1891

UC-NRLF

B 3 360 981

EX LIBRIS

BIOLOGY
LIBRARY

John Ritchie Jr.

a list of
Mollusca of Japan

100

F. Stearns.

A LIST
OF
MOLLUSCA
AND
OTHER FORMS OF MARINE LIFE

COLLECTED IN THE YEARS 1889-1890, IN

JAPAN

UNIV. OF
CALIFORNIA
BY

FREDERICK STEARNS,

OF DETROIT, MICHIGAN,

UNITED STATES OF AMERICA.

WITH THE AUTHOR'S COMPLIMENTS,
INVITING CORRESPONDENCE. WILL BE
AT HOME FROM JULY TO NOVEMBER,
BOTH INCLUDED. AFTER THAT EX-
PECTS TO VISIT THE HAWAIIAN IS-
LANDS FOR A YEAR.

DETROIT, MAY, 1891.

A LIST
OF
MOLLUSCA
AND
OTHER FORMS OF MARINE LIFE

COLLECTED IN THE YEARS 1889-1890, IN

JAPAN

BY
FREDERICK STEARNS,

OF DETROIT, MICHIGAN,

UNITED STATES OF AMERICA.

DETROIT:

John F. Eby & Co., Printers, 65 West Congress Street,

1891.

Q-128
J3S76

BIOLOGY
LIBRARY

TO VIRU
AMPOULAO

PREFACE.

In 1889-90 I spent nearly a year in Japan and some few weeks in China. I went for health and pleasure, devoting much of my time to making a collection of Japanese art objects, which now is arranged, catalogued and mounted, as a donation to the Detroit Art Museum. I also attempted to make a collection of the Molluscan Fauna of Japan, and was assisted in that purpose by an intelligent Japanese who was in my employ during my entire stay in that country. He visited at intervals the entire east coast from Tokyo along Sagama and Saruga, down along Kii, Awa and Toza, along the north shore of the Inland Sea as far as Bingo, in communication with the fishermen, who gather not only fish but largely mollusks, mostly by dredge nets, in water sometimes as deep as thirty fathoms. This region lies between 33° and 36° north latitude, and between 133° and 141° east longitude, and this collection may be fairly said to represent the Marine Fauna of that limit. It is on this east coast, moreover, that the Kuro-Shiwo, or Gulf Stream of the Pacific, trends to the north east, and which accounts probably for finding occasionally the more strictly tropical species of mollusca.

On arriving home and sending specimens of my shells to the Philadelphia Academy of Natural Sciences for comparison and determination, I have been delighted to find that Prof. H. A. Pilsbry speaks of it in high terms. I quote as follows from his letter to me of November 19th, 1890:

"Your collection is a very valuable one and includes many species not in our Museum. * * * It would be very useful to have a list of these shells published. If you would get up such a list, giving exact localities wherever known, it would form a useful supplement to *Dunker's Index Molluscorum Maris Japonici*—the most complete summary heretofore published.

"You have many forms not found by Dunker or previous observers. * * * A number of your bivalves are probably new. The Scalpellum you sent is a new form which I shall name *S. Stearnsii* with your permission. It is a very distinct species, more nearly allied to the fossil *S. Pfeifferi* Weithofer of the Vienna Basin (Miocene) than to any living species. * * *

"Of the Brachiopoda sent, two are new species, and one of them I propose to name *Terebratella Stearnsii*."

In accordance, therefore, with Prof. Pilsbry's suggestion, I publish this list, which contains all the species obtained by me, over half of which were so rare and found in such limited numbers and at such long intervals that they are retained in my private cabinet; of the others I have abundance for exchange and for sale.

There are in the collection 72 named species not found in Dunker; 32 species remain as yet undetermined, many of which will probably be found to be new to science. In *Rotella*, *Tapes*, *Cytheria*, etc., are many beautiful color varieties which I believe have not been before recorded.

Preliminary descriptions of a number of the new species collected have been published in *The Nautilus* for December, 1890, and January, 1891. An illustrated paper on the Brachiopoda, by Wm. H. Dall and H. A. Pilsbry, will appear in the Proceedings of the Academy of Natural Sciences of Philadelphia, 1891; and another paper by H. A. Pilsbry, in the same Proceedings, will describe new Gastropoda and Pelecypoda.

FREDERICK STEARNS.

LIST OF JAPANESE MOLLUSCA, ETC.

NOTE.—The numbers preceding the names of the shells are those upon my stock boxes containing my specimens, and correspondents can order by numbers only, or by both number and name.

Those species preceded by a "xx" I have abundance of, and it is not likely that my exchanges will exhaust them.

Those species prefixed by a single "x" are fewer in number, and it is quite likely that within a year or two of the date of this publication the stock of these will be exhausted.

Those species *not* preceded by "x" or "xx" are limited in find to one, or at most three, shells; these I retain in my private cabinet, and no attention whatever will be paid to requests for any of these.

I am not a dealer in shells, hence I expect to use this material to obtain in exchange from other and original collectors desirable species not now in my cabinet.

Persons receiving this list and desiring to exchange will send me a list of what they have to offer of the rarer species, not necessarily showy or striking, among which new and undetermined species and varieties will be welcome, so long as they are known to be such and from the hands of the original collectors. I have no lists of desiderata to send to anyone.

Freight or postal charges in all cases to be paid by the sender and not by the receiver, unless under special arrangements to the contrary.

Correspondence will be acceptable in Spanish, German, French, Portuguese, as well as English.

Persons having rare shells which they prefer to sell for cash only will be treated with.

Most of the shells on this list have a fixed value on price lists of dealers where represented on such at all, and these values must be considered in making exchanges, rather than exchange of species for species or shell for shell.

ARGONAUTIDÆ.

- 349 x *Argonauta gondola*, Dillw.; medium and small; loc. Kishu coast and Inland Sea.

MURICIDÆ.

- ✓ 330 xx *Murex* (s. s.) *tenuispina*, Lam.; loc. Kishu coast, Province Kii.
- ✓ 331 x *Murex* (*Haustellum*) *pliciferus*, Sby.; = *M. Senegalensis*, var. *calcar*, Kiener; loc. Inland Sea.
- ✓ 333 x *Murex* (*Pteronotus*) *foliatus*, Gmel.; loc. east coast Tokyo to Oshima.
- ✓ 334. xx *Murex* (*Chicoreus*) *brevifrons*, Lam.; loc. Kamakura coast; dead shells without opercula.
- 645 x *Murex* (*Ocenebra*) *clathratus*, Lin; loc. east coast Kii.
- ✓ 446 } xx *Purpura* (*Stramonita*) *luteostoma*, Chem. (var); loc. Seta coast.
- 447 }
- 448 }
- ✓ 328 *Purpura* (*Thalessa*) *tumulosa*, Rve; var. *Bronni*. Lischke; loc. Saruga coast.
- ✓ 306 xx *Rapana bezoar*, Lin.; medium and young, clear salmon colored aperture, most with opercula; loc. Tokyo Harbor.
- ✓ 307 x *Rapana bezoar*, Lin.; medium or half-grown, aperture slightly streaked with black lines; loc. Tokyo Harbor; with opercula.

