

Le jeune était convert de duvet gris, relevé de taches d'un brun foncé. Malheureusement il a été mangé par le père, et les observations n'ont pu être continuées.'

"The egg unfortunately arrived broken. It is white, very sparsely blotched with reddish-brown, a few of the markings taking the form of irregular hair-like lines, and measures 2.24 by 1.62 in. Thienemann, in his 'Fortpflanzungsgeschichte der gesammten Vögel,' has figured what he professes to call a specimen of this egg (tab. lxxii. fig. 14); but, as is well known, the letterpress of that work is incomplete, and no one can say whether the specimen was genuine. In like manner M. des Murs, in his 'Oologie Ornithologique,' has described the egg of this species (p. 368); but, again, evidence as to the authenticity of the specimen is not forthcoming. On the receipt of this egg from M. Milne-Edwards, I at once be-thought me of an egg which had long been known to me as existing in the collection of Mr. H. F. Walter F.Z.S.; and that gentleman has been so kind as to send it to me for exhibition to-night. This specimen is considerably larger than that laid in captivity, and also is more highly coloured. In appearance it at once calls to mind eggs of the *Rallidæ*, while the egg from Paris can hardly be said to show such an affinity. It is to be hoped that before long greater success may attend the attempts at inducing this interesting form to breed, either in the Jardin des Plantes or the Gardens of our Society, so that some more distinct conclusion may be drawn, from the evidence thus to be obtained, as to the affinities of *Cariama*."

The following papers were read:—

1. Account of the Zoological Collections made during the Survey of H.M.S. 'Alert' in the Straits of Magellan and on the Coast of Patagonia. Communicated by Dr. ALBERT GÜNTHER, F.R.S., F.Z.S., Keeper of the Zoological Department, British Museum.

[Received November 4, 1880.]

(Plates I.—XI.)

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| <p>I. Mammalia, by OLDFIELD THOMAS, p. 3.</p> <p>II. Birds, by R. B. SHARPE, p. 6.</p> <p>III. Reptiles, Batrachians, and Fishes, by Dr. A. GÜNTHER, p. 18.</p> <p>IV. Mollusca and Moluscoïda, by E. A. SMITH, p. 22.</p> <p>V. Polyzoa, by S. O. RIDLEY, p. 44.</p> <p>VI. Crustacea, by E. J. MIERS, p. 61.</p> | <p>VII. Coleoptera, by O. O. WATERHOUSE, p. 80.</p> <p>VIII. Lepidoptera, Orthoptera, and Hemiptera, by A. G. BUTLER, p. 82.</p> <p>IX. Echinodermata, by F. J. BELL, p. 87.</p> <p>X. Cœlenterata and Spongiidæ, by S. O. RIDLEY, p. 101.</p> |
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The collections described in the following series of papers were made by Dr. R. W. COPPINGER, Staff-Surgeon of H.M.S. 'Alert,' during the cruise of that ship on the coasts of the southern ex-

tremity of the American continent, and transmitted to the British Museum by command of the Lords Commissioners of the Admiralty.

The collections arrived in two consignments—the first in September 1879, and the second in July 1880. With regard to the former, Dr. Coppinger writes:—"The specimens were obtained, with few exceptions, in the western portion of the Magellan region, and in the immediate neighbourhood of the Madre-de-Dios archipelago, off the west coast of Patagonia. They will be found duly labelled as to the localities in which they were obtained; and I may add that all of the specimens which are not otherwise noted were found in the living state." The second consignment consisted of specimens partly collected in the same district, partly more northwards, as far as Coquimbo. It contained also some dredgings and pelagic animals from the Atlantic, which do not come within the scope of this Report; and a series of fossils from Sandy Point and Quiriquina Island, which were delivered to the Department of Geology.

Dr. Coppinger was fully aware of the special interest attached to the marine fauna of these coasts. Essentially antarctic in its character, it comprises a number of forms closely allied to, nay, even identical with, arctic animals, such as he himself had observed and assisted to collect during the voyage to the Polar Seas, under the command of Capt. Sir G. Nares. He directed his attention especially to the marine Invertebrata; and consequently the majority of novelties will be found in those classes; yet also the series of marine Vertebrates, small as it is, contains forms of no small interest which had escaped the notice of his immediate predecessors the naturalists of H.M.S.S. 'Nassau' and 'Challenger.' The best thanks of zoologists are due to the Lords of the Admiralty, from whom Dr. Coppinger has received every encouragement in making this valuable contribution to our knowledge of the Antarctic fauna.

The various parts of the collection have been examined and described by the staff of the Zoological Department; and for the convenience of the student of this fauna it seems desirable to give the results of these examinations in a connected form and systematic order.

## I. MAMMALIA.

By OLDFIELD THOMAS.

The Mammalia collected by Dr. Coppinger are few in number; but they include specimens of a new and handsome species of *Hesperomys*, which I propose to name after the collector, and a series of skulls of some of the Magellan Seals. The species are as follows:—

### 1. LUTRA FELINA, Mol.

Two skulls, a skeleton, and two skins from Magellan Straits and the west coast of Patagonia.

## 2. OGMORHINUS LEPTONYX (Blainv.).

*Stenorhynchus leptonyx*, auct.

One skull from the Falkland Isles.

## 3. OTARIA JUBATA, Desm.

Four skulls from the Magellan Straits. One of these skulls, apparently rather aged, has only five teeth on each side above and below, as in the genus *Zalophus*; it has, however, the concave palate and other characters of this genus. There is no appearance of there ever having been a sixth pair of teeth; but its absence is no doubt only an individual variation.

4. ARCTOCEPHALUS AUSTRALIS, Zimm.<sup>1</sup>

The skin of a young specimen "six weeks old," and five skulls from the Magellan Straits.

## 5. HESPEROMYS (CALOMYS) COPPINGERI, sp. n.

A skin from Tom Bay, and two specimens in spirit "caught with trap on a wooded islet about one acre in extent" in Cockle Cove, (Feb. 9, 1879).

Fur very long and soft, fully half an inch in length on the back. Ears rather short, nearly hidden in the fur. Whiskers of medium length, the shorter lower ones forming a thick shining white fringe along the upper lip. On the head and back the wool-hair is of a deep slaty blue for nine tenths of its length; then follows a subterminal band of yellow; and the extreme tip is black. Mixed with

Fig. 1.

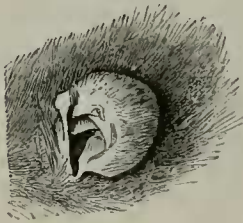
Left ear of *Hesperomys coppingeri*.

Fig. 2.

Right foot of *Hesperomys coppingeri*.

this wool-hair there are a considerable number of longer black hairs, the resulting general colour being very similar to that of the common Water-vole (*Arvicola amphibius*, L.). The dark colour of the upperside extends on the limbs to the wrists and ankles, the feet being covered with short shining white hairs. The ears are thickly clothed with short woolly hairs similar in colour to the fur of the back. On the sides the yellow tips of the hairs gradually become lighter, and on the belly they are nearly pure white, the basal portion of the fur, however, from the chin to the anus, still being slate-coloured.

<sup>1</sup> Cf. J. A. Allen, N. Amer. Pinnipeds, p. 210, 1880.

The tail is very long and but scantily haired; on the upperside the scales are grey and the hairs dark reddish brown, on the lower the scales are pale yellow and the hairs white; along the centre of the underside, however, there is a distinct narrow line of dark-brown hairs, contrasting with the white ones on either side.

The ears possess, at about one third the height of the inner margin, a small projecting lobule, which seems to be present in many species of this genus, and to be well worthy of notice, as being very constant in the species in which it is found. The foot-pads are small but distinct, and the surface of the palms and the distal half of the soles are coarsely granulated, as shown in the woodcut.

The skull is that of a typical *Hesperomys*, but shows only a very faint trace of the supraorbital ridges supposed to be characteristic of the subgenus *Calomys*, to which, however, the species undoubtedly belongs, as proved by its long tail and murine form.

The following are the dimensions of the two spirit specimens, both of which are adult males:—

	<i>a.</i>	<i>b.</i>
	inches.	inches.
Length of head and body . . . . .	4·3	4·2
„ tail . . . . .	6·4	6·1
„ head . . . . .	1·4	
„ ear . . . . .	0·55	0·53
„ hind foot without claws . . . .	1·3	1·22
Distance from muzzle to ear-orifice . . . . .	1·08	

Measurements of skull of *b*:—

	inch.
Length . . . . .	1·2
Breadth . . . . .	0·65
Breadth between orbits . . . . .	0·16
Length of nasals . . . . .	0·4
„ lower jaw, from condyle to tip of incisors . .	0·76

The species to which *H. coppingeri* appears most nearly allied are *H. lutescens*, Gay<sup>1</sup>, and *H. philippii*, Landb.<sup>2</sup>, both from Chili. The first, however, is much larger, being 5·7 inches in length, while its tail is only as long as the trunk. Moreover the skull, as figured by Gay, possesses strong supraorbital ridges, while our three specimens of *H. coppingeri*, as stated above, show but little trace of them. *H. philippii*, though somewhat similar in size and colour, may be readily distinguished by the extreme shortness of its tarsus (0·8 in.); and by the character of its fur, which is described as being short and fine, while that of *H. coppingeri*, as mentioned above, is particularly long and soft.

## 6. HESPEROMYS (HABROTHRIX) XANTHORHINUS, Waterh.

A skin from Monteith Bay, and a specimen in spirit from Sandy Point.

<sup>1</sup> Hist. Chile, i. p. 118; Atlas, pl. vii. fig. 2.

<sup>2</sup> Wieg. Archiv, 1858, i. p. 80.

## 7. CTENOMYS MAGELLANICUS, Benn.

A spirit specimen from Pechett Harbour.

## 8. OCTODON DEGUS, Mol.

Two skins from Coquimbo (June 1879).

## 9. MYOPOTAMUS COYPU, Mol.

A skin from Swallow Bay (March 21, 1880), and a skin and skeleton from Talcahuano, Concepcion (September 1879).

## 10. PHYSALUS, sp.

A cervical vertebra and two tympanic bones of a species of this genus, obtained at Point Rosario, are in the collection, but are not sufficient to enable me to identify the species.

Besides these specimens, Dr. Coppinger discovered, in caves on the cliffs, various human and mammalian remains, of which, we may hope, he himself will give an account, with full details of the circumstances under which they were found.

## II. BIRDS.

By R. BOWDLER SHARPE.

Although the region in which Dr. Coppinger has been working has already received considerable attention from ornithologists, so that no novelties are to be expected, yet the careful way in which Dr. Coppinger has prepared and labelled his specimens, and the localities and dates he gives, render his collections very interesting. The following extracts are taken from one of his letters, in which he alludes to the localities where his first collection was obtained. Writing from Coquimbo in June 1879, Dr. Coppinger observes:—"The collection of birds will appear, at first sight, very incomplete, at least when compared with those which have been made by ships previously employed in surveying in the Magellan region. I wish, therefore, to call attention to the circumstance that the surveying operations of the 'Alert' have hitherto been confined to the archipelago fringing the west coast of Patagonia, and chiefly to the neighbourhood of the Trinidad Channel in 50° S. latitude, where the rainfall is excessive, and the Bird-fauna scanty as compared with that part of the Magellan region situated to the eastward of Port Famine and Sandy Point."

A few eggs were also sent by Dr. Coppinger; but they call for very few remarks, having already in most cases been described by Professor Newton (*Ibis*, 1870, p. 501).

In the present paper I have referred to the three essays published in the 'Ibis' by Messrs. Sclater and Salvin, as follows:—

1. "List of Birds collected in the Straits of Magellan by Dr. Cunningham, with remarks on the Patagonian Avifauna," *Ibis*, 1868, pp. 183-189.

2. "Second list of Birds collected by Dr. Cunningham," Ibis, 1869, pp. 283-286.

3. "Third list of Birds collected by Dr. Cunningham," Ibis, 1870, pp. 499-504.

I have also referred to the paper by the same gentlemen on the birds collected in Antarctic America during the voyage of H.M.S. 'Challenger,' P. Z. S. 1878, pp. 431-438.

Where the species do not occur in any of the above lists, I have referred to the 'Nomenclator Avium Neotropicalium' of the same authors; and the classification followed is that of the latter work.

1. *TURDUS MAGELLANICUS*, King; Seebohm, Cat. B. v. p. 224.

*Turdus falklandicus*, Q. & G. apud Scl. & Salv. Ibis, 1868, p. 186; iid. P. Z. S. 1878, p. 431.

No. 31. ♂ ad.: Cockle Cove, Straits of Magellan. Bill yellow; iris yellow.

No. 21. ♂ juv.: Tom Bay, Straits of Magellan, February 24, 1879. Legs yellow; bill yellow; claws black.

No. 117. ♀ ad.: Cockle Cove, October 17, 1879. Bill yellow; eyes dark; legs and feet yellow.

2. *MIMUS THENCA* (Mol.); Scl. & Salv. Ibis, 1870, p. 499.

No. 95. ♀: Coquimbo, July 1879. Gizzard containing seeds, leaves, grass, and bones.

3. *PHRYGILUS GAYI* (Eyd. & Gerv.); Scl. & Salv. Ibis, 1868, p. 186, 1869, p. 285; iid. P. Z. S. 1878, p. 432.

No. 53. ♂: Tom Bay, January 18, 1879.

4. *PHRYGILUS FRUTICETI* (Kittl.); Scl. & Salv. Ibis, 1868, p. 185.

No. 108. ♂: Coquimbo, August 25, 1879. Eyes dark brown; bill yellow; legs yellow.

No. 111. Coquimbo, June 1879. Stomach very muscular, apparently containing seeds.

5. *ZONOTRICHIA CANICAPILLA*, Gould; Scl. & Salv. Ibis, 1868, p. 185; iid. Ibis, 1869, p. 284; iid. P. Z. S. 1878, p. 432.

No. 110. Puerto Bueno, November 1879. Iris brown; bill black; legs light grey.

6. *DIUCA GRISEA*, Less.; Scl. & Salv. Ibis, 1870, p. 499.

No. 109. ♀: Coquimbo, June 1879.

7. *STURNELLA MILITARIS* (L.); Scl. & Salv. Ibis, 1863, p. 186.

No. 29. ♂: Peckett Harbour, Straits of Magellan, January 4, 1879.

8. *CURÆUS ATERRIMUS* (Kittl.); Scl. & Salv. Ibis, 1869, p. 283; iid. P. Z. S. 1878, p. 432.

No. 18. ♂: Tom Bay, March 6, 1879. Eyes dark, eyelids black; feet and legs black; bill black.

No. 85. ♂: Isthmus Bay, Straits of Magellan, January 11, 1879.

An egg, much broken, is also forwarded. It is pure white, and measures, axis 1·1 inch, diam. 0·8.

9. *CENTRITES NIGER* (Bodd.); *Scl. & Salv. Ibis*, 1868, p. 187; *iid. P. Z. S.* 1878, p. 432.

No. 33. Cape Gregory, January 1, 1879.

10. *ANÆRETES PARVULUS* (Kittl.); *Scl. & Salv. Ibis*, 1869, p. 283; *iid. P. Z. S.* 1878, p. 432.

No. 36. ♂: Malaspina Islands, Trinidad Channel, February 16, 1879. Bill and legs black.

11. *PTEROPTOCHUS ALBICOLLIS*, Kittl.; *Scl. & Salv. Nomencl. Av. Neotr.* p. 76.

No. 96. ♂: Coquimbo, August 5, 1879. Eyes dark brown; legs and bill black.

12. *GEOSITTA CUNICULARIA* (V.); *Scl. & Salv. Ibis*, 1870, p. 499.

No. 106. ♂: Coquimbo, June 1879.

13. *TÆNIOPTERA PYROPE*, Kittl.; *Scl. & Salv. Ibis*, 1868, p. 187.

No. 97. ♀: Skyring Water, March 1880. Iris light yellow; bill black; legs and feet black.

14. *AGRIORNIS MARITIMA*, Lafr. et d'Orb.; *Scl. & Salv. Ibis*, 1868, p. 185.

No. 94. ♀: Coquimbo, June 1879. Stomach containing remains of insects (locusts).

15. *MUSCISAXICOLA MENTALIS* (Lafr. et d'Orb.); *Scl. & Salv. Ibis*, 1868, p. 187.

No. 112. Coquimbo, June 1879.

16. *CINCLODES FUSCUS* (V.); *Scl. & Salv. Ibis*, 1868, p. 186.

No. 47. ♂: Peckett Harbour, January 4, 1879.

No. 104. ♂: Coquimbo, June 1879. From sea-shore rocks.

17. *CINCLODES PATACHONICUS* (Gm.); *Scl. & Salv. Ibis*, 1868, p. 186, 1869, p. 283; *iid. P. Z. S.* 1878, p. 433.

No. 49. ♂: Tom Bay, January 23, 1879.

No. 50. Elizabeth Island, January 6, 1879.

No. 20. Twenthu Island, Trinidad Channel, February 25, 1879.

18. *UPUCERTHIA DUMETORIA*, Geoffr. et d'Orb.; Scl. & Salv. Ibis, 1868, p. 187.

No. 105. ♀: Coquimbo, June 1879. Legs greyish pink.

19. *OXYURUS SPINICAUDA* (Gm.); Scl. & Salv. Ibis, 1868, p. 185; iid. P.Z.S. 1868, p. 433.

No. 115. ♂: Port Riofrio, west coast of Patagonia.

No. 38. Trinidad Channel, February 1879.

20. *PYGARRHICUS ALBIGULARIS* (King); Scl. & Salv. P. Z. S. 1878, p. 433.

No. 114. Skyring Water, Magellan's Straits, March 1880. Iris black; bill and legs horn-colour.

21. *EUSTEPHANUS GALERITUS* (Mol.); Scl. & Salv. Ibis, 1869, p. 283; iid. P. Z. S. 1878, p. 433.

No. 35. ♀: Cockle Cove, February 9, 1879.

22. *PATAGONA GIGAS* (Mol.); Scl. & Salv. Ibis, 1870, p. 499.

No. 113. Coquimbo, August 25, 1879. Eyes black; bill and legs black.

23. *CERYLE STELLATA* (Meyen); Scl. & Salv. Ibis, 1868, p. 187, 1869, p. 283; iid. P. Z. S. 1878, p. 434.

No. 25. ♂: Cockle Cove, February 7, 1879.

A. Sternum. (Tom Bay.)

24. *STENOPSIS BIFASCIATA* (Gould); Scl. & Salv. Nomencl. Av. Neotr. p. 96.

No. 107. ♀: Coquimbo, June 1879. Eyes yellow.

25. *ZENAIDA MACULATA* (V.); Scl. & Salv. Nomencl. Av. Neotr. p. 132.

No. 118. ♂: Coquimbo, June 1879. Bill dark; legs red.

26. *RHINOGRYPHUS AURA* (L.); Sharpe, Linn. Soc. Journ. xiii. p. 21.

*Cathartes aura* (L.); Scl. & Salv. Ibis, 1869, p. 284; iid. P. Z. S. 1878, p. 435.

a. ♂: Tom Bay, April 11, 1879. Iris dark; eyelids and cere flesh-colour; bill horn-colour; legs dirty yellow.

b. ♀: Tom Bay, April 11, 1879. Eyes dark; skin of head and neck light red; legs and feet dirty grey.

A. Trachea.

The two specimens sent by Dr. Coppinger would appear, from a comparison of the skins, to be of the same species as the ordinary *Rhinogryphus aura* of North America. I have already determined Chilean specimens in the British Museum as belonging to the last-named species; and, as far as I can now judge from the increased series in that collection, the grey-winged Vultures are confined to



the Falkland Islands. I presume that Dr. Coppinger's specimens are a pair, male and female being shot on the same day—the difference in the colour of the soft parts being a very noticeable feature; while I must at the same time admit that the female with her “light red” head has more grey edgings to the wing-feathers than the male, and thus shows an approach to *R. falklandicus*.

27. *IBYCTER CHIMANGO* (V.); Sharpe, Cat. B. i. p. 41.

*Milvago chimango* (V.); Scl. & Salv. Ibis, 1868, p. 187; iid. P. Z. S. 1878, p. 435.

No. 6. ♂: Cockle Cove, February 9, 1879. Legs olive-green, claws black; irides dark grey; cere grey.

No. 82. ♂: Talcahuano, September 1879. Eyes light brown; legs grey; bill grey and white.

28. *POLYBORUS THARUS* (Mol.); Sharpe, Cat. B. i. p. 31; Scl. & Salv. Ibis, 1868, p. 188, 1870, p. 499; iid. P. Z. S. 1878, p. 435.

No. 57. ♂ juv.: Port Henry, Straits of Magellan, January 25, 1879. Cere fleshy grey; eyes black.

No. 14. ♀ juv.: Port Henry, January 25, 1879. Cere orange; tarsi grey and yellow.

No. 12. ♀ ad.: Tom Bay, March 1879. Bill grey; cere orange-yellow; tarsi grey; feet yellow; claws black.

29. *CIRCUS CINEREUS*, V.; Sharpe, Cat. B. i. p. 56.

No. 83. ♀: Coquimbo, June 1879. Legs and feet yellow; claws black. Stomach containing remains of birds.

30. *CERCHNEIS CINNAMOMINA* (Sw.); Sharpe, Cat. B. i. p. 439.

*Tinnunculus sparverius* (L.); Scl. & Salv. Ibis, 1868, p. 188, 1870, p. 499; iid. P. Z. S. 1878, p. 434.

No. 119. ♀: Coquimbo, June 1879. Legs grey; feet yellow; bill blue. Stomach containing remains of birds.

31. *BUBO MAGELLANICUS* (Gm.); Sharpe, Cat. B. ii. p. 29; Scl. & Salv. Ibis, 1868, p. 188.

No. 45. ♂: Cape Gregory, Straits of Magellan, January 1879. Irides golden yellow; horns prominent; claws black.

No. 44. ♀: Port Henry, Straits of Magellan, January 28, 1879.

No. 138. ♂: Mayne Harbour, Straits of Magellan, January 1879.

The female is a much darker bird than the male, suggesting almost the possibility of its being in melanistic plumage; the general aspect of the upper surface is almost uniform; and the centre tail-feathers have no cross bars at all. In the male the light cross bands are seven in number, without counting the whitish apical band.

32. *SPEOTYTO CUNICULARIA* (Mol.); Sharpe, Cat. B. ii. p. 142.

*Pholeoptynx cunicularia* (Mol.); Scl. & Salv. Ibis, 1868, p. 188.

No. 120. ♀: Coquimbo, June 1879. Eyes yellow; feet grey in front, yellow behind; bill horn-colour.

33. *GLAUCIDIUM NANUM* (King); Sharpe, Cat. B. ii. p. 190; Scl. & Salv. Ibis, 1868, p. 188.

No. 30. Sandy Point, January 1879.

34. *PHALACROCORAX MAGELLANICUS* (Gm.); Scl. & Salv. Ibis, 1870, p. 499.

No. 7. ♀: Trinidad Channel, February 27, 1879. Iris reddish brown; lids and wattled skin of a blood-red colour; legs grey in front, dusky black behind.

35. *PHALACROCORAX IMPERIALIS* (King); Scl. & Salv. P. Z. S. 1878, p. 652.

*P. carunculatus* (Gm.), iid. Ibis, 1869, p. 284, 1870, p. 499.

No. 40. ♀: Tom Bay, April 4, 1879. Iris brown; cere dark grey; eyelids dark grey; legs and feet light grey anteriorly, and dark grey posteriorly.

36. *CESTRELATA DEFILIPPIANA*, Salvad. & Gigl.; Salv. in Rowley's Orn. Misc. i. p. 255, pl. xxxiii.

No. 64. ♂: St. Ambrose, July 21, 1879. Bill black; tarsi lavender-coloured.

37. *THALASSŒCA TENUIROSTRIS*, Audub. ; Sharpe, Rep. Trans. Venus Exp., B. Kerguel. p. 23.

*Fulmarus glacialoides* (Smith); Scl. & Salv. Ibis, 1868, p. 189.

*Thalassœca glacialoides* (Smith); Salv. P. Z. S. 1878, p. 736.

No. 63. ♂: Valparaiso, August 4, 1879. Legs grey, with blue stains; bill grey, with blue patches.

A. Sternum.

38. *OCEANITES GRALLARIA* (V.).

*Fregata grallaria* (V.); Salv. P. Z. S. 1868, p. 735.

*Thalassidroma gracilis*, Elliot, Ibis, 1859, p. 391.

*T. segethi*, Ph. & Landb. Arch. f. Naturg. 1850, p. 282.

No. 65. ♀: off St. Ambrose, July 20, 1879. Bill and feet black.

Mr. Salvin has already suggested the identity of the Chilian birds described by Mr. Elliot and Drs. Philippi and Landbeck with *O. leucogastra* of Gould (*T. grallaria*, V.); and from the specimen now sent by Dr. Copping, I must say that I can see no difference at all.

39. *OCEANITES OCEANICA* (Kuhl); Sharpe, Report Trans. of Venus Exped. Birds, p. 32; Salvin, P. Z. S. 1878, p. 735.

No. 37. ♂: lat. 9° 47' S., long. 33° 5' W., November 8, 1878. Caught at sea.

40. *OSSIFRAGA GIGANTEA* (Gm.); Sharpe, Report Trans. of Venus Exped., Birds, p. 142; Salvin, P. Z. S. 1878, p. 737.

No. 4. ♂: Tom Bay, April 13, 1879. Bill light grey; iris dark brown; eyelids black; legs and feet dark grey.

No. 61. ♂: Valparaiso, August 4, 1879. Legs black.

No. 126 ♂?: Valparaiso, August 18, 1879.

A. Sternum.

✓  
41. DIOMEDEA MELANOPHRYS, Temm.; Salv. P. Z. S. 1878, p. 740.

No. 86. ♂: Valparaiso, August 13, 1879. Bill grey, with dark tips; feet light grey; iris dark brown.

A. Trachea.

42. PELECANOIDES URINATRIX (Gm.); Sharpe, Report Trans. of Venus Exped., Birds, p. 14.

*P. garnoti* (Less.); Salvin, P. Z. S. 1878, p. 739.

No. 34. ♀: Antonio Islands, Trinidad Channel, February 17, 1879. Eyes black; bill black; legs slate-colour. Stomach containing small Crustacea.

No. 96. ♀: Cockle Cove, October 16, 1879. Bill black; iris dark brown; legs and feet slate-coloured.

The following are the dimensions of the adult specimen:—total length 8·5 inches, culmen 0·75, wing 4·9, tail 1·7, tarsus 1. These measurements exceed those of the specimens already in the Museum from the Straits of Magellan, and appear to be intermediate between the ordinary *P. urinatrix* and the larger *P. garnoti*, which, after all, does not seem to be a very distinct species.

43. DAPTION CAPENSIS (L.); Sharpe, Report Trans. of Venus Exped., Birds, p. 19; Salvin, P. Z. S. 1878, p. 737.

No. 2. ♂: off Tres Montes, May 10, 1879. Iris dark brown; bill and legs black; eyelids black.

♂: off St. Ambrose, July 20, 1879. Iris dark grey.

No. 135. ♂: lat. 31° 52' S., long. 18° 37' W. Iris dark grey.

A. Sternum.

44. MAJAQUEUS ÆQUINOCTIALIS (L.); Salvin, P. Z. S. 1878, p. 737.

No. 132. ♂: Valparaiso, August 1879. Eyes dark brown; bill grey and black; legs black.

No. 62. ♀: Valparaiso, August 13, 1879. Same soft parts as ♂.

No. 139. ♂: Valparaiso, August 18, 1879.

45. ATTAGIS FALKLANDICA (Gm.); Scl. & Salv. Ibis, 1868, p. 188.

No. 24. ♂: Cockle Cove, February 14, 1879. Shot on summit of mountain.

46. NYCTICORAX OBSCURUS (Licht.); Scl. & Salv. Ibis 1868, p. 189, 1869, p. 285; iid. P. Z. S. 1878, p. 436.

No. 54. ♀ ad.: Cockle Cove, February 11, 1879. Iris orange; legs dark grey; bill horn-colour.

No. 5. Young: Neesham Cove, Trinidad Channel, February 28, 1879. Iris orange; bill black above, greenish yellow beneath; eyelids greenish yellow; legs dark grey in front, yellow behind.

No. 55. ♂ juv.: Cockle Cove, February 12, 1879. Bill black; cere green; iris and legs as in No. 5.

47. *BERNICLA ANTARCTICA* (Gm.); ScL. & Salv. P. Z. S. 1878, p. 437.

*Chloephaga antarctica*, iid. Ibis, 1869, p. 284, 1870, p. 499.

No. 59. ♂: Port Henry.

No. 43. ♀: Port Henry, February 1879.

No. 79. Pull.: Straits of Magellan, November 1879. Eyes dark grey; bill black; legs and feet dark brown.

48. *CHLOEPHAGA POLIOCEPHALA*, Sclater; ScL. & Salv. Ibis, 1868, p. 189, 1870, p. 489; iid. P. Z. S. 1878, p. 436.

No. 11. ♀: Neesham Cove, Trinidad Channel, February 28, 1879. Iris dark brown; bill horn-colour; legs black in front, orange at back.

No. 123. ♂: Alert Bay, December 3, 1879. Bill black; eyes dark brown; legs orange, black down the front.

No. 90. ♀ pull.: Port Henry, December 3, 1879. Eyes brown; legs dark grey; bill horn-colour.

49. *TACHYERES CINEREUS* (Gm.); ScL. & Salv. P. Z. S. 1878, p. 437.

*Micropterus cinereus* (Gm.); ScL. & Salv. Ibis, 1868, p. 189, 1870, p. 499.

No. 52. ♀: Puerto Bueno. Legs and feet yellow; bill greenish olive; eyes black. Shot on freshwater lake near the sea.

No. 60. Walney Sound, February 4, 1879. Weight  $10\frac{1}{2}$  lb. Crop full of entire mussels and prawns. Stink intense.

No. 58. Elizabeth Island, January 3, 1879.

No. 89. ♂ pull.: Tom Bay, November 30, 1879.

A. Skull. Cockle Cove.

B. Skeleton. Tom Bay, February 24, 1879.

50. *ANAS CRISTATA*, Gm.; ScL. & Salv. Ibis, 1870, p. 499.

No. 15. ♀: Port Rosario, March 15, 1879.

No. 3. ♀: Cockle Cove, February 7, 1879. Iris blood-red; legs dark grey; upper mandible horn-colour, lower one flesh-colour.

No. 130. ♂: Tom Bay, November 29, 1879. Eyes yellowish red; bill black.

The egg is creamy buff, and measures—axis 2.4 inches, diam. 1.65.

51. *MARECA SIBILATRIX* (Poepfig); ScL. & Salv. P. Z. S. 1876, p. 395.

*Mareca chiloensis*, Eyton; ScL. & Salv. Ibis, 1869, p. 284.

No. 76. ♀: Coquimbo, June 1879.

52. *CYGNUS NIGRICOLLIS* (Gm.); Scl. & Salv. Ibis, 1869, p. 284.  
 No. 129. ♂: Hugh Bay, west coast of Patagonia, December 20, 1879. Bill blue with red crest; iris brown; legs and feet light grey.  
*A.* Sternum. Oct. 1879.
53. *DAFILA SPINICAUDA* (V.); Scl. & Salv. Nomencl. Av. p. 130.  
*a.* No. 78. ♂: Talcahuano, September 1879. Bill yellow, with black culmen; eyes brown; legs and feet grey and black.
54. *QUERQUEDULA CYANOPTERA* (V.); Scl. & Salv. Ibis, 1868, p. 189.  
*a.* No. 138. ♂: Talcahuano, September 10, 1879. Iris yellow; bill black; legs and feet yellow; nails dark.  
*b.* No. 71. ♂: Talcahuano, September 1879. Eyes yellow; bill black; legs yellow.  
*c.* No. 72. ♀: Talcahuano, September 22, 1879. Eyes brown; bill dark, with grey patches; legs light brown.
55. *QUERQUEDULA OXYPTERA* (Meyen); Scl. & Salv. Nomencl. Av. Neotr. p. 129.  
*a.* No. 75. ♂: Port Gallant, west coast of Patagonia, February 1880. Iris dark brown; bill yellow on sides, black culmen; legs and feet light grey.  
*b.* No. 74. ♀: Cockle Cove, October 1879. Bill yellow, with black culmen; eyes yellow; legs and feet grey.
56. *RALLUS ANTARCTICUS*, King; Scl. & Salv. P. Z. S. 1878, p. 437.  
 No. 8. ♀: Tom Bay, April 13, 1879. Eyes dark red; legs red; bill with greenish lustre.  
 No. 123. ♂: Mayne Harbour, March 1880. Iris red; bill dark green; legs and feet red.
57. *FULICA LEUCOPYGIA*, Hartl.; Scl. & Salv. Nomencl. Av. Neotr. p. 140.  
 No. 80. ♂: Talcahuano, September 18, 1879. Bill yellow, with dark red patch on culmen; eyes yellow; legs olive-green; claws horn-colour.
58. *VANELLUS OCCIDENTALIS*, Harting; Scl. & Salv. P. Z. S. 1878, p. 437.  
*Vanellus cayenensis*, Scl. & Salv. Ibis, 1869, p. 284 (nec Gm.).  
 No. 56. Peckett Harbour, January 4, 1879.  
 No. 79. ♂: Talcahuano, Chili, September 22, 1879. Iris, pupil dark red; bill lilac, with black tips; eyelids lilac; legs rose-colour, with grey feet.

59. *EUDROMIAS MODESTA* (Licht.); Scl. & Salv. Ibis, 1868, p. 188, 1870, p. 500; iid. P. Z. S. 1878, p. 488.

No. 19. Ad.: Tom Bay, February 1879.

No. 28. ♂ juv.: Puerto del Morro, February 5, 1879.

No. 102. ♂ juv.: Port Henry, January 28, 1879. Eyes black; legs grey; bill horn-colour.

No. 98. ♂: Cockle Cove, October 16, 1879. Iris dark brown; bill dark; legs light grey.

60. *ÆGIALITIS NIVOSA* (Cass.); Scl. & Salv. Nomencl. Av. Neotr. p. 143.

No. 103. ♂: Coquimbo, June 1879.

61. *STREPSILAS INTERPRES* (L.); Scl. & Salv. Nomencl. Av. Neotr. p. 143.

No. 116. ♂: Talcahuano, September 9, 1879. Iris brown; bill horn-colour; legs and feet red.

62. *APHRIZA VIRGATA* (Lath.); Scl. & Salv. Nomencl. Av. Neotr. p. 143.

No. 25. ♂: Van Islands, Trinidad Channel, February 15, 1879. Iris black; eyelids black; legs olive-green; claws black. In flocks, as if about to migrate.

63. *HÆMATOPUS LEUCOPUS* (Garnot); Scl. & Salv. P. Z. S. 1878, p. 437.

No. 23. ♀: Cape Sambo, Trinidad Channel, March 3, 1879. Iris bright yellow; eyelids yellow; feet and legs flesh-coloured; claws black.

No. 133. ♂: Tom Bay, January 16, 1879. Iris and eyelid brilliant yellow; tarsi grey; bill orange.

No. . ♂: Tom Bay, January 16, 1879. Bill orange-red.

No. 92. ♂ juv.: Hugh Bay, December 27, 1879. Iris orange; legs and feet grey; bill orange, the base black.

A. Skeleton. West coast of Patagonia.

64. *HÆMATOPUS ATER* (V.); Scl. & Salv. Ibis, 1870, p. 499; iid. P. Z. S. 1878, p. 438.

No. 22. ♀: Port Henry, January 29, 1879. Eyes black; eyelids orange-red; bill orange-red; feet grey.

65. *GALLINAGO PARAGUALE* (V.); Scl. & Salv. P. Z. S. 1868, p. 189; iid. P. Z. S. 1878, p. 438.

No. 27. ♀: Cockle Cove, February 7, 1879.

66. *GALLINAGO STRICKLANDI*, Gray; Scl. & Salv. Nomencl. Av. Neotr. p. 145.

No. 121. ♀: Swallow Bay, March 14, 1880. Eyes dark; legs and feet greyish yellow. Weight 9 oz.

67. *RHYNCHÆA SEMICOLLARIS* (V.); Scl. & Salv. Nomencl. Av. Neotr. p. 145.

No. 101. ♀: Coquimbo, June 1879. Tarsi green; tips of bill yellow.

68. *TRINGA FUSCICOLLIS* (V.); Scl. & Salv. P. Z. S. 1878, p. 438.

No. 46. ♀ in winter plumage: Peckett Harbour, January 4, 1879.

69. *CALIDRIS ARENARIA* (L.); Scl. & Salv. Nomencl. Av. Neotr. p. 143.

No. 99. ♀: Talcahuano, September 1879. Bill, legs, and feet black; eyes brown.

70. *GAMBETTA MELANOLEUCA* (Gm.); Scl. & Salv. Nomencl. p. 145.

Nos. 125, 77. ♂: Talcahuano, April 1880. Iris dark; bill horn-colour; legs and feet yellow.

71. *NUMENIUS HUDSONICUS* (L.); Scl. & Salv. Nomencl. Av. Neotr. p. 146.

No. 78. ♀: Talcahuano, September 1879. Legs and feet grey; bill horn-colour; eyes dark brown.

72. *STERNA HIRUNDINACEA*, Less.; Saunders, P. Z. S. 1876, p. 647.

*Sterna cassini*, Scl. & Salv. Ibis, 1870, p. 500.

a. No. 81. ♂: Tom Bay, November 30, 1879. Bill, legs, and feet red.

b. No. 93. ♂ pull.: Tom Bay, November 29, 1879.

c. ♀: Cockle Cove, October 16, 1879. Bill and legs red; claws black; iris dark.

73. *ANOUS CINEREUS*, Gould; Sharpe, P. Z. S. 1878, p. 272.

No. 66. ♀: off St. Ambrose, July 21, 1879. Bill black; legs nearly black; eyes dark.

74. *LARUS GLAUCODES*, Meyen; Scl. & Salv. P. Z. S. 1871, p. 578; Saunders, P. Z. S. 1878, p. 203.

No. 51. ♂: Cape Gregory, January 1, 1879.

75. *LARUS CIRRHOCEPHALUS*, Vieill.; Scl. & Salv. P. Z. S. 1871, p. 578; Saunders, P. Z. S. 1878, p. 204.

No. 69. ♂ hiem.: Talcahuano, September 10, 1879. Bill dark red; legs and feet orange-red; iris brown.

No. 68. ♂ æstiv.: Talcahuano, September 1879. Soft parts as in No. 69; legs and feet red.

No. 87. ♂: Talcahuano, September 8, 1879. Iris hazel; eyelids orange-red; bill dark red; legs and feet red.

✓ ♀. Skeleton. Talcahuano, September 1879.

The last bird still retains traces of white plumage amongst the feathers of the head, while No. 69 is a winter-plumaged bird with white head, on which a few dark feathers are just showing themselves.

76. *LARUS DOMINICANUS* (Licht.), *Scl. & Salv. Ibis*, 1868, p. 189, 1869, p. 284; *Saunders, P. Z. S.* 1877, p. 799.

No. 39. ♂ ad.: Tom Bay, April 5, 1879. Iris clear grey; eyelids red; legs olive.

No. 17. ♂ juv.: Cockle Cove, February 14, 1879. Eyes black; bill black; legs dark grey.

No. 16. ♂ juv.: Tom Bay, March 8, 1879. Iris dark brown; eyelids black; bill black; legs grey.

No. 70. ♀ in changing plumage: Valparaiso, August 13, 1879. Bill grey with black tip; eyes dark; legs light grey; claws black.

No. . ♀ ad.: Peckett Harbour, Straits of Magellan, January 4, 1879. Bill yellow, the end of lower mandible red; eyelids red; eyes clear grey; legs greenish.

No. . ♂ juv.: Puerto Bueno, February 21, 1879. Iris dark brown, the lids black; feet grey.

No. 131. Puerto Bueno, February 20, 1879. Bill black; legs dark grey.

No. . ♂: Port Henry, January 28, 1879. Eyelids red; irides grey; bill yellow, tip of lower mandible red; legs and feet olive-green; claws black.

77. *STERCORARIUS CHILENSIS*, Bp.; *Saunders, P. Z. S.* 1877, p. 800.

*Lestris antarctica* (Less.); *Scl. & Salv. Ibis*, 1869, p. 284.

No. 67. ♂: Straits of Magelhæn, December 1879. Bill, legs, and feet black; eyes brown.

No. 134. ♀: Talcahuano, September 1879. Eyes dark brown; legs and feet black.

