila** A. Ad. *Ibid.* Mino-Shima, on *Ophiura* (A. Ad.).
- Eulima (Styliferina) lepida** A. Ad. Ann. Mag., 1862, p. 299.  
Yobuko (Ad.).
- Amaurella japonica** A. Ad. Man. Conch., VIII, p. 286, pl. 70, f. 16.  
Corea Strait. Originally described as *Macrocheilus*.
- Amaurella glabrata** A. Ad. *l. c.*, f. 12; P. Z. S., 1867, p. 311.  
Takano-Shima, (Ad.).
- Amaurella semistriata** A. Ad. *l. c.*, p. 287, pl. 70, f. 17.  
Oki-no-Shima (Ad.).
- Niso interrupta** Sowb. Thes., II, p. 801, pl. 170, f. 9.  
Mino-Shima, Simonoseki (Ad.).
- Niso brunnea** Sowb. Thes., II, p. 801, pl. 170, f. 13.  
Mino-Shima (Dkr.).

PYRAMIDELLIDÆ.

The systematic values of the groups of this family are here given according to Tryon and Fischer, but there are undoubtedly more genera. Most of the species enumerated below are not recognizably described. See for the figured ones, Tryon, Man. Conch. vol. VIII.

- Pyramidella pulchella** A. Ad. *Obeliscus*. P. Z. S., 1862, p. 232; Thes., II, p. 807, = *Jiberia*  
20/ pl. 171, f. 31, 32; Ann. Mag., 1875, p. 427.  
Goza Harbor, 6 fath. (St. John); Mososeki (A. Ad.); Bay of Yedo (Lischke).

- longicauda*  
 Pyramidella *teres* A. Ad. P. Z. S., 1862, p. 232; Thes., II, p. 807, pl. 171, f. 31, 32.  
 Mino Shima (Ad.).
- Pyramidella *balteata* A. Ad. P. Z. S., 1862, p. 232; Thes., pl. 171, f. 25.  
 Yobuko, Uruga (Ad.).
- Pyramidella *pusilla* A. Ad. P. Z. S., 1862, p. 232; Thes. II, pl. 171, f. 7.  
 O Shima, Takanosshima (Ad.).
- Pyramidella *eburnea* A. Ad. P. Z. S., 1862, p. 232.  
 O-Shima (Ad.).
- Pyramidella *trifasciata* A. Ad. P. Z. S., 1862, p. 232.  
 Uruga, Mososaki (Ad.).
- Pyramidella *vitrea* A. Ad. (*Syrnola*, *Obeliscus*). P. Z. S., 1862, p. 232.  
 Uruga, Tsu-Shima (A. Ad.).
- Pyramidella (*Tiberia*) *nitidula* Ad. P. Z. S., 1862, p. 232; Thes., pl. 171, f. 7.  
 Mino-Shima, 63 fath., Oshima, 25 fath. (Ad.).
- Pyramidella (*Otopleura*) *mitralis* A. Ad. Tryon, Man. Conch., VII, p. 305. pl. 73, f. 94.  
 Japan (Stearns).
- Pyramidella (*Lonchæus*) *sulcata* A. Ad. Tryon, Man. Conch., VIII, p. 301, p<sup>l</sup>. 72, f. 79.  
 Japan (Stearns).
- Pyramidella (*Syrnola*) *solidula* Dkr. Moll. Jap., p. 15, pl. 1, f. 5.  
 Deshima (Dkr.); Kamakura (Stearns).
- Pyramidella (*Syrnola*) *hyalina* Dkr. *t. c.*, pl. 1, f. 9.  
 Deshima, (Dkr.); Kamakura (Stearns).
- Pyramidella (*Syrnola*) *tenuisculpta* Lischke. Jap. Meeres-Conch., III, p. 58, pl. 3, f. 7, 8.  
 Bay of Yedo (Lischke).
- Cassidomissa*  
 Pyramidella (*Syrnola*) *aciculata* A. Ad. P. Z. S., p. 223, 1862; Man. Conch., 3 VIII, p. 306, pl. 73, f. 10.  
 Tanabe (Ad.).
- Pyramidella (*Syrnola*) *bizonalis* A. Ad. P. Z. S.; 1862, p. 233.  
 Mino-Shima (Adams).
- Pyramidella (*Syrnola*) *elegans* A. Ad. P. Z. S., 1862, p. 233; Man. Conch. VIII, p. 306, p. 73, f. 7.  
 O-Shima, Seto-Uchi (Ad.).

**Pyramidella** (*Syrnola*) *lactea* A. Ad. P. Z. S., 1862, p. 234.

O-Shima.

**Pyramidella** (*Syrnola*) *cinctella* Ad. P. Z. S., 1862, p. 232; Man. Conch. VIII, pl. 307, p. 73, f. 14; Ann. Mag., 1875, p. 427.

O Shima, Seto-Uchi (Ad.); Matoza Harbor, 6 fms; sand, (St. John); Tokyo Harbor (Stearns).

**Pyramidella** (*Syrnola*) *brunea* A. Ad P. Z. S., 1862, p. 233; Man. Conch., VIII, p. 306, pl. 73, f. 8. 9.

O Shima (Ad.); Bishiu (Stearns). *P. fulva* Sowb. is a synonym.

**Pyramidella** (*Syrnola*) *buxea* Gld. P. Z. S., 1862, p. 234.

Takano-Shima (Stimp.).

**Pyramidella** (*Syrnola*) *columnella* A. Ad. P. Z. S., 1862, p. 235.

Seto-Uchi, Mososeki.

**Pyramidella** (*Syrnola*) *cylindrella* A. Ad. P. Z. S., 1862, p. 234; Man. Conch., VIII, p. 307, pl. 73, f. 17.

Takano-Shima (Ad.).

**Pyramidella** (*Syrnola*) *dædala* A. Ad. P. Z. S., 1862, p. 235.

Uraga.

**Pyramidella** (*Syrnola*) *gracillima* A. Ad. P. Z. S., 1862, p. 233; Man. Conch., VIII, p. 307, pl. 73, f. 13.

Mino-Shima, Uraga (Ad.).

**Pyramidella** (*Syrnola*) *mera* A. Ad. P. Z. S., 1862, p. 234. 3

Mino-Shima, O-Shima.

**Pyramidella** (*Syrnola*) *pistillum* A. Ad. P. Z. S., 1862, p. 234.

Yobuko (Ad.).

**Pyramidella** (*Syrnola*) *pupina* A. Ad. P. Z. S., 1862, p. 233.

Mososaki, Mino-Shima (Ad.).

**Pyramidella** (*Syrnola*) *serotina* A. Ad. P. Z. S., 1862, p. 234; Man. Conch., VIII, p. 308, pl. 73, f. 21.

Takano-Shima (Ad.).

**Pyramidella** (*Syrnola*) *striatula* A. Ad. Thes., p. 812, pl. 171, f. 29.

Seto-Uchi (Ad.).

**Pyramidella** (*Syrnola*) *subulina* A. Ad. P. Z. S., 1862, p. 234; Man. Conch., VIII, p. 308, pl. 73, f. 23.

Takano-Shima (Ad.).

**Pyramidella** (*Syrnola*) *teretiuscula* A. Ad. P. Z. S., 1862, p. 233.

Tsu-Shima, 15 fath. (Ad.).

- Pyramidella (Amathis) virgo** A. Ad. Ann. Mag. N. H., 1861, VIII, p. 304.  
 Corea Strait, 46 fms. (Ad.). Described as *Myonia*.
- Pyramidella (Amathis) producta** A. Ad. (*Ostostomia*). Ann. Mag. N. H., VI, 1860, p. 416.  
 Sado, 30 fms., Tabu-Shima, 25 fms. (Ad.).
- Pyramidella (Amathis) pellucida, eburnea, concinna** A. Ad. Ann. Mag., 1861, VIII, p. 304.
- Pyramidella (Oscilla) cingulata** A. Ad. Ann. Mag. (3), VII, p. 296.  
 Takano-Shima (Ad.). Described as *Monoptygma*.
- Pyramidella (Oscilla) annulata** A. Ad. Man. Conch., VIII, p. 309, pl. 74, f. 28.  
 Mososeki, Yobuko (Ad.).
- Pyramidella (Oscilla) sulcata** Ad. Ann. Mag. N. H., 1860, p. 418. ♀  
 Tsu-Shima, Nososeki (A. Ad.). Described as *Evalea*.
- Pyramidella (Oscilla) lirata** Ad. l. c. Sato, O-Shima Ad. Described as *Evalea*.
- Pyramidella (Oscilla) circinata** A. Ad. P. Z. S., 1867, p. 311.  
 O-Shima, Takano-Shima (Ad.).
- Pyramidella (Orina) pyramidalis** Ad. (*Syrnola*). P. Z. S., 1862, p. 233.  
 Tsu-Shima (Ad.).
- Pyramidella (Elusa) subulata** A. Ad. P. Z. S., 1862, p. 237; Man. Conch., VIII, p. 310, pl. 74, f. 30.  
 O-Shima, 26 fms. (Ad.).
- Pyramidella (Elusa) castanea** A. Ad. P. Z. S., 1862, p. 237,  
 O-Shima (Ad.).
- Pyramidella (Elusa) cinnamomea** A. Ad. P. Z. S., 1862, p. 237.  
 O-Shima (Ad.).
- Pyramidella (Elusa) badia** A. Ad. P. Z. S., 1862, p. 237.  
 Takano-Shima (Ad.).
- Pyramidella (Elusa) gracilis** A. Ad. P. Z. S., 1862, p. 237; Man. Conch., VIII, p. 310, pl. 74, f. 31.  
 Yobuko (Ad.).
- Pyramidella (Elusa) strigulata** A. Ad. P. Z. S., 1862, p. 237.  
 Yobuko (Ad.).
- Pyramidella (Elusa) teres** A. Ad.
- Pyramidella (Chrysalida) plicata** A. Ad. Ann. Mag. N. H., V, 1860, p. 478, 479; 1861, p. 44.  
 Mino-Shima, 63 fms., Goto, O-Shima (A. Ad.).

- Pyramidella* (*Chrysallida*) *pupula, nana, terebra* A. Ad. Ann. Mag. N. H. (3), VII, p. 44, 45.  
Tsu-Shima 16-26 fms. (A. Ad.).
- Pyramidella* (*Chrysallida*) *consobrina* A. Ad. Ann. Mag. (3), VII, p. 44, 46.  
Awa Shima, in shell sand, Goto (A. Ad.).
- Pyramidella* (*Chrysallida*) *munda* A. Ad. *t. c.*, p. 45. Corea Strait, 46 fms. (Ad.).
- Pyramidella* (*Chrysallida*) *filocineta* A. Ad. Journ. Linn. Soc., 1864, VII, p. 2.  
O-Shima (Ad.).
- Pyramidella* (*Chrysallida*) *rufolineata, galbula* A. Ad. *Ibid*, p. 3. Goto, 48 fms. (Ad.).
- Pyramidella* (*Chrysallida*) *erucella* A. Ad. *Ibid*, p. 3. Seto-Uchi, O-Shima, Takano-Shima (Ad.).
- Pyramidella* (*Chrysallida*) *consimilis* A. Ad. Ann. Mag. 1861, p. 44.  
O-Shima, Takano-Shima (A. Ad.).
- Pyramidella* (*Chrysallida*) *alveata* A. Ad. Ann. Mag. 1861, p. 45.  
Tsu-Shima, 16-26 fms., Takano-Shima (Ad.).
- Pyramidella* (*Chrysallida*) *mumia* A. Ad. Ann. Mag. 1861, p. 45.  
Goto, 48 fms. (Ad.).
- Pyramidella* (*Chrysallida*) *mundula* A. Ad. Ann. Mag. (3), VII, p. 42.  
Sado Island, 30 fms., O-Shima (Ad.). Deser. as *Parthenia*.
- Pyramidella* (*Mormula*) *rissoina* A. Ad. Journ. Linn. Soc., VII, p. 1, 1863.  
O-Shima, Takano-Shima (Ad.).
- Pyramidella* (*Styloptygma*) *cerea* A. Ad. P. Z. S., 1862, p. 236.  
Takano-Shima (Ad.).
- Pyramidella* (*Styloptygma*) *gibba* A. Ad. P. Z. S., 1862, p. 236.  
O-Shima, Tanabe (Ad.).
- Pyramidella* (*Styloptygma*) *larvula* A. Ad. P. Z. S., 1862, p. 236.  
O-Shima (Ad.).
- Pyramidella* (*Styloptygma*) *lendix* A. Ad. P. Z. S., 1862, p. 236.  
Yobuko (Ad.).
- Pyramidella* (*Styloptygma*) *pupiformis* A. Ad. P. Z. S., 1862, p. 235.  
Mino-Shima (Ad.).
- Pyramidella* (*Styloptygma*) *subuliformis* A. Ad. P. Z. S., 1862, p. 236.  
Tsu-Shima (Ad.).
- Pyramidella* (*Styloptygma*) *taeniata* A. Ad. P. Z. S., 1862, p. 235.  
Takano-Shima (Ad.).



*Pyramidella (Acteopyramis) eximia* Lischke. Jap. M. C., III, p. 59, pl. 3, f. 4-6.

Yedo (Lischke); Kamakura (Stearns).

*Pyramidella (Acteopyramis) cœlatum* A. Ad. Ann. Mag., VII, 1861, p. 303.

Mino-Shima, 63 fms. (Ad.).

*Pyramidella ("Monoptygma") acuminata* Gld. Otia Conch., p. 150.

Oushima (Stimpson).

*Pyramidella (Mumiola) reticosa* A. Ad. Journ. Linn. Soc., VII, p. 5.

Seto-Uchi (Ad.).

*Pyramidella (Mumiola) tessellata* A. Ad. Journ. Linn. Soc., 1863, VII, p. 6.

Tanabe, O-Shima (Ad.).

*Pyramidella (Mumiola) spirata* A. Ad. Thes. Conch., pl. 172, f. 26, 27.

O-Shima (Ad.). Described as *Monoptygma*.

*Odontostomia elata, japonica, nana, pygmæa, oblonga, secalina, tenera, hyalina* A. Ad. Ann. Mag. (3), VII, p. 42.

Mino-Shima, 63 fms. (A. Ad.).

*Odontostomia nivea, obesula, pupa, cana, ventricosa, goniostoma, vitrea* A. Ad. Ann. Mag. (3), VI, p. 20, 21, 417.

Corea Strait and Mino-Shima, 63 fms. (Ad.).

*Odontostomia subdiaphana, pruinosa* A. Ad. *l. c.*, p. 417.

Okosiri, 35 fms. (Ad.).

*Odontostomia subangulata, achatinella* A. Ad. *l. c.*, p. 416, 417.

Tsu-Shima, 26 fms. (Ad.).

*Odontostomia ovoidea* A. Ad. *l. c.*, p. 416. Awa-Shima, at low water (Ad.).

*Odontostomia lactea* Dkr. Moll. Jap., p. 17, pl. 2, f. 4.

Deshima (Dkr.); Nagasaki (Lischke); Kamakura (Stearns).

*Odontostomia fasciata* Dkr. Moll. Jap., p. 17, pl. 2, f. 2.

Deshima (Dkr.); Nagasaki (Lischke).

*Odontostomia neglecta* Ad. Ann. Mag. (3), VI, p. 417.

Tabu-Shima, 25 fms. (Ad.).

*Odontostomia (Evalea) elegans, pyramis, arcuata* A. Ad. Ann. Mag. (3), VI, p. 22.

Mino-Shima, 63 fms. (Ad.).

*Odontostomia (Evalea) sulcata* A. Ad. Ann. Mag. (3), VI, p. 417.

Tsu-shima, 16 fms. (Ad.).

- Odontostomia (Evalea) lirata* Ad. *Ibid.* Tabu-Shima, Sado (Ad.).
- Odontostomia (Auriculina) grayi, ovalis* Ad. Ann. Mag. (3), VII, p. 42, 43.  
Mino-Shima, 63 fms.
- Odontostomia (Parthenia) spirata* A. Ad. Mino-Shima (Ad.).
- Odontostomia (Parthenia) costulata* Dkr. Moll. Jap., p. 16, pl. 2, f. 15.  
Deshima.
- Odontostomia (Parthenia) foveolata* A. Ad. Ann. Mag., 1860, V, p. 479.  
Mino-Shima (Ad.).
- Odontostomia (Parthenia) monocyela* A. Ad. Ann. Mag., 1860, V, p. 479.  
Mino-Shima, 63 fms., Goto, O-Shima, Tanabe (Ad.).
- Odontostomia (Parthenia) costellata, littoralis* A. Ad. Ann. Mag. N. H., 1861,  
(3), VII, p. 42.  
Tsu-Shima, 26 fms. (Ad.).
- Odontostomia (Parthenia) punctigera* A. Ad. Ann. Mag., 1861, VII, p. 42.  
Goto, Sado (A. Ad.).
- Odontostomia (Parthenia) semiplicata* A. Ad. Ann. Mag., 1860, V, p. 478.  
(*Chrysallida*).  
Goto, O-Shima, Takano-Shima, Mino-Shima (A. Ad.).
- Odontostomia (Parthenia) pusio*. *Ibid.* (3), VII, p. 45. (*Chrysallida*).  
Tsu-Shima, 16-26 fms., O-Shima (Ad.).
- Odontostomia (Parthenia) pagodula* A. Ad. Journ. Linn. Soc., VII, p. 4 (*Turbonilla monocyela* Ad. Ann. Mag., 1860, p. 418).  
Mino-Shima, 63 fms., Taku-Shima, O-Shima (Ad.).
- Odontostomia (Parthenia) cælata* A. Ad. Journ. Linn. Soc., VII, p. 4.  
Seto-Uchi, Akasi, Tsu-Shima (Ad.).
- Odontostomia (Pyrgulina) casta* A. Ad. Ann. Mag., 1861.  
Takano-Shima (Ad.). Described as *Chrysallida*.
- Odontostomia (Pyrgulina) minna* A. Ad. Ann. Mag., V, 1860, p. 478.  
Mino-Shima, 63 fms, Goto (A. Ad.). Described as *Chrysallida*.
- Odontostomia (Pyrgulina) brenda* A. Ad. *Ibid.* Takano-Shima, O-Shima (Ad.).  
Described as *Chrysallida*.
- Odontostomia (Pyrgulina) elegantula* A. Ad. *Ibid.* Mino-Shima, 63 fms., Seto-Uchi (Ad.). Described as *Chrysallida*.
- Odontostomia (Pyrgulina) pygmæa* A. Ad. Ann. Mag., 1861.  
Mino-Shima, 63 fms., Goto (Ad.). Described as *Chrysallida*.

*Odontostomia (Pyrgulina) pulchella* A. Ad. Ann. Mag., 1860.

Goto, Mino-Shima, Seto-Uchi, Akasi (Ad.). Described as *Chrysalida*.

*Odontostomia (Pyrgulina) concinna* A. Ad. Ann. Mag., 1860, p. 479.

Mino-Shima, 63 fms. (Ad.).

*Odontostomia (Pyrgulina) miranda* A. Ad. Ann. Mag., 1861.

Yobuko (Ad.). Described as *Chrysalida*.

*Odontostomia (Pyrgulina) bellula* A. Ad. Ann. Mag., 1861, p. 42.

Tabu-Shima, 24 fms. (Ad.). Described as *Parthenia*.

*Odontostomia (Pyrgulina) fenestrata* A. Ad. Ann. Mag., 1860, V, p. 479.

Mino-Shima, 63 fms. (Ad.). Described as *Parthenia*.

*Odontostomia (Pyrgulina) pura* A. Ad. Ann. Mag., (3), VII, p. 46.

Awa-Shima, in shell sand, Takano-Shima (Ad.). Described as *Chrysalida*.

*Odontostomia (Pyrgulina) tantilla* A. Ad. Journ. Linn. Soc., VII, p. 5.

O-Shima, Tanabe, Takano-Shima (A. Ad.).

*Odontostomia (Pyrgulina) decussata* A. Ad. *Ibid.* Goto, 48 fms. (Ad.).

*Odontostomia (Miralda) diadema* A. Ad. Ann. Mag., 1860, V, p. 479.

Mino-Shima, Seto-Uchi, Uruga (Ad.).

*Odontostomia (Miralda) mariella* A. Ad. *Ibid.* Mino-Shima, Goto, Tsu-Shima, Seto-Uchi (Ad.).

*Odontostomia (Miralda) gemma* A. Ad. Tsu-Shima, Seto-Uchi, Akasi (Ad.).

*Eulimella philippiana* Dkr. Moll. Jap., p. 17, p. 2, f. 8.

Deshima (Dkr.); Kamakura (Stearns).

*Eulimella opaca, pellucens* A. Ad. Ann. Mag. (3), VII, 1861, p. 46, 47.

Mino-Shima, 63 fms. (Ad.).

*Eulimella opalina, vitrea* A. Ad. *Ibid.* Tsu-Shima, 26 fms. (Ad.).

*Eulimella hyalina* A. Ad. *Ibid.* p. 47.

Sado, 30 fms. (A. Ad.).

*Eulimella (Stylopsis) typica* A. Ad. Ann. Mag., V, 1860, p. 406.

Corea.

*Eulimella (Stylopsis) sulcata* A. Ad. Ann. Mag., VIII, 1861, p. 241.

Ochotsh Sea, 17 fms. (A. Ad.).

*Eulimella (Stylopsis) rufofasciata* E. A. Smith. Ann. Mag., 1875, p. 103, Vol. XVI.

E. of Yedo, 48 fath., sand and mud; a var. in Endermo Harb., 4 to 7 fath. (St. John).

*Menestho exarata* A. Ad. Ann. Mag., VIII, 1861, p. 303.

Hakodate Bay, 16 fms. (A. Ad.).

*Menestho sculptilis* A. Ad. Ibid. Mino-Shima, 63 fms. (Ad.).

*Kleinella cancellaris* A. Ad. Man. Conch., XV, p. 180; XVI, frontispiece, f. 6; Crossman, Essais de Paléococh. Comparée, i, p. 44, f. 34.

Strait of Corea, 63 fms. (Ad.).

*Kleinella sulcata* A. Ad. Man. Conch., XV, p. 180.

Suwonado Sea, 7 fms. (Ad.).

*Turbonilla fusca* A. Ad. Man. Conch., VIII, p. 334, pl. 76, f. 46. Japan.

*Turbonilla varicosa* Dkr. Moll. Jap., p. 15, pl. 2, f. 5.

Deshima.

*Turbonilla philippiana* Dkr. Ibid, p. 16, pl. 1, f. 12.

Deshima.

*Turbonilla multigrata* Dkr. Index, p. 79, pl. 13, f. 18-20.

Deshima.

*Turbonilla perfecta, nitida, cincta, munda, speciosa, debilis, modica, metulina*  
A. Ad. Ann. Mag., VI, 1860, p. 418-420.

Mino-Shima, 63 fms. (Ad.).

*Turbonilla commoda, sculptilis, fragilis, bicincta* A. Ad. Ibid. Tsu-Shima, 16 fms. (A. Ad.).

*Turbonilla scaliola* A. Ad. Ibid. Corea Strait, 46 fms.

*Turbonilla (Cingulina) cingulata* Dkr. Moll. Jap., p. 16, pl. 1, f. 10.

Deshima (Dkr.); Nagasaki (Lischke); Kamakura (Stearns).

*Turbonilla (Cingulina) circinata* A. Ad. Ann. Mag. N. H., 1860, p. 414.

Awa-Shima (Ad.).

*Turbonilla (Dunkeria) craticulata* A. Ad. Ann. Mag. (3), VII, p. 46.

Mino-Shima, 63 fms. (A. Ad.).

(*Rhipidoglossa*.)

#### NERITIDÆ.

*Nerita polita* Linné. Man. Conch., X, p. 30.

Tartary Strait (Schrenck).

*Nerita albicilla* L. Conchyl. Cab., p. 25, pl. 8, f. 1, 2, Man. Conch. X, p. 19.

Nagasaki (Lischke); Deshima (Nuhn); Inland Sea (Stearns.)

**Nerita planospira** Anton. Conchyl. Cab., p. 23, pl. 4, f. 4-7, Man. Conch., X, p. 21.  
Japan (Martens).

**Nerita pica** Gld. Otia Conch., p. 108; Mart., Conchyl. Cab., p. 106, pl. 12, f. 15-18; Smith, Ann. Mag., 1875, Vol. XVI, p. 107; *N. japonica* Dkr., Moll. Jap., p. 18, pl. 2, f. 23.

Endermo (St. John); Simoda (Gld); Nagasaki (Lischke); Kishiu (Stearns).

**Neritina sowerbiana** Recl. Conchyl. Cab., p. 171, pl. 18, f. 1-4 and 10.  
Hakodate.

**Neritina retropicta** Martens. Conchyl. Cab. p. 170, pl. 17, f. 18-20.  
Japan (Siebold).

**Neritina adspersa** Recluz. Journ. de Conchyl., 1853, p. 319, pl. 7, f. 6.  
Tokyo (Dkr.).

**Neritina ualanensis** Less. Conchyl. Cab., p. 193, pl. 20, f. 1-24.  
Nagasaki.

**Neritina crepidularia** Lam. Man. Conch., X, p. 77.  
Yokohama (Martens); Tokyo Bay (Stearns).

#### TURBINIDÆ.

**Turbo marmoratus** Linné. Man. Conch., X, p. 191, pl. 41, f. 23.  
Nagasaki (Lischke); Sagami Bay (Stearns).

The animal of this Turbo is considered by the Japanese a great delicacy. It is first removed from the shell, cut into little squares like dice, replaced in the shell with a little soy, and cooked therein over a charcoal fire. (F. S.).

**Turbo petholatus**, Linné. Man. Conch., X, p. 193.  
Inland Sea (Stearns).

**Turbo petholatus** var. *reevei* Phil. Man. Conch., X, p. 194, pl. 40, f. 15, 16.  
Japan (Dkr., as *T. variabilis* Rve.).

**Turbo** (*Senectus*) *argyrostomus* var. *margaritaceus* Linné. Man. Conch., X, p. 198, pl. 45, f. 100.  
Japan (Stearns).

**Turbo** (*Senectus*) *parvulus* Phil. Man. Conch., X, p. 206, pl. 44, f. 73, 74.  
Japan (Stearns); Liu Kiu Is. (Phil.; Stearns).

**Turbo** (*Batillus*) *cornutus* Gmel. Man. Conch., X, p. 210, pl. 43, f. 50, 52.  
Tokyo Harbor (young specimens lacking spines, Stearns); Yedo, Nagasaki (Lischke); Hakodate, etc., (Schrenck).



- Turbo (Modelia) guttatus** A. Adams. Man. Conch., X, p. 213, pl. 63, f. 39.  
Tatiyama (Ad.).
- Turbo (Marmorostoma) coronatus** Gmel. Ann. Mag., 1875, Vol. XVI, p. 108.  
Ooshima, on the shore (St. John); E. Coast Nippon (Stearns).
- Turbo (Marmorostoma) granulatus** Gmel. Man. Conch., X, p. 217, pl. 46, f. 18.  
Nagasaki (Lischke).
- Turbo (Marmorostoma) coreensis** Recluz. Man. Conch., X, p. 217, pl. 47, f. 19.  
Enoshima (Stearns). Usually regarded as an imperforate variety of the preceding.
- Astralium (Cyclocantha) hæmatragus** Mke. Man. Conch., X, p. 236, pl. 54, f. 57, 58.  
Tokyo, Nagasaki, etc. (Dkr.).  
*A. rhodostoma* Lam. (= *petrosus* Martyn) has been recorded by Dunker, but without exact locality. Its occurrence in Japanese waters is very doubtful.
- Astralium (Cyclocantha) heimbürgi** Dkr. Index, p. 130, pl. 6, f. 6, 7.  
Inland Sea of Japan (Dkr.).
- Astralium (Guildfordia) triumphans** Phil. Man. Conch., X, p. 228, pl. 58, f. 67, 68.  
S.-E. coast Kii (Stearns).
- Astralium (Bolma) modestum** Rve. Man. Conch., X, p. 229, pl. 55, f. 63, 64.  
Kii coast (Stearns); Nagasaki (Lischke).
- Astralium (Pachypoma) japonicum** Dkr. See Pilsbry, Proc. Acad. Nat. Sci., Phila., 1891, p. 473, pl. 19, f. 6-8 (operculum).  
S.-E. coast Prov. Kii (Stearns); Kiushiu (Lischke).  
Upon seeing the unique type specimen of *A. wardii* Baker (Proc. Rochester Acad. Sci., I, p. 136, pl. 11, f. 1) I considered it a depressed individual of this species. *A. japonicum* is not a *Pomaulax* as has been supposed, but a true *Pachypoma*, which is quite a different thing. Mr. Stearns' largest specimen measures 160 mm. diameter.
- Leptothyra<sup>1</sup> sangarensis** Schrenck. Amurl. Moll., II, p. 363, pl. 16, f. 6-11. (*Turbo*); Man. Conch., X, p. 250, pl. 64, f. 59.  
Sangar Strait (Maximowicz); Bay of Hakodate (Albrecht and Lindholm).

<sup>1</sup> Synonyms of this generic name are as follows:—  
*Turbo* Auct.

*Collonia* Auct non Gray.

*Leptonyx* and *Homalopoma* Cpr. (*præoc.*).

*Cantraineia* Jeffr.

*Anadema* Ads.

*Petropoma* Gabb. J. A. N. S., Phila., VIII, p. 281. See *Nautilus*, VII, p. 84.

*L. sanguinea* Linn. has erroneously been recorded from Japan and West America. It is Mediterranean.

*Leptothyra amussitata* Gld. Man. Conch., X, p. 250, pl. 55, f. 71, 72; Ann. Mag., 1875, Vol. XVI, p. 109.

Endermo, 4-7 fathoms; a variety from Yamado, 7 fathoms, sand (St. John).

*Leptothyra purpurascens* Dkr. Index, p. 129, pl. 12, f. 1-3.

Japan (Dkr.).

*Leptothyra rubra* Dkr. Ind. Moll. Mar. Jap., p. 128, pl. 12, f. 7-9.

Japan (Dkr.).

*Leptothyra transenna* Watson. Challenger Gastrop. XV, p. 125, pl. VI, f. 12.

Japan 565 fathoms.

*Leptothyra pilula* Dkr. Moll. Jap., p. 19, pl. 3, f. 7. (*Liotia*). *Cynisca japonica* Ad. is a synonym.

Corea Strait (Ad.).

*Leptothyra nocturna* Gld. Otia Conch., p. 160; Ann. Mag., 1875, XVI, p. 109.

Simoda (Stimpson); Lat. 41° 12' N., Long. 140° 45' E., 43 fath., sand and mud; variety from Yamada Harbor (St. John).

#### PHASIANELLIDÆ.

*Phasianella megastoma* n. sp. Pl. VIII, fig. 9.

Shell imperforate, in shape like *Ph. (Chromotis) neritina* but the spire longer and more pointed. Surface smooth, hardly shining; either dotted closely and evenly all over with red on a pale buffish ground, or having several spiral girdles of white spots, and a sub-sutural series of white flames; the apex yellow or whitish. Whorls 3½, very rapidly increasing, the last expanding toward the aperture. Aperture round-oval, very large, oblique; columella and parietal wall regularly arcuate, with a moderate deposit of callus. Operculum white outside. Alt. 3.2, diam. 2.9 mill.

Nemoto, Boshu (Fr. Stearns).

The extremely large aperture sufficiently characterizes this species.

*Phasianella oligomphala* n. sp. Pl. VIII, fig. 8.

Shell ovate-turritid, smooth, hardly shining, perforated. Dotted in spiral order with red on a pale ground, often having in addition some girdles of white spots, and very oblique snow-white stripes descending from the suture. Whorls  $4\frac{1}{2}$ , well rounded, the sutures deep, the apex subacute. Aperture round-ovate, about half the shell's length; inner lip separated from the body by a long, narrow umbilical fissure, which is much reduced in some shells. Operculum white outside. Alt.  $4\cdot35$ , diam.  $2\cdot8$  mm.

Nemoto and Tokyo Harbor (Stearns).

The color patterns of this little *Tricolia* are similar to those of the preceding species, but it is far slenderer than that, and perforated.

*Phasianella (Orthomesus) modesta* Gld. Pl. VI, figs. 29, 30.

Pils., Man. Conch., X, p. 183.

Loo Choo (Stimp.); Nemoto (Stearns); N. shore Prov. Tango (Gaines).

It is not without some doubt that I identify these shells with Gould's unfigured species, but they agree with his short description as far as that goes.

*P. modesta gouldii* n. var. Pl. VI, fig. 31.

Shell the shape of *P. kochii* Phil., clear red, showing under the lens dense microscopic redder spiral lines and toward the base some spaced red spirals with remote, white specks. Marked above the periphery with a few bold oblique stripes of snow-white; a subsutural band mottled with blackish.

This form occurs with the preceding, of which I consider it a variety. It is probably what Dunker lists as *P. capensis*.

Dunker (Index, p. 127) reports *Phasianella variegata*, *P. elongata* and *P. capensis* from Japan, the last on Schrenck's authority. The first of these was perhaps *Phasianella (Orthomesus) modesta*. The other two were incorrect identifications. The S. African species named are of the group of *P. pulla*, while the above Japanese forms belong to *Orthomesus*, as is shown by their spaced capillary lines.

#### DELPHINULIDÆ.

*Delphinula delphinula* Linn. *D. laciniata* Lam., Man. Conch., X, p. 266.

Japan (Stearns, No. 1,127); Nagasaki (Lischke, *D. atrata*).

Several specimens of the typical form, and var. *atrata* Rve.

*Delphinula distorta* Linné. Inland Sea (Stearns).

*Liotia semiclathratula* Schrenck. Amurl. Moll., II, p. 370, pl. 16, f. 16-25; Ann. Mag., 1875, XVI, p. 110.

Toba Harbor, 9 fms., sand (var. *St. John*); Sangar Strait (Schrenck); N. shore of Tango (Gaines).

*Liotia dædala* A. Ad. P. Z. S., 1863, p. 72. Goto; Oshima (Ad.).

*Liotia tantilla* A. Ad. P. Z. S., 1863, p. 72. Goto Is., 71 fms. (Ad.)

*Liotia armata* A. Ad. Ann. Mag., Sept., 1861, p. 243.

Corea Strait (Ad.).

#### TROCHIDÆ.

*Trochus niloticus* Linné. Man. Conch., XI, p. 17. Nagasaki (Lischke).

*Trochus turris* Philippi. *T. altus* Phil., Conchyl. Cab., p. 217, pl. 32, f. 7, not *T. altus* Perry, 1811. *T. turris* Phil., Zeitsch. f. Mal., 1846, p. 102.

Inland Sea (Dkr.).

Dunker reports *T. (Cardinalia) virgatus* Gmel. also from Japan, without more accurate locality. Its occurrence there is doubtful.

*Trochus (Tectus) obeliscus* Gmel. Man. Conch., XI, p. 19, pl. 2, f. 13, 14.