- 303 x *Rapana bezoar*, Lin.; aperture filled with darker parallel black lines; loc. Tokyo Bay.
 658 *Rapana bezoar*, Lin.; var. *bulbosa* Sol.; two only found; Yokohama Bay.

TRITONIDÆ.

- 441 x *Triton* (s. s.) *nodiferous*, Lam; loc. sea coast of Kii.
 771 *Triton* (s. s.) *variegatus*, Lin; one only; Inland Sea.
 442 xx *Triton* (*Simpulum*) *olearium*, Lam; mostly with epidermis and in many stages of growth; and all along the coast from Tokyo to Ojima.
 769 *Triton* (*Lampas*) *lampas*, Lin.; Kii coast; three only found; Inland Sea.
 661 *Triton* (*Gutturium*) *tuberosus*, Lam. (var.); one shell only; Sagama Bay.
 329 xx *Ranella* (*Bursa*) *albi-varicosa*, Rve.; loc. Kii coast.
 332 x *Ranella* (*Eupleura*) *pulchra*, Gray; = *R. perca*, Perry; loc. Inland Sea.
 643 *Ranella* sp.; one only found; Inland Sea.

FUSIDÆ.

- 318 xx *Fusus* (s. s.) *inconstans*, Lischke; loc. Sagami Bay; with and without opercula.
 870 *Fusus nodoso-plicatus*, Dkr.; one shell.
 454 x *Fusus pagoda*, Less.; loc. Inland Sea near Awaji.
 667 } *Fasciolaria glabra*, Dkr.; two shells only found; east coast.
 743 }
 770 } *Fasciolaria trapezium*, Lin.; var. *Audouini* Jonas; a rare shell; five only found; with opercula; Inland Sea.
 742 *Fasciolaria* sp.; young shells; two only found; Inland Sea.
 744 *Latirus recurvirostris*, S. & Wgn.; one shell found only; new to Japan; east coast.

BUCCINIDÆ.

- 315 } xx *Hemifusus ternatanus*, Gmel.; along east coast, Tokyo to
 316 } Kii; full-grown and medium, with opercula; this shell not before reported from Japan.
 316B *Hemifusus colloseus*, Lam. I brought home but one shell of this species; abundance of them were seen in the market, Hong Kong, China, where they are kept living, anchored near the market wharf in very large globular open-work bamboo baskets; the animal is considered a great dainty as food, and they are sold at about 30 cents, gold, each. The pinkish aperture is used for inlay and other ornamental work.
 663 *Siphonalia fuscolineata*, Pease; two only found, very rare; Inland Sea.
 662 *Siphonalia fusoides*, Rve.; four only found; a very rare shell; loc. southeast coast Kii.
 657 *Siphonalia Kellettii*, Forbes; three only found; loc. southeast coast Ise.
 443 x *Siphonalia signum*, Rve. (var.); loc. south coast of Kii, on Inland Sea.
 437 xx *Euthria viridula*, Dkr.; loc. east coast.

- 302 xx *Volutharpa Perryi*, Jay; various stages of growth; loc. Tokyo Bay.
- 300 xx *Eburna Japonica*, Rve.; with epidermis and opercula; from two to four fathoms, both on sandy and muddy bottom; those in the latter, larger and rougher; much used as food by the Japanese; loc. Tokyo Harbor.
- 301 xx *Eburna Japonica*, Rve.; smaller than No. 300; little or no epidermis; loc. near Enoshima.
- 303 xx *Eburna* (s. s.) *lutosa*, Lam.; found in the market, Hong Kong, China, where they are sold ready cooked on the streets, about 20 for one cent; buyers pick out the meats, with their fingers dip in a little soy sauce, and eat them.
- 664 *Nassaria magnifica*, Lischke; very rare, one only found; Inland Sea.

NASSIDÆ.

- 435 xx *Nassa* (Hima) *festiva*, Powis; loc. Inland Sea.
- 444 x *Nassa* (Niiotha) *gemmaulata*, Lam; loc. Inland Sea; extraordinarily large if they are of this species.
- 840 *Nassa livescens*, Phil. (typical); one shell only.
- 766 *Nassa*, sp.; one only.

VOLUTIDÆ.

- 455 x *Voluta* (Alcithoe) *megaspira*, Sby.; loc. along Inland Sea.

MITRIDÆ.

- 751 *Mitra Hanleyana*, Dkr.; three only found, rare; Inland Sea, Japan.

OLIVIDÆ.

- 651 *Oliva* (Strophona) *erythrostoma*, Lam; one only found; Inland Sea.
- 652 *Oliva* (Porphyrea) *irisans*, Lam; one only found, rare color, variety; loc. Inland Sea.
- 650 *Oliva* (Porphyrea) *mustelina*, Lam; four only found, very fine color; loc. Inland Sea.
- 707 *Ancillaria albocallosa*, Lischke; three only found; darker than the type, east coast.
- 653 *Harpa articularis*, Lam.; one only found; Inland Sea.

COLUMBELLIDÆ.

- 440 } xx *Columbella* (Pygmæa) *pardalina*, Lam.; var. *Sagena*, Rve.;
 440B } loc. Inland Sea.
- 709 x *Columbella* (Pygmæa) *scripta*, Lam.; loc. Inland Sea.

CANCELLARIIDÆ.

- 756 *Cancellaria* (Merica) *asperella*, Lam.; a rare shell; only four found; Inland Sea.
- 445 x *Cancellaria* (Euclia) *Spengleriana*, Desh.; loc. along the south coast and the Inland Sea, at rare intervals.

TEREBRIDÆ.

- 672 *Terebra duplicata*, Lin.; one shell only; Inland Sea.
- 668 *Terebra Lischkeana*, Dkr.; three shells only; southeast coast Kii.

- 749 *Terebra* (s. s.) *Loebeckeana*, Dkr.; very rare, only one found in a year; Inland Sea.
 750 *Terebra* (*Sabula*) *maculata*, Lin.; not common; I found but one.
 748 *Terebra* (s. s.) *triseriata*, Gray; very rare, only one found in a year; Inland Sea.