78. *SPHENISCUS MAGELLANICUS* (Forst.); *Scl. & Salv. Ibis*, 1869, p. 284; *iid. P. Z. S.* 1878, p. 653.

No. 42. Tom Bay, April 7, 1879. Iris brown; eyelids' edges black, not flesh-colour; bill horn-colour; feet in front black mottled with white, behind black all over.

No. 1. ♂ juv.: Tom Bay, February 17, 1879. Iris brown; eyelids black; bill black; legs grey spotted with black; claws black.

No. 128. ♀: Tom Bay, April 5, 1879. Bill horn-colour; iris brown; legs in front grey spotted with black; behind black.

A. Trachea. B. Sternum.

79. *PODICEPS ROLLANDI* (Q. et G.); *Scl. & Salv. Ibis*, 1868, p. 189, 1869, p. 84

No. 13. Summer plumage. Portland Bay, March 20, 1879. Iris red; bill black; feet and legs black.



No. 48. Young ♂: Peckett Harbour, January 4, 1879.

No. 137. Picton Channel, March 31, 1879. Iris red; eyelids black; legs dark grey.

No. 84. Swallow Bay, March 14, 1880. Bill horn-colour; legs and feet olive-green.

No. 124. Port Riofrio, west coast of Patagonia, March 1880. Iris red; bill horn-colour; legs and feet grey.

♂. Talcahuano, September 1879. Bill black; eyes red; legs and feet grey.

81. *NOTHOPROCTA PERDICARIA* (Kittl.); *Sci. & Salv. Nomencl. Av. Neotr.* p. 153.

No. 122. ♂: Coquimbo, June 1879. Crop full of seeds.

### III. REPTILES, BATRACHIANS, and FISHES.

By A. GÜNTHER.

(Plates I., II.)

A few REPTILES only were collected, viz. *Liodira gravenhorstii* at Talcahuano, and *Liolaemus nigromaculatus* at Coquimbo, also a specimen of *Tachymenis chilensis* from the latter locality.

The BATRACHIANS proved to include more novelties:—

1. *NANNOPHRYNE VARIEGATA* (Gthr. *Proc. Zool. Soc.* 1870, p. 401, pl. 30) was collected in several examples on the coast of Trinidad Channel and at Puerto Bueno.

2. *CYSTIGNATHUS MACRODACTYLUS*, sp. n.

Allied to *C. bibronii* from the Chonos archipelago, but with the vomerine teeth in two short straight transverse lines immediately behind the choanæ. Head broad and depressed, with shelving sides and obtusely rounded snout. Eyes of moderate size, equal to their distance from the nostril. Tympanum small, scarcely half the size of the eye. Skin of the upper parts smooth, or but little tubercular. The three outer fingers are long, and, like the toes, truncated at the tip; the third is the longest, the fourth longer than the second, which, again, is considerably longer than the first. Two small metatarsal tubercles; the fifth toe scarcely longer than the third. Upper and lateral parts mottled with brown; lower parts whitish, in the male with a few brown spots on the sides of the abdomen. Male with a large vocal sac, which extends to the sternal region.

	lines.
Length of the body . . . . .	15
Width of the cleft of the mouth . . . . .	5
Length of the fore limb . . . . .	11
"    "    third finger . . . . .	$3\frac{3}{4}$
"    "    second finger . . . . .	$2\frac{1}{2}$
"    "    hind limb . . . . .	25
"    "    entire foot, including tarsus . . . . .	12
"    "    fourth toe . . . . .	$7\frac{1}{2}$
"    "    third toe . . . . .	5

Three specimens, found in pools on the hills, 500 feet above the sea, at Puerto Bueno.

3. *CACOTUS COPPINGERI*, sp. n.

Snout broad, short (as long as the eye) and obtuse, with short canthus rostralis; loreal region sloping. Vomerine teeth in two transverse series, very slightly oblique, and commencing from the front margin of the choanæ, which are small. Tongue without any notch behind. Skin smooth. The length of the body equals the distance between the vent and metatarsal tubercles. Subarticular tubercles on the fingers and toes small; metatarsus with two small tubercles. The length of the fourth toe is contained twice and one third in that of the body; the third and fifth toes equal in length. Greenish olive; back, to the interorbital space, darker; a narrow dark band along the canthus rostralis and across the tympanic region; lower parts whitish.

A single specimen was obtained at Port Riofrio (west coast of Patagonia). Body  $1\frac{7}{8}$  inch long.

4. *CACOTUS CALCARATUS*, sp. n.

Snout rather short, somewhat longer than the eye, rather pointed, with distinct canthus rostralis and subvertical loreal region. Vomerine teeth indistinct, in two very small groups between the choanæ, which are very narrow. Tongue without any notch behind. Skin smooth; dorsal region with two linear ridges convergent behind; a short cutaneous spur at the heel is connected with the outer metatarsal tubercle by a low uneven fold of the skin. The length of the body is less than the distance between vent and metatarsal tubercles. Subarticular tubercles well developed; metatarsus with two small tubercles. The length of the fourth toe is two fifths of that of the body. Light brownish olive; a brown band from the eye towards the side of the body; a few small brown spots on the loin.

A single specimen, 11 lines long, was obtained in Chiloe by Dr. Cunningham. In the hope of obtaining another specimen before describing it, I have allowed this specimen to remain undescribed up to the present; but as there is but small prospect of the species being rediscovered for some time to come, I will not allow the present opportunity to pass of describing it with its congener from the mainland.

FISHES.

1. *SCYLLIUM CHILENSE*, Guich. Puerto del Morio and Portland Bay.

2. *PSAMMOBATUS RUDIS*, Gthr. Trinidad Channel, in 30 fathoms.

3. *CALLORHYNCHUS ANTARCTICUS*, Lac. Francisco Bay.

4. *SEBASTES OCULATUS*, C. V. Latitude Cove in 13 fathoms, and Tom Bay in 15 fathoms.

5. *AGRIOPUS PERUVIANUS*, C. V. West coast of Patagonia.
6. *ELEGINUS MACLOVINUS*, C. V. Tom Bay, from a brackish lagoon, and Cockle Cove.
7. *APHRITIS GOBIO*, Gthr. Portland Bay, Magellan's Straits, and Stanley Harbour, Falkland Islands.
8. *CHÆNICHTHYS ESOX*, Gthr. Puerto Bueno.
9. *NOTOTHENIA MACROCEPHALA*, Gthr. Puerto Bueno and Trinidad Channel.
10. *NOTOTHENIA TESSELLATA*, Rich. Puerto del Morio, Latitude Cove, Puerto Bueno.
11. *NOTOTHENIA LONGIPES*, Steind. Isthmus Bay, in 14 fathoms.
12. *NOTOTHENIA CORNUCOLA*, Rich. Cockle Cove.
13. *TRACHURUS TRACHURUS*, L. Francisco Bay.
14. *NEOPHRYNICHTHYS LATUS*, Hutton. (Plate I.)

Of this very interesting fish, which was discovered only a few years ago by Mr. Hutton in New-Zealand, a specimen 16 inches long is in the collection. Fortunately, by the kindness of Mr. Hutton, I am in a position to compare the American specimen with one obtained on the New-Zealand coast. Structurally they are identical; only some small tentacles are developed in the American specimen above the eye and on some parts of the body. The coloration is a blackish brown, marbled with lighter brown and grey. These differences are not sufficient to indicate specific distinctness. The specimen was obtained in Swallow Bay (Magellan's Straits).

15. *LYCODES LATITANS*, Jen. Portland Bay.
16. *MAYNEA PATAGONICA*, Cunningham, Trans. Linn. Soc. xxvii. 1871, p. 472. (Plate II. figs. C and D.)

Of this fish a second, much younger specimen was discovered by Dr. Coppinger at Port Rosario. It is  $3\frac{1}{3}$  inches long, and marked by fourteen broad blackish-brown cross bands, of which there is no trace in the adult specimen. The fact that the same style of coloration obtains in the young stage of *Gymnelis pictus* (which also otherwise is so closely allied to *Maynea*) renders it all but certain that *G. pictus* is likewise an Antarctic species. We figure it here side by side with its nearest allies (Plate II. fig. B.).

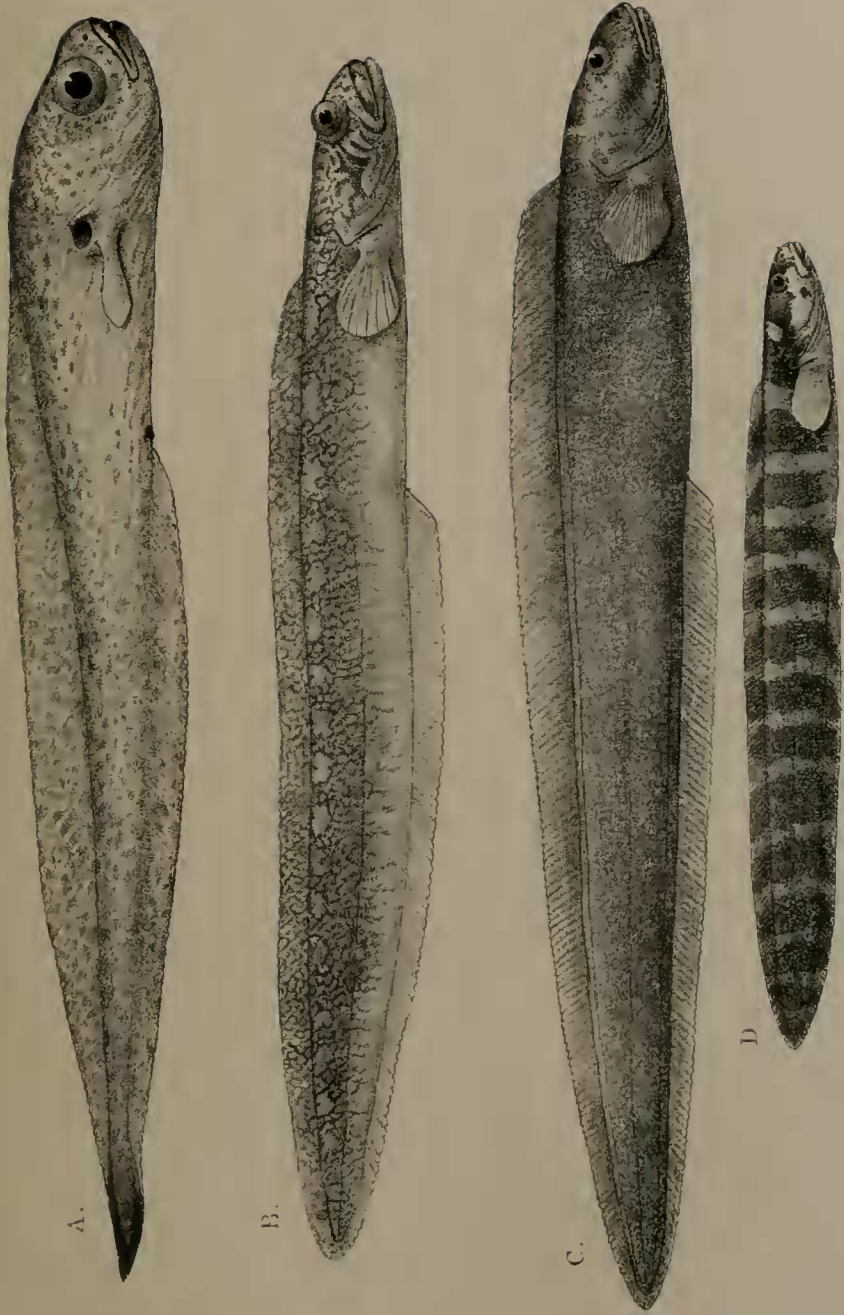
#### MELANOSTIGMA, g. n. Lycodid.

This genus agrees with *Gymnelis* and *Maynea* in the absence of ventral fins, and technically may be distinguished from both by the much more elongate teeth, which in the jaws, as well as on the vomer and palatines, stand in a single series. However, there are other

(Fishes of the "Alert" Survey.)  
*NEOPHRYNICHTHYS LATUS.*







A.

B.

C.

D.

(Fishes of the "Alert" Survey.)  
 A. MELANOSTIGMA GELATINOSUM. B. GYMNELIS PICTUS. C & D. MAYNEA PATAGONICA.



striking differences, which will be mentioned in the subsequent description. The fish is evidently habitually living at a greater depth than that at which Dr. Coppinger happened to obtain the single specimen in his collection.

17. MELANOSTIGMA GELATINOSUM. (Plate II. fig. A.)

The whole body is enveloped in a loose delicate skin, like *Liparis*. Head large, deep, compressed, with obtuse snout. Eye large, two sevenths of the length of the head, and longer than the snout. Cleft of the mouth rather oblique, but the lower jaw does not project beyond the upper. Lips not fleshy. Inside of the mouth, gill-openings, and vent black. The gill-opening is reduced to a very narrow foramen above the base of the pectoral fin. The origin of the dorsal fin and the root of the pectoral are enveloped in the loose skin of the body. The dorsal fin seems to commence above the middle of the pectoral, is low at first, but becomes considerably higher posteriorly. Pectoral very narrow, consisting of a few rays only. Upper parts tinged with a purplish grey; sides marbled with the same colour, which towards the end of the tail becomes more intense, almost black.

Total length of the specimen  $5\frac{1}{2}$  inches; distance of the snout from the gill-opening  $\frac{7}{8}$ , from the vent  $1\frac{7}{8}$ .

The specimen was obtained on January 15, 1880, at Tilly Bay, in the Straits of Magellan, in 24 fathoms.

18. HIPPOGLOSSINA MACROPS, Steindachn. Trinidad Channel.

19. HIPPOGLOSSINA MICROPS, sp. n.

D. 72. A. 56. V.  $1/5$ . The height of the body is contained twice and one third in the total length (without caudal), the length of the head thrice and one half. The eyes are, compared with those of *Hippoglossina macrops*, small, equal to the length of the snout, and two ninths of that of the head; the upper is slightly in advance of the lower; the space between them is flat, half as wide as the vertical diameter of the eye, and covered with minute scales. Mouth wide, the maxillary extending beyond the middle of the orbit. Anterior curve of the lateral line semicircular. Dorsal fin commencing above the eye, of moderate height; pectoral fin half the length of the head; ventrals well developed, symmetrically placed, greyish, finely mottled with brown.

A single specimen, 4 inches long, was obtained on the west coast of Patagonia.

20. GALAXIAS ATTENUATUS, Jen. Puerto Bueno.

21. GALAXIAS COPPINGERI, sp. n.

D. 12. A. 17. Body elongate, its depth in front of the dorsal being one tenth of the total length (without caudal), the length of the head two ninths. Snout rather broad, with the jaws equal in length; cleft of the mouth rather narrow, the maxillary extending to below the front margin of the orbit. Eye rather large, a little



shorter than the snout, and two sevenths of the length of the head. The length of the pectoral fin is one half of the distance of its root from the ventral, and that of the ventral one half of the distance of its root from the anal. Caudal fin truncate. Yellowish olive, trunk marbled with blackish.

One specimen, 3 inches long, from Alert Bay.

22. *HAPLOCHITON ZEBRA*, Jen. East Bay; freshwaters at Tom Bay.

23. *OPHICHTHYS DICELLURUS*, Rich. Coquimbo.

24. *MYXINE AUSTRALIS*, Jen.

#### IV. MOLLUSCA AND MOLLUSCOIDA.

By EDGAR A. SMITH.

(Plates III.-V.)

The collection of Mollusca contains several very interesting species, notably a new Cephalopod (*Rossia patagonica*), an undescribed *Lamellaria*, a very beautiful *Trochus*, and a new genus of Conchifera, besides several other species either new to science or to the fauna of Patagonia.

To avoid repetition of the localities in extenso a numbered list of the various Stations is here appended.

##### *List of Stations.*

1. Trinidad Channel, 30 fathoms; bottom sandy.
2. Port Rosario, 2-30 fathoms; bottom, sand and rock.
3. Tom Bay, 1-30 fathoms; bottom, rock, kelp, and mud.
4. Van Island, Trinidad Channel; on rocks in shallow water.
5. Portland Bay, St. Andrews Sound, 10 fathoms; bottom, hard sand.
6. Elizabeth Island, 6 fathoms; bottom, sand.
7. Sandy Point, 9-10 fathoms; bottom, sand.
8. Peckett's Harbour.

Nos. 1 to 5 are situated on the west of Southern Patagonia, in the neighbourhood of the island Madre de Dios, and nos. 6, 7 and 8 in the eastern part of the Straits of Magellan. Other localities mentioned are situated in South Patagonia.

#### I. CEPHALOPODA.

*ROSSIA PATAGONICA*, sp. n. (Plate III. figs. 3, 3a.)

3. M. 1947  
20321  
Animal, viewed dorsally, of a purplish slate-colour. This is composed of a vast aggregation of minute irregularly shaped dots set upon a pale buff ground, which is more apparent upon the fins, as there the dotting is less dense. Lower or ventral surface of a reddish-purple color and the dotting more defined than above. The underside of the head light buff, with only a few large subcir-



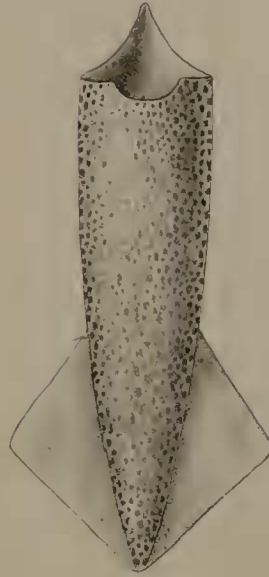
2.



1.



2a



2b



2c

2d



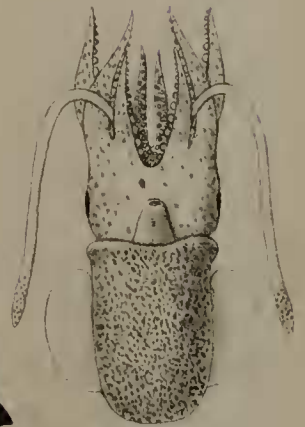
3.



1b



1c



3a

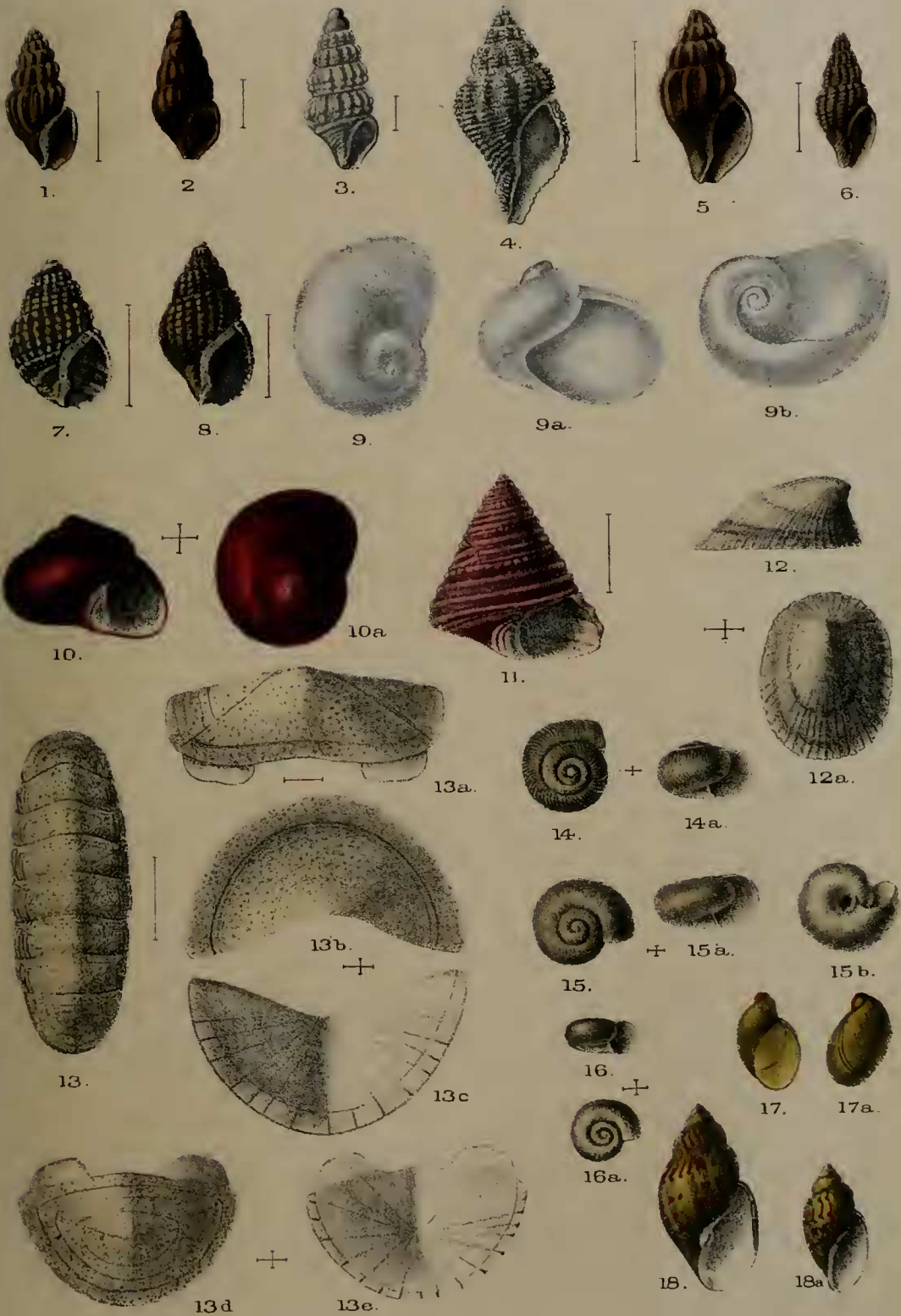


1d



1e

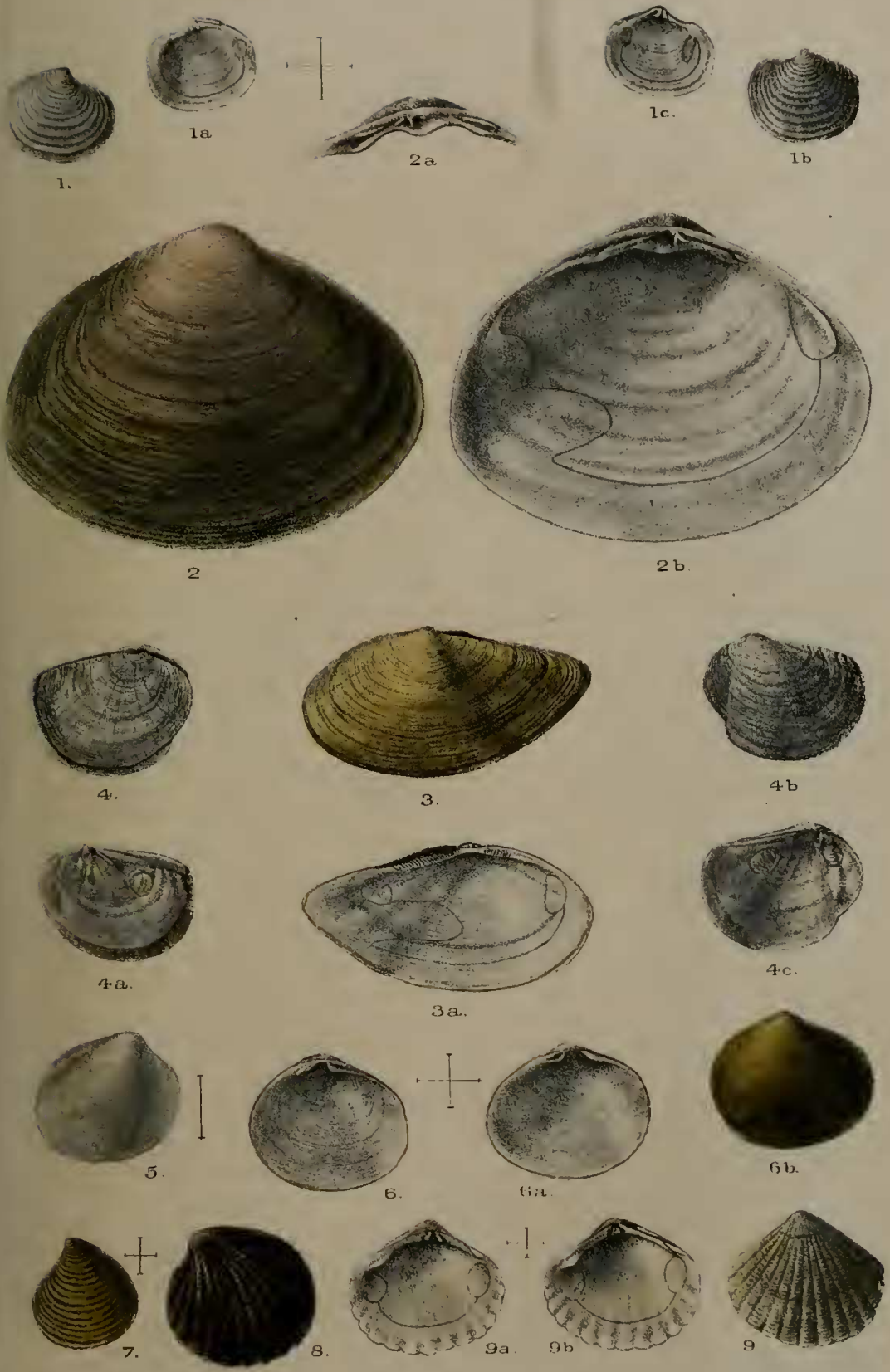




A. H. Searle del et lith

Mintern Bros. imp.





A H Searle del et lith.

Mintern Bros imp



cular spots, of the same hue as those on the body. The lower surface of the fins and the funnel are of a plain buff. The abdomen or body is in form like a short sack, narrowing and rounded at the end, about half as long again as broad. Its margin is produced to an obtuse point over the back of the neck, which marks the termination of the horny shell; and on the underside there is a wide sinuation beneath the siphon.

The fins are moderately large, being to the length of the body as 5 to 7; but the line of junction is somewhat less, for they extend forward about a line and a half beyond the point of contact. In form they are irregularly semicircular, and are placed rather far apart, but yet not absolutely along the side. Their surface, both above and beneath, exhibits fine striæ which radiate from the body.

The head is large, as broad as the body. The eyes are situated at the sides of the head, and are protected by a thin transparent membrane, and the lower margin is probably partly contractile over the eye.

The arms do not vary much in length; but the dorsal and ventral pairs are a trifle shorter than the two lateral pairs. They are rather slender, and taper to a fine point, scarcely have any interbrachial connecting membrane at their base; and between the ventral pair there is a total absence of it.

The suckers are large, subspherical, raised upon prominences, connected by excessively short peduncles, and armed with very small simple-edged horny rings. They are arranged in two alternating rows, except upon that which is the right arm of the dorsal pair when the lower or ventral surface is towards the eye, or the left one when viewed from above; upon this there are four series at the central part, but fewer at the base and the extremity; the suckers too are much smaller than those upon the rest of the brachia, with the exception of the other dorsal one, upon which they are also equally small.

The tentacular arms are slender, twice as long as the others, and emerge between the ventral and next pair of arms, between which there is a greater development of connecting membrane than is found between the other brachia. They are provided at the ends with numerous crowded cup-like acetabula, raised upon longer footstalks than those connecting the suckers of the other arms. They are flat-topped, with a raised outer rim and a sunken lid, and the horny margin of the orifice is minutely dentate. Shell or gladius very minute.

The measurements are:—Length of body 21 millims., diam. 14; length of fins 14 millims., diam. 8; length of longest arm 17 millims.; length of tentacular arm 36 millims.; length from the end of the body to the base of the ventral pair of arms 27 millims.; the same to the base of the dorsal pair 29 millims.; diam. of one of the largest spherical suckers  $1\frac{1}{2}$  millim.; diam. of one of the small ones on the right dorsal arm  $\frac{3}{4}$  millim.

*Hab.* Stations 1 and 5.

This is a very remarkable little creature, and at once recognized



by the peculiarity of one of the arms possessing a double set of suckers.

*LOLIGO PATAGONICA*, sp. n. (Plate III. figs. 2-2*d*.)

Body cylindrical, tapering gradually behind, about four times as long as broad. Upper margin produced to an acute point on the dorsal side, broadly sinuated beneath. Fins occupying a little less than half the length of the body, rhomboidal, with the lateral angles only slightly rounded, joining the body without any superior slit. Head a little narrower than the body. Of the arms the upper or dorsal pair are the smallest and shortest, with an acute membranous inner edge. Second pair rather longer and thicker, having the inner or upper edge more rounded than the outer, which is acutely carinate. Third or lower lateral pair largest and longest of all, rounded on the upperside, and bearing a broad membranous expansion on the lower edge extending from the tip to the base, where it joins a similar membrane running up the side of the basal arms. These are nearly as thick as the preceding but rather shorter, and have a very acute carinated inner edge. Cupules on the upper and lower pairs rather smaller than those on the lateral pairs. Horny rings very oblique, furnished on one side with five or six rather squarely cut teeth. Buccal membrane produced into seven prominent lobes, whereof the two subbasal pair are the most conspicuous, within bearing a few minute suckers upon very long pedicles.

Tentacular arms slender, tapering at the ends. Club but little expanded, furnished with four rows of cups, whereof the two inner are vastly larger than the outer; they alternate with each other and also with the small outer cups, so that the latter on one side are on the same transverse line as the more remote series of large ones. The length of the club is about five twelfths of the entire length of the tentacle. The horny ring has about from twenty to twenty-four blunt teeth.

The colour of the two specimens is purplish buff, varied with numerous close-set, generally ovate, largish spots of a purple tint, and of different sizes, upon the back, the sides, and crown of the head. Ventral surface and beneath the fins destitute of spotting.

Shell pennate; shaft thin, roundly keeled exteriorly and grooved on the opposite side; expanded portion or vane rather broad, equalling in this respect rather less than one sixth of the length.

*Dimensions.* Length of body 62 millims., width 14; fins 27 long and 30 in diameter across the back from one lateral angle to the other; tentacles 38 long; longest arm 27.

*Hab.* Alert Harbour, Trinidad Channel, west coast of Patagonia.

Only one species of this genus has been hitherto recorded from the west coast of the South-American continent, namely *Loligo gahi*, found on the Chilian coast. In that species the fins are considerably shorter in proportion to the length of the body, join the back nearer the centre, and have rounded upper and lateral angles. The arms, too, offer certain differences; and the number of teeth on the horny rings of the larger cups on the tentacular club is

greater in *L. gahi*, and their form, judging from the figure of them, more acute.

The form and attachment of the fins to the back are very similar in *L. brasiliensis* and *L. patagonica*. The former, however, is a broader species, has a differently shaped shell, and several other differences.

ONYCHOTEUTHIS INGENS, sp. n. (Plate III. figs. 1-1 d.)

*Hab.* Port Riofrio, west coast of Patagonia.

The head only of a species of this genus was sent by Dr. Copping. It differs in certain particulars from the known species, and is especially interesting on account of its great size.

*Description.* Of the arms, the upper or dorsal pair are most slender and the shortest, the two lateral pairs about equal in thickness, the upper pair having a slight advantage in length, in this respect agreeing with the lower or ventral pair, which, however, are a trifle broader at the base than any. The latter arms have a remarkably broad and almost flat outer surface, and are roundly angled at the margins; the sides are flattened and converge, so that the innerside, likewise flat, becomes but little broader than half the outside; the outer margin is provided with a broad membranous expansion, which apparently extends to the extremity of the arm: it is widest at the base, where it connects the adjoining arm, gradually narrowing towards the tip. Lower lateral pair also furnished with a membrane on the upperside, which, however, is very much the broadest near the middle of the arm. The upper lateral pair are provided with a membrane on the lower side; but it is very narrow; and the dorsal pair are destitute of any. The suckers are arranged in two alternating series, commencing a short distance (about an inch) from the base of the arms. They are subspherical, shortly pedunculated, provided with simple-edged horny rings, largest towards the middle of the arms and gradually diminishing towards the tip, those upon the ventral pair being a trifle smaller than those upon the other arms, and the largest upon the lower lateral pair.

Tentacular arms are in length with respect to the sessile arms as 5 to 3. They are compressedly rounded, thickish, equalling in the greatest diameter the basal arms; they narrow very gradually towards the extremity, with the terminal club scarcely at all widened and occupying just one fifth of the entire length of the arm. Along one side from the base to the end runs a very small membrane. The extremity of the club is much compressed. The hooks are in two alternating series of fourteen each, those of one row being decidedly larger than those of the other, especially the fifth to the tenth hooks, which are very formidable. The cups of the carpal group are ten in number, with about eleven interjacent tubercles, the whole occupying a surface of an elongate-oval form. The cups of the terminal group are thirteen or fourteen in number, and contiguous to one another, and all open, with horny rings.

The horny mandibles are black, the upper one considerably the longer, narrower, and more hooked.

The odontophore consists of sixty-two rows of teeth, each row composed of a transverse series of seven. The central tooth is the largest, having a large acutish central prong and a small subbasal one on each side. The next tooth on either side is considerably smaller, with an acute central fang, and a smaller somewhat hooked one on the outside, and none on the inner. The two outer teeth are long, simple, curved and acute, the outermost having a slight sinuation in the outer curved edge.

The colour of the specimen as preserved in spirit is brownish purple, slightly paler on the inner surface of the arms. The minute dotting so general in this order of Mollusca is scarcely observable in the head before me.

*Dimensions.* Length of tentacles 450 millims., of ventral arms 270.

*Affinities and Differences.* At present only a single species has been described from the Patagonian region. This is the *Onychoteuthis fusiformis* of Gabb<sup>1</sup>, "said to have been caught off Cape Horn." This is a very small animal in comparison with that here described, and, judging from the description, is a distinct species, and not the young form of that now described. The formula of the relative length of the arms is different; and in *O. fusiformis* the lowermost or ventral pair of arms are destitute of a marginal membrane, whilst in *O. ingens* this feature is strongly developed. The cupules are described by Gabb as being "arranged in a double series, without being either in pairs, nor yet alternating;" on the contrary, in the present species they are most regularly alternating. The tentacles have a different proportional length in relation to the club at the end, in the one form (*O. fusiformis*) being as 3 to 1, in the other as 5 to 1. Besides these distinctions, there are probably others, in the number of hooks on the club, the number of the cups at the extremity of it, the presence of tubercula between the cupules of the carpal group, and in the odontophore, all of which are passed over in the description of the Cape-Horn species.

The well known *O. banksii* is also a smaller animal, with compressed lower lateral arms. The formula of relative length is different, the number of hooks on the club smaller, and the cupules of the carpal group fewer; those on the arms, too, differ in form; and the odontophore offers certain distinctions.

## II. GASTROPODA.

### a. *Marine.*

#### PLEUROTOMA, sp. inc.

*Hab.* Wolsey anchorage, 17 fathoms, brought up on the anchor.

A single dead specimen of a very interesting form. It apparently belongs to the typical group of the genus, with the slit in the middle of the lip. The apex, consisting of one whorl and a half, is large for the size of the shell, and globose. The rest of the whorls have a strong beaded keel round the middle, and a smaller and less distinctly

<sup>1</sup> Proc. Californian Acad. Nat. Sci. 1862, p. 171.

beaded one just beneath the suture. The last whorl has two prominent simple keels round the middle, and indications of one or two below. The canal is short, and the columella tortuous. The colour is probably faded. In its present condition the shell is white, with the exception of the keel at the suture, which has traces of a pale lurid hue. It is 10 millims. in length; but it is questionable if that is the ultimate dimension to which it would attain.

PLEUROTOMA (BELA) CUNNINGHAMI, sp. n. (Plate IV. fig. 1.)

Shell ovately fusiform, turreted, purple brown with pale costæ. Whorls 6-7; the two apical rather large, smooth, rounded; the rest concavely sloping above, curved slightly at the sides, and contracted at the base, strongly plicate and minutely spirally striated. Plicæ or costæ about twelve in number, nearly obsolete at the upper part and not reaching the suture; those on the last whorl attenuate inferiorly and disappear at a shallow furrow around the base; beneath the sulcus is an oblique raised ridge. Aperture oblong, dark purplish brown, occupying about two fifths of the entire length. Columella suberect, rounded, whitish, callous. Sinus distinct, but not deep, situate on the concavity at the top of the labrum. The latter is minutely crenate by the exterior fine striæ. The basal canal is short, wide, and pale at the extreme margin. Length 10 millims., diam. 4, aperture 4 long,  $1\frac{1}{2}$  wide.

Operculum elongate pyriform; nucleus terminal.

*Hab.* Puerto Bueno, 2 to 7 fathoms, rocky bottom, and Station 2.

Some worn specimens of this species were obtained by Dr. Cunningham during the voyage of H.M.S. 'Nassau;' and it is with his name that I feel much pleasure in associating this interesting form. Those collected by Dr. Coppinger are in good condition, and exhibit a well defined superior sinus, which is decidedly deeper than in the boreal types of the *Bela* group of *Pleurotoma*.

PLEUROTOMA (MANGELIA?) COPPINGERI, sp. n. (Plate IV. fig. 2.)

Shell small, elongate, subfusiform, dark purplish brown, paler at the apex. Whorls  $6\frac{1}{2}$ , divided by a deep suture; the first one and a half forming the nucleus, large, semiglobose, smooth; the rest slightly convex and longitudinally ribbed. Costæ stout, broader than the interstices, suberect, a little arcuated; those on the body whorl become obsolete a trifle below the middle, whence downward the whorl is transversely finely striated, the striæ at the extremity being closer together than those above. Aperture small, ovate, occupying about one third of the entire length. Columella arcuate, covered with a thin callosity. Labrum thickened, with a very faint sinus a little below the suture. Basal channel short, distinct, oblique. Length  $6\frac{1}{3}$  millims., diam.  $2\frac{1}{3}$ .

*Hab.* Wolsey anchorage, 17 fathoms, mud and gravel bottom.

Only a single specimen was obtained, which hardly presents the character of the sinus in the labrum satisfactorily.

## LACHESIS MERIDIONALIS, sp. n. (Plate IV. fig. 3.)

Shell small, whitish, cancellated, turreted. Whorls 6; two apical very large, smooth, convex; the rest also convex, longitudinally ribbed and transversely lirate. Costæ subequal to the interstices, about thirteen on a whorl, finer at the upper end than beneath, where they become almost obsolete. Spiral liræ four in number—one around the lower part of the whorls, bordering the narrow deep suture, and scarcely at all affected by the longitudinal costæ; the three others, of which the two lower are much the more conspicuous and coarsely tuberculous upon the ribs, are situated upon the convex portion of the volutions. Last whorl considerably contracted below the middle, encircled by nine transverse ridges, whereof the four upper correspond to those upon the other whorls, the five lower being simple, non-tuberculous, and finer. Aperture small. Columella obliquely arcuate, roundly subtruncate at the base. Canal short, oblique, feebly recurved. Length  $4\frac{1}{3}$  millims., diam.  $1\frac{1}{2}$ , aperture  $1\frac{1}{4}$  long.

*Hab.* Boija Bay, Straits of Magellan, 20 fathoms, on a bottom composed of dead shells and stones.

This species is remarkable for the large smooth nuclear whorls, the convexity and coarse cancellation of those which follow, its narrow form, and the small size of the aperture; the increase in the width of the volutions is very gradual.

## TROPHON GEVERSIANUS, Pallas.

*Hab.* Stations 6 and 7.

One specimen from Elizabeth Island is very interesting, as showing the great variation to which this species is subject. It is nearly smooth, displaying no indication of cancellation, and exhibiting only faint transverse grooving.

## TROPHON LACINIATUS, Martyn.

*Hab.* Stations 1, 2, 7; also Cockle Cove, 2–32 fathoms.

## TROPHON CRISPUS, Couthouy.

*Hab.* Station 7 and Puerto Bueno, 2–7 fathoms, rocky bottom.

## TROPHON MURICIFORMIS, King.

*Hab.* Stations 2, 3, and 7; also Puerto Bueno, 2–7 fathoms, bottom rocky.

This species has been described under the names *Fusus liratus*, Couthouy, *F. corrugatus*, Reeve, and *F. albidus*, Philippi; all of these, however, are subsequent to King's description in the 'Zoological Journal' for 1830.

## TROPHON FIMBRIATUS, Hupé. (Plate IV. fig. 4.)

*Fusus fimbriatus*, Hupé, Gay's Hist. de Chile, vol. viii. p. 165, Atlas, pl. 4. figs. 7–7 b.