Deshima (Nuhn); Nagasaki (Lischke).

*Trochus (Lamprostoma) rubricatus* Philippi. Phil., Conch., p. 213, pl. 31, f. 13; Pilsbry, Man. Conch., XI, 32.

Japanese Seas (Fischer); Japan (Stearns).

This and the next two species are closely allied.

*Trochus (Lamprostoma) sacellum* Philippi. (*T. spengleri* Gmel.). Phil., Conch. Cab., p. 309, pl. 44, f. 13; Pilsbry, Man. Conch., XI, 34; *T. spengleri* Gmel.; Lischke, J. M. C., p. 93.

Nagasaki (Lischke).

*Trochus (Lamprostoma) rota* Dunker. Dkr., Moll. Jap., p. 21, pl. 3, f. 4; Lischke, Jap. Meeres-Conch., p. 94, pl. 6, f. 20, 21; Pils., Man. Conch., XI, p. 35. *Polydonta gloriosum* Gid., Otia, p. 158.

Nagasaki (Lischke); Deshima (Nuhn, Dkr.); Ooshima (St. John).

Without exact locality, Dunker reports *T. maculatus* from Japan. This reference needs confirmation. Three specimens of *T. incrasatus* were brought by Stearns, but it too was perhaps not native.

*Trochus (Infundibulum) chloromphalus* A. Adams. Lischke, Jap. Meeres-Conch., p. 92, pl. 6, f. 17, 18. Pils., Man. Conch., XI, p. 38.

Nagasaki (Lischke).

*Trochus (Lamprostoma) squarrosa* Lam. Man. Conch., XI, p. 32, pl. 6, f. 60, 61.

Nagasaki (Lischke, J. M. C., I, p. 92).

**Clanculus margaritarius** Phil. Phil., Conch. Cab., p. 74, pl. 14, f. 4; Dkr., Index, p. 139.

Japan (Van Nostrand). The *Clanculus smithii* Gray (=? *C. undatus* Lm.), reported from Japan by A. Adams (before he had been there), may hardly be admitted without several grains of salt.

**Clanculus microdon** A. Ad. Man. Conch., XI, p. 78.

North shore of Tango (Gaines).

**Monodonta labio** Linné. Pilsbry, Man. Conch., XI, p. 86, pl. 19, f. 95, 96; Lischke, J. M. C., I, p. 95.

Nagasaki (Lischke); Deshima (Nuhn, Dkr.); Hakodate (Schrenck); Ooshima (Chall.); Seta coast (Stearns).

Dunker reports *M. australis* also, but without exact locality.

**Monodonta neritoides** Philippi. Phil., Conch. Cab., p. 303, pl. 44, f. 4; Pilsbry, Manual XI, p. 106; Proc. Acad. Nat. Sci., Phila.

Southeast Kii coast (Stearns); Yokohama (Martens).

**Monodonta neritoides** var. **perplexa** Pils. Pils., Man. Conch., XI, p. 107, pl. 35, f. 6-8.

Japan.

**Monodonta (Oxysteles) suavis** Philippi. Pils., Man. Conch., XI, p. 117, pl. 23, f. 71-75; *O. kœneni* Dkr., Index, p. 142, pl. 12, f. 4-6.

Japan (Dkr., Stearns).

**Chrysostoma paradoxum** Born. Man. Conch., XI, p. 466.

Mr. Stearns' specimen of this (No. 1186) may not be really Japanese, although it was procured in Japan.

**Chlorostoma argyrostoma** Gmel. Lischke, Jap. Meeres-Conch., I, p. 96, pl. 7, f. 4; Pilsbry, Manual, p. 165.

It is very doubtful whether this species occurs in Japanese waters. The large example figured by Lischke, as well as the extensive suite in the collection of the Academy, are from China. Lischke calls the typical form of *argyrostomum* "var. *major*," but this term is superfluous.

**Chlorostoma umbilicatum** Lischke. Pl. VI, figs. 11, 12.

Lischke, Jap. Meeres-Conch., I, pl. 7, f. 5; II, p. 87 (" *C. argyrostomum* v. *umbilicatum* ").

Nagasaki (Lischke). More strongly spirally lirated beneath than *C. argyrostomum*, and umbilicate. The specimen figured is in the collection of Mr. Shelly G. Crump, of Rochester, N. Y.

**Chlorostoma distinguendum** Dkr. Dkr., Moll. Jap., p. 22, pl. 3, f. 1.

Deshima (Dkr.); Japan (Stearns).



**Chlorostoma turbinatum** A. Adams. Pl. VI, figs. 9, 10.

Pils., Man. Conch., XI, p. 193, 194. *Ch. rugatum* Gld., Otia, p. 158, *vide* E. A. Smith.

Toba, S. Nippon (Smith); Hakodate Bay and Simoda (Stimp.); Hakodate (Stearns).

Shell having the contour of *argyrostomum* but much smaller, the oblique folds of the upper surface coarser, not splitting below the sutures, often crossed by some indistinct spirals; base slightly convex, with five or six spiral cords, often subobsolete; columella as in *argyrostomum*, the umbilical region closed in both old and young, but with a deep pit, encircled on the side toward the mouth by a green callus; the outer margins of the umbilical tract more or less stained with golden. Color above and below, black, in both young and old examples. Alt. 21, diam. 25 mm. The species has not hitherto been figured.

**Chlorostoma nigerrimum** Gmelin. Lischke, J. M. C., p. 79, pl. 7, f. 6, 7; Pilsbry, Manual XI, p. 165. *Ch. corrugatum* A. Ad.; *Ch. undatella* Gld.

Nagasaki (Lischke); Deshima (Nuhn, Dkr.); Oushima, Kagoshima and Taneogoshima (Stimpson; *C. undatella* Gld., Otia, p. 158).

**Chlorostoma xanthostigma** A. Adams. (*nigricolor* Dkr.). Dkr., Moll. Jap., p. 22, pl. 3, f. 2; Lischke, J. M. C., p. 100, pl. 7, f. 1, 2.

Nagasaki (Lischke); Deshima (Nuhn, Dkr.); Ooshima (St. John).

**Chlorostoma lischkei** Pilsbry. Pilsbry, Man. Conch., XI, p. 167, pl. 26, f. 16.  
Japan (A. Garrett).

**Chlorostoma rusticum** Gmelin. Pilsbry, Man. Conch., XI, p. 166, pl. 25, f. 1-4; Lischke, J. M. C., p. 97.

Nagasaki (Lischke); Deshima (Nuhn, Dkr.); Hakodate (Schrenck and Stearns).

The upper surface is very strongly rudely ribbed throughout, the ribs extending slightly over the periphery upon the base. Color, black above, black and white strigate beneath, the young black beneath. In the typical *rusticum* the ribs are less strong.

**Chlorostoma brunneum** Phil. Pilsbry, Man. Conch., XI, p. 170, pl. 27, f. 36-38.

Nagasaki (Lischke).

A single large specimen (alt. 39, diam. 33 mm.) collected by Stearns, which is undoubtedly this species.

*Chlorostoma carpenteri* Dunker. Lischke, Jap. Meeres-Conch., p. 98, pl. 7, f. 8, 9, 10; Pils., Man. Conch., XI, p. 168.

Nagasaki and Deshima (Lischke); Southeast coast, Prov. Kii (Stearns).

*Chlorostoma pfeifferi* Philippi. Pilsbry, Man. Conch., XI, p. 167, pl. 26, f. 13-15.  
*T. nordmanni* Schrenck, *Ch. achates* Gld.

Yedo (Lischke); Hakodate (Schrenck); Simoda (N. P. E. E.); S.-E. coast Kii (Stearns).

*Chlorostoma sordidum* Philippi. Phil., Conch. Cab., p. 301, pl. 44, f. 1. *T. subfuscescens* Schrenck, *vide* Pilsbry, Man. Conch., XI, p. 188, 189.

Bay of Hakodate (Schrenck); Tokyo Harbor (Stearns); Ooshima and Endermo (St. John).

*Cantharidus (Thalotia) japonicus* A. Adams. Pilsbry, Man. Conch., XI, p. 355, pl. 17, f. 25.

Nagasaki, Yokohama, Tokyo Harbor, Inland Sea, Nemoto, Boshu (Stearns); N. shore of Tango (Gaines).

A series of many hundred examples was collected, exhibiting a very wide range of variation in color. We consider *Cantharidus hilaris* Lischke (Jap. Meeres-Conch., II, p. 85, pl. 5, f. 14, 15, and Fischer, Coq. Viv. Trochus, p. 353, pl. 110, f. 2) from Nagasaki, a synonym.

*Cantharidus (Thalotia) yokohamensis* Bock. Bock, P. Z. S., 1878, p. 727, pl. 46, f. 3; Pilsbry, Manual XI, p. 147, pl. 40, f. 40.

Yokohama (Bock).

*Alocyna ocellata* A. Ad. Man. Conch., X, p. 182, pl. 40, fig. 12.

Tatagama; Nemoto, Boshu (Stearns); off Talen-Shima, 25 fms. (Ad.)

*Alocyna lepida* A. Ad. Man. Conch., X, p. 182.

Off Talen-Shima, 25 fms. (A. Ad.)

*Gibbula globularia* Schrenck. Schrenck, Amurl. Moll., p. 357, pl. 16, f. 1-4; Pilsbry, Man. XI, p. 226, pl. 57, f. 10.

Bay of Hakodate (Schrenck).

*Gibbula corallina* Smith. Smith, Ann. Mag., 1875, XVI, p. 111; Pilsbry, Manual XI, p. 225.

*Gibbula yamadana* Smith. Smith, Ann. Mag., 1875, XVI, p. 111; Pilsbry, Manual XI, p. 224.

Yamada Harbor (St. John).

*Gibbula japonica* Smith. Smith, Ann. Mag. N. H., 1875, XVI, p. 110; Pilsbry, Man. Conch., XI, p. 224.

Gulf of Yedo, lat. 35° 35', long. 139° 48', in 6-25 fms. (St. John).

**Gibbula redimita** Gld. Pilsbry, Man. Conch., XI, p. 227; Smith, Ann. Mag. Nat. Hist., 1875, XVI, p. 111.

Bay of Hakodate (Stimpson); lat.  $41^{\circ} 12' N.$ , long.  $140^{\circ} 45' E.$ , 43 fath. (St. John).

**Gibbula ochotensis** (Midd.) Phil. Man. Conch., XI, p. 237, pl. 60, f. 3, 4.  
Okhotsk Sea.

**Gibbula eucosmia** n. sp. Pl. VIII, fig. 4,

Shell umbilicate, conic and elevated, with flattish base. Coral-red with a series of white flammules below the sutures and white spots at periphery, but sometimes the flames extend to periphery; base red with an umbilical white patch. Surface sculptured with raised smooth, spiral cords, of which there are 6 above the periphery rather widely spaced, and on the base 10 much closer; between the cords very delicate growth lines are visible. Whorls about  $6\frac{1}{2}$ , convex, the last one subangular at periphery. Aperture rounded, columella concave above, straightened below, bluntly angled at base. Umbilicus narrow, rather funnel-shaped at the opening. Alt. 7, diam. 6 mm.

Hizen (Stearns); N. shore of Prov. Tango (Gaines).

**Gibbula? fulgens** Gld. Pilsbry, Man. Conch., XI, p. 225; pl. 40, f. 38; Smith, Ann. Mag., 1875, XVI, p. 110; Syn.: *T. iridescens* Schrenck.

Off Cape Blunt, 35 fms. (St. John).

**Gibbula (Cantharidella) callichroa** Philippi. Phil., Conch. Cab., p. 298, pl. 43, f. 15. *Trochus jessoensis* Schrenck, Moll. Amur-landes, etc., p. 353, pl. 15, f. 11-18; Pilsbry, Man. Conch., XI, p. 222.

Hakodate (Schrenck); Hizen (Stearns); N. shore of Prov. Tango (Gaines).

**Enida japonica** A. Adams. Dkr., Index, p. 144, pl. 12, f. 17, 18. Pils., Man. Conch., XI, p. 245, pl. 67, figs. 44, 45.

Off Mino-Shima, 63 fms. (Ad.).

**Enida speciosa** A. Adams. Pils., Man. Conch., XI, p. 245.

Off Mino-Shima, 63 fms. (Ad.).

**Enida gemmulosa** A. Adams. Pils., Man. Conch., XI, p. 246.

Off Mino-Shima, 63 fms. (Ad.).

**Basilissa lampra** Watson. Challenger Gastrop., p. 97, pl. 7, f. 5.

Mid-Pacific, E. of Japan, 2050 fathoms (Chall.).

**Monilea inepta** Gld. Otia Conch., p. 155; Pils., Man. Conch., XI, p. 254.

Kagoshima Bay (Stimpson).

- Monilea vernicosa** Gld. Pilsbry, Man. of Conch., XI, p. 254; Otia, p. 155.  
Ooshima (Stimpson).
- Monilea glareosa** Gould. Pils., Man. Conch., XI, p. 255; Otia, p. 155.  
Loo Choo, Oushima and Kikaia (Stimp.). This may be a *Solariella* or *Minolia*.
- Monilea smithi** Dunker. Pilsbry, Man. of Conch., XI, p. 438, pl. 38, f. 5-7; Dkr., Index, pl. 6, f. 16-19 (*Euchelus*).  
Wakayama (Dkr.).
- Monilea (Rossiteria) nuclea** Philippi. Pilsbry, Man. Conch., XI, p. 257, pl. 61, f. 31, 32.  
Japan (Fischer); Viti Is. (Garrett! in coll. Phila. Acad.).
- Bathybembix argenteonitens** Lischke. Lischke, Jap. Meeres-Conch., III, p. 66, pl. 4, f. 1; Pilsbry, Manual XI, p. 347.  
Yedo (Lischke); Inland Sea (Stearns).  
This species varies but little. A larger individual measures, alt. 48, diam. 35 mm. In Japan it is called *Ginkai*, silver shell.
- Bathybembix crumpii** Pilsbry. Pl. XI, fig. 4.  
Pilsbry, Nautilus, VI, p. 105, 133, pl. 2, f. 3.  
Japan (Shelly G. Crump).
- Bathybembix æola** Watson. Wats., Chall. Gast., p. 95, pl. 7, f. 13; Pilsbry, Manual, p. 163, pl. 40, f. 10, 11.  
Off Enoshima, Japan, in 565 fms. (Challenger Exped.).
- Bathybembix abyssorum** E. A. Smith. P. Z. S., 1891, p. 438, pl. XXXIV, f. 5.  
North Pacific, E. of Japan in 2300 fathoms (Challenger).
- Minolia<sup>1</sup> punctata** A. Adams. Pilsbry, Man. Conch., XI, p. 259, pl. 44, f. 33.  
Mino-Shima (A. Ad.).
- <sup>1</sup> *Minosia* Dkr., Index, p. 142.
- Minolia pulcherrima** (A. Ad.) Sowb. Sowerby, Conch. Icon., XX, *Margarita*, f. 11.  
Japan (Sowb.).  
Seems to be a synonym of *M. punctata* A. Ad., and the name is preoccupied.
- Minolia mustelina** Gould. Gld., Otia, p. 154. (*Margarita*).  
Hakodate Bay, low water (N. P. E. E.).
- Minolia vitiliginea** Mke. (?). Lischke, Jap. Meeres-Conch., II, p. 86.  
The type of this species as figured by Philippi (Conch. Cab. Trochus, p. 176, pl. 28, fig. 2) is unlike any Japanese specimens I have seen.



**Minolia Stearnsii** n. sp.

Shell more depressed than *M. vitiliginea* Mke., thin, shining, widely umbilicate; densely and finely radially vermiculate with olivaceous on a pale ground above, usually with few or many radial dark clouds below the suture, and several narrow articulated, spaced spiral lines, the periphery lighter, often spotted; base with paler vermiculate and articulated pattern. Surface closely and evenly sculptured with spiral striæ throughout, with inconspicuous rather spaced oblique impressed lines, and between them very faint, close growth-striæ which slightly crenulate the spirals. Whorls 5, very convex, rather flattened below the sutures, producing a blunt median angle on the whorls of the spire. Last whorl subangular at periphery and around umbilicus; the latter funnel-shaped, one-fourth the total diameter of the shell, white within and with distinct growth-lines. Aperture roundly subquadrate, oblique; columella slightly dilated above, straight in the middle, bluntly angular at base. Alt. 6.2, diam. 10 mm.; *var.*: olivaceous replaced by brilliant rose color.

Nemoto, Boshu (Stearns). I separate this from the *vitiliginea* of Menke (see Philippi) on account of its more depressed form and wider umbilicus.

**Margarita helicina** Fabr. Man. Conch., XI, p. 285; *M. arctica* Leach, Dkr., Index, p. 145.

Has been reported from northern Japan.

**Turcica imperialis** A. Adams. Lischke, Jap. Meeres-Conch., III, p. 67, pl. 4, f. 4-6; Pilsbry, Man., p. 415. *T. adamsianus* Schrenck.

Tsusaki, W. coast of Japan, 37 fms. (Ad.); Bay of Yedo (Lischke); Hakodate (Schrenck); Japan (Stearns).

The largest specimen measures, alt. 38, diam. 31 mm. The color varies from uniform cream-white, to brownish, maculated and lightning-streaked with reddish-brown. One specimen has the beaded cords of the upper surface reduced to fine, subobsolete, almost smooth threads, the periphery with a double series of compressed beads, and another similar cingulus below the suture. This specimen contrasts strongly with the typical form, but we can only regard it as a variety.

**Turcica concinna** A. Adams. Pilsbry, Man. Conch., XI, p. 415.

Uraga, Japan (Ad.).



**T. coreensis** Pease.

Corea Sea. This is hardly Japanese. The "*T. instricta*" reported from Satanomosaki by A. Ad. (Ann. Mag. N. H. (3), XIII, p. 143) can hardly be the real *Euchelus instrictus* Gld., of which specimens are before me from New Caledonia and Viti Is. (see Man. Conch., XI, p. 440).

**Calliostoma unicum** Dunker. Pilsbry, Man. of Conch., XI, p. 341, pl. 16, f. 9, 10; Lischke, J. M. C., III, p. 64. *C. affinis* Dall.

Nagasaki (Lischke); Deshima (Nuhn! Dkr.); Simoda (Dall); Inland Sea and Tokyo Harbor (Stearns).

About 200 hundred specimens found by Mr. Stearns. They agree in sculpture, but vary from reddish to yellow in ground color, and on some the broad cloud-like dark maculæ of the upper surface are wanting.

**Calliostoma consors** Lischke. Lischke, Jap. Meeres-Conch., I, p. 65, pl. 4, f. 2, 3; Pilsbry, Man., XI, p. 347.

Bay of Yedo (Lischke); Inland Sea (Stearns).

This seems to be merely a variety of *C. unicum*.

**Calliostoma sowerbyi** Pilsbry. Pilsbry, Man. of Conch., XI, p. 34, pl. 18, f. 17; *Ziziphinus jucundus* Sowb. not Gld.

Japan (Sowb., Stearns).

**Calliostoma hungerfordi** Sowerby. P. Z. S., 1888, p. 568, pl. 28, f. 14; Pilsbry, Man. of Conch., XI, p. 343, pl. 34, f. 11.

Japan (Hungerford).

**Calliostoma urbanum** Gould. Otia, p. 157; Pils., Man. Conch., XI, p. 401.

Kagoshima Bay (Stimp.).

**Calliostoma infuscatum** Gould. Gld., Otia, p. 157; Pilsbry, Man. Conch., XI, p. 401.

Kagoshima Bay (N. P. E. E.).

One of the original lot is in the collection of the Academy of Natural Sciences of Philadelphia, showing it to be a well marked species. It will probably occur larger in size.

**Calliostoma (Lischkeia) moniliferum** Lam. Encycl. Meth., pl. 445, f. 2; Pils., Man. Conch., p. 347; *Tr. alwinæ* Lischke, Jap. Meeres-Conch., II, p. 84, pl. 6, f. 17-19.

Kiusiu I. (Lischke); Japan (Stearns).

**Euchelus bronni** Dunker. Dkr., Moll. Jap., p. 22, pl. 3, f. 8; Pils., Man. Conch., XI, p. 438.

Japan (Dkr.).

**Euchelus pauperculus** Lischke. Lischke, Jap. Meeres-Conch., III, p. 69, pl. 4, f. 9-11; Pilsbry, Man. Conch., XI, p. 439, pl. 63, f. 20, 21.

Yedo (Lischke); Tokyo Harbor (Stearns).

**Euchelus exiguus** A. Adams. Pils., Man. Conch., XI, p. 118; *Monodonta exigua* A. Ad., P. Z. S., 1856, p. 176.

Japan (Siebold).

**Euchelus ruber** A. Adams. Man. Conch., XI, p. 440, pl. 67, f. 79.

Kamakura (Stearns). Specimens of clear, pale brown tint, with light brown scattered dots, but agreeing quite perfectly with typical *rubra* in sculpture. Also, N. shore of Tango (Gaines), a red specimen.

**Ethalia rufula** Gould. Gld., Otia, p. 154.

Ooshima (N. P. E. E.).

This genus is here understood in the sense explained in Man. Conch., XI, p. 457, not as used by authors generally. The *Umbonium anguliferum* Phil., reported from Yokohama by Dunker, must be a mistake, as that is a New Zealand species of *Ethalia*.

**Umbonella murrea** Reeve. Rve., Conch. Icon., *Turbo*, f. 54; Ad., Ann. Mag. N. H. (3), XI, p. 265, 1863, *Isander maculosus* A. Ad.

Goto Is., 71 fms. (Ad.).

**Camitia** sp.

See Man. Conch., XI, p. 465. No good authority for the Japanese reference seems to exist.

**Umbonium giganteum** Lesson. Pilsbry, Man. Conch., p. 454, pl. 58, f. 17-19.

Kii coast (Stearns); Yedo, Nagasaki (Lischke).

The following principal color patterns occur:

- (1). Entire surface uniform blue-black.
- (2). Olivaceous, with short black and cream blotches below the suture, a continuous red band at periphery, bordered below by a white band.
- (3). Olivaceous-yellow, yellow, or pinkish-yellow, unicolorous or marked like the preceding.
- (4). Very light drab, almost white, uniform or marked like number 2.
- (5) Plumbeous, with a series of black and cream blotches below the suture, and a series of cream and dark plumbeous maculæ at the periphery.

Many specimens, especially immature ones, show a group of several spiral striæ immediately above the periphery.

**Umbonium costatum** Lesson. Pils., Man. Conch., XI, p. 54, pl. 59, f. 34, 35.

Kii coast (Stearns); Simoda, Hakodate, Tsu-Shima, etc. (Ad.); Nagasaki (Lischke).

Very large specimens, measuring alt. 22, diam. 30 mm. The coloration is very uniform, consisting of narrow radial stripes of buff and olive-bluish broken into a fine tessellation by the spiral grooves of the upper surface, the base with coarser radial stripes, sometimes interrupted; umbilical callus purplish-pink.

**Umbonium costatum** var. **superbum** Gould. Lischke, J. M. C., II, p. 83, pl. 5, f. 18-21.

Nagasaki (Lischke); Kagoshima (N. P. E. E.); Inland Sea, Hizen, near Enoshima (Stearns).

Very extensive suites of this form were collected by Mr. Stearns; and a critical examination shows that there is really no character whatever separating them from *U. costatum* except size. The sub-sutural fasciole is sometimes smooth, but more often more or less tuberculate; and specimens occur which are very different to distinguish from *U. moniliferum*. Mr. Stearns has assorted the forms into numerous color varieties which he designates by letters. The more notable of these are as follows:

(1). Coloration as described above for *U. costatum*, the stripes above continuous or tessellated, periphery often with a white and a red girdle, (Nagasaki, Kii). (See Lischke, II, pl. V, f. 20, 21).

(2). Same pattern as above, but ground color orange, stripes faint olive; base without stripes, red or yellow.

(3). Same as No. 1, but with wide blotch-like stripes at and below the periphery. (See Lischke, f. 18, 19).

(4). Entire surface blue-black or purple-black, callus fleshy. (Hizen).

(5). Ground color and subperipheral fasciole red, stripes close and dusky; interstices between spiral cords pure white. This is the most remarkable and lovely pattern. The base is articulated, broadly striped or uniform.

(6). Ground color almost white; stripes or tessellation very pale bluish or brown; callus white or fleshy. (Inland Sea).

(7). Stripes broad and red, on a yellow ground.

(8). Upper surface with broad white zone. One specimen of this variety lacks spiral sulci, and has very convex whorls.

**Umbonium japonicum** Sullioti. Pilsbry, Man. Conch., XI, p. 456.

Sea of Japan (Sul.).

Will prove a synonym of *U. moniliferum* or *superbum*. Sowerby (Thes., V, p. 472) reports *U. suturalis* Lam. from Japan; and A. Adams reports *vestiarium* Linn.

**Umbonium moniliferum** Lamarck. Pilsbry, Man. Conch., XI, p. 456, pl. 58, f. 22-31.

Kishiu, Kamakura (Stearns); Nagasaki, Simoda, O-Shima (Dkr.).

Three color varieties collected:

(1). White, with some faint or obsolete tessellation; callus white or light. (Kishiu).

(2). Yellow, with light olive tessellation; callus pink or dusky.

(3). Ground color buff or white, with wide red stripes, sometimes reducing the light ground to mere spots; base with broad oblique stripes, or a subperipheral red girdle. (Kamakura).

**Umbonium thomasi** Crosse. Pilsbry, Man. Conch., XI, p. 453, pl. 57, f. 31, 32.  
*Rotella infraplanata* Sowerby.

Hakodate.

**Umbonium adamsi** Dunker. Dkr., Index, p. 135, pl. 6, f. 3-5.

Japan (Dkr.). Is this more than a variety of *U. thomasi*?

#### CYCLOSTREMATIDÆ.

**Cyclostrema anaglyptum** A. Ad. Man. Conch., Vol. X, p. 88, pl. 31, f. 15, 16.

Seto-Uchi (Adams).

**Cyclostrema pulchella** Dkr. Moll. Jap., p. 20, pl. 3, f. 5.

Tokyo (Stearns); Bay of Yedo (Lischke); Inland Sea (A. Ad.). Tryon unites this with *C. micans* A. Ad.

**Cyclostrema ammonoceras** A. Ad. Man. Conch., Vol. X, p. 89, pl. 31, f. 34, 35.

Japan (Adams).

**Cyclostrema dunkeri** Tryon. Man. Conch., X, p. 91, pl. 32, f. 48, 49. *C. cingulatum* Dkr. not Phil.; Moll. Jap., p. 20, pl. 3, f. 11.

Deshima (Dkr.); Tokyo Harbor (Stearns).

**Cyclostrema biporcatum** A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 7 a, b.

Seto-Uchi (Adams).

**Cyclostrema lævis** Keiner. Sp. et Icon. Coq. Viv., *Delphinula*, pl. 4, f. 6.

Japan.

**C. duplicata** Lischke. Jap. Meeres-Conch., III, p. 61, pl. 3, f. 9.

Yedo (Lischke).

- Cyclostrema cinguliferum* A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 1 a, b.  
Japan (Adams).
- Cyclostrema tornatum* A. Ad. Conch. Icon., Vol. 19, pl. 2 f. 15.  
Japan (Adams).
- Cyclostrema sulcatum* A. Ad. Conch. Icon., Vol. 19, pl. 2, f. 3.  
Japan (Adams).
- Cyclostrema (Tubiola) cornuellum* A. Ad. Conch. Icon., Vol. 19, pl. 3, f. 21 a, b.  
Japan (Adams).
- Cyclostrema (Tubiola) nivea* A. Ad. Man. Conch., Vol. X, p. 96, pl. 33, f. 89, 90.  
Japan (Chem.).
- Cyclostrema (Daronia) cyclotina* A. Ad. Conch. Icon., Vol. 19, pl. 3, f. 20 a, b.  
Japan (Ad.).
- Cyclostrema (Morchia) obvolutum* A. Ad. Conch. Icon., Vol. 19, pl. 3, f. 19 a, b.  
Japan (A. Ad.).
- Teinostoma concentricum* A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 2 a, b.  
Takano-Shima (Adams).
- Teinostoma radiatum* A. Ad. Conch. Icon., Vol. 19, pl. 1, f. 6 a, b.  
Kino-o-Shima (Adams).
- Teinostoma lucidum* A. Ad. Conch. Icon., pl. 1, f. 7 a, b, Vol. 19.  
Japan (Adams).
- Teinostoma (Calceolina) pusillum* (C. B. Ad.). A. Ad. Conch. Icon., Vol. 19, pl. 1,  
f. 8 a, b.  
Japan (Adams).
- Teinostoma candidum* A. Adams. Ad., Ann. Mag. N. H., 1862, p. 296 (Ethalia);  
Sowerby, Conch. Icon., XX, pl. 4, f. 14 (*Rotella*).  
Goto Is., 71 fms. (Ad.).
- Teinostoma polita* A. Adams. Ad., l. c.; Sowb., l. c., f. 17 (*Rotella*).  
Goto Is., 71 fms. (Ad.).
- Teinostoma omphalotropis* A. Adams. Ad., Ann. Mag. N. H., 1863, XI, p. 266  
(Ethalia).  
Yobuko, 17 fms. (Ad.).
- Teinostoma nitida* A. Adams. Ad., Ann. Mag. N. H., p. 266 (Ethalia).  
Yobuko, 14 fms. (Ad.).
- Teinostoma sobrina* A. Adams. Ad., Ann. Mag. N. H., 1861, VIII, p. 306; XI, p.  
266 (Ethalia); Sowerby, Conch. Icon., Vol. 19, pl. 2, f. 19.



Kino-o Shima, Takano-Shima, 25 fms. (Ad.).

*Teinostoma perspicua* A. Ad. Ann. Mag., 1863, p. 266.

Oki-no-Shima, Takano-Shima (Ad.).

*Microtheca crenellifera* A. Ad. Conch. Icon., Vol. 19, pl. 3, f. 23.

Japan (Ad.).

*Lippistes rollei* v. Martens. Nachrbl. d. m. Ges., 1894, p. 135.

Iki, in fine sand.

#### STOMATELLIDÆ.

*Stomatella lyrata* Pilsbry. Man. Conch., XII, p. 12, pl. 2, f. 3-5.

Kishiu (Stearns).

This abundant species attains a diameter of 15 mm. It may be the same as the alleged Japanese *S. articulata*.

*Stomatella articulata* A. Adams. Pils., Man. Conch., XII, p. 13, pl. 52, f. 43; Dkr., Index, p. 145.

Japan (Dkr.). Originally described from Australia and Lord Hood's Island. Does it really occur in Japanese Seas?

*Stomatella orbiculata* A. Adams. Pilsbry, Man. Conch., XI, p. 16, pl. 52, f. 44, 45; Dkr., Index, p. 145.

Japan (Dkr.). Also reported from Mozambique (Cuming) and Darnley I., Torres Sts. (Brazer).

*Stomatella japonica* A. Adams. Pilsbry, Manual XII, p. 20, pl. 53, f. 97.

Japan (Cuming); Deshima (Dkr.); Nagasaki (Lischke).

*Nipponia pulchella* A. Adams. Ad., Ann. Mag. N. II. (3), 1860, p. 336; Pils., Man. Conch., XII, p. 29.

Off Mino-Shima, 63 fms. (Ad.).

*Stomatia phymotis* Hebling. Pilsbry, Manual of Conch., XII, p. 30; Dkr., Index, p. 146.

Said to occur in Japan. Mr. Stearns obtained many specimens at Ohon-me I., Liukiu group.

*Stomatia rubra* Lamarek. Pilsbry, Man. Conch., XII, p. 33; Dkr., Index, p. 146; pl. 6, f. 11-13.

Strait of Corea (Ad.); Inland Sea of Japan (Stearns); Bay of Yedo (Lischke).

The color varies from a deep crimson to orange.

*Stomatia splendidula* A. Adams. Pilsbry, Man. Conch., XII, p. 34; Dkr., Index, p. 145.

Japanese Sea (Ad.).

*Gena dilecta* Gould. Otia Conch., p. 109; Pilsbry, Man. Conch., XII, p. 40, pl. 55, f. 33.

Hakodate Bay, on shells (Stimpson).

*Gena lutea* (Linné) Adams. Pils., Man. Conch., XII, p. 44, pl. 2, f. 29-31.

Japan (Dkr.).

*Gena varia* A. Adams. Pils., Man. Conch., XII, p. 45, pl. 55, f. 19-21.

Japan (Dkr.).

#### HALIOTIDÆ.

*Haliotis* (*Padollus*) *ovina* Gmelin. Pils., Man. Conch., XII, p. 124, pl. 19, f. 7.

Three specimens of the reddish typical form collected by Mr. Stearns.

*Haliotis gigantea* Gmelin. Pilsbry, Man. Conch., XII, p. 84. *H. sieboldii* and *H. discus* Reeve.

Kii coast (Stearns, with numerous pearls of same); Nagasaki, Yedo, Hakodate (Lischke).

*Haliotis gigantea discus* Rve. Yesso (Stearns).

From this locality forms referable to both *discus* and *kamtschatkana*. Simoda and Hakodate (Stimp.); Goto Is. (Ad.).

*Haliotis planata* Sowerby. Pilsbry, Man. Conch., XII, p. 99, pl. 49, f. 20, 21, 22.

Philippines (Sowb.); Viti Is. (Garrett!); Japan (Stearns).

*Haliotis japonica* Reeve. Pilsbry, Man. Conch., XII, pl. 14, f. 77—*H. aquatilis* and *H. incisa* Rve.

Japan (Rve.).

*Haliotis diversicolor* Reeve. Pilsbry, Man. Conch., XII, p. 104, 105.

Sagami, Awa, Idzu and Kii coast (Stearns).

This specific name covers the following forms, the distinctive features of which are well bridged by specimens in the large quantity collected by Mr. Stearns.

*H. supertexta* Lischke. Jap. Meeres-Conch., II, p. 92, pl. 6, f. 13-15.

Nagasaki (Lischke).

*H. exigua* Dunker. Index, p. 148, pl. 6, f. 8-10.

This is merely a young shell, easily matched in any series of young *supertexta*.

*H. gruneri* Philippi. Pilsbry, Man. Conch., XII, p. 105, pl. 47, f. 1, 2.

Nagasaki, Yedo (Lischke).

*Haliotis speciosa* Reeve. Conch. Icon., f. 47.

Japan (Mus. Loebbecke, teste Weinkauff).

*Haliotis (Teinotis) asinina* Linn. Pils., Man. Conch., XII, p. 126, pl. 14, f. 76.  
Japan (Weinkauff; Stearns).