PLEUROTOMIDÆ.

- 736 *Pleurotoma* *cingulifera*, Lam.; one only found; Inland Sea.
 741 *Pleurotoma* *Indica*, Desh.; seven only found; east coast.
 738 *Pleurotoma* *Kaderleyi*, Lischke.; one found only; east coast.
 669 *Pleurotoma* (sp. undetermined, may be new); three shells only, from near Hiogo.
 671 *Pleurotoma* (sp. undetermined, may be new); one shell only; Inland Sea.
 737 *Pleurotoma* (sp. undetermined, may be new); one only found; east coast.
 745 *Drillia* *latisinuata*, Smith; two found only; Inland Sea.

CONIDÆ.

- 641 *Conus* (*Rhizoconus*) *mustelinus*, Brug.; var. *Ceciliæ* Chemn.; one only found; loc. Inland Sea.
 863 *Conus* *pauperculus*, Sby.; one shell.
 642 } *Conus* (*Leptoconus*) *Sieboldi*, Rve.; = *C. fulmen*, Rve.;
 642B } three only found; Inland Sea.

STROMBIDÆ.

- 6 313 xx *Strombus* (*Conomurex*) *luhuanus*, Lin.; loc. Oshima, Province Kii.
 — 314 x *Strombus* (*Gallinula*) *Japonicus*, Rve.; loc. near Oshima, coast of Kii; dead shells, only fair.
 659 *Strombus* (*Pterocarpus*) sp.; one only, young shell; loc.—

CYPRÆIDÆ.

- 0 438 xx *Cypræa* (s. s.) *macula*, A. Ad.; loc. Inland Sea; somewhat worn.
 0 439 xx *Cypræa*, sp.; loc. Inland Sea; too much worn to identify.
 852 *Cypræa* *guttata*, Rump., two shells only.
 853 " *Arabica*, Lin., three shells only.
 854 " *vitellus*, L., seven shells (dark var.)
 855 " *caput serpentis*, Lin., 19 shells.
 856 " *tigris*, Lin., young and light color, two shells.
 857 " *Lamarckii*, Gray, two shells.
 860 " *helvola*, Lin., one shell.
 862 " *miliaris*, Gmel., two shells.
 865 " *caput anguis*, Phil., one shell.

All the foregoing *Cypræas* from various parts of the east coast and Inland Sea.

OVULIDÆ.

- { 453A }
 { 453B } x *Ovulum* (*Birostra*) *volva*, Lin., loc. Ojima; three varieties
 { 453C } of form.

CASSIDIDÆ.

- 311 } x Cassis (Phalium) glauca, Lin. (var. coronulata, Sby.); loc.
 312 } Oshima, coast of Kii.
 310 x Cassis (Semi-cassis) saburon, Lam. and Ad.; full grown; loc.
 Oshima, coast of Kii.
 702 Cassis (Casmañia) vibex, Lam.; one shell only, found; east coast.

DOLIIDÆ.

- 347 x Dolium costatum, Mke., young shells; loc. Inland Sea.
 344 } xx Dolium luteostoma, Küst, var. Japonica, Dkr.; loc. east
 348inc } coast south of Tokyo; various stages of growth from medium to mature and with varieties in colors and markings.
 343 x Dolium zonatum, Green; well-grown, dark variety; loc. east coast, south of Tokyo Bay.
 309 Dolium zonatum, Green; young shells; loc. east coast.
 323 xx Pyrula reticulata, Lam.; = S. ficoides, Lam.; loc. Matsuyeno-hama coast.

NATICIDÆ.

- 304 xx Natica (Neverita) ampla, Phil.; var. Lamarckiana, Redfld; loc. east coast Tokyo to Enoshima; with opercula, large and fine.
 305 x Natica (s. s.) Adamsiana, Dkr.; with opercula; loc. Inland Sea (not quite sure this is the right specific name).
 763 x Natica sp.
 723 Velutina cryptospira, Midd. (var.); one shell only found; Inland Sea; very rare species.

CALYPTRÆIDÆ.

- 729 Calyptræa, sp.; nine only found; Inland Sea.
 361 } xx Crepidula aculeata, Gmel.; loc. Enoshima.
 364 }
 360 xx Hipponyx (Amalthea) Australis, Desh.; loc. east coast south to Ojima.
 362 } xx Hipponyx foliaceus, Quoy; found abundantly as parasites
 363 } on Haliotis gigantea; loc. Awa coast.

ONUSTIDÆ.

- 618 Xenophora (Tugurium) exuta, Rve.; loc. east coast.
 353 x Xenophora pallidula, Rve; loc. at intervals along the east coast, fine specimens covered with dead shells.

SCALARIDÆ.

- 710 Scalaria lineolata, Sby.; two shells only found, a very rare species; one young, one mature; loc. Inland Sea.

VERMETIDÆ.

- 765 Vermiculus imbricatus, Dkr.; four only, worn specimens; Inland Sea.
 319 x Vermetus (Siphonium) Medusæ, Pilsbry; Saruga coast; exceedingly fine specimens in large groups; a new species.

- 320 x Same as 319, but smaller groups, but generally attached to dead shells; loc. the same.
 321 xx Same as 319, but not so large or perfect.
 835 *Siliquaria Australis*, Quoy; one young shell.

LITTORINIDÆ.

- 624 }
 626 } xx *Littorina* (s. s.) *Sitchana*, Phil.; loc. Inland Sea and along
 628 } east coast.
 385 }

CERITHIIDÆ.

- 436 xx *Cerithium humile*, Dkr.; = *C. variegatum*, Quoy, and = *C. morus*, Lam.; loc. east coast.
 423 x *Cerithium* sp.; fossil in sandstone, brought from Awaji.
 424 x *Vertagus obeliscus*, Brug.; loc. Inland Sea.
 430 x *Tympanotomus fluviatilis*, P. et. M.; loc. Inland Sea.
 421 } xx *Lampania zonale*, Brug.; loc. Tokyo Harbor.
 422 }
 434 x *Lampania zonale*, Brug.; var. *aterrima* Dkr.; loc. Inland Sea.
 428 } x *Lampania multiformis*, Lischke; loc. Inland Sea; very
 429 } large.
 433 xx *Cerithidea rhizoporarum*, A. Ad.; loc. Inland Sea (new to Japan).

MELANIIDÆ.

- 413 xx *Melania* (*Tarebia*) *libertina*, Gld. (typical); loc. paddy fields near Yokohama.
 414 xx *Melania* (*Tarebia*) *libertina*, Gld.; var. *ambidextra*, Mart.; loc. Kamakura.
 412 } xx *Melania* (*Tarebia*) *libertina*, Gld.; var. *tenuisulcata*, Dkr.;
 415 } loc. paddy fields near Yokohama and Tokyo.
 619 }
 619B }

ASSIMINIIDÆ.