Shell fusiform, white. Whorls probably about 8, obliquely sloping above, and rounded somewhat at the lower part, longitu-

dinally plicated, spirally ridged, and everywhere ornamented very beautifully with very numerous close raised lamellæ or lines of growth. The longitudinal folds or costæ are oblique, attenuated above, and rapidly widening inferiorly; they number 9-10 on the penultimate, and about one more on the last whorl, on which, a little below the middle, they become obsolete. The spiral liræ are for the most part of about equal thickness, and vary in number from about 7 to 9 on the upper volutions, and from 16 to 20 on the last; the one at the extremity, which, as it were, forms the cauda, is twice or thrice as thick as the rest. Aperture ovate, white, together with the canal occupying rather more than half the entire length. Columella arcuate above, and of a pale greenish tint. Labrum frilled at the margin. Canal oblique, recurved, rather shorter than the aperture. Length 30 millims., diam. 12; aperture and canal 16 long and 6 wide.

Another specimen is 26 millims. long, 11 broad; and its aperture with the canal has a length of 16 millims., and a width of 6.

Operculum brownish yellow, somewhat ovate, not acute at the nuclear end.

*Hab.* Station 6.

This is a very beautiful species on account of the charming nature of the sculpture, in which respect it resembles *T. crispus* of Couthouy, which, however, is easily distinguished by the very different form of the whorls. The figure in Gay's work represents the costæ narrower and more sharply defined than in the specimens which I identify with this species.

*EUTHRIA ATRATA*, sp. n. (Plate IV. fig. 5.)

Shell ovately fusiform, purplish black. Whorls 7-8; nuclear ones rather large, smooth; the rest convex, with a slight depression at the upper part, longitudinally strongly ribbed and finely spirally striated. Costæ narrow beneath the suture, and vanishing on the last whorl a little below the middle. Aperture less than half the shell in length, ovate, continued beneath into a short, narrowish, oblique deep canal, of the same colour as the exterior. Labrum arcuate, thickened by the last rib, with a small tubercle at the commencement of the canal. Columella covered with a thin enamel, which is whitish inferiorly, arched in the middle. Length 16 millims., diam. 7; aperture 7 long, 3 wide.

*Hab.* Station 5 and Puerto Bueno, 2-7 fathoms, bottom rocky; also Boija Bay, 20 fathoms, on a stony and shelly bottom.

The principal characteristic of this species is the intensity of the purplish-black colouring. Four of the specimens have furnished resting places for a small Hermit-crab.

*EUTHRIA MERIDIONALIS*, sp. n. (Plate IV. fig. 6.)

Shell fusiformly ovate, small, brown, pale at the apex. Whorls 6; apical one smooth, whitish, convex; the rest only slightly convex, longitudinally costate, and transversely sulcate. Suture scarcely oblique, rather deep. Costæ a little slanting, somewhat arcuate, about 14 on the last whorl, which do not attain quite to the

lower extremity. Sulci narrow, rather deep, cutting through the costæ, not nearly as broad as the interstices, 4 to 5 in number on the upper whorls, and about 18 on the last, whereof those around the extremity are finest and closest together. Aperture elongate-ovate, produced beneath into a short, oblique, recurved canal, and equalling about two fifths of the whole length of the shell. Labrum simple, thickened exteriorly by the last rib. Columella covered with a thin, smooth, whitish callosity, arcuate at the middle. Length 9 millims., diam.  $3\frac{1}{3}$ , aperture nearly 4 long and  $1\frac{2}{3}$  broad.

*Hab.* Stations 5 and 7.

There are but two examples of this little species, one not quite mature, and the other at some time inhabited by a Paguroid crustacean. The latter circumstance may to some extent have caused the absorption of any liræ or denticules within the labrum, if such ever existed. The first sulcus beneath the suture cuts off the tops of the costæ, which consequently present the appearance of squarish nodules.

*NASSA (TRITIA) COPPINGERI*, sp. n. (Plate IV. fig. 7.)

Shell ovate, whitish, with a broad purplish-brown band at the top of the whorls, and two others on the last, the upper one around the middle, and the other somewhat below. Whorls 6, a little convex, narrowly tabulated above, with a granulous clathrated sculpture; this consists of longitudinal and transverse ridges: the former are not quite so distinct as the latter, are nodulous at the points of contact, about 18 in number on the penultimate whorl, and about 24 on the last, those near the labrum being closer together than the rest. The spiral ridges are flattened at the top, with the edges sharply defined by the intervening grooves; they are four in number on the upper whorls, and seven on the last; below the seventh the whorl has a rather broad deep sulcation, beneath which comes the raised ridge common to the genus. Aperture nearly half the length of the shell, bluish white, exhibiting the external banding. Columella very arcuate in the middle, covered with a thin white callosity, which projects rather prominently into the aperture towards the base. Labrum not thickened exteriorly, armed within with five liræ. Length  $13\frac{1}{2}$  millims., diam. 7, aperture  $6\frac{1}{2}$  long and  $3\frac{1}{3}$  broad.

Operculum triangularly subcircular, with a few minute serrations on the inner margin towards the nucleus.

*Hab.* Station 3.

Only one specimen of this species was collected. It is remarkable for its coarsely granular surface and the stoutness of the spire.

? *NASSA* (—?) *TÆNIOLATA*, Philippi. (Plate IV. fig. 8.)

*Buccinum tæniolatum*, Phil. Archiv f. Naturgeschichte, 1845, p. 69; Gay's Chile, vol. viii. p. 207, Atlas, pl. 4. figs. 9-9 b.

*Hab.* Stations 2 and 3; "Chonos Is." (*Philippi*).

There are seven specimens, all immature, which may possibly be the young of this species. They do not, however, present six trans-

verse ridges, but only five, on the upper whorls; they are only slightly rounded, become nodulous on crossing the longitudinal costæ, and are very finely striated in a spiral or transverse direction. The largest example is only 11 millims. long, whilst that described by Philippi had a length of  $16\frac{1}{2}$ .

MONOCEROS CALCAR, Martyn.

*Hab.* Station 1; and Francisco Bay, shallow water.

CONCHOLEPAS PERUVIANA, Lamarck.

*Hab.* Station 4.

RANELLA VEXILLUM, Sowerby.

Synon. *Triton ranelliformis*, King, = *Ranella kingii*, D'Orbigny, perhaps = *R. tumida*, Dunker, and *Bursa (Apollon) proditor*, Frauenfeld.

*Hab.* Tom Bay and Trinidad Channel.

Dunker's *R. tumida* was described from specimens from New Zealand. I have compared series from that country, received from different sources, with several specimens from Patagonia and Chili. The result at present is, that I cannot detect any substantial difference between the two local forms. This is very remarkable, as I am not aware of any other mollusk having been shown to be common to these two localities. The variety (*proditor*) from St. Paul's Island, in the Indian Ocean, is also very closely related to, if not conspecific with, the South-American shell; but the form is a little narrower, and the penultimate whorl is conspicuously broad.

PRIENE MAGELLANICA, Chemnitz.

*Triton cancellatum*, Lamarck.

*Hab.* Puerto Bueno, Trinidad Channel, Tom Bay, and Portland Bay.

This species is included in the list of Japanese *Fusidæ* given by A. Adams in the 'Journal' of the Linn. Soc. 1864, vol. vii. p. 106. Reeve also states that it is found at Kamtschatka; and Carpenter observes (Suppl. Report Moll. West Coast N. A., from the Report Brit. Assoc. 1863, p. 534) that "*P. cancellata* is the Cape-Horn species. Some specimens in alcohol in Sir E. Belcher's collection, however, said to be from Icy Cape, greatly resemble the southern shell." If, indeed, this species inhabits such remote parts of the globe as Japan and the Straits of Magellan, it is most unaccountable.

The operculum is ovate, with an almost terminal nucleus; and the internal scar has a subcentral nucleus, with concentric lines of growth placed obliquely across the surface. The outer marginal thickening is moderately broad.

I think that the Chemnitzian name *magellanica* must be retained for this species. It has priority over the *Murex magellanicus* of Gmelin, which is the *Trophon geversianus* of Pallas; and it appears to me that Lamarck very unnecessarily substituted a fresh name (*Triton cancellatum*) for this species. Besides, Gmelin had already



employed that name for what appears to be a species of *Triton*, judging from the figure cited in Knorr's 'Vergnügen,' vol. ii. t. 27. f. 3.

*CERITHIUM (BITTIUM) CÆLATUM*, Couthouy.

*Hab.* Boija Bay, 20 fathoms (*Coppinger*); "Orange Harbour, Terra del Fuego" (*Couthouy*).

Of the three series of granules encircling the whorls, the uppermost is the finest, and the lowermost the coarsest.

This species is figured in the Atlas to Wilkes's Exploring Expedition (figs. 174-174 *d*).

*TROCHITA (CLYPEOLA) CORRUGATA*, Reeve.

*Hab.* Stations 6 and 7.

To this species probably belong *Trochus pileus*, Lamarck, *Trochatella pileolus*, d'Orbigny, and *Calyptæa costellata*, Philippi.

*CREPIPATELLA DILATATA*, Lamarck.

*Hab.* Station 5.

These specimens differ from those found more north in being entirely destitute of colour, like *C. pallida*, Broderip; but in other respects there appears to be no difference.

*LAMELLARIA PATAGONICA*, sp. n. (Plate IV. figs. 9, 9 *a*, 9 *b*.)

*Peronia*, sp., Cunningham, Nat. Hist. Straits of Magellan, 1871, plate before p. 75, fig. 1, and p. 449; id. Trans. Linn. Soc. vol. xxvii. p. 484, pl. 58. figs. 4 *a-b*.

"Mantle of a dirty yellow colour, marked with lines and blotches of light vandyke-brown, and its undersurface around the foot was marked with light-coloured striæ"<sup>1</sup>. Animal high, convex, exhibiting to some extent the form of the shell, owing to the thinness of the mantle which envelops it. Foot somewhat truncate in front, gradually tapering towards the other end, which is rounded. Tentacles shortish. Eyes apparently sessile, situated at the outer bases of the tentacles. The teeth on the lingual ribbon in three series: the central with two equal diverging shanks, joined at the apex, which is recurved, with a small tooth on the middle of the cutting-edge and still smaller ones on each side; the lateral teeth are acute at the tip, recurved, very finely serrate on the outer side, the serration being restricted to the central portion, also with an inner lateral prominence separated in part from the tooth by a sutural line, more strongly serrated than the outer edge, the denticles being apparently seven in number.

From his description it will be seen that the character of the odontophore is very similar to that of *L. producta* (Troschel, 'Gebiss der Schuecken,' i. pl. xvi. fig. 4); but the shanks of the median tooth are not unequal, and the lateral teeth are more hooked at the tips. The horny oral process is composed of two pieces, very similar to those of *L. perspicua* (Troschel, *l. c.* fig. 1); it is nearly black at

<sup>1</sup> Dr. Cunningham's description from the live animal.

the narrow end, and is  $2\frac{3}{4}$  millims. in length and 2 broad; the portion inserted in the tissue is larger than the exposed part, the line of demarcation being well defined; the exposed tip exhibits parallel lines of growth.

Shell large, very fragile, globose, transparent hyaline, with a slight milky cloudiness, exhibiting very fine striæ of growth. Whorls  $3\frac{1}{2}$ , very convex, and rapidly enlarging, separated by a deep suture. Spire moderately raised. Aperture exceedingly large, wider than long, oblique. Columella very arcuate, visibly perspectively spiral to the apex, coated with an excessively thin callosity. Greatest diam. 25 millims., height (when resting upon the front of the body-whorl and the basal margin of the aperture) 13; aperture  $17\frac{1}{2}$  wide,  $15\frac{1}{2}$  long.

*Hab.* Station 1; Shell Bay (*Cunningham*).

There are two species of *Lamellaria* mentioned by H. & A. Adams (*Gen. Rec. Moll. i. p. 201*) of which I can find no published descriptions. They are *L. antarctica*, Couthouy, and *L. prætenuis* of the same author, either of which names would be very applicable to the species now described.

Dr. Cunningham says:—"The animal possessed the power of shortening and elongating the tentacles. At times it crawled along the sides of the glass, filled with sea-water, in which it was kept, on its large muscular foot, the shape of which underwent constant changes; and at others it floated on the surface of the water, with the foot uppermost."

COLLONIA CUNNINGHAMI, sp. n. (Plate IV. figs. 10, 10 a.)

Shell small, subglobose, perforate in the young state, when adult imperforate, of a rose-madder colour. Whorls  $4\frac{1}{2}$ ; apical one whitish, the rest convex and finely spirally striated, also marked with faint oblique lines of growth. Suture rather deep. Last whorl obliquely descending near the lip, somewhat flattened beneath near the centre. Aperture obliquely subcircular, iridescent within. Columella pearly, spread over the umbilicus. Labrum with a narrow pinkish margin within. Height  $4\frac{1}{2}$  millims., greatest diam. 5, smallest diam.  $4\frac{1}{3}$ .

Operculum circular, consisting of six whorls, which are most easily seen on the inner surface. The outside is somewhat thickened by a shelly deposit.

*Hab.* Stations 5 and 2, and Wolsey anchorage, 17 fathoms, mud and gravel bottom.

Named after Dr. R. O. Cunningham, whose labours on the Patagonian fauna are well known and highly appreciated.

TROCHUS (PHOTINULA) CÆRULESCENS, King.

*Hab.* Stations 6 and 7.

TROCHUS (PHOTINULA) VIOLACEUS, King.

*Hab.* Stations 2, 5, 6, 7, and Puerto Bueno, 2-7 fms.

## TROCHUS (CHLOROSTOMA) ATER, Lesson.

*Hab.* Station 4.

## TROCHUS (CHLOROSTOMA), sp., jun.

*Hab.* Station 2.

Three specimens, apparently immature, are closely allied to *T. luctuosus*, d'Orb., = *T. bicarinatus*, Pot. & Mich.

## TROCHUS (ZIZIPHINUS) CONSIMILIS, sp. n. (Plate IV. fig. 11.)

Shell pyramidal, of a very pretty purplish lilac colour, encircled with pale transverse ridges. Whorls 7; the nuclear one rounded, white; the rest flat, with three to four strong spiral liræ, whereof the uppermost, or the two uppermost, are more or less granulous. The interstices are smooth, with the exception of oblique lines of growth. Suture marked by a thread-like keel. Last whorl acutely angled below the middle, with a flattish base, which has two or three sulci near the angle, and two white or pale lilac liræ encircling the umbilical region. Aperture somewhat obliquely quadrangular; columella pearly, margined with a white callosity. Height 11 millims., greatest diam. of base 9, smallest 8.

*Hab.* Station 5; and Cockle Cove, between tide-marks.

A very pretty species, easily recognized by its colour and sculpture, and recalling to some extent the northern *T. alabastrum*, Beck.

## SIPHONARIA LESSONI, jun.

*Hab.* Station 3.

## FISSURELLA PICTA, Gmelin.

*Hab.* Stations 3 and 5.

## FISSURELLA, ALBA, Philippi.

*Hab.* Station 7.

## DENTALIUM, sp.

*Hab.* Station 5.

I am not aware of any species of *Dentalium* having been recorded from this region. The single shell obtained is a dead specimen, quite straight, very slowly enlarging, and exhibiting only lines of increment and no longitudinal striæ. It has a length of 29 millims., and is 2 in diameter at the oral orifice.

## PATELLA (NACELLA) MYTILINA, Gmelin.

*Hab.* Tom Bay, on rocks at low water.

This variable species was also collected at Kerguelen Island; and in a paper in the 'Philosophical Transactions,' upon the Mollusca collected during the Transit-of-Venus Expedition to that region, I have given comparative remarks upon the different varieties which have been described as distinct species.

## PATELLA (PATINELLA) ÆNEA, Martyn.

*Hab.* Trinidad Channel, on rocks.

TECTURA (*PILIDIUM*) COPPINGERI, sp. n. (Plate IV. figs. 12, 12 a.)

Shell cap-shaped, thin, sculptured with numerous fine, thread-like, granulous liræ radiating from the apex to the margin, and with fine concentric lines of growth. The colour is dirty white, varied with two or three bands of a pale slate-colour which encircle the shell at irregular intervals, and are interrupted by the radiating liræ, which are white. This feature is more apparent within the shell, where the surface is very smooth and shining. Margin nearly simple, very faintly crenulated by the extremities of the ridges, roundly ovate in form. Apex rather acute, not greatly curved down, and very near the anterior end. Length  $5\frac{1}{3}$  millims., diam.  $4\frac{1}{3}$ , height  $2\frac{1}{2}$ .

*Hab.* Station 7.

This is the southern representative of the northern *Tectura* (*Pilidium*) *fulva* of Müller. It is rather more circular than the latter; and the colour of the single specimen at hand is different.

CHITON BOWENII, King.

*Hab.* Cockle Cove, 2-32 fathoms., mud bottom.

CHITON (*CALLOCHITON*) ILLUMINATUS, Gray.

*Hab.* Station 6.

CHITON (*PLAXIPHORA*) CARMICHAELIS, Gray.

*Hab.* Stations 3 and 6.

CHITON (*TONICIA*) FASTIGIATUS, Gray.

*Hab.* Tom Bay, on the shore.

CHITON (*ISCHNOCHITON*) IMITATOR, sp. n. (Plate IV. figs. 13-13 e.)

Shell elongate ovate, moderately elevated, subangularly arched at the middle, dirty white. Valves narrow, with a single notch on each side, exhibiting small slightly raised lateral areas, which towards the margin have a few transverse strong grooves or marks of growth. Front margin sloping very slightly on each side from the middle in a posterior direction; hind margin straight. Sculpture consisting of close flat granulation, exhibiting a somewhat serial arrangement. Laminæ of insertion very thin, with a wide sinus between them. Anterior valve sculptured like the others, with fourteen fissures within, the thirteen teeth between them being sharp and straight-edged. Posterior valve with a central mucro, from which there is a faint ridge on each side to the lateral extremity, also marked with concentric lines of growth at intervals, and with the inner marginal fissures twelve in number. Scales of the mantle minute, imbricating, ovate, arranged lengthways; under the microscope they appear very coarsely transversely grooved. Length 11 millims., diam. of fourth valve 5.

*Hab.* Tom Bay, on the shore.

This species is very like the northern *C. albus*; and *C. viridulus* of

Couthouy appears to be another closely allied species; but in each instance there are differences in detail of sculpture which may separate the three forms.

*DORIS*, sp.

*Hab.* Port Bermejo, at the southern end of Madré Island, W. coast of Patagonia.

A single specimen was obtained by Dr. Coppinger. It closely resembles the British *D. tuberculata*, a species already recorded from Kerguelen's Land.

b. *Terrestrial*.

*HELIX (PATULA) COPPINGERI*, sp. n. (Plate IV. figs. 14, 14 a.)

Shell minute, discoid, umbilicated, pale luteous. Spire scarcely raised above the last whorl. Suture deep. Whorls  $3\frac{1}{2}$ , slowly enlarging, ornamented with most delicate slender and close-set costellæ or raised lines of growth, and with very numerous fine spiral elevated lines between the costellæ, visible only under the microscope. Umbilicus moderately small, equalling about  $\frac{1}{8}$  of the basal diameter. Aperture lunate; lip simple. Greatest diam.  $1\frac{2}{3}$  millim., height 1.

*Hab.* Tom Bay, found on a rotten tree.

This minute species is remarkable for the fine riblets and the beautiful spiral sculpture, the latter being vastly finer than the former.

*HELIX (PATULA) MAGELLANICA*, sp. n. (Plate IV. figs. 15-15 b.)

This species resembles the preceding in general aspect. The colour is the same; but the whorls increase more rapidly, and are only  $2\frac{1}{2}$  in number. The longitudinal riblets are excessively slender, and both finer and more numerous than in *H. coppingeri*. This species also is without spiral sculpture. Umbilicus rather more open, and the body-whorl beneath narrower than in that species; but above it is broader. Suture the same. Aperture a trifle larger. Diam.  $1\frac{2}{3}$  millim., height 1.

*Hab.* With the preceding.

*H. lyrata*, Couthouy, from Tierra del Fuego, apparently belongs to the same group, and is closely related.

*HELIX (ZONITES?) ORDINARIA*, sp. n. (Plate IV. figs. 16, 16 a.)

Shell small, umbilicated, thin, glossy, discoid, transparent. Whorls  $3\frac{1}{2}$ , convex, margined at the suture, rather slowly enlarging, faintly striated by the lines of growth. The margination of the whorls forms a distinct channel at the suture. Spire depressed, scarcely raised above the last whorl, which is rounded at the periphery. Umbilicus rather open, exhibiting two of the upper volutions. Aperture large, lunate. Peristome thin, simple, a little reflexed at the umbilicus. Greatest diam. 3 millims., height  $1\frac{1}{2}$ .

*Hab.* Tom Bay, attached to the frond of a fern.

Apparently distinct, although a near relation to *H. saxatilis* of Couthouy, from Tierra del Fuego.

SUCCINEA PATAGONICA, sp. n. (Plate IV. figs. 17, 17a.)

Shell ovate, somewhat ventricose, greenish yellow, with the apex light scarlet. Whorls 3, very convex; the last somewhat elongated, striated by the lines of growth, and separated by a deepish suture. Mouth ovate, equalling rather more than two thirds of the entire length. Columellar margin obliquely arcuate, with a thinly reflexed enamel extending to the termination of the outer margin. Length  $12\frac{1}{2}$  millims., diam. from lip to opposite side of the whorl 8, aperture 9 long and 6 broad. Another specimen is 9 millims. long,  $6\frac{1}{2}$  broad, and its aperture has a length of  $6\frac{3}{4}$  and a width of 5.

*Hab.* Cockle Cove, found on dead leaves; also shores of Trinidad Channel and Puerto Bueno.

This species is mainly distinguished from *S. magellanica* of Gould by its scarlet apical whorl, the second or penultimate being rather less shouldered; and the suture, too, is scarcely as deep.

### c. *Fluviatile.*

CHILINA AMÆNA, sp. n. (Plate IV. figs. 18, 18a.)

Shell very fragile, ovate, acute above, greenish yellow, with transverse bands of dark reddish brown, more or less arrow-head-shaped spots or marks, which sometimes flow into one another from band to band, thus forming longitudinal zigzag streaks. Of these series of spots the body-whorl has five—one immediately beneath the suture, and the others at subequal distances; that which is a little above the middle of the whorl and runs into the suture of the penultimate whorl is, in the eight specimens before me, narrower than the bands immediately above and beneath it. The whorls are well rounded, about six in number, and striated with the lines of growth. Aperture inversely subauriform, coated with a thin bluish-white enamel, but exhibiting the exterior banding, and, as a rule, occupying about  $\frac{2}{3}$  of the entire length of the shell. Columella a little oblique and arcuate, with a single fold at the upper part, white, somewhat reflexed beneath the fold, and with a thin callosity above it. Length 26 millims., diam. 11, aperture  $14\frac{1}{2}$  long and 6 broad.

*Hab.* From a lake near Tom Bay.

The spire in this species is quite as long as in *C. parchappi*, d'Orbigny, from which species it differs in the brightness and distinctness of coloration, the greater convexity and shouldering of the whorls, and the different character of the columella. *C. pulchra*, d'Orb., is more like in colour; but its form is much more stumpy, and the columella and the fold upon it are considerably thicker and heavier than in the present species.

## III. CONCHIFERA.

VENUS, sp., jun.

*Hab.* Station 2.

Of this species there are two specimens, which apparently are im-

mature. They are of a rounded, somewhat triangular form, radiately finely striated, and with a few concentric raised lamellæ.

VENUS, sp., jun.

*Hab.* Station 2.

Another apparently young form, a little broader than the preceding, without the radiating striæ, and more inequilateral. Both are white.

CHIONE GAYI, Hupé.

*Venus gayi*, Hupé, Gay's *Historia de Chile*, vol. viii. p. 337, Atlas, pl. 6. f. 5 a-c.

Shell trigonally ovate, thickish, a little inequilateral, light brown, rather coarsely concentrically sulcate, and under the lens most minutely radiately striate. Valves moderately convex, white within, very finely crenulated all round the margin, except on the ligamental slope. Teeth in right valve three, central and posterior one bifid and subequal; in left valve three, central one bifid and the largest. Anterior muscular scar elongate, truncated at the upper end; posterior shorter, pyriform. Pallial sinus moderate. Lunule elongate-cordate, defined by deeply incised lines. Diam. 20 millims., length  $16\frac{1}{2}$ , thickness 10.

*Hab.* Station 5; and Boija Bay, 20 fms., on a shelly and stony bottom.

There are four specimens of this simple species, which is considerably like *C. mesodesma* of Quoy and Gaimard.

In d'Orbigny's collection there are two specimens of this species marked, in his own handwriting, "*V. modesta*, Callao, Pérou." These, no doubt, are those which he mentions in the '*Voyage dans l'Amérique méridionale*,' vol. v. p. 563, under the name of *V. cumingii*. Having compared them with the type of *modesta*, Sowerby, for which he substitutes the preceding name, they prove to be totally distinct in form, colour, and sculpture. They exhibit one slight difference from those obtained by Dr. Copping. The lunule is brownish red, and on the ligamental slope there are a few irregular angular lines.

CHIONE, sp., jun.

*Hab.* Station 2.

Only a single specimen is in the collection. It is of a transversely oval form, rather strongly concentrically sulcated, whitish, with a purplish stain posterior to the umbo, which is rather excentric.

DIPLODONTA LAMELLATA, sp. n. (Plate V. figs. 1-1c.)

Shell thin, white, transverse, rounded anteriorly, and curvedly truncate behind, exhibiting an obtuse dorsal angle. Valves sculptured with concentric fine raised lamellæ, which are by degrees further apart as they approach the margin; between these very feeble lines of growth are to be seen; near the posterior end there is a slightly depressed portion of the valves. Umbones prominent,

acute. Lunule narrow. Ligamental area lanceolate, twice as long as the ligament. Hinge with two teeth in each valve, whereof the anterior in the right valve and the posterior in the left are bifid. Anterior scar narrow, elongate, running some way from the upper front margin downwards; posterior scar broader, roundly ovate. Pallial line simple, joining the front scar at its upper end. Interior of valves exhibiting an irregular corrugation or punctation. Width  $9\frac{1}{2}$  millims., length 8, thickness  $3\frac{1}{2}$ .

*Hab.* Station 5.

This pretty species is very different from most others of the genus in being sculptured with raised lamellæ.

MACTRA (MULINIA) LEVICARDO, sp. n. (Plate V. figs. 2-2 b.)

Shell ovate, subtrigonal, inequilateral, livid from the centre of the valves to the umbones, elsewhere white, covered with a greyish-olive epidermis. Valves moderately convex, with a faint ridge or angulation from the umbo to the hinder extremity, which is very slightly angulated, and with a shallow depression nearer the dorsal line, marked by a wrinkling of the epidermis. Interior white. The sculpture consists of concentric striæ, very fine near the apex, and rather coarse towards the outer margin. Umbones small, acute, not far apart, situated a little anteriorly. Hinge remarkable on account of the small size of the cartilage-pit; and the whole construction of the hinge is slight. Pallial sinus rather deep, but not acute. Diam. 56 millims., length 44, thickness 22.

*Hab.* Cockle Cove, 7 fathoms., mud.

*M. edulis* of King appears to be the nearest ally of this species, which differs especially in having a much smaller cartilage-pit, a less deep pallial sinus. The form also is more transverse and the dorsal slopes less arcuate, thus giving a more triangular appearance to the outline.

NUCULA PISUM, var.

*Hab.* Station 2.

A single specimen of this species is of a rather narrower and more triangular form than normal examples.

LEDA LUGUBRIS, A. Adams.

*Hab.* Station 2; and Wolsey anchorage, 17 fathoms, mud and gravel.

MALLETIA MAGELLANICA, Smith. (Plate V. figs. 3, 3 a.)

*Hab.* Station 3, Mayne Harbour, 9 fathoms, greenish mud; and Cockle Cove, 2-32 fathoms, mud.

The typical specimens of this species were collected somewhat south of the above localities at Otter Island. One of those just received is a very fine example, being 38 millims. broad, with a length of 20; and the beaked end is remarkably acute.



## SAXICAVA, sp.

*Hab.* Station 7.

There are two apparently young specimens of a species of this genus. They may possibly belong to *S. antarctica*, Philippi, who says ('Archiv für Naturgeschichte,' 1845, p. 52) that it is almost impossible to separate the young of the common Greenland species (*S. arctica*) from the young of the Patagonian form. As far as the character of the shell can determine the species, I confess that the two little specimens from the Straits of Magellan appear to be merely the immature state of the northern shell.

## PANDORA (KENNERLIA) BRAZILIENSIS, Gould. (Plate V. figs. 4-4 c.)

*Pandora braziliensis*, Gould, Sowerby, Conch. Icon. pl. 2. f. 15.

Shell somewhat ovate, truncate on the hinge side. *Lower or left valve* deep, convex, thickish, whitish, with a shallow depression from the umbo to the anterior part of the ventral margin, parting off about one sixth of the valve into a sort of wing, which has a less length than rest of the valve; and consequently the ventral margin is interrupted and does not form a regular curve. Down the posterior dorsal slope are three slight keels, situated close together and not far from the edge. Sculpture consisting of coarsish concentric lines of growth; and radiating from the umbo towards the ventral margin a few rather indistinct very slightly elevated ridges may be observed. Interior whitish, pearly, iridescent. Scars small, subcircular, marked with a few transverse concentric layers of growth. Anterior thickening of the hinge-line stout, dentiform, adjoining the front scar, posterior also rather strong and projecting, forming an oblique boundary to the cartilage. The latter is supported or strengthened by a narrow delicate ossicle. *Upper, right, or flat valve* sculptured with fine concentric lines of growth and also with arcuate brown radiating striæ. The anterior part is also parted off, as in the lower valve, by an indistinct depression from the apex to the front part of the ventral margin. Posterior dorsal slope nearly at right angles to the rest of the surface of the valve, forming an acute angle. Interior exhibiting about the central portion a few radiating shallow punctured striæ. Scars similar to those of the other valve. Teeth two, one very strong, the other thin, narrow, diverging, forming a base for the cartilage. Pearl beautifully iridescent. Width  $21\frac{1}{2}$  millims., length 16, thickness 6.

*Hab.* Station 2.

This species is considerably like *P. wardiana*, A. Adams, from Manchuria; but when closely compared together there appear several differences by which they can be distinguished. The form is not precisely similar; the position of the scars is different; and the dentition is much stronger in the present species, although a smaller shell. As far as I can ascertain, Gould has not published this name; but the valve figured in Sowerby's characteristically slovenly monograph is labelled in the Cumingian collection *P. braziliensis*,

Gould, and agrees exactly with the single shell above described. In assigning *P. wardiana* to Carpenter, and California as its locality, Sowerby has exhibited a great want of care.

LORIPES PERTENUIS, sp. n. (Plate V. fig. 5.)

Shell very thin, compressed, obliquely subcircular, white, inequilateral. Valves concentrically finely striated, with a shallow groove running from the umbo down to the posterior end, but at a very little distance from the dorsal margin, and with a second depression bordering the dorsal edge. Umbones acute, rather prominent, situated very much forward. Hinge absolutely toothless. Interior of valves exhibiting traces of iridescence. Width 10 millims., length 9, thickness  $4\frac{1}{2}$ .

*Hab.* Straits of Magellan.

This species is remarkable for its extreme fragility and the shallow depressions down the posterior dorsal slope.

KELLIA MAGELLANICA, sp. n. (Plate V. figs. 6-6 b.)

Shell equivalve, subequilateral, white, covered with a yellowish-olive epidermis, for the most part worn off, of an ovate form, a trifle narrowing anteriorly, the outline being interrupted by the prominence of the umbones, rather ventricose. Sculpture consisting of rather coarse concentric lines of growth. Umbones rather acute and prominent, somewhat curved anteriorly. Interior of valves of a bluish white, except at the margin, where the epidermis is narrowly reflexed within. Hinge composed of two stout teeth in the right valve—one immediately beneath the umbo, and the second rather widely separated from it by the intervening cartilage. Also two teeth beneath the apex in the left valve, and a third corresponding to the second tooth in the other valve, also parted off from the others by the internal ligament. Scars and pallial line indistinct; the latter appears quite simple. Width  $8\frac{1}{2}$  millims., length  $7\frac{1}{2}$ , thickness 5.

*Hab.* Station 6.

This species is very much like the British *K. suborbicularis*, yet on close investigation appears distinct. It is more solid, has a stouter epidermis, stronger teeth, and the form is not quite the same. *K. bullata*, Philippi, also a Magellan species, must be very nearly allied to the present; yet the form, as described in the 'Archiv für Naturgeschichte,' appears to differ. *K. magellanica* is almost equilateral, whilst *K. bullata* is said to be "vorn weit länger als hinten."

ASTARTE MAGELLANICA, sp. n. (Plate V. fig. 7.)

Shell small, subequilateral, elevated, subpyriform, and not very tumid, concentrically sulcated; beaks prominent, acute, curving considerably anteriorly. Lunule indistinct. The dorsal slope on that side rather incurved, posterior one regularly curved, basal margin broadly arcuate. Concentric waves numerous, close-set, very fine upon the umbones, gradually increasing in stoutness, attenuating at the sides. Epidermis thin, greenish yellow. Interior

dirty whitish, marked with irregular, concentric, subtranslucent zones; impressions shallow, the anterior rather narrower than the posterior; above the former is a second separate minute subcircular pit and a similar one joining the upper margin of the latter. Basal margin of valves minutely dentate within. Teeth of right valve two: the anterior, or that nearest the side towards which the beak curves, very small, conical; the other elongate, bifid. In the other valve two teeth also, the anterior bifid, stouter and shorter than the posterior, which is simple. Anterior dorsal margin of right valve and posterior of the left grooved to receive a thin corresponding elongate lamella on the opposite margins of the respective valves. Length 5 millims., width  $4\frac{1}{2}$ , diameter 2.

*Hab.* Boija Bay, Straits of Magellan, 20 fathoms, on a bottom composed of stones and dead shells.

The discovery of this species in antarctic latitudes is especially interesting, being another instance of the occurrence of a genus in antarctic regions which is peculiarly boreal in its distribution. *A. longirostra*, d'Orbigny, from the Falkland Islands, is allied to this species. It is, however, more beaked, much more finely sculptured, and has a smooth margin to the valves.

CARDITA (ACTINOBOLUS) VELUTINUS, sp. n. (Plate V. fig. 8.)

Shell equivalve, rather inequilateral, globose, as long as broad, whitish, clothed with a thickish velvety pilose dirty brownish epidermis, sculptured with about twenty elevated rounded and somewhat granulous costæ, which are furthest apart anteriorly, and more approximated on the hinder slope of the valves; the interstices are about as broad as the ribs. Umbones prominent, much incurved. Lunule very deep, shortly cordiform. Central tooth in right valve very strong, triangular, striated at the sides. Left valve with a deep central triangular pit, which receives the tooth of the other valve, and a tooth on each side, whereof the anterior is small, rather acute and prominent, and the other elongate, thin, striated on the outer side. Anterior scar elongate, twice as long as broad, posterior much shorter. Margin of the valves dentate within. Interior bluish white near the margin, and feebly tinted with yellow or rose in the concavity. Width 19 millims., length 19, thickness  $14\frac{1}{2}$ .

*Hab.* Station 2; and Wolsey anchorage, 17 fathoms.

*C. spurca*, Sowerby, is the nearest ally of this species. It is, however, of a longer and squarer form; and the epidermis is different.

CARDITA (ACTINOBOLUS) COMPRESSUS, Reeve.

*Hab.* Station 5, and Boija Bay, 20 fms., on a stony and shelly bottom. Valparaiso (Reeve).

CARDITELLA, n. g.

Shell exteriorly like *Cardita*. Hinge composed of two cardinal teeth in the left valve and one in the other. Each valve also has two lateral teeth, one nearly marginal on the one side, the other on the

opposite side being well within the outer edge, with a groove between it and the margin for the reception of the submarginal tooth of the other valve. External ligament small, yet distinct. Internal cartilage *minute*, placed immediately beneath the apex of the valves. Pallial line simple.

To this genus belong *Cardita tegulata*, Reeve, and *C. semen*, Reeve, the former from Valparaiso, the latter from Bolivia.

*CARDITELLA PALLIDA*, sp. n. (Plate V. figs. 9-9 b.)

Shell triangularly ovate, equilateral, small, compressed, white, clothed with a very thin pale-olive epidermis, with 14 or 15 flattish radiating ribs about twice as broad as the sulci between them; also concentrically sulcated and striated. The fine sulci cut through the costæ, and, being rather close together, produce upon them, toward the ventral margin, transversely oblong granules. Higher up the ribs become narrower, and consequently the granules are not so large or so wide. Interior of valves dentate at the margin. Two lateral teeth in each valve, one marginal, the other within the margin. One cardinal tooth in right valve, and two in the left. Ligament small, external. Also a very minute internal cartilage, immediately below the apex of the umbo. Muscular scars subcircular. Pallial line indistinct, but apparently simple. Length  $4\frac{1}{2}$  millims., diam. 5, thickness  $2\frac{1}{2}$ .

*Hab.* Station 2.

*Cardita flabellum*, Reeve, is almost precisely like this species exteriorly; but the lateral teeth in the former are much more delicate, the internal ligament considerably larger, and the cardinal teeth are not quite the same as in the specimens above described, consisting of a single tooth bordering one side of the cartilage-pit and two diverging ones united above on the other. In addition to these differences, *C. flabellum* has no external ligament. For it I propose the generic name of *Carditopsis*. *C. tegulata*, Reeve, is more inequilateral, less triangular, and has only twelve radiating ribs.

*MYTILUS FISCHERIANUS*, Tapparone-Canefri, Viaggio della Magenta, p. 138, pl. iv. f. 1-1b.

*Hab.* Tom Bay, on a stranded mass of kelp.

Care must be taken not to confound this species with the large Chilian species *M. chorus*, Molina. It differs from it in form very considerably. The greatest width in *M. chorus* is from the dorsal angle to the opposite margin, which is remarkably straight. In the present species, on the other hand, the greatest breadth occurs considerably lower down, and the ventral border exhibits a regular though slight curve. The muscular scars, too, offer excellent differences. The anterior subumbonal is very indistinct and almost apical in *M. chorus*, and that on the opposite or ligamental side is rather remote from the umbo and of a broad ovate form; whilst in *M. fischerianus* the former is very distinct, deep, subtriangular, and more remote from the apex, and the latter is quite narrow and nearer the umbo. The large anterior scar of Molina's species is less

circular at the lower end than that of this species; and the extension of it upward is irregular, there being a part of it which extends at an angle within the valve.

These differences appear constant in the four specimens of *M. fischerianus* and the eleven of *M. chorus* which I have examined. The latter species is figured in Cunningham's 'Natural History of the Straits of Magellan,' on a plate opposite p. 155, under the name of *Mytilus chilensis*. This is not, however, the *M. chilensis*, Hupé. The largest specimen of *M. fischerianus* is 125 millims. long.

MYTILUS, sp., jun.

*Hab.* Station 7.

There are two apparently young shells which I cannot identify with any described species. They are remarkable on account of the great breadth, which is about the same as the length. The sculpture too is very curious; it consists of 15 to 20 very thread-like liræ which radiate from the apex to the outer margin. The texture is thin, semitransparent, bluish white; and the surface is clothed with a thin pale-olive epidermis.

MYTILUS MAGELLANICUS, Chemnitz.

*Hab.* Station 3.

PECTEN PATAGONICUS, King.

*Hab.* Stations 1, 2, 3, 6, and Puerto Bueno, 2-7 fathoms, rocky bottom.

#### BRACHIOPODA.

WALDHEIMIA DILATATA, Lamarck.

*Hab.* Stations 2, 3, 5, 7, and Cockle Cove, 2-32 fathoms, mud.

One of the specimens from Portland Bay is very fine, having a diameter of 50 millims.

WALDHEIMIA MAGELLANICA, Chemnitz.