**SCISSURELLIDÆ.**

- Scissurella japonica* A. Adams. Pils., Man. Conch., XII, p. 59.  
Mino-Shima, 63 fms., Seto-Uchi, O-Shima (Ad.).
- Scissurella lamellata* A. Adams. Pils., Man. Conch., XII, p. 59.  
Mino-Shima, 63 fms., Goto, 71 fms., O-Shima, 26 fms. (Ad.).
- Scissurella turbinata* A. Adams. Pils., Man. Conch., XII, p. 59.  
Mino-Shima, 63 fms. (Ad.).
- Scissurella concinna* A. Adams. Pils., Man. Conch., XII, p. 59.  
Rifunsiri, 35 fms. (Ad.).
- Scissurella staminea* A. Adams. Pils., Man. Conch., XII, p. 60.  
Tsu-Shima, 25 fms. (Ad.).
- Schismope carinata* A. Adams. Pils., Man. Conch., XII, p. 67.  
Okosiri, 35 fms., Seto-Uchi, 16 fms., Goto, 71 fms. (Ad.).
- Schismope modesta* A. Adams. Pils., Man. Conch., XII, p. 67.  
Tabu-Shima, 25 fms. (Ad.).
- Schismope miranda* A. Adams. Pils., Man. Conch., XII, p. 67.  
Mino-Shima, 63 fms. (Ad.).

**PLEUROTOMARIIDÆ.**

*Pleurotomaria beyrichi* Hilgendorf. v. Martens, Conch. Mittheil., i, p. 33, pl. 7;  
Pilsbry, Man. Conch., XII, p. 71, pl. 56, f. 7-9.  
Japan.

**FISSURELLIDÆ.**

*Fissurellidinae.*

*Macroschisma macroschisma* (Chemn.) Dillwyn.

*Patella macroschisma* Chemnitz, Conchyl. Cab., XI, p. 184, pl. 197, f. 1923, 1924 (1795).

*Patella macroschisma* Wood, Index Testac., pl. 38, fig. 102a (1828).

*Patella macroschisma* Dillw., Descript. Cat. Rec. Shells, II, p. 1062, (1817); reference to Humphreys excluded.

*Fissurella macroschima* Desh., in Lam. An. s. Vert. Edit. 2, VII, p. 603 (exclusive of all but first reference) 1836.

*Macrochisma maxima* A. Adams, P. Z. S., 1850, p. 202; H. & A. Adams, Gen. Rec. Moll., III, pl. 51, fig. 5, (1858).

*Macroschisma maxima* Pils., Man. Conch., XII, p. 192 (copy of Adams' description and figure).

- Not . . . . . Humphreys and DaCosta, *Conch.*, pl. 7, f. 3.  
 Not *Fissurella macroschisma* Sowerby, *Genera of Shells, Fiss.*, f. 5, = *M. hiatula* Swains.  
 Not *Fissurella macroschisma* Sowb., *Conch. Illustr.*, f. 39.  
 Not *Macroschisma maxima* Sowb., *Thes. Conch.*, III, pl. 244, f. 216, 217.

The prominent specific characters of this form are its very large perforation which is *suddenly dilated* posteriorly to double the width of its middle portion. The anterior part of the shell has several carinæ. In *M. hiatula* Sw., the hole is not thus dilated posteriorly, nor is it so in the various figures of Humphreys and Sowerby referred to above. Chemnitz reports the species from Japan.

**Macroschisma sinensis** A. Adams. Pl. VI, figs. 6, 7, 8.

Pilsbry, *Manual of Conch.*, XII, p. 190, pl. 59, f. 56-59.

Tabu-Shima (Ad.); Nemoto, Boshu (Stearns, twelve specimens).

Shell oblong, the length slightly exceeding twice the breadth; lateral margins slightly convex, subparallel, anterior margin well rounded, posterior margin more or less truncate, often emarginate. Anterior slope straight or slightly convex, *more than half the length of the shell*; side slopes straight.

Surface sculptured with close, fine radial striæ, latticed by concentric raised striæ, which are much less obvious on old than on young shells; the anterior portion having about four *very inconspicuous* low radial ridges. Color either (1) dotted, speckled and obscurely banded with black on a pale buffish ground, or (2) blackish at the sides, crimson in front and behind, or (3) crimson throughout, with some faint blackish rays. Posterior slope very short, about equalling the length of the eroded portion behind the hole; generally concave, or broadly guttered behind the hole. *Perforation wedge-shaped, with nearly straight sides, gradually diverging backward*; very narrow in front, the back margin rounded, with an eroded tract behind it. *Length of hole slightly less than one-third the entire length of the shell.* Interior white with a bluish stain; hole-callus well marked, its edge stained with olive-black at the sides. Peristome strongly curved upward behind, much less so in front, the lateral margins nearly level.

Length  $23\frac{1}{2}$ , breadth  $10\frac{2}{3}$ , alt. 6 mm.

Length  $23\frac{1}{2}$ , breadth  $10\frac{2}{3}$ , alt.  $6\frac{1}{2}$  mm.

Length 21, breadth  $9\frac{2}{3}$ , alt. 6 mm.

This species differs from *M. macroschisma* in the form of the perforation, which is wider posteriorly but not abruptly dilated there.



**Macroschisma dilatata** A. Adams. Sowerby, Thes., III, p. 206, f. 220; Man. Conch. XII, p. 193, pl. 59, f. 63.

Nemoto, Boshu (Stearns).

The specimen referred to this species differs from *M. sinensis* in being shorter and broader, with shorter foramen and concave front slope. Color red, with a white ray on each side.

**Macroschisma Lischkei** Pilsbry. Pl. VI, figs. 1, 2, 3, 4, 5.

Nemoto, Boshu (Stearns).

Shell oblong, *the length less than twice the breadth*; lateral margins convex, anterior margin well rounded, posterior margin bluntly rounded, subtruncate. Anterior slope straight, *decidedly less than half the length of the shell*; side slopes straight.

Surface sculptured with fine radial striæ, alternately larger and smaller, finer on the forward half of the side slopes; slightly decussated by growth lines. Color either (1) uniform black, or (2) closely speckled with black on a buff ground, or (3) crimson with or without dusky rays. *Posterior slope long* for the genus, about one-fifth the length of the entire shell; flattened or subconcave behind the hole, but not guttered. Perforation large, oblong, slightly narrower in front, and wider behind, with a *very narrow eroded tract* behind it. *Length of hole contained two and one-half times in length of shell*. Interior bluish-white, the hole-callus darker at the sides. When resting upon a plane surface, the peristome of the shell is seen to be *very much elevated behind, and but little less so in front*; the latero-basal margins strongly curved throughout.

Length  $17\frac{3}{4}$ , breadth 9, alt. 5 mm.

Length 16, breadth  $9\frac{1}{4}$ , alt. 5 mm.

Twenty-two specimens collected. This seems a very distinct species; the position and proportions of hole, the long posterior and short anterior slope, and the strongly curved basal margins being especially characteristic, and unlike other described forms.

#### *Emarginulinæ.*

**Fissuridea ticaonica** Reeve. Sowb., Thes., Conch., III, p. 197, f. 110.

Described from Ticao, Philippines; reported from Japan by Dunker. One specimen collected by Mr. Stearns is referable to this species, although the foramen is rather shorter.

Fissuridea was proposed for a highly arched species from the Philippine Is. It has hitherto been regarded as a subgenus of *Fissurella*. Its synonymy is as follows:



*Fissuridea* Swains., Malacol., p. 356, 1840, type *F. galeata* Helbl.  
*Glyphis* Carpenter, P. Z. S., 1856, p. 223, type *G. aspera* Esch.  
 Not *Glyphis* Agassiz, 1842, nor of Gibbes, 1848, a genus of fishes.  
*Fissuridea* Pilsbry, Nautilus, Jan., 1892, p. 104.

*Fissuridea sieboldii* Reeve. Pilsbry, Man. Conch., XII, p. 204; Dkr., Index, pl. 6, f. 14, 15.

Bay of Yedo (Lischke). *Lucapina pfeifferi* Dkr., Malak., Bl., xxiv, p. 70, is said by Dunker to be identical.

*Puncturella noachina* Linné. Pilsbry, Man. Conch., XII, p. 229, pl. 27, f. 69, 70.  
 Japan (Dkr.).

*Puncturella nobilis* A. Adams. Pilsbry, Man. Conch., XII, p. 231, pl. 63, f. 34-37.  
 Okosiri (Ad.).

*Puncturella (Cranopsis) pelex* A. Adams. Pilsbry, Manual XII, p. 241, pl. 28, f. 8.

Off Mino-Shima, 63 fms. (Ad.).

*Puncturella (Cranopsis) pileolus* A. Adams. Pilsbry, Man. Conch., XII, p. 241, pl. 28, f. 9.

Off Mino-Shima (Ad.).

*Zeidora reticulata* A. Adams. Pils., Man. Conch., XII, p. 247, pl. 63, fig. between 16 and 20.

Mino-Shima (Ad.).

*Zeidora calceolina* A. Adams. Pils., Man. Conch., XII, p. 247, pl. 64, f. 27.

Strait of Corea, off Mino-Shima (Ad.).

*Rimula cumingii* A. Adams. Thes. Conch., III, p. 210, pl. 245, f. 1.

Japan (Dkr.).

*Emarginula adamsiana* Sowerby. Sowb., Thes. Conch., p. 214, f. 27, 28.

Japan (Sowb.). *E. solidula* Costa, a Mediterranean species is said to occur in Japan, but it requires confirmation.

*Emarginula scabriuscula* A. Ad. Conch. Icon., Vol. 19, pl. 5, f. 30.

Japan.

*Emarginula maculata* A. Adams. Ad., in Sowb., Thes. III, p. 215, f. 31, 32; Pils., Man. Conch., XII, p. 263.

Goto Is. (A. Ad.).

*Emarginula japonica* Sowerby. Thes. Conch., III, p. 216, f. 43, 44.

*Emarginula atilis* Gld. Gld., Otia, p. 116.

Kagoshima Bay, 10 fms.

*Emarginula textilis* Gould. Gld., Otia, p. 116.

Ooshima (N. P. E. E.).

*Subemarginula picta* Dkr. Dkr., Moll. Jap., p. 24, pl. 12, f. 15.

Deshima (Dkr.); Nagasaki (Lischke).

*Subemarginula (Tugalia) gigas* v. Martens. (*Saru-awabi*). Mart., Conch. Mittheil. II, p. 103, pl. 19; Pils., Man. Conch., XII, p. 286.

Northern Japan (Mts.).

*Scutus unguis* Linné. Pils., Man. Conch., XII, p. 289, pl. 40, f. 4-8. (*Parmophorus japonicus* Tapparone-Canefri.)

Nagasaki (Stearns).

Besides the synonyms given in the Manual of Conchology, *Patella scapha* Gmelin, Syst. Nat. 13, p. 3727, belongs to this species.

#### PHENACOLEPADIDÆ.

*Phenacolepas pulchellus* Lischke. Lischke, Jap. Meeres-Conch., 11, p. 100, pl. 6, f. 20-23. (*Scutellina*).

Nagasaki (Lischke). The generic names *Scutella* and *Scutellina* being preoccupied, have been changed as follows:

*Scutella* Brod., P. Z. S., 1834, p. 47, not of Lam., 1816.

*Scutellina* Gray, P. Z. S., 1847, p. 168, not of Agassiz, 1841.

*Phenacolepas* Pilsbry, Nautilus, v, 89, Dec., 1891.

*Phenacolepas unguiformis* Gould. Gld., Otia, p. 115; Man. Conch., XII, p. 129. (*Scutellina*).

Kagoshima (N. P. E. E.).

*Phenacolepas scobinatus* Gould. Gld., Otia, p. 115; Man. Conch., XII, p. 129. (*Scutellina*).

Ooshima (N. P. E. E.).

(*Docoglossa*).

#### ACMÆIDÆ.

*Acmaea schrenckii* Lischke. Lischke, Jap. Meeres-Conch., I, p. 107, pl. 8, f. 1-4. (plus *A. concinna* Lischke).

Nagasaki (Lischke); Ojima, Yokohama and Hakodate (Stearns).

A wonderfully variable limpet. In the large series collected at Ojima the typical *schrenckii* is represented by several varieties. Some have the color pattern shown in Lischke's figures, others a coarsely tessellated design; the radial riblets being either smooth or finely beaded. Another variety is the *concinna* of Lischke (Jap. Meeres-Conch., II, pl. 6, f. 16) rounder in outline, more elevated, and all over finely beaded, and mostly unicolorous blackish; but many in-

intermediate specimens between this and typical *schrenckii* occur. Still another form is smaller, more erect and elevated, with dull, tessellated or rayed exterior, and subobsolete radial striae. The specimens from Hakodate are rather small. All of the forms of *A. schrenckii* have the interior stained with green or blue.

*Acmaea heroldi* Dkr. Pl. VI, figs. 13, 14, 15, 16, 17, 18.

Nagasaki and Deshima (Lischke); Kashi-azaki, Boshu, Enoshima, Sagami (Stearns).

Great numbers of this species were obtained by Mr. Stearns. It is readily distinguishable from all forms of *A. schrenckii* by the brown-black and white (not blue or green) interior. Dunker's *P. pygmaea* is probably a synonym.

A white variety, ray-variegated with reddish-brown, occurs at Tokyo Harbor and Kamakura (Stearns).

*Acmaea conulus* Dkr. Man. Conch., XIII, pl. 9, f. 17, 18.

Yokohama, Enoshima, Tokyo Harbor (Stearns); Deshima (Nuhn); Nagasaki (Lischke).

Typical specimens agreeing with the figures cited were collected by Mr. Stearns.

*Acmaea dorsuosa* Gould. Man. Conch., XIII, p. 45, pl. 33, f. 88; pl. 9, f. 15, 16.

Hakodate (Gould); Ooshima (Challenger); Enoshima (Stearns).

*Acmaea saccharina* Linné. Man. Conch., XIII, pl. 36, f. 60-64.

Coast of Kii (Stearns); Ooshima (Challenger); Nagasaki (Lischke); Deshima (Nuhn).

Many specimens were collected, agreeing in the main with Reeve's *Patella lanx*. The inside has a wide black margin, interrupted at the positions of the principal ribs with white. Spatula is either stained irregularly with brown, or has a large black patch and numerous dots, somewhat as in the var. *stellaris* Q. & G.

*Acmaea grata* Gould. Otia Conch., p. 115.

North shores of Nippon (N. P. Exped.).

*Acmaea patina* Esch., *digitalis* Esch. and *testudinalis* Müll., have been reported from Japan, see Jap. Meeres-Conch., II, p. 93, etc.

#### LEPETIDÆ.

*Lepeta cœca* Müller. Pils., Man. Conch., XIII, p. 68, pl. 40, f. 29-32.

Northern Japan (Dkr.).

*Lepeta (Cryptobranchia) concentrica* Middendorff. Pils., Man. Conch., XIII, p. 69, pl. 40, f. 33-37.

Northern Japan, Aleutian Is.

## PATELLIDÆ.

**Patella (Scutellastra) stellæformis** Reeve. Pilsbry, Man. of Conch., XIII, p. 98.

Yedo (Lischke); Tsu-Shima (A. Ad.); Japan (Stearns).

The specimens are like pl. 17, figs. 25, 27 of Man. Conch., rude and irregular.

**Helcioniscus nigrisquamatus** Reeve. Pl. VII, figs. 1, 2.

Pilsbry, Man. of Conch., XIII, p. 125, pl. 48, f. 13-15.

Coast of Prov. Ise (Stearns); Coast of Kii (Stearns); Ogasawara, Bonin Is. (Stearns).

The specimens from the Province of Kii are small. One is represented in figs. 1, 2, of pl. VII. Those from Ise are larger, agreeing well with Reeve's figures, and his type may very likely be from this region. As they grow older, the interior loses its black-brown spots. The localities "Australia" and "Chili" previously given for this species are false.

**Helcioniscus nigrisquamatus boninensis** Pils. Pl. VII, fig. 3.

Pilsbry, Man. Conch., XIII, p. 131, pl. 66, f. 1, 2; pl. 67, f. 3.

This is the large form from Bonin Is. (Stearns). It probably intergrades completely with *nigrisquamatus*, but all the specimens I have seen have a larger central spatula. A very elevated individual is figured.

**Helcioniscus Stearnsii** Pilsbry. Pl. VII, figs. 4, 5, 6.

Man. Conch., XIII, p. 132, pl. 48, f. 16-18.

Coast of Prov. of Kii (Stearns, 1890). This species is readily distinguished from *H. nigrisquamatus* by the more anteriorly curved blunter apex, more convex posterior slope, etc. The central spatula varies from chestnut clouded in its depth with creamy to cream color clouded with brown. It is more solid than specimens of *nigrisquamatus* of the same size.

**Helcioniscus pallidus** Gld. Man. of Conch., XIII, p. 133, pl. 67, f. 9, 10. *P.*

*lamanonii* Schrenck, Amurl., pl. 14, f. 6-9.

Hakodate (Stearns, Stimpson, Schrenck, Dkr.); Yamada Harbor (Ann. Mag., 1875, XVI, p. 114).

**Helcioniscus eucosmius** Pilsbry. Pl. VII, figs. 7, 8, 9, 10.

Man. Conch., XIII, p. 148, pl. 71, f. 61-64.

Enoshima (Stearns); Hakodate (Stearns).

This is a solid, more erectly conical species than *H. amussitata* or *toreuma*, and the apex is less directed forward. The coloration, while characteristic, varies greatly. The species is not known from



any locality outside of Japan. It is a very abundant form at Enoshima. The central spatula is generally deep brown with a lighter spot in the cavity of the apex, but sometimes it is orange (fig. 8) or even in rare cases creamy.

*Helcioniscus toreuma* Reeve. Lischke, Jap. Meeres-Conch., I, pl. 8, f. 12-15; II, pl. 6, f. 12.

Nagasaki (Stearns, Lischke); Enoshima (Stearns); Hakodate (Stearns); Banda, Boshu (Stearns).

Even Lischke's splendid series of figures do not exhaust the color variations of this Protean limpet. After examining several hundred examples I am unable to retain *P. amussitata* Rv. as a distinct species. The form I at one time called "*nigrolineata* var. *divergens*" is also merely a heavy, large *toreuma*.

*Helcioniscus nigrolineatus* Reeve. Lischke, l. c., I, pl. 8, f. 5-11; II, pl. 7, f. 1-6.

Enoshima (Stearns); Nagasaki (Lischke); Tsu-Shima (A. Ad.); Toba, S.-E. of Nippon (St. John).

The curious variety with vermiculate blackish concentric lines (Lischke, pl. 8, fig. 10) was also collected by Mr. Stearns.

[NOTE. *Helcioniscus exaratus* and *Patella elypeaster* have been reported from Japan, but on insufficient evidence; a specimen of *H. testudinarius* L. was brought from Japan by Mr. Stearns, but it probably was not native there].

### AMPHINEURA.

#### LEPIDOPLEURIDÆ.

*Lepidopleurus fuliginatus* Adams & Reeve. Pilsbry, Man. Conch., XIV, p. 10.

Corea (Ad.).

*Lepidopleurus concinnus* Gould. Pilsbry, Man. Conch., XIV, p. 11.

Hakodate, on stones and shells (N. P. E. E.).

*Lepidopleurus* (*Deshayesiella*) *curvatus* Carpenter. Pilsbry, Man. Conch., XIV, p. 16.

Okosiri (A. Ad.).

#### ISCHNOCHITONIDÆ.

*Chætopleura asperior* Carpenter. Man. Conch. xv, p. 74, pl. 15, f. 38-41.

*Tonicella marmorea* Fabr. Pilsbry, Man. Conch., XIV, p. 41.

Northern Japan.

*Tonicella submarmorea* Midd. Pilsbry, Man. Conch., XIV, p. 42. *Catharina submarmorea* Dkr., Index, p. 159. *Ch. insignis* Rve.



*Tonicella lineata* Wood. Pilsbry, Man. Conch., XIV, p. 42.

Northern Japan.

*Trachydermon (Spongioradsia) multidentatus* Cpr. Pilsbry, Man. Conch., XIV, p. 85; XV, p.

Bonin Is. (N. P. E. E.).

*Ischnochiton (Stenoradsia) lindholmi* Schrenk. Schr., Reisen im Amurlande, II, p. 288, pl. 12, f. 9-16; Pils., Man., XIV, p. 85.

Bay of Hakodate (Schr.).

I have not seen this species.

*Ischnochiton comptus* Gould. Pils., Man. Conch., XIV, p. 117.

Ooshima, Bonin and Liukiu Is. (Stimp.).

*Ischnochiton (Lepidozonia) mertensi* Midd. Pils., Man. XIV, p. 125.

Reported from Hakodate by Dkr., Index, p. 158.

*Ischnochiton (Lepidozonia) coreanicus* Adams & Reeve. A. & R., Voy. Samarang, pl. 15, f. 9; Pils., Man. Conch., XIV, p. 129.

Corean Archipelago, under stones (Ad.); Bay of Hakodate (Schrenck).

*Ischnochiton (Lepidozonia) craticulatus* Gould. Pils., Man. Conch., XV, p. 84 pl. 17, f. 62, 63.

China Seas or Japan. (N. P. E. E.).

Type is in U. S. Nat. Museum.

*Ischnochiton cultratus* Carpenter. Pils., Man. Conch., XV, p. 82, pl. 17, f. 57-59.

Hakodate (N. P. E. E.).

Type is in U. S. Nat. Museum.

*Ischnochiton (Ischnoradsia) hakodadensis* Carpenter. Pils., Man. Conch., XIV, p. 147, pl. 19, f. 64-66.

Hakodate (N. P. E. E.).

Type is in Mus. Phila. Acad.

*Ischnochiton (Ischnoradsia) albrechti* Schrenk. Pils., Man. Conch., XIV, p. 147, pl. 19, f. 70-74. *Lepidoradia granofilosa* Cpr.

Hakodate (Schrenck); Endermo Harbor (St. John, Smith).

*Callistochiton jacobæus* Gould. Pils., Man. Conch., XIV, p. 267.

Simoda (N. P. E. E.).

*Nuttallina alternata* Sowerby. Pils., Man. Conch., XIV, p. 281.

Japan (Cuming).

**MOPALIIDÆ.**

*Mopalia middendorffii* Schrenck. Pils., Man. Conch., XIV, p. 301.

Bay of Castries (Schr.).

*Placiphorella stimpsonii* Gould. Pils., Man. of Conch., XIV, p. 307, pl. 62, f. 84-87.

Hakodate Bay, in 25 fms. (N. P. E. E.).

**ACANTHOCHITIDÆ.**

*Acanthochites rubrolineatus* Lischke. Lischke, Jap. Meeres-Conch., III, p. 73, pl. 5, f. 12; Pils., Man., XV, p. 18.

Nagasaki (Lischke); E. coast of Japan (Stearns).

*Acanthochites achates* Gould. Gld., Otia, p. 118.

Kikaia and Hakodate Bay (N. P. E. E.).

*Acanthochites defilippii* Tapparone-Canefri. Pils., Man. Conch., XV, p. 19.  
*Stectoplax porrecta* Cpr. mss.

Yokohama ("Magenta").

*Acanthochites circeellatus* Adams & Reeve. Rve., Conch. Icon., f. 180.

I. of Quelpart, Corean Archipelago (Ad.).

*Acanthochites scutiger* Adams & Reeve. Rve., Conch. Icon., f. 178.

*Cryptochiton stelleri* Middendorff. Pils., Man. Conch., XV, p. 48, pl. 7, f. 9-13; Smith, Ann. Mag., XVI, 1875, p. 115.

Endermo Harbor (St. John, Smith), and northward.

Two varieties have been described from the western Pacific, *violaceus* Nordm. and *apicalis* Pils.

**CHITONIDÆ.**

*Chiton aquatilis* Reeve. Rve., Conch. Icon., f. 73; Pilsbry, Man., XIV, p. 169.

Tsu-Shima.

Probably *Ch. densiliratus* Cpr. (Pils., Manual, p. 169) is a synonym.

*Liolophura japonica* Lischke. Pils., Manual, XIV, p. 242, pl. 52, f. 41-44. *Ch. defilippii* Tap.-Can.

Enoshima (Stearns); Ooshima (Challenger); Nagasaki (Lischke).

*Liolophura japonica* var. *tessellata* Pils. Enoshima (Stearns).

*Liolophura loochooana* Brod. & Sowb. Pils., Man., XIV, p. 244.

Loo Choo Is. (Belcher).

**SCAPHOPODA.****DENTALIIDÆ.**

*Dentalium vernedei* Hanley. Sowb., Thes. Conch., III, p. 101, f. 3.

Japan (Dkr.).

**Dentalium octogonum** Lam. Lischke, Jap. Meeres-Conch., III, pl. 5, f. 1-3. *D. hexagonum* Gld., Lischke, l. c., pl. 5, f. 4-7; *D. japonicum* Dkr., Ind. Moll. Mar. Jap., p. 153, pl. 5, f. 2.

Kii coast (Stearns); Matoza and Ooshima Harbors, 6-8 fms. (St. John).

From a study of several hundred specimens collected by Mr. Stearns I am disposed to consider *octogonum*, *hexagonum* and *japonicum* merely forms of one species. The development of interstitial longitudinal riblets is very variable.

**Dentalium sexcostatum** Sby. Ann. Mag., 1875, Vol. XVI, p. 113.

Cape Shima, 18 fath., Goza Harb., 6 fath., sandy mud (St. John).

**Dentalium weinkauffi** Dunker. Dkr., Index, p. 153, pl. 5, f. 1.

Japan (Dkr.); Bishiu coast (Stearns).

In the specimens before me the longitudinal riblets do not extend so far toward the aperture as Dunker's figure shows.

**Dentalium buccinulum** Gld. Otia Conch., p. 119.

Kagoshima (Stimpson).

**Dentalium yokohamense** Watson. Challenger Gastrop, 1873-6, XV, p. 11, pl. 2, f. Yokohama, 8 fathoms (Chall.).

**Dentalium semipolatum** Sby. Ann. Mag., 1875, XVI, p. 113.

Cape Shima and Matoza Harb., 6-18 fath. (St. John).

## PELECYPODA.

### TELEODESMACEA.

(*Adesmacea*.)

### TEREDINIDÆ.

**Teredo japonica** Clessin. Conchyl. Cab., p. 78, pl. 20, f. 9, 10.

Japan.

### PHOLADIDÆ.

**Pholas (Barnea) fragilis** Sowerby. Thes., 11, p. 488, f. 92, 93.

Nagasaki (Lischke).

**Pholas (Barnea) manilensis** Phil. Abbild., III, p. 51, pl. 1, f. 2.

Numerous fresh specimens collected by Stearns, but exact locality unknown. The margins of the gape are less acutely denticulate than in typical examples, and more concave. These differences probably indicate a distinct race, which may be called var. *inornata*.

**Zirphæa crispata** Linné, Japan (Dkr., Stearns).

*Jouannetia cumingii* Sowb. P. Z. S., 1849, p. 161, pl. 5, f. 3

Japan (Dkr.).

*Parapholas penita* Conrad. Tokyo (Dkr.).

*Parapholas piriformis* Dunker. Index, p. 171, pl. 14, f. 7.

Japan (Dunker).

*Martesia striata* Linné. Japan (Dunker).

(*Myacea*).

**GASTROCHÆNIDÆ.**

*Gastrochæna grandis* Desh. Dkr., Index, p. 171, pl. 14, f. 10, 11.

Japan (Dkr.).

*Gastrochæna mumia* Spengl. Japan (Dkr.).

**SAXICAVIDÆ.**

*Glycimeris generosa* Gld. Japan (Stearns).

*Glycimeris japonica* A. Adams. Ad., P. Z. S., 1849, p. 170, pl. 6, f. 5.

Bay of Yedo (Lischke); Bay of Hakodate (Gld., for *P. fragilis* Gld., Otia Conch., p. 163).

*Glycimeris plicata* Mont. Jeffreys, Brit. Conch., III, p. 75, pl. 3, f. 2.

Corea Strait (Jeffreys).

*Saxicava arctica* Linn. Ohosaka (Lischke); Hakodate (Schrenck); Nemoto, Boshu (Stearns).

**CORBULIDÆ.**

*Corbula erythrodon* Lam.

Prov. Kii (Stearns); Yokohama, Yedo, Nagasaki (Lischke).

*Corbula pallida* Hinds. C. Icon., f. 4.

Japan (Dkr.).

*Corbula bifrons* A. Ad. Ann. Mag. N. II., 1860, V, p. 412.

Strait of Corea, 63 fms., off Mino-Shima; Seto-Uchi (Ad.).

*Corbula venusta* Gld. Otia Conch., p. 164; Reisen im Amurl., pl. 25, f. 1-4.

Hakodate Bay, 5-8 fathoms, shelly sand (Stimpson).

*Corbula cuneata* Hinds. Moll. Voy. Sulphur, pl. 20, f. 6.

Mososeki, Kuro-Shima (Ad.).

*Erodona amurensis* Schrenck. Reis. im Amurl., p. 584, pl. 25, f. 5-8.

Northern Japan.

*Erodona labiata* Maton. C. Icon., *Corbula*, sp. 28.

Japan (Dkr.).

*Basterotia gouldii* A. Ad. Dkr., Index, p. 178, pl. 9, f. 7-11.

Seto-Uchi, Yobuko, Mososeki (Ad.).

*Basterotia stimpsonii* A. Ad. Ann. Mag., 1864, p. 310; 1868, p. 366.

Mososeki; Akasi (Ad.)

*Basterotia reclusi* A. Ad. *Ibid.* Yobuko (Ad.).

#### MYACIDÆ.

*Mya arenaria* var. *japonica* Jay. Jay in Perry's U. S. Japan Exped., II, pl. 1, f. 7, 10. (+ "Mya acuta Say," Sowb., C. Icon., XX, pl. 3, f. 12).

East coast Nippon (Stearns). The specimens are small, thin, and attenuated posteriorly. Yedo, Nagasaki (Lischke); Hakodate (Perry).

*Mya truncata* Linné. Midd., Sib. Reis. II, pl. 25, f. 11-14. Ochotch Sea (Midd.).

*Cryptomya elliptica* A. Ad. Dkr., Index, pl. 7, f. 17-19.

Mososeki (Ad.).

*Cryptomya mindoroensis* Ads. & Rve. Zool. Samarang, p. 82, pl. 23, f. 13.

Akasi (Ad.).

*Cryptomya decurtata* A. Ad. Ann. Mag., 1868, p. 366.

Kuro-Shima (Ad.).

#### (*Maत्रacea*).

#### MESODESMATIDÆ.

*Paphia striata* Chemn. Japan (Dkr., Index, p. 195).

*Ervillia japonica* A. Ad. Ann. Mag. N. H., 1862, p. 224.

Tsu-Shima (Ad.).

*Ervillia biscalpta* Gould. Otia Conch., p. 166; (syn.: *E. australis* Angas, P. Z. S., 1877, p. 175, pl. 26, f. 21).

Kagoshima, 5 fath., sand (Stimpson).

*Ervillia livida* Gld. Otia Conch., p. 166.

Kagoshima Bay, 5 fath., sand (Stimp.).

*Cæcella chinensis* Desh. Lischke, J. M. C., I, p. 133, pl. 10, f. 5, 6.

Nagasaki (Lischke).

*Donacilla piota* Dkr. Index, p. 195, pl. 7, f. 7-10.

#### CARDILIIDÆ.

*Cardilia semisulcata* Desh. Dkr., Index, p. 213, pl. 8, f. 1-3.

Bay of Yedo (Lischke).

#### MACTRIDÆ.

*Mactra sulcataria* Deshayes. C. Icon., f. 5.

Nagasaki and Tokyo Harbor (Lischke); Yokosko Harbor and Sagami Bay (Stearns); Hakodate (Schrenck).



**Maetra ornata** Gray. C. Icon., f. 58.

Japan (Dkr.).

**Maetra spectabilis** Lischke. J. M. C., II, p. 120, pl. 11, f. 1, 2.

Kiushiu (Lischke); Inland Sea (Stearns).

**Maetra veneriformis** Deshayes. C. Icon., f. 2; Conchyl. Cab., p. 63, pl. 22, f. 3, 8a.

Kiushiu, Tokyo Harbor (Lischke). Numerous young specimens taken by Stearns.

**Maetra veneriformis** var. **zonata** Lischke. J. M. C., II, p. 121, pl. 9, f. 7, 8.

Bay of Yedo.

**Maetra lurida** Phil. Abbild. II, p. 136, pl. 3, f. 3.

Luchu Is.

**Maetra crossei** Dkr. Index, p. 183, pl. 7, f. 1-4.

Tokyo (Rein).

**Maetra bonneau** Bernardi. Journ. de Conch., 1858, p. 92, pl. 2, f. 2.

Strait of Tartary (Bern.); Coast of Prov. Kii (Stearns). It is very like *M. veneroides*.

**Maetra straminea** Dkr. Index, p. 183, pl. 7, f. 5, 6.

Japan (Dkr.).

**Maetra sachalinensis** Schrenck. Amurlandes Moll., p. 575, t. 23, f. 3-7; (Syn.: *M. luhdorfii* Dkr., Novit. Conch., p. 60, pl. 20, f. a, c.

Hakodate, used very commonly for food (Stearns, *et al*).

**Spisula grayana** Schrenck. Phil., Abbild., I, p. 165, pl. 1, f. 1, as *M. ponderosa*,

Ochotch Sea (Midd.).

**Raeta pulchella** Adams & Rve. Zool. Samarang, pl. 23, f. 1; (Syn. *M. rostralis* Desh., C. Icon., VIII, *Maetra*, f. 119).

Off Yokohama in 8 to 14 fathoms (Chall.); Yokohama (Stearns).

**Raeta pellicula** Desh. C. Icon., f. 124. Japan (Cuming).

**Raeta yokohamensis** n. sp. Pl. III, figs. 4, 5.

Shell small, thin, fragile, white, inflated, ovate-triangular; beaks somewhat posterior. Anterior end broad, rounded, posterior end very narrow, triangular; beaks and dorsal slopes of valves coarsely concentrically corrugated; median and lower portion of valves smooth. Lunule large; chondrophore small, but little projecting. Adductor and pallial impressions not distinguishable. Length 17, alt. 12, diam.  $8\frac{1}{2}$  mm.

Yokohama (Stearns).

- Eastonia (Merope) aegyptiaca* Chemn. Japan (Dkr.).
- Tresus nuttalli* Conrad. Midd., Mal. Ross., III, pl. 19, f. 1-4 (*maxima* Midd.).  
Yedo (Lischke); Hakodate (Stimp.); Yokohama Bay (Stearns).
- Lutraria maxima* Jonas. C. Icon., *Lutraria*, f. 11.  
Nagasaki (Lischke).
- Lutraria arcuata* Desh. C. Icon., f. 6.  
Japan (Dkr.).
- Lutraria sieboldi* Desh. C. Icon., VIII, f. 15.  
Japan (Cuming).
- Lutraria lucida* Gld. Otia Conch., p. 168.  
Kagoshima (Stimpson).

(*Solenacea*).