- 404 xx *Assimineia Japonica*, Mart.; loc. Inland Sea.
 732 x *Assimineia*, sp.; quite distinct from No. 404; loc.?

PALUDINIDÆ.

- 408 } xx *Paludina Ingallsiana*, Rve; with opercula; loc. near Kobe.
 409 }
 411A } xx *Paludina Japonica*, Mart.; with opercula; loc. paddy fields
 411B } near Tokyo.
 407 } xx *Paludina Japonica*, Mart.; var. *Sclateri*, Ffld.; with oper-
 410 } culca; loc. paddy fields near Tokyo.
 405 } xx *Paludina Japonica*, Mart.; var. *stelmaphora*, Bourg.; with
 406 } opercula and with some very young shells; paddy fields near Tokyo.

NERITIDÆ.

- 734 *Nerita* (*Thelicosyla*) *albicella*, Lin. (var.); seven only found; Inland Sea.
 383 xx *Nerita* (s. s.) *pica*, Gld.; loc. Inland Sea.
 733 x *Neritina* (*Neripteron*) *auriculata*, Lam. (var.); Inland Sea.

TURBINIDÆ.

- 317 xx Turbo (s. s.) marmoratus, Lin.; medium and full-grown, with opercula; loc. Sagami Bay.

NOTE.—The animal of this Turbo is considered by the Japanese a great delicacy. The animal is first removed from the shell, cut into little squares like dice, replaced in the shell again, with a little soy, and cooked therein over a charcoal fire.

- 633 Turbo (s. s.) petholatus, Lin.; loc. Inland Sea; four only found.

- 631 } Turbo (Marmorostoma) coronatus, Gml.; loc. east coast;
632 } three only found.

- 354 }
355 } xx Turbo (Marmorostoma) granulatus, Gml.; var. Coreënsis,
384 } Reclus., with opercula; loc. Enoshima.
625 }
630 }

- 452 x Astralium (Guilfordia) triumphans, Phil.; loc. southeast coast Kii.

- 451 x Astralium (Pomaulax) Japonicum, Dkr.; loc. southeast coast Kii.

- 451 B Astralium (Pomaulax) Japonicum, Dkr.; southeast coast Kii; one shell of this sp. *very large*, 160 mm. diameter, against 95 mm., the size of the largest previously reported; with its operculum (not hitherto known).

- 450 x Astralium (Bolma) Modestum, Rve.; loc. southeast coast.

TROCHIDÆ.

- 623 Delphinula distorta, Lin.; loc. Inland Sea; only two found.

- 387 x Pyramidea Mauritianus, Gml.; sea coast, Kii; worn shells.

- 358 xx Monodonta labio, Lin.; Seta coast; with opercula.

- 359 xx Monodonta neritoides, Phil.; with opercula; southeast coast Kishu.

- 621 Calliostoma consors, Lischke; only two found; loc. Inland Sea.

- 851 Calliostoma Sowerbyi, Pilsbry; two shells only.

- 619 Calliostoma unicum, Dkr.; loc. Inland Sea; only five found.

- 449 x Turcica argenteonitens, Lischke; loc. Inland Sea.

- 833 Turcica imperialis, A. Ad.; one shell, rare.

- 386 x Chlorostoma argyrostomum, Gmel.; with opercula; Kii sea coast.

- 356 x Chlorostoma argyrostomum, Gml.; dead shells covered with Serpula, sp.; Province Kii; no opercula.

- 831 Chlorostoma argyrostomum, Gmel.; var. distinguenda, Dkr.; only one shell.

- 357 xx Chlorostoma Carpenteri, Dkr.; loc. south east coast Kii; no opercula.

- 620 Chlorostoma Pfeifferi, Phil.; loc. south east coast Japan; only one found.

- 627 x Chlorostoma unicolor, Lischke; loc. Inland Sea.

- 457 xx (Trochidae) gen. and sp.? loc. Inland Sea.

- 392 xx Umbonium (syn. Rotella) gigantea, Less.; color var. A.

- 393 xx Umbonium (syn. Rotella) gigantea, Less.; color var. B (typical).

- 394 x Umbonium (syn. Rotella) gigantea, Less.; col var. C.

- 395 x Umbonium (syn. Rotella) gigantea, Less.; D.
 396 x Umbonium (syn. Rotella) gigantea, Less.; E (atra, Pilsbry).
 397 x Umbonium (syn. Rotella) gigantea, Less.; F.
 398 x Umbonium (syn. Rotella) gigantea, Less.; G (olivacea, Pilsbry).
 399 Umbonium (syn. Rotella) gigantea, Less., H; rare.
 400 Umbonium (syn. Rotella) gigantea, Less., I; rare.
 401 Umbonium (syn. Rotella) gigantea, Less., J; very rare; all numbers from 392 to 401 inclusive, from along Kii coast.
 402 xx Umbonium (syn. Rotella) gigantea, Less.; mostly gray; not so large as previous varieties, and so far as my observation goes this should be the typical variety rather than No. 393, though it is considerably smaller than the more rare color varieties.
 403 xx Umbonium (syn. Rotella) superbum, Gld.; color var. C; Inland Sea.
 635 x Umbonium (Rotella) superbum, Gld. (typical variety); loc. near Enoshima.
 636 x Umbonium (Rotella) superbum, Gld.; color var. B.
 637 x Umbonium (Rotella) superbum, Gld.; color var. D.
 638 x Umbonium (Rotella) superbum, Gld.; color var. E.; (nigrum, Pilsbry).
 639 Umbonium (Rotella) superbum, Gld.; color var., F.
 640 Umbonium (Rotella) superbum, Gld., color var., G.; only four of these two last found; loc. near Enoshima.

STOMATELLIDÆ.

- 869 Stomatella articulata, A. Ad.; one shell only.
 767 Stomatia rubra, Lam.; three only found; Inland Sea.

HALIOTIDÆ.

- 335 } xx Haliotis diversicolor, Rve.; var. Gruneri, Phil.; loc. Awa
 336 } and Kii coasts.
 459 }
 337 to } xx Haliotis gigantea, Chemn.; various ages, and at least two
 342 inc } well defined varieties; along the east coast from
 460 } many localities.
 461 }
 798 x Pearls obtained in the province of Kii, from Awabi shells, Haliotis, sp.; 17 pieces.
 859 Haliotis supertexta, Lischke; one only.

PATELLIDÆ.