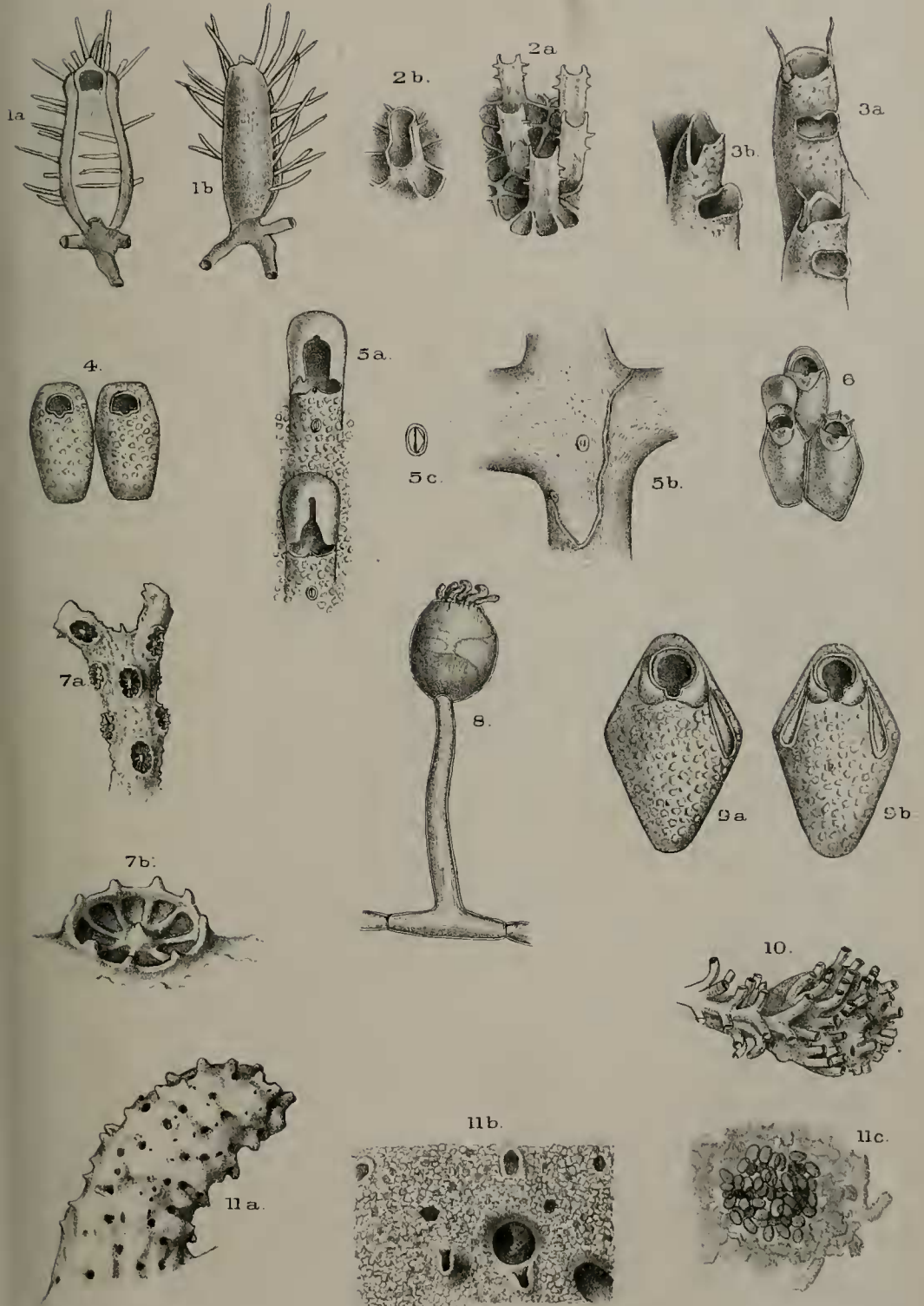
*Hab.* Stations 2, 5, and 7.

#### V. POLYZOA.

By STUART O. RIDLEY.

(Plate VI.)

For the systematic arrangement of the species here described, Mr. Hincks's most valuable recent work on the British Marine Polyzoa has been chiefly followed; the key to the generic relations of the species is therefore to be found there. I have hesitated to name many new species, preferring in some cases to designate as varieties forms which, were the known variability of recent forms and the number of readily identifiable and largely described fossil ones less than they are, would probably have been set down with little doubt as distinct species.





With regard to the fauna of the southern coasts of South America, we have already, in the British Museum Catalogue of 1852-75, had considerable insight into it, thanks chiefly to the collections brought home by Mr. Darwin; and a statement of its richness in its more equatorial parts has been placed on record by the late Dr. Willimoës-Suhm in a preliminary Report<sup>1</sup> on the observations made on the 'Challenger,' referring to dredgings made off the Brazils. This latter statement is fully borne out by the contents of the present valuable collection. A striking instance in point is that of a haul taken at Victoria Bank, off Brazil, of which the Polyzoan contents could be contained in a pill box, but which included seven species, among them several of the relatively bulky species of the genus *Cellepora*, and a representative of a new genus. A few shreds of a thin *Fucus* from Elizabeth Island in the Straits (6 fathoms depth) produced no less than 99 colonies or portions of colonies, representing nine species. In the new species assigned to *Chaunosia*, Busk, we have the interesting case of a fellow being found to a species from across the Atlantic at the opposite mainland, the Cape of Good Hope. Species known as fossils have appeared in the shape of *Cellepora tubigera*, Busk (already known from European seas), and the beautiful *Discoporella grignonensis*, Busk, not previously known in the recent state.

One species (a new one) belongs to the Endoprocta (*Pedicellina*), none to the Ctenostomata; six to the Cyclostomata (of which three are *Tubuliporæ*, one a *Discoporella*, one a *Diastopora*, one an *Idmonea*). Of the Chilostomata but one species of the *Articulata* (Busk, Cat. Mus. Brit.) occurs; the rest, numbering 25 species, belong exclusively to the generally more highly calcified group *Inarticulata* (Busk, *l. c.*). This is rather striking, considering the abundance in which the *Catenicellidæ* and kindred forms occur off Australia; but it serves to draw attention to the fact that the *facies* of the fauna is Atlantic rather than Australian or Novo-Zelandian.

#### CHILOSTOMATA.

CANDA? sp.

A few badly preserved fragments from Victoria Bank<sup>2</sup>, off S.E. Brazil, 39 fms.

CHAUNOSIA FRAGILIS, sp. n. (Plate VI. fig. 1.)

*Chaunosia*, Busk, Quart. Journ. Micr. Sci. (n. s.) vii. p. 241.

Zoarium horny, with the exception of the calcareous distal portion of the spines. Zoœcia erect, distinct, crowded, each standing at the junction of four uniting branches of the tubular stolon, which is their only point of attachment; somewhat convex behind and at the sides, straight in front, where they appear to lie open by a space of about three fourths of the breadth of the front of the cell; tapering

<sup>1</sup> Proc. Roy. Soc. xxiv. p. 572.

<sup>2</sup> Not marked in the usual maps; its position is lat. 20° 42' S., long. 37° 27' W.



slightly to upper end from short distance above base; a prominent horny ridge at upper end; beset at the sides with tubular, partly calcareous, brittle unbranched spines, which show a strong constriction of their internal cavity at the point of junction of the horny and calcareous substances, viz. at about one fifth of their length from the base: about fifteen spines are arranged down each side of the cell. Stolon creeping on foreign bodies. Tentacles between twenty and thirty in number. A gizzard present. No special oecium observed. Maximum length of zoecium, exclusive of spines, 1.25 millim., maximum exclusive breadth .5 millim.; maximum length of spines .7 millim.

*Examined.* From spirit, in glycerine and after treatment with acid.

*Hab.* Sandy Point, 7-10 fathoms.; on large flexible worm-tube with *Halecium*, *Sertularella*, &c.

*Obs.* This species appears to be distinguished from *C. hirtissima*, Busk, by the unbranched character of the spines, by the sessile form of the colony, replacing the Flustra-like branching of that species; the cell is also about one third larger than appears to be the size of *C. hirtissima* (although one of the figures given of that species differs in proportion, probably by an error, from the other two), which seems to be about .83 millim. long. The method of basal attachment is not given with sufficient plainness by Busk; but it appears probable that it resembles that of our species, and that the tubular processes proceed from the base alone, and not from the sides of the cell as in *Diachoris*. The back of the cell is bare of spines, thus differing again from *C. hirtissima*.

It is noticeable that both species are from the South Atlantic, *C. hirtissima* being from the Cape of Good Hope.

#### MEMBRANIPORA LACROIXI, Audouin.

*Flustra lacroixi*, Audouin, in Savigny's 'Egypte.'

*Membranipora lacroixi*, Busk, Cat. Mus. Brit. ii. p. 60, pls. lxi., cix. fig. 1.

The outline of the cells and the calcareous part of the surface corresponds well with pl. lxi. fig. 4 of Busk, Cat. Mar. Polyz. Brit. Mus.; but it has, besides, pear-shaped apertures surrounded by distinct rims, in the spaces between the cells; they vary in position; and there are from one to two at each side of the cell; other spaces, whose walls are simply formed by the edges of the cells, also occur irregularly. The spine on each side above the mouth is often present.

*Examined.* Dry.

*Hab.* Victoria Bank, S.E. Brazil, 33 fathoms, on *Cellepora*.

#### MEMBRANIPORA CURVIROSTRIS, Hincks.

*Membranipora curvirostris*, Hincks, Ann. & Mag. Nat. Hist. ser. 3, ix. p. 29, pl. vii. fig. 4; Hist. Brit. Mar. Polyz. p. 153, pl. xx. figs. 5 and 6.

A small colony on *Fucus* corresponds very well with the latter

description and figures, except that the two oral spines are not observed, that the lamina appears (perhaps delusively) to be often calcified at its margin, and that the oœcium has a rather thick front edge, which is mesially pointed.

*Hab.* Hotspur Bank (off Brazilian coast, long. 35° 46' W., lat. 17° 32' S.), 35 fathoms.

*CRIBRILLINA RADIATA*, Moll.

"*Eschara radiata*, Moll, Seerinde."

*Cribrillina radiata*, Hincks, Hist. Brit. Mar. Polyz. p. 181, pl. xxv. figs. 1-9.

Of the "form *radiata*" of Hincks, op. cit. p. 188, with glistening surface, and well represented by pl. xxv. fig. 3, op. cit., except that a single pore below the mouth is the rule, instead of the two small ones there represented.

*Hab.* Victoria Bank, off S.E. Brazil, 33 fathoms, on *Cellepora*.

GIGANTOPORA, g. n.

Growth encrusting. Zoœciasalient, ventricose, minutely roughened and punctured. Above true mouth, which is terminal, not horizontal, is an enlarged tubular prolongation of the peristome directed upwards and outwards, terminated by a secondary aperture; an avicularium or vibraculum at one or both sides of this. On front face of zoœcium proper a large roundish special pore at least half as broad transversely as the cell itself.

GIGANTOPORA LYNCOIDES, sp. n. (Plate VI. fig. 3.)

Zoœcia grouped round a centre, in contact with those in front of and behind them; ventricose, surface glistening, minutely roughened and punctate. Special pore at about middle of front of cell, transversely elongated, with projecting smooth lips, rounded at ends, equal in transverse diameter to at least half that of the cell itself. Peristomial neck ventricose, diminishing in diameter from middle towards the secondary orifice; roughened similarly to the cell; bent forward at an angle of about 30°, flattened from front to back; rim thick, prolonged before and behind into angular point; on edge of each lateral depression a pear-shaped opening, in which is inserted a horny vibraculoid seta, ending in a fine point, equal in length to about that of the peristomial neck, projecting straight upwards in same direction as the neck. Oœcium small, globose, recumbent at back of cell proper, punctate.

Full length of cell about 1.065 millim., extreme breadth (at lower end) about .532 millim.

*Examined.* In the dry state.

*Hab.* Victoria Bank (off S.E. Brazil), 33 fathoms. On a Nullipore incrusting a small univalve shell, and bearing many strong processes, between which the small zoarium of about 20 cells lies.

*Obs.* Under this genus must also be ranked *Hippothoa fenestrata*, Smitt ("Flor. Bryoz.," Sv. Akad. Handl. xi. No. 4, p. 47, pl. vi.

fig. 142), from Florida and perhaps also the Pacific. Prof. Smitt evidently merely placed the species under *Hippothoa* provisionally. It comes near to the present species, differing from it in the apparently orbicular outline of the secondary orifice, and in the position of the lateral avicularia (of which only one may be present) at the lower end of the peristomial prolongation, and in the smoothness of the peristome. It should therefore stand as *Gigantopora fenestrata*, Smitt. The present new species is a beautiful and striking form; the hyaline character of the shell, the curiously dumbbell-like outline of the large front pore (which is apparently its normal form, though it shows great variations from this, being almost orbicular in some cases) with its distinct rim; the bilabiate aperture of the secondary orifice, and the slender upwardly-projecting vibracula, all give it a remarkable appearance.

The question of affinity is a difficult one. The pore differs from that of *Anarthropora*; and *Smittia*, which has a similar peristomial lip, wants the special pore; while *Microporella*, on the other hand, has the pore, but wants the lip. Probably the pore is a character of much deeper importance than the lip, derived, as Smitt has shown it, by the example of *Porellina (Lepralia) ciliata*, to be, from the infra-oral sinus. Therefore perhaps it is best to refer it to the *Microporellidæ* rather than to the *Escharidæ*, with which, however, it would seem to have some points of affinity.

#### PORINA GALEATA, Busk.

*Lepralia galeata*, Busk, Cat. Polyz. Mus. Brit. ii. p. 66, pl. xciv. figs. 1, 2.

*Hab.* Elizabeth Island, Straits of Magellan, 6 fathoms, on thin sea-weed; Sandy Point, 7-10 fathoms, on *Pecten*-valve.

#### SCHIZOPORELLA MARSUPIUM, Macgillivray. (Plate VI. fig. 6.)

*Lepralia marsupium*, Macgillivray, Tr. Phil. Inst. Victoria, pt. i. vol. ix. p. 136.

Zoarium incrusting; cells adnate, radiating in more or less straight lines from a centre. Zoecia distinct, convex, separated by thin raised lines; broad, with sharp inferior lateral angles, rounded above, hyaline; surface glistening, very minutely punctate, and also bearing about 12 very shallow and indistinct pits of small size, scattered. Orifice semilunar, rounded above, with sharp inferior angles, lower lip straight, sinus shallow, rectangular; from 2 to 3 blunt spines round orifice. Below orifice a very distinctly circumscribed semilunar area, entirely occupied by a large and very prominent avicularian rostrum, convex immediately below mouth; opening large, circular, partially visible from above. Ovicell small, subglobular, minutely punctate, hyaline and glistening, marked by concentric lines.

One specimen.

*Hab.* Elizabeth Island, 6 fathoms, on thin seaweed.

*Obs.* This species agrees with *L. marsupium*, Macgillivray, as described from Victoria *in loc. cit.*, in every particular of the short description; but that description is so short as to need the present fuller account. It resembles *Schizoporella (Lepralia) venusta*, Norman, in many points, but wants the rectangular area above the mouth, with its avicularium.

SCHIZOPORELLA HYALINA, Linné.

*Cellepora hyalina*, Linné, Syst. Nat. (12) p. 1286.

*Schizoporella hyalina*, Hincks, Hist. Brit. Mar. Polyz. p. 271, pl. xviii. fig. 8-10.

(i.) Ordinary form. Nine small colonies, from Elizabeth Island (Straits of Magellan), 6 fathoms, on *Fucus*. One ditto from Portland Bay (S.W. Chili), 10 fathoms, on *Fucus*.

(ii.) Var. *tuberculata*, Hincks (Hist. Brit. Mar. Polyz. p. 272) Four small colonies on *Fucus*, and one of doubtful origin; all from Elizabeth Island, 6 fathoms.

(iii.) Var. *incrassata*, Hincks (*l. c. supra*). Three colonies from Elizabeth Island, 6 fathoms, on *Fucus*.

SCHIZOPORELLA SPINIFERA, Johnston?

*Lepralia spinifera*, Johnston, Brit. Zooph. (2) p. 324, pl. lvii. fig. 6.

*Schizoporella spinifera*, Hincks, Hist. Brit. Mar. Polyz. p. 241, pl. xxxv. figs. 6-8.

To this species is referred with much doubt a patch of a small-celled incrusting form, with very convex cells; the articulations of 4 or 5 spines, now gone, are seen on the sometimes somewhat raised peristome. Surface covered with indistinct puncta; sinus large and rounded, the margin at its upper angles drawn up into two vertical points. A large median avicularium on a slight elevation just below the mouth, the mandible pointing downwards. No ovicells.

*Hab.* Tom Bay, S.W. Chili, 0-30 fathoms, on dead *Retepora*.

SCHIZOPORELLA? sp.

A glossy, obscurely punctured species without avicularia, with a shallow small sinus, and a short pointed rostrum on the lower edge of the mouth, and 7 to 8 slender spines on the raised peristome; zoœcia convex; no oœcia. Incrusting.

*Hab.* Same as preceding.

SCHIZOPORELLA LABIOSA, Busk.

*Lepralia labiosa*, Busk, Cat. Polyz. Brit. Mus. p. 82, pl. lxxxiv. figs. 4, 5.

This species should be described as having the surface of the cell either tuberculated regularly around a median ridge, or indented by large, mostly elongated grooves which radiate from a median ridge or bare surface which extends about halfway down the cell from below

the lip. The lip undergoes great variations even in the same colony. In young colonies, and in some parts of old ones, the thickened ridge investing its edge is almost wanting. Again, it may appear from the front either as a straight line, as a two-horned ridge, or as a ridge produced mesially into a single point.

The depth of the grooves of the surface also varies greatly, so that the surface appears either (i.) as beset with round, more or less elongated tubercles arranged round the median ridge, or (ii.) as grooved, the substance between the depressions not being thus divided into tubercles; in some specimens, too, the tuberculation itself is almost obliterated, apparently by thickening layers added from the exterior. As the grooved and tuberculated cells sometimes occur in the same colonies, it is probable that the latter (the only ones originally figured and described), being, as they are, particularly thick-walled specimens, are produced from the former by the thickening of the cell-wall and consequent greater or less obliteration of the spaces (the last stage in this process being the obliteration of the tubercles themselves), owing perhaps to age. (Cf. Hincks on the development of the zoecium, *Hist. Brit. Mar. Polyzoa*, p. 184, where he explains the origin and changes of the primary ridges and furrows.)

*Hab.* Elizabeth Island, 6 fathoms, incrusting a mass of *Balani* and enveloping stem of *Sertularia*. Sandy Point, 7-10 fathoms, from large flexible worm-tube and *Balanus* on the same.

#### RHYNCHOPORA BISPINOSA, Johnston.

*Lepralia bispinosa*, Johnston, *Brit. Zooph.* (2) p. 326, pl. lvii. fig. 10.

*Rhynchopora bispinosa*, Hincks, *Hist. Brit. Mar. Polyz.* p. 385, p. xl. fig. 1.

*Eschara unicornis*, Hutton?, *Cat. Mar. Moll. N. Zealand*, p. 99.

To this species are referred with some doubt two colonies of Escharoid form, consisting of narrow, strap-shaped branching growths, the branches not anastomosing. The denticle within the mouth is very small and sometimes absent; the suboral umbo is often somewhat eccentric, but usually high and truncate; there is sometimes a mound-like swelling bearing an avicularium on the opposite side of the mouth to the umbo; the two supraoral spines are short and often stout; the surface is rough and regularly covered with large punctures and small avicularia (?); the cells are strongly convex and cover both sides of the fronds.

*Hab.* Victoria Bank, off S.E. Brazil, 33 fathoms.

#### LEPRALIA.

*Lepralia* s. str. (as limited by Smitt and Hincks).

LEPRALIA MONOCEROS, Busk, *Cat. Polyz. Brit. Mus.* p. 72, pl. xciii. figs. 5, 6.

The punctures of the surface generally present a small tubercle

projecting into them from the side, giving them more or less of a crescentic appearance. One specimen, which was taken from the base of a Sponge and grew partially over an *Idmonca*, was bent over on itself, so that the two halves appeared inclined to unite back to back and form an Escharoid frond; but there was a space between them, which was perhaps originally partially filled with the substance of the Sponge.

*Hab.* Elizabeth Island, 6 fathoms; Sandy Point, 7-10 fathoms; on flexible worm-tube and *Balanus* sessile on the same. Also Tom Bay, near Madre de Dios archipelago, 0-30 fathoms, on base of Sponge.

*Obs.* The different specimens vary much in the distinctness of the cells and the number and regularity of the punctures.

LEPRALIA APPRESSA, Busk, var. nov. VINOSA. (Plate VI. fig. 4.)

*Lepralia pertusa*, Manzoni? Sitzungsber. Ak. Wien, lix. (2) p. 520, pl. ii. fig. 11 (Pliocene).

*Lepralia adpressa*, Busk, Cat. Polyz. Brit. Mus. p. 82, pl. cii. figs. 3, 4, pl. ii. fig. 11.

Zoëcia distinct, moderately to broadly ovate, or obscurely pentagonal, slightly convex, closely adnate to surface as a compact zoarium. Mouth defined by a slightly salient narrow rim, well arched above, constricted towards lower angles by two rounded processes projecting into the aperture; lower lip entire, somewhat irregular in outline, slightly projecting outwards. Surface of zoëcium covered with obscure tubercles, arranged in a series round edge of cell and over the surface, sometimes in transverse series across the cell; surface granular. Colour of zoëcia, with the exception of the rim of the mouth (which is white or brownish) and the apices of the tubercles (which appear white), puce (or crimson-purple); colour faint on oldest parts of zoarium. Oëcium small, slightly convex, minutely roughened, not tuberculated, subcircular, brownish.

*Hab.* Portland Bay, S.W. Chili, 10 fathoms, on shell of *Crepipatella*.

*Obs.* This species resembles *L. lata*, Busk., and *L. adpressa*, Busk (lately united by Hincks, in Hist. Brit. Mar. Polyzoa, under the latter name), so closely in all essential characters except the colour, that I have hesitated to give it a new appellation. However, as compared with the type specimen of *L. adpressa* and the figures of *L. lata*, the aperture of the mouth is seen to be much less clearly defined, the lower lip being very indistinct, and the mouth is considerably smaller. These characters may be due to thickening of the wall to some extent; but still the colour remains. But as *Lepralia* (*Microporella*, Hincks) *violacea*, Johnst., may vary from dark purple to cream-colour, and *Lepralia* (*Mucronella*, Hincks) *coccinea*, Abild., with age from grey to red, it appears not safe to depend on this alone as a specific character. It is noteworthy that it adheres to the practice of its allies, of growing on a shell.

## SMITTIA LANDSBOROVI, Johnston.

*Lepralia landsborovii*, Johnston, Brit. Zooph. (2) i. p. 310, pl. liv. fig. 9.

*Smittia landsborovi*, Hincks, Hist. Brit. Mar. Polyz. p. 341, pl. xlvi. figs. 6-9.

A small colony, or part of one, discovered among an immense number of *Tubuliporæ*. Sessile. Cells thin, hyaline, punctured all over, oval or narrow-pentagonal; bounding lines faint or absent. Six strong spines on margin. Avicularium small, on lip of mouth, sometimes absent.

*Hab.* Elizabeth Island, 6 fathoms, on *Fucus*.

*Lepralia reticulata*, Macgillivray, Ann. & Mag. Nat. Hist. (1) ix. p. 467.

## SMITTIA RETICULATA, Macgillivray?, var.

*Smittia reticulata*, Hincks, Hist. Brit. Mar. Polyz. p. 346, pl. xlvi. figs. 1-5.

Part a of colony. Margin of mouth generally complete below, subjacent denticle seldom seen. Cells outlined by distinct raised line. Oval median avicularium included in an area bounded by a line descending from the sides of the month, longitudinal in direction, sometimes absent. Cell equally punctured all over. Spines on border of mouth 4 or 5, the median ones less robust than the lateral ones. Lower lip prominent. Oœcium absent.

*Hab.* Elizabeth Island, 6 fathoms, on *Fucus*.

*Obs.* In the punctuation of the entire surface and in the larger number of spines this appears to differ materially from *S. reticulata*, but it is at any rate closely allied to it.

## SMITTIA AFFINIS, Hincks, var. nov. ACUMINATA.

*Lepralia affinis*, Hincks, Ann. & Mag. N. H. (3) ix. p. 206, pl. xii. fig. 2.

*Smittia affinis*, Hincks, Hist. Brit. Mar. Polyzoa, p. 348, pl. xlix. figs. 10, 11.

Zoœcia ovate or distinctly pentagonal (the upper angles rounded), separated by slender raised lines; surface covered with moderately large punctures radiating obscurely from centre; peristome thin and depressed below, thick above, where 4 to 5 strong spines spring from it; below and within inferior edge of peristome 3 denticles, the median one generally hammer-shaped, the others simply acute. A circular avicularium may be present immediately below the lower lip, on a slightly raised boss. Oœcia globose, somewhat more broad than long, with a semicircular crown of large punctures on the upper surface; the peristome is prolonged into a pointed lip on each side of the front of the cell (similar ones sometimes occur in the same position in the zoœcium), and is often indented by a sinus which occurs in its lip. One of the zoaria forms a circular patch; the other is imperfect. The specimens agree in all other points with Hincks's description (*l. c.*).

*Hab.* Elizabeth Island, 6 fathoms, on *Fucus*, in company with *Schizoporella hyalina*. Two colonies.

*Obs.* Were it not for the fact that only one specimen of the original species has occurred on which to base its characters, it would have seemed advisable to make a new species of this, in consideration of its being spined.

SMITTIA TRISPINOSA, Johnston, var. nov. LIGULATA. (Plate VI. fig. 9.)

*Discopora trispinosa*, Johnston, Edin. Phil. Journ. xiii. p. 222.

*Lepralia trispinosa*, Busk, Cat. Brit. Mus. Polyzoa, ii. p. 70,

*Smittia trispinosa*, Hincks, Hist. Brit. Mar. Polyzoa, p. 353, pl. xlix. figs. 1-8.

A yellowish patch embracing the base of a colony of a branching *Cellepora*. The cells are markedly diamond-shaped; the surface is much perforated, a marginal series of larger perforations being distinguishable from the rest; a raised line is irregularly present around the cells. The lower side of the mouth is much raised, each of the inferior angles being occupied by a smooth swelling, often of different sizes on the two sides; sinus small. A very peculiar, long, narrow, strap-shaped avicularium extends from close to one or both sides of the mouth downwards to a distance of about half the total length of the cell; the mandible points downwards; a few elongated or oval small avicularia sometimes present on the sides or behind the mouth. Surface hyaline. Ovicell globular, but flattened, upper edge bearing a semicircle of large punctures. Spines absent or broken off.

*Hab.* Victoria Bank, off S.E. Brazil, 33 fathoms, on *Cellepora*.

*Obs.* The long avicularium described evidently represents the large triangular form described by Hincks (*l. c.*) as sometimes present; for it is sometimes replaced by such a one of almost the normal characters. A similarly placed but generally broader form occurs in a specimen described as *Lepralia reticulata*, var. *inæqualis*, by Mr. A. W. Waters, from Naples.

RETEPORA CELLULOSA, Oken?

*Fron dipora cellulosa*, Oken? "Lehrbuch Nat. 63."

*Retepora cellulosa*, Lamarck, Hist. Anim. s. Vert. ed. 2, ii. p. 276.

A small and worn fragment without oecia perhaps represents this species; but spines and long rostrum are alike absent. Most cells, however, could not have had a long rostrum, but are in the condition represented by plate cxxiii. fig. 7 of the Brit.-Mus. Catalogue of Polyzoa, vol. ii., with the addition of avicularia.

*Hab.* Borja Bay (north-western part of Straits of Magellan), 20 fathoms.

RETEPORA ALTISULCATA, sp. n. (Plate VI. fig. 5.)

Fron flattish, slightly undulated; fenestræ elongate-oval, generally about equal in diameter to the reticulations, which are almost cylindrical. Zoecia crowded, oblong. Surface marked with



shallow pits. Mouth entire, transversely elongated, subhorizontal, the lower lip being salient but not toothed. A round avicularium below or on the edge of mouth, on a small rostrum.

Oœcium elongate, with a deep broad sinus penetrating into it from the mouth. Dorsal surface minutely roughened, but shining; the outlines of the cells marked by shallow grooves; a small rounded avicularium on most cells.

*Hab.* Tom Bay, S.W. Chili, 0-30 fathoms.

Six broken fragments, probably all belonging to one colony, represent the species. It is distinguished from *R. beaniana*, King (Hincks), by the sinus (not a slit) of the ovicell, and by the inconstancy of the position of the suboral rostrum, which is most usually separated by a considerable gap from the mouth.

CELLEPORA TUBIGERA, Busk.

*Cellepora tubigera*, Busk, Crag Polyzoa (Mon. Palæont. Soc.), p. 60, pl. ix. figs. 8, 10.

The sinus of the month is sometimes small and on a level with the mouth (as in *Lepralia trispinosa*, Johnston, &c.); otherwise it forms a great vertical gap in the peristome. The rostrum is sometimes pointed and bearing an avicularium on its inner aspect (as in *C. pumicosa*), sometimes broad at the apex; it is sometimes placed laterally with regard to the cell, and sometimes at some distance from it. The cells are rough or smooth, much or little punctured. The ovicells are globose, smooth, with a few slight ridges running usually across their breadth, or with a crown of punctures on the upper surface from which radiate slight ridges. There are large long avicularia between the cells, generally on special raised but flattened bosses. Two young and nine adult colonies occur in this collection, embracing Sertularian and Tubularian stems, exactly after the manner of *C. pumicosa*.

*Hab.* Trinidad Channel (off Madre-de-Dios Islands), S.W. Chili. One group, consisting of one young and two adult colonies, from 30 fathoms; for the rest the depth is not known. All on Sertularian stems, with one doubtful exception.

CELLEPORA BILABIATA, Busk.

*Cellepora bilabiata*, Busk, Voy. of Rattlesnake, p. 382.

Two colonies, one forming almost a perfect hemisphere, the other flattened, uneven. Both lips of the elevated peristome sometimes bear avicularia. From the "scutiform area" (which is really formed, as shown by varieties, from a sinus which once extended into it from the mouth) of the small ovicell no grooves appear to extend in this case. The species is nearly related to *C. tubigera*, Busk.

*Hab.* Elizabeth Island, 6 fathoms.

CELLEPORA MAMMILLATA, Busk.

*Cellepora mammillata*, Busk, Cat. Mar. Polyz. Brit. Mus. p. 87, pl. xx. figs. 3-5.

The specimen, which, owing to its growth over a pedicelled knob

of calcareous substance, is button-like in shape, agrees in its mammillation with the type specimen, but, instead of being white or grey, is dark brown, almost of the colour of *C. fusca*, Busk. It differs from the type in not showing the hood-like enlargements of the rostrum (possibly oecia) which occur at intervals in that specimen; the rostra taper elegantly to a point, instead of being blunt; the spines, described as at the opposite side of the mouth, and which appear to be "spathulate" avicularian rostra, are present in much greater numbers here, and generally at the *sides* of the mouth—not at the opposite end to the rostrum. The surface of the cell is perforated by immense numbers of small punctures with regularity; this is also the case in the type specimen, though not described or figured *in loc. cit.* As the original specimen has somewhat the appearance of having been partially bleached, its original colour very likely approximated to that of the specimen now described.

*Hab.* Victoria Bank, off S.E. Brazil, 33 fathoms.

#### CELLEPORA TURRITA, Smitt.

*Lepralia turrita*, Smitt, Floridan Bryozoa, in K. Svensk. Akad. Handl. (n. s.) xi. p. 65, pl. xi. figs. 226–228.

A single specimen, consisting of a stout cylindrical branch with incipient smaller branches, 17 millims. long by 5 in greatest breadth, stout, tapering to a blunt point. The number of distinct marginal tuberosities varies from two to four; and they are unequal in size, one being generally of especial stoutness; and one, a mere inequality, bears a horizontal avicularium of some size; the large strong spathulate avicularia are numerous in the somewhat large spines between the zoecia, and occasional small sessile ones occur in the walls of the cells; the ovicells, which are numerous, bear small scattered punctures.

This form differs somewhat from Smitt's specimens, chiefly in the ramose instead of sessile habit; the cells appear to be less crowded, and the number of spines less constant, while the marginal avicularium forms a constant character.

*Hab.* Victoria Bank, off S.E. Brazil, 33 fathoms; broken from larger colony.

#### CELLEPORA DICHOTOMA, Hincks.

*Cellepora dichotoma*, Hincks, Ann. N. H. ser. 3, ix. p. 305, pl. xii. figs. 7, 8.

Two specimens, respectively about  $\frac{1}{2}$  and  $\frac{3}{4}$  inch high. The smaller is the more slender, and shows approximately dichotomous branching; the other is less regular. In the smaller one the margin of the mouth is well defined, though sometimes produced into a few points besides the low rostrum; the avicularia are circular and slightly elevated. In the larger specimen the projections round the mouth are longer, and the avicularia are sometimes spatulate.

*Hab.* Victoria Bank, S.E. Brazil, 33 fathoms.

## CYCLOSTOMATA.

## IDMONEA MILNEANA, d'Orbigny.

*Idmonea milneana*, d'Orbigny, Voy. Amér. mérid. p. 20, pl. ix. figs. 17-21; Busk, Cat. Mar. Polyz. Brit. Mus. pt. iii. p. 12, pl. xi.

*Tubulipora transversa*, Lamarck?, Anim. s. Vert. (1) ii. p. 162.

*Idmonea transversa*, M.-Edwards?, Ann. Sci. Nat. (2) ix. p. 218, pl. ix. fig. 3.

This is certainly the species described and figured by Busk. His description requires emendation by the substitution of "thin" for "thick" as a character of the margin of the cells, and by the insertion of "a long backwardly directed spine on the back of the main and sometimes of the smaller branches." One such spine, and perhaps the trace of another, broken off, occurs on the specimens already in the Museum. In the two relatively smaller specimens in *this* collection they are more abundant; in one case the two primary divisions of the stem each bears one; and of their branches, one of the one and *both* of the other bear them. They are strong; and the maximum length appears to be about 3 millims. As pointed out by Haswell (Proc. Linn. Soc. N. S. Wales, iv. p. 351) in a specimen assigned by him with doubt to this species, the "dots" of Busk's description are certainly *raised*. But the truth lies between the two; for they are also perforated in their centre in the original British-Museum specimen and the Magellan one. The alternating character of the lateral series of cells, which is very slightly marked in the Patagonian specimens alluded to (from which the account in the British-Museum Catalogue was in part written), and which is almost lost sight of in d'Orbigny's account, is here strongly marked. The longitudinal striation and the concentric lines on the back are also well marked here.

*Hab.* Tom Bay, near Madre-de-Dios Islands, S.W. Chili, 0-30 fathoms, embedded in base of a horny Sponge, partially overgrown by *Lepralia monoceros* and a creeping calcareous Sponge.

*Obs.* This may possibly prove, as Busk says, to be *I. transversa*, Milne-Edwards; but the habit of growth as figured by M.-Edwards, and the locality (Mediterranean) as given by Lamarck, are against the idea.

Smitt, in his 'Floridan Bryozoa,' remarks on this species that the typical number of cells in the transverse rows is *three*, varying to two or even one in the lower parts. In the present specimens the number never falls below three, and is as often four as three, if not oftener. He has also observed "radiciform pillars" at the back of the branches of one of his specimens; but there their ends were expanded into clasping processes and attached it to a foreign body, whereas in the Chilean specimen they end simply.

## DIASTOPORA PATINA, Lamarck.

*Tubulipora patina*, Lamarck, Anim. s. Vert. (2) ii. p. 244.

*Diastopora patina*, Smitt. Œfv. K. Vetens. Ak. Förh. 1866, p. 397, pl. viii. figs. 13-15.

The erect portion of the cell appears to be obscurely annulated, a very slight annular depression connecting the serially arranged puncta. A somewhat injured dry specimen on indurated clay.

*Hab.* Lat.  $50^{\circ} 35' S.$ , long.  $66^{\circ} 31' W.$  (open sea off S.E. Patagonia), 58 fathoms.

LICHENOPORA GRIGNONENSIS, Busk. (Plate VI. fig. 2.)

*Tubulipora grignonensis*, Milne-Edwards?, Mém. Tubulipores, Ann. Sci. Nat. (2) viii. p. 333, pl. xiii. fig. 2.

*Discoporella grignonensis*, Busk, Crag Polyzoa, p. 116, pl. xx. fig. 4.

*Lichenopora*, DeFrance; Hincks, Hist. Brit. Mar. Polyz. p. 471.

Zoarium simple, closely adnate. Lamina very narrow, thin, almost entirely occupied by ridges indicating rudimentary zoecia. Zoarium strongly convex from the centre to the lamina, circular in outline. Zoecia partially arranged in radiating series (the series generally interrupted by the occurrence of intermediate cells) around a small central space; orifices raised, considerably so near the centre; the entire front of the peristome wanting, posterior part horseshoe-shaped, margin obscurely roughened; sides faintly ridged longitudinally, and bearing from three to about ten scattered delicate pointed spines not exceeding half the diameter of the cell in length. Interspaces between zoecia and the central area crossed by a network of trabeculæ, enclosing polygonal spaces with rounded angles; those between the zoecia vary in diameter from one half the breadth to the same breadth, that of the orifices of the zoecia, those in the centre varying from that diameter to twice its size, and partially tympanized by a calcareous septum with a central perforation; also from the points of junction of the trabeculæ which form them projects occasionally a slender spine like those on the walls of the zoecia. Oœcial orifice slightly raised, being surrounded by a thin, narrow, forwardly sloping rim perforated by a single circle of about six small punctures; diameter of opening about twice that of a zoecium; margin finely dentate.

*Hab.* Sandy Point, 9-10 fathoms, on piece of a Selachian's egg.

Four colonies occur, representing three different stages, the latest with fifty-three or more well-developed zoœcial openings, the earliest with only about a dozen openings, scarcely raised above the general surface, the lamina being about twice as broad as in the oldest specimen. In this young specimen, too, the cancelli have hardly appeared, the surface between the cells bearing only an occasional puncture. The development of the spines can be traced from a stage in which they are mere short blunt tubercles to that in which they have the adult proportions. It is also interesting to note that in the same stage (the middle one of the three here represented), in which the zoecia are 2 millims. in greatest diameter, the longitudinal ridges, so indistinct in the oldest specimen, project boldly from the zoœcial wall and sometimes form prominent crenations on the margin. The three young colonies have a somewhat oval outline; the older

one is almost perfectly circular ; it is  $2\frac{1}{2}$  millims. in diameter, the youngest is 1 millim. in greatest diameter.

*Obs.* The nearest recent ally of this species appears to be *Discoporella complicata*, Haswell (Proc. Linn. Soc. N. S. W. iv. p. 354), from Port Jackson, New South Wales. It has the spines on the wall of the cell and the trabeculæ with *their* spines ; but the spines are apparently found also between the cells. Its main points of difference from this species are the roundness of the cell-orifice, which has the peristome entire, and the presence of secondary cancelli between the cancelli of the sides, of which no trace occurs here, though, as has been described for this species, the central cancelli are partially tympanized and have a secondary opening below.

In spite of the absence in the somewhat too small drawing given by Milne-Edwards (*l. c.*) of the immense sinus which extends down the front of the cell in the recent specimens, it is possible that his species is identical with the present one, as with the power employed by him it would not necessarily catch the eye. The median cycles of tubes are depicted there as longer than in the recent specimens ; but that is probably due to its being an older specimen. The peculiar trabeculated structure of the surface is slightly indicated in his figure, and the continuation of the rudimentary tubes onto the lamina is distinctly insisted upon. Busk's figures give a much better idea of this species ; but here again the trabeculæ between the cells are much broader than in the recent specimen. The marginal spines of the young cell probably represent the longer peristomial spines of adult specimens of *L. hispida*, Fleming.

#### TUBULIPORA SERPENS, Linné.

*Tubipora serpens*, Linné, Syst. Nat. (12) p. 1271.

*Alecto disposita*, Hutton?, Cat. Mar. Mollusca N. Z. p. 103.

*Tubulipora serpens*, Busk, Cat. Polyz. Brit. Mus. iii. p. 25, pl. xxii.

*Idmonea serpens*, Hincks, Hist. Brit. Mar. Polyz. p. 453, pl. lxi. figs. 2, 3, pl. lx. fig. 2.

Sometimes with a small bare lamina outside the zoœcia. No purple colour observed. Colour dead white, owing to the very numerous minute punctures.

*Hab.* Elizabeth Island, Straits of Magellan, 6 fathoms ; twenty-five colonies or parts of colonies on a thin Fucus.

#### TUBULIPORA ORGANIZANS, d'Orbigny ?

*Tubulipora organizans* d'Orbigny, Voy. Amér. mérid. Zooph. p. 19, pl. ix. figs. 1-3.

*Tubulipora organizans*, Busk?, Phil. Trans. clxviii. p. 193, pl. x. figs. 20-25.