**SOLENIDÆ.**

- Solen grandis* Dunker. Novit. Conch., p. 71, pl. 24, f. 5.  
Nagasaki (Lischke); Japan (Stearns).
- Solen linearis* Chemnitz. Conchyl. Cab., p. 23, pl. 9, f. 4.  
Japan (Dunker).
- Solen corneus* Lamarek. Conchyl. Cab., p. 9, pl. 3, f. 8, 9.  
Japan (Dunker).
- Solen gouldii* Conrad. Dkr., Index, p. 173, pl. 16, f. 11.  
Nagasaki, Hakodate (Stearns); Enoshima.
- Solen sicarius* Gould. Conchyl. Cab., p. 24, pl. 9, f. 1.  
Japan Sea (Dunker).
- Solen gracilis* Gld. Otia Conch., p. 165; C. Icon., XIX, pl. 4, f. 17.  
Hakodate, sandy beaches (Stimpson).
- Solen strictus* Gld. Otia Conch., p. 165.  
Hakodate Bay (Stimpson).
- Solen incertus* Clessin. Conchyl. Cab., p. 31, pl. 12, f. 8.  
Hakodate (?).
- Solen krusensternii* Schrenck. Reisen im Amurl., II, p. 594, pl. 25, f. 9-12.  
Hakodate (Schrenck); Akashi Bay (Stearns).
- Cultellus attenuatus* Dkr. Novit. Conch., p. 72, pl. 24, f. 4.  
Japan (Dkr.).
- Cultellus marmoratus* Dunker. Index, p. 174, pl. 7, f. 24.  
Japan (Dkr.).

*Cultellus philippianus* Dunker. Index, p. 174, pl. 7, f. 23.

Japan (Dunker).

*Cultellus cultellus* Linné. Bay of Yedo (Lischke).

*Siliqua pulchella* Dunker. Novit. Conch., p. 20, pl. 6, f. 4, 5.

Kiushiu and Bay of Yedo (Lischke); between Tokyo and Ooshima (Stearns).

*Siliqua japonica* Dunker. Conchyl. Cab., p. 63, pl. 18, f. 5.

Japan (Dkr.). Is it identical with the preceding?

*Siliqua sodalis* Gld. Otia Conch., p. 165.

Hakodate Bay (Stimpson).

*Siliqua minima* Gmelin. Conchyl. Cab., p. 68, pl. 5, f. 1, 2. (Syn.: *S. albidus* A. & R., Zool. Samarang, pl. 23, f. 15).

Japan Sea (Dunker).

*Solecurtus constrictus* Lamarek. Dkr., Index, pl. 7, f. 25.

Japan (Dkr.).

*Solecurtus (Macha) divaricata* Lischke. Dkr., Index, p. 175, pl. 7, f. 26; Lischke, J. M. C., I, p. 142, pl. 10, f. 1, 2.

Nagasaki (Lischke); Inland Sea; Enoshima (Stearns).

(*Tellinacea*).

**DONACIDÆ.**

*Donax australis* Lam. Roemer, Monogr. Donacidæ, pl. 17, f. 4-6.

Boshiu (Stearns). Most of the specimens are deep purple within, like Römer's figure of *D. deshayesii* Dkr.

*Donax bicolor* Gmelin. Conchyl. Cab., pl. 16, f. 12-16.

Nagasaki (Lischke); Yokohama (Martens). These localities probably pertain to specimens which agree with Reeve's figures, and are, according to Bertin, *D. australis*.

*Donax dysoni* Deshayes. C. Icon., VIII, f. 54.

Nagasaki, Tokyo Harbor (Lischke); Yokohama Harbor (Martens).

*Donax introradiatus* Reeve. C. Icon., f. 65; Conchyl. Cab., p. 75, pl. 13, f. 5-8.

Japan (Römer).

*Donax semigranosus* Dkr. Index, p. 193, pl. 7, f. 14, 15, 16 (1882).

Japan (Dkr., Stearns). Some specimens are yellow outside; but the prevailing form is yellow-stained white, with blue markings toward the beaks, and more or less purple inside. I am disposed to believe this species a color variety of *D. proximus* Bertin.

*Donax proximus* Bertin. Nouv. Arch. du Mus., 1881, p. 100, pl. 3, f. 2 a, c.

Japan (Allart, Stearns).

**PSAMMOBIIDÆ.**

*Asaphis deflorata* Linné.

It is doubtful whether the oriental species is really Linnæus' form, which may be the same as the West Indian species *A. coccinea* Martyn. If this be the case, the East Asian *Asaphis* may be more properly called *A. rugosa* Lam.

Stearns procured specimens in Japan (exact locality unknown), and in the Loo Choo group.

*Psammobia bipartita* Phil. Conch. Cab., VI, p. 100, pl. 10, f. 92.

Bay of Yedo (Lischke, *P. cærulescens*).

*Psammobia occidens* Chemn. C. Icon., f. 11. Japan (Dkr.).

*Psammobia oriens* Desh. C. Icon., f. 1. Japan (Dkr.).

*Psammobia ornata* Desh. C. Icon., f. 26. Bay of Yedo (Lischke).

*Psammobia corrugata* Desh. C. Icon., f. 9. Japan (Dkr.).

*Psammobia radiata* Dkr. Abbild., I, p. 94, pl. 2, f. 5 (*P. amethystus* Rve., C. Icon., f. 19).

Japan (Dkr.).

*Soletellina chinensis* Chemn. C. Icon., f. 9, as *S. truncata*.

Japan (Dkr.).

*Soletellina boeddinghausi* Lischke. J. M. C., II, p. 118, pl. 9, f. 9.

Nagasaki (Lischke); Inland Sea (Stearns).

*Soletellina violacea* Lam. C. Icon., f. 4. Nagasaki (Lischke).

*Soletellina dephos* Linné. Conchyl. Cab., VI, p. 68, pl. 7, f. 53, 54.

Japan (Dkr.).

*Soletellina moesta* Lischke. J. M. C., III, p. 99, pl. 8, f. 4-6.

Yedo (Lischke). One specimen collected by Stearns measures 38 mm. long.

*Soletellina atrata* Desh. C. Icon., f. 14. Tokyo (Dkr.).

*Soletellina olivacea* Jay. J. M. C., I, p. 131; III, p. 98, pl. 8, f. 7-12.

Nagasaki (Lischke); Bay of Yedo (Perry); near Sakai, Inland Sea (Stearns).

*Soletellina japonica* Desh. C. Icon., f. 16. Japan (Siebold).

*Soletellina nuttalli* Conr. Journ. Acad. N. S. Phila., 1837, pl. 17, f. 6; *Psam. decora* Hinds, Voy. Sulphur, pl. 9, f. 6, 7.

Bay of Yedo (Lischke); Hakodate (Schrenck, Stimpson).

## SEMELIDÆ.

- Semele zebuensis* Hanley. C. Icon., VIII, *Amphidesma*, f. 25.  
Japan (Dkr.).
- Semele sinensis* A. Ad. *Ibid.*, f. 28. Japan (Dkr.).
- Semele californica* A. Ad. *Ibid.*, f. 19; Schrenck, Amurl. Moll., pl. 22, f. 10.  
Strait of Tartary.
- Semele hanleyi* Angas. P. Z. S., 1878, p. 859, pl. 54, f. 1.  
Japan (Belcher).
- Semele duplicata* Gld. Otia Conch., p. 166.  
Kagoshima Bay, 6 fath., sand (Stimp.).
- Theora lubrica* Gld. Dkr., Index, p. 181, pl. 7, f. 20-22.  
Hakodate Bay, in 6 fath., mud (Stimpson).
- Theora iridescens* Hinds. Chall. Lamell, XIII, p. 89, pl. V, f. 6, 6f.  
Yobuko (A. Adams).
- Theora fragilis* A. Ad. P. Z. S., 1855, p. 226. Japan.
- Endopleura nitida* Gld. Otia, p. 162. Japan (A. Ad.).
- Iacra japonica* A. Ad. Ann. Mag. N. H., 1864, p. 308.  
Oki-no-Shima (Ad.).
- Leptomya spectabilis* Hanley. P. Z. S., 1882, p. 576; Jour. Lin. Soc., XVI, 1883,  
pl. 12, f. 7.  
Japan? (Mus. Hanley).
- Leptomya cochlearis* Hinds. Goto, Seto-Uchi (A. Ad.).
- Leptomya adunca* Gld. (Scrobicularia). Otia, p. 167. Tsu-Shima (Ad.).

## TELLINIDÆ.

- Tellina perna* Spengl. Japan (Dkr., Stearns).
- Tellina vulsella* Chemn. C. Icon., f. 56.  
Kiushiu and Bay of Yedo (Lischke); Japan (Stearns).
- Tellina pulcherrima* Sowb. Tank. Cat. App., pl. 1, f. 1.  
Bay of Yedo (Lischke).
- Tellina staurella* Lam. Japan (Stearns).  
Küsters' Conchyl. Cab., Tellinidæ, p. 19, pl. 2, f. 11-13; pl. 7, f. 6-8. "*T. cruciata* Spengl."
- Tellina galatea* Lam. Abbild., I, p. 71, pl. 1, f. 1 (*T. sericina*).
- Tellina diaphana* Desh. Conchyl. Cab., p. 47, pl. 13, f. 7, 8, 9.  
Nagasaki (Birileff).



- Tellina ovalis* Sowb. C. Icon., f. 105. Bay of Yedo (Lischke).
- Tellina jedomensis* Lischke. J. M. C., III, p. 92, pl. 9, f. 1-3.  
Bay of Yedo (Lischke); Kamakura (Stearns).
- Tellina rosea* Spengler. Conchyl. Cab., p. 57, pl. 16, f. 1, 2, 3.  
Hakodate (Schrenck).
- Tellina compressissima* Reeve. C. Icon., f. 328. Japan.
- Tellina venulosa* Schrenck. (*lutea* Gray). Conchyl. Cab., p. 121, pl. 28, f. 8-10;  
Midd. Sib. Reise, pl. 21, f. 2, 3.  
Hakodate and northward (Schrenck).
- Tellina nux* Hanley. Thes., I, p. 251, pl. 56, f. 33.  
Deshima (Dkr.).
- Tellina lubrica* Gld. Otia Conch., p. 167.  
Hakodate Bay, 6 fath., mud (Stimp.).
- Gastrana yantaiensis* Crosse & Debeaux. J. C., 1863, pl. 9, f. 2.  
Japan (Dkr.).
- Gastrana japonica* v. Martens. Conchyl. Cab., p. 275, pl. 51, f. 5-8, 9.  
Yokokama Harbor.
- Arcopagia siamensis* Martens. P. Z. S., 1860, p. 18.  
Inland Sea (Stearns). A short form.
- Macoma nasuta* Conrad. Conchyl. Cab., p. 229, pl. 44, f. 5-8.  
Hakodate.
- Macoma inquinata* Desh., *T. incongrua* v. Martens. J. M. C., II, pl. 10, f. 12, 13  
Yokohama Bay, Yedo, Nagasaki (Lischke); Prov. Kii (Stearns).
- Tellina (Angulus) nitidula* Dunker. Moll. Jap., p. 27, pl. 3, f. 14; J. M. C., II,  
pl. 10, f. 10, 11.  
Nagasaki (Lischke); Deshima (Dkr.); Yokohama (Martens);  
Kamakura (Stearns).
- Tellina rhomboides* Q. & G. Astrol., III, p. 502, pl. 81, f. 4-7.  
Bay of Yedo.
- Tellina (Angulus) pallidula* Lischke. J. M. C., II, p. 114, pl. 10, f. 6, 7.  
Nagasaki (Rein).
- Tellina rutila* Dkr. Moll. Jap., p. 27, pl. 3, f. 6.  
Deshima (Dkr.); Yokohama (Stearns); Nagasaki (Birileff).
- Tellina iridella* v. Martens. J. M. C., II, p. 114, pl. 10, f. 8, 9.  
Nagasaki and Tokyo Bays (Lischke); Kamakura (Stearns).

- Tellina iridescens** Bens. Thes., I, p. 286, pl. 58, f. 88.  
South Japan (Lischke).
- Tellina minuta** Lischke. J. M. C., III, p. 94, pl. 9, f. 4-6.  
Bay of Yedo (Lischke).
- Tellina praetexta** v. Martens. Conchyl. Cab., p. 239, pl. 45, f. 8-10.  
Yokohama Bay (Martens); Nagasaki, Yedo (Lischke); E. coast  
below Tokyo Harbor (Stearns).
- Macoma ala** Hanley. Conchyl. Cab., p. 236, pl. 45, f. 5-7.  
Japan (Hanley).
- Macoma dissimilis** v. Martens. J. M. C., II, p. 115, pl. 10, f. 15-17.  
Tokyo Bay (Martens).
- Macoma edentula** Brod. et Sowerby. Conchyl. Cab., p. 224, pl. 43, f. 7-10.  
North Japan.
- Macoma truncata** Jonas. Conchyl. Cab., p. 248, pl. 47, f. 4-6.  
Tokyo Bay (Lischke).
- Macoma praemittis** Römer. Conchyl. Cab., p. 257, pl. 45, f. 7-9.  
Japan (Roemer, Stearns).
- Macoma inconspicua** Broderip et Sowerby. Conchyl. Cab., p. 220, pl. 42, f. 7-10.  
Hakodate.
- Macoma lenticularis** Sowb. C. Icon., f. 342. Japan.
- Macoma secta** Conr. (*T. japonica* Desh). Bay of Yedo (Lischke); Sakai, Inland  
Sea (Stearns).

## (Veneracea).

## GLAUCOMYIDÆ.

- Glaucomya angulata** Reeve. Odawara (Stearns).

## PETRICOLIDÆ.

- Petricola japonica** Dkr. Index, p. 209, pl. 9, f. 4-6.  
Kisenuma (Dkr.).
- Petricola æquistriata** Sowb. C. Icon., XIX, f. 19.  
Hamagoi, Boshu (Stearns).

## VENERIDÆ.

- Dosinia japonica** Reeve. C. Icon., f. 17.  
Hakodate (Schrenck); Yedo (Lischke).
- Dosinia troscheli** Lischke. J. M. C., III, p. 89, pl. 8, f. 1-3.  
Inland Sea (Stearns); Southern Japan (Lischke).

- Dosinia biscocta* Reeve. C. Icon., f. 55.  
Seto-Uchi, Mososeki (A. Ad.).
- Dosinia gruneri* Phil. Abbild., III, p. 23, pl. 8, f. 2.  
Japan (Dkr.).
- Dosinia bilunulata* Gray. Roemer, Mon. *Dosinia*, in Novit. Conch., pl. 16, f. 1.  
Yokohama; Sagama coast (Stearns); Bay of Yedo (Lischke).
- Dosinia laminata* Reeve. C. Icon., f. 14. Japan (Dkr.).
- Dosinia sieboldi* Reeve. C. Icon., f. 39. Japan (Siebold).
- Dosinia sericea* Reeve. C. Icon., f. 36. Seto-Uchi (A. Ad.).
- Dosinia angulosa* Phil. Abbild., II, p. 229, pl. 6, f. 1 (*Artemis penicillata* Rve., C. Icon., f. 33).  
Tsu-Shima (Ad.).
- Dosinia traillii* A. Adams. P. Z. S., 1855, p. 223.  
Yokohama (Ad.).
- Dosinia histrio* Gmel. Goto (Ad.).
- Dosinia gibba* A. Ad. Dkr., Index, p. 204, pl. 8, f. 4-6.  
Tatiyama (A. Ad.).
- Dosinia orbiculata* Dkr. Index, p. 204, pl. 8, f. 12-14.  
Japan (Dkr.).
- Cyclina orientalis* Sowerby. Conchyl. Cab., p. 113, pl. 28, f. 7-9.  
Yokohama (Stearns).
- Cyclina splendida* Roemer. P. Z. S., 1860, p. 124.  
Japan (Cuming).
- Cyclina bombycina* Roemer. P. Z. S., 1860, p. 124.  
Japan (Cuming).
- Cyclina flavida* Desh. Tsu-Shima (A. Ad.).
- Cyclina chinensis* Chemn. C. Icon., f. 6.  
Yokohama (Dkr.); Nagasaki, Yedo (Lischke); Tsu-Shima (Ad.).
- Lucinopsis divaricata* Lischke. J. M. C., III, p. 90, pl. 7, f. 12-14.  
Yedo, (Lischke).
- Lucinopsis decussata* Phil. Enum. Moll. Sicil., I, p. 22, pl. 3, f. 5.  
Japan (Dkr.).
- Meretrix meretrix* Linné. Conchyl. Cab., p. 15, pl. 3, f. 4, 5, 6, 8, 9.  
Yedo, Hakodate, Yokohama (Lischke).
- Meretrix morphina* Lam. Nagasaki, Simoda, Yokohama (A. Ad.).

- Meretrix lusoria** Chemn. Nagasaki (Lischke); East coast, from Tokyo to Idzumi (Stearns).
- Meretrix (Callista) limatula** Sowb. Japan (Dkr.).
- Meretrix (Callista) festiva** Sowb. Japan (Dkr.).
- Meretrix (Callista) chinensis** Chemn. S. coast of Kii (Stearns); Nagasaki (Lischke).
- Meretrix (Callista) squalida** Sowb. Northern Japan (Schrenck).
- Meretrix (Callista) pannosa** Sowb. Northern Japan (Schrenck).
- Meretrix (Callista) inflata** Sowb. Japan (Dkr.).
- Meretrix (Callista) indecora** Phil. Roemer, Monogr., I, p. 81, pl. 24, f. 1. Nagasaki (Birileff).
- Lioconcha fulminea** Bolt. Japan (Dkr.).
- Lioconcha ornata** Dillw. Japan (Dkr.).
- Tivela damaoides** Gray. Dkr., Index, p. 200. Oki-no-Shima (Ad.).
- Tivela radiata** Sowerby. Tartary Strait (Schrenck).
- Sunetta excavata** Hanley.  
Bay of Yedo and coast of Kiushiu (Lischke); Satanomosaki and Kuro-Shima (A. Ad.); Hakodate (Schrenck); Yokohama, Kama-yama, Seta coast (Stearns).
- Sunetta menstrualis** Menke. Conchyl. Cab, p. 85, pl. 29, f. 10-12. Japan (Reeve).
- Clementia papyracea** Gray. Sowerby, Thes. Conch., p. 700, pl. 151, f. 155. Japan (A. Adams and Dkr.).
- Clementia similis** Sowb. Thes., II, p. 700, pl. 151, f. 154. Tatiyama (Ad.).
- Venus (Mercenaria) stimpsoni** Gld. Otia Conch., p. 169. Hakodate, 6 fath. (Stimpson).
- Venus toreuma** Gld. Expl. Exped., f. 537. Nagasaki (Lischke); Goto Is. and Satanomosaki (Ad.).
- Venus jedoensis** Lischke. Jap. Meeres-Conch., III, pl. 7, f. 1-9. Bay of Yedo (Lischke); Yokohama (Stearns).
- Venus lamellaris** Schumacher. Conchyl. Cab., p. 142, pl. 8, f. 10, 11. Japan (Dkr.).
- Venus reticulata** Sowb. Thes., II, p. 706, pl. 153, f. 23. Japan (Dkr.).
- Venus reticulata** Linné. Japan (Dkr.).

*Venus puellula* Gld. *Otia Conch.*, p. 169.

Oushima (Stimp.).

*Cryptogramma squamosa* Linné. *Thes.*, II, pl. 156, f. 83, 84.

Cape Nomo, Kiushiu (Ad.).

*Cryptogramma roemeri* Dkr. *Moll. Jap.*, p. 26, pl. 3, f. 10.

Deshima (Nuhn); Nagasaki (Lischke).

*Chione marica* Linné. *C. Icon.*, *Venus*, f. 104.

Nagasaki (Lischke); Tsu-Shima, Mososeki (Ad.).

*Chione crenifera* Sowb. *Seto-Uchi* (Ad.).

*Chione intersecta* Sowb. *Seto-Uchi* (Ad.).

*Chione striata* Chemnitz. *Conchyl. Cab.*, p. 127, pl. 5, f. 12-14.

Japan Sea.

*Chione astartoides* Beck. Northern Japan (Shrenck).

*Chione foliacea* Chemn. *Abbild.*, II, pl. 5, f. 1.

Bay of Yedo (Lischke).

*Chione isabellina* Phil. Japan (Dkr.).

*Chione calophylla* Phil. Japan (Dkr.).

*Chione cardioides* Lam. Oki-no-Shima (Ad.).

*Chione histrionica* Brod. & Sby. Hakodate (Ad.).

*Chione scabra* Hanley.

Between Is. of Sikoku and Nippon, 50 fathoms, and Kobé, 8-50 fathoms (Challenger).

*Chione roscida* Gld. *Otia Conch.*, p. 169.

Oushima, 15 fath., sand (Stimp.).

*Chione undulata* Born.

Between Is. of Sikoku and Nippon, 50 fathoms, sand bottom (Challenger).

*Circe scripta* Linné. *Dunker, Index*, p. 201.

Kishiu (Stearns).

*Circe divaricata* Chemn. Inland Sea (Stearns).

*Circe æquivoca* Chemn. Simidsu (A. Ad.).

*Circe dispar* Chemn. Roemer, *Venus*, p. 184, pl. 50, f. 1.

Nagasaki (Lischke); Tago, Kino-o-Shima (Ad.).

*Circe gibbia* Lam. Japan (A. Ad.).

*Gouldia dilecta* Gld. *Otia Conch.*, p. 170.

Kagoshima (Stimp.).



**Venerupis monstrosa** Chemn.

Japan (Dkr., Stearns); Bay of Yedo (Lischke); Tsu-Shima, Kino-o-Shima (Ad.).

**Venerupis irus** Linné. Japan (Dkr., Stearns).

**Venerupis semipurpurea** Dkr. Index, p. 208.

Nemoto, Boshu (Stearns). Hardly distinct from Japanese specimens referred to the preceding species.

**Venerupis insignis** Desh. Japan (Dkr.).

**Venerupis exotica** Lam. Delessert, Recueil, pl. 5, f. 3.

Japan (Dkr.).

**Venerupis macrophylla** Desh. Japan (Dkr.).

**Tapes exaratus** Phil. Abbild., II, p. 109, pl. 5, f. 6.

Kuro-Shima (Ad.).

**Tapes liratus** Phil. Abbild., III, p. 76, pl. 7, f. 5.

Japan (Dkr.).

**Tapes sulcarius** Lam. Japan (Dkr.).

**Tapes undulatus** Born. Abbild., III, pl. 7, f. 7 (*V. rimosa*).

Bay of Yedo (Lischke); Tatiyama (A. Ad.).

**Tapes euglyptus** Phil. Abbild., III, p. 76, pl. 7, f. 3; J. M. C., III, p. 80, pl. 6, f. 8-11.

Nagasaki (Lischke); Inland Sea (Stearns).

**Tapes schnellianus** Dkr. Lischke, J. M. C., III, p. 80, pl. 6, f. 1-4; Dkr., Novit. Conch., p. 75, pl. 25, f. 7-9.

Nagasaki, Yedo (Lischke); Inland Sea (Stearns).

**Tapes amabilis** Philippi. J. M. C., III, p. 82, pl. 6, f. 5-7.

Tago (Adams); Shidaka coast (Stearns). Some specimens are marked with from two to four radial series of purple-brown blotches.

**Tapes vernicosa** Gld. Otia Conch., p. 168.

Kagoshima Bay and off Hakodate Cape, 20 fath., coarse sand (Stimp.); Tatiyama (A. Ad.).

**Tapes greeffei** Dkr. Index, p. 207, pl. 8, f. 15-17.

Kagoshima (Dkr.).

**Tapes semirugata** Phil. Abbild., III, p. 76, pl. 7, f. 4.

Near Sakai, Inland Sea (Stearns).

*Tapes punctata* Chemnitz.

Japan (Stearns). Several specimens agreeing well with Reeve's fig. 16a ("*radiata*").

*Tapes philippinarum* Adams & Reeve. Ad. & Rv., Voy. Samarang, pl. 22, f. 10; Lischke, Jap. Meeres-Conch., III, pl. 5, f. 17-20

Bay of Yedo (Lischke); coast from Tokyo to Ojima (Stearns); Seta coast (Stearns); Nagasaki, Hakodate (Lischke).

Some specimens agree well in color with the figure in the Samarang Zoology; others show lines and zigzags. The typical form is deep purple in the pallial sinus and its vicinity. The var. *ducalis* Roemer, is entirely white within. Lischke does not recognize Roemer's form as distinct.

*Tapes variegatus* Hanley. Thes., II, p. 696, pl. 151, f. 133-138.

Yedo, Nagasaki (Lischke).

*Tapes bruguieri* Hanley. Kino-o-Shima (Ad.).

*Saxidomus purpuratus* Desh.

Yedo (Lischke); Hakodate (Schrenck); Seto-Uchi, Mososeki (A. Ad.); Tokyo Harbor (Stearns).

*Gomphina donacina* Chemnitz. Conchyl. Cab., p. 185, pl. 23, f. 1, 2.

Nagasaki (Lischke).

*Gomphina melanaegis* Roemer. Novit. Conch., p. 40, pl. 12, f. 12, 13; Jap. Meeres-Conch., III, pl. 7, f. 10, 11.

Inland Sea (Stearns); Bay of Yedo (Lischke).

*Gemma gemma* Totten. Aniwa Bay (A. Ad.).

(*Isocardiacea*).

#### ISOCARDIIDÆ.

*Isocardia tetragona* Ads. & Rve. Zool. Samarang, p. 76, pl. 22, f. 1.

Japan Sea.

*Isocardia moltkiana* Chemn. Ibid, pl. 22, f. 3.

Corea Strait.

(*Tridacnacea*).

#### TRIDACNIDÆ.

*Hippopus maculatus* Linn. S. Japan (Stearns).

*Tridacna squamosa* Lam. Ohosaku, Hiogo (Lischke).

*(Cardiacea).***CARDIIDÆ.**

- Cardium burchardi* Dkr. Index, p. 210, pl. 18, f. 4-6.  
Sagami (Dkr.).
- Cardium californiense* Desh. Mal. Ross., p. 40, pl. 15, f. 23-25.  
E. coast, Tokyo to Ojima (Stearns); Hakodate (Lischke).
- Cardium arenicola* Reeve. C. Icon., f. 78.  
Nagasaki (Lischke).
- Cardium exasperatum* Sowb. C. Icon., f. 107.  
Japan (Dkr.).
- Cardium modestum* Ads. & Rve. Zool. Samarang, p. 77, pl. 22, f. 6.
- Cardium muticum* Reeve. Reeve, Conch. Icon., II, f. 32; Dkr., Moll. Jap., pl. 3, f. 16 (*japonicum*).  
Tokyo Harbor (Stearns); Nagasaki, Yedo (Lischke); Deshima (Dkr.); Hakodate (Schrenck).
- Cardium papyraceum* Chemn. Conchyl. Cab., p. 78, pl. 3, f. 4, and pl. 12, f. 19, 20.  
Nagasaki, Tokyo, Hakodate.
- Cardium apertum* Chemn. J. M. C., II, p. 173; III, p. 106.  
Bay of Yedo (Lischke).
- Cardium liratum* Sowb. Dkr., Index, p. 212. Japan (Dkr.).
- Cardium retusum* Linné. C. Icon., II, f. 103. Japan (Dkr.).
- Cardium groenlandicum* Chem. Tartary Strait (Lindholm).
- Cardium beechei* Ads. & Rve. Index, p. 212, pl. 15 f. 1-3.  
Japan (Dkr.).

*(Leptonacea).***GALEOMMIDÆ.**

- Scintilla thoracica* Gld. Otia Conch., p. 174.  
Oushima (Stimpson).
- Galeomma japonicum* A. Ad. Ann. Mag., 1862, p. 228.  
Mino-Shima, 63 fms. (Ad.).

**LEPTONIDÆ.**

- Kellia pumila* S. Wood. Journ. Linn. Soc., XIV, p. 421.  
Corea Strait (St. John).
- Kellia subsinuata* Lischke. J. M. C., II, p. 136, pl. X, f. 1-3.  
Nagasaki (Lischke).

**Kellia undulata** Gld. *Otia Conch.*, p. 173.

Kagoshima (Stimpson).

**Kellia japonica** n. sp. Pl. III, figs. 18, 19.

Shell quadrate-rounded, subequilateral, inflated, olive-straw colored around the basal and end margins, becoming corneous on the convexity and beaks, this portion dark bluish-brown when the soft parts are dried in. Surface shining, with delicate growth-striae. Beaks rather prominent, contiguous, slightly anterior; hinge and basal margins slightly curved. Interior white, bluish in the cavity. Teeth as in *K. laperousii* but rather stronger, the cardinals squarer, the posterior lamella strong, short, high and triangular. Length 12, alt. 10.5, diam. 6.5 mm.

Japan (F. Stearns).

It is less elongated than the nearly allied *K. laperousii* with less oblique cardinal teeth.

**Montacuta divaricata** Gld. *Otia Conch.*, p. 173.

Hakodate, on the spines of a *Spatangus* (Stimpson).

**Lasea rubra** Mont. *Journ. Linn. Soc.*, XIV, p. 420.

Corea Strait (St. John); Nagasaki (Lischke).

**Lepton subrotundum** Dkr. *Index*, p. 219, pl. 14, f. 12, 13.

Tokyo (Dkr.).

**Lepton japonicum** A. Ad. *Ann. Mag.*, 1862, p. 228.

Tabu Shima (Ad.).

**Lepton sulcatulum** Jeffreys. *Journ. Linn. Soc. Zool.*, XIV, p. 420.

Corea Strait (St. John).

**Thecodonta sieboldi** A. Ad. *Ann. Mag.*, 1864, p. 309.

Goto Is. (A. Ad.).

(*Lucinacea*).

#### DIPLODONTIDÆ.

**Diplodonta semiaspera** Phil. *Archiv. f. Naturg.*, I, 1836, p. 225, pl. 7, f. 2.

Nagasaki (Dkr.). *Lucina orbella* Gld. which Dkr. quotes as a synonym is a totally distinct *Diplodonta*. Probably Dunker's shells are the same as the following species. Lischke quotes *D. orbella* from Nagasaki, Bay of Yedo and Yokohama.

**Diplodonta** (?*semiaspera* var.) *japonica*. Pl. III, figs. 6, 7.

Anterior end more produced and more narrowly rounded than in *semiaspera*; hinge straighter, narrower; anterior half (or less) of

valves and a small posterior segment concentrically costulate, the rest having the costulae interrupted into long granules; no lunule. Length  $17\frac{1}{2}$ , breadth  $15\frac{1}{2}$ , diam.  $13\frac{1}{2}$  mm., sometimes larger.

9 specimens collected by Mr. Stearns in Japan, exact locality unknown.

*Diplodonta (Mysia) figlina* Gld. *Otia Conch.*, p. 171.

E. coast Japan, Lat.  $37^{\circ}$ , in coarse black sand, 20 fath. (Stimp.).

*Diplodonta (Felania) usta* Gld. *Otia Conch.*, p. 170.

Hakodate Bay, 8 fath., sandy mud (Stimpson).

*Axinus japonicus* A. Ad. *Ann. Mag.*, 1862, p. 227 (*Cryptodon*).

Okosiri (Ad.).

*Axinus oblongus, plicatus* A. Ad. *Ibid.* Mino-Shima (Ad.).

*Axinus flexuosus* Mont. Corea Strait (St. John).

*Axinus suborbicularis* A. Ad.

#### LUCINIDÆ.

*Lucina contraria* Dkr. *Index*, p. 215, pl. 13, f. 12-14.

Tokyo (Dkr.).

*Lucina divergens* Phil. *Abbild.*, III, p. 103, pl. 2, f. 4. (*L. fibula* A. & R., *Zool. Samarang*, pl. 24, f. 5, *teste* Dkr.).

Deshima (Dkr.); Nagasaki (Lischke).

*Lucina parvula* Gld. *Otia Conch.*, p. 174.

Hakodate, 6-20 fath., sand (Stimp.).

*Lucina pisidium* Dkr. *Moll. Jap.*, p. 28, pl. 3, f. 9.

Deshima (Dkr.); Nagasaki (Lischke). Stearns collected larger specimens,  $8\frac{1}{2} \times 8\frac{1}{2}$  mm. at Tokyo Harbor. It does not seem to differ from *L. parvula* Gld. of which one of the original specimens is before me.

*Lucina quadrisulcata* d'Orbigny (?). Tartary Strait (Dkr.).

*Lucina corrugata* Dkr. *Index*, p. 216, pl. 8, f. 9-11.

Inland Sea (Dkr.).

*Loripes philippiana* Reeve. *C. Icon.*, *Lucina*, f. 23 (*Venus edentula* L., of Phil. and Dkr.).

*Loripes bialata* n. sp. *Pl. III*, figs. 13, 14.

Shell resembling the West Indian *L. edentula*, but thinner, more ventricose, beaks larger above the hinge-line, hinge straighter, the ligament-plate much shorter and narrower. Dorsally the valves



are more produced at each end, and the posterior dorsal angle especially is more produced and squarer than in *edentula*. Outside with irregular growth-striae and traces of low radii, covered around the edges with a thin, caducious light brown cuticle. Interior dead white, sparsely asperulate in the cavity; muscle impressions as in *edentula*, but pallial line further removed from ventral edge of valves. Length  $56\frac{1}{2}$ , alt. 51, diam.  $34\frac{1}{2}$  mm.

Inland Sea (F. Stearns, two specimens).

These shells are far more equilateral than *L. philippiana* Reeve, with less sinuous hinge line, slighter ligament plate, etc. The same characters distinguish it from *L. schrammi* Crosse, Journ. de Conch., 1878, p. 328.

**Myrtæa gibba, lamellata** A. Ad. Ann. Mag., 1862, p. 225.

Tsu-Shima (A. Ad.).

**Myrtæa fimbriatula, obesula, decussata** A. Ad. *Ibid.* Tabu-Shima (Ad.).

**Myrtæa plicatula, circinata, delicatula** A. Ad. *Ibid.* Mino-Shima, Strait of Corea (Ad.).

(*Chamacea*).

#### CHAMIDÆ.

**Chama imbricata** Broderip. Lischke, J. M. C., II, pl. 9, f. 4.

Nagasaki (Lischke).

**Chama ambigua** Lischke. *Ibid.* p. 128, pl. 8, f. 2.

Nagasaki (Lischke).

**Chama semipurpurata** Lischke. J. M. C., II, pl. 8, f. 1.

Nagasaki (Lischke). One specimen collected by Stearns.

**Chama dunkeri** Lischke. J. M. C., II, p. 128, pl. 8, f. 3, 4.

Nagasaki (Lischke). One specimen collected by Stearns.

**Chama retroversa** Lischke. J. M. C., II, pl. 9, f. 1-3.

Nagasaki (Lischke). Numerous specimens of this well marked species were collected by Mr. Stearns.

**Chama aspersa** Reeve. C. Icon., f. 24. Japan (Rein).

(*Carditacea*).

#### CARDITIDÆ.

**Cardita cumingiana** Dkr. Dkr., Moll. Jap., p. 29, pl. 3, f. 18.

Yokohama and Loochoo Is. (Stearns); Deshima, Nagasaki and Tokyo (Dkr. and Lischke).