- 372 xx Acmæa concinna, Lischke; loc. Yokohama Bay.
 373 xx Acmæa Heroldi, Dkr.; var. conulus, Dkr.; loc. Enoshima.
 368 } xx Acmæa saccharina, Lin.; var. lanx, Rve; sea coast of Kii.
 370 }
 374 x Acmæa Schrenckii, Lischke; loc. Ojima east coast.
 365 } xx Patella amussitata, Rve; loc. Enoshima.
 367 }
 381 }
 375 } x Patella nigrolineata, Rve; loc. Enoshima.
 376 }

- 366 }
 377 }
 378 } xx Patella toreuma, Rve; loc. Enoshima.
 379 }
 380 }
 382 }
 — 371 x Patella Stearnsii, Pilsbry; loc. coast of Province Kii (a new species). See *The Nautilus* for January, 1891, for description and engraving of this species.

CHITONIDÆ.

- 324 xx Chiton, sp. undetermined; loc. near Enoshima.
 325 xx Chiton, sp. undetermined; loc. Enoshima; very near No. 324.

BULLIDÆ.

- 655 Bulla ampulla, Lin.; two only found; Inland Sea.

APLUSTRIDÆ.

- 704 Hydatina physis, Lin.; loc. Inland Sea; four only found.

HELICIDÆ.

- ♂ 391 xx Helix (Euhadra) peliomphala, Pfr.; full grown and young in many stages of growth; loc. near Yokohama.
 ♂ 390 xx Helix (Euhadra) quaesita, Desh.; both full grown and young, a sinistral Helix; loc. near Yokohama.

PUPIDÆ.

- 388 xx Clausilia (Phædusa) eurystoma, Mart.; loc. near Yokohama.
 — 389 xx Clausilia (Hemiphædusa) platyauchen, Mart.; loc. near Yokohama.

LIMNÆIDÆ.

- 351 }
 352 } xx Limnæa pervia, Martens; loc. near Tokyo.
 456 }

DENTALIIDÆ.

- 350 xx Dentalium octagonum, Lam.; loc. Kii coast south.
 802 Dentalium Vernedei, Hanley; three found only, at long intervals.

SIPHONARIDÆ.

- 720 Siphonaria cochleariformis, Rve; seven only found; near Enoshima.
 — 369 x Siphonaria siphon, Sby.; loc. southeast coast of Kii.

SOLENIIDÆ.

- 811 Solen grandis, Dkr.; three shells only found; very fine.
 — 601 xx Solen Krusensternii, Schrenk; loc. Akashi Bay.
 — 503 x Machæra (syn. Aulus, syn. Siliqua) pulchellus, Dkr.; loc. east coast Tokyo to Oshima.
 779 Solecurtus (syn. Macha) divaricata, Lischké; one specimen only; Inland Sea.

MYACIDÆ.

- 6 578 } xx *Mya arenaria*, Lin.; loc. east coast; various stages of growth.
 579 }
 580 }

CORBULIDÆ.

- 507 xx *Corbula erythrodon*, Lam.; loc. along east coast s. to Kii.

MACTRIDÆ.

- 576 xx *Mactra sachalinensis*, Schrenk; loc. east coast.
 821 *Mactra spectabilis*, Lischke; two shells only; southeast coast and Inland Sea.
 — 561 } xx *Mactra* (syn. *Trigonella*) *veneriformis*, Desh.; loc. near
 836 } Awaji, Inland Sea.
 575 xx *Mactra* sp. (a new species); loc. Yokoska Harbor.
 577 xx *Mactra* sp. (a new species); loc. Sagama Bay.
 — 529 xx *Tresus* (*Schizothærus*) *Nuttalli*, Conrad; loc. Yokohama Bay.

TELLINIDÆ.

- 801 *Soletellina* (s. s.) *Boeddinghausi*, Lischke; five shells only found; Inland Sea.
 — 515 } x *Soletellina olivacea*, Jay; loc. near Sakai, Inland Sea.
 804 }
 — 514 } xx *Tellina inquinata*, Desh.; loc. Inland Sea.
 808 } *Tellina* (*Tellinella*) *perna*, Spengler; one shell only found.
 807 } *Tellina* (*Tellinella*) *vulselia*, Chemn.; two shells only found.
 — 517 xx *Tellina*, sp. (a new species); loc. Inland Sea.
 — 513 xx *Tellina*, sp. (a new species); loc. Inland Sea.
 800 *Macoma nasuta*, Conrad; one shell only.
 — 516 xx *Macoma prætexta*, Martens; loc. east coast.
 616 } xx *Macoma secta*, Conrad; loc. Sakai, Inland Sea.
 805 }

PETRICOLIDÆ.

- 799 *Venerupis* (syn. *Rupellaria*) *semi-plicaria*, Dkr.; one shell only found.
 — 560 xx *Venerupis* (syn. *Rupellaria*) *semi-purpurea*, Dkr.; loc. Inland Sea.
 — 508 xx *Saxidomus purpuratus*, Sby. = *S. Nuttalli*, Conrad; loc. Tokyo Harbor.

VENERIDÆ.

- 6 586 x *Gomphina* (*Venus*) *melanægis*, Roemer; color var. E.
 — 591 x " " " " " J.
 592 x " " " " " K.
 593 x " " " " " L.
 595 x " " " " " N.
 596 x " " " " " O.
 — 598 xx " " " " " Q.
 599 x " " " " " R.
 600 x " " " " " S.
 597 x " " " " " P.

All the foregoing are beautiful cabinet shells with much variety of marking, and are found in the shallow bays on the east coast and in the Inland Sea.