This species appears to be represented by eighteen colonies or parts of colonies ; they consist of broad elongated masses, either simple or with branches of the same character given off laterally or grouped round a common centre. The largest colony measures 8 millims. at its greatest length. The lobes consist each of a broad flattened mar-

ginal portion and a suddenly rising median convex ridge, which only occupies about one third of the total breadth of the lobe. A clear space of about the breadth of a single cell is left down the middle of the lobes; and on each side of it are ranged the regular, outwardly and forwardly diverging transverse lines of cells. These lines are slightly but constantly subalternate, the line on the one side being slightly in advance of or behind the corresponding one on the other. The transverse lines on each side have from three to five cells on the ridge and one or two on the horizontal lamina. The cells project by a long perpendicular portion; they are subopaque and white, the surface faintly marked with rings of growth; the punctures are small and numerous and not prominent. The cells on the ridge are variously united together, either three or two together, but occasionally quite distinct; those on the lamina are distinct from those of the ridge, and from each other. In the case of the united cells the uniting substance connects them generally from their mouths downwards. The transverse series of cells are *uniserial*, and present no such trifoliate outline as is given by d'Orbigny's figures 2 and 3, from which the present species also diverges by having a distinct median line devoid of cells, as described above. A short trumpet-shaped opening, observed near the end of a lobe, and somewhat flattened, its long diameter being about twice that of an ordinary cell, appears to represent the oöcial opening. The ends of the lobes are not expanded as in *T. flabellaris* (Busk).

This species does not correspond closely with d'Orbigny's figures; but the chief difference is the linear, not trifoliate arrangement of the triple groups of cells.

*Hab.* Elizabeth Island, 6 fathoms, on *Fucus*, with *Tubulipora serpens*, *Schizoporella hyalina*, and one or two other species of *Tubulipora*, &c.

**TUBULIPORA DICHOTOMA**, d'Orbigny. var. nov. SERIALIS. (Plate VI. fig. 10.)

*Criserpia dichotoma*, d'Orbigny, pars, Voy. Amér. mérid., Zooph. p. 19, pl. ix. figs. 7-10.

*Tubulipora dichotoma*, Busk, Cat. Polyz. Brit. Mus. iii. p. 27.

*Tubulipora organizans*, Busk, Phil. Trans. clxviii. p. 193, pl. x. figs. 20-25 (pars?).

Colony convex, elongated, dichotomously branched or incipiently symmetrically bifid; lobes rising from base with hardly any lateral lamina; cells extending across top of ridge, arranged in more or less distinct transverse rows, cells distinct (rarely two may be seen joined) from one another. Surface of colony subopaque, white, thickly covered with minute punctures surrounded by salient rims, the cells less thickly covered by similar punctures. Cells moderately thin, curving suddenly upward so as to stand almost perpendicular, free for a distance of from 3 to 5 diameters; opaque white, of moderate diameter, faintly marked by concentric rings. Ends of lobes more or less expanded and often swollen; at this part the tubes lose most of their regular radiate arrangement,

*Hab.* Elizabeth Island, Straits of Magellan, 6 fathoms, on *Fucus*. Three colonies or parts of colonies.

*Obs.* In some specimens the regularity of the arrangement of the cells in transverse rows and the length of the free portion of the cells is greater than in others. The most characteristic points appear to be the moderate expansion of the head of the lobes, the continuation of the transverse series of cells over the top of the ridge and consequent absence of a median bare line, and the distinctness of the cells in the rows. D'Orbigny's figures represent the form with the shorter cells and less regular transverse series of cells; the alternative form here described may be called var. *serialis* in contrast. A specimen assigned with doubt to this species consists of a broad expanded lobe, and bears a flattened trumpet-shaped oöcial orifice having exactly the characters of *T. organizans*, that described above in *T. organizans*, d'Orbigny.

#### ENDOPROCTA.

##### PEDICELLINA AUSTRALIS, sp. n. (Plate VI. fig. 8.)

Individuals arranged with great regularity along the creeping stolon, 1·8 millim. apart from each other. Length of pedicel and body together about 2·5 millims., body 1 millim. Tentacles about 12 in number, subequal, length about half that of body, slender. Pedicel, diameter (in glycerine, under cover-glass) just above base ·35 millim., tapering to about ·25 when within 3 diameters of the body, ultimately constricted to ·1 millim. at junction with body. Body subtransparent. Colour whitish, with the exception of the stomach, which is yellowish. Shape of body subglobular when closed, superior margin straight and crenated by about 60 small inequalities.

Stolon regular in its diameter, viz. ·17 millim. A transverse septum, of which, as in the case of that of the pedicel just below the body, the cuticle forms a part, occurs at each side of the point of origin of an individual, generally at about ·5 millim. from this.

*Examined.* In spirit and in glycerine.

*Hab.* Sandy Point, in company with a *Halecium*, creeping over large flexible worm-tube, 7–10 fathoms.

*Obs.* About a square inch or 1½ inch of the tube is covered by the creeping stolon; the specimens are very well preserved in spirit; but, unfortunately, the individuals are all more or less closed. In the cases in which the tentacles were extended, the disk was not expanded; so that the origin of the tentacles from it was not clearly seen. It is perhaps most closely allied to *P. americana*, Leidy, but approaches most nearly to *P. belgica*, Van Beneden, of any of the European species, as far as the account of that species goes.

It differs from the latter species in the proportional length of the tentacles to the body, which is only about 1 : 2, as against the almost 1 : 1 of that species; in the proportional shortness of the pedicel to the body, which is 1·5 millim. to 1 millim. against 2·85 millims. to ·55 millim., which is the case in *P. belgica*. The individuals are 1·8 millim. from each other, arranged along the tubular stolon, and not

crowded into a "moss"-like tuft as in *P. belgica*. The absolute total length is nearly one third less than that of *P. belgica*; the stolon is of regular diameter. There is no median dilatation of the pedicel. The description of *P. americana*, Leidy (J. Ac. Philad. iii. p. 142) recalls in some particulars the present form, viz. its smooth undilated pedicels, the body with crenated border concentrically striated, and the 12 tentacles; but it is only  $\frac{1}{3}$  of a line high, *i. e.* about .7 millim., whereas this is 1.5 millim. without the head; the relative positions of the intestine and stomach in the figure differ from those of our species.

The species described by Studer from Kerguelen Island (Archiv f. Naturg. 1878, p. 124) as "*Pedicellina* an nov. sp? Die Wander der 2 mm. hohen gestielten Becher sind vollkommen glatt" is very likely identical with *P. australis*. A species is also mentioned without name by Joliet (Compt. Rend. 1879, Febr., p. 392), from the island of St. Paul, north-east of Kerguelen Island.

## CRUSTACEA.

By EDWARD J. MIERS, F.L.S., F.Z.S.

(Plate VII.)

The Crustacean fauna of the Straits of Magellan and of the adjacent coasts and islands has been more thoroughly investigated than that of many other parts of the South-American continent, as, not to mention various species described by Guérin-Méneville, Milne-Edwards, White, and other authors, considerable collections were made in these regions by the naturalists of the United-States Exploring Expedition under Commodore Wilkes, U.S.N., and described by Dana in his great work<sup>1</sup>. More recently Dr. Cunningham has published an account of the collections made by him during the voyage of H.M.S. 'Nassau,' wherein will be found a list, accompanied by notes, of the Crustacea and Cirripedia, most of which were collected on the southern, south-eastern, and south-western American coasts<sup>2</sup>.

The collection received from Dr. Coppinger contains, as was to be anticipated, many species well known to science, but also several which are apparently undescribed, and others of which the range has not hitherto been ascertained to extend in a southerly direction as far as the Magellan Straits; moreover the localities, depth of water, and the nature of the sea-bottom have in nearly all cases been carefully noted.

The Crustacea of the Magellan Straits are essentially Antarctic in character: many of the species are known to occur at New Zealand, the Aucktand and Kerguelen Islands, and, no doubt, range throughout the whole extent of the Southern Ocean; others, however, occur on the Chilian coast or even further north. Although the Crustacea

<sup>1</sup> U.S. Exploring Expedition, xiii., xiv., Crustacea, parts 1, 2 (1852, 1853).

<sup>2</sup> Trans. Linn. Soc. xxvii. p. 465 (1871).



of Antarctic South America bear a great resemblance to those of the Arctic Seas, and are in many cases congeneric with them, with a few somewhat doubtful exceptions the same species do not occur in the Northern and Southern seas<sup>1</sup>.

<sup>1</sup> See, however, Lilljeborg, *Nova Acta Soc. Upsaliensis*, ser. 3, vi. (1866), "On the *Lysianassa magellanica*, M.-Edwards, &c." I may add that Mr. T. W. Kirk, *Transactions New-Zealand Institute*, xi. pp. 302-401 (1878), has recently identified several Decapoda and Edriophthalmia occurring in the New-Zealand seas with well-known North-European species; but his identifications seem to me to require confirmation, as it is not stated whether they have been made after comparison with European examples or from the descriptions of authors only. Yet more recently, Mr. G. M. Thomson (*Ann. & Mag. Nat. Hist.* vi. p. 4, 1880) has described a variety of the Arctic *Eusirus cuspidatus* (which does not differ sufficiently to be distinguished specifically) from Dunedin Harbour, New Zealand.

Besides the Crustacea obtained on the South-American coasts, the following species were dredged by Dr. Copping in the North Atlantic. Amongst them is one apparently new to science, belonging to the very interesting genus *Glaucothoë* of Milne-Edwards, a genus previously unrepresented in the British-Museum collection, and which, although Macruran in its organization, and placed by Milne-Edwards and Dana in the Thalassinidea, presents many affinities with the Paguridea, and is allied to the genus *Pomatocheles* described by me (*P. Z. S.* 1879, p. 49, pl. iii. fig. 2).

#### HERBSTIA OVATA.

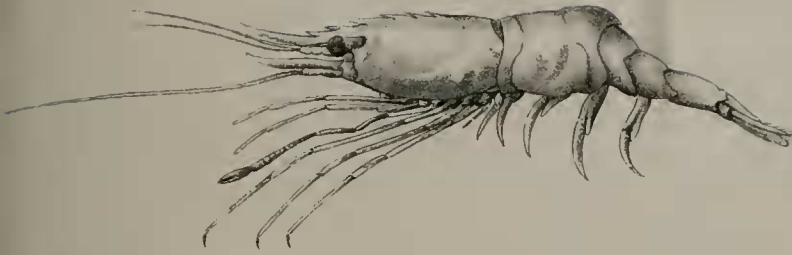
*Micropisa ovata*, Stimpson, *Pr. Ac. Nat. Sci. Phil.* p. 217 (1857); A. M.-Edwards, *N. A. Mus. H. N.* iv. p. 51, pl. xvi. figs. 1, 2 (1868).

Two males and a female of this pretty little species were collected at St. Vincent (Cape-Verds) on a sandy bottom. When received, although they had been for some time in spirit, they were of a bright rose-colour.

#### GLAUCOTHOË ROSTRATA, sp. n. (Plate VII. figs. 1-5).

Carapace as in the Paguridæ, with the cervical and other sutures distinctly marked, inflated over the branchial regions, and with a median, triangular, subacute rostriform process; posteriorly the carapace is much broader than the first postabdominal segment. The postabdominal segments are smooth; the second to fifth narrowed on the sides, and these segments are each furnished with a pair of simple articulated appendages; the ventral surface of the postabdomen is closed by a soft and membranaceous skin, as in the Paguridæ. The terminal segment is twice as long as broad, suboblong, rounded and fringed with long plumose hairs at its distal end. The eyes are subcylindrical; the antennules are short, geniculated; and the flagellum is fringed with long hairs on its under surface. The basal scale of the antennæ is obsolete. The outer maxillipedes are short and subpediform. The anterior legs are equal, and terminate in perfectly formed but rather slender chelæ, the palms of which are compressed, the fingers acute at their apices, and slightly denticulated on their inner margins; the second and third legs are slender, and reach considerably beyond the first legs, their terminal joints being styliiform and nearly straight; the fourth and fifth legs are shaped as in the Paguridæ; the penultimate joint of the fourth legs is somewhat dilated and compressed, and armed with a series of acute serrately disposed teeth on its inferior margin; the dactylus is strong, arcuate, and acute. The fifth legs are very slender, and the perfectly-formed didactyle chelæ with which they are terminated very small; the fingers are unarmed, and fringed on their outer surface with fine hairs. The terminal joint of the second to fifth postabdominal appendages is fringed with long, flexible plumose hairs. The rami of the uropoda are similarly ciliated, and unequal in size, the inner and smaller being regularly oval, the outer suboblong and obliquely truncated at its distal end. Length  $\frac{1}{2}$  inch.

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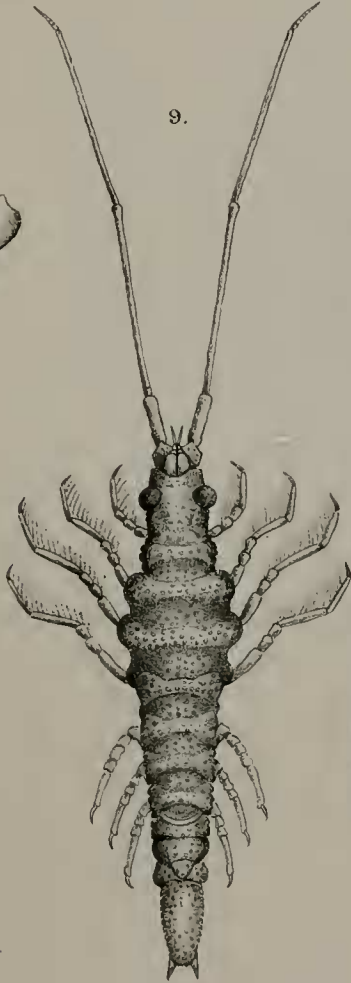


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7.



9.



11.



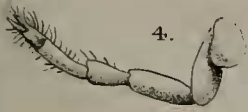
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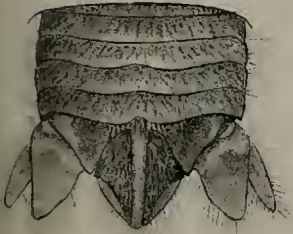
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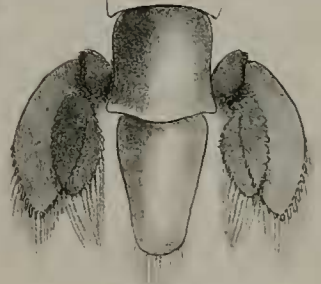
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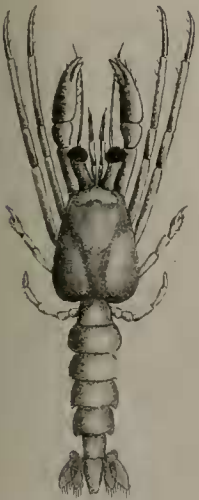
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5.



1.



2.



8.



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*Systematic List of the Species*<sup>1</sup>.

## DECAPODA.

1. *Eurypodius latreillei*, Guérin. Sandy Point, Puerto Bueno, Trinidad Channel.
- \*2. *Inachoides microrhynchus*, M.-Edw. and Lucas. Coquimbo.
3. *Epialtus dentatus*, M.-Edwards. Trinidad Channel.
- \*4. ——— *marginatus*, Bell. Talcahuano.
- \*5. *Pugettia*, sp. South Atlantic.
6. *Pisoides edwardsii* (Bell). Puerto Rosario, Trinidad Channel.
7. *Cancer plebejus*, Peppig. Picton Channel, Talcahuano.
- \*8. ——— *edwardsii*, Bell. Talcahuano.
9. ———, var. *annulipes*, n. Trinidad Channel.
- \*10. *Paraxanthus hirtipes*, M.-Edw. and Lucas. Talcahuano.
- \*11. *Actea rufo-punctata* (M.-Edw.). Hotspur Bank, S. Atlantic.
12. *Platyonychus bipustulatus*, M.-Edw. Trinidad Channel.
13. *Peltarion spinulosum*, White. Sandy Point, Cockle Cove, Puerto Bueno.
14. *Gomezia serrata*, Dana. Elizabeth Island, Trinidad Channel, Puerto Rosario.
15. *Acanthocyclus gayi*, M.-Edw. and Lucas. Isthmus Bay.
- \*16. *Leptograpsus variegatus* (Fabr.). St.-Ambrose Island, S. Pacific.
- \*17. *Chasmognathus granulatus*, Dana. Monte Video, Rat Island.
- \*18. *Sesarma angustipes*, Dana, ? Monte Video, Rat Island.
19. *Halicarcinus planatus* (Fabr.). Elizabeth Island, Cockle Cove, Sandy Point, Trinidad Channel.
- \*20. *Pinnixa transversalis*, M.-Edw. and Lucas. Coquimbo.
- \*21. *Hepatus chiliensis*, M.-Edw. Coquimbo.
- \*22. *Platymera gaudichaudii*, M.-Edw. Coquimbo.
23. *Lithodes antarcticus*, Jacq. and Lucas. Puerto Bueno, Alert Bay, Trinidad Channel, Neesham Cove.
24. *Paralomis verrucosus* (Dana). Puerto Bueno, Trinidad Channel.
25. *Eupagurus comptus*, White. Sandy Point, Cockle Cove, Puerto Bueno, Puerto Rosario, Portland Bay.
26. *Munida gregaria* (Fabr.). Sandy Point, Cockle Cove, Trinidad Channel.
- \*27. *Callinassa uncinata*, Talcahuano.
28. *Alpheus scabrodigitus* (Dana). Portland Bay, Borja Bay, Trinidad Channel.
29. ———, sp. Portland Bay.
30. *Pandalus paucidens*. Tom Bay, Trinidad Channel.

The unique example, which is, I believe, a male and adult, was dredged at Madeira, in 15-50 fathoms.

This species is distinguished from *Glaucothoë peronii*, M.-Edwards, by the existence of a distinct rostriform process, the less-pyriform eyes, the equal chelipedes, &c. *G. peronii* probably inhabited the Asiatic seas.

## SCYLLARUS ARCTUS.

*Cancer arctus*, Linn. Syst. Nat. p. 1053 (1766).

*Scyllarus arctus*, Fabr. Ent. Syst. Suppl. p. 398 (1798); M.-Edwards, Hist. Nat. Cr. ii. p. 282 (1837); White, List Brit. Cr. Brit. Mus. p. 30 (1850); *ubi synonym.*

*Cancer ursus minor*, Herbst, Nat. Krabben, ii. p. 83, pl. xxx. fig. 2 (1796).

*Arctus ursus*, Dana, Cr. U.S. Expl. Exp. xiii. p. 516 (1852).

A specimen which I believe to be a very young example of this species was dredged in the same locality as the *Glaucothoë rostrata* (i. e. at Madeira, in 15-50 fathoms). The teeth of the median dorsal series are nearly obsolete, and those of the anterior margin of the terminal antennal joint are blunt; otherwise this example resembles the adult *S. arctus*. Length barely  $\frac{3}{4}$  inch.

<sup>1</sup> The species collected by Dr. Copping only at localities north of Patagonia are distinguished by an asterisk.

## STOMATOPODA.

31. *Squilla gracilipes*, n. W. coast of Patagonia.  
 \*32. *Pseudosquilla lessonii*, M.-Edw. Coquimbo.

## ANISOPODA.

33. *Arcturus coppingeri*, n. Trinidad Channel.  
 34. *Serolis scythei*, Lütken. Trinidad Channel.

## ISOPODA.

35. *Idotea annulata*, Dana. Port Henry.  
 36. *Styloniscus magellanicus*, Dana. Trinidad Channel, Tom Bay, Port Henry, Cockle Cove.  
 37. *Lironeca novæ-zelandiæ*, White (ined.), Miers. Portland Bay.  
 38. *Ega punctulata*, n. Wolsey Sound.  
 \*39. *Corallana acuticauda*, n. Hotspur Bank.  
 40. *Spheroma gigas*. Sandy Point, Elizabeth Island, Silly Bay.  
 41. *Dynamene darwinii*, Cunningham. Elizabeth Island, Borja Bay.

## CIRRIPEDIA.

42. *Balanus levis*, Bruguière. Sandy Point.

*Descriptions and Notes on Species.*

## DECAPODA.

## EURYPODIUS LATREILLEI.

*Eurypodius latreillei*, Guérin, Mém. du Muséum, xvi. p. 354, pl. xiv. (1828); Icon. Crust. R. A. ii. pl. xi. fig. 1 (1829-44); M.-Edw. H. N. C. i. p. 284 (1834); Cr. in Cuv. R. A. (ed. 3) pl. xxxiv bis, fig. 1; Nicolet, in Gay's Hist. de Chile, iii. p. 123 (1849); Dana, Cr. in U.S. Expl. Exp. xiii. p. 104, pl. iii. fig. 1 (1852); Cunningham, Trans. Linn. Soc. xxvii. p. 491 (1871).

*Eurypodius tuberculatus*, Eyd. & Souleyet, Voy. Bonite, Zool. Cr. p. 221, pl. i. figs. 7-9 (1841).

*Eurypodius audouinii*, M.-Ed. & Lucas in d'Orbigny, Voy. Amér. mérid. vi. Cr. p. 3, pl. i. figs. 1-6 (1843); Dana, Cr. l. c. p. 104 (1852); Nicolet, in Gay's Hist. Chile, Zool. iii. p. 123 (1849); Cunningham, Trans. Linn. Soc. xxvii. p. 491 (1871).

*Eurypodius septentrionalis*, Dana, Amer. J. Sci. & Arts (ser. 2) xi. p. 270 (1851); U.S. Expl. Exp. Cr. i. p. 101, pl. ii. fig. 6 (1852); Cunningham, Trans. Linn. Soc. Zool. xxvii. p. 491 (1871).

*Eurypodius brevipes*, Dana, Amer. J. Sci. & Arts, xi. p. 270 (1851); Cr. Expl. Exp. xiii. 1, p. 193, pl. ii. fig. 7 (1852); Cunningham, Trans. Linn. Soc. Zool. xxvii. p. 491 (1871).

I have been obliged to include all the specimens in the Museum collection under the single heading of *E. latreillei*, because I find myself unable to distinguish them by the characters usually employed in descriptions, *i. e.* the comparative length of the penultimate and antepenultimate joints of the ambulatory legs, the density of the pubescence, the denticulations of the inner margins of the fingers, and the tuberculation of the carapace. All of these characters appear to be subject to considerable variation. There may possibly be two or

even more distinct species of this genus; but the series in the British-Museum collection does not suffice to decide this question, by far the greater number of specimens having been obtained at or near the southern extremity of the American continent. Bell (Trans. Zool. Soc. ii. p. 40, 1849) refers examples of *Eurypodius* from Brazil to *E. latreillei*; but I have seen no specimens from this locality.

In the great majority of specimens in the British-Museum collection, the spines of the rostrum are robust, of moderate length, and curve slightly downward; the spines on the branchial regions are small or reduced to tubercles; and the penultimate joints of the ambulatory legs are considerably dilated and longer than the antepenultimate joints. In younger individuals the joints of the legs and rostral spines are slenderer. One adult male from Sandy Point, in the series presented to the British Museum by Dr. Cunningham, differs from all others in the collection in the greater development of the anterior legs, in which the palm is turgid and the dactylus armed with a very strong tubercle on its inner margin. In two examples from Chili (one an adult male), which I at first thought might be regarded as a distinct species, the branchial spines are somewhat more developed, and the antepenultimate joints about equal the penultimate joints in length, these latter being also less dilated than in adult examples from the Straits of Magellan and Falkland Islands. A better series of examples from Chili, however, is needed to prove whether or not these characters are permanent. I have seen no examples in which the antepenultimate joints of the legs greatly exceed the penultimate joints in length.

Dr. Cunningham in his Report (*l. c.* p. 491) retains no fewer than four distinct species—*E. latreillei*, *E. audouinii*, *E. septentrionalis*, and *E. brevipes*.

The series collected by Dr. Coppinger includes:—several adult males and females from Puerto Bueno, obtained at a depth of 4 fathoms, on a muddy bottom; a female and several young from Sandy Point, at 7–10 fathoms; and one young individual obtained in Trinidad Channel, at a depth of 30 fathoms.

#### INACHOIDES MICRORHYNCHUS.

*Inachoides microrhynchus*, Eydoux & Souleyet, Voy. Bonite, Zool. Cr. p. 219 (1841); M.-Edw. & Lucas in d'Orbigny's Voy. Amér. mérid. vi. Cr. p. 4, pl. iv. fig. 2 (1843); Gay, Hist. de Chile, Zool. iii. Cr. p. 126 (1849).

*Xiphus margaritifère*, Eyd. & Sonl. Voy. Bonite, Zool. Cr. Atlas, pl. i. fig. 1 (1841).

Two males and a female were brought by Dr. Coppinger from Coquimbo.

Both genus and species have been hitherto unrepresented in the collection of the British Museum. The adult male agrees very well with Milne-Edwards and Lucas's figure; but the depressions separating the regions of the carapace are not very strongly marked, as stated in the description of these authors.

## EPIALTUS DENTATUS.

*Epialtus dentatus*, M.-Edwards, Hist. Nat. Crust. i. p. 345 (1834); Nicolet, in Gay's Hist. de Chile, iii. p. 131 (1849); Cunningham, l. c. p. 491 (1871).

*Inachus mitis*, Pöppig, Arch. f. Naturg. ii. p. 141 (1836); Gay, Hist. de Chile, iii. p. 125 (1849).

A single small female is in the collection, obtained on the beach in Trinidad Channel. Its occurrence at various widely separated localities on the coast of Chili is noted by Dr. Cunningham.

## EPIALTUS MARGINATUS.

*Epialtus marginatus*, Bell, Proc. Zool. Soc. p. 173 (1835), Trans. Zool. Soc. ii. p. 62, pl. xi. fig. 4, ♀, pl. xiii. ♂ (1841); Smith, Trans. Conn. Ac. ii. p. 33 (1869).

A female and young male are in the collection, from Talcahuano.

## PUGETTIA, sp.

A single female example is in the collection, which is distinguished from *P. richii* and *P. gracilis*, Dana, its congeners of the American coast, as follows:—The body is somewhat more elongated and convex on the gastric region; the lateral expansions or lobes of the carapace are but little prominent, forming small, subconical, acute teeth; the spines of the rostrum are slender and but little divergent. The example is a small one; and being of the female sex it would not be desirable to constitute it the type of a new species. If distinct, as is probably the case, it may be named *P. australis*.

It was obtained at a depth of 28 fathoms, on a bottom of black sand, in lat. 36° 47' S., long. 55° 17' W., at the mouth of the Rio de la Plata.

## PISOIDES EDWARDSI.

*Hyas edwardsii*, Bell, Proc. Zool. Soc. p. 171 (1835), Trans. Zool. Soc. ii. p. 49, pl. ix. fig. 5 (1841).

*Pisoides tuberculatus*, M.-Edw. & Lucas, in d'Orbigny's Voy. Amér. mérid. vi. Crust. p. 11, pl. v. fig. 1 (1843); Nicolet, in Gay's Hist. de Chile, iii. p. 134 (1849); A. M.-Edwards, Crust. in Miss. Scientif. Mexique, p. 75, pl. xvi. fig. 5 (1875).

*Pisoides edwardsii*, Dana, Cr. in U.S. Expl. Exp. xiii. i. p. 87, pl. i. fig. 2 (1852).

Two males were collected:—one at Trinidad Channel, at a depth of 30 fathoms, on a sandy bottom; the other at Port Rosario, at 2–30 fathoms, on a bottom of sand and rock.

This is a very interesting addition to the Museum collection, as both genus and species were hitherto unrepresented in it. It is one of the few Magellan species having a considerable range to the northward, having been obtained from Chili (Valparaiso), the Galapagos, and Panama. Its occurrence in the Straits of Magellan is now, I believe, for the first time recorded.

The examples before me differ from the description of Edwards and Lucas, in the third joint of the legs not being armed with any prominent spines, and in this joint in the ambulatory legs being less dilated and compressed; but this may probably be due to the greater age of Dr. Coppinger's specimens. The carapace is densely pubescent; the chelæ naked, and of a bright rose-colour. Length of largest individual about  $1\frac{1}{8}$  inch.

Two Californian species described with doubt as belonging to this genus by Mr. Lockington, Pr. Cal. Ac. Sci. vii. pp. 66, 67 (1876), under the names of *Pisoides? celatus* and *P.? tumidus*, belong, as I learn from a MS. note of the author, to *Microphrys*—the former being identical with *Microphrys platysoma*, as noted by Streets and Kingsley.

#### CANCER PLEBEJUS.

*Cancer plebejus*, Pöppig, Arch. f. Naturg. p. 134 (1836); A. M.-Edwards, Nouv. Arch. Mus. Hist. Nat. i. p. 188 (1865).

A young male individual was taken in Picton Channel, at a depth of 6 fathoms, on a bottom of sand. Two females were dredged at Talcahuano.

#### CANCER EDWARDSI.

*Cancer edwardsii*, Bell, Trans. Zool. Soc. i. p. 338, pl. xlv. (1835); A. M.-Edw. N. Arch. Mus. H. N. i. p. 123 (1865); Cunningham, l. c. p. 491 (1871).

*Platycarcinus edwardsii*, Gay, Hist. de Chile, iii. p. 144 (1849).

A young male was taken at Talcahuano, in which the coloration is of the normal type.

#### CANCER EDWARDSI, var. ANNULIPES, n.

A young male was found on the beach in Trinidad Channel. In its convex carapace, and in the form of the teeth of the antero-lateral margins and of the anterior legs, this species agrees well with normal specimens of the Chilean *C. edwardsii*. It differs, however, remarkably in the coloration, which is very well preserved in the specimen (a dried one). The prevailing colour is light yellow, varied with blotches of dark purplish brown; and the joints of the legs are regularly annulated with broad bands of the same colour. Length about 2 inches, breadth 3.

#### PARAXANTHUS HIRTIPES.

*Paraxanthus hirtipes*, M.-Edw. & Lucas, in d'Orbigny's Voy. Amér. mérid. vi. Crust. p. 18 (1843); Nicolet, in Gay's Hist. de Chile, iii. p. 141 (1849).

A female is in the collection from Talcahuano.

I may take this opportunity of noting that two young specimens received from Mr. Lockington, and labelled by him "*Xanthodes hemphilliana*," appear to belong to this species. Mr. Lockington has since identified the types of *X. hemphilliana* with *Lophoxanthus*



*bellus* (*Xantho bellus*, Stimpson), to which species also his *X. leucomanus* is to be referred.

ACTÆA RUFOPUNCTATA.

*Xantho rufopunctatus*, M.-Edwards, Hist. Nat. Crust. i. p. 389 (1834).

*Actæa rufopunctata*, A. M.-Edwards, N. Arch. Mus. Hist. Nat. i. p. 268, pl. xviii. fig. 1 (1865); Heller, Cr. südl. Europa, p. 70 (1865).

A female of very small size (breadth only 3 lines), but laden with ova, is in the collection, which apparently belongs to this species. *A. rufopunctata*, which was originally described from the Red Sea, has a wide Indo-Pacific distribution. Dr. Coppinger's specimen was dredged at a depth of 35 fathoms, amid coral on the Hotspur Bank, lat. 17° 32' S., long. 35° 45' W. Hence (if the example be correctly determined) it would appear that its range extends into the South Atlantic.

PLATYONYCHUS BIPUSTULATUS.

*Platyonychus bipustulatus*, M.-Edwards, Hist. Nat. Crust. i. p. 437, pl. xvii. figs. 7-10 (1834); Gay, Hist. de Chile, iii. p. 148 (1849); A. M.-Edw. Arch. Mus. H. N. x. p. 413 (1861); Miers, Zool. Ereb. & Terror, Crust. p. 2, pl. i. fig. 1 (1874); Cat. New-Zeal. Crust. p. 32 (1876), *ubi synonym.*

*Platyonychus purpureus*, Dana, Cr. U.S. Explor. Exped. xiii. p. 291, pl. xviii. fig. 3 (1852); Cunningham, Trans. Linn. Soc. Zool. xxvii. p. 492 (1871).

A female individual was obtained in shallow water in Trinidad Channel. Dr. Cunningham records it from Coquimbo and Luco Bay; and it is widely distributed through the Chilian, Australian, Indian, and Japanese seas.

PELTARION SPINULOSUM.

*Atelecyclus spinulosus*, White, Ann. & Mag. Nat. Hist. (ser. 1) xii. p. 345 (1843).

*Peltarion spinulosum*, White, List Crust. Brit. Mus. p. 52 (1847); Dana, U.S. Explor. Exped. xiii. Crust. i. p. 304, pl. xviii. fig. 6 (1852); Cunningham, *l. c.* p. 494 (1871).

*Peltarion magellanicus*, Jacq. & Lucas, Voy. Pôle Sud, Zool. iii. Crust. p. 83, pl. viii. fig. 1 (1853).

Several specimens of this common inhabitant of the Falkland Islands and Patagonian seas were collected. The localities are:—Sandy Point, 9-10 fathoms, bottom sand, one female; Cockle Cove, on a muddy bottom, one male; Puerto Bueno, 2-7 fathoms, bottom rocky, three females.

GOMEZA SERRATA.

*Gomezia serrata*, Dana, U.S. Expl. Exp. xiii. Crust. i. p. 305, pl. xviii. fig. 7 (1852).

A male of this species (which is probably rare, as it was not met

with by Dr. Cunningham) was obtained at Elizabeth Island in 6 fathoms, another in Trinidad Channel in 4 fathoms, and two others in Puerto Rosario in 2-30 fathoms. Dana's specimen was obtained by Lieut. Case on the coast of Patagonia at a depth of 50 fathoms, and was only  $1\frac{1}{2}$  line in length; the length of the largest individual collected by Dr. Coppinger is 5 lines. It was previously unrepresented in the British-Museum collection.

#### ACANTHOCYCLUS GAYI.

*Acanthocyclus gayi*, M.-Edw. & Lucas, in d'Orbigny's Voy. Amér. mérid. vi. Cr. p. 30, pl. xv. fig. 1 (1843); Nicolet in Gay's Hist. Chile, Zool. iii. Cr. p. 176 (1849); Dana, Cr. U.S. Expl. Exp. xiii. p. 295, pl. xviii. fig. 4 (1852); Heller, Reise der Novara, Crust. p. 70 (1865); Cunningham, *l. c.* p. 494 (1871).

? *Plagusetes elatus*, Heller, Verh. zool.-bot. Gesellsch. Wien, xii. p. 522 (1862).

A single male individual is in the collection, obtained on the beach at Isthmus Bay, in the Straits of Magellan. It has long been known as inhabiting the Chilian seas, and was taken by Dr. Cunningham plentifully at Lota.

#### LEPTOGRAPSUS VARIEGATUS.

*Cancer variegatus*, Fabr. Ent. Syst. ii. p. 450 (1793).

*Grapsus variegatus*, Latr. Hist. Crust. et Ins. vi. p. 71 (1803); M.-Edwards, Hist. Nat. Crust. ii. p. 87 (1837); Nicolet in Gay's Hist. de Chile, iii. p. 167 (1849); Miers, Cat. New-Zeal. Crust. p. 36 (1876).

*Grapsus personatus*, Lam. Hist. Anim. sans Vert. v. p. 249 (1818).

*Grapsus strigilatus*, White, in Gray's Zool. Miscell. p. 78 (1842).

*Grapsus planifrons*, Dana, Proc. Ac. Nat. Sci. Phil. p. 249 (1851); U.S. Expl. Exp. xiii. Cr. i. p. 338, pl. xxi. fig. 3 (1852); Cunningham, *l. c.* p. 493 (1871).

*Leptograpsus gayi*, M.-Edwards, Ann. Sci. Nat. ser. 3, Zool. xx. p. 172 (1853).

Two females were obtained on the shore at the island of St. Ambrose, in the South Pacific. This locality is of interest, as never having been previously visited by the carcinological collector. This species, however, is known to range from the Australian to the Chilian seas.

#### CHASMOGNATHUS GRANULATUS.

*Chasmagnathus granulatus*, Dana, Pr. Ac. Nat. Sci. Phil. p. 251 (1851); U.S. Expl. Exp. xiii. Cr. i. p. 364, pl. xxiii. fig. 6 (1852); M.-Edw. Ann. Sci. Nat. sér. 3, Zool. xx. p. 200 (1853).

*Ilelice granulata*, Smith, Trans. Conn. Acad. ii. p. 37 (1869).

Three examples (males), in somewhat mutilated condition, were collected at Rat Island, Monte Video. Dana's specimens were from Rio de Janeiro; from which locality are specimens in the British-Museum collection, from the Smithsonian Institution. Professor Smith (*l. c.*) gives Rio Grande as a locality for the species.

## SESARMA ANGUSTIPES?

*Sesarma angustipes*, Dana, U.S. Explor. Exped. xiii. Cr. i. p. 358, pl. xxii. fig. 7 (1852)?; Cunningham, Trans. Linn. Soc. Zool. xxvii. p. 493 (1871); Smith, Trans. Conn. Ac. ii. p. 37 (1869); nec Stimpson, Ann. Lyc. Nat. Hist. New York, vii. p. 66 (1858).

To this species I refer, with considerable hesitation, a male example collected at Rat Island, Monte Video, with *Chasmognathus granulatus*. It is certainly not identical with specimens received from the Smithsonian Institution, from Florida and the Tortugas, under the name of *S. angustipes* (probably so named by Dr. Stimpson); but it appears to agree more nearly in the distinctly granulated carapace and hand and mobile finger of the anterior legs with Dana's description than do these specimens. In these latter the hand and fingers are nearly smooth, and the carapace is more convex toward the antero-lateral angles. If the Floridan species be not the true *S. angustipes*, Dana, it may be designated *S. stimpsonii*.

Dana gives merely South America as the habitat of *S. angustipes*. Prof. S. I. Smith has pointed out that there can be little doubt that Dana's specimens were collected at Rio de Janeiro; a specimen from this locality is also referred to this species by Dr. Cunningham, which I have examined and find to be identical with the Monte-Videoan example. They come nearer to *S. cinerea*, Bosc (of which the Museum also possesses specimens from the Smithsonian Institution, from Carolina), being only distinguished by the more convex and distinctly granulated carapace and strongly granulated hands.

## HALICARCINUS PLANATUS.

*Cancer planatus*, Fabr. Ent. Syst. ii. p. 446 (1793).

*Halicarcinus planatus*, White, Ann. & Mag. Nat. Hist xviii. p. 178, pl. ii. fig. 1 (1846); Cunningham, Trans. Linn. Soc. Zool. xxvii. p. 492 (1871); Miers, Phil. Trans. clxviii. p. 201 (1879), *ubi synon.*

This widely spread inhabitant of the Antarctic region is very common in the Straits of Magellan, where its occurrence at many localities was noted by Dr. Cunningham. Dr. Coppinger's specimens were from Elizabeth Island, 6 fathoms, on a sandy bottom (two females); Sandy Point, 9-10 fathoms (one female); Cackle Cove, 2-32 fathoms, on a muddy bottom (one female); Trinidad Channel, 4 fathoms, on a bottom of fine sand (one male and one young).

## PINNIXA TRANSVERSALIS.

*Pinnotheres transversalis*, M.-Edw. & Lucas, in d'Orbigny's Voy. Amér. mérid. Cr. p. 23, pl. x. fig. 3 (1843); Gay, Hist. de Chile, Zool. iii. Cr. p. 156 (1849); Cunningham, Trans. Linn. Soc. Zool. xxvii. p. 492 (1871)?

*Pinnixa transversalis*, M.-Edw. Ann. Sci. Nat. sér. 3, Zool. p. 220 (1853).

A male of rather small size is in the collection from Coquimbo. This example agrees exactly with the description of M.-Edw. and Lucas in possessing small and tomentose chelipedes, a transverse

raised line on the posterior part of the carapace, and in the greatly dilated semicircular terminal joint of the postabdomen. Larger specimens from Sandy Point, named *P. transversalis* by Dr. Cunningham, differ in the obsolescence of the transverse raised line on the carapace, the considerably dilated chelipedes with denticulate dactyli, and the smaller, more transverse terminal joints of the postabdomen, and seem to be more nearly allied to *P. faba*.

The differences may be due to age, or may be of specific value.

#### HEPATUS CHILENSIS.

*Hepatus chiliensis*, M.-Edw. Hist. Nat. Crust. ii. p. 117 (1837).