*Cardita leana* Dkr. (Moll. Jap., pl. 3, f. 17) seems to be only a variation of the same species. Specimens attain a length of 34 mm.

*Cardita variegata* Brug.

Yokohama (Stearns). A single typical specimen.

*Cardita pica* Reeve. Conchyl. Cab., p. 39, pl. 8, f. 13-14.

Nagasaki (Lischke).

*Cardita vestita* Deshayes. Conchyl. Cab., p. 32, pl. 12, f. 8-9.

Japan.

*Cardita ferruginea* Adams. Conchyl. Cab., p. 17, pl. 6, f. 11.

Japan.

(*Astartacea*).

#### CRASSATELLITIDÆ.

(*Crassatellites* Con.—*Crassatella* Lam. 1801, not 1799).

*Crassatellites japonica* Dunker. Index, p. 220.

Japan.

*Crassatellites compressa* Ads. & Rve. Zool. Samarang, pl. 23, f. 10.

Corean Archipelago.

*Crassatellites corrugata* Adams & Reeve. Conchyl. Cab., p. 27, pl. 8, f. 5.

Japan (Paetel coll.).

*Crassatellites heteroglypta* n. n.

*Crassatella japonica* Sby. (not Dkr.), Jour. Linn. Soc., XX, p. 399, pl. 25, f. 19.

Japan (Sowb.).

*Crassatellites sublamellata* Weinkauff. Conchyl. Cab., p. 25, pl. 7, f. 11.

Japan.

(*Cypricardiacea*).

#### PLEUROPHORIDÆ.

*Trapezium vellicatum* Reeve. C. Icon. I, f. 7.

Nagasaki (Lischke).

*Trapezium rostratum* Lam. *Ibid*, f. 3.

Tsu-Shima, in oyster shells (Ad.).

*Trapezium angulatum* Lam. *Ibid*, f. 2.

Okino-Shima (Ad.), in Madrepore.

*Trapezium liratum* Reeve. C. Icon., I, pl. 1, f. 1 (*Cypricardia*).

Awa, Bishiu (Stearns), numerous specimens; Bay of Yedo (Lischke).

*Coralliophaga coralliophaga* Chemn. Nagasaki (Lischke).

Order *ANOMALODESMACEA*.

(*Poromyacea*).

**CUSPIDARIIDÆ.**

*Cuspidaria elegans* Hinds. Zool. Samarang, p. 84, pl. 23, f. 4 (*Næera moluccana*).

Mino-Shima (A. Ad.).

*Cuspidaria nobilis* A. Ad. Ann. Mag. N. H., 1868, p. 366.

Mino-Shima (A. Ad.).

*Cuspidaria hindsiana* A. Ad. Ibid. Goto Is. (Ad.).

*Cuspidaria nasuta* A. Ad. Ibid. Satanomosaki (Ad.).

*Cuspidaria (Rhinomya) philippinensis* Hinds. Ann. Mag., 1868, p. 367.

Uruga; Kino-o-Shima (A. Ad.).

*Cuspidaria (Rhinomya) rugata* A. Ad. Ibid. Tabu-Shima (Ad.).

*Cuspidaria (Cardiomya) gouldiana* Hinds. Ibid. Uruga, Goto, Tsu-Shima (Ad.).

*Cuspidaria nitida* A. Ad. & Rve. Zool. Samarang, p. 83, pl. 23, f. 3.

Japan (Dkr.).

*Cuspidaria (Myonera) lischkei* E. A. Smith. P. Z. S., 1891, p. 433, pl. 34, f. 6.

South of Japan, 1875 fathoms (Challenger).

*Leiomya adunca* Gld. Otia Conch., p. 162.

Kagoshima Bay (Stimpson); Seto-Uchi, Hakodate (A. Ad.).

**VERTICORDIIDÆ.**

*Verticordia japonica* A. Ad. Ann. Mag., 1862, p. 224.

Goto Is. (A. Ad.).

*Verticordia multicostata* A. Ad. Ibid.

(*Ensiphonacea*).

**CLAVAGELLIDÆ.**

*Clavagella ramosa* Dkr. Index, p. 172, pl. 16, fig. 1.

Japan (Dkr.).

*Aspergillum giganteum* Sowerby. Pl. III, fig. 1.

Valves large, irregularly oblong-trapezoidal, dilated toward the posterior end, very coarsely and irregularly concentrically corruga-

ted, and showing under the lens a very fine, irregular wrinkling; standing at an angle to each other of about  $100^{\circ}$ . Tube rough and sparsely covered with coarse sand and shells, swollen anteriorly, contracted behind the valves. Anterior end forming a mass of irregularly placed short tubes, among which pebbles, etc., are imbedded, and lacking any trace of a marginal fringe or rosette. Posterior end slightly larger than median part of tube, bearing two flocs. Total length 285 mm., diameter of median part of tube 27, diameter of tube at valves 50, diameter of tubule mass 55. Valves, antero-posterior length 27 mm., dorso-ventral 16 mm.

Found at village of Goshoura, district of Amakusa, coast of Prov. Higo, (Kumamoto Keu) Japan. The original locality was simply Japan. Native name, *Teppo-Kai* (Gun shell).

This specimen was procured by Mr. Frederick Stearns at the Third National Exhibition, Tokyo, 1890. It is evidently nearest allied to *A. incertum* Chenu (Ill. Conch., I, pl. 4, f. 5, 6) but differs in the totally diverse shape of the valves, which are triangular and broader than long in that species, oblong and far longer than wide in this. Mr. Sowerby's specimen (see P. Z. S., 1888, p. 290) was larger, length 325 mm., and had 6-7 flocs. The species has not before been figured.

What Dunker reports as fragments of a gigantic specimen of *A. vaginiferum*, is probably this species.

(*Anatinacea*).

#### LYONSIIDÆ.

*Lyonsia ventricosa* Gld. Otia, p. 162. *Lyonsia rostrata* Lischke. Jap. M. C., III, p. 102, pl. 9, f. 13.

Hakodate (Stimp.); southern coast of Japan (Lischke). An original specimen of Gould's species before me seems practically identical with that of Lischke. The examples collected by Mr. Stearns are larger than Lischke indicates (length 23 mm.) and more abruptly truncated posteriorly.

*Lyonsia prætenuis* Dkr. Index, p. 180, pl. 7, f. 13.

Wakayama, Inland Sea (Dkr.).

*Entodesma navicula* Ads. & Rve. Zool. Samarang, p. 83, pl. 23, f. 11.

Kiushiu Is. (Lischke).

*Entodesma truncatissima* n. sp. Pl. III, figs. 11, 12.

Shell truncate-oval, very ventricose, thin, light buff, whitish toward the beaks, fragile. Surface with some irregular concentric

wrinkles, the cuticle wrinkled on posterior slope, and showing spaced, inconspicuous radiating cuticular threads toward each end. Anterior extremity abruptly truncated; posterior extremity rounded, slightly gaping. Interior white; lithodesma large.

Length 24, alt. 14, diam. 11 mm.

Length 19, alt. 11½, diam. 11 mm.

Nemoto and Amatsu, Boshu, Hakodate (Stearns).

These shells are usually abruptly truncated anteriorly than specimens of *Lyonsia navicula* before me, and they differ in the same way from *Entodesma saxicola* of the same size. The lithodesma is as in *E. saxicola*.

#### PANDORIDÆ.

*Pandora delicatula* A. Ad. Conch. Icon., XIX, pl. 3, f. 17.

Japan (Adams).

#### MYOCHAMIDÆ.

*Myodora triangularis* A. Ad. Dkr., Index, p. 181, pl. 7, f. 11, 12.

*Myodora fluctuosa* Gld. Otia, p. 161; Smith., P. Z. S., 1880, p. 583.

Kagoshima Bay (Stimp.).

#### THRACIIDÆ.

*Thracia pusilla* Gld. Otia Conch., p. 161.

Simoda (Stimpson).

*Thracia concinna* Gld. Otia Conch., p. 161.

Kagoshima Bay (Stimpson).

#### ANATINIDÆ.

*Anatina japonica* Lischke. Jap. Meeres-Conch., III, p. 101, pl. 9, f. 7-10.

Bay of Yedo (Lischke); Yokohama (Stearns).

*Anatina flexuosa* Reeve. Rve., Conch. Icon., XIV, pl. 1, f. 5.

Japan (Reeve).

*Anatina limicola* Reeve. Rve., Conch. Icon., XIV, pl. 4, f. 27.

Japan (Reeve).

*Anatina kamakurana* n. sp. Pl. III, figs. 2, 3.

Shell elongated, rather ventricose, gaping at both ends, irregularly wrinkle-striate and minutely granulated as usual, fragile; posterior end longer than the anterior and narrower, rounded, moderately gaping; anterior end broadly rounded, but slightly gaping; dorsal margin nearly parallel with the basal, but rising in front of the



beaks, straight behind them; beaks split; chondrophore small, its posterior butress curved, very oblique. Length  $42\frac{1}{2}$ , alt. 19, diam. 14 mm.

Kamakura (Stearns).

Order *PRIONODESMACEA*.

(*Mytilacea*).

MYTILIDÆ.

**Mytilus crassitesta** Lischke. J. M. C., I, p. 151, pl. 11, f. 1, 2.

Akashi coast (Stearns).

**Mytilus giganteus** Holmberg. Bull. Soc. Imp. Nat. Moscou, 1862, p. 422, pl. 11, 12.

Inland Sea (Stearns); Nagasaki (Lischke).

**Mytilus grayanus** Dkr. Dkr., Index, p. 221; cf. Lischke, J. M. C., I, p. 153, pl. 10, f. 7, 8.

Hakodate (Phila. Acad. coll. and Stearns). This may be Gould's *M. coruseus*.

**Mytilus hirsutus** Lamarck. Conchyl. Cab., p. 40, pl. 7, f. 6.

Inland Sea (Stearns); Nagasaki (Lischke).

**Mytilus sinuatus** Dunker. Conchyl. Cab., p. 76, pl. 17, f. 7.

Japan (Dunker); Inland Sea (Stearns).

**Mytilus curvatus** Dunker. Conchyl. Cab., p. 34, pl. 14, f. 7, 8.

Japan (Dkr.).

**Mytilus atratus** Lischke. Jap. Meeres-Conch., II, p. 146, pl. 10, f. 45; *Modiola aterrma* Dall, A. J. C., VII, p. 154.

Nagasaki (Lischke); Bay of Yedo (Dall); S. coast Prov. Ise (Stearns).

**Mytilus coruscus** Gld. Otia Conch., p. 177.

Hakodate Bay, rocks between tide marks, common (Stimpson).

**Mytilus mutabilis** Gld. Otia Conch., p. 177.

Kagoshima Bay (Stimpson).

**Modiola modiolus** Linné. Yedo, Hakodate (Lischke); Inland Sea (Stearns).

**Modiola philippinarum** Hanley. Rve., Conch. Icon., f. 1.

Nemoto, Boshu (Stearns).

Several small specimens which seem to agree with this species.

**Modiola trillii** Reeve. Conch. Icon., pl. 4, f. 13.

Idzu coast (Stearns).

- Modiola metcalfi** Hanley. Conchyl. Cab., p. 116, pl. 32, f. 3, 4.  
Nagasaki (Lischke).
- Modiola nitida** Hanley. Conchyl. Cab., p. 111, pl. 31, f. 3.  
Tokyo Bay (Lischke); Inland Sea (Stearns).
- Modiola hanleyi** Dunker. Index, p. 223, pl. 16, f. 3, 4.  
Japan (Dunker).
- Modiola rhomboidea** Hanley. C. Icon., f. 28.  
Japan (Dunker).
- Modiola flavida** Dkr. C. Icon., f. 77.  
Japan Sea (Dkr.).
- Modiola japonica** Dunker. Reeve, Conch. Icon., f. 26.  
Hakodate (R. E. C. Stearns); Bay of Yedo (Lischke).
- Modiola fortunei** Dunker. C. Icon., f. 75.  
Japan (Dunker).
- Modiola senhausii** Reeve. Conch. Icon., f. 22.  
Near Enoshima (Stearns); Nagasaki, Bay of Yedo (Lischke).
- Modiola arcuatula** Hanley. Conchyl. Cab., p. 101, pl. 30, f. 8, 9.  
Bay of Yedo (Lischke).
- Modiola barbata** Linné. Forbes & Hanley, Brit. Moll., VII, p. 190, pl. 44, f. 4.  
Japan, off Kobé, in 50 fathoms, sand (Challenger).
- Adula californiensis** Eschscholtz. Conchyl. Cab., p. 22, pl. 5, f. 19.  
Sachalin Is., Japan Sea (Dunker).
- Lithophaga curta** Lischke. J. M. C., III, p. 111, pl. 9, f. 14-17.  
Bay of Yedo, in Madrepores (Lischke); Joga-Shima (Stearns).
- Lithophaga aristata** Sol. Nagasaki (Lischke).
- Lithophaga nasuta** Phil. Abbild., II, p. 149, *Modiola*, pl. 1, f. 2.  
Nagasaki (Lischke).
- Lithophaga zitteliana** Dkr. Index, p. 226, pl. 14, f. 1, 2, 8, 9.  
Inland Sea (Dkr.).
- Modiolaria cumingiana** Dunker. Reeve, Conch. Icon., X, *Modiola*, pl. 9, f. 63.  
Inland Sea (Stearns).
- There seems to be no doubt of the specific identity of S. Australian and Japanese specimens; I have compared examples from Victoria. The *M. impacta* Herm. (= *M. cor* Martyn) is a wider species.

- Modiolaria nigra** Gray. Bay of Castries (Schrenck).  
**Modiolaria vernicosa** Midd. Bay of Castries (Midd.).  
**Modiolaria pusio** A. Ad. Ann. Mag. N. H., 1862, p. 229.  
 Mino-Shima (Ad.), on *Haliotis gigantea*.  
**Modiolaria divaricata** Phil. Abbild., III, p. 21, pl. 2, f. 8.  
 Nagasaki (Lischke).  
**Modiolaria semigranata** Reeve. Lischke, J. M. C., III, p. 110, pl. 9, f. 18, 19.  
 Tokyo Harbor (Lischke, Stearns).  
**Modiolaria quadrula** Gld. Otia Conch., p. 177.  
 Kagoshima (Stimpson).  
**Modiolaria arcuata** Gld. Otia Conch., p. 176.  
 Kagoshima (Stimpson).  
**Modiolaria cuprea** Gld. Otia Conch., p. 175.  
 Kagoshima (Stimpson).  
**Crenella decussata** Mont. Jeffreys, Linn. Soc. Journ., XIV, p. 419.  
 Corea Strait (St. John).  
**Crenella spectabilis, casta** A. Ad. Ann. Mag. N. H., 1862, p. 228.  
 Mino-Shima (A. Ad.).  
**Crenella cornea** A. Ad. *Ibid.* Corea Strait (Ad.).  
**Crenella crocea** A. Ad. *Ibid.* Tsu-Shima (Ad.).

## DREISSENSIIDÆ.

- Septifer crassus** Dunker. Rve., Conch. Icon., X, pl. 7, f. 25. (*Mytilus*).  
 Japan (Stearns); Hakodate (Schrenck).  
 Looks externally like *Mytilus hamatus* Say. Dunker and Lischke refer it to *S. virgatus* Wiegmann.  
**Septifer bilocularis** Linné. Nagasaki (Lischke).  
**Septifer bifurcatus** Conr. Japan. (Dkr., Index, p. 228).

(*Anomiacea*).

## ANOMIIDÆ.

- Anomia ephippium** Linné var. (?). Dkr., Index, p. 247.  
**Anomia radulina** A. Ad. Ann. Mag. (3), VIII, p. 142.  
 Mino-Shima, 63 fms. (Ad.).  
**Anomia pustulosa** A. Ad. *Ibid.* Tabu-Shima, 25 fms. (Ad.).  
**Anomia laqueata** Reeve var. (?). Challenger Lamell, XIII, p. 318.  
 Japan, off Kobé, in 50 fathoms (Challenger); Hakodate (Schrenck);  
 Joga-Shima coast (Stearns); Yedo (Lischke).

**Anomia cytæum** Gray. C. Icon., f. 10.

Hakodate (Schrenck); Joga-Shima coast (Stearns). Large, roughly sculptured specimens. Also a single silvery form (var. *argentea*), thinner, both valves entirely smooth except for slight growth wrinkles.

**Anomia elyros** Gray. C. Icon., f. 3, 9.

Kii coast (Stearns). Two forms collected; one rather thin with the upper shell orange or yellow, lower shell green, the other heavier, opaque, both valves green.

**Placunanomia macroschisma** Desh. Abbild., III, p. 132, pl. 1, f. 4.

Yedo, Hakodate.

**Placunanomia umbonata** Gld. Otia Conch., p. 178.

Kagoshima Bay (Stimpson).

**Placenta placenta** Linné. (*Anomia*). Japan (Dkr.).

(*Pectenacea*).

#### LIMIDÆ.

**Lima smithi** Sowerby. Sowb., P. Z. S., 1888, p. 207, pl. 11, f. 12.

Shell having the general outline and convexity of *L. lima* Linn., thin but strong, slightly gaping anteriorly, entirely closed posteriorly; beaks situated near the posterior end of the hinge-line; cartilage pit very oblique; hinge area narrow. Anterior auricles extremely small, posterior auricles moderate, about as in *L. lima*. Surface of valves sculptured with strong rounded radial ribs separated by intervals of about their own width, and wholly absent on convexity of the valves from the beaks nearly half the distance to basal margin. Toward the beaks the surface on each side of the smooth area is densely and finely radially striate, these striae subsequently uniting by twos or threes to form the coarse ribbing of the later growth. Ribs at the periphery 39 in number; lacking on auricles and on the concave face of the anterior slope. Dimensions: Height, from beaks to ventral margin 60 mm., length, antero-posteriorly, 46 mm., diameter 25 mm. Collected in Japan by Mr. Frederick Stearns in 1889-'90. Originally described from Japan. Sowerby did not describe the peculiar sculpture in detail, hence the above description.

**Lima dunkeri** Smith. (*L. japonica* Dkr. not Ad.). Dkr., Index, p. 245, pl. 11, f. 8, 9.

Sea of Japan (Dkr.); Boshu (Stearns).

Specimens collected at the last named locality much exceed Dunker's type in size, measuring 35 mm. from beaks to lower margin. The species is unusually equilateral for *Lima*.

*Lima japonica* (A. Ad.) Sowerby, Conch. Icon., XVIII, pl. 5, f. 21 (1872).

Japan (Sowerby).

*Lima lima* Linné. (*L. squamosa* Lam.).

Yokohama (Stearns); Nagasaki (Lischke).

I can see no difference whatever between the Japanese and Mediterranean specimens of this species, except that the former are larger, measuring as much as 75 mm. from beaks to ventral margin. This species extends eastward in the Pacific to the Viti Islands.

*Lima goliath* Sowerby. P. Z. S., 1883, p. 30, pl. 7, f. 3.

Japan (Sowerby); S.-E. Nippon, 775 fathoms (Challenger).

#### SPONDYLIDÆ.

*Spondylus regius* Linné. Inland Sea (Stearns).

*Spondylus sinensis* Sowb. Thes., I, p. 427, pl. 87, f. 32-34.

Inland Sea (Stearns); Nagasaki (Lischke).

*Spondylus nudus* Chemn. *Ibid*, pl. 88, f. 39, 40.

Wakayama, Inland Sea (Dkr.).

*Spondylus cruentus* Lischke. J. M. C., I, p. 172, pl. 12, f. 1-5.

Nagasaki (Lischke); Sagami (Stearns).

*Plicatula cuneata* Dkr. Index, p. 246, pl. 11, f. 3.

Japan (Dkr.).

*Plicatula muricata* A. Ad. *Ibid*, pl. 11, f. 4. Japan (Dkr.).

*Plicatula horrida* Dkr. *Ibid*, p. 247, pl. 11, f. 6, 7.

Japan (Dkr.).

*Plicatula irregularis* Dkr. (*rugosa* Dkr. not Lam.). *Ibid*, p. 247, pl. 11, f. 5.

Japan (Dkr.).

*Plicatula simplex* Gld. Otia Conch., p. 178.

Kagoshima Bay and Simoda, 5-20 fath. (Stimpson).

#### PECTENIDÆ.

*Pecten crassicostatus* Sowerby. Dkr., Index, pl. 13, f. 28—*P. nobilis* Reeve, Conch. Icon., VIII, f. 3.

Ise (Stearns); Yedo, Nagasaki (Lischke).

*Pecten squamatus* Gmelin. Dkr., Index, p. 240, pl. 11, f. 14.

Sagama Bay (Stearns); Bay of Yedo (Lischke).



*Pecten irregularis* Sowerby. Dkr., Index, p. 240, pl. 11, f. 2, 15.

Banda and Nemoto, Boshu, Tsu-Shima (Stearns); Nagasaki (Lischke).

*Pecten quadriliratus* Lischke. J. M. C., II, p. 158, pl. 9, f. 5, 6.

Nagasaki (Lischke).

*Pecten similis* Laskey. Journ. Linn. Soc., XIV. Corea Strait (St. John).

*Pecten jickelii* Dunker. Index, p. 241.

Japan Sea (coll. Löbbecke).

*Pecten vesiculosus* Dkr. Dkr., Index, p. 241, pl. 11, f. 1.

Japan (Dkr., Stearns).

*Pecten tissoti* Bernardi. Journ. de Conch., 1858, pl. 91, pl. 1, f. 2.

Japan (Dkr.).

*Pecten spectabilis* Reeve. Dkr., Index, pl. 11, f. 12, 13.

Nagasaki (Lischke).

*Pecten lætus* Gould. Lischke, Jap. Meeres-Conch., pl. 12, f. 6, 7.

Ikaï coast, Joga-Shima, and Sagama Bay (Stearns); Hakodate (Stimp.); Tokyo and Nagasaki (Lischke); Yokohama (Dkr.).

Three main color varieties are included in Mr. Stearns' collection: *A.* Crimson varying to orange; *B.* Royal purple varying to brown; and *C.* Pure white.

*Pecten yessoensis* Jay. Dkr., Novit. Conch., p. 61, pl. 21; Lischke, Jap. Meeres-Conch., I, pl. 10, f. 34; II, pl. 13.

Hakodate (Stearns, *et al.*); Yedo (Lischke).

*Pecten plica* Linné. C. Icon., VIII, sp. 16.

Nagasaki (Lischke).

*Pecten subplicatus* Sowb. C. Icon., sp. 17.

Japan (Dkr.).

*Pecten vitreus* Chemnitz. Conchyl. Cab., VII, f. 637.

Yokohama Harbor, 345 fathoms (Challenger).

*Pecten swiftii* Bernardi. Journ. de Conch., 1858, p. 90, pl. 1, 2.

Northern Japan (Schrenck).

*Pecten asperulatus* Adams & Reeve. Zool. Samarang, p. 74, pl. 21, f. 13.

Corea Strait.

*Pecten psarus* Melvill. Journ. of Conch., V, p. 280, pl. 2, f. 9.

Japan.

**Pecten hastingsii** Melvill. Journ. of Conch., V, p. 279, pl. 2, f. 7.

Japan (Hastings, Dent).

**Pecten mollitus** Reeve. C. Icon., sp. 100. Japan.

**Amusium japonicum** Gmel.

East coast and Inland Sea (Stearns); Yedo and Nagasaki (Lischke).

**Amusium oblitteratum** Linné. Japan (Dkr.).

**Amusium pleuronectes** Linné. Japan (Dkr.).

**Vola laqueata** Sowerby. Lischke, J. M. C., II, pl. 12, f. 1, 2; Phil., Abbild., I, pl. 1, f. 1 (*P. antonii*).

Nagasaki Harbor and Yokohama (Stearns); Hakodate (Schrenck); Yedo (Lischke); off Kobé in 50 fathoms; between Is. of Sikoku and Nippon, 50 fathoms (Challenger).

**Vola excavata** Anton. Phil., Abbild., I, p. 201, pl. 2, f. 1; *Pecten sinensis* Sowb. Japan (Dkr.).

**Vola puncticulata** Dkr. Dkr., Index, p. 244, pl. 11, f. 10, 11 (young); Pilsbry, Proc. Acad. Nat. Sci. Phila., 1891, p. 473, pl. XIX, f. 1, 2, 3 (adult).

A single large specimen collected by Mr. Stearns.

**Vola inaequalis** Sowerby. Conchyl. Cab., p. 236, pl. 62, f. 5-8. South Japan (Dunker).

(*Ostracea*).

**OSTRÆIDÆ.**

**Ostræa gigas** Thunberg. Lischke, Jap. Meeres-Conch., I, p. 174 (+*O. laperosii* Schr. and *O. talienwhanensis* Crosse).

Nagasaki (Lischke); Enoshima (Stearns); Yokohama (Mts.); Hakodate (Schrenck); also found on Asiatic mainland.

Only young and moderate sized specimens show the purple color markings outside. One specimen collected is the largest on record, surpassing the measurements given by Thunberg. The length of the ligament area is proportionately greater than in smaller specimens. Measurements of four examples are as follows:

Total length 443 mm.; greatest breadth 95 mm.

Total length 248 mm.; greatest breadth 52 mm.

Total length 246 mm.; greatest breadth 44 mm.

Total length 242 mm.; greatest breadth 44 mm.

All of these are narrow and parallel-sided.

*Ostræa denselamellosa* Lischke. Lischke, Jap. Meeres-Conch., I, pl. 13, 14.

Hakodate, Tokyo Bay, Yokohama (Stearns); Nagasaki (Lischke).  
The *O. auriculata* and *O. multicostrata* of Sowerby (Conch. Icon., pl. 25) seem to be the same.

*Ostræa folium* Gmelin. Wakayama (Dkr.).

*Ostræa plicata* Chemn. Kishiu coast (Stearns).

*Ostræa cucullata* Born. Mus. Test. Cas. Vind., pl. 6, f. 11, 12.

Yokohama, E. coast Sagama (Stearns); Nagasaki (Lischke).

I refer to this species a number of small specimens agreeing well with Born's figures.

*Ostræa imbricata* Lam. Dunker, Index, p. 250; Sowerby, Conch. Icon., XVIII, pl. 17, f. 36 b.

Japan (Stearns, 1890).

*Ostræa hyotis* Linn.

(Stearns). A single valve of gigantic size, length 235, breadth 190 mm.

*Ostræa rivularis* Gld. Lischke, J. M. C., III, pl. 14, f. 2, 3.

Nagasaki (Lischke).

(*Pteriacea*).

**VULSELLIDÆ.**

*Vulsella lingulata* Linné. Japan (Dkr.).

*Vulsella minor* Chemn. Japan (Dkr.).

**PTERIIDÆ.**

(*Pteria* Scop. 1777 = *Avicula* Lam. 1799).

*Pteria coturnix* Dunker. Index, p. 228, pl. 10, f. 1, 2.

Inland Sea (Dkr.).

*Pteria breviajata* Dkr. Index, p. 229, pl. 10, f. 3-5.

Inland Sea (Dkr., Stearns).

*Pteria loveni* Dunker. Index, p. 229, pl. 10, f. 6.

Inland Sea (Dkr.).

*Pteria macroptera* Lam. Reeve, Conch. Icon., X, pl. 2 and 3.

Keu, Satsuma (Stearns); Prov. of Hizen (Stearns); Kagoshima.

Two very large specimens, one from Satsuma being of the typical *macroptera* form, the other having the short wing and less obliquely extended pearl layer of "*lotorium*." The two measure: *macroptera*, length of hinge-line 225 mm.; oblique length from beak to lower

end 251 mm. Var. "*lotorium*," length of hinge-line 152 mm.; oblique length from beak to lower end 265 mm.

*Pteria japonica* Dunker. Conchyl. Cab., p. 33, pl. 10, f. 5.

Japan Sea (Dkr.).

*Meleagrina martensii* Dkr. Index, p. 229, pl. 10, f. 7, 8.

*Meleagrina japonica* Dunker. Conchyl. Cab., p. 66, pl. 23, f. 2, 3).

Nagasaki (Lischke); S. coast of Kii (Stearns). Girls dive for these shells, which produce numerous pearls.

*Meleagrina fucata* Gould. Conchyl. Cab., p. 49, pl. 17, f. 2.

Nagasaki.

*Malleus albus* Chemn. C. Icon., pl. 1, f. 1.

Inland Sea (Stearns); Nagasaki (Lischke).

*Malleus regula* Forskal. Inland Sea (Dkr.).

*Malleus (Malvufundus) irregularis* Jousseume. Le Naturaliste, XVI, 1894, p. 228.

Japan.

#### PERNIDÆ.

*Perna perna* Linné. Nagasaki (Lischke, J. M. C., II, p. 153).

*Perna costellata* Conrad. Hakodate (Schrenck).

#### PINNIDÆ.

*Pinna chemnitzii* Hanley. Reeve, Conch. Icon., pl. 1.

Yedo, Nagasaki (Lischke); Kishiu coast (Stearns).

The specimens are narrower than Reeve's figure 1 *b*, and lack the projecting scales along the hinge-margin. Dunker reports *chemnitzii* from Yokohama and Tokyo.

*Pinna bicolor* Chemn. Conchyl. Cab., VIII, pl. 90, f. 780.

Japan (Dkr.).

*Pinna fimbriatula* Rve. C. Icon., sp. 63. Japan (Cuming).

*Pinna saccata* Linné. Japan (Dkr.).

*Pinna japonica* Hanley. Conchyl. Cab., p. 72, pl. 24, f. 3; pl. 29, f. 1.

Yokohama Bay, Yedo, Nagasaki (Lischke).

*Pinna nigrina* Lamarck. Rve., Conch. Icon., f. 4, (*P. nigra*).

Tokyo Harbor (Stearns). The largest shell measures, length 365, breadth 240 mm. It is smooth outside except for low radii near the beaks. The smaller specimens are strongly scaled as in Reeve's figure.

*Pinna lischkeana* Clessin. Conchyl. Cab., p. 73, pl. 28, f. 1.

Yokohama (Rolle coll.); Inland Sea (Stearns); Tokyo Harbor (Stearns).

The smaller specimens collected on the western coast of the Inland Sea agree with Clessin's figure (Conchylien Cabinet, pl. 28, f. 1) except that the hinge-margin is less curved. The specimen figured by Clessin as the adult *P. japonica* (Conchyl. Cab., pl. 29, fig. 1) is in my opinion an adult *lischkeana*. Whether the true *japonica* of Hanley is the same as *P. chemnitzii*, or is the young of *lischkeana*, I am unable to decide. Specimens collected by Stearns in Tokyo Harbor agree with Clessin's figure (pl. 29, fig. 1). They measure, length 375, breadth 204 mm. On the latter half of the shell the prickly rays are wholly absent.

*Pinna epica* Jouss. Le Naturaliste, XVI, 1894, p. 229.

Japan (Jouss.).

(*Arcacea*).

#### ARCIDÆ.

*Arca navicularis* Brug. Dkr., Index, pl. 14, f. 16, 17.

Japan (Dkr.).

*Arca acuminata* Krauss.

The Japanese shells collected by Stearns seem to constitute a variety, characterized by the less attenuated anterior end, posterior lower angle less produced, the basal margin ascending to it, keel not acute. This may be called var. *subnormalis*.

*Arca ocellata* Reeve. Conchyl. Cab., p. 87, pl. 24, f. 1-4.

Japan (Smith).

*Arca kraussii* Phil. Südafrik. Moll., pl. 1, f. 11; Conch. Cab., pl. 35, f. 7, 8; Abbild., III, p. 88, pl. 5, f. 8-10.

E. coast of Japan, Tokyo to Awaji (Stearns); Nagasaki (Lischke).

*Arca (Barbatia) obtusa* Reeve. Conch. Icon., f. 77 and 80 (*obliquata* Rv. not Gray); *A. decurvata* Lischke, J. M. C., I, p. 148.

Nagasaki, Yedo (Lischke); Inland Sea (Stearns).

*Arca (Barbatia) tenebrica* Reeve. Conchyl. Cab., p. 156, pl. 39, f. 7, 8.

Nagasaki (Lischke).

*Arca stearnsii* n. sp. Pl. III, figs. 8, 9, 10.

Shell small, subtrapezoidal, moderately inflated, solid; anterior half white, clouded with flesh color, posterior half fleshy-brown.



Dorsal margin straight and long, angled at each end, basal margin curved, not gaping, posterior end sloping, straight, anterior end rounded; posterior lower angle produced. Surface closely and finely decussated throughout, the radii coarser on posterior slope. Teeth about as in *A. decussata*; area narrow, deep. Interior fleshy with linear brown and whitish radii, and clouded with white, the muscle-scars brown.

Length 16, alt. 9.2, diam. 7 mm.

Length 18, alt. 11, diam. 10 mm.

Nemoto, Boshu and Yokohama (Stearns).

Hinge much straighter than in *A. tenebrica* Ree., and angled at the ends, the baso-posterior extremity more angular. Sculpture finer than in young *A. decussata*, and less rounded posteriorly.

*Arca (Barbatia) decussata* Sowerby. Conchyl. Cab., p. 144, pl. 37, f. 2-5.

Nagasaki (Lischke). Several specimens collected by Stearns.

*Arca (Barbatia) domingensis* Lam. Conchyl. Cab., p. 195, pl. 47, f. 12.

Nagasaki (Lischke).

*Arca (Anomalocardia) granosa* Linné. Conchyl. Cab., p. 38, pl. 3, f. 7.

Kodzuka (Stearns); Nagasaki (Lischke).

*Arca (Anomalocardia) pulchella* Dkr. Novit. Conch., p. 113, pl. 38, f. 6-9.

Japan (Dkr.); East coast of Nippon (Stearns).

*Arca (Anomalocardia) inflata* Reeve. C. Icon., f. 30; Conchyl. Cab., p. 30, pl. 10, f. 1, 2.

Tokyo Bay (Stearns); Yedo, Nagasaki, Hakodate (Lischke).

*Arca (Scapharca) satowi* Dkr. Index, p. 233, pl. 9, f. 1-3.

Tokyo.

*Arca (Scapharca) subrenata* Lischke. Jap. Meeres-Conch., I, p. 146, pl. 9, f. 1-3 (" *A. nodoso-crenata*" on plate).

Yedo and Nagasaki (Lischke); Inland Sea (Stearns); Itoma Jima I., Loo Choo group (Stearns).

*Arca (Scapharca) ambigua* Reeve. C. Icon., sp. 65.

Yokohama (Dunker); Nagasaki (Lischke). Mr. Stearns' specimens are all smaller than Reeve's figure of this species.

*Arca (Scapharca) japonica* Reeve. C. Icon., f. 32; Conchyl. Cab., p. 114, pl. 30, f. 3, 4.

Japan (Siebold).

*Arca (Scapharca) troscheli* Dkr. Index, p. 234, pl. 14, f. 14, 15.

Japan (Dunker).

*Arca* (*Scapharca*) *philippiana* Dkr. Conchyl. Cab., p. 90, pl. 25, f. 1, 2; (*A. radiata* Rve., C. Icon., f. 40, preoc.).