- 823 *Cytheria divaricata*, Chemn.; seven shells found; Inland Sea.
- 589 *Cytheria* (*Meretrix*) *impudica*, Lin.; var. *castanea*, Lam.; loc. shallow bays east coast.
- 581 xx *Cytheria* (*Meretrix*) *lusoria*, Chemn.; small shells.
- 582 xx *Cytheria* (*Meretrix*) *lusoria*, Chemn.; color var. A; full grown.
- 583 xx *Cytheria* (*Meretrix*) *lusoria*, Chemn.; color var. B; small shells.
- 584 *Cytheria* (*Meretrix*) *lusoria*, Chemn.; color var. C; not far from *typical* and full grown.
- 585 x *Cytheria* (*Meretrix*) *lusoria*, Chemn.; color var. D; full grown and young.
- 587 x *Cytheria* (*Meretrix*) *lusoria*, Chemn.; color var. F.
- 588 x *Cytheria* (*Meretrix*) *lusoria*, Chemn.; color var. G (typical).
- 590 *Cytheria* (*Meretrix*) *lusoria*, Chemn.; color var. I.
- These were found along the east coast from Tokyo to Idzumi; are all beautiful cabinet shells.
- 527 xx *Callista Chinensis*, Chemn.; color var. A; loc. south coast of Kii.
- 527B xx *Callista Chinensis*, Chemn.; color var. B; loc. south coast of Kii.
- 511 xx *Sunetta* (syn. *Meroe*) *excavata*, Hanley; loc. Seta coast, Kamayama.
- 511B xx Young shells, same as No. 511.
- 509 xx *Dosinia bilunulata*, Gray; mature shells; loc. Sagama coast.
- 509B xx *Dosinia bilunulata*, Gray; young shells, various ages; loc. Sagama coast.
- 510 xx *Dosinia Troscheli*, Lischke; loc. Inland Sea.
- 562 x *Cyclina Orientalis*, Sby. (var.); loc. coast near Yokohama.
- 563 xx *Cyclina Orientalis*, Sby. (typical); loc. Yokohama Harbor.
- 526 xx *Tapes* (*Textrix*) *amabilis*, Phil.; color var. A; loc. Shidaka coast.
- 526B xx *Tapes* (*Textrix*) *amabilis*, Phil.; color var. B; loc. same.
- 603 x *Tapes* (*Textrix*) *euglypta*, Phil.; loc. shallow bays on east coast to Inland Sea; a spotted variety.
- 518 xx *Tapes* (*Amygdala*) *Philippinarum*, Ads. st. Rve; color var. A.
- 519 x “ “ “ “ “ B.
- 520 xx “ “ “ “ “ C.
- 521 x “ “ “ “ “ D.
- 522 x “ “ “ “ “ E.
- 523 x “ “ “ “ “ F.
- 523B x “ “ “ “ “ “ G.
- 524 xx “ “ “ “ “ H.
- 525 xx “ “ “ “ “ I.
- These are beautiful cabinet shells, and were found along the east coast from Tokyo to Ojima; No. 524 came from Seta coast.
- 528 x *Tapes* (a new species); loc. near Sakai, in Inland Sea; a handsome cabinet shell.

CYRENIDÆ.

- 417 xx *Cyrena* (*Corbicula*) *Martensii*, Cless.; found at fish market, Tokyo; Japanese name, Shijime-Kai.

- 610 xx *Cyrena Martensii*, Cless.; loc. Yokohama tide flats; these shells smaller than No. 417.
- o 416 } xx *Cyrena (Corbicula) fluminea*, Müll.; found in the market, Hong Kong, China; some of these shells are purple inside, others are white and purple.
- 418 }
- 419 xx *Cyrena (Corbicula) fluminea*, Müll.; Hong Kong, China; somewhat smaller size.
- o 420 xx *Cyrena (Corbicula) straminea*, Reinhart; loc. mud flats Kishu coast.
- 705 . *Cyrena* sp.; Kanagawa mud flats; only six found.

ISOCARDIIDÆ.

- 613 xx *Cypricardia lirata*, Rve.; loc. Awa in Bishu.

CARDIIDÆ.

- 550 xx *Cardium (Cerastoderma) Californiensis*, Desh.; loc. along east coast Tokyo to Ojima.
- 602 xx *Cardium (Serripes) muticum*, Rve.; loc. Tokyo Harbor.

CHAMIDÆ.

- 812 *Chama ambigua*, Lischke; one shell only found, young; Inland Sea.

LUCINIDÆ.

- 825 *Loripes Philippinarum*, Rve.; two shells only; Inland Sea.

UNIONIDÆ.

- 542 xx *Unio Japanensis*, Lea; loc. paddy fields near Tokyo.
- 540 xx *Unio Nipponensis*, Martens; loc. paddy fields near Kamakura.
- 794 *Dipsas pictorum*, two half shells, painted with landscapes inside as they are sold at the shrine of Benten, on the Island of Enoshima.
- 539 } xx *Dipsas plicatus*, Sol.; loc. rice paddy fields, near Yokohama, various stages of growth.
- 544 }
- 546 }
- 548 }
- 547 x *Dipsas Reinianus*, Mart.; loc. paddy fields near Yokohama.
- 543 xx *Anodonta cellensis*, Schrot; loc. Odelawara.
- 541 xx *Anodonta Japonica*, Martens; loc. paddy fields near Sagama.
- 538 } xx *Anodonta Woodiana*, Lea.; various stages of growth; loc. rice paddy fields near Yokohama.
- 545 }

ARCIDÆ.

- 556 xx *Arca compacta*, Rve.; loc. Yokohama Harbor.
- 572 xx *Arca (Barbatia) decurvata*, Lischke; loc. Inland Sea.
- 555 x *Arca (Anomalocardia) pulchella*, Dkr.; loc. east coast.
- 551 *Arca (Scapharca) inflata*, Rve.; loc. Tokyo Harbor; four only found.
- 553 } xx *Arca Krausii*, Phil.; (varieties) loc. east coast Tokyo to Awaji, very near to *A. navicularis* Brug.
- 559 inc }
- 552 x *Arca nodosa-crenata*, Lischke; loc. Inland Sea.
- 549 xx *Arca setosa*, Dkr.; loc. Sagama coast.
- 537 xx *Pectunculus albo-lineatus*, Lischke; loc. coast of Kii; these seem to be gigantic shells of this species.

MYTILIDÆ.

- 615 } x *Mytilus atratus*, Lischke; loc. south coast Province Ise.
 781 }
 —536 xx *Mytilus crassitesta*, Lischke (or it may be a variety of
mytilus giganteus Holmb.); this is a very large species;
 many are loaded with barnacles, all more or less
 cracked in drying; loc. Akashi coast.
 —573 x *Mytilus Dunkeri*, Rve.; loc. Inland Sea.
 790 *Mytilus giganteus*, Holmberg (typical); three shells only;
 Inland Sea.
 785 *Mytilus hirsutus*, Lam.; two only; Inland Sea.
 —574 x *Mytilus rostratus*, Dkr.; loc. Kii coast.
 786 *Mytilus sinuatus*, Dkr.; (var.) one only; Inland Sea.
 791 *Modiola modiolus*, Lin.; three shells; Inland Sea.
 793 *Modiola modiolus*, Lin.; var. *Philippinarum*, Hanley; one
 shell only found.
 —604 x *Modiola nitida*, Hanley; very large; Inland Sea.
 571 xx *Modiola senhausii*, Rve.; a very small but beautiful species
 found near Enoshima.
 —570 xx *Modiola* (s. s.) *traillii*, Rve.; loc. Idzu coast.
 —611 xx *Lithodomus curtus*, Lischke; loc. Joga-shima.
 789 *Modiolaria cumingiana*, Dkr.; one only found; Inland Sea.