*Hepatus chilensis*, M.-Edw. & Lucas, in d'Orbigny's Voy. Amér. mérid. vi. part i. Cr. p. 28, pl. xiv. fig. 1 (1843); Nicolet, in Gay's Hist. de Chile, Zool. iii. Cr. p. 174 (1849); Dana, U.S. Expl. Exp. xiii. Cr. i. p. 395, pl. xxv. fig. 3 (1852); Kinahan, Journ. Roy. Dublin Soc. i. p. 345 (1858); Heller, Reise der Novara, Cr. p. 70 (1865); Cunningham, *l. c.* p. 493 (1871); Miers, Proc. Zool. Soc. p. 656 (1877).

Four males were collected at Coquimbo, at a depth of 4 fathoms, on a sandy bottom. The coloration in all is of the normal type.

#### PLATYMERA GAUDICHAUDI.

*Platymera gaudichaudii*, M.-Edw. Hist. Nat. Cr. ii. p. 108 (1837);

M.-Edw. & Lucas, in d'Orbigny's Voy. Amér. mérid. Cr. p. 28, pl. xiii. fig. 1 (1843); Gay, Hist. de Chile, Zool. iii. Cr. p. 172 (1849).

A young male was obtained at Coquimbo, length about 5 lines, breadth (exclusive of lateral spines) about 7 lines. This example differs from an adult male from Chili in the British-Museum collection, in the form of the carapace, which in the young male is much narrower in proportion to its length.

#### LITHODES ANTARCTICUS.

*Lithodes antarcticus*, Jacq. & Lucas, Voy. Pôle Sud, Zool. iii. Cr. p. 90, pl. vii. fig. 1 and pl. viii. fig. 9 (1855); Nicolet, in Gay's Hist. Chile, Zool. iii. Cr. p. 182 (1849)<sup>1</sup>; Dana, Cr. U.S. Expl. Exp. xiii. p. 427, pl. xxvi. fig. 15 (1852); Cunningham, *l. c.* p. 494 (1871).

Two male examples of rather small size were collected—one from Puerto Bueno in 4 fathoms, and the other from Neesham Cove, Trinidad Channel, in shallow water; another and larger individual is from Alert Bay, on the west coast of Patagonia. Dana records this species from Fuegia, and Gay from Chiloe.

#### PARALOMIS VERRUCOSUS.

*Lithodes verrucosus*, Dana, U.S. Expl. Exp. xiii. Cr. i. p. 428, pl. xvi. fig. 16 (1852); Cunningham, *l. c.* p. 494 (1871).

*Paralomis verrucosus*, Stimpson, Proc. Ac. Nat. Sci. Phil. p. 231 (1858).

Four male individuals were collected at Puerto Bueno, at a depth

<sup>1</sup> The figure in the Atlas of the 'Voyage au Pôle Sud' was published before the description in Gay's work.

of 4 fathoms, amid rock and kelp, and another at Trinidad Channel. Dana records it from Fuegia; and Dr. Cunningham met with it in great numbers at the Tyssen Islands, Falkland Sound, and in the eastern portion of the Straits of Magellan.

The rostrum terminates in a spine, behind and above which are two smaller spines.

In the *Paralomis granulosus* (*Lithodes granulosus*, Jacq. & Lucas) the rostrum is described as very short, obliquely truncated, distinctly curved downwards towards the base, and surmounted by three spiniform tuberculated teeth; in other respects it closely resembles this species, and, like it, inhabits the Straits of Magellan. Has the rostrum been broken off in the specimen described?

In a very young example from the Antarctic seas, in the British-Museum collection, the granulated and wart-like tubercles of the carapace are closely crowded together, so that none of the smooth under surface is visible, and the spines of the legs are much smaller.

#### EUPAGURUS COMPTUS.

*Pagurus comptus*, White, Proc. Zool. Soc. p. 122 (1847); id. Ann. & Mag. Nat. Hist. (ser. 2) i. p. 224 (1848).

*Eupagurus comptus*, Stimpson, Proc. Ac. Nat. Sci. Phil. p. 237 (1858); Miers, Zool. Erebus & Terr., Cr. p. 3, pl. ii. figs. 5, 5 a (1874).

*Pagurus forceps*, Cunningham, l. c. p. 495 (1871), nec Edwards.

To this species I refer nine specimens collected by Dr. Coppinger at Sandy Point in 7-10 fathoms, inhabiting shells of the genera *Euthria*, *Natica*, and *Trophon*; also a specimen collected at Cackle Cove, on a muddy bottom, depth 2-32 fathoms; one from Puerto Bueno, at 4 fathoms; four obtained at Portland Bay on a hard sandy bottom, depth 10 fathoms; and a young specimen obtained at Port Rosario in 2-30 fathoms. These are the same species as the individuals collected by Dr. Cunningham at Possession Bay and Port Otway, in the Museum collection, and referred by him to *P. forceps*. *E. forceps*, however, appears to be distinguished by the much shorter, broader, larger hand, and the much shorter and less slender fingers of the left anterior leg. White's typical specimen of *E. comptus* was collected at the Falkland Islands.

Two varieties occur of this species. The typical form is readily distinguished by the form of the hand of the right anterior leg, which (with the fingers closed) is of an ovate shape, narrower distally, finely granulated externally, with a prominent granulated ridge on the upper surface of the palm, and the ridges on its outer surface very indistinct; the arm has a granulo-spinulous line on its upper margin; the smaller hand is somewhat trigonous, with the fingers scarcely longer than the palm; and the second and third legs are annulated with red. To it belong, besides White's typical specimen, the one collected by Dr. Coppinger at Puerto Bueno and one of those obtained by Dr. Cunningham at Possession Bay. In the other, and apparently commoner variety, the larger hand is shorter, of a much more oblong-ovate form, the granulous ridges on the outer surface of the palm

are more distinct, and its lower margin is distinctly granulated. This variety may be designated *Eupagurus comptus*, var. *latimanus*.

MUNIDA GREGARIA.

*Galathea gregaria*, Fabr. Ent. Syst. ii. p. 473 (1793).

*Grimothea gregaria*, Leach, Dict. Sci. Nat. xviii. p. 50 (1820); M.-Edw. Hist. Nat. Crust. ii. p. 277 (1837); id. in Cuv. R. A. (ed. 3), Atlas, pl. xlvii. fig. 2; Dana, Cr. U.S. Expl. Exp. p. 483, pl. xxxi. fig. 1 (1852); Cunningham, Trans. Linn. Soc. Zool. xxvii. p. 496 (1871).

*Munida subrugosa*, Dana, l. c. p. 479, pl. xxx. fig. 7 (1852); Miers, Zool. Erebus and Terror, Cr. p. 3, pl. iii. fig. 2 (1874); id. Cat. New-Zeal. Crust. p. 68 (1876).

*Galathea subrugosa*, Cunningham, l. c. p. 495 (1871).

In the 'Catalogue of New-Zealand Crustacea,' I adduced certain reasons for believing that the *Munida subrugosa* of White and of Dr. Cunningham is nothing but the mature state of the long-known and exceedingly common Patagonian species *Grimothea gregaria*, Fabricius. There is considerable variation between younger and older individuals in the length of the external maxillipedes, spines of the antero-lateral angles of the carapace, and of the anterior legs. In the typical specimens of *M. subrugosa* from the Auckland Islands the rostrum is relatively longer and the antero-lateral marginal spines somewhat less numerous (7-8) than in the Patagonian form; but the Museum has received adult specimens from New Zealand which agree in all respects with examples from the Magellan Straits. I was formerly inclined to think that the specimens referred by Dana to *M. subrugosa* belonged to a distinct species; but the larger series of specimens now before me would seem to show that I was wrong in that conclusion.

The examples collected by Dr. Coppinger are from Sandy Point (seven females and one male), depth 7-10 fathoms, bottom sand and dead acorn-shells; Cockle Cove, 2-32 fathoms, bottom mud (male, female, and young); Trinidad Channel, 4 fathoms (four males), bottom sandy (in this locality it was seen in great shoals).

The males are generally of smaller size than the females.

CALLIANASSA UNCINATA.

*Callianassa uncinata*, M.-Edwards, Hist. Nat. Crust. ii. p. 310, pl. xxv. bis, fig. 1 (1837); Gay, Hist. de Chile, iii. p. 208 (1849); A. M.-Edw. Ann. Sci. Nat. (ser. 4) xiv. p. 301, pl. xvi. fig. 1 (1860); id. N. Archiv. Mus. Hist. Nat. vi. p. 83 (1870); Cunningham, l. c. p. 494 (1871).

A single specimen, obtained at Talcahuano.

ALPHEUS (BETÆUS) SCABRODIGITUS.

*Betæus scabrodigitus*, Dana, Cr. U.S. Explor. Exped. xiii. p. 560, pl. xxv. fig. 12 (1852); Cunningham, l. c. p. 496 (1871).

A male which I refer to this species was collected at Portland Bay at a depth of 10 fathoms; another male and a female, plentifully

laden with ova in an advanced stage, in Trinidad Channel; and an adult male and female at Borja Bay, in 14 fathoms.

In these specimens the larger hand is somewhat slenderer and the fingers less incurved than in Dana's figure; and it is worthy of note that the hand is nearly as much developed and the tubercles of the fingers are as large in the female as in the examples I believe to be males.

The specimens referred to *A. scabrodigitus* by Dr. Cunningham differ even more markedly from Dana's figure in the much longer, slenderer hand and the entire absence of tubercles on the inner margins of the fingers, and, it is very possible, may belong to a distinct species; they are, moreover, of much larger size.

#### ALPHEUS, sp.

A specimen of an *Alpheus* was obtained at Portland Bay, at a depth of 10 fathoms, on a bottom of hard sand, which I will not regard as the type of a distinct species, on account of its small size.

It appears to belong to the same section of the genus and to be nearly allied to *A. euchirus*, Dana. Like it, the orbits are spinuliferous, and the upper and lower margins of the larger hand are notched; the smaller hand is also notched on its upper and lower margins, and the dactylus is flattened, ovate, and clothed with long hairs; there is a spine at the distal end of the third (but not the second) joint of the third and fourth pairs of legs.

#### PANDALUS PAUCIDENS, sp. n. (Plate VII. figs. 6, 7.)

Carapace with a prominent antennal and a very small pterygostomian spine. Rostrum slender, slightly longer than the antennal scale, about  $\frac{6}{4}$ -toothed; four of the dorsal teeth are on the carapace in a median series; the distal end of the rostrum is directed upward, and is without teeth on its upper margin. Antennules considerably longer than the rostrum. The postabdomen is strongly geniculated beyond the third segment, which is unarmed on its dorsal surface. The terminal segment in one specimen is broader, and its apex is imperfect; in the other it is very narrow and elongated, reaching nearly to the end of the slender and narrow uropoda, and is tipped with four cilia at its extremity. The outer maxillipedes (in the larger individual) are robust, and reach (when thrown forward) slightly beyond the antennal scale; their terminal joints are slightly hairy. The styliform terminal joints of the first legs are very slender and acute. The rami of the uropoda are margined with long ciliae, and are rounded at their distal ends; the outer ramus is rather the broader, with the sides parallel, the inner has the sides slightly convergent to the apex. Length of larger specimen to end of rostrum rather more than  $1\frac{1}{2}$  inch.

Two individuals, apparently males, were collected:—one at Tom Bay, on a bottom of rock, kelp, and mud; the other in Trinidad Channel, in 30 fathoms, on a sandy bottom.

This species is principally distinguished by the small number of teeth arming the margins of the rostrum. In the *P. pubescentulus*,

Dana, from the Straits of Da Fuca, Oregon, the rostrum is  $\frac{17}{7}$ -toothed, and in the *P. danæ* of Stimpson from Puget Sound, California,  $\frac{12}{6}$  3-toothed; in *Pandalus franciscorum*, Kingsley, also a Californian species,  $\frac{10-11}{7-9}$  2-3-toothed, and in *P. gurneyi*, Stimpson,  $\frac{8-9}{9}$ -toothed. In most of the species of the genus the teeth are much more numerous. In one species, however, the *P. leptorhynchus* of Stimpson (the only one, so far as I am aware, besides *P. paucidens*, described from the Southern hemisphere) the rostrum is only  $\frac{1}{2}$ -toothed; its habitat is Port Jackson, in Australia.

#### STOMATOPODA.

##### SQUILLA GRACILIPES, sp. n. (Plate VII. fig. 8.)

I designate by the above name a specimen (young male) from the west coast of Patagonia, which is allied in nearly all its characters to *Squilla armata*, but is distinguished by the more numerous spines of the dactyli of the raptorial limbs (which are ten in number), the obsolescence of the median and submedian and faint definition of the lateral carinæ of the first to sixth postabdominal segments, and the form of the terminal segment, which is as long as broad, smooth on its upper surface, with the median carina less distinctly marked, and with about 26 denticles between the submedian marginal spines and about 18 on each side between these and the first lateral spines. The outer spine of the distal prolongation of the base of the uropoda is relatively much shorter than in *S. armata*. Length  $3\frac{1}{3}$  inches.

##### PSEUDOSQUILLA LESSONII.

*Squilla cerisii*, Guérin, Voy. Coquille, Crust. p. 40, pl. iv. fig. 1 (1830), *S. lessonii* on plate.

*Squilla spinifrons*, Owen, Proc. Zool. Soc. p. 6 (1832).

*Squilla lessonii*, M.-Edwards, Hist. Nat. Cr. ii. p. 527 (1837); White, List Crust. Brit. Mus. p. 84 (1847).

*Squilla monoceros*, M.-Edwards, Hist. Nat. Crust. ii. p. 526 (1837); Gay, Hist. Chile, Zool. iii. Cr. p. 224 (1849).

*Pseudosquilla lessonii*, Dana, Cr. U.S. Expl. Exp. xiii. i. p. 622 (1852); Miers, Ann. & Mag. Nat. Hist. (ser. 5) v. p. 113 (1880).

*Pseudosquilla marmorata*, Lockington, Pr. Cal. Ac. Sci. p. 33 (1877).

A male and female were collected at Coquimbo.

#### ANISOPODA.

##### ARCTURUS COPPINGERI, sp. n. (Plate VII. fig. 9.)

The body is robust, and broadest at the fourth thoracic segment, and is everywhere covered with close-set granules. Head with the anterior margin deeply excavated. The median portion of each of the thoracic segments is elevated, and forms a transverse ridge extending to the lateral margins of the segment; the ridge so formed is narrowest in the middle, but at the lateral margins covers nearly the



whole surface of the segments. The first and the second postabdominal segments are similarly ridged, but firmly united together; the terminal portion (formed of the coalescent remaining segments) is ovoid, more closely and distinctly granulated than the rest of the body, and terminates in two acute spines. The eyes are placed in the lateral margins of the head. Antennules very small. Antennæ a little longer than the body, with the last two joints of the peduncle about equal; flagellum short, 9-jointed, the first joint as long as the three following. The inferior margins of the last three joints of the first to fourth pairs of legs (which increase successively in length) are clothed with long close hairs. The dactyli of the fifth to seventh legs are strong and slightly arcuated. The operculiform posterior pair of postabdominal appendages are granulated on their outer surface. Length 1 inch (exclusive of antennæ).

A single female was obtained, at a depth of 30 fathoms, in Trinidad Channel, on a sandy bottom.

This beautiful species is at once distinguished by the strongly granulated body and the spines of the last postabdominal segment.

On account of the extreme brevity of the fourth segment of the body, it would be placed in the subgenus *Leachia* were the character valid even as a specific distinction; but the Rev. T. R. R. Stebbing (Ann. & Mag. Nat. Hist. ser. 4, xv. p. 187, 1875) has pointed out that in the case of *Arcturus lineatus* this segment, which is elongated in the adult, is shorter in the young individual; there can be no doubt therefore that *Arcturus* and *Leachia* must be united.

#### SEROLIS SCYTHEI.

*Serolis scythei*, Lütken, Naturhist. Vidensk. Meddelelser, p. 98, pl. i. A. figs. 12, 13 (1858); Grube, Arch. f. Naturg. xli. pp. 209, 220, pl. v. fig. 1. pl. vi. fig. 1 (1875).

Two males were obtained in Trinidad Channel, Straits of Magellan, at 30 fathoms; and an adult female with ova, together with eight smaller individuals, in 4 fathoms, at the same locality.

It is very nearly allied to *S. paradoxa*, Fabr. (*S. fabricii*, Leach), which I have regarded as identical with *S. orbignyana*, M.-Edwards, and which is very common at the Magellan Straits and Falklands—but appears to be constantly distinguished by the much greater length of the coxæ, which in the second postabdominal segment reach nearly to the end of the terminal segment.

#### ISOPODA.

##### IDOTEA ANNULATA?

?*Idotea annulata*, Dana, Crust. U.S. Explor. Exped. xiv. p. 701, pl. xlvi. fig. 3 (1853); Cunningham, l. c. p. 499 (1871).

To this species I refer, with some hesitation, four specimens collected at Port Henry. They are of a uniform chestnut-brown colour; the anterior margin of the head is straight or very slightly excavated; the eyes are rather prominent, and situated on the sides

of the head; the flagellum of the antennæ is 7-jointed, the last two joints being little smaller than the preceding, and the terminal segment regularly rounded at its distal end. Dana's specimens were obtained in the Antarctic seas south of Australia.

*Idotea argentea*, Dana, which is apparently distinguished by its colour and the form of the last two joints of the antennæ, is nevertheless very nearly allied to this species.

#### STYLONISCUS MAGELLANICUS.

*Styloniscus magellanicus*, Dana, U.S. Expl. Exp. xiv. Cr. ii. p. 736, pl. xlviii. fig. 7 (1852).

One example of this curious little land Isopod was obtained on shore at Trinidad Channel, one at Port Henry, one from Cockle Cove, and one from the midden-heap of a Fuegian hut in Tom Bay.

#### LIRONECA NOVÆ-ZEALANDIÆ.

*Lironeca novæ-zealandiæ*, White, List Cr. Brit. Mus. p. 106 (1847) descript. nulla; Miers, Ann. & Mag. Nat. Hist. (ser. 4) xvii. p. 227 (1876); id. Cat. New-Zeal. Crust. p. 106, pl. iii. fig. 2 (1876).

A female specimen was found attached to the mouth of a fish in Portland Bay, Straits of Magellan. Hence it is probable that this species, like so many of the New-Zealand fauna, ranges throughout the Antarctic region.

*L. novæ-zealandiæ* is nearly allied to *L. lata*, Dana, from the Sandwich Islands, but is distinguished by its less prominent head, which is more deeply encased in the first segment of the body, and by the shorter rami of the uropoda, which are nearly equal in size to one another, and more acute than in *L. lata*.

#### ÆGA PUNCTULATA, sp. n. (Plate VII. figs. 10-12.)

Body convex, closely punctulated; posterior margins of the segments of the thorax and of the postabdomen clothed with scattered hairs. Head transverse; the coxal joints or so-called epimera of the second to sixth thoracic legs with the postero-lateral angles acute, but not prolonged backward, and with the margins slightly hairy. Postabdominal segments (the terminal excepted) very short; terminal segment somewhat hairy, smooth and unarmed, narrowing posteriorly, and rounded at its distal extremity. Eyes (when viewed from above) oblong, and extending along the lateral margins of the head, but not along the anterior margin. Antennules short, reaching to the postero-lateral angles of the head, with the first and second joints considerably dilated. Antennæ short, scarcely reaching to the postero-lateral angles of the first thoracic segment; flagellum 18-20-jointed. Penultimate joint of the first three pairs of thoracic limbs without any process; dactyli strongly curved and acute. Rami of the uropoda unequal; the inner largest at its distal end and truncated, the outer narrow-ovate and rounded. Length about 1 inch 2 lines.

A single specimen was found attached to the fins of a mullet-like fish in Wolsey Sound, in the Straits of Magellan.

This species externally somewhat resembles *Pterelas magnificus*, Dana, but is destitute of the hatchet-like process on the penultimate joint of the first three pairs of legs.

*Æga belliceps*, Stimpson, a Californian species, is distinguished by its more pointed head, and by having only five distinguishable postabdominal segments; it is somewhat insufficiently characterized. *Æga novæ-zealandiæ*, Dana, is very briefly characterized, but is distinguished by the much longer antennæ, which in *Æga punctulata* are not longer than the breadth of the head. The two American species described by Lockington as *Æga harfordi* and *Æga alaskensis* do not, I believe, belong to this genus; the former is probably a species of *Cirolana*.

CORALLANA ACUTICAUDA, sp. n. (Plate VII. fig. 13.)

Body convex, segments punctulated; the last two thoracic segments and the postabdomen hairy. Head transverse; produced anteriorly into a small median rostriform lobe that projects between the bases of the antennules. Segments of the body subequal and rounded, and not produced at the postero-lateral angles; first segment with its antero-lateral angles rounded and somewhat produced anteriorly beneath the lateral margins of the head. Five segments of the postabdomen are exposed (but scarcely distinguishable, on account of the pubescence with which they are covered); the third segment is produced on each side into a truncated and emarginate postero-lateral lobe; the terminal segment is rather small, triangulate, covered above with short, dense, close pubescence, but with a smooth, naked, longitudinal median line. Eyes large, black, distinctly faceted, and situate on the sides of the head. Antennules contiguous at base, their basal joints considerably enlarged posteriorly (but not anteriorly produced beyond the plane of the head), inserted into semicircular cavities in the anterior margin of the head; the following joint slender; flagellum short, not reaching to the posterior margin of the head. Antennæ not in contact at their bases (which are concealed beneath the enlarged basal joints of the antennules), with the first three joints short, the fourth and fifth subequal, longer and slender; flagellum reaching to the posterior margin of the third segment of the body. The coxæ of the second and third legs are small and rounded posteriorly, those of the following legs larger, with the postero-lateral angles acute. The rami of the uropoda spring from a broad base (which is produced at its distal and internal angle into a strong acute lobe); the outer ramus is slender and acute, the inner broad but narrowing to an acute apex; both are ciliated on the margins. Length 7 lines.

The single example (a female) was dredged amid coral in 35 fathoms, on the Hotspur Bank (S. Atlantic) in lat. 17° 32' S., long. 35° 45' W.

This species is distinguished from the various oriental forms enumerated by Schiödte and Meinert, Nat. Tidskr. 3 R. pp. 286, 299

(1879), by the form of the terminal segment, which is acute at its distal end, and the greatly dilated basal joints of the antennules; the outer ramus of the uropoda is not larger than the inner; the frontal interantennular process is obsolete.

#### SPHÆROMA GIGAS.

*Sphæroma gigas*, Leach, Dict. Sci. Nat. xii. p. 346 (1818); M.-Edwards, Hist. Nat. Cr. iii. p. 205 (1840); Miers, Cat. New-Zeal. Crust. p. 110 (1876).

Several specimens, all of small size, of this species, which is very common in the Straits of Magellan and at the Falkland Islands, and also occurs at the Auckland Islands and New Zealand, were collected by Dr. Coppinger at Elizabeth Island (6 fms.) Sandy Point (9-10 fms.) on a sandy bottom, and an adult male at Silly Bay.

#### DYNAMENE DARWINII.

*Cymodocea darwinii*, Cunningham, l. c. p. 499, pl. lix. fig. 1 (1871).

Two examples were obtained by Dr. Coppinger at Elizabeth Island (6 fathoms), on a sandy bottom. It appears to be rare, as Dr. Cunningham met with it only on the north coast of Eastern Fuegia and in very small numbers. An adult example collected by Dr. Cunningham, and preserved in the Museum collection, is a male. The larger of the two obtained by Dr. Coppinger at Elizabeth Island is apparently a female, and is of a bright rose-colour. In a small example from Borja Bay (14 fathoms) the tubercle on the dorsal surface of the terminal segment is less developed and the lateral lobes of the fifth thoracic segment scarcely thickened.

### CIRRIPEDIA.

#### BALANUS LÆVIS.

*Balanus lævis*, Bruguière, Encycl. Méth. pl. clxiv. fig. 1 (1789); Darwin, Monog. Cirripedia, Balanidæ, p. 227, pl. iv. fig. 2 (1854), *ubi synon.*

Several clusters of this species, which is very common and abundant in the Magellan Straits, were collected at Sandy Point, at a depth of 7 fathoms, adhering to shells &c. All are of the typical variety. Its range, according to Darwin, extends northward to Chili, Peru, and California<sup>1</sup>.

<sup>1</sup> Besides the species enumerated above, there are in the collection four small specimens of a species of Amphipoda, allied in many of its characters to *Orchomene*, obtained at Elizabeth Island in 6 fathoms, and four specimens of a *Caligus* (not the *C. chæmichthys*, Cunningham) taken from a sea-water fish at Puerto Bueno, in rather bad condition, which I do not venture to describe; also, among the surface-dredgings made at various localities in the North and South Atlantic, larval stages of several species of Decapoda and Stomatopoda and a few species of oceanic Copepoda.

## VII. COLEOPTERA.

By CHAS. O. WATERHOUSE.

## CARABIDÆ.

## 1. CARABUS SUTURALIS, Fabr. Syst. El. i. p. 238.

Four specimens from Neesham Cove, Cockle Cove, Elizabeth Island, and Swallow Bay.

## 2. BRACHYCÆLIA CONCOLOR, sp. n.

*Cyaneo-nigra, subtus nigra, lævis, nitida; antennis pedibusque piceo-nigris; elytris striatis, striis fere lavibus.* Long.  $8\frac{3}{4}$  mill., lat. 4 mill.

Very close to *B. virescens*, G. R. Waterh., but smaller, darker in colour, and with the antennæ and legs nearly black. Thorax nearly of the same form, transverse, gently arcuate at the sides, but with the posterior angles very slightly turned outwards and slightly acute. The elytra are a little more ovate; *i. e.* the broadest part is rather further from the apex than in *B. virescens*; each elytron has nine striæ, the five dorsal ones moderately strongly impressed and extending nearly to the apex, with no proper punctuation, the interstices slightly convex, especially the fifth; the sixth and seventh striæ are less distinct, and the eighth is only visible posteriorly; the ninth is very distinct and has a series of distinct punctures. The prosternum has a well-marked lanceolate impression between the coxæ, very similar to that in *B. virescens*. The median impressed line on the thorax is shorter than in the specimens of *B. virescens*, rather broader in front, and terminating rather abruptly some way from the anterior margin. The anterior and intermediate tarsi are dilated in the same way as in *B. virescens*.

A single male example taken at Puerto Bueno.

## 3. CASCELLIUS GRAVESII, Curtis, Trans Linn. Soc. xviii. p. 183, pl. 15. f. B.

*Cascellius nitidus*, G. R. Waterh. Ann. & Mag. N. Hist. vi. 1841, p. 255.

A careful examination of the type specimens of *Cascellius gravesii*, Curtis, and *C. nitidus*, Waterh., has convinced me that they are varieties of the same species. The striæ of the elytra vary very much, being sometimes almost effaced, and sometimes broken up into well-marked elongate impressions. It was this last form which my father considered the true *C. gravesii*, and from which he separated *C. nitidus* as distinct. The type specimen of *C. gravesii*, however, has the striæ lightly impressed. The series of specimens in the British Museum show the intermediate forms.

Dr. Coppinger took a single specimen at Puerto Bueno<sup>1</sup>.

<sup>1</sup> It may be well to note here that *Cascellius kingii*, Curtis, *l. c.* p. 183, pl. xv. f. A (omitted from Gemminger and v. Harold's Catalogue of Coleoptera), is the same as *Feronia (Creobius) eydouxii*, Guérin, Mag. Zool. 1838, p. 4, t. 225. f. 2. Hope's paper was read on May 1st, 1838.

4. *ANTARCTIA GLAUCA*, Blanch. Voy. Pôle Sud, iv. p. 39, t. 3. f. 4.

Three specimens which, from description, appear to be referable to this species. They were taken at Sandy Point on January 8th, 1879.

#### DYTISCIDÆ.

5. *RHANTUS DARWINII*, Babington, Trans. Ent. Soc. iii. 1841, p. 8.

A single female example which I refer with some doubt to this species. It is a trifle more parallel than the type specimen; and the thorax is rather more dull. It was taken at Isthmus Bay.

6. *RHANTUS MIXTUS*, sp. n.

*Ater*; *clypeo capiteque antice piceo-flavis*; *thorace piceo-flavo, margine antico punctato, basi medio nigra*; *elytris politis, piceo-nigris, crebre seriatim piceo-flavo guttatis*; *antennis, palpis, pedibus prosternoque piceis*. Long.  $5\frac{1}{3}$  lin.

♂. Very close to *R. varius*, Fabr. (Ent. Syst. i. p. 195), but larger, darker in colour than that species usually is, and a little less regularly elliptical. Head finely coriaceous, with an impressed line within each eye. Thorax shining, a little wrinkled at the sides, with an imperfect impressed median line; the middle portion of the anterior margin is distinctly punctured, and this part is also blackish; the base is narrowly margined with black, the black is more suffused in the middle; the posterior angles are a trifle greater than a right angle. Elytra very shining, nearly black, with closely placed lines of small yellowish spots as in *R. varius*, but not so conspicuous; the margins are yellow; the extreme apex (which is obliquely truncate) is margined with black; there is a line of rather close distinct punctures not far from the suture; and there is a second very irregular line of similar punctures extending from within the shoulder to near the apex. The whole of the underside is black, except the front part of the prosternum and the sternal process. The apical segment of the abdomen is densely longitudinally strigose, the striæ reach the base of the segment in the middle but not at the sides. The legs are pitchy, the posterior tarsi being darker; the intermediate femora and tibiæ are closely and rather roughly punctured, more closely and more distinctly than in *R. varius*.

Four male examples, marked "Tom Bay, April 22, 1879."

#### LUCANIDÆ.

7. *SCLEROSTOMUS FEMORALIS*, Guérin, Rev. Zool. 1839, p. 303. A single male example taken at Sandy Point.

#### MELOLONTHIDÆ.

8. *SERICOIDES GLACIALIS*, Fabr. Syst. Ent. p. 35.

*Sericoides reichei*, Guérin, Rev. Zool. 1839, p. 301.

An imperfect specimen found at Skyring Water. It agrees well

with the Fabrician type of *Melolontha glacialis* now in the British Museum from the Banksian Collection.

9. *LISTRONYX TESTACEUS*, Fabr. Syst. Ent. p. 35.

*Melolontha testacea*, Fabr. l. c., ♀.

*Listronyx nigriceps*, Guérin, Rev. Zool. 1839, p. 302, ♂.

A male example from Sandy Point. It agrees perfectly with Guérin's type specimen of *Listronyx nigriceps* now in the British Museum collection, which is undoubtedly the male of *Melolontha testacea*, Fabr., the type of which is also in the Museum.

10. *CYPHON PATAGONICA*, Curtis, Trans. Linn. Soc. xviii. p. 199.

The single specimen found at Sandy Point by Dr. Coppinger differs from Curtis's type in being uniform in colour, without the fuscous mark on the thorax; it is, however, undoubtedly the same species.

11. *PHOTINUS*, sp.

A single example taken at Tom Bay. I am unable to determine the species; it is broader than *P. obscurus*, Fabr., from Terra del Fuego, which it resembles in colour, and is more like *P. coruscus*, Linn.

TENEBRIONIDÆ.

12. *EMALODERA OBESA*, Guérin, Rev. Zool. 1841, p. 215.

A single specimen, marked "Elizabeth Island, Jan. 1879."

CURCULIONIDÆ.

13. *CYLINDRORRHINUS ANGULATUS*, Guérin, Rev. Zool. 1841, p. 217.

Two specimens from Elizabeth Island, Jan. 6, 1879.

14. *LOPHOTUS NODIPENNIS*, Hope, Trans. Ent. Soc. i. p. 15, pl. i. f. 5.

One specimen only, found at Port Gallant, "on board."

CERAMBYCIDÆ.

15. *CALLISPHYRIS SCHYTHEI*, Philippi, Stet. Zeit. 1864, p. 380.

The specimen brought by Dr. Coppinger agrees very well with the description of this species. Another specimen was received almost simultaneously at the Museum from Peru.

VIII. LEPIDOPTERA, ORTHOPTERA AND HEMIPTERA.

By A. G. BUTLER.

A. LEPIDOPTERA.

Of the nine species of Lepidoptera obtained by Dr. Coppinger, two appear to be new to science; and four others may be new, but are too much worn for identification; of the remaining three, one has previously been recorded from the Straits, and two from Chili.

## NYMPHALIDÆ.

## 1. ARGYNNIS CYTHERIS, Drury.

Two pairs taken in Elizabeth Island in January 1879. The males agree well with Drury's figure and with Reed's figure of *A. anna* (Blanchard); one of the females also agrees very fairly with Blanchard's figure of *A. lathonoides*. The allied form, regarded by Reed as the *A. cytheris* of Drury, seems quite distinct, and must retain the name of *A. montana* given to it by Reed upon his plate.

## PAPILIONIDÆ.

## 2. TATOCHILA DEMODICE, Blanchard.

One female captured on the 6th of January in Elizabeth Island.

## LASIOCAMPIDÆ.

## 3. PHRICODIA HUMERALIS, var., Walker.

A male caught on board in the Straits of Magellan, and two females in Elizabeth Island on the 6th of January. These specimens are altogether redder and darker than the typical form.

## EPISEMIDÆ.

## 4. HELIOPHOBUS?, sp.

Puerto Bueno, Straits of Magellan, 20th of January, 1879. The two examples of this species are so much rubbed that, although the Moth appears to agree in structure with *Heliophobus*, it is quite impossible to decide whether or not it is referable to any known species.

## APAMIDÆ.

## 5. MAMESTRA?, sp.

The single example obtained, although evidently referable to a well-marked species, is unfortunately too much worn for recognition; the antennæ are wanting.

Straits of Magellan, exact locality not noted.

It is not impossible that this may prove to be an *Agrotis* when we see a perfect specimen.

## NOCTUIDÆ.

## 6. OCHROPLEURA MAGELLANICA, sp. n.

Primaries chocolate-brown, with very slight purplish reflections, the basal two thirds of costal border broadly pale sandy brown; the orbicular and reniform spots of the same colour, with slightly darker centres, the orbicular with oblique outer margin and confluent with the costal border along its anterior margin: secondaries pale sericeous greyish brown, with slightly darker diffused outer border and pale sandy-yellow fringe: thorax chocolate-brown; head, antennæ, and shoulders ochraceous; abdomen fuliginous brown, whitish at the base, and with ochraceous lateral fringes and anal tuft. Primaries below pale fuliginous brown; secondaries whitish, with pale fuliginous



costal border and discocellulars and yellowish fringe; body below fuliginous brown. Expanse of wings 1 inch 9 lines.

The above description is made from a specimen obtained by Dr. Cunningham at Sandy Point, Terra del Fuego, the five examples sent home by Dr. Coppinger being all too much worn for description. He notes the following habitats and dates of capture:—

- a.* Cockle Cove ..... Feb. 13, 1878.
- b.* Latitude Cove, flew on board ..... Jan. 13, 1879.
- c.* Puerto Bueno, flew on board ..... Jan. 19, ,,
- d.* Tom Bay, flew on board ..... Jan. 1879.
- e.* Wolsey Sound, W. coast of Patagonia,  
flew on board.

#### ORTHOPTERÆ.

##### 7. *PACHNOBIA COPPINGERI*, sp. n.

Allied to *P. alpina*. Primaries above ashy grey, slightly tinted with pink at the base; two subbasal spots, a broad internally bisinuated, externally ill-defined belt (enclosing the orbicular spot) just before the middle, and two subparallel angulated and zigzag discal lines, dark slaty grey; discoidal spots brown, with whitish borders and blackish margins; a marginal series of <-shaped black markings: secondaries pale sericeous smoky brown, becoming slightly darker towards the outer margin; discocellulars dusky, costal border ash-grey at apex; a marginal dark slaty-grey line formed of confluent depressed-triangular spots; fringe traversed by a whitish basal line: body grey; thorax slightly tinted with pink; abdomen with whitish basal tufts, anal tuft testaceous. Primaries below ash-grey; discal lines indicated, but less distinct than above, and not zigzag: secondaries sericeous greyish white; a discocellular spot and arched discal stripe blackish; a slender blackish marginal line: pectus white; legs ash-grey, tarsi of middle pair brown, tibiæ and tarsi of posterior pair almost wholly laky brown. Expanse of wings 1 inch 6 lines.

Puerto Bueno; flew on board, Jan. 19, 1879.

#### LARENTIIDÆ.

##### 8. *SCOTOSIA*, sp.

One specimen, very much worn and rubbed, the pattern being entirely lost.

Puerto Bueno, November 5, 1879.

##### 9. *CIDARIA*, sp.

A single shattered example, which appears to be allied to the European *C. fulvata*.

Puerto Bueno.

The ORTHOPTERA are represented by five examples, three of which are immature and referable apparently to a species of *Xiphocera*; the two others belong to the genera *Ædipoda* and *Ctypohippus*.

Six HEMIPTERA were obtained, of which one appears to belong to a new species of *Sciocoris*; three are referable to a known species of *Halobates*, one is a new genus of *Membracidae*, and one a small *Iassus*.

A single ANOPLURON was taken, referable to the genus *Trinoton*.

## B. ORTHOPTERA.

### XIPHOCERIDÆ.

#### 1. XIPHOCERA, sp. inc. (immature).

“St. Vincent, near the beach, 24th October, 1878; Puerto Bueno, Straits of Magellan, on shore near freshwater pools.”

### ÆDIPODIDÆ.

#### 2. ÆDIPODA AURIFERA.

*Ædipoda aurifera*, Walker, Derm. Salt. iv. p. 735 (1870).

*Epacromia collecta*, Walker, op. cit. v. p. 85 (1871).

St. Vincent, Cape-Verd Islands, from sandy patches, 24th October, 1878.

Walker at first rightly identified this species with the genus *Ædipoda*, but remarked, “this species has some affinity to the genus *Epacromia* ;” subsequently he described a smaller example as an *Epacromia*, and observed that “this and the preceding species differ much in structure from each other, and from the typical form of *Epacromia*, and may be considered as the representatives of two new genera.”

#### 3. CTYPOHIPPIUS ARENIVOLANS, sp. n.

Apparently nearest to “*Ædipoda ochraceipennis*” of Blanchard, from Chili; also somewhat similar to “*Æ. chloris*.” Head and pronotum greenish yellow, with a lateral longitudinal stripe of black, varied with reddish brown; on the head this stripe encloses an ochraceous line; pronotum flat, slightly elevated at the sides, crossed in the middle by a linear transverse impression, and with a central longitudinal carina; abdomen shining, olivaceous, banded indistinctly with testaceous, and mottled at the sides with castaneous; anterior and middle pairs of legs castaneous, posterior legs with the femora greenish testaceous, a series of black spots just above the infero-exterior longitudinal carina towards the base; tibiæ and tarsi rust-red, the spines tipped with black: tegmina with the basal six thirteenths flesh-coloured, with a longitudinal internal green streak and two transverse dark-brown bands, the inner one interrupted by the green streak, the outer one abbreviated; base slightly brown-speckled; remainder of tegmina hyaline white, with ochraceous veins, the cross veinlets black here and there, so as to produce the effect of indistinct greyish spots: wings hyaline white, slightly tinted with yellow towards the base, and crossed from the posterior angle to the centre of the anterior margin by a very slightly interrupted arched blackish

band. Length of body 1 inch 1 line; expanse of tegmina 2 inches 4 lines.

St. Vincent, Cape-Verds, 24th October, 1878; from sandy patches.

I found a second example of this species amongst the heterogeneous crowd of specimens placed by Walker under *Ædipoda flava* of Linnæus.

### C. HEMIPTERA.

#### SCIOCORIDÆ.

##### 1. SCIOCORIS ODIOSUS, sp. n.

Testaceous, regularly spotted and streaked all over with dull greyish brown; abdomen with regular black marginal spots; pectus longitudinally banded with black; legs ochraceous; antennæ orange; venter with a longitudinal streak of black on each side.

Dull, densely punctured; head obtusely subconical, convex behind, with marginal and dorsal longitudinal carinæ, twice as long before as behind the eyes, which are prominent; thorax octagonal, fully twice as broad as long, deeply excavated in front to receive the head; the humeral angles armed with a short obtuse denticle; scutellum large, half as long again as broad, obtusely triangular; legs smooth and rather slender, tibiæ and tarsi covered rather densely with short bristles; ventral segments with their posterior angles slightly prominent. Length of head 2 millims., of thorax in the middle 2, at humeral angles  $2\frac{1}{2}$ , width 5; length of scutellum 3; of each tegmen 6; entire length of insect 8.

Monte Video (one specimen).

#### GERRIDÆ.

##### 2. HALOBATES MICANS.

*Halobates micans*, Eschscholtz, Entomogr. p. 163, pl. 2. fig. 3.