Japan.

*Pectunculus albolineatus* Lischke. J. M. C., III, p. 108, pl. 9, f. 11, 12.

Kii coast (Stearns); Yedo (Lischke).

*Pectunculus fulguratus* Dkr. Index, p. 236, pl. 14, f. 18, 19.

Japan (Dkr.).

*Pectunculus rotundus* Dkr. Index, p. 236, pl. 16, f. 9, 10.

Bay of Yedo (Dkr.).

*Pectunculus vestitus* Dkr. Index, p. 236, pl. 16, f. 7, 8.

*Pectunculus yessoensis* Sowb. P. Z. S., 1888, pl. 570, pl. 28, f. 19.

Yesso (Hungerford).

*Glomus japonicus* E. A. Smith. Challenger Lamell. XIII, p. 325, wood-cut.

Japan, S.-E. of Nippon, in 1875 fathoms.

*Nuculina ovata* Jeffreys. Journ. Linn. Soc., XIV, p. 418.

Corea Strait (St. John).

*Cyrella sulcata* A. Ad. [*Huxleya*]. Journ. de Conchyl., 1868, pl. 4, f. 2.

Near Mino-Shima, 63 fms. (A. Ad.).

*Cyrella decussata* A. Ad. Ann. Mag., 1862, p. 295.

#### LIMOPSIDÆ.

*Limopsis woodwardii* A. Ad. Dkr., Index, p. 237, pl. 16, f. 5, 6.

Specimens collected by Stearns agree with Dunker's figures in form, but have concentric brown streaks outside and brown pallial line.

*Limopsis japonica* A. Ad. P. Z. S., 1862, p. 229.

Kuroshima and Kiusu, 26 to 57 fath. (A. Ad.).

*Limopsis obliqua* A. Ad. P. Z. S., 1862, p. 229.

Uraga, 21 fath. (Ad.)

*Limopsis cumingi* A. Ad. P. Z. S., 1862, p. 229.

Goto and Santanomosaki, 48 to 55 fathoms.

*Limopsis crenata* A. Ad. P. Z. S., 1862, p. 230.

Uraga and Satanomosaki, 21 to 55 fathoms.

*Limopsis forskalii* A. Ad. P. Z. S., 1862, p. 230.

Oshima, Takano-Shima, on the sands, dead.

*Limopsis oblonga* A. Ad. Ann. Mag., 1860, V, p. 412.

Off Mino-Shima, 63 fms. (Ad.).

*Limopsis pelagica* E. A. Smith. Challenger Lamell., XIII, p. 22, 254, pl. 18, f. 3, 3a.

Yokohama Harbor, Enoshima, 345 fms. (Chall.).

#### MACRODONTIDÆ.

*Macrodon dalli* Smith. Challenger Lamell. p. 269, pl. 17, f. 10.

Off Kobé, 50 fms. (Challenger).

*Cucullaea concamerata* Martini. Conchyl. Cab., p. 5, pl. 5, f. 1, 2.

Nagasaki (Lischke).

#### (*Nuculacea*).

#### LEDIDÆ.

*Leda confusa* Hanley. Thes., III, p. 119, f. 85.

Japan (Dkr., Stearns); Bay of Yedo (Lischke).

*Leda pernuloides* A. Ad. Dkr., Index, p. 238.

*Yoldia japonica* Ads. & Rve. Zool. Samarang, p. 75, pl. 21, f. 9.

Nagasaki.

*Yoldia lischkei* E. A. Smith. Challenger Lamell., p. 242, pl. 20, f. 4, 4b.

Yokohama Harbor, Enoshima, 345 fathoms (Challenger).

*Malletia dunkeri* E. A. Smith. Challenger Lamell., XIII, p. 323, wood-cut.

S.-E. Nippon in 1875 fathoms (Challenger).

*Sarepta speciosa* A. Ad. Journ. de Conch., 1868, pl. 4, f. 1.

Mino-Shima, 63 fms. (Ad.).

#### NUCULIDÆ.

*Nucula paulula* A. Ad. P. Z. S., 1856, p. 52.

Japan (Cuming).

*Nucula niponica* E. A. Smith. Challenger Lamell., XIII, p. 226.

S. of Nippon in 345 fathoms (Challenger).

*Nucula (Acila) mirabilis* Adams & Reeve. Zool. Samarang, p. 75, pl. 21, f. 8.

Japan, Kiushiu, Nagasaki Bay (Ad. and Rve.); off Kobé in 8 to 50 fathoms (Challenger).

*Nucula (Acila) insignis* Gld. Otia Conch., p. 175.

E. coast, Lat. 37°, and at Hakodate (Stimpson).

*(Solemyacea).***SOLEMYIDÆ.**

*Solemya pusilla* Gld. Otia Conch., p. 165.

Hakodate Bay, 5 fath., mud (Stimp.).

*Solemya japonica* Dkr. Index, p. 220, 261, pl. 14, f. 3.

Japan (Dkr.).

**BRACHIOPODA.****TEREBRATULIDÆ.**

*Terebratula davidsoni* A. Ad. Trans. Linn. Soc. (2), IV, p. 9, pl. I, f. 14-16.

Japan, Satanomosaki, 55 fathoms (A. Ad.).

*Terebratula (Liothyrina) stearnsii* Dall & Pilsbry. Pl. IX, figs. 1, 2, 3.

Proc. Acad. Nat. Sci. Phila., 1891, p. 165, pl. 4, f. 1-3.

Province Kii, east coast (Stearns).

*Terebratula dalli* Dav. Trans. Linn. Soc. (2), IV, p. 17, pl. 2, fig. 23.

Off Japan, near Yedo, 1875 fath. (Challenger).

*Terebratulina kiiensis* Dall & Pilsbry. Pl. IX, figs. 9, 10.

Nautilus, V, p. 18, pl. 1, f. 4, 5.

Coast of Prov. Kii (Stearns).

*Terebratulina caput-serpentis* Linné. Pl. XI, figs. 5, 6.

Trans. Linn. Soc. (2), IV, p. 17, p. 3, fig. 12.

Sagami Bay (Döderlein). The figures are from a West American specimen.

*Terebratulina crossii* Davidson. Trans. Linn. Soc. (2), IV, p. 33, pl. 3, figs. 4-6.

Sagami Bay (Döderlein); Inland Sea, S. coast of Kii (Stearns).

*Terebratulina japonica* Sby. Trans. Linn. Soc. (2), IV, p. 34, pl. 3, figs. 7-11.

Sagami Bay (Döderlein); Goto in 48, Tsusalei in 55 fathoms (A. Ad.).

*Eudesia raphaelis* Dall. Trans. Linn. Soc. (2), IV, p. 58, pl. 11, figs. 11-15.

Near Yedo (Pumpelly); Sagami Bay, 100-200 fathoms (Döderlein).

*Eudesia grayi* Davidson. Trans. Linn. Soc. (2), IV, p. 54, pl. 10, figs. 1-4.

Hakodate and Mososeki, 7 fath. (Adams).

*Terebratella coreanica* Ad. & Rve. Trans. Linn. Soc. (2), IV, p. 81, pl. 13, figs. 3-9.

Japan, Hakodate, 7 fath. (A. Ad.); Inland Sea (Stearns).

- Terebratella gouldii** Dall. Pl. XI, figs. 7, 8.  
Proc. Acad. Nat. Sci. Phila., 1891, p. 167, pl. 4, f. 4, 5 (adult); Trans. L. Soc. (2), IV, p. 96, pl. 17, figs. 20-22 (*Megasella* stage).  
Hakodate, 60 fath. (Stimpson); E. coast of Japan, between Yedo and Ooshima (Stearns).
- Terebratella frontalis** Midd. Trans. Linn. Soc. (2), IV, p. 86, pl. 15, figs. 1-8a.  
Japan Seas, from low water to 45 fath. (Capt. St. John).
- Terebratella mariae** A. Ad. Trans. Linn. Soc. (2), IV, p. 89, pl. 15, figs. 13, 14.  
Uraga, 21 fath., Goto, 48 fath., Satanomosaki, 55 fath. (A. Ad.).
- Terebratella spitzbergensis** Dav. Tr. Linn. Soc. (2), IV, p. 83, pl. 16, f. 1-5.  
Northern Japan (A. Ad.).
- Laqueus blanfordi** Dkr. Index, pl. 14, f. 4, 5, 6; Trans. Linn. Soc. (2), IV, p. 83, pl. 15, figs. 9-12.  
Wakayama (Dkr.); East coast above Inland Sea (Stearns).
- Laqueus rubellus** Sby. Trans. Linn. Soc. (2), IV, p. 113, pl. 19, figs. 1-5.  
Kuro-Shima, 35 fath. (Adams); Yokohama (Pumpelly); near Jogashima (Stearns).
- Laqueus pictus** Chem. Trans. Linn. Soc. (2), IV, p. 114, pl. 18, figs. 14-18.  
Satanomosaki, 55 fath. (A. Ad.).
- Magasella adamsi** Dav. Trans. Linn. Soc. (2), IV, p. 96, pl. 17, figs. 18-19.  
Inland Sea, Is. of Kuro-puna, 26 fath. (A. Ad.). The adult of this is *Eudesia venosa* according to Dall.
- Ismenia sanguinea** Chem. Chall. Rep., Vol. I, p. 20; Conch. Tab., Vol. 8, p. 96, pl. LXXVIII, figs. 1-8.  
Mino-Shima, 63 fms., Goto, 48 fms. (Ad.). Davidson (*l. c.*, p. 179) considers *M. pulchella* Sowb. and *M. reevei* Davidson forms of this species.

#### RHYNCHONELLIDÆ.

- Rhynchonella psittacea** Chem. Trans. Linn. Soc. (2), IV, p. 163, pl. 24 figs. 1-11.  
Hakodate.
- Rhynchonella psittacea** var. **woodwardi** A. Ad. Trans. Linn. Soc. (2), p. 168, pl. 24, figs. 12, 13.  
Goto, 48 fath., Rifunsiri Is., 35 fath.
- Rhynchonella lucida** Gld. Trans. Linn. Soc. (2), IV, p. 168, pl. 24, figs. 15, 15b.  
Lat. 30° 35' N., Long. 130° 40' E., 100 fath., sand (Capt. Stevens of the "Hancock"); Satanomosaki, 55 fath., Goto, 48 fath. (A. Ad.).



*Rhynchonella doderleini* Dav. Trans. Linn. Soc. (2), IV, p. 172, pl. 25, figs. 14, 15.

Sagami Bay, 160 fath. (Döderlein).

#### CRANIIDÆ.

*Crania japonica* Ad. Trans. Linn. Soc. (2), IV, p. 191, pl. 27, figs. 10, 11.

Goto, 71 fath. (Adams).

#### DISCINIDÆ.

*Discinisca stella* Gld. Trans. Linn. Soc. (2), IV, p. 204, pl. 26, figs. 27-30.

Seto-Uchi, 17 fath., Isu-Shima, 17-25 fath., Tabu-Shima, 26 fath. (Adams).

#### LINGULIDÆ.

*Lingula anatina* Bruguiere. Trans. Linn. Soc. (2), IV, p. 206, pl. 29, figs. 1-8.

Yedo (Adams); Enoshima (Stearns).

*Lingula jaspidea* Ad. Trans. Linn. Soc. (2), IV, p. 218, pl. 28, figs. 23-24a.

Mososeki, 7 fath., mud (Adams).

*Lingula adamsi* Dall. Trans. Linn. Soc. (2), IV, p. 218, pl. 28, f. 19.

Tsaulian Harbor, Corean Archipelago, 7 fms. (A. Ad.).

*Lingula smaragdina* A. Ad. Trans. Linn. Soc. (2), IV, p. 220, pl. 28, fig. 25.

Yobuko, 10 fath., mud.

*Lingula lepidula* A. Ad. Trans. Linn. Soc. (2), IV, p. 220, pl. 28, fig. 16.

Seto-Uchi, 10 fath., mud (Adams).

## APPENDIX I.

List of Land and Freshwater Mollusks collected in Japan by Frederick Stearns.

## ENDODONTIDÆ.

*Pyramidula* (*Gonyodiscus*) *pauper* Gld. Tokyo (Stearns).

## HELICIDÆ.

Two genera only of *Helicida* occur in Japan: *EULOTA*, represented by the sections *Eulotella*, *Acusta*, *Euhadra*, *Plectotropis* and *Ægista*, and *GANESSELLA* represented by *G. (Satsuma) japonica* and its allies.

From alcoholic specimens collected by Mr. Stearns, the writer has been enabled to figure the anatomy of *Euhadra quærita*, *pehionphala*, *brandti*, etc., *Plectotropis vulgivaga* and *Ganesella japonica* (Man. Conch. [2], IX), and to demonstrate the true relationships of these forms hitherto unknown. By shell characters alone it is at present impossible to classify many of the small Helices of Japan and China. Their anatomy only can decide which species belong to *Ganesella*, which to *Eulota*. Some large forms, such as *Helix largillierti*, *papilliformis* and *Stearnsii* are of equally dubious affinities. Altogether the *Helix* fauna is very closely allied to that of middle and northern China, but is poorer in variety of types. The *Euhadra* group is its most characteristic element. *Cathaica*, *Pseudiberus* and other Chinese *Eulota* sections are absent, as are *Camæna* and *Plectopylis*; and *Moellendorffia*, a group allied to *Helicodonta* in shell features, but possibly belonging near *Chloritis*, is another characteristic type of southern China wanting in Japan.

*Eulota similaris* var. *stimpsoni* Pfr. Nemoto and Mera, Boshu, Tokyo, Katsura, Osaka (Stearns).

*Eulota sieboldiana* Pfr. Kyoto (Gaines); Mera, Boshu, Yokohama, Tokyo (Stearns).

*Eulota laeta* Gld. Hokkaido (Gaines).

*Eulota (Euhadra) luhuana* Sowb. var. *nimbosa* Crosse.

Arima (Gaines); Yokohama (Stearns). Bands, indifferently two or three; sometimes the dark bands cover the ground, except for the light flames; and this is the form I have called var. *subatra*. Others occur at Yokohama without dark bands, but with the papery streaks.

*Eulota (Euhadra) luhuana* var. *eoæ* Crosse. Yokohama (Stearns).

*Eulota (Euhadra) luhuana* var. *brandti* Kob. Nikko (Stearns).

*Eulota (Euhadra) luhuana* var. *nipponensis* Kob.

Kyoto; both the plain and a two-banded form collected by Mr. Stearns. Lip indifferently purplish-fleshy or white.

*Eulota (Euhadra) luhuana* var. *amaliæ* Kob.

Japan (Stearns).

*Eulota (Euhadra) luhuana* var. *senckenbergiana* Kob. Mt. Hie, Hiezan (Gaines)

*Eulota (Euhadra) quæsita* Desh. Near Yokohama.

*Eulota (Euhadra) quæsita* var. *perryi* Jay. Nikko (Stearns).

*Eulota (Euhadra) blakeana* Newcomb. Pl. I, figs. 3, 7, 8, 8.

*Helix blakeana* Newc., Proc. Cal. Acad., III, p. 179, (1865); not *H. blakeana* Tate, 1870, = *Thysanophora tatei* Pils., 1895.

*Helix (Aegista) blakei* Kobelt, Faun. Jap., p. 23, pl. 7, f. 10, 11.

*Helix (Eulota?) blakei* Kobelt, Conchyl. Cab., p. 673, pl. 192, f. 9, 10.

The type lot of this species is preserved in the museum of Cornell University, and consist of three specimens: the type drawn on pl. I, figs. 7, 8, 8; a smaller specimen broken above, pl. I, fig. 3; and a young shell.

The larger shell is slightly abnormal in having the last whorl deeply descending on its last half, owing to a slight fracture. There are 6 whorls, the earlier two forming the nepionic nucleus, apex obtuse; those following are convex, with moderately deep sutures, showing slight growth wrinkles and close minute spiral, wavy impressed lines, which are well developed over the whole surface, and not different from those of *E. peliomphala* in fineness and spacing. Umbilicus moderate, about one-eleventh the diameter of the shell, rather more open inside than in *peliomphala*, half covered by the expanded columellar lip. Alt. 19, diam. 28 mm.

The smaller specimen figured differs in the less descending last whorl, less oblique aperture, less covered and larger umbilicus, which is between one-eighth and one-ninth the diam.; alt. —, diam. 26 mm. Both show a very slight, hardly noticeable angulation of the periphery at the origin of the body whorl. The color is a uniform pale corneous-buff, lip white.

The species is very nearly allied to *Eulota peliomphala*, but seems to be specifically distinct. Kobelt misquotes the reference to Cal.

Acad. Proc., as well as the name of this species. We are indebted to Prof. Gilbert H. Harris, of Cornell University Palæontological Department, for the opportunity of figuring these specimens.

*Eulota (Aegista?) macrocycloides* Kob. Kyoto (Gaines).

*Eulota (Aegista) kobensis* S. & B. Hiesan (Gaines).

*Eulota (Plectotropis) vulgivaga* S. & B. Yase, near Kyoto (Gaines).

*Ganesella stearnsii* n. sp. Pl. I, fig. 4.

Shell imperforate, globose-turbinate, higher than wide, thin, straw colored, with a peripheral brown line visible above suture on penultimate whorl; surface smooth to the eye, but under a lens showing very minute crowded spiral lines as in *Eulota nipponensis*, but rather less distinct. Spire high, with convex outlines; whorls  $7\frac{1}{2}$ , very convex, flattened and arcuate-striatulate below the sutures; the last rounded at periphery, somewhat descending in front; base convex, impressed in the center. Aperture somewhat oblique, semilunar, white within; outer lip arched, slightly expanded, a trifle thickened within; columella straight, vertical, narrow, deeply inserted, hardly expanded at the insertion, its edge expanded below, reflexed and closely appressed above in a very thin glaze over the axial region. Alt. 29, diam.  $24\frac{1}{2}$  mm.

Mt. Hie, Hiesan, near Kyoto (Gaines).

This is an extraordinary species, recalling *H. sphæroconus* of Formosa and *H. papilliformis* of Nippon. The former is most nearly allied, but differs in the flatter whorls, etc. Kobelt's species has flatter whorls ("convexiusculi") and a more slanting columella, etc. Whether these species belong with *japonica* Pfr. in *Ganesella*, or are Euhadras allied to *myomphala*, remains to be decided by anatomical research.

The name need not be confused with *Helix stearnsiana* Gabb, a species of *Epiphragmophora*.

*Ganesella goodwini* Smith. Hiesan (Gaines).

*Ganesella japonica* Pfr. Kyoto, Kobé (Gaines).

Specimens collected alive by Stearns supplied the anatomical description of this genus in Man. Conch., IX.

#### PUPIDÆ.

The species of *Clausilia* collected have not yet been all identified, and will be treated of elsewhere.

## SUCCINEIDÆ.

*Succinea lauta* Gld. Hakodate, Hokaido (Stearns).

## AURICULIDÆ.

*Melampus luteus* Q. & G.

Numerous specimens brought from Japan by Mr. Stearns, but probably imported.

## LIMNÆIDÆ.

*Limnæa japonica* Jay. Hakodate (Stearns).

*Limnæa goodwinii* Smith. Tokyo, Hakodate, Shimnosiki (Stearns).

This probably is identical with *L. pervia* Mts.

*Planorbis spirillus* Gld. Kishiu (Stearns).

## OPERCULATA.

*Cælopoma japonicum* A. Ad. Kobé, (Gaines).

*Cyclotus campanulatus* Mart. Kobé (Gaines).

*Cyclophorus herklotsi* Mart. Hiezan (Gaines).

*Pupinella rufa* Sowb. Kobé.

*Helicina japonica* A. Ad. Large var. Hiezen (Gaines).

## VIVIPARIDÆ.

*Vivipara stelmaphora* Bgt. var. *malleata* Reeve. Heda coast and Mera, Prov. Boshu, washed up on the beach (Stearns).

*Vivipara selateri* Ffld. With the preceding.

*Vivipara oxytropis* Bens. Tokyo (Stearns).

## MELANIIDÆ.

For literature of Japanese *Melaniidæ* see Boettger, Nachr. D. M. Ges., 1886, p. 1, and Brot, Recueil Zool. Suisse, IV, p. 105.

*Melania japonica* Reeve. Shimosa, Yokohama (small form), Kishiu (young only), Nikko. (Stearns).

*Melania multigranosa* Bttg. Shimosa. (Stearns).

*Melania reiniana* Brot. Shimosa. (Stearns).

*Melania libertina* Gld. Nemoto, Boshu. (Stearns).

*Melania lobbeckei* Brot.

Isi. (Stearns). Specimens from this locality are very large, alt. 55-58 mm.

*Melania japonica* E. A. Smith, Boso Sea

*Melania dolovosa* Gld. Hakodadi,

*Melania retifera* Fyson

*Melania nufusiana* v. Merh. Japan



## UNIONIDÆ.

*Unio oxyrhynchus* Martens. Osaka River (coll. by Gulich); Uji River below Lake Biwa (Gaines).

*Unio schlegelii* Martens. (Gaines).

## CYRENIDÆ.

*Corbicula orientalis* Desh.

Numerous specimens, collected by Stearns, which I cannot distinguish from the continental form.

*Corbicula japonica* Prime. (+*biformis* Reinh.).

Yokohamā, on tide-flats (Stearns).

*Corbicula straminea* Reinh. Mud flats, Kishiu coast (Stearns).

*Corbicula martensii* Clessin. (+*yokohamensis* Sowb.).

Tokyo (Stearns, in the fish market).

*Sphærium heterodon* n. sp. Pl. III, figs. 15, 16, 17.

Shell rhombic-oval, anterior end subtruncate-rounded, posterior end truncated, nearly equilateral, moderately convex; light gray, with yellowish ill-defined concentric zones, and usually a darker zone or two. Beaks calyculate; interior bluish-white. Right valve with a single transverse, elongated cardinal in front of the beak; a double short anterior lateral lamella, a single posterior lamella. Left valve with a single minute cardinal, a single short high anterior lamella, posterior lamella double, short. Length  $9\frac{1}{2}$ , alt.  $7\frac{1}{2}$ , diam.  $5\frac{1}{2}$  mm.

Kishiu, Hizen (Stearns).

The cardinals are extremely minute, almost obsolete. Two specimens have the beak caps conspicuous, a third having them ill-defined.

## APPENDIX II.

LIST OF MOLLUSCA IN THE COLLECTION OF FREDERICK STEARNS FROM THE MIDDLE LOO CHOO ISLANDS, WITH DESCRIPTIONS OF NEW SPECIES.

The species listed below were collected for Mr. Stearns by Morizo Seta during 1891, 1892. Part of them were determined by Mr. Stearns, part by Mr. Pilsbry, the latter being indicated by an asterisk (\*) following the species names.

In this list the name Yaeyama Jima ("many-peaked island") is used for the largest of the middle Loo Choo group, often known as Okinawa. We believe the same term has also been applied to another island of the group.

A list of mollusks from the middle Loo Choo Is. has been published by Dr. O. Böttger (Nachrichtsblatt des Deutschen Malakozoologischen Gesellschaft, 1892, p. 153). A recent general account of the physical and political features of the group may be found in The Geographical Journal, V, April, May, June (London, 1895) by Professor Basil Hall Chamberlain, of the Imperial University of Japan.

The most remarkable diversity exists in the etymology of the name of these islands, but the form "Loo Choo" or its phonetic equivalent "Luchu" seems preferable for English speaking peoples.

The malacological fauna of this chain of islands seems to be moderately homogeneous as far as known.

## ARGONAUTIDÆ.

*Argonauta gondola* Dillw. Yaeyama.

## ACTÆONIDÆ.

*Solidula glabra* Rve.\* Yaeyama.

*Bullina scabra* Gmel.\* Yaeyama.

## BULLIDÆ.

*Bulla vernicosa* Gld. Yaeyama.

17 live shells, col. varieties.

## SCAPHANDRIDÆ.

*Alys cylindrica* Helbling. Yaeyama.

Nat. name *Shira-Kai* (white shell). 200 shells, mostly living.

## HYDATINIDÆ.

*Hydatina physis* Lin. 3 shells. Yaeyama.

## SIPHONARIIDÆ.

*Siphonaria coreensis* Ads. & Rve.\* Yaeyama.

## AURICULIDÆ.

*Pythia scarabeus* Linn. (?). 1 Shell. Yaeyama.

*Melampus caffer* Krauss. Yaeyama. Very abundant. Dr. O. Boettger has kindly determined the specimens.

## LIMNÆIDÆ.

*Limnæa pervia* Marts. Yaeyama.

100 live shells (brought home in alcohol with a lot of *Melampus*).

## ZONITIDÆ.

*Trochomorpha fritzei* Boettger.\* Pl. X, figs. 9, 10, 11.

Bttg., Nachrbl. D. M. G., 1892, p. 160.

Dr. Boettger's excellent description of this species leaves nothing to be desired. It is remarkable for the acute keel encircling the umbilicus. The specimen figured is from the same island where the types were originally found, Okinawa or Yaeyama; it measures: alt. 6, diam. min. 20, diam. maj. 22 mm., being slightly larger than Boettger's types.

## HELICIDÆ.

*Ganesella largillierti* Philippi.\* Pl. X, figs. 12, 13, 14.

Reported by Largilliert from the Loo Choo Is., and also included in Boettger's list. There are three color varieties:

Var. *immaeulata* Ad. & Rv. (Pl. X, fig. 12). Pale, almost white above, with a yellowish-green sutural margin and base; apex white. (C. Icon., f. 420).

Var. *eucosmia* Pils. (Pl. X, fig. 14). Body whorl begirt with dark chestnut zones; apex white or pinkish. Conf. Smith, P. Z. S. 1887, p. 317.

Var. *zacosmia* Pils. (Pl. X, fig. 13). Body whorl having a black band immediately above the periphery, fading into rich reddish-chestnut toward the suture; a white or yellow band below periphery, bordered by a black zone below, the middle of the base yellowish-chestnut or reddish-chestnut, apex purple. The coloring of this variety is wonderfully rich for a *Satsuma*.

All of the above varieties collected on Yaeyama Island.

*Eulota (Euhadra) yaeyamensis* Pilsbry. Pl. IX, figs. 1, 2, 3.

Shell sinistral, perspective umbilicated, depressed, thin but rather solid, light brown, with a supra-peripheral brown line. Sur-

face irregularly wrinkle-striate, and in places showing an excessively fine, superficial spiral striation. Spire low conoidal, composed of 6 convex, slowly widening whorls, the last nearly twice as wide as the preceding, a trifle descending in front, rounded at the periphery and beneath. Aperture oblique, wide lunate; peristome flesh-tinted, narrowly expanded and subreflexed, and slightly thickened within-dilated at the columellar insertion. Alt. 17, greater diam.  $27\frac{1}{2}$ , lesser 23 mm.

Yaeyama (Okinawa) Island, Loo Choo group (Frederick Stearns).

This species is apparently most nearly allied to the Chinese *H. latilabris* Mlldff, but the umbilicus is more open, the lip narrower, aperture more oblique, etc. The umbilicus is wider and more open than in *H. quæsita*.

Another specimen is smaller (alt. 15, greater diam. 24, lesser diam.  $20\frac{1}{2}$  mm.), and straw-colored, with the usual dark girdle.

*Eulota (Euhadra) quæsita* Desh. Yaeyama.

*Eulota (Euhadra) mercatoria* Gray. Pl. X, figs. 1, 2, 3, 4, 5, 6.

Yaeyama I. (Stearns, 29 specimens).

Of this species I believe *H. caliginosa* Adams & Reeve (Voy. Samarang, Moll., p. 62, pl. xvi, fig. 6) to be a synonym. The locality "Mindanao" is, if I am right, probably incorrect. The species shows the same great range of variability that is characteristic of the Japanese Eubadras.

Figure 4 represents a large specimen uniform blackish in color except for slightly marked light bands above and below the periphery.

Figure 6 is the lightest specimen seen, being of a clear yellow tint with a dark line at periphery. It is light below the sutures, like the type of *caliginosa*. Figures 1, 2, 3 represent an average specimen.

Figure 5 is the smallest shell, measuring  $17\frac{1}{2}$  mm. diam. It is distinctly carinated in front, as are some other stunted specimens of the lot.

All gradations of form, size and coloring between these selected specimens are represented in the series secured by Mr. Stearns.

*Eulota (Euhadra) connivens* Pfr.

Yaeyama Island (Stearns).

This species varies from  $17\frac{1}{2}$  to 27 mm. in greatest diameter, and shows much mutability in the degree of depression of the spire.

*Eulota (Acusta) despecta* Gray.\* Pl. X, figs 7, 8.

Yaeyama.

The shell varies in color from yellow or straw-colored with nearly white aperture, to purplish-red with fleshy-purple aperture.

*Eulota (Aegista) oculus* Pfr.\* (*typinsana* A. & R.). Yaeyama.

Adult specimens vary from 19 to 27 mm. diameter. They agree well with the figures of *H. typinsana* Adams & Reeve, Zool. 'Samarang,' pl. xv, fig. 3.

*Eulota (Aegista) vermis* Reeve.\* Pl. IX, figs. 7, 8, 9.

Yaeyama (Stearns).

Many examples of this splendid species were obtained. It is notable for the depression of the inner whorls, which are frequently concave.

*Eulota (Plectotropis) mackensii* Adams & Rve.\* Yaeyama.

About 75 specimens of this magnificent species were secured by Mr. Stearns. They are very large, from 34 to 39 mm. diameter, varying in color from light straw-colored or greenish-yellow to dark reddish-chestnut. One of these is figured in Man. Conch. (2), IX pl. 64, fig. 16-17.

*Eulota (Plectotropis) elegantissima* Pfr.\*

Yaeyama, (Stearns, 17 specimens).

Perfectly fresh shells show a fringe of long, delicate hairs at the periphery, and along the suture of the last whorl.

#### PUPIDÆ.

*Clausilia (Stereophædusa) valida* Pfr.\*

*Clausilia (Stereophædusa) Stearnsii* Pilsbry. Pl. I, fig. 12.

Shell elongated, regularly tapering, the next to the last and the last whorl widest, the latter hardly contracted below; moderately solid, closely, lightly striated, the striæ wanting on the earlier whorls, more distinct and spaced on the latter part of the last whorl. Color opaque purplish-brown. Whorls 12-13. but slightly convex, separated by a shallow, simple suture. Aperture contained  $4\frac{1}{2}$  to  $4\frac{3}{4}$  times in length of shell; peristome reflexed, whitish, slightly thickened, not adnate; superior lamella strong, extending to the lip-edge; inferior lamella deep-seated, parallel to the superior, invisible from the front; subcolumellar lamella extending to lip-edge, bounded by grooves; palatal plicæ two, the upper one long, second rather short, with a thin white subvertical lunella below it, which is strengthened below into a low bar.



Alt. 31, greatest diameter of last whorl above aperture 5 mill.

Alt. 26, greatest diameter of last whorl above aperture 5 mill.

Yaeyama (Okinawa), Loo Choo Is. (Fr. Stearns).

Believing this species to be new, I sent examples to Prof. Dr. O. Boettger, the great authority on these shells, and received the following emphatic confirmation of my opinion: "Die *Clausilia* von Okinawa ist ohne jeden Zweifel n. sp. Es ist eine *Stereophædusa* und steht in der Mitte zwischen *japonica* Crosse and *brevior* v. Mts."

No similar form has hitherto been reported from the Loo Choo group, the nearest allies of the species being Japanese. It is named in honor of Mr. FREDERICK STEARNS of Detroit, who has contributed so largely to our knowledge of the Japanese fauna. The specimens vary considerable in length, but not in other characters.

#### TEREBRIDÆ.

*Terebra* (*Subula*) *maculata* Linn. Yaeyama.

Native name, Take-noko-kai (bamboo sprout shell). 1 full grown live shell 7", with operculum and one each without, 5¼" and 3".

*Terebra* (*Subula*) *muscaria* Lam. (var.). Yaeyama. 1 live shell.

*Terebra* (*Subula*) *muscaria* Lam. (Typical).

Native name, Ushi-no-Tsuno, bora (bull's horn shell), 28 live shells. Hirame Jima.

*Terebra* (*Subula*) *crenulata* Linn. Kudaka Is.

Native name, Uno-Tsuna, bora (big rope shell).

*Terebra* (*Subula*) *dimidiata* Lam. Kudaka Is.

Native name, same as previous species; 11 live shells.

#### CONIDÆ.

*Conus marmoreus* Linn. Ohon-me Is.

Native name, Bote-furi, bora. 27 live shells, medium and small, the largest 6 cm. long.

*Conus imperialis* Linn. Yaeyama.

Native name, Nagashi-nani. 4 live shells, 7 cm. long.

*Conus vexillum* Gml. Itoma Jima.

5 fine live shells, with epidermis, the largest 5¼" long.

*Conus miles* Linn. Kobashima.

9 live shells with epidermis, the largest 7 cm. long.

Native name, Imo-Gai (sweet-potato shell).

- Conus capitaneus** Linn. Kudata.  
 Native name, Hibi-bora. 1 live shell, 53 mm. long.
- Conus geographus** Linné.\*  
 Native name, Naga-bai (long shell).  
 13 mature, fine live shells. Koba-shima Is. Length from 8 cm. to 11 cm.
- Conus striatus** Linn. Yaeyama Is.  
 Native name, Nagashi-nani. 15 mature live shells.
- Conus tulipa** (var. near *C. obscurus* Rve.). 1 live shell. Kudaka Is.  
 Native name, Hibi-bora.
- Conus quercinus** Hwass (var.).  
 Native name, Hibi-bora. 14 live shells, 8 cm. and less. Kudaka Is.
- Conus figulinus** Linn. Kudaka Is.  
 1 fine live shell 6 cm., but very much darker in color than the type. Native name, Hibi-bora.
- Conus vitulinus** Hwass. Nago Is.  
 1 live shell 39 mm. long.
- Conus puncturatus** Hwass. Kudaka.  
 1 live shell 16 mm. long.
- Conus lividus** Hwass. Oshima Is.  
 18 live shells with epidermis, the largest 54 mm. long.
- Conus hebraeus** Linn. Hirame Jima.  
 3 live shells, the largest 30 mm. long.
- Conus pulicarius** Hwass.\* Ohon-me Is.  
 1 live shell 6 cm.
- Conus literatus** Linn. Kobashima. Tryon, Man. Vol. 6, p. 10, pl. 2, fig. 17.  
 10 shells with epidermis, the largest 13 cm. long.
- Conus literatus** Linn. var. *millepunctatus* Lam. Kobashima. Try., Man. Vol. 6, p. 10, pl. 2, fig. 19.  
 14 shells, mostly mature, the largest 82 m. long, with epidermis.
- Conus eburneus** Hwass. Kudaka Is. Try., Man. Vol. 6, p. 11, pl. 2, fig. 24.  
 In this specimen the square spots are fewer and more distant.  
 1 live shell 5 cm. long, without epidermis.
- Conus textile** Linn. Kaboshima.  
 9 live shells, the largest 10 cm. long.