AVICULIDÆ.

- 512 x *Avicula* (*Meleagrina*) *Martensii*, Dkr.; loc. Province Kii,
 south coast.
 —797 x Pearls from *Meleagrina Martensii*, from the Province of
 Kii, where young girls are trained to dive for the shells.
 773 *Malleus albus*, Chemn.; two fine large specimens; Inland
 Sea.
 780 *Avicula brevia lata*, Dkr.; two shells only; Inland Sea.

PINNIDÆ.

- 674 *Pinna assimilis*, Hanley and Dkr.; one shell only, loc. west
 part Inland Sea.
 —606 xx *Pinna Japonica*, Hanley; loc. Kishu coast.
 535 xx *Pinna*, sp. (a new species), this is a very large *Pinna*, many
 of them have at the lip large *Balanus* sp.; loc. Tokyo
 Harbor; these and the various species of *Mytilus*
 are very apt to split and crack when dry, and most of
 those in my collection are in that condition.

SPONDYLIDÆ.

- 813 x *Spondylus cruentus*, Lischke.
 827B *Spondylus regius*, Gml.; one only found; Inland Sea.
 —827 x *Spondylus Sinensis*, Sby.; Inland Sea.

LIMIDÆ.

- 809 *Lima excavata*, Chemn.; one very large shell, on which
 were two specimens of *Scalpellum Stearnsii*, Pilsbry.
 810 *Lima squamosa*, Lam.; one shell (var).

PECTINIDÆ.

- 694 *Pecten crassicostatus*, Sby.; two shells only found; east
 coast.

- 695 *Pecten crassicostatus*, Sby. (var.); one shell only found.
 564 x *Amusium Japonica*, Gml.; loc. various parts of east coast and Inland Sea.
 565 xx *Pecten lætus*, Gld.; color var. A.
 565B x *Pecten lætus*, Gld.; covered with groups of *Balanus amphitrite*; loc. Ikai coast Joga-shima.
 566 x Same as No. 565; color var. B; loc. as 565B.
 567 *Pecten lætus*, Gld.; color var. C; greenish.
 568 x *Pecten lætus*, Gld.; small shells; loc. for foregoing numbers Sagama Bay and coast of Joga-shima.
 569 x *Pecten (Vola) laqueata*, Sby.; loc. east coast.
 692 *Pecten (Vola) puncticulata*, Dkr.; one shell only; Prof. Pilsbry states that this is so much larger and finer than Dunker's type that it ought to be figured.
 700 }
 701 } *Pecten squamatus*, Gml.; three only found; Inland Sea.

ANOMIIDÆ.

- 500 xx *Anomia* sp.; var. A.
 501 x *Anomia* sp.; var. B.
 502 xx *Anomia* sp.; var. C.
 724 to }
 728 B } *Anomia*, 6 species; but two or three of each.

NOTE—These nine species *Anomia* are yet undetermined, so much confusion existing in this genus that it is almost impossible to determine with accuracy the oriental forms; they are, however, very distinct and perfect; loc. Kishu coast and Joga-shima coast. Prof. Pilsbry writes me that these are unlike any forms hitherto described as far as he knows.

OSTREIDÆ.

- 774 *Ostræa gigas*, Thunb.; var. *Goliath*, Pilsbry; a half shell; the largest on record, $17\frac{5}{8}$ inches long by $3\frac{3}{8}$ inches wide; length of ligament area $3\frac{3}{4}$ inches; form straight, parallel sided; very thick but comparatively light; found at Enoshima.
 839 *Ostræa gigas*, Thunberg; var. *Talienwhanensis* Cross; one shell only.
 530 xx *Ostræa (Alectryonia) cucullata*, Born.; form var. A.
 531 x " " " " " B.
 533 x " " " " " C.
 608 xx " " " " " D.
 776 " " " " " E.
 777 " " " " " F.

Foregoing varieties from east coast Sagama.

- 532 xx *Ostræa (Alectryonia) plicata*, Chemn.; two form varieties A and B; loc. Kishu coast.
 534 x *Ostræa denselamellosa*, Lischke; loc. Tokyo Bay.

BRACHIOPODA.

- 713 *Terebratula Stearnsii*, Pilsbry; a new and distinct species, named after me, and figured by Prof. H. A. Pilsbry, in the Proceedings of the Academy Natural Sciences, Philadelphia, for 1891 (see Plate I, Figs. 4, 5, 6); only two specimens found; east coast, near Kii.

- 612B Terebratulina Crossei, Davidson; two specimens only found, attached to a bit of silicious substance which may have been part of a glass sponge; loc. Inland Sea.
- 714 Terebratella Gouldii, Dall.; (see Plate I, Figs. 2, 3); one shell only found, in the adult form (not before seen); east coast, dredged.
- 712 Terebratella Coreanica, A. Ad.; three specimens only found, attached to a piece of rock; dredged; loc. Inland Sea.
- 505 Laqueus Blanfordi, Dkr; loc. east coast.
- 609 }
612 } xx Laqueus rubella, Sby.; loc. Joga-shima.
614 }

LINGULIDÆ.

- o 504 } xx Lingula anatina, Lam.; loc. vicinity of Enoshima; some are dried and some brought home in alcohol and since dried.
617 }

CIRRIPEDIA.

- 605 Scalpellum Stearnsii, Pilsbry; this is a new and distinct species named after me by Prof. Pilsbry, who states it to be more nearly allied to the fossil *S. Pfeifferi* Weithofer of the Vienna Basin (Miocene), than to any living species. (See Plate I, Fig. 1.) I only obtained twelve of these at long intervals, during a year, from the fishermen who dredged them in six to ten fathoms along the east coast of Tokyo to Inland Sea. None of these can be had in exchange, as they will be sent to Public Institutions only. In all cases I found them attached to other shells.
- 758 Balanus amaryllis, mixed with *B. amphitrite* Darwin; four groups; Inland Sea.
- 327 x Balanus amphitrite, Darwin; a white variety in groups; dead shells; loc. Akashi coast.
- 759 Balanus cepa, Darwin; a group on a *Cancellaria nodulifera*, Sby; Inland Sea.
- 326 x Balanus tintinabulum, Lin; (typical) loc. Awaji coast; dead shells.
- 760 xx Lepas anatifera, Lin.; east coast near Yokohama; a lot of groups.
- 607 xx Pollicipes mitella, Lin; loc. near Enoshima.
- 327B } xx Pollicipes mitella, Lin.; loc. near Enoshima; fine groups.
607 } xx
- 735 }
762 } Tetracrita porosa, Gmel.; three only found; Inland Sea.