Taken in the towing-net on the surface, 29th Oct. 1878. Lat.  $8^{\circ} 6' N.$ , long.  $25^{\circ} 33' W.$

#### MEMBRACIDÆ.

##### METHILLE, g. n.

Nearer to *Hille*, Stâl, than to any genus with which I am acquainted, but altogether narrower, more depressed, the upper or dorsal margin of the pronotum nearly parallel to the anterior margin of the closed tegmina; the head vertical, almost in a line with the anterior margin of the pronotum, which projects slightly in front of it; the pronotum not covering the mesonotum, its upper surface pentagonal; scutellum uncovered, triangular, very acute behind. Type *M. cuneata*.

This genus in many of its characters seems to agree with *Melozoderes* of Spinola, with which, but for the figure, it might perhaps have been identified; but, in spite of the manifest incorrectness of the illustration (which shows no trace of a *scutellum*, although the

description says "escudo visible"), I cannot believe it to be identical. The neuration is the same; but the head is not visible from above, being entirely concealed by the conical and prominent anterior margin of the pronotum.

### 3. METHILLE CUNEATA, sp. n.

Fulvous, upper surface of the body with a central longitudinal carina; the head orange; head, pronotum, mesonotum, and scutellum finely granulose; tegmina semitransparent, horn-yellow, darkest towards the base and on the veins, the corium and clavus coarsely punctured; wings hyaline white, legs horn-yellow. Length of body  $5\frac{1}{2}$  millims., expanse of tegmina  $11\frac{1}{2}$ .

"Found on leaf of *Campidium chilense*, a leguminous creeping plant, 14th April, 1879. Straits of Magellan."

The genus *Melizoderes* is not quoted by Walker in the Supplement to his 'Catalogue of Homoptera.'

### IASSIDÆ.

#### 4. IASSUS LUCIDUS?

*Iassus lucidus*, Butler, Proc. Zool. Soc. 1877, p. 91. no. 8.

Caught on board at sea, 27th October, 1878.

I can discover no difference between this example and that from the Galapagos archipelago.

## IX. ECHINODERMATA.

By F. JEFFREY BELL.

(Plates VIII. & IX.)

The collection of Echinodermata which Dr. Coppinger has forwarded presents some points of considerable interest. Of the Echinoidea there is one species which is apparently new to science; the species *Echinus magellanicus* was found on the eastern side of the coast of South America; the Ophiurida are represented by four species, of which two, one of them an Astrophytid, appear to be new to science; while the new species of Asterida seem to make it necessary to direct attention to the fact that, if the number of new species of Echinodermata appears to be disproportionately large as compared with the Mollusca or Crustacea, it must be borne in mind that Dr. Cunningham's account of his collection, made in 1869, terminates with the latter of these groups, and that therefore our knowledge of the Echinoderm fauna of this region is in a less advanced condition. The Holothuroida are feebly represented in the present collection; and no specimen of the Crinoidea has been as yet forwarded to the Museum.

### ECHINOIDEA.

#### ECHINOCIDARIS DUFRESNII, Bl.

A number of these interesting forms were forwarded by Dr. Coppinger. As was natural, I examined them with eagerness in order

to find, if possible, some more exceptions to the rule of the presence of four anal plates<sup>1</sup>; not one, however, was to be found among the fourteen specimens I examined. The localities were:—

- (1) Portland Bay, 10 fathoms; bottom, hard sand.
- (2) Tom Bay, 0–30 fms.; bottom, rock, kelp, and mud.
- (3) Cockle Cove, 2–32 fms.; bottom, mud.
- (4) Port Rosario, 2–30 fms.; bottom, sand and rock.
- (5) Trinidad Channel, 30 fms.; bottom, sand.

The smaller specimens varied considerably in colour; the light green of the test and the purplish flesh-colour of the spines of the ordinary specimens being in one case replaced by a light brown for both test and spines; one or two examples had reddish patches on the bare spaces of the interambulacral areae; and in two cases the white pedicellariæ, placed on a deep-green test, gave a rarely seen appearance to the specimens; another example had the spines white, with a deep rusty-brown patch in each bare interambulacral space. None of the specimens was of a large size.

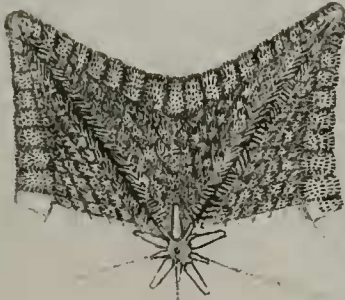
**STRONGYLOCENTROTUS BULLATUS, n. sp.** (Plate VIII. figs. 1, 2.)

Test rather thick and slightly pentagonal; superiorly to the ambitus the primary tubercles of the interambulacral areae, which are set in two rows, are of considerable size; generally eight pairs of pores in each arc, which is set more or less horizontally, and is separated from the one above and below by a not very regular series of small tubercles; the ambulacral area comparatively narrow; the actinostome moderately small and very faintly notched; abactinal system thickly covered with small tubercles; ocular plates all excluded from the anal system; madreporic body large; anal plates large in size and small in number. Test brownish red; the spines not long, and of a dirty or brownish yellow colour.

Straits of Magellan.

The difficult genus *Strongylocentrotus* stands in need of a careful revision; and it is necessary that I should point out some of the reasons which induce me to look upon this species as new, though this is by no means the place to undertake any thing like a general review of the group. It seems, then, to be the only species in which all the ocular plates are excluded from the anal system—presenting a considerable resemblance to *S. franciscanus*, in so far that the primary tubercles of the interambulacral areae form, in both species, two rows, and are considerably larger than any others on the test; it is distinguished not only by having the tubercles absolutely smaller, but also by the fact that it is above rather than at the ambitus that the largest tubercles are to be found. So, again, a resemblance is to be seen to *S. albus* in the presence of tubercles separating the

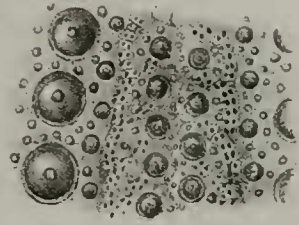
<sup>1</sup> P. Z. S. 1879, pt. iii. p. 436. I may here state that during the autumn of 1879 I took the opportunity to examine the few specimens of this genus that are deposited in the Natural-History Museum at Brussels; but I was not able to detect in any of them any indications as to the presence of more than four plates.



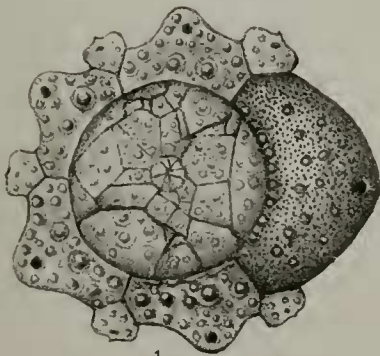
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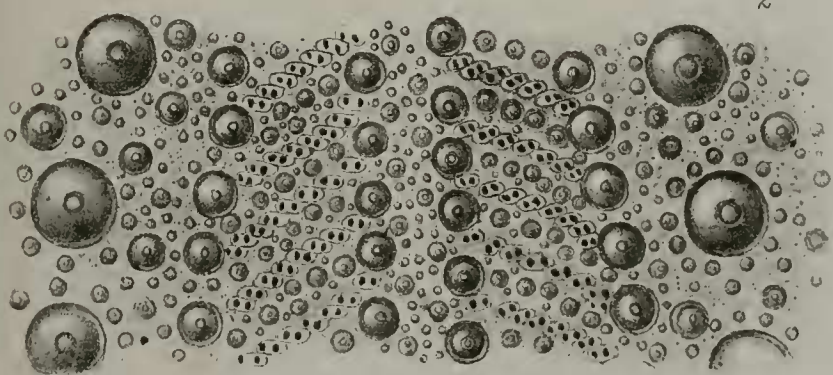
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6



2



arcs of pores; but these tubercles are much smaller and much more irregular in *S. bullatus*, and this new species has also a somewhat larger mouth (actinostome), though it by no means has one so large as has *S. franciscanus*. Turning from *S. albus*, the presence of which on the Chilian coast was signalized by Molina<sup>1</sup>, to *S. gibbosus*, the other member of the genus which has been hitherto recorded from this district, we find in it only four pairs of pores in each arc, while the much smaller test has a proportionally larger actinostome.

The following are the more important measurements of the largest of the three specimens:—

Length.	Height.	Diameter of			Poriferous zone.	Ambul. area.	Interamb. area.
		actino-stome.	abactinal system.	anal system.			
108	49	25	20	11·5	7·5	24	40

It will be seen that the test is not high, that, although the arcs of pores are so nearly horizontal in direction, the ambulacral aræ are not very wide; they are, indeed, only provided with two rows of primary tubercles, which are never very large, and, like those of the interambulacral series, decrease to quite a small size on the greater part of the actinal surface. The number of secondary tubercles (or, rather, of large miliaries) is very much greater than in *S. franciscanus*; and the scrobicular circle around which they form a ring in the interambulacral, though not in the ambulacral aræ, is not so wide as in that species. There is no petaloid enlargement of the poriferous zone around the actinostome; the number of pores in an arc may be here and there reduced to seven. The large number of small tubercles on the plates of the abactinal system is very striking, as is, too, the large size of the anal and madreporic plates. The auricles are well developed, and the space between the two halves elongated and triangular. As in *S. lividus*, the dentary apparatus is not as much as one half the height of the test; but the fenestræ (or spaces between the alveoli) are proportionally much shorter, and the radii are long enough to reach to the margin.

Three specimens were sent:—

- (1) Trinidad Channel, shallow water.
- (2) Tom Bay.
- (3) Cockle Cove.

*STRONGYLOCENTROTUS*, sp. inc.<sup>2</sup> (Plate VIII. figs. 3, 4.)

This specimen is at once distinguished by the very remarkable arrangement of the arcs of pores, which are so little bent as to be better indeed called rows, and are, above the ambitus, set very

<sup>1</sup> Molina, 'Saggio sulla Storia nat. del Chile,' Bologna, 1782, p. 200.

<sup>2</sup> I was for a long time inclined to regard this specimen as a representative of a new species; but a long and close study of other members of the genus has convinced me that the form of the arc of pores may vary very considerably during growth. I give a full description and figure of it, to exhibit the marked differences which obtain between it and the adult.



nearly vertically; below the ambitus and approaching the actinostome the rows become considerably flattened out and take on a more horizontal direction. Test not thick, very nearly circular, a good deal flattened; spines rather long, greenish, with (when dry) a reddish purplish tip; in each area there are two rows of primary tubercles, of which the interambulacral are considerably the larger; in both sets the diminution in size on the actinal surface is very rapid and very marked; a row of small tubercles, separating the two rows of primary tubercles, extends from the actinostome to some way above the ambitus, in the ambulacral area; there are but few secondary tubercles, on each coronal plate; and as the plates are high, there is no appearance of crowding. The poriferous zones are of a greenish-grey colour, and the two inner or upper pairs of pores are placed at a little distance from the outer or lower six pairs of pores; the spaces between the primary tubercles of the ambulacral area are of a reddish colour.

The actinostome is moderately large; but there are no deep cuts, and no large plates developed on the buccal membrane. As in *S. bullatus*, the ridge connecting the auricles is exceedingly low; the abactinal system is comparatively small, the number of anal plates not small; the madreporic is not much larger than the genital plates. As in *S. bullatus*, none of the ocular plates reaches the anal area. I cannot say whether the presence of short white spinous tubercles rising up so as to form a kind of anal tube is an individual peculiarity of the specimen under description.

The following are the more important measurements:—

Diameter of test.	Height of test.	Diameter of			Ambul. area.	Interamb. area.	Length of spine.
		actino-stome.	abactinal system.	anal system.			
39	21	13	8.5	5	9	11.5	22

One specimen. Tom Bay, 0–30 fms.; bottom, sand, kelp, and mud.

#### ECHINUS MAGELLANICUS (Philippi).

*E. magellanicus*, Philippi, Archiv für Naturg. xxiii. p. 130 (1857).

Two species of the genus *Echinus* have been recorded from the Straits of Magellan, *E. magellanicus* and *E. margaritaceus*. Without entering into any general discussion of their peculiarities, it will be sufficient to point out (in consequence of the somewhat contradictory statements that have been put out regarding them) that *E. magellanicus* can be readily distinguished by its larger number of primary tubercles. No specimens of *E. margaritaceus* were obtained in this collection. Those of *E. magellanicus* are all small in size. They were taken at:—

- (1) Tom Bay.
- (2) Cockle Cove.
- (3) Trinidad Channel.

(4)  $36^{\circ} 47' S.$ ,  $55^{\circ} 17' W.$  This is, I believe, the first recorded notice of the presence of *E. magellanicus* in any other region than the Straits of Magellan<sup>1</sup>; but the officers of the 'Challenger' Expedition dredged specimens from the Marion Islands and Prince Edward's Island, as well as at Station 147 (between Marion Islands and the Crozets) and Station 315 (north of the Falkland Islands)<sup>2</sup>; and the views of Studer as to the connexion in earlier periods of the world's history between such points as the southern portion of South America, the Falkland Islands, South Georgia, and the Crozets are thereby strengthened<sup>3</sup>—so far, that is, as forms with free-swimming embryos can offer any evidence at all on the point.

(5) Some very small specimens, which are, I believe, the young of this species, were obtained at Elizabeth Island.

#### ASTEROIDEA.

##### ASTERIAS.

The species of this genus which have come in this collection afford no exception to the rule that in it the process of determining the species is accompanied with very considerable difficulty.

An opportunity may, perhaps, be now taken to point out that the specific name *mollis*, applied by Studer to the new sexradiate form which he found on the west of Kerguelen<sup>4</sup>, cannot stand for it, as it was used by Captain F. W. Hutton five years earlier for a quinqueradiate form from New Zealand<sup>5</sup> (*bien entendu* that the difference in the number of the rays is not the only one). I would suggest that the name *studerii* should replace *mollis* for the more lately described species.

##### ASTERIAS BRANDTI, n. sp. (Plate IX. fig. 1.)

A single specimen of this species is, unfortunately, considerably injured; of the two arms which have been broken off from the disk, part of one has alone been preserved. Enough remains, however, to enable us to demonstrate a very remarkable similarity and a very remarkable difference between this new species and the *A. meridionalis* of Perrier. In this latter, which was collected by the Antarctic Expedition and has since been obtained from Kerguelen, the greater part of the creature is covered by short delicate spines, each of which is placed on a separate disk of its own. These disks are completely free from granules; but each disk is frequently separated

<sup>1</sup> During the Hassler Expedition specimens were taken at lat.  $37^{\circ} 42' S.$ , long.  $56^{\circ} 20' W.$

<sup>2</sup> The specimens from these localities were determined by Prof. Alex. Agassiz.

<sup>3</sup> Archiv für Naturg. xlv. p. 140. Some time after writing the above I found that Capt. F. W. Hutton had (Trans. N.Z. Inst. ix. p. 362) stated his belief that his *E. albocinctus* is the same as *E. magellanicus*. With this opinion of Capt. Hutton's I am not, as at present advised, disposed to disagree; but it may be pointed out that we not only find in this species an interesting example of geographical range, but are also able from it to point the moral of the value of geographical terms as specific titles.

<sup>4</sup> Monatsber. Akad. Berl. 1877, p. 457.

<sup>5</sup> P. Z. S. 1872, p. 812.

from those near it by small aggregations of large granules. Now in *A. brandti* the spines are present and the disks are present, as are, too, the granules, but the granules, instead of separating the disks, are placed upon them.

The species may be thus defined:—Arms five, very long and narrow, decreasing very gradually in width; they are largely covered with disk-like plates which are covered by large granules, with a short white spine in the centre. The adambulacral spines are in two longitudinal rows and subequal; the disk-like plates on either side are closely packed; and their spines are much longer and stouter than those on the dorsal surface. Between these lateral rows, and extending across the arm, there are about eleven disks, which form fairly regular longitudinal rows along the arm. The exceedingly small central disk is not distinguished by any special spines; the madreporic plate is orbicular and near the margin of the disk. Spines all white.  $R=86$ ,  $r=7$ ; or the greater is about twelve times the length of the lesser radius.

One specimen. Trinidad Channel, 30 fms.; bottom, mud.

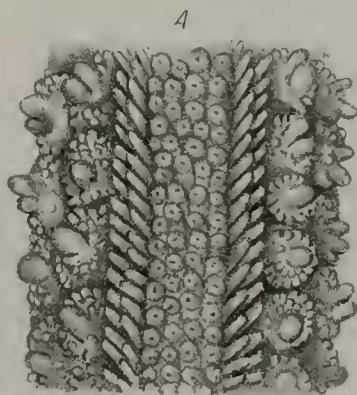
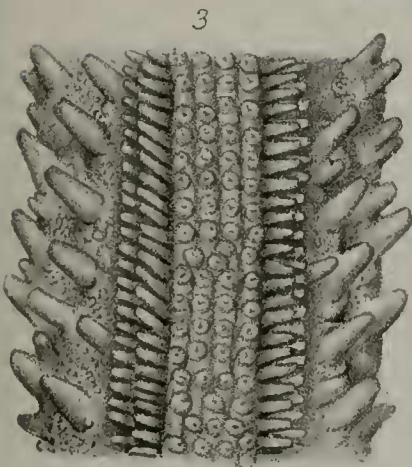
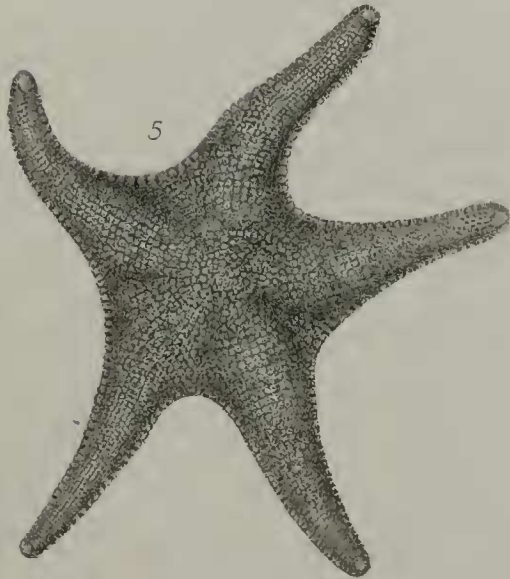
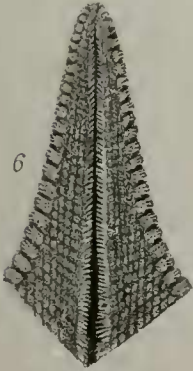
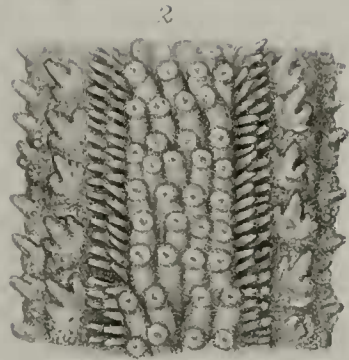
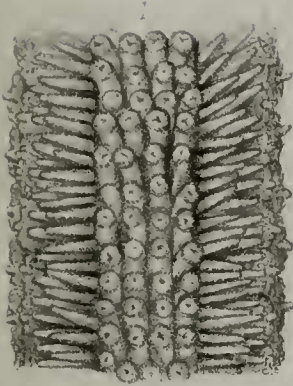
*ASTERIAS ALBA*, n. sp. (Plate IX. fig. 2.)

Arms five, rather stout, narrowing rather rapidly toward the end. Spines mere projections on the dorsal and lateral surfaces; adambulacral spines in two rows, delicate and closely set; these are flanked by two rows of stouter conical spines, which gradually diminish in size as they approach the distal end of the arm. External to these rows there is a bare band, which occupies the greater part of the side of the arm, and is separated from the barely convex dorsal portion by a somewhat indistinct line of short inconsiderable spines. The spines on the dorsal surface are no better developed; and the most important series is the median row of small projections. The species presents some resemblance to *A. antarctica*; and this is specially well seen in the reticulated appearance produced by the mode of arrangement of the calcareous bars which make up the dermal skeleton. The disk is very small, and not provided with any longer spines than the rest of the animal. The madreporic body is of a dead white and difficult to detect.  $R=73$ ,  $r=10$ ; therefore  $R=7.3r$ .

One specimen. Sandy Point, 7-10 fms.; bottom, dead acorn-shells.

*ASTERIAS OBTUSISPINOSA*, sp. n. (Plate IX. fig. 3.)

This species is at once remarkable for its short blunt spines, and for the fringe of short spines which surround the madreporic body; these are about twelve in number, while in the long-armed *A. spectabilis* of Philippi there are said to be eighteen. The adambulacral spines are arranged in two longitudinal rows, and are much less strong than the other spines; those of the inner row are the shorter. Beyond these there are three fairly regular rows of blunt spines, the innermost of which only extends about halfway along the arm. The side of the arm, bare of spines, is limited below by





the outermost of these rows, in which the spines are ordinarily arranged in pairs, and above by a row of, if any thing, shorter spines; these are sometimes, towards the apex of the arm, arranged in pairs. On the dorsal face of the arm there are three sets of short spines, arranged irregularly in pairs, and extending along the arm; the median row is by far the most regular. The arms are five in number; but one was broken off from the specimen under description; of the four remaining two are white and two are black on their dorsal surface; the rest of the creature is white, as are all the spines. The disk is exceedingly small and is but sparsely provided with spines; the radius of the disk is 14 millims., the length of the longest arm 70 millims.; so that  $R=5r$ .

One specimen. Sandy Point, 9-10 fathoms; bottom, sand.

#### ASTERIAS CUNNINGHAMI, Perrier.

*A. cunninghami*, Perrier, Rév. Stell. 1875, p. 75; Ann. Nat. Hist. (4) xvii. p. 36.

General appearance not unlike that of *A. rubens*. Arms five, elongated, gradually and regularly decreasing in width; disk small; madreporic plate obscure. A single row of adambulacral spines, flanked by a double longitudinal row of spines, every two being closely appressed; the sides of the arms are occupied by a number of small tubercles. On the dorsal surface of the arms the tubercles are closely packed both towards the tip and the base, while they are much more sparse in the middle third of arm and on the central portion of the disk itself. Colour orange.  $R=30$ ,  $r=8$ , therefore  $R=3.75r$ . Breadth of arms at base 9 millims.

Three perfect specimens, of which one is much smaller than the other two; they are all smaller than the type specimen. Tom Bay, 0-30 fathoms; bottom, rock, kelp, and sand.

#### ASTERIAS RUPICOLA (?).

*Asterias rupicola*, Verrill, Bull. U.S. Nat. Museum, i. iii. p. 71.

There are in the British Museum three specimens, which were collected by Dr. Cunningham, but to which no definite locality is attached; these specimens I now, though with very considerable hesitation, assign to the Kerguelen form lately described by Prof. Verrill. The hesitation is not due to any insufficiency on the part of the description, which is by the hand of a master, but from the fact that in some points, such as the proportion of the greater and lesser radii and the breadth of the arms at their base, the specimens now in hand have the arms longer and more slender than those of Mr. Verrill's specimens. When, however, we take into account the appalling number of specific terms which have been applied to forms belonging to the genus *Asterias*, we shall, I think, act more wisely if we refrain from adding to these synonyms on the score of differences in character which may at some future time be shown to be due either

to differences in modes of preservation, or to be such as come within the range of individual variations.

*ASTERIAS NEGLECTA*, sp. n. (Plate IX. fig. 4.)

The species now to be described is represented by a specimen which was brought home by Dr. Cunningham, and which has as yet remained undescribed. It resembles *A. meridionalis* in having a groove between the spines of the actinal and abactinal surfaces, in which the papular spaces are largely developed; but it is more closely similar to *A. brandti* in the characters of its abactinal surface, for granules are developed on the spine-bearing plates.

Arms five, elongated, and tapering gradually; the adambulacral spines are arranged in two rows, are cylindrical in form, and are about 2 millims. long at the middle of the arm; on either side of these there are three or four irregular longitudinal rows of short spines. The plates on the abactinal surface are richly covered with granules; these are closely set, are irregular in shape, and are each provided with a single short spine, which is hardly lighter in colour than the brown plate itself; the disks are somewhat irregularly arranged in six rows: and occasionally there are two spines on one disk. At the side of the arm and above the already mentioned groove there is a row of spines: these are set singly at the base of the arm; but they rapidly become double, and occasionally a third spine appears. The deeply set madreporic plate is placed quite at the edge of the central disk, on which the spine-bearing plates frequently have two or even three spines developed.  $R=83$ ;  $r=12$ ; or the greater radius is about seven times the less. Greatest breadth of arm 19.5 millims.

One specimen, Gregory Bay. Coll. Cunningham<sup>1</sup>.

*LABIDIASTER*, Lütken, 1871 (Vidensk. Medd. 1871, p. 289).

I have no hesitation in placing the specimen now to be described in this genus; the only point in which it does not satisfy the definition of Dr. Lütken is in the number of its arms. The learned naturalist who defined this genus says "brachia numerosa, triginta vel plura." The species now to be described has in all only twenty-six arms<sup>2</sup>; but I cannot think that this difference is, at the utmost, any more than a very poor specific character. The size of the specimen collected by Dr. Cunningham is rather less than half that of the one described by Lütken. If it is a different species from that form, the specific characters are not as yet sufficiently well marked to enable us to define it as such. I look upon it as a young specimen of *L. radiosus*, Lütken; if it shall turn out to be distinct,

<sup>1</sup> I subjoin a list of the other species from this region which are represented by specimens in the national collection:—

*A. sulcifera*, Perrier. Cape St. Vincent, Fuegia.

*A. rugispina*, Stimpson. Gregory Bay.

*A. perrieri*, Smith. Kerguelen.

*A. meridionalis*, Perrier. Kerguelen.

*A. antarctica*, Lütken.

<sup>2</sup> So Studer found a specimen with 29 arms (MB. Akad. Berl. 1876, p. 457).

it will be easy enough to call it *L. luetkeni*. I add the following short description:—

Perfectly flat, with twenty-three completely developed and three less-well-developed arms; brown above, with a dark line running round the disk, cream-white below; the arms are very slender, and widest at some little distance from their point of insertion into the disk. The small and white madreporic plate lies near the dark circular line, and is fringed with a few spines. The spines on the arms form a median and a lateral series; but the former does not extend along the whole length of the ray; the arms themselves have the appearance of being ringed externally, owing to the transverse disposition of these spines; single or bifurcate spines, not very regularly arranged, are to be found on the disk, but are not numerous.  $R=51.5$ ,  $r=14$ .

Trinidad Channel, 30 fathoms.

It is of interest to point out that in the three partly developed arms the ambulacral suckers are closely packed, and do not exhibit a definitely paired so much as a pycnopod arrangement; and this, which is characteristic of the adult *Asterias*, is *pro tanto* of value in supporting Dr. Lütken's view as to the affinities of the genus now under examination. The fact of the presence of three arms smaller than the rest should, further, be compared with the remarks on this subject made by Dr. Lütken (and translated in *Ann. & Mag. Nat. Hist.* ser. 4, xii. p. 336).

#### PENTAGONASTER SINGULARIS, M. & Tr.

*Goniodiscus singularis*, Müller & Troschel, *Archiv für Naturg.* (1843) ix. p. 116.

*Pentagonaster singularis*, Perrier, *Rév. des Stell.* p. 222.

One specimen, obtained in Tom Bay, 0-30 fathoms; bottom, rock, kelp, and mud.

This specimen is interesting as being intermediate in size between the two specimens already possessed by the Museum, and collected by Dr. Cunningham.

#### PENTAGONASTER PAXILLOSUS.

*Astrogonium paxillosum*, Gray, *P. Z. S.* 1847, p. 79.

*Pentagonaster paxillosus*, Perrier, *Rév. Stell.* p. 221.

A small specimen ( $R=19$ ,  $r=12$ ; 20 infero-marginal plates), collected by Dr. Cunningham at Sandy Point, must be referred to this species. If it be distinct from it, the distinctive specific characters are not differentiated; the condition of the type specimen, which is dry, prevents a determination of the question whether the Australian form has a glassy spine at each angle of the mouth. If it shall prove to be absent, that character might perhaps be shown to be one of specific value, and would, at any rate, afford a point of distinction between the South-American and the Australian form.

#### CALLIDERMA GRAYI, sp. n. (Plate VIII. fig. 5.)

Arms not long, interbrachial angle rounded;  $R=15$ ,  $r=8$ . Ten



marginal ossicles, in both upper and lower series, on the sides of each arm; at the apex of the angle an azygos triangular "antichinal" plate, as in *Pentagonaster singularis*. The plates vary considerably in the extent to which they are covered with granules, the more distal marginal ossicles having the granules confined to their borders, while in the more internal they are better-developed. The infero-marginal plates are richly covered with spiny tubercles, which are developed into distinct spines, set in tufts, on the ventral ossicles of the disk. On the borders of the ambulacral groove there is a transverse row of three or four well-marked spines; at the oral angle one spine is elongated and has a glassy appearance, so that it is much more conspicuous than the corresponding spine in *C. emma*. Abactinal surface blackish brown, with here and there lighter spots; marginal ossicles all white at the apex of the arm; but some of the more internal are of a lightish brown; ventral surface light brown.

This species is an ally of the *Calliderma emma* of Dr. Gray, which has been so beautifully figured by him in his 'Synopsis' (pl. xv.).

One specimen from Sandy Point, 9-10 fathoms; bottom, sand. A somewhat younger specimen of this species was collected by Dr. Cunningham in the Straits of Magellan.

#### CYCETHRA, nov. gen.

It seems to be necessary to establish a new genus for a specimen which was taken in Trinidad Channel, and which, though generally Goniasterid in character, seems, and that more especially at first sight, to present a combination of characters.

The ambulacral grooves are exceedingly narrow, the actinostome small, not widely open, the modified spines of the mouth-organs generally Goniasterine in arrangement; the ventral intermediate plates continuous, but not imbricated, bearing short spines, which in character and arrangement recall the same parts in *Asterina*. Marginal plates almost completely confined to the sides of the arm and disk; the ventro-marginal plates only just appearing on the actinal surface, and the dorso-marginal on the abactinal only near the tip of the arm; the plates are separated one from the other by a horizontal as well as by vertical grooves. The whole of the abactinal surface is covered with closely packed small ossicles, among which there are no pore-areas. The central disk is large; the arms rather short and slender. No pedicellariæ.

#### CYCETHRA SIMPLEX, sp. n. (Plate IX. figs. 5, 6.)

The following appear to be the specific characters of the specimen obtained:—Adambulacral spines in a single row, not especially subequal, diminishing in size as they pass to the apex of the arm. The spines of both surfaces are short, blunt, almost granular; the marginal plates, with the exception of those near the apex of the arm, are distant almost their own breadth from one another. The ossicles of the abactinal surface are small; and their granules can hardly be said to be produced into spines. The ocular plate is large and white; the madreporic plate is small and white, rather deeply sunken,

simply grooved, and not fringed with spines; it is situated not far from the centre of the disk.  $R=36$ ,  $r=13$ ; the arms are 7.5 millims. wide at the point where they become free from the disk, and 4 millims. at their tip; the adambulacral spines do not exceed 2 millims. in length; the interbrachial angles vary very greatly.

One specimen taken, at 30 fathoms, in Trinidad Channel.

ASTERINA FIMBRIATA, Perrier, Rév. des Stell. 1875, p. 307.

One small specimen, from Cockle Cove, and two still smaller, from Sandy Point, are, with some hesitation, referred to this species. I have not seen M. Perrier's type; and the variation exhibited by the species of this genus at various periods of their lives makes it impossible to speak definitely unless one has in hand a considerable series<sup>1</sup>.

#### ASTROPECTEN.

Two dried specimens of a species of this genus were obtained at a depth of 48 fathoms, in lat.  $32^{\circ} 39' S.$ , and long.  $50^{\circ} 11' W.$  They present a very remarkable resemblance to *A. articulatus*, Say, as figured by Agassiz ('North-American Starfishes,' pl. xix.); and the two specimens also differ in just the same way from one another as do two specimens mentioned by M. Perrier—in the fact, namely, that in one some of the dorsal plates are provided with spines, while from the other such spines are completely absent.

The specimens also differ somewhat from one another in the number of dorsal marginal plates. The length of the greater radius of one specimen is 82 millims., and the number of plates 33; while in the other there are 38 plates, with a greater radius of 81 millims. In the case of both specimens the relation of the greater to the lesser radius is much the same,  $R$  being equal to about  $5.75 r$ , the lesser radius in both specimens measuring 14 millims.

Two large sword-shaped spines, with which a smaller third one is frequently associated, project upwards and forwards from the upper margin of the ventro-marginal plate; they are sufficiently long for the first of each set to extend some way along the side of the dorso-marginal plate next but one in front of it; extending inwards towards the ambulaeral groove, the plates bear, in a somewhat irregularly double series, as many as seven well-developed spines in each set, and in addition to these there are a number of smaller spines and pedicellariæ. From the middle of the arm the spines increase in size towards the angle, and diminish towards the apex. The spines on the adambulacral plates are with difficulty distinguishable: they are arranged in two rows; and those of the inner series are the longer and stronger; there are generally three, more rarely only two, on each plate.

<sup>1</sup> Since writing the above, another example of the same species has been received from Borja Bay, and I have also been able to see Prof. Perrier's valuable essay on the geographical distribution of the Asterida (Nouv. Arch. du Mus. 1878); from this I gather that he seems to be satisfied as to the presence of this species in the Chilian seas (cf. the remarks in the 'Révision,' p. 308).

The madreporic plate is obscured by the paxillæ, which are nowhere arranged in regular rows. The interpaxillar area is 8 millims. wide at the base of the arm, and 1 millim. at the apex; the total width of the arm at the base is 15.5 millims., and at the tip 2.2 millims.

## OPHIUROIDEA.

### OPHIURIDA.

#### OPHIACTIS ASPERULA.

*Ophiolepis asperula*, Philippi, Archiv für Naturg. (1858), p. 267.

*Ophiactis asperula*, Lütken, Addit. ad Hist. Oph. ii. (1859), p. 130, footnote.

*Ophiactis magellanica*, Ljungman, Vetensk. Akad. Förh. 1866, p. 164.

*Ophiactis asperula*, Lyman, Bull. C. M. Z. vi. 2, p. 41.

- (1) Port Rosario, 2-30 fms.; bottom, sand and rock.
- (2) Tom Bay, 0-30 fms.; bottom, rock, kelp, and mud.
- (3) Elizabeth Island, 6 fms.; sandy bottom.
- (4) Sandy Point, 9-10 fms.; bottom, mud.
- (5) Borja Bay, 14 fms.; bottom, shell and stones.

#### OPHIOSCOLEX COPPINGERI, sp. n. (Plate VIII. fig. 6.)

This species is to be at once distinguished by the irregular distribution of the uppermost row of arm-spines, which are, though not regularly, set almost alternately in an upper and a lower plane.

The disk is rounded in the larger, subpentagonal in the smaller specimen. Arms long, slender, delicately tapering, widest at the base, with three lateral arm-spines, of which the uppermost, which is a little the longest and of about the same length as an arm-joint, is not always placed at the same level, but is not unfrequently higher up or lower down on the side of the arm than is the corresponding spine of the next joint. The three or four outer mouth-papillæ are short and spinous; the most central is broadened out and pectinate at its margin, closely resembling the teeth, of which there are at least three in each jaw. The buccal shield is only visible when the skin is removed, is somewhat ovoid, with the narrower end internal. There is a deep notch on the upperside of each arm-joint, so that the dorsal plates are only near one another in the middle line, but the calcareous plates do not here even touch one another; along the upper median line there runs a well-marked groove, an indication of which, as passing all along the arm, can be made out even before the skin is removed; the lower arm-plates are regular and oblong. Genital slits rather long.

The following are the more important measurements of the largest specimen:—Diameter of disk 20.5 millims.; length (longest) arm 80 millims.; breadth of arm (at base) 3 millims.; length of genital slit 4 millims.

Three specimens, one with the disk injured, were collected at Tom Bay, 0-30 fms.; bottom, rock, kelp, and mud.

## ASTROPHYTIDA.

The two specimens of this group which were received from the Straits of Magellan belong to the genus *Astrophyton*; and both appear to be representatives of a species hitherto undescribed. So far as I know, the only species which has yet been recorded as coming from the same region is the *A. pourtalesi* of Lyman, which was obtained off the eastern coast of Patagonia<sup>1</sup> during the Hassler Expedition. The species now to be described falls into the same group as it, belonging, as it does, to the series which, as Prof. Lyman has shown, is characteristic of the temperate seas, and in which the forkings are, as compared with such forms as *A. muricatum*, few and distant.

## ASTROPHYTON LYMANI, sp. n.

Radial ribs prominent, compressed laterally, their narrow ridge with short conical or rounded spiniform processes; somewhat similar spines are found in medium quantity projecting from the thick brown skin of the interradial spaces. Madreporic body single, large; the tentacle-scales extend nearly as far as the mouth, and soon become arranged by fours in each transverse row.

The following are the more important measurements:—Diameter of disk 45 millims.; breadth of arm within disk 7.5 millims.; breadth of arm just without disk 6 millims.; greatest width of madreporic body 4.5 millims.; genital slits 4 millims. long.

	millim.
Distance from mouth to 1st fork . . . . .	15.5 <sup>2</sup>
"    "    1st to 2nd " . . . . .	15
"    "    2nd to 3rd " . . . . .	21
"    "    3rd to 4th " . . . . .	25
"    "    4th to 5th " . . . . .	23
"    "    5th to 6th " . . . . .	28
"    "    6th to 7th " . . . . .	36
	163.5

There are ordinarily two terminal branches of no great length. The mouth-parts are all simple, spiniform, and rather numerous. The madreporic body, which in the specimen under description is broken up into several parts, is placed quite in the apex of the interbrachial angle, so that it is almost semilunar in form; in the dry example, at any rate, it is quite easy to distinguish. The inner lip of the genital slits is fringed with a few spines or spinous granules. The dark-brown interradial spaces on the actinal surface contain, except at their peripheral margin, a considerable number of small white granules, and they are separated from the corresponding space on the upper surface by a white calcareous band, altogether similar to the band which forms the base of the radial triangular space, and, like them, provided with some short blunt or conical projections;

<sup>1</sup> Ill. Cat. M. C. Z. viii. 2, p. 28.

<sup>2</sup> Greatest length always given.

there are, however, about twice as many of these projections in the interradial as in the radial bands. There are no spines or other processes on the dorsal aspect of the arm, which is only closely granulated; no indication of any banded arrangement of the granules in correspondence with the joints of the arms can be made out till the third bifurcation is passed. The tentacle-scales are ordinarily arranged in fours, and are short, spiniform, and subequal; the pore nearest to the mouth seems to be always without the scale; the next may or may not have one; the third has one; the fourth or fifth pore has two, the seventh or eighth three, and the tenth or eleventh four. The arms completely white, as are the radial ribs and the edges of the genital slits; the rest of the disk is of a brown colour, which is relieved by the white spinous granules.

The smaller of the two specimens of *A. pourtalesi* (Lyman) had the diameter of its disk (63 millims.) nearly 20 millims. longer than the specimen now under examination; and it is possible that the affinity between the two species may hereafter be shown to be closer than we are yet justified in supposing it to be. Whatever the result, the suspicion induces me to place with *A. lymani* a second and smaller example of the same genus. It is to be distinguished from it by several points, but every one of them may, I think, be more rightly ascribed to differences in age and in sexual condition than to inherited distinguishing characteristics:—

(1) The mouth-slits are very distinctly rounded; and the whole actinostome forms a rosette.

(2) The interbrachial spaces are sharply incised at the edge of the disk.

(3) The radial ribs, though distinct, are not prominent; and the granulation on them and on the interradial spaces of either surface is less differentiated than in the larger form.

(4) Transverse bands of granules can be detected on the dorsal surface of the arms quite close to the disk.

(5) The fifth difference lies in the smaller number of the tentacle-scales; and that is one of far greater importance than any of the preceding differences: most of the tentacle-scales are arranged three in a row.

Perhaps a larger series may, contrary to what ordinarily happens, enable us to definitely distinguish the two forms.

The larger specimen was taken in Trinidad Channel, at a depth of 30 fathoms; bottom, sand. The smaller at Port Rosario, 2–30 fms.; bottom, sand and rock.

#### HOLOTHUROIDA.

As I have already remarked, this class is very feebly represented. I have here only to direct attention to two species.

##### CUVIERIA ANTARCTICA.

This species, first described by Philippi (Arch. f. Nat. 1857, p. 133), has since been recorded by Studer (Monatsb. Ak. Berl.