*Conus aulicus* Linn. Kudaka Is.

1 live shell, 9 cm. long.

*Conus miliaris* Hwass.\* Loo Choo Is.

*Conus omaria* Hwass.\* Yaeyama.

#### OLIVIDÆ.

*Oliva irisans* Lam. var. *erythrostoma* Lam.

Native name, Naga-Bai (long shell). 26 live shells. Hirame Jima Is.

*Oliva irisans* Lam. var. *olympiadina* Ducl. (= *O. pica* Lam.).

1 shell. Yaeyama.

*Oliva mustelina* Lam. Yaeyama. T., M. Vol. 5, p. 78, pl. 22, figs. 6-14.

3 live shells, slightly varying.

*Oliva guttata* Lam.\* Yaeyama.

#### HARPIDÆ.

*Harpa conoidalis* Lam.

Native name, Sho-ko-no-Nishiki (meaning gold brocade shell).

5 live shells, various sizes. Yaeyama.

*Harpa minor* Rumph. (var.). 2 live shells. Kudaka Is.

*Harpa nobilis* Lam. 1 live shell. Yaeyama.

#### MITRIDÆ.

*Mitra episcopalis* Linn. Tryon, Man. Vol. 4, p. 111, pl. 32, fig. 1.

Yaeyama. Native name, Takenoko-Kai (bamboo sprout shell). 30 shells.

*Mitra pontificalis* Lam. Tryon, Man. Vol. 4, p. 111, pl. 32, fig. 3.

Yaeyama. Native name, Takenoko-Kai (bamboo sprout shell). 10 live shells.

*Mitra (Costellaria) exasperata* Gm. Tryon, Man. Vol. 4, p. 180.

Yaeyama. None of the figures given in Tryon are good. 11 live shells.

*Mitra (Turricula) corrugata* Lam. Tryon, Man. Vol. 4, p. 168, pl. 50, fig. 429.

Yaeyama. 2 live shells.

*Mitra (Chrysama) digitalis* Chem. Tryon, Man. Vol. 4, p. 149, pl. 44, fig. 278.

Yaeyama. 1 live shell.

*Mitra (Scabricola) sphaerulata* Mart. Tryon, Man. Vol. 4, p. 122, pl. 39, fig. 149-158.

Yaeyama. 1 live shell.

- Mitra (Turricula) taeniata** var. **vittata** Swains. (= *M. tayloriana* Sby.) Tryon, Vol. 4, p. 164, pl. 48, figs. 385-388.  
 Yaeyama. 2 live shells.
- Mitra (Turricula) berthæ** Sby. Tryon, Man. Vol. 4, p. 168, pl. 49, fig. 417.  
 Yaeyama. 1 good dead shell.
- Mitra (Turricula) plicata** Lam. Tryon, Man. Vol. 4, p. 167, pl. 50, fig. 420.  
 Yaeyama. 1 live shell.
- Mitra cardinalis** Gmel. Tryon, Man. Vol. 4, p. 111, pl. 32, fig. 4.  
 Yaeyama. 4 live shells.
- Mitra puncticulata** Lam. Tryon, Man. Vol. 4, p. 115, pl. 33, fig. 25.  
 Yaeyama. 5 live shells.
- Mitra (Mitroidea) telum** Sby. (var.). Tryon, Man. Vol. 4, p. 163, pl. <sup>47</sup>47, fig. 376.  
 Yaeyama. 2 live shells.
- Mitra (Strigatella) literata** Lam. var.\* Yaeyama.
- Mitra (Strigatella) virgata** Rve. Tryon, Man. Vol. 4, p. 156, pl. 46, fig. 34.  
 Yaeyama. 4 live shells.
- Mitra (Cylindra) dactylus** Linn. Tryon, Man. Vol. 4, p. 197, pl. 57, fig. 658.  
 Kudaka Is. Native name, Hibi-Bora. 11 live shells.
- Mitra (Cylindra) crenulata** Gml. Tryon, Man. Vol. 4, p. 197, pl. 57, fig. 666.  
 Kudaka Is. 1 live shell.

**FASCIOLARIIDÆ.**

- Fusus tuberosus** Reeve.\* Kudaka Is.
- Fusus inconstans** Lisch. Tryon, Man. Vol. 3, p. 54, pl. 33, figs. 102-17.  
 Yaeyama. Native name, Youaki-mōmō (night-crying shell).  
 10 live shells.
- Fusus multicarinatus** Lam.  
 Yaeyama. Native name, same as above. 1 live shell.
- Fusus distans** Lam. Tryon, Man. Vol. 3, pl. 36, fig. 131.  
 Yaeyama. Native name, as above. 5 live shells.
- Fusus colus** Linn. (var.). Tryon, Man. Vol. 3, p. 52, figs. 90-95.  
 Yaeyama. 1 live shell.
- Fusus nicobaricus** Lam. (var. near *F. laticostatus* Desh.).  
 Hirame Jima Is. 12 live shells.
- Fasciolaria filamentosa** Lam. Tryon, Man. Vol. 3, p. 75, pl. 59, fig. 9.  
 Itoma Jima Is. Native name, Yauaki-Gai (night-crying shell).  
 3 live shells with operculum and 5 without.

**Fasciolaria trapezium** Lam.

Nago Island. 1 young shell, also 8 full-grown, 3 with opercula and 5 without.

**Latirus polygonus** Gml. Tryon, Man. Vol. 3, p. 88, pl. 66-67, figs. 106-114.

Hirame Jima Is. 2 live shells.

**Lagena smaragdula** Linn.\* Loo Choo Is.

**TURBINELLA.**

**Turbinella (Vasum) turbinellum** Linn. Tryon, Man. Vol. 4, p. 72, figs. 20-22.

Hirame Jima Is. 45 live shells.

**Turbinella (Vasum) ceramicum** Linn. Tryon, Man. Vol. 4, p. 72, pl. 21, fig. 18.

Hirame Jima Is. Native name, Naga-Bai (long shell). 9 live shells, 1 very large.

**Hemifusus ternatanus** Gml. (= *Pyrulatus* Lam.). Tryon, Man. Vol. 3, p. 112, pl. 44, fig. 233.

Kudaka Is. Native name, Uni. 4 live shells.

**BUCCINIDÆ.**

**Siphonalia cassidariformis** Rve. = *S. ornata* and *S. conspersa* A. Ad.

Yaeyama. 14 live shells.

**Siphonalia kellesti** Forbes. Tryon, Man. Vol. 3, p. 134, pl. 54, fig. 352.

17 live shells.

**Eburna japonica** Sby.

Yaeyama. 7 living, but half-grown shells.

**Tritonidea undulata** Schepm.\* Middle Loo Choo Is.

**Tritonidea undosa** Linn. Yaeyama.

**Tritonidea (Cantharus) rubiginosa** Reeve.\* Loo Choo Is.

**NASSIDÆ.**

**Nassa muricata** Quoy & Gaimard (= *N. gruneri* Rve.). Tryon, Man. Vol. 5, p. 44, pl. 14, fig. 217.

Yaeyama. 2 live shells.

**Nassa coronata** Brug. Tryon, Man. Vol. 4, p. 23, pl. 7, fig. 8.

Yaeyama. 2 live shells.

**Nassa hirta** Kiener var.\* Yaeyama.

**Nassa stigmara** A. Ad. Tryon, Man. Vol. 4, p. 54, pl. 16, fig. 308.

Yaeyama. 4 live shells.

**Nassa pieta** Dkr. var. Tryon, Man. Vol. 4, p. 35, pl. 11, fig. 139.

Yaeyama. 1 live shell.



## COLUMBELLIDÆ.

- Columbella flava* Brug.\* Loo Choo Is.  
*Columbella scripta* Lam.\* Loo Choo Is.  
*Columbella (Conidea) discors* Gmel.\* Yaeyama.  
*Columbella (Pusiostoma) mendicaria* Linn.  
 Yaeyama. 1 live shell.

## MURICIDÆ.

- Murex (Chicoreus) ramosus* Linn.  
 Yaeyama. 12 large shells, full-grown, 1 half-grown.  
*Murex (Chicoreus) brevifrons* Lam.  
 Yaeyama. Found also in many parts of the islands. 21 shells  
 in various stages of growth.  
*Murex adustus* Lam.\*  
 Called Yako-Gai in all parts of the islands.  
*Murex (Chicoreus) maurus* Brod. Tryon, Man. Vol. 2, p. 89, pl. 33, fig. 139.  
 Yaeyama. 1 shell.  
*Rapana bezoar* Linn.  
 Kudaka Is. Native name, Ushi-no-tsumo, bora (bull's mouth  
 shell). 1 shell, mature; 1 half-grown.  
*Purpura persica* Linn. var.\* Kobashima.  
*Purpura mancinella* Linn.\* Loo Choo Is.  
*Purpura (Thalessa) armigera* Chem.  
 Called in Loo Choo Konpeto-Gai (konpeto meaning sweet-meats).  
 10 shells.  
*Purpura (Thalessa) hippocastaneum* L., var. *sulcata* Desh.  
 From Hirame Jima Is. 17 shells.  
*Iopas sertum* Brug. Tryon, Man. Vol. II, p. 180, pl. 55, fig. 189.  
 Yaeyama. 1 live shell.  
*Ricinula histrix* Lam.  
 Loo-Choo Is. 8 shells with rather light pink aperture, 10 with  
 darker.  
*Ricinula horrida* Lam.  
 Yaeyama. Called Ushi-no-guchi, mōmō, meaning bull's mouth  
 shell. 6 with apertures dark purple, 9 with apertures somewhat  
 lighter.

*Ricinula arachnoides* Lam. = *R. ricinus* Linn.

Yaeyama. Called Ushi-no-guchi, mōmō, meaning bull's mouth shell. 5 shells.

*Sistrum concatenatum* Lam.\* Loo Choo Is.

#### TRITONIDÆ.

*Triton tritonis* Linn. (= *T. variegatus* Linn.) Tryon, Man. Vol. 3, p. 9, pl. 3-5, figs. 16-25.

Yaeyama. 10 shells, full-grown; 25 smaller (very fine live shells).

*Triton nodiferus* Lam. Tryon, Man. Vol. 3, p. 10, pl. 1, fig. 3; pl. 3, fig. 417.

Yaeyama. 2 live shells.

*Triton (Simpulum) pilearis* Linn. (var.) Tryon, Man. Vol. 3, p. 12, pl. 6, figs. 31-36.

Yaeyama. 11 live shells.

*Triton (Gutterium) tuberosus* Lam.\*

Yaeyama. Native name, Ushi-no-hana, bora (bull's nostril shell). 4 live shells.

*Triton (Lotorium) clavator* Chemn. = *T. exilis* Rve. Tryon, Man. Vol. 3, p. 21, fig. 86.

Yaeyama. 1 young shell.

*Triton (Cymatium) pyrum* Linn. Tryon, Man. Vol. 3, p. 19, pl. 11, fig. 79; pl. 10, fig. 76.

Yaeyama. 1 living adult shell.

*Ranella (Lampas) bufonia* Gmel. (var.) Tryon, Man. Vol. 3, p. 39, pl. 21, fig. 68.

Yaeyama. 7 live shells.

*Ranella albivaricosa* Rve. Tryon, Man. Vol. 3, p. 38, pl. 18, fig. 6.

Yaeyama. 1 live shell.

*Ranella (Lampas) lampas* Linn. Tryon, Man. Vol. I, p. 38, pl. 19, fig. 12.

Yaeyama. 5 shells typical. 5 shells with lighter colored aperture, perhaps only older shells.

*Ranella (Lampas) granifera* Lam. Tryon, Man. Vol. 3, p. 41, pl. 22, fig. 35.

Yaeyama. 1 live shell.

#### CASSIDIDÆ.

*Cassis rufa* Linn. Tryon, Man. Vol. 2, p. 273, pl. 3, fig. 57.

Yaeyama. 2 fine live shells.

*Cassis glauca* Lam. Nago Is.

Var. near *C. coronulata* Sby., except that it is continuously banded longitudinally. 9 live shells.

*Cassis vibex* Linn. (= *C. torquata* Rve.) Tryon, Man. Vol. 2, p. 277, pl. 7, fig. 89, 90, 92, 93.

Yaeyama. Native name, Yauaki-Mōmō (night-crying shell). 12 live shells.

*Cassis coronulata*.

Nago Is. 1 live mature shell.

*Oniscia exquisita* Ad. Rve. (= *O. ponderosa* Hanley) Tryon, Man. Vol. 7, p. 282, pl. 8, fig. 100.

Yaeyama. 1 shell.

*Dolium perdix* Linn. Tryon, Man. Vol. 7, p. 264, pl. 3, fig. 15.

Hirame Jima. Native name, Udsura-gai (quail shell). Also 1 full-grown shell from Yaeyama. 26 shells,  $3\frac{1}{2}''$  to  $2\frac{3}{4}''$ .

*Dolium costatum* Mke. (var.) Tryon, Man. Vol. 7, p. 263, pl. 4, fig. 19.

Itoma Jima Is. 1 young shell.

*Dolium costatum* Mke, var. *maculatum* Lam. Tryon, Man. Vol. 7, p. 264, pl. 4, fig. 21.

Itoma Jima Is. Native name, Ki-gai (interest shell). 2 live shells, not adult.

*Dolium pomum* Linn. Tryon, Man. Vol. 7, p. 265, pl. 5, fig. 26.

Yaeyama. Native name, Ki-gai (interest shell). 10 young shells, 1 to  $1\frac{1}{2}$  inch long.

*Dolium melanostoma* Jay.

Yaeyama. 1 very young shell.

#### CYPRÆIDÆ.

*Cypræa (Luponia) tigris* Linn. Tryon, Man. Vol. 7, p. 180, pl. 11, figs. 49-50.

Itoma Jima Is.

Over 100 very fine live shells, which I have separated into no less than 15 well-marked color varieties. They vary from very light cream-color, body sparsely blotched with brownish-black spots, to others which are deeply mottled like tortoise shell.

There are also a number of immature shells of various sizes. These specimens are incomparably finer in polish and lustre than specimens of this species usually imported in bulk, and which are much scratched and without lustre.

Native name, Hibi-bora; Japanese name, Neko-gai (or cat shell).

*Cypræa talpa* Linn. Tryon, Man. Vol. 7, p. 167, pl. 3, figs. 31-33.

Kudaka Is. 10 fine live shells, 72 mm. and smaller and 3 beach-worn.

*Cypræa argus* Linn. Tryon, Man. Vol. 7, p. 164, pl. 1, figs. 1-2.

Kudaka Is. 1 very fine live shell, 6 cm.

*Cypræa isabella* Linn. Tryon, Man. Vol. 7, p. 165, pl. 1, figs. 6-7.

Kudaka Is. 5 fine large shells, 4 poor and bleached.

*Cypræa carneola* Linn. Tryon, Man. Vol. 7, p. 166, pl. 8, figs. 26-30.

Kudaka Is. 12 fine live shells.

*Cypræa (Aricia) caput-serpentis* Linn. Tryon, Man. Vol. 7, p. 173, pl. 6, figs. 98, 99, 100.

Kudaka Is. 131 fine live shells. Several varieties of marking.

*Cypræa (Aricia) caput-anguis* Phil. Tryon, Man. Vol. 7, p. 173, pl. 23, fig. 59.

Kudaka Is. 10 fine live shells.

*Cypræa (Aricia) mauritiana* Linn. Tryon, Man. Vol. 7, p. 173, pl. 7, figs. 8-11.

Kudaka Is. 31 mature fine live shells, with three styles of varietal marking.

*Cypræa (Aricia) arabica* Linn. Tryon, Man. Vol. 7, p. 177, pl. 8, fig. 24.

139 fine live shells (typical).

*Cypræa (Aricia) annulus* Linn. Tryon, Man. Vol. 7, p. 178, pl. 11, figs. 60-61.

Kudaka Is. 33 fine live shells.

*Cypræa (Aricia) moneta* Linn. Tryon, Man. Vol. 7, p. 177, pl. 10, fig. 40.

Kudaka Is. Light yellow variety. 3 dark bands across the back; 50 fine live shells.

*Cypræa (Aricia) moneta* Linn.\* Tryon, Man. Vol. 7, p. 177, pl. 11, figs. 51-52.

Kudaka Is. Fine deep-yellow variety; 50 fine live shells.

*Cypræa (Luponia) vitellus* Linn. Tryon, Man. Vol. 7, p. 182, pl. 13, figs. 72-73.

Kudaka Is. 52 fine live shells, with considerable variety in marking.

*Cypræa (Luponia) lynx* Linn.\* Tryon, Man. Vol. 7, p. 183, pl. 14, figs. 86-87.

Kudaka Is. 24 fine live shells.

*Cypræa onyx* Linné.\* Loo Choo Is.

*Cypræa (Luponia) erroneus* Linn.\* Tryon, Man. Vol. 7, p. 183, pl. 14, fig. 7.

Kudaka Is. 30 live shells.

*Cypræa (Luponia) erosa* Linn. Tryon, Man. Vol. 7, p. 192, pl. 18, figs. 100-101.

Kudaka Is. 4 live shells.

*Cypræa* (*Luponia*) *helvola* Linn.

Kudaka Is. 2 live shells.

*Cypræa* (*Luponia*) *asellus* Linn.

Kudaka Is. 1 full-grown shell and 3 smaller.

*Cypræa cylindrica* Born.\* Kudaka Is.

*Cypræa* (*Pustularia*) *staphylea* Linn. Tryon, Man. Vol. 7, p. 197, pl. 20, fig. 44.

Kudaka Is. 1 live shell.

*Cypræa* (*Epona*) *ciocercula* Linn.

Kudaka Is. Native name, Koyasiu-Kai (little shell). 2 live shells.

**OVULIDÆ.**

*Ovula ovum* Linn. Tryon, Man. Vol. 7, p. 246, p. 1, figs. 11-12.

Hirame Jima. 8 fine live shells.

**STROMBIDÆ.**

*Strombus lentiginosus* Linn. Tryon, Man. Vol. 7, p. 110, pl. 3, figs. 23-24.

Yaeyama. Native name, Ushi-no-mōmō (bull's nose shell). 31 live shells.

*Strombus latissimus* Linn. Tryon, Man. Vol. 7, p. 111, pl. 3, fig. 27.

Katsuren Jima. 3 fine live shells.

*Strombus costatus* Gmel. var. *inermis* Swains. Tryon, Man. Vol. 7, p. 108, pl. 1, fig. 8.

Ohon-me Is. Native name, Yonaki-mōmō (night crying shell). 1 live mature shell, 14 cm. x 8 cm.

*Strombus canarium* Linn. Tryon, Man. Vol. 7, p. 110, pl. 2, figs. 18-20.

Kobashima. 33 live shells, several varietal markings.

*Strombus urceus* Linn. var. *sanatellus* Ducl. Tryon, Man. Vol. 7, p. 118, pl. 6, figs. 65, 66, 67.

Kudaka Is. Native name, Hibi-Bora. 30 live shells.

*Strombus luhuanus* Linn. Tryon, Man. Vol. 7, p. 122, pl. 8, fig. 91.

Kudaka Is. 2 live shells.

*Strombus aratrum* Martyn\* (*pacificus* Swains).

Itoma-Jima Is. Native name, Asagi-Kai. 9 fine live shells.

*Strombus aurisdianæ* Linn.\* Itoma-Jima Is.

*Strombus aurisdianæ* var. *lævis* Perry.\* Itoma-Jima Is.



*Pterocera bryonia* Gmel. Tryon, Man. Vol. 7, p. 124, pl. 8, fig. 14; pl. 9, fig. 8.

Katsuren Jima Is. 5 shells, 3, 12" long and 2 younger. Native name, Nanatsu-Maimai (seven horned shell). The Japanese name is Kumo-Gai (or spider-web shell).

*Pterocera lambis* Linn. Tryon, Man. Vol. 7, p. 124, pl. 8, figs. 1-3.

Katsuren Jima Is. 41 adult shells. Native name, Nanatsu-Maimai (seven-horned shell). Japanese name, Kumo-Gai (or spider-web shell). Also 41 full-grown but not large. Also 17 small or a smaller variety with brilliant dark chocolate cloudings on the back, and 10 young shells, half-grown, with spines just started. Also 50 young shells, without the last spread-whorl or horns.

*Pterocera rugosa* Sby. Tryon, Man. Vol. 7, p. 126, pl. 10, fig. 12.

Katsuren Jima Is. 35 shells. All adult except 5 young; 2 of the adult shells have very much darker pinkish apertures than the others.

*Seraphs terebellum* Linné.\* Loo Choo Is.

#### CERITHIIDÆ.

*Cerithium nodulosum* Brug. Tryon, Man. Vol. 9, p. 122, pl. 20, fig. 15.

Kaboshima Is. 34 live shells, the largest species of the family.

*Cerithium echinatum* Lam. Tryon, Man. Vol. 9, p. 123, pl. 20, fig. 274.

Kudaka Is. Native name, Chiu-Bora. 7 live mature shells.

*Cerithium tuberculatum* Linn. Tryon, Man. Vol. 9, p. 133, pl. 24, fig. 25.

Yaeyama. 13 live shells.

*Cerithium columna* Sby. Tryon, Man. Vol. 9, p. 123, pl. 20, fig. 19.

Yaeyama. 3 live shells.

*Cerithium morus* var. *moniliferum* Dufresne. Tryon, Man. Vol. 9, p. 133, pl. 24, fig. 35.

Yaeyama. 1 live shell.

*Cerithium rubus* Mart. Tryon, Man. Vol. 9, p. 131, p. 23, fig. 4.

Yaeyama. 1 shell.

*Clava (Vertagus) vertagus* Linn. White var. Tryon, Man. Vol. 9, p. 149, pl. 29, fig. 69.

Katsuren Jima. Native name, Shiro-ji-tsu-tan, bora. 14 live shells.

*Clava (Vertagus) vertagus* Linn. Chestnut-colored var. Fig. 70 of pl. 29.

Katsuren Jima. 7 live shells.

*Potamides telescopium* Linn. Tryon, Man. Vol. 9, p. 161, pl. 33, fig. 56.

Yaeyama. 2 small shells, 4 cm.

*Potamides (Aphanistylus) sinensis* Phil. Tryon, Man. Vol. 9, p. 164, pl. 34, fig. 97. Yaeyama Is.

*Cerithium morus* Lam. var. *rugosum* Wood. Tryon, Man. Vol. 9, p. 134, pl. 24, fig. 47.

Yaeyama. 1 shell.

*Cerithium (Liocerithum) piperitum* Sby. Tryon, Man. Vol. 9, p. 144, pl. 27, fig. 32.

Yaeyama. 3 shells.

**VERMETIDÆ.**

*Thylacodes dentiferus* Lam. (?).\* Yaeyama.

*Petalocochus* sp. undet.\* Loo Choo Is.

*Siphonium maximum* Sowb.\* Yaeyama.

**LITTORINIDÆ.**

*Littorina (Melaraphe) ziczac* Chem. (var.). Tryon, Man. Vol. 9, p. 251, pl. 45, figs. 5-7.

Yaeyama. 48 living shells, found with a lot of *Melampus*.

*Littorina littoralis* Linn. Tryon, Man. Vol. 9, p. 242, pl. 41, figs. 5-8.

Yaeyama. 10 live shells.

*Littorina scabra* Linn. var. *filosa* Sby. Tryon, Man. Vol. 9, p. 244, pl. 42, fig. 23.

Yaeyama.

*Echinella cumingi* Phil.\* Yaeyama.

**SOLARIIDÆ.**

*Solarium cingulum* Kien.\* Nago Is.

*Solarium hybridum* Linn.\* Nago Is.

**CYCLOPHORIDÆ.**

*Cyclophorus turgidus* Pfr.\*

Miya-Kojima; Yaeyama. The shells from the locality first mentioned above are typical, agreeing well with the figures in the Conchylien Cabinet. The specimens from Yaeyama differ in having the peripheral keel almost, or in some specimens wholly, obsolete.

*Leptopoma vitreum* Less.\* Yaeyama.

*Cyclotus taivanus* H. Adams.\*

Miya Kojima Is. A single specimen, apparently not differing from this Formosan species.

## TRUNCATELLIDÆ.

*Truncatella valida* Pfr. Yaeyama.\*

## HIPPONYCIDÆ.

*Hipponyx australis* Quoy.\*

## NATICIDÆ.

*Natica sagraiana* Linn. (var.). Tryon, Man. Vol. 8, p. 19, pl. 3, fig. near fig. 45.

Yaeyama. 19 shells, mostly small.

*Natica vitellus* Linn. Tryon, Man. Vol. 8, p. 29, pl. 8, fig. 60.

Yaeyama. The figure does not fairly represent this species. 5 live shells, 30 mm. long x 27 mm.

*Natica chinensis* Lam. Tryon, Man. Vol. 8, p. 20, pl. 3, fig. 53.

Yaeyama. 40 shells, mostly young.

*Natica adamsiana* Dkr. (var.). Tryon, Man. Vol. 8, p. 27.

Yaeyama. Larger and unlike in coloring the typical figure 46, pl. 8. Light olivaceous brown; 6 banded in different shades. Length 37 mm. by 29 mm. width. 8 shells, live and with opercula, 28 dead, without.

*Polynices (Mamma) dubia* Recl. (var.). Tryon, Man. Vol. 8, p. 47, pl. 16, very near fig. 50.

Kobashima. 10 fine live shells, various stages of growth, without opercula.

*Polynices (Mamma) mamilla* Linn. Tryon, Man. Vol. 8, p. 49, pl. 16, fig. 46.

Yaeyama. 4 shells.

*Polynices (Mamma) aurantia* Lam.

Yaeyama. Small, light yellow variety. The callus and umbilicus like fig. 40, pl. 15, Tryon, Man. Vol. 8, p. 42. 110 fine live shells 29 mm. x 22 mm., with opercula; a beautiful and distinct variety.

*Polynices (Mamilla) melanostoma* Gml. Tryon, Man. Vol. 8, p. 50, pl. 21, fig. 14.

Yona-Guni Is. 17 live shells, the largest 45 mm. x 33 mm.

*Polynices flemingianus* Recl.\*

*Sigaretus planulatus* Recl. Tryon, Man. Vol. 8, p. 58, pl. 25, figs. 75-77.

Yaeyama. 1 live shell.

## IANTHINIDÆ.

*Ianthina communis* Lam.\*

PYRAMIDELLIDÆ.

*Pyramidella sulcata* A. Ad.

Yaeyama. 6 live shells.

*Pyramidella (Otopleura) mitralis* A. Ad.\*

Yaeyama. 2 live shells.

NERITIDÆ.

*Nerita (Odontostoma) polita* Linn. Tryon, Man. Vol. 10, p. 30, pl. 6-7.

Yaeyama. Many varieties and coloring. Native name, Tsume-Gai (nail shell). 2000 fine live shells.

*Nerita (Odontostoma) picea* Recl. Tryon, Man. Vol. 10, p. 33, pl. 9, fig. 52.

Yaeyama. 100 live shells.

*Nerita (Odontostoma) ascensionis* Chem. (?). Tryon, Man. Vol. 10, p. 31, pl. 7, fig. 27.

The only difference between this shell and the type as figured is that the area is slightly wrinkled.

*Nerita albicilla* Linn. Tryon, Man. Vol. 10, p. 19, pl. 2, figs. 21-26.

Yaeyama. Several color varieties with opercula. 69 live shells.

*Nerita chameleon* Linn. var. *squamulata* LeGuillon. Tryon, Man. Vol. 10, p. 20, pl. 2, figs. 34-36.

Yaeyama. 3 shells.

*Nerita albicilla* Linn. (var.).

Yaeyama. 4 live shells.

*Nerita turrita* Chem. Tryon, Man. Vol. 10, p. 37, pl. 11, fig. 2.

Yaeyama. 2 live shells.

*Nerita (Pila) undata* Linn. var. *funiculata* Rve. Tryon, Man. Vol. 10, p. 29, pl. 7, fig. 30.

Yaeyama. 2 shells.

*Nerita helicinoides* Rve. var. *lævilabris* n. var.\* Pl. IV, fig. 32.

Shell obliquely globose-turbinate, multirate, liræ 18-20 on body-whorl, the lower 3 or 4 nearly obsolete; buff or whitish, encircled by three bands of black variegation alternating with similar rose-dotted zones; on some specimens the black replaced by rose. Spire elevated; last whorl descending, appressed at suture, concave below it. Aperture oblique, outer lip prolonged above, bevelled to an edge inside, margin yellow with dark dots, within this strongly thickened by a white *smooth* callus which is generally subtruncate

or most weakly unidentate above. Area flat, smooth, yellow, the columellar edge with two slight submedian notches. Alt. 13, diam. 13 mm.

Operculum flat, having a closely granulose band around the outer edge, smooth or with very sparse granules in the middle and at proximal end; smoky or blackish-gray except at basal end which is white, a paler streak extending up outer margin. Inside light yellowish proximally, olivaceous distally; flat, rather thin, becoming slightly thicker toward straight margin, but the linear adhesion-scar impressed; spiral process long; basal process rugose or striated.

Yaeyama. 300 specimens.

Differs from *helicinoides* and its synonym *pellis-serpentis* in the completely smooth outer lip; from *affinis* in the coloration, etc.

*Nerita hindsii* Recl.\* Yaeyama.

*Nerita undata* var. *leguillouana* Recl. Yaeyama.

*Neritina ualanensis* Less.\* Yaeyama.

*Neritina* (*Clithon*) *sowerbyana* Recl. Tryon, Man. Vol. 10, p. 67, pl. 24, fig. 45; pl. 25, figs. 46-51.

Yaeyama. 48 live shells with opercula.

#### TURBINIDÆ.

*Turbo marmoratus* Linn. Tryon, Man. Vol. 10, p. 191, pl. 4, fig. 23.

Yaeyama. 12 fine large mature shells with opercula. Native name, Yako-Gai.

*Turbo* (*Batillus*) *cornutus* Gmel. (Typical). Tryon, Man. Vol. 10, p. 210, pl. 43, fig. 50.

Kudaka Is. 22 live shells, some with opercula.

*Turbo* (*Batillus*) *cornutus* Gmel. (var.).

Kudaka Is. 25 shells with opercula with but one row of tubercles instead of two as in the type and of smaller size.

*Turbo parvulus* Phil.\* Yaeyama.

*Turbo* (*Senectus*) *argyrostomus* Linn. Tryon, Man. Vol. 10, p. 197, pl. 40, fig. 18.

Katsuren Jima. A var. with no elevated vaulted scales on liræ. 19 live shells with opercula, 9 no opercula; also Kudaka Is. 47 live shells, small size, without vaulted scales on the liræ; with and without opercula; also a var., Kudaka. 2 live shells, full-grown and with opercula, without vaulted scales on the liræ.

*Turbo imperialis* Gml. Tryon, Man. Vol. 10, p. 192, pl. 43, fig. 53.

Yaeyama. 2 fine mature shells with opercula, more highly nodulated on the body whorl than in the figure.



**Turbo petholatus** Linn. Tryon, Man. Vol. 10, p. 193, pl. 40, fig. 114.

Yona-Guni Is. Color varieties, 5 shells with opercula and 3 without.

**Turbo (Marmorostoma) coronatus** Gml. var. **granulatus** Gml. Tryon, Man. Vol. 10, p. 27, pl. 45, fig. 18.

Yaeyama. 150 shells with opercula, some similar to the figure, but *most* of them nodulated. 2 varieties.

**Turbo (Marmorostoma) porphyrites** Mart. Tryon, Man. Vol. 10, p. 215, pl. 50, fig. 58; pl. 42, fig. 39.

Yaeyama. 2 live shells without opercula.

**Astralium (Bolma) modestum** Rve. Tryon, Man. Vol. 19, p. 229, pl. 55, figs. 63-64.

Yaeyama. 19 shells. Native name, Ishi-ni-tsiu (stone adhering shell).

#### TRUCHIDÆ.

**Trochus niloticus** Linn. Tryon, Man. Vol. 11, p. 17, pl. 1, figs. 5-8.

Kobashima Is. 9 live shells with opercula.

**Trochus (Cardinalia) nodiferus** Lam. Tryon, Man. Vol. 11, p. 22, pl. 3, fig. 18.

Yaeyama. Smaller than the figure. 2 live shells, small var. Native name, Taka-jiri.

**Trochus (Cardinalia) triserialis** Lam. Tryon, Man. Vol. 11, p. 21, pl. 4, figs. 30-31.

Nago Is. 1 live shell.

**Trochus (Infundibulum) radiatus** Gml. var. Tryon, Man. Vol. 11, p. 37, pl. 8, figs. 91, 92.

Yona-guni Is. 1 live small shell.

**Trochus (Lamprostoma) maculatus** Linn. (var.). Tryon, Man. Vol. 11, p. 24, pl. 9, fig. 1.

Ohon-me Is. Native name, Taka-jiri. 10 live shells without opercula.

**Trochus (Lamprostoma) tubiferus** Kiener. Tryon, Man. Vol. 11, p. 31, pl. 6, figs. 62, 63.

Yona-guni Is. Native name, Yona-guni. 6 live shells, no opercula.

**Trochus (Lamprostoma) maculatus** var. **gibberula** A. Ad. Tryon, Man. Vol. 11, p. 26, pl. 6, figs. 51-60.

Kobashima Is. 1 live shell.

**Umbonium giganteum** Less.

Yaeyama. 122 shells, color variety C; of color variety D 27; of color variety E (ater Pilsbry) 38; of color variety F 4; of color variety H 4; of color variety K (new or not before obtained, surface pinkish with brown blotches and clouds) 40 shells.

**Umbonium superbum** Gld.

Yaeyama. Color varieties. 15 shells.

**Ethalia guamense** Quoy.\***Chrysostoma paradoxum** Born.\*

**Delphinula delphinula** Linné.\* Tryon, Man. Vol. 10, p. 266, pl. 67, figs. 1, 2.

Nago Is. 42 mature shells, no opercula. Native name, Fusa-kabe, bora.

**STOMATIIDÆ.**

**Stomatia phymotis** Helbling.\* Ohon-me Is.

**HALIOTIDÆ.****Haliotis gigantea** Chemn.

Hirame Jima Is. 4 large and 1 small shell.

**Haliotis (Padollus) ovina** Chemn.\*

Kobashima Is. 16 large shells, and var., 1 shell.

**Haliotis (Teinotis) asinina** Linn.

Hirame Jima Is. Native name, Awabi, 110 shells.

**ACMÆIDÆ.**

**Acmæa saccharina** Linn.\* Yaeyama.

**PATELLIDÆ.****Helcioniscus nigrosquamatus** Rve.\*

Yaeyama. 58 live shells. Native name, Senen-gai (may you live a thousand years shell).

**Helcioniscus testudinarius** Linn.\* Yaeyama.

**PELECYPODA.****MACTRIDÆ.**

**Mactra maculata** Gmel.\* Yaeyama.

**Tresus nuttalli** Conr.

Yaeyama. 2 large, live shells.

## PSAMMOBIIDÆ.

*Psammobia elongata* Lam.\* Yaeyama, Oshima.