VERMES.

- 322 x Serpula, undetermined species; loc. east coast between Tokyo and Ojima.
- 322B Serpula, undetermined species; loc. unknown.
Nos. 506, 629, 634, 646, 803 are species of shells of which only one or two each were found, but are as yet not determined.

MOLLUSCA OF THE BAHAMA ISLANDS.

I spent the winter of 1887-8 at Nassau, the capital of Bahama Islands, and while there made an excursion covering several weeks to the various sponge fishing banks around Andros Island, and to other islands in the vicinity. I collected nearly 200 species, of which I yet have the following in sufficient number to offer them in exchange.

AURICULIDÆ.

- g 9 xx *Melampus* sp.; loc. Mayport, Florida.
 65 xx *Melampus coffeus* L.; var. *coniformis*, mft., loc. Andros, n. side.

CASSIDIDÆ.

- 110 x *Cassis* (s. s.) *tuberosa*, Lin.; well grown and finely marked.
 110B x *Cassis flammea*, Lin.; fine.
 110C x *Cassis varians*, Mke.; fine.
 166 x *Cassis cameo* Stimps.
 82 x *Cassis* (*Cassidea*) *testiculus*, Lin.: not very fine.

NOTE.—Large shells like these cannot be sent by mail.

CERITHIDÆ.

- 28 xx *Cerithium nigrescens*, Mke.

CHITONIDÆ.

- 92 x *Chiton* (s. s.) *Piceus* Gmel.

COLUMBELLIDÆ.

- 163 xx *Columbella* (*Pygmaea*) *mercatoria*, Lin.; very fine color varieties.

CYPRIDÆ.

- 89 xx *Cypræa* (s. s.) *exanthema*, Lin.; various sizes; maculated and reticulated.

FASCIOLARIIDÆ.

- 72 x *Fasciolaria tulipa*, L.; various sizes.

HELICIDÆ.

- 111 xx *Helix* (*Hemitrochus*) *variens*, Mke.; very finely banded. Lot B the same in alcohol with the animal; Lot C, ditto faded; Lot D, ditto bleached.
 113 xx *Helix* *Stearnsianella*, Pilsbry, discovered at Grantstown, back of Nassau, and named after me by Prof. H. A. Pilsbry (a new species).
 112 x *Helix* (*Thelodomus*) *provisoria*, Pfr. (var.)

LITTORINIDÆ.

- 10 x *Littorina* (*Melaphe*) *scabra* L.; var. *Lineata*, Gmel. (= var. *angulifera* Lam.; a variety of fine colors and with opercula.
 16 x *Littorina* (*Melaphe*) *ziczac*, Chemn., with opercula.
 17 xx *Tectarius dilitatus*, D'orb.; with opercula.
 18 xx *Tectarius muricatus*, Lin.; with opercula.

MARGINELLIDÆ.

- 43 xx *Marginella* (*Cryptospira*) *flavida*, Redfield, beautiful shells, bright glossy yellow.
 71 xx *Marginella* (*Glabella*) *opalina*, Stearns.

MURICIDÆ.

- 12 xx *Murex* (*Chicoreus*) *Salleanus* A. ad. (= *M. pudicolor*); with opercula.
 13 xx *Purpura* (s. s.) *patula*, Lin.; fine, with opercula.

NATICIDÆ.

- 44B xx *Natica* (s. s.) *Marochiensis*, Gmel.; var. *livida* Phil.; in alcohol, with animal and opercula.
 159 xx *Natica* (*mamma*) *porcellana*, D'orb.

NERITIDÆ.

- 19 xx *Nerita* (*Peleronta*) *peleronta*, Lin.; fine and large, with opercula.
 20 xx *Nerita* *Listeri* Recluz; (var.) fine, with opercula.
 21 xx *Nerita* (*Peleronta*) *tessellata*, Gmel.; with opercula.
 21B xx *Nerita* (*Peleronta*) *versicolor*, Lam.; with opercula.
 39 xx *Neritina* *Virginia* L.; very fine; requires many specimens to exhaust the varieties of markings.
 158 xx *Neritina* *vita-pupa*, Say.; a very beautiful shell.

OLIVIDÆ.

- 7 x *Oliva* (*Strephona*) *fusiformis*, Lam.; only fair.
 7B x *Oliva* (*Strephona*) *fusiformis*, a tessellate variety, Lam.
 7D x *Oliva* (*Strephona*) *fusiformis*, Lam.; yellowish and white variety, fine. *Oliva biplicata*, Sowb. (these are from Alaska).

PUPIDÆ.

- 23 x *Strophia marmorata*, Pfr.
 26 *Strophia glans*, Küster.

STROMBIDÆ.

- 86 x *Strombus gigas*, L.; with opercula.
 86B x *Strombus*, *gigas*, L.; opercula only.
 85 xx *Strombus gigas*; young; several stages of growth; quite unlike the adult shell and in good colors.
 50 x *Strombus costatus*, Gmel.
 84 xx *Strombus bituberculatus*, Lam.

TEREBRIDÆ.

- 35 x *Terebra* (*Myurella*) *dislocata*, Say.; color varieties.

TROCHIDÆ.

- 22 xx *Trochus* (*Livona*) *pica* L.; with opercula various ages.

BIVALVES.

AVICULIDÆ.

- 25 xx *Perna* (*Isognomon*) *epiphium*, Lin.

LUCINIDÆ.

- 31 x *Lucina* *Pennsylvanica*, Lin.
 6 xx *Lucina* (*Codakia*) *tigrina*, Desh.; several stages of growth, the inner lip and hinge being tinged either with pink, yellow or purple, forming three color varieties.

TELLINIDÆ.

- 611 x *Tellina lævigata*, Lin.
 1 xx *Asaphis sanguinolaria*; var. *coccinea*, Martyn.
Asaphia sanguinolaria; yellow color variety.
Asaphia sanguinolaria; purple color variety.

MISCELLANEOUS.

In addition to the foregoing, I have a number of Star Fishes; Sea Urchins, among them *Cidaris tubuloides*; Fish Scales, about fifteen varieties for microscopic study; Sponges, about twenty species undetermined, having only scientific value.

1, *Scalpellum Stearnsii*, Pilsbry. 2, 3, *Terebratella Gouldii*, Dall, Adult.
4, 5, 6, *Terebratula Stearnsii*, Dall and Pilsbry.

Stockton, Calif.
T. M. Reg. U. S. Pat. Off.

JUN 11 1941

M94100

QL426
J3576
Biology
Library

THE UNIVERSITY OF CALIFORNIA LIBRARY