*Asaphis violacea* Forskal.\* Kudaka Is.

*Asaphis deflorata* Linné.\* Yaeyama; Kudaka Is.

## TELLINIDÆ.

*Tellina staurella* Lam.\*

Yaeyama. Native name, Luna-gai, beach sand-shell.

*Tellina staurella* Lam. var. *scalaris* Lam.\* Kobashima Is.

*Tellina virgata* L. var. *jubar* Hanley.\* Yaeyama.

*Tellina scobinata* Linn.\* Kudaka Is.

*Tellina perna* Spengler.\* Yaeyama.

*Tellina rugosa* Born.\* Yaeyama.

*Tellina chloroleuca* Lam.\*

Yaeyama; Kobashima Is. Native name, Luna-gai, beach sand-shell.

*Tellina* sp.\* Ohon-me Is.

## VENERIDÆ.

*Venus reticulata* Linn.\* Yaeyama.

*Venus puerpera* Linn.\* Kobashima Is.; Katsume-Jima.

*Venus listeri* Gray.\* Yaeyama.

*Cytherea castrensis* Linn.\* Yaeyama.

*Cytherea (Crista) gibba* Linn.\* Yona-Guni.

*Cytherea (Crista) pectinata* Linn.\* Kobashima Is.

*Cyclina sinensis* Gmel.\* Yaeyama.

*Tapes literata* Linn.\* Kudaka Is.

*Tapes literata* var. *punctata* Chemn.\* Kudaka Is.

*Tapes striata* Chemn.\* Yaeyama.

## TRIDACNIDÆ.

*Tridacna squamosa* Lam.

Itoma Jima Is. 1 large shell, 13" long, 8" broad, 9" thick. Upon this are growing 2 *Chama* (sp. undet). Native name, Aji-gai. Such shells are used in the Loo Choos for making domestic utensils.

*Tridacna gigas* Lam.

Itomo Jima Is. 1 large shell, 13" long, 9" broad, 8½" thick. Native name, Aji-gai.

*Tridacna squamosa* Lam.

Itoma Jima Is. 13 young shells, 4" to 3½" long.

*Tridacna crocea* Lam. (= *T. scapha* Meusch.).

Itoma Jima Is. 15 shells, from 5" in length down to 3½"

*Tridacna elongata* Lam.

Itoma Jima Is. 26 shells, 1-9" long, the rest from 6" down to 3" in length. Native name, Aji-gai.

*Tridacna elongata* Lam.

Var. smaller than the type; more elongated and carved at the basal opening. 13 specimens, from 6" to 3" long.

*Hippopus maculatus* Lam.

Itoma Jima. 9 shells, from 6½" to 4" long.

## CARDIIDÆ.

*Cardium flavum* Linn.\**Cardium rugosum* Lam.\* Yaeyama.*Cardium (Serripes) muticum* Rve.

Yaeyama. 6 large shells.

*Hemicardium cardissa* Linn.

Hirame Jima Is. 47 fine live shells, from 7 cm. down to 4 cm. Native name, Avi-gai, so named after the leaf of the Avi plant, which is the crest of the Tycoon.

*Hemicardium unedo* Linn.\* Ohon-me Is.

## CORBIDÆ.

*Corbis*

## LUCINIDÆ.

*Lucina exasperata* Reeve.\*

Yaeyama Is., Loo Choo group.

Shell externally like *L. exasperata*, but less compressed, the diameter half the length, with wider lunule. Interior having the surface within the pallial impression most minutely roughened, outside of the pallial impression polished and shining.

Length 80, width 74, diam. 40 mm.

Length 50, width 40½, diam. 24½ mm.

Of this form, two specimens are before us, the smaller one from Okinawa Island (Yaeyama), the larger procured in Japan, locality unknown. The smaller shell is yellow within, with a white border,

the hinge-margin red except the cartilage-pit and the plate below it. The larger specimen is a very faint buff within the pallial line, with a faint pink tint on the hinge.

*Lucina interrupta* Lam.\* Kudaka Is.

*Lucina punctata* Linn.\* Yaeyama.

#### CHAMIDÆ.

*Chama semipurpurata* Lischke (?)\* Oshima Is.

*Chama lazarus* Lam.\* Kudaka Is.; Oshima Is.

*Chama divaricata* Rve.\* Kudaka Is.; Oshima Is.

#### CYRENIDÆ.

*Corbicula* sp. undet.\* Yaeyama.

*Cyrena fissidens* n. sp. Pl. VIII, figs. 5, 6.

Shell resembling *C. sinuosa* as figured by Clessin (Conch. Cab., pl. 45, f. 1), but the posterior lateral tooth and corresponding pit much slender and somewhat longer, the posterior cardinal tooth in right valve split by a sulcus much broader than the space between the posterior and the next adjacent cardinal teeth. Valves orbicular, very convex, lightly wrinkle striate, and covered with a black cuticle. Posterior slope depressed, with a radiating wide and shallow furrow, rendering the margin slightly emarginate. Dorsal, anterior and basal margins well rounded; posterior margin obliquely subtruncate. Length 86, breadth 77, diam. 49 mm.

Yaeyama Is., Loo Choo group. A single specimen collected.

*Cyrena luchuana* n. sp. Pl. IX, figs. 4, 5.

Shell large, inequilateral, oblong, the anterior end short, broadly rounded, posterior end long, produced, and squarely truncated; basal margin gently arcuate, dorsal margin narrowly rounded at the beaks, the anterior slope short and nearly straight, posterior slope long, rectilinear. Valves strong, convex, the posterior dorsal area flat or concave, bounded by a blunt angle, another obtuse angle extending from beaks to lower-posterior extremity. Interior white, stained with buff-olive on the hinge. Cardinal teeth bifid; anterior lateral very short and strong; posterior lateral long, remote from cardinals. Cuticle dull brown, with a yellow under color, irregularly wrinkle-striate, lamellose behind, and less so over the whole disk. Length 94, breadth 72, diam. 47 mm.

Yaeyama Is., Loo Choo group (Frederick Stearns).



*Cyrena yaeyamensis* n. sp.\* Pl. VIII, fig. 7; pl. IX, fig. 6.

Shell shorter than the preceding, being less produced posteriorly, the posterior surface not so distinctly angular, posterior truncation less marked; anterior lateral tooth not so short. Anterior dorsal slope of hinge line straight, posterior dorsal slope slightly convex. Color and sculpture as in *luchuana*, except that there is usually some oblique corrugation of the posterior slope. Length 75, breadth 63, diam. 36 mm.

Yaeyama Is., Loo Choo group (Frederick Stearns).

This may prove to be a form of *Cyrena papua*, or of *C. buschii* Phil., of China, but it is more triangular, with the posterior margin more produced.

#### MYTILIDÆ.

*Mytilus crassitesta* Lischke.\* Yaeyama.

*Modiola philippinarum* Hanley.\*

#### LIMIDÆ.

*Lima lima* Linn.\* Yaeyama.

#### SPONDYLIDÆ.

*Spondylus ducalis* Chemn.\* Hirama Jima Is.

*Spondylis sinensis* Sowb.\* Hirama Jima Is.

#### OSTRÆIDÆ.

*Ostræa rivularis* Gld. (?) \* Yaeyama.

*Ostræa cucullata* Born.\* Yaeyama.

*Ostræa hyotis* Linn. Yaeyama.

*Ostræa denselamellosa* Lischke.\* Yaeyama.

*Ostræa cristagalli* Linn.\* Yaeyama.

#### PTERIIDÆ.

*Pteria macroptera* Lam.\*

Throughout the Loo Choo group (Stearns).

Some of the specimens collected attain great size, rivalling *M. margaritifera*.

*Pteria cochenhauseni* Dkr.\* (= *A. flammata* Reeve?) Itoma Jima Is.

*Pteria meleagris* (Spengl.) Chemn.\* Itoma Jima Is.

*Perna* (*Meleagrina*) *margaritifera* Linn.\* Yaeyama.

*Malleus regula* Forsk.\* Yaeyama.

**Malleus vulgaris** Lam.

In this species the valves are serpentine in their length.

**Malleus albus** Lam.

Yaeyama. In this species the valves are straighter than in the other. Altogether 21 fine specimens.

**PERNIDÆ.**

**Perna acutirostris** Dkr.\* Yaeyama.

**Perna isognomum** Linn.\* Yaeyama.

**Perna costellata** Conr.\* Yaeyama.

**PINNIDÆ.**

**Pinna nigrina** Lam.\*

**ARCIDÆ.**

**Arca scapha** Chemn.\* Yaeyama.

**Arca (Scapharca) subrenata** Lischke.\* Itoma Jima Is.

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**ERRATA.**

P. 10. Add the following:

**Haminea binotata** n. sp.

Shell cylindrical-oval, hardly wider below, truncated above, rounded beneath, thin, but rather solid, ruddy-corneous, with a small opaque-white spot at each end, that at apex bounded below, that at columella, above, by an opaque orange or reddish tract, appearing only on the latter part of the whorl. Surface polished, with excessively fine and close spiral striæ, and rather coarse growth wrinkles. Aperture rather narrow, moderately enlarged below. Outer lips rising slightly above the vertex, but by no means high-arched. Columella concave, short, with a lunate, reflexed, but free, not adherent, flange, but not fold. Apex closed or subperforate. Alt. 11, diam. 7 mm.

Yaeyama, Loo Choo Is. (Stearns).

**Haminea binotata** var. **Japonica** n. v.

Shell like the above in coloration and sculpture, but smaller, thin and fragile, more swollen, the reflexed columellar callus thinner and adnate to body. Alt. 9, diam. 6.2 mm.

Nemoto, Boshu (Stearns).

P. 13. Add the following:

*Conus flavidus* Lamarek. Tryon Man. Conch. VI, p. 44.

Japan, exact locality unknown (Stearns). The specimens are more square-shouldered than typical *flavidus*, in form and coloring more like Reeve's *surqillatus*, but I do not doubt their specific identity. It has not before been reported from Japan.

P. 16. *Columbarium pagoda* was collected by Stearns in the Inland Sea near Awaji.

P. 25. Add:

*Mitra (Scabricola) punctolirata* A. Ad. Goto. Is. (Adams).

*Mitra (Scabricola) isabella* Swains. (+ *morchii* Ad. and *herklotiana* Dohrn), Tryon, Manual, IV, p. 137.

P. 49. *Oniscia*. The name of this genus should stand LAMBI-DIUM, as Smith has shown, Journal of Malacology, iv, p. 14.

P. 53. For "*Volvula*" read *Volva*.

P. 73. Add above *Adeorbiidæ* the following:

#### *Lamellariidæ.*

*Lamellaria punctata* Stimpson. Proc. Acad. Nat. Sci., Phila., 1855, p. 378. Oushima (Stimp.). Described as *Coriocella*.

P. 98. Add:

*Photinula (?) quæsita* A. Adams. Man. Conch, XI, p. 281.

Aniwa Bay. Tatiyama, Kino-o-sima, 17 fms. (Ad).

P. 159. Add the following *Unionidæ*:

*Unio Japanensis* Lea. Paddy fields near Tokyo.

*Unio nipponensis* Martens. Paddy fields near Kamakura.

*Dipsas plicatus* Sol. Rice paddy fields, near Yokohama.

*Dipsas Reinianus* Mart. Paddy fields near Yokohama.

*Anodonta cellensis* Schrot. Odelawara.

*Anodonta Japonica* Martens. Paddy fields near Sagama.

*Anodonta Woodiana* Lea. Rice paddy fields near Yokohama.

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[The figures of *Eulota Blakeana* Newc. were drawn from specimens belonging to the museum of Cornell University; those of *Chlorostomu umbilicatum* and *Bathybembyx Crumpii* from specimens in the collection of Mr. Shelly G. Crump; and the figure of *Terebratulina caput-serpentis* represents a specimen in coll. U. S. Nat. Mus. All other figures are from specimens collected by Mr. Stearns].

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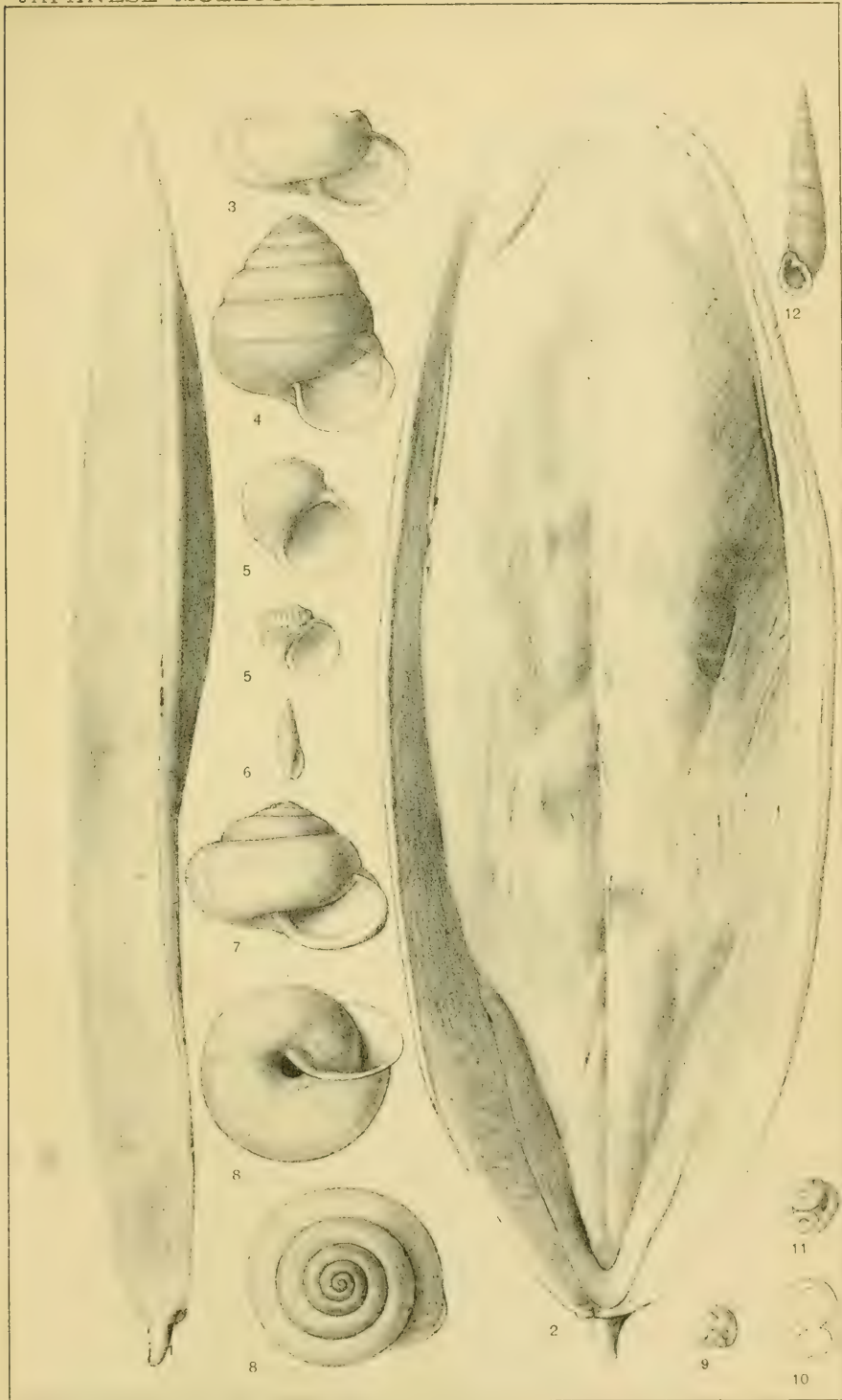
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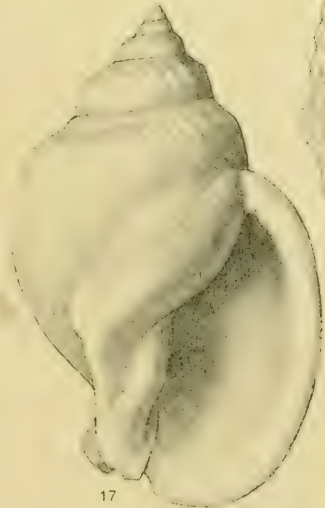
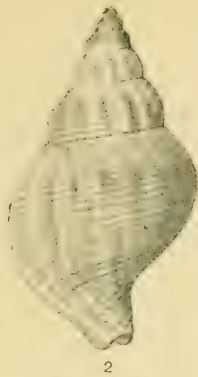
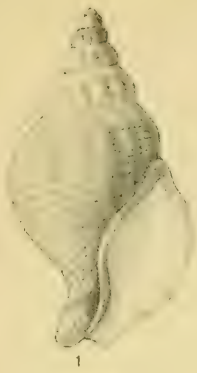
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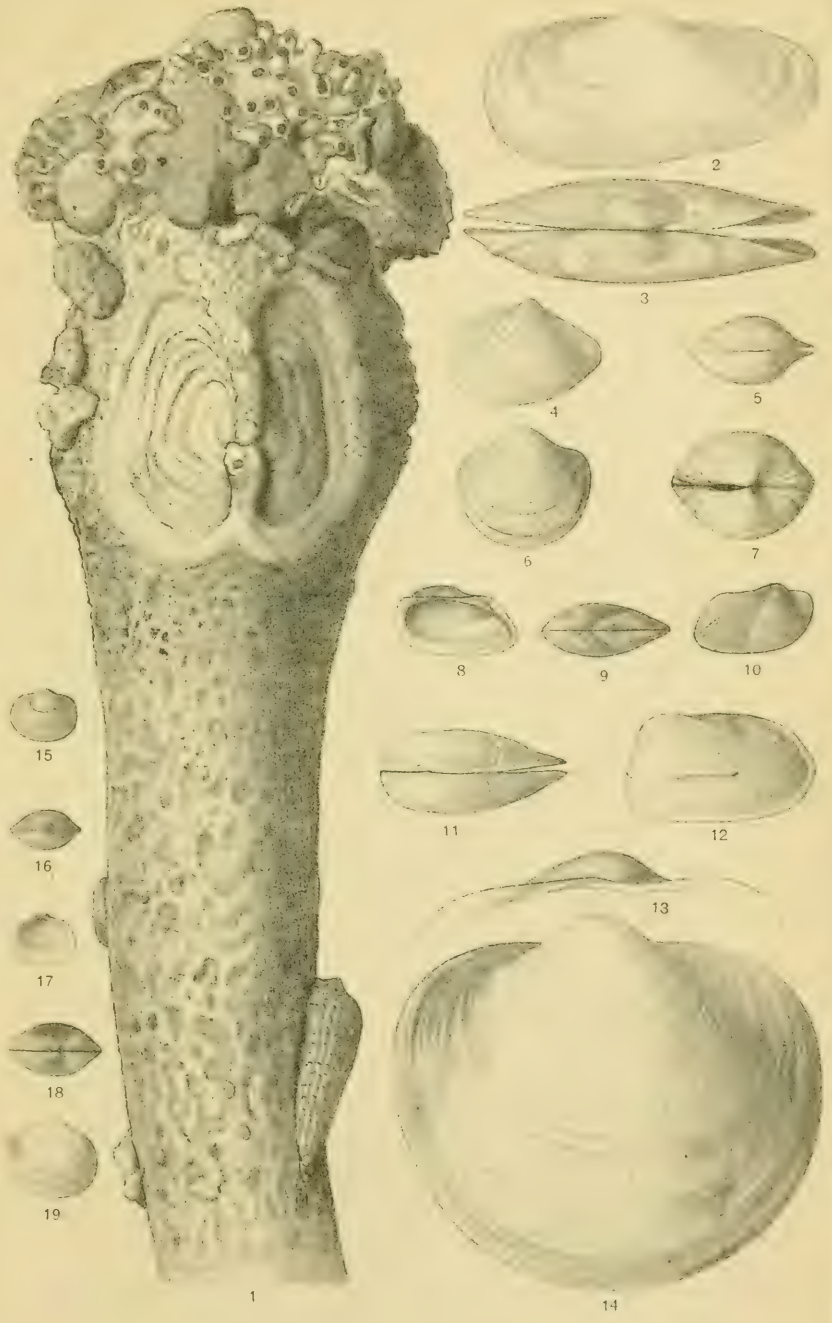














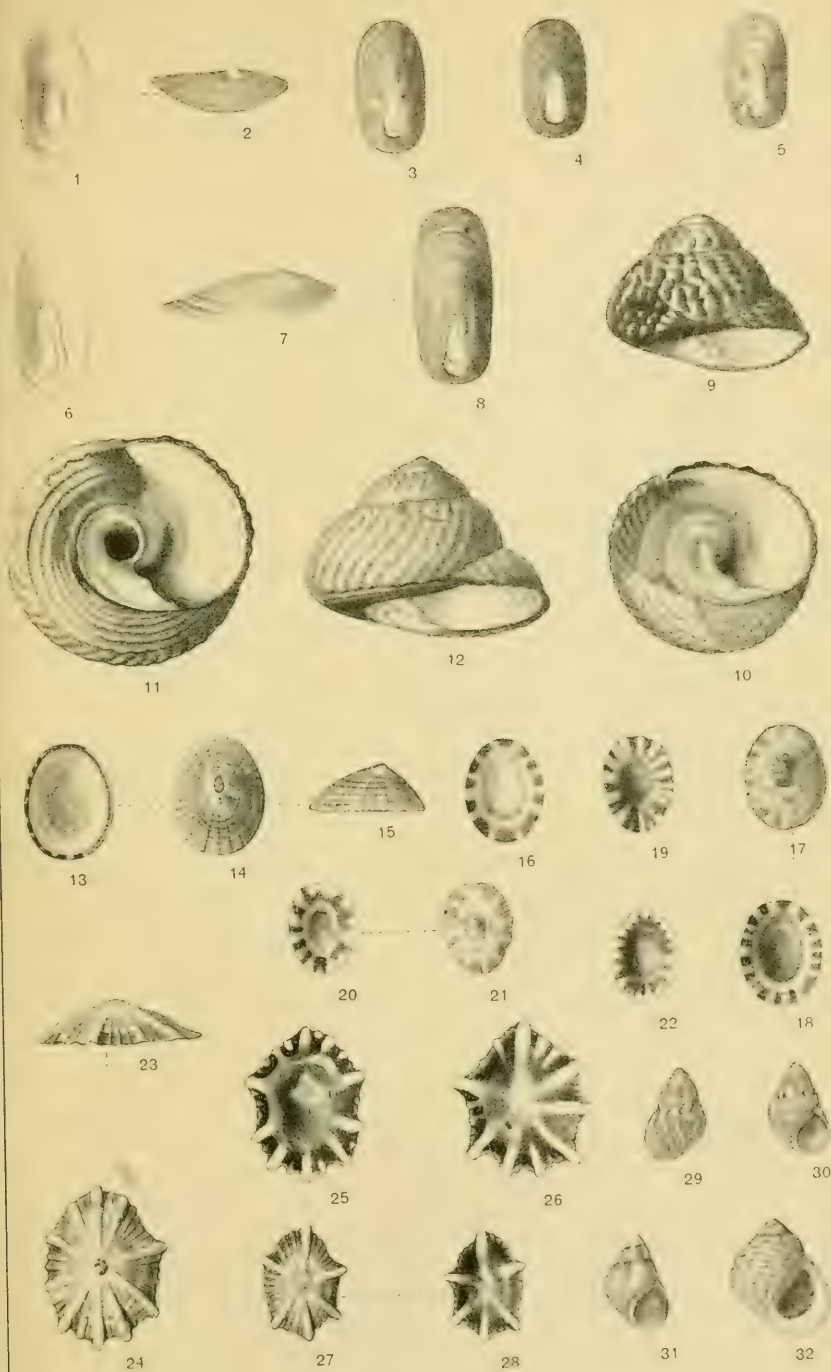






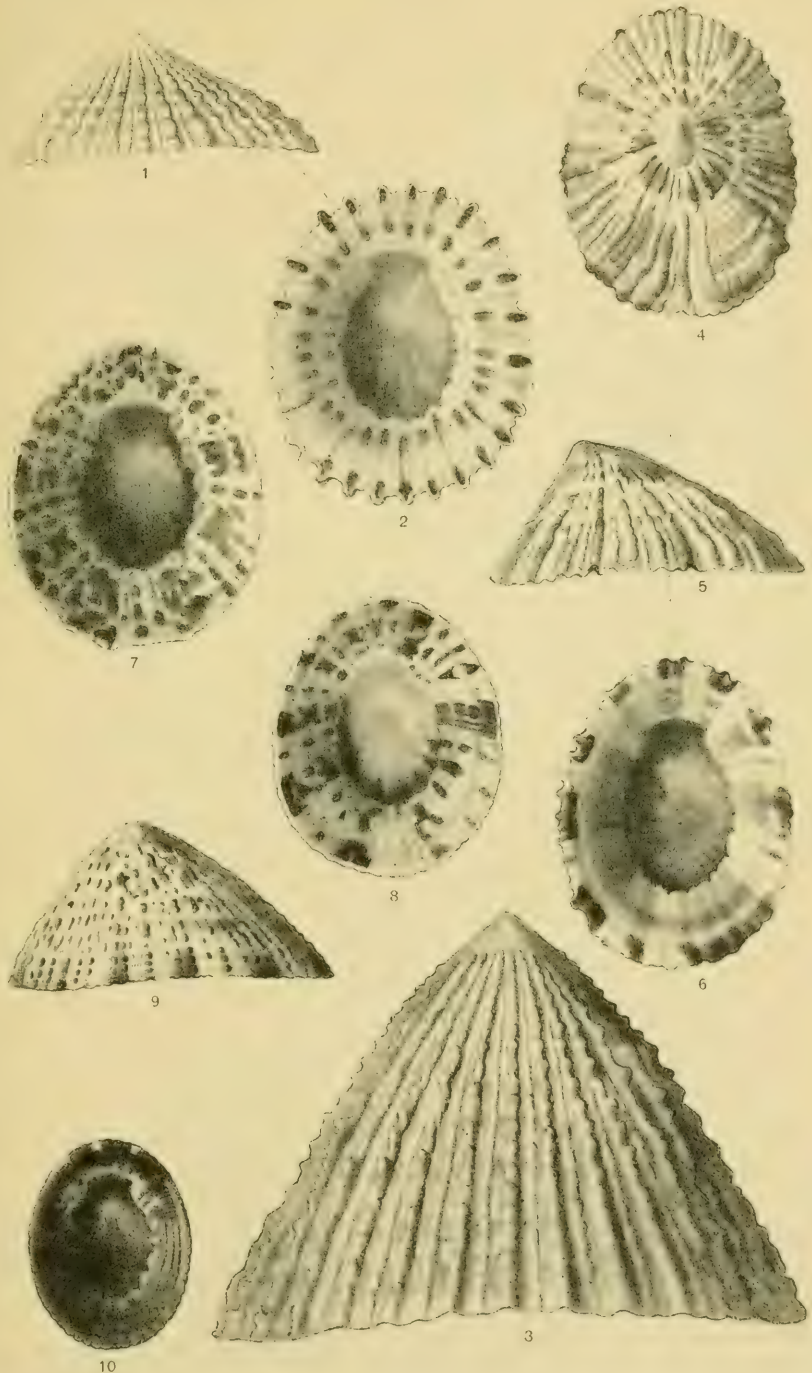




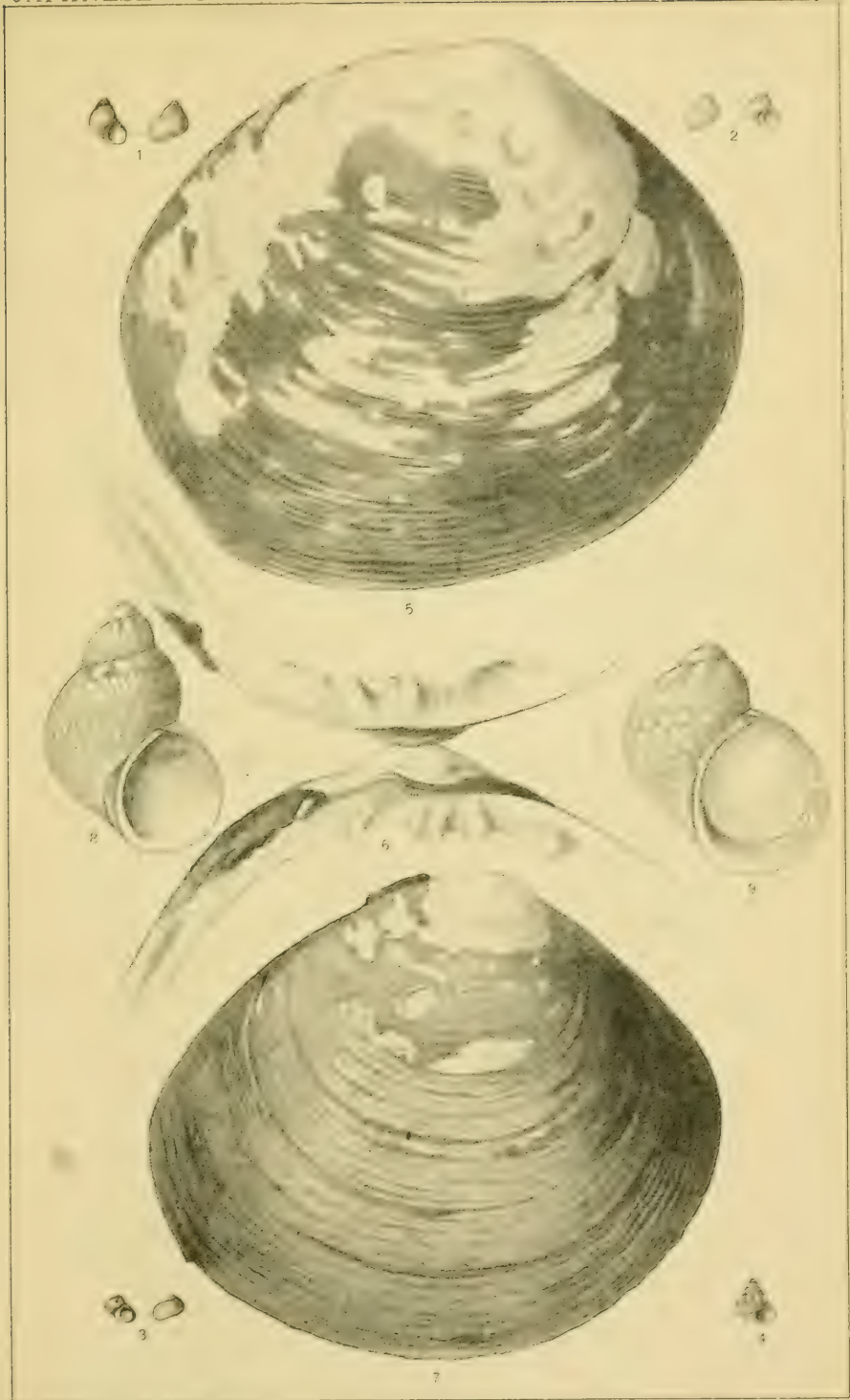










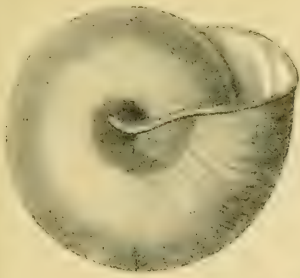




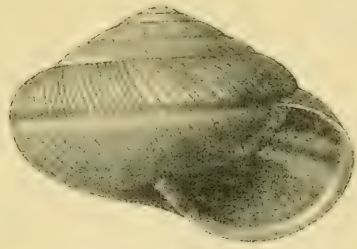








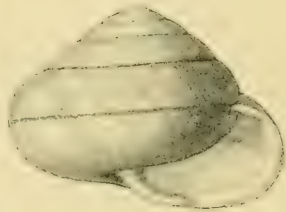
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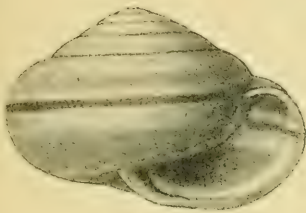
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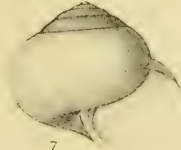
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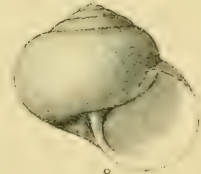
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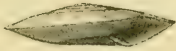
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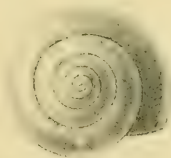
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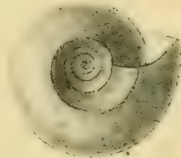
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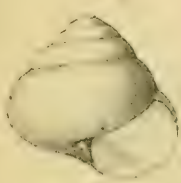
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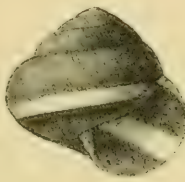
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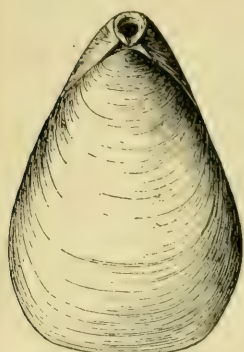


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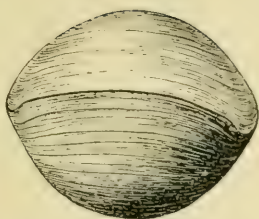


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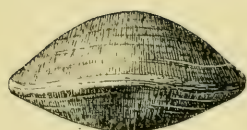
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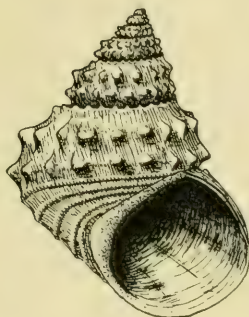
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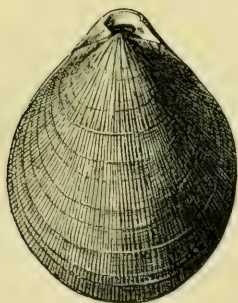
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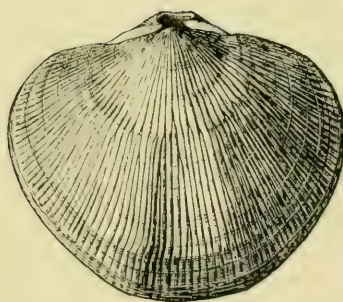
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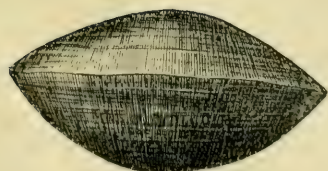
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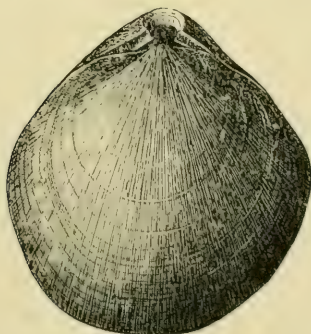
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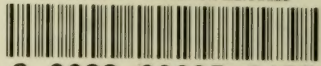








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