1876, p. 453), from Tuesday Bay, Straits of Magellan. The difference between the size of the largest specimen now under examination and the object of Philippi's description is considerable; the latter measured  $4\frac{1}{2}$  lines long and 3 lines broad, whereas that from Dr. Copping is 43 millims. long and 25·25 millims. broad. Studer's specimens afford an intermediate size, for they were 40 millims. long and 20 millims. broad. The other specimens give the following measurements—5·5 millims. and 4·25 millims., and 4·5 and 3·25, respectively, for their length and breadth.

(1) 2 small specimens, Portland Bay, 10 fms.

(2) 1 specimen, Latitude Cove.

CHIRODOTA PURPUREA, Lesson, Cent. Zool. p. 155; Studer, Sitzungsab. Akad. Berl. 1876, p. 454.

I refer to this species four small specimens which were collected off Elizabeth Island in six fathoms of water. For the present I must abstain from offering any opinion on the validity of the new genus *Sigmodota*, which Herr Studer proposes for the reception of this species.

## X. CŒLEENTERATA.

By STUART O. RIDLEY.

(Plate VI.)

### ACTINOZOA.

#### ZOANTHARIA.

PARACTIS ALBA, Studer?.

*Paractis alba*, Studer, M.B. Ak. Berlin, 1878, p. 545, pl. v. fig. 19.

Two specimens in spirit, without any distinct coloration, except a faint cream-colour on the disk and tentacles. The tentacles are present, in the least contracted of the two specimens, in numerous cycles, short, thick, the central ones tipped by a slight distinct point; they decrease in size towards the margin of the disk. The base appears to have been broader than the disk in life; and the height of the body is about equal to the breadth of the base. The sides of the body are smooth, with the exception of some more or less distinct ridges which mark the position of the mesenteries. Height of largest specimen 22 millims., extreme breadth of disk 19, base 22.

*Hab.* Trinidad Channel, S.W. Chili, 60 fathoms.

The identity of this species is doubtful. The tentacles occur in only two cycles in Studer's specimen; in the longitudinal striation of the body, however, it resembles this form.

PARACTIS sp. inc.

One spirit specimen, coloured as the preceding species. The disk is much everted, and touches the base; nearly half of its surface is bare, the margin being occupied by two cycles of thick tentacles

and two of small ones, which are exterior; all are entirely retracted. The sides of the body are almost hid by the disk in its present state: they are about 5 millims. high; the base is 11, and the disk 13 broad. The only unevenness of the body-surface is an occasional indication of the mesenteries.

*Hab.* Same as preceding.

It is obviously impossible to identify these specimens satisfactorily by the few characters left to them.

Two other Actinians are represented, each by a minute specimen from Coquimbo Bay, Chili. One is almost entirely black in spirit, the other nearly white, apparently with black-tipped tentacles. They answer to none of the species enumerated in Gay's 'Chili' with any certainty; possibly the light-coloured species may be *Actinia nivea* of Lesson (Voy. de Coquille, Zooph. p. 80, pl. iii. fig. 8). The depth is 4-8 fathoms.

*AXOHELIA BRUEGGEMANNI*, sp. n. (Plate VI. fig. 7.)

Corallum subcylindrical, branching. Cœnenchyma compact; surface covered with minute pointed tubercles at some distance apart, and marked by very slight and irregularly developed longitudinal ridges. Calicles round or slightly oval, the long axis following that of the corallum itself; maximum diameter 1 millim., generally more or less raised above surface. Septa 8 in number, in one cycle, equal in size, commencing outside the calicle as ridges, and projecting above its edge as prominent square-topped teeth; at a distance inwards varying from one fourth to half the radius they fall away perpendicularly and join the columella; a second cycle is indicated by a slight swelling in the calicular rim between each of the two primaries. Columella mound-like, culminating in a short, sharp median point. Interseptal spaces deep. Colour of corallum white.

*Hab.* Victoria Bank<sup>1</sup>, off S.E. Brazil, 33 fathoms; also (specimen already in British Museum) West Indies.

*Obs.* The specimen from the West Indies already in the Museum, but not described, has the form of (apparently) two stems which have fused laterally at one point. It bears several short tubercular processes, and is forked at the upper end; it measures 80 millims. in length by 10 in maximum thickness. The calicles differ from those of the Brazilian specimen in being always round, in being little, if at all, salient, and in the superior radial length of the septa; it also differs immensely from it in relative stoutness, as the other measures only 15 millims. in length by 2 in thickness. In both cases the stem has a somewhat oval section; the calicles are between 1 and 2 millims. apart. The West-Indian specimen was probably a dead one and somewhat overgrown; so it is fortunate that one evidently taken alive has been secured. The differences between the two are important, especially the shape of the calicles, but apparently not sufficient to justify their separation. This species is named after the lamented author who was the first to recognize

<sup>1</sup> Not marked in the ordinary maps; its position is lat. 20° 42' S., long. 37° 27' W.

its specific distinctness. It differs from the rest of the genus in the number of its septa.

## ALCYONARIA.

## PRIMNOELLA AUSTRALASIÆ, Gray.

*Primnoa australasiæ*, Gray, P. Z. S. 1849, p. 146, Radiata, pl. ii. figs. 8, 9.

*Primnoella australasiæ*, Gray, P. Z. S. 1857, p. 286.

A single specimen, about 54 centims. long; in spirit. It agrees well with the numerous specimens already in the Museum. Close to the present base (which, however, is not the original base, as it has been snapped off from a longer specimen) an empty shark's egg is attached; its two fastenings having, apparently, modified the growth of the cortex at their point of attachment.

*Hab.* Trinidad Channel, S.W. Chili, 30 fathoms, sandy bottom.

## HYDROZOA.

## HYDROIDEA.

## LAFOEA DUMOSA, Fleming.

*Sertularia dumosa*?, Montagu ap. Fleming, Edin. Phil. Journ. ii. p. 83.

*Lafoëa dumosa*, Hincks, Brit. Hydr. Zooph. i. p. 200, ii. pl. xli. fig. 1.

Abundant in the creeping form. The calicle is simple, or else possesses from 1 to 4 rings (old mouths) at different heights.

*Hab.* Trinidad Channel, S.W. Chili, 30 fathoms, on *Sertularella*.

## EUDENDRIUM ARBUSCULUM, d'Orbigny? (non T. S. Wright).

*Tubularia arbuscula*, d'Orbigny, Voy. Amér. mérid. p. 28, pl. xiii. figs. 11, 12.

The lower part of the stem is made up of contorted tubes, and the colony resembles *E. rameum* closely in external appearance; and is apparently nearly related to it. D'Orbigny makes the stem of about one diameter throughout, but as in the magnified drawing he depicts part of it as thicker than the part below it, which is contrary to analogy, it does not follow that his other figure is correct; according to that, the origin of the branchlets is dorsal or ventral, not lateral, and they take a twist to the side on leaving it. The stem in the present example is always ringed between the branches, though to a varying extent, and the branchlets are annulated for most of their length. Characters of polypites and gonophores unknown. Maximum height about 80 millims. Several colonies occur together.

*Hab.* Trinidad Channel, S.W. Chili, 30 fathoms, from stem of seaweed?

## HALECIUM DELICATULUM, Coughtrey.

*Halecium delicatulum*, Coughtrey, Ann. & Mag. Nat. Hist. ser. 4, xvii. p. 26, pl. iii. figs. 4 & 5.

Several colonies, of 27 millims. height, appear to represent the above



species; the stem is about 2 millims. thick at the base, and is strong and of a dark-brown colour there, but pale yellow at the apex; the pedicle of the hydrophores (*Allman*) varies somewhat in length; the first cup, followed by a joint, is generally succeeded by a rather long space devoid of cups, which then appear close together up to the number of four in some cases, in others at intervals as great as that between the first and second. Stem generally simple, but in the largest example (twisted round by several tubes, possibly foreign to it) at the base.

*Gonosome* (not previously described). Gonophores inserted on pedicle of hydrophores, just below the first joint, by a stalk; they are transversely oval in outline, and have a thin, very pale capsule.

*Hab.* Sandy Point, 7-10 fathoms; on large worm-tube.

#### SERTULARELLA JOHNSTONI, Gray.

*Sertularia johnstoni*, Gray, Dieffenbach's New Zealand, ii. p. 294.

Several specimens, generally pale brown in colour; the hydrothecæ moderately distant, and elongate and free to a great extent, tapering almost from base, or slightly swollen just above it; lateral teeth very small, lip sometimes ringed. Gonothecal tube varying from a short and straight to a prominent trumpet-shaped opening. Internodes generally include a large number of calicles, joints very faintly marked; oblique rings of stem scanty, often wanting.

A doubtful specimen from Sandy Point, 7-10 fathoms, has the calicle considerably swollen at base, and bent outwards at a spot about two thirds of its length from that point.

*Hab.* Trinidad Channel, S.W. Chili, 30 fathoms; also Sandy point, 7-10 fathoms, on large worm-tube.

#### SERTULARELLA POLYZONIAS.

*Sertularella kerguelenensis*, Allman, Ann. & Mag. Nat. Hist. ser. 4, xvii. p. 113.

*S. polyzonias*, Allman, Phil. Trans. clxviii. p. 282, footnote.

Growing to upwards of an inch in height. The orifice of the gonangium forms a very short tube; the annulation is continued to within one quarter of the length from the pedicel. Several colonies. Represents the southern variety now united to *S. polyzonias*.

*Hab.* Trinidad Channel, S.W. Chili, 30 fathoms., on a stiff stem (*Fucus*?); and ? Sandy Point, 7-10 fathoms, on worm-tube (young, without gonangia).

#### SERTULARIA TRISPINOSA.

*Sertularia trispinosa*, Coughtrey, Trans. N.Z. Inst. vii. p. 284, pl. xx. figs. 14 & 15.

Rises from a creeping fibre. Growth upright; branches very distinct, and given off equally on both sides. Maximum height quite 100 millims. No gonangia observed.

*Hab.* Elizabeth Island, Straits of Magellan, 6 fathoms, on stem of seaweed, in company with Polyzoa.

## SERTULARIA FUSIFORMIS, Hutton? (non Hincks).

*Sertularia fusiformis*, Hutton, Trans. N.Z. Inst. v. p. 257; Coughtrey, Trans. N.Z. Inst. vii. p. 285, pl. xx. figs. 21-23.

This species appears to be represented by four specimens. The growth is very strong, and the calicles large ( $\cdot 425$  millim. in diameter at their middle); but they should be described as quadridentate, though the interior and exterior teeth are very short. The crest, described by Coughtrey on the upperside of the gonangium, is here, at any rate, a tube which opens in the side of the gonangium. This is certainly not the species assigned to Hutton's species by Allman (Journ. Linn. Soc. xii. p. 263) under the name of *S. episcopus*.

*Hab.* Trinidad Channel, S.W. Chili, 0-30 fathoms, on coral &c.

## HYDROCORALLINÆ.

## LABIOPORA ANTARCTICA, Gray.

*Porella antarctica*, Gray, Ann. & Mag. Nat. Hist. ser. 4, ix. p. 482; P. Z. S. 1872, p. 746, pl. lxiv. fig. 4.

*Labiopora*<sup>1</sup> *antarctica*, Moseley, Phil. Trans. 1878, pt. ii. p. 476, pl. xxxv. fig. 5.

A spirit specimen, the first obtained. It differs from the type specimen somewhat in habit. Instead of originating by a very broad stout stem, giving off stout branches which branch into rapidly tapering pointed twigs, the frond commences to branch almost at its base, the branches being cylindrical and only about half the diameter of those of the type specimen, which is of about the same size; hence their terminal divisions taper much less. The lips of the "nariform projections" are, as a rule, thicker than in the other case; and hence their contained pores are scarcely visible to the naked eye. The specimen, which was obtained on the 29th of March, is well provided with ampullæ (absent in the type specimen), about one millim. in diameter, projecting as low domes between the nariform projections over the greater part of the branches, some having already burst. The stock would therefore appear to be *female*; but examination of decalcified fragments failed to detect generative organs with certainty. The cœnosarcal canals are from  $\cdot 035$  to  $\cdot 07$  millim. in diameter; the meshes between them vary from the former diameter to about  $\cdot 14$  millim.

*Hab.* Trinidad Channel, S.W. Chili, 30 fathoms (coated with *Cellepora*, Sertularians, &c.). (The type specimen was from a bank to the east of Tierra del Fuego.)

<sup>1</sup> *Characters of the Genus Labiopora.*—With Mr. Moseley's concurrence, I propose that the distinctive characters of the dactylopores of his genus should be restated as follows:—"Dactylopores devoid of styles; two kinds present, the one opening on the general surface of the cœnosteum, the other within special areas bounded by nariform lips." This change is necessitated by the discovery of the following new species. The term "few" should be omitted from the description of the branches, and also the statement that the nariform projections are inclined towards the tips of the branches and have their rounded margins on this side.

## LABIOPORA MOSELEYI, sp. n. (Plate VI. fig. 11.)

An upright well-branched frond, rising from a somewhat spreading base and thick stem; branches lying almost entirely in one plane, all somewhat flattened from front to back except the terminal ones, which are cylindrical and taper slightly to their generally somewhat blunt points; anastomosis between branches frequent. Colour of stem, base, and anterior and posterior aspects of main branches pale vermilion in the dry state, the same parts of the terminal branches and the lateral portions of the main ones deep vermilion. An anterior clearly distinguishable from a posterior surface, by the development on it of numerous tubercles, chiefly in the terminal branches, which are very slightly indicated on the latter. Surface minutely reticulate, covered (slightly on the anterior face of chief branches and stem, thickly on lateral faces of main branches and on anterior and lateral faces of terminal branches) with small rounded tubercles, varying in height up to about .4 millim., the largest generally pierced by dactylopores. Dactylopores differing little in size, *i. e.* long diameter from .1 to .14 millim.; either round or oval; of two kinds, either (i) placed in the general surface of the corallum, or (ii) in the side or near the apex of a tubercle, forming a slit in its side; the tubercle in this case has a horseshoe-shaped outline, but with a very thick convex side, as the dactylopore never occupies more than half the apex of the tubercle, and is generally dominated by the superior height of the apex of the tubercle; no styles visible. Gas-tropores found accompanying dactylopores, also to some extent alone on interior surface of the larger branches; round, provided with deeply-set styles resembling camel's-hair brushes, diameter from .32 to .35 millim., each generally accompanied by one tubercular dactylopore and one to three surface ones. Male gonangium spherical, closely packed with oval or globular refringent pale reddish-yellow cells with transparent contents. Cœnosarcal canal-system closely reticulate; meshes generally about same diameter as the canals which form them, *viz.* .035 to .07 millim.

*Examined.* Dry, and by decalcification and subsequent mounting of pieces in glycerine.

*Hab.* Port Rosario, S.W. Chili (on the north side of chief island of Madre-de-Dios archipelago), 2-10 fathoms, on a piece of calcareous rock.

*Obs.* This Coral is of great interest as being closely allied to the preceding species, the only one known hitherto of the genus *Labiopora*, previously known only by a single dry specimen. It also is represented by a single dry specimen, but of greater size, measuring 9.5 centims. in extreme (present) height and 13.4 centims. in extreme present breadth; the contrast between the pale-red colour of the stem and the deep colour of the branches gives it a fine appearance. The gonangia were not found abundantly, perhaps owing to the early time (March), at which it was taken. It differs from *L. antarctica* in having an anterior distinguished from a posterior surface, in the small and uniform size of all the dactylopores, and in their being, when present on the tubercles, mere excavations in their sides; for the





latter reason they are with difficulty distinguishable with a lens in this position, though the naked eye is sufficient to make them out in *L. antarctica*; the bareness of the stem and of the greater portion of the chief branches is perhaps the most striking superficial point of difference.

The species is dedicated to Mr. H. N. Moseley, to whom we owe so much for conclusively determining the affinities of the group to which it belongs. It seems in some respects to connect *Errina* with *Labiopora*, representing a transition from the strongly to the feebly labiate character of the chief dactylopores. The comparative absence of prominent dactylopores from the anterior and posterior surfaces of the frond would be an important character, were it not that both this and the condition in which they are universally distributed are found in *Errinæ* in the Museum collection. The colour, too, cannot be appealed to, considering the variations which are shown in this respect by the kindred genus *Stylaster* and (if *E. fissurata*, Gray is an *Errina*, and if the figure by which we know it was taken from a macerated specimen) by *Errina* itself.

## XI. SPONGIDA.

By STUART O. RIDLEY.

(Plates X., XI.)

*Horny and Siliceous Sponges of Magellan Straits, S.W. Chili, and Atlantic off S.W. Brazil.*

With regard to the technical nomenclature of the different parts of the Sponges here described, the terms employed are used with the meanings which they bear in Mr. Carter's writings<sup>1</sup>. In *measuring* the spicules with the view of stating the typical form and size, the object has been to determine the *average largest* size of each described form; in each case at least *five* of the largest of each form were picked out and measured in order to decide this point. The *diameter* given for a spicule is the greatest diameter in each case, except that of spinulates or similar forms, where the diameter given is that of the body, not of the head; in the case of spined spicules the base alone of the spines is included in the measurements.

Considerable details have been given under many of the species with regard to the structure of allied forms elsewhere described (chiefly by Bowerbank, Schmidt, and Lamarck). It should be observed that these details are obtained from a fresh and independent study (1) of actual type specimens or slides as far as these could be fixed, in the case of the Bowerbankian species; (2) of the slides and specimens furnished to the Museum by Prof. Schmidt himself, in the case of the species described by him; (3) of a collection which undoubtedly represents the type specimens, in the case of Lamarckian species. The type specimen of *Ciocalypa tuberculata*, Carter (see *infra*), has also been carefully examined. In all these

<sup>1</sup> Cf. especially his "Notes Introductory to the Study" &c., Ann. N. H. (4) xvi. pp. 1-40, 126-145, 177-200.

cases, therefore, the descriptions here given may be considered, so far as they go, as revisions of the species in question; I believe that such revisions of many of the current species are urgently needed.

Order CERATINA, Carter.

APLYSINA (?) REGULARIS, sp. n. (Plate X. fig. 1.)

Surface even, set with the slightly projecting ends of the primary skeleton-fibres at intervals of about  $\cdot 5$  millim. Vents inconspicuous. Skeleton regular, of primary fibres at right angles to surface, average greatest diameter  $\cdot 057$  millim.; and of secondary fibres, parallel to the surface at regular intervals between the primaries, average greatest diameter about half that of the primaries. Primary fibre pale amber-colour, composed of a multilaminar horny wall with a thick innermost lamina, enclosing a faintly granular axis closely resembling the wall in nature of substance; axis about one third the diameter of the fibre. Secondary fibre paler, generally fibrillated to its centre.

*Examined.* In spirit and by mounting in balsam.

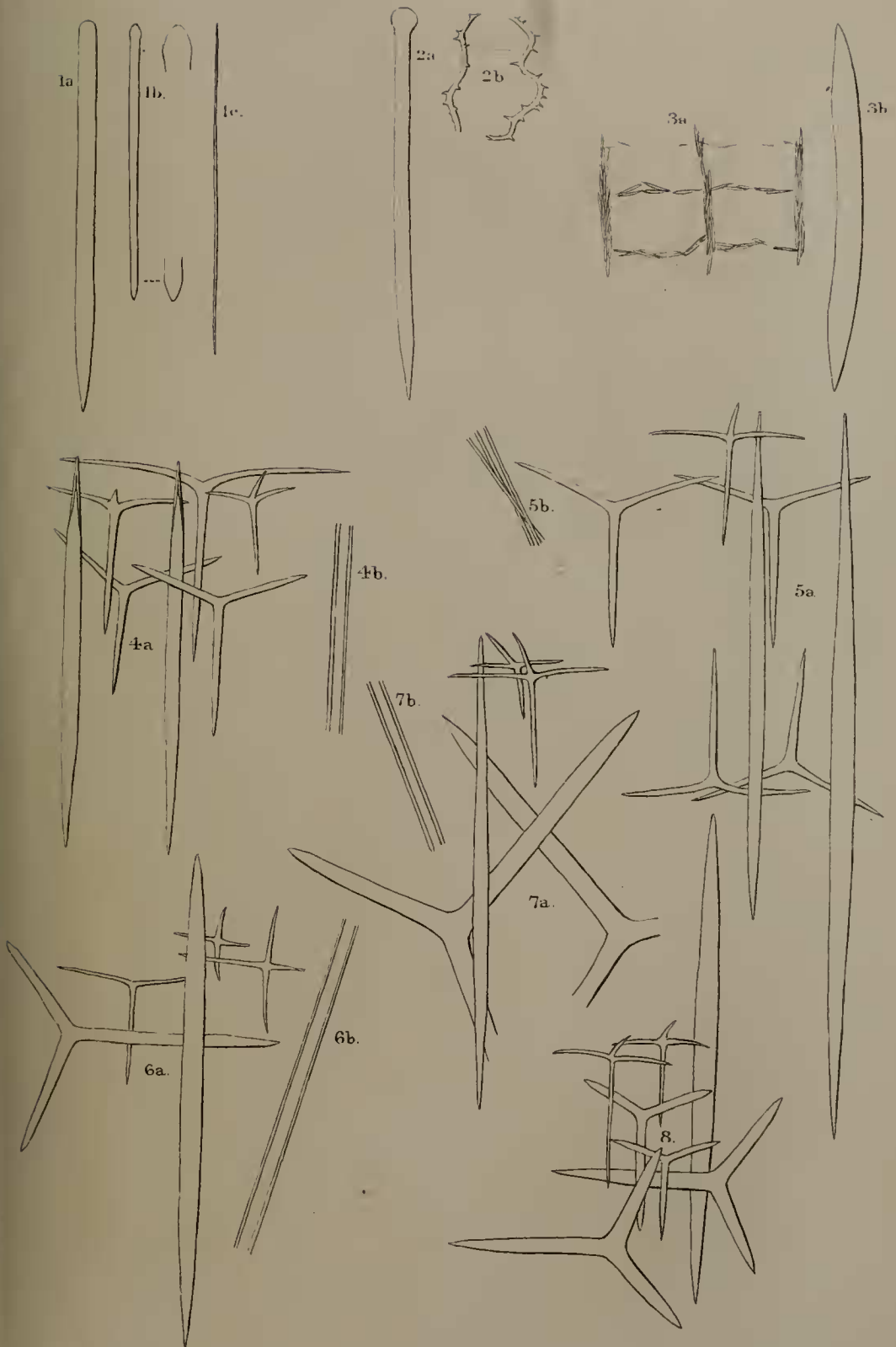
*External Characters.* Form incrusting. Consists of a sheet of substance about 2 millims. thick, with a level surface, spreading irregularly over about one square English inch of an immense flexible worm-tube. Texture soft, very elastic. Colour (in spirit) pale grey. The surface appears glossy, and is set with a number of minute projecting points, which occur with some regularity at about  $\frac{1}{2}$ -millim. intervals over it.

*Vents.* None apparent. *Pores* scattered between surface-points,  $\cdot 04$  to  $\cdot 1$  millim. in diameter.

*Main Skeleton.* Composed of a set of primary fibres running outwards at right angles to surface, and projecting by attenuated points to a distance of from  $\cdot 14$  to  $\cdot 32$  millim. from the surface (they are distant from each other at the surface  $\cdot 35$  to  $\cdot 7$  millim.), of a secondary set, connecting these, approximately at right angles to them, distant from each other by  $\cdot 18$  to  $\cdot 36$  millim., and of a tertiary set, running parallel to the primary fibres and connecting the median portions of the secondary fibres. This tertiary set is not always so fully developed as to extend from the base to the surface of the Sponge; but it is generally represented by a fibre or two in the interval between each two primary fibres; it may possibly prove to be merely the young stage of the primary fibres, from which it differs in its diameter and structure, being about half as broad as an average primary fibre, and having but a thin uni- or bilaminar outer wall, and pale yellow colour, also apparently in not terminating on the surface by a point: it may give rise to a primary fibre.

*Hab.* Sandy Point, 7-10 fathoms, on worm-tube.

*Obs.* This is probably quite a young specimen; its habits and size, as compared with those of the other members of the genus *Aplysina*, seem to show this. The extremely slight difference in appearance between the horny wall of the primary fibre and its granular axis distinguishes it from most, if not all, other *Aplysinæ*.







The great regularity of its skeleton, and its distinction into two kinds of fibres differentiates it from *Dendrospongia*, Hyatt, as well as from the other known species of its genus. The characters of the axial fibre-substance distinguish it from *Verongia*, Bowerbank.

Order PSAMMONEMATA, Carter.

HIRCINIA HISPIDA, Lamarck (sp.).

*Spongia hispida*, Lamarck, Ann. Mus. Hist. Nat. xx. p. 452.

*External Characters*<sup>1</sup>. The single (spirit) specimen agrees fairly well with the characters assigned to this species by Lamarck (*l. c.*), and with the specimen of the species already in the British Museum. It being, however, evidently young, the *branching* character is no more than indicated by the extension outwards of a rounded lobe from each side; and as it is a well-preserved spirit specimen, the small foramina of Lamarck's description and of the dried specimen are wanting. It is sessile by a broad base, and suboval in outline, the long axis extending from side to side. Surface uneven, rendered coarsely hispid by the projecting ends of the primary skeleton-fibres, arranged at intervals of from .5 to 1.75 millim. (to 2 in the dried state). Colour in spirit dark brown, slightly rufous; of dry skeleton, pale yellow-brown.

*Vents* few, round; diameter in spirit 1.5 millim., in dried specimen 2 to 3.5 millims. *Pores*?

*Skeleton*. Consists of a set of stout primary, generally sand-cored, fibres running outwards from the interior, each terminating at right angles to the surface in one of the surface-papillæ. These are connected by a secondary set, consisting of an irregular network of much finer, uncored fibres, meeting the primary fibres at acute angles, and forming by their branching and anastomosis irregularly diamond-shaped meshes. Surface network formed by secondary fibres connected with the interior secondary-fibre network, and laterally with the apices of the primary fibres. Primary fibres cored by coarse foreign bodies, which are enveloped by pale-yellow horny matter, but which generally occupy all the fibre except a slight external film, and cause it to bulge largely at the sides; diameter from .0507 to .235 millim. in the spirit, from .038 to .0834 in the dry specimen. It should be noted with regard to this discrepancy that the foreign bodies in the latter are much smaller than in the former, and being many of them sponge-spicules, which protruded from the fibre, were not included entirely in the estimate of the diameter as given here. There is considerable irregularity as to whether the fibre is cored throughout or not in this specimen, which may be due to the reason suggested by Hyatt<sup>2</sup> for a similar fact observed in *Carteriospongia otahitica*, viz. the relatively smaller amount of accessible material for the core in the one case. Secondary fibres obscurely striated, the external laminæ denser than the internal ones,

<sup>1</sup> All the characters are taken from the spirit specimen, deviations in the dry one being noticed.

<sup>2</sup> Mem. Bost. Soc. ii. pt. iv. p. 541.

sometimes giving somewhat the appearance of an *Aplysina*-fibre to it; generally with a fine dark axial line (rarely seen in the dry specimen); transparent, pale yellow; diameter  $\cdot 006334$  to  $\cdot 038$  millim. in the spirit,  $\cdot 006334$  to  $\cdot 057$  in the dry specimen.

*Parenchyma* brownish yellow, granular, subopaque in the spirit specimen; apparently represented by shreds of almost colourless transparent material, carrying small and large foreign bodies, in the dry one.

*Examined.* In spirit in the dried state, and by mounting in balsam.

*Hab.* Tom Bay (Trinidad Channel, off chief island of Madre-de-Dios archipelago), in S.W. Chili, 0-30 fathoms, on *Idmonea* (*Dr. Coppinger*). "Southern Seas" (*Péron et Lesueur, apud Lamarck*<sup>1</sup>).

*Obs.* Advantage has been taken of the discovery of a good spirit specimen to give the characters of the sponge in full, as Lamarck's description is insufficient.

#### Order RHAPHIDONEMATA, Carter.

##### CHALINA COPPINGERI, sp. n. (Plate X. fig. 2.)

Sponge suboval, slightly compressed; sessile by elongate base. Colour bright amber-brown. Texture very elastic and soft. Surface almost smooth. A single round vent on one side, 3 millims. in diameter, penetrating deeply. Pores? Skeleton Chalinoid, very regular. Main primary fibres running at right angles to surface, from which they project by sharp points by  $\cdot 088$  to  $\cdot 32$  millim., spiculated throughout with two or three series of axially placed spicules; diameter of fibre  $\cdot 07$  to  $\cdot 089$  millim. Secondary fibres at right angles to the preceding, and of about the same diameter; spicula 1-serial; both kinds of a pale amber-colour, very distinctly laminated. A young, intermediate series of fibres, parallel to each of the preceding, occupies the wide spaces which exist between them, containing one series of spicula; diameter of fibre  $\cdot 006334$  to  $\cdot 03167$  millim. Dermal skeleton of same general structure as main skeleton, the intermediate fibres form smaller and less regular meshes. Spicules slender, smooth, acerate, straight or slightly curved, tapering to sharp points from near to the ends, average maximum size  $\cdot 1013$  by  $\cdot 0025$  millim.; sarcode transparent, almost colourless, with scattered spicula.

*Examined.* In spirit and by mounting in balsam.

*Hab.* Victoria Bank<sup>2</sup>, off S.E. Brazil, 39 fathoms; growing on an erect calcareous Polyzoön. One specimen.

*Obs.* This Sponge is of the shape, and about two thirds the size, of a hazel-nut; it has lost most of its sarcode, but is otherwise well preserved. The MS. species *C. argus*, Schmidt, from Florida, resembles it very closely in microscopic characters; but the fibre is

<sup>1</sup> *Loc. cit. suprâ.*

<sup>2</sup> This bank is not marked in the ordinary maps; its position is lat.  $20^{\circ} 42' S.$ , long.  $37^{\circ} 27' W.$

generally less thick than in our species. When the external characters of this Sponge are known, it may perhaps prove to be identical with our species.

Of several Sponges which have almost identically the same spicule may be mentioned:—*Spongia arborescens*, Lamarck, said to inhabit the "seas of America;" *Chalina limbata*, Bowerbank (Montagu?), and *C. gracilentata*, Bowerbank, Britain. The latter is probably the nearest-allied species which has been described, but differs in having the spicules much more numerous in the fibres, in having a less elaborate intermediate set of fibres, in the slightly inferior length (about .08 millim.) of the spicules, and the coating habit of growth.

The specific name has been given to it in honour of the discoverer, Dr. R. W. Coppinger, who has, by the richness in species of this valuable collection, and by the good condition in which he has sent the specimens, made so important an addition to our knowledge of the Sponge-fauna of a region in which it has been hitherto almost entirely uninvestigated.

SIPHONOCHALINA FORTIS, sp. n. (Plate X. fig. 3.)

Erect, tubular. Tube dilated in some parts. Mouth single, unfringed. Main skeleton composed of a set of primary horny fibres radiating from inner to outer surface, projecting from the latter by short points, diameter from .14 to .25 millim.; and of a secondary set at right angles to the former, diameter from .07 to .14 millim.; both sets amber-brown in colour. Primary fibres cored by an axial series of proper spicules, 3 to 5 spicules broad, often somewhat scattered; secondary fibres cored by an axial series of proper spicules, 1 to 2 spicules in breadth. Dermal skeleton composed of a rectangular network of pale-brown fibre from .0095 to .025 millim. in diameter, extending between points of primary fibres, generally cored by 1 to 2 series of spicules. Parenchyma transparent, almost colourless. Spicules of one kind in skeleton and flesh, viz. smooth acerate, tapering to sharp points from about  $2\frac{1}{2}$  diameters from the ends; size .07284 by .00739 millim.

*Examined.* Dry and by mounting in balsam.

*External Characters.* The single specimen consists of a tube which has been torn from a larger mass, and might well, when perfect, have had the general form of the specimen figured<sup>1</sup> as *Callyspongia bullata* by Duchassaing de Fontbressin and G. Michelotti, and referred by Schmidt<sup>2</sup>, with great probability, to a species of *Siphonochalina*. The tube is 40 millims. in height, 17 millims. at its greatest, 11 millims. at its smallest diameter; it has somewhat the outline of an hour-glass, being constricted to 11 millims. at about 10 millims. from the mouth; it is circular, with walls varying from 1 to 4 millims. thick. It has lost most of its sarcodes and much of its dermal skeleton. The edge of the mouth is level all round, and shows no trace of a fringe of projecting fibres.

*Vents.* These are probably represented by the single mouth.

<sup>1</sup> Spong. Mer. Caraib., pl. x. fig. 5.

<sup>2</sup> Spong. atl. Geb. p. 33.

*Pores.* The dermis is not sufficiently well preserved to show them.

*Hab.* Portland Bay, Chili (in the channel between the chief island of the Madre-de-Dios archipelago and the mainland), 10 fathoms.

*Obs.* The nearest identifiable ally of this Sponge appears to be that described by Schmidt<sup>1</sup> as *Siphonochalina bullata*, which, as already observed, it probably resembled closely in external characters. It is not certain that that Sponge is identical with the *Callyspongia bullata* of Duchassaing de Fontbressin and Michelotti; and it certainly is not the *Spongia bullata* of Lamarek, which those authors consider their Sponge to be. The chief distinguishing characters of the two Sponges are as follows:—

	<i>External Characters.</i>	<i>Main Skeleton.</i>	<i>Spicules.</i>
<i>Siphonochalina fortis</i> (Chili).	{ Form tubular, perhaps rising from an enlarged base.  Several tubes rising from one base.	Network open. Two sets of fibres regularly arranged at right angles; fibres from .07 to .25 mm. in diameter.	Acerate, tapering abruptly. Size .07284 by .0079 millim.
<i>S. bullata</i> , Schmidt (?Duch. et Mich., non Lamk.), (West Indies).		Network close. Two sets of fibres regularly arranged at right angles; fibres from .0355 to .1065 mm. in diameter.	Acerate, tapering abruptly, size .076 by .025337.

CLADOCHALINA ARMIGERA, Schmidt (non Duch. de Fontbressin et Michelotti), var. PERGAMENTACEA, nov. (Plate X. fig. 4.)

*Cladochalina armigera*, O. Schmidt, Spong. atl. Geb. p. 35.

A fine dried specimen appears to represent this species, although it shows some important differences from it.

*External Characters.* Suberect, elongated, flattened from side to side, the long diameter being about three times as great as the short diameter; the upper of the two edges bears most of the vents. It is curiously bent to form an angle of 60° at about its middle, so that the apex nearly touches the rock on which it stands. Surface even except near the vents, and smooth, though finely striated by a subdermal and a dermal network of coarser and finer fibres respectively. Colour pale brown. *Vents* subcircular, long diameter from 1.5 to 3 millims., occurring at intervals of 8 to 15 millims. along the edges of the Sponge; they stand out on small rounded eminences to a height of about 1 millim. from the surface, and end in a reticulated bottom at from 2 to 4 millims. below the edge. *Pores?*

*Main Skeleton.* Composed of a vertical ("deep") set of strong horny fibres, of .04434 millim. average diameter, coming from the centre, giving off numerous smaller branches laterally, and meeting at right angles a stout ("subdermal") set of fibres, diameter .056 to .14 millim., which run along parallel with the surface, branching and anastomosing so as to form the coarser meshes of the surface, and have a tetra- to polygonal outline. The subdermal network forms

<sup>1</sup> Spong. atl. Geb. p. 33.

an external framework, which is the main agent in giving the Sponge its firmness. Arising from this subdermal network, and generally closely enveloping it, is a much finer ("dermal") network or veil (corresponding in relations to the veil on which Schmidt based his genus *Ditela*, afterwards reunited to *Spongia*); its fibres are derived from the upper surface of the subdermal fibres by smaller branches, which branching out horizontally become much finer; the finest form the finer part of the network, of which the coarser form the supporting ribs; the diameter varies from .02534 millim. for the coarsest to .00475 millim. for the finest fibres. The "veil," however, at the free end and at the lower edge of the Sponge projects beyond it as a loose envelope. The fibres are very transparent, of a pale amber-colour of various shades, and are delicately laminated. The vertical and smaller subdermal fibres are cored by a uniserial row of fine acerate spicules, placed end to end. In the freely projecting parts of the veil the stouter dermal fibres may be cored by spicules quinquesequentially arranged; the finer dermal fibres are cored by uniserial acerates, although these are often wanting for considerable tracts, or only present at intervals. *Parenchyma* transparent. The spicules apparently sometimes occur singly or in groups in the stout subdermal fibres; possibly others have been present and been absorbed. *Skeleton-spicules* smooth, fine, acerate, tapering somewhat gradually to sharp points, nearly straight; size .076 by .001267 millim.; many of them have undergone more or less absorption. *Flesh-spicules* same as of skeleton.

*Examined.* In the dried state and by mounting in balsam.

*Hab.* Hotspur Bank, off east coast of Brazil (lat. 17° 32' S., long. 35° 46' W.), 35 fathoms, on piece of calcareous rock.

*Obs.* As Schmidt's account is very short, and as the specimen is well preserved, the characters of the Sponge are given fully. The chief differences between this specimen and Schmidt's appear to be:—(1) the *superficial* (not axial) position in the stout subdermal fibre of the spicules in the former; (2) the inferior diameter of that fibre as compared with the present specimen (being as 3 to 5); (3) the branching of Schmidt's specimen, and (4) its bearing (as appears from his referring to Duch. de Fontbressin and Michelotti's species) small spinous processes on its surface; and (5), lastly, the superior proportions of the spicules of Schmidt's specimen, which measure .0887 by .00211 millim. These differences justify the separation of this form at least as a well-marked variety, although our acquaintance with the Chalinidæ appears to be too limited and their characters too few to admit of distinguishing it as a species at present. Attention is particularly called to the beauty and complexity of the arrangement of the skeleton.

The above differences may be thus tabulated:—

	<i>External Characters.</i>	<i>Skeleton.</i>	<i>Spicules.</i>
<i>Cladochalina armigera</i> , Schmidt (Florida and Antilles).	{ Erect, branched; sur- face covered with spines; vents scat- tered, 3 millims. in diameter.	Stoutest fibre super- ficially cored by spicules; its maxi- mum diameter about .884 millim.	Size .0887 by .00211 millim.
<i>C. armigera</i> , var. <i>per- gamentacca</i> (atlan- tic, off East Brazil).	{ Suberect, unbranched; surface smooth, only rendered uneven by the two series of vents, 2 to 3 millims. in diameter.	Stoutest fibre some- times cored, axially, by spicules; maxi- mum diameter .14 millim.	Size .076 by .001267 millim.

## Order ECHINONEMATA, Carter.

## PHAKELLIA EGREGIA, sp. n. (Plate X. fig. 6.)

Form erect, stipitate, ramose; bases of branches flattened, ends rounded. Surface hirsute, owing to freedom of echinating columns from the axial skeleton for from .7 to 1.25 millim. of their length. Colour (in spirit) yellowish white. Skeleton-axis typically Axinellid, diameter about the same as the length of an echinating column; longitudinal lines from .18 to .25 millim. apart, multispicular, compact. Echinating columns very distinct, connected with each other for about one third of their length by horizontal bars of single spicules, and strongly echinated from their bases upwards. Parenchyma very pale yellow, slightly granular.

Skeleton-spicules of four kinds, viz.:—(1) Setaceous acute, smooth, slightly curved, tapering to sharp point, very frequently swollen near its base, size 1.207 by .01268 millim., springing from axis and lying between echinating columns. (2) Stouter, smooth, slightly curved acute, tapering to less sharp point, size either .8875 by .019 millim. from within echinating columns, or .38 by .07416 when echinating the columns. (3) Smooth acute, sharply bent at about one fourth of its length from the base, tapering to sharp point, size .2534 by .0095 millim., forming the bulk of the echinating and axial meshwork spicules. (4) Smooth acerate, sharply bent, tapering to sharp points, size .304 by .01267 millim., forming part of the horizontal or cross series of spicules, which lie between the echinating columns and between the axial columns, not abundant. No flesh-spicules.

*Examined.* In spirit and by mounting in balsam.

*External Characters.* It is about 65 millims. high, and has a short pedicel rising from a slight basal expansion. The branches lie approximately in one plane. It is firm in texture, owing to its well-developed axis. The sarcodes invests all but from .5 to .8 millim. of the ends of the echinating columns. No oscula or pores were made out. *Skeleton* very regular. The echinating spicules project in great numbers from the columns at the usual acute angle. *Spicules.* The thick long acuates apparently form the backbone of the echinating columns, though they are not always to be made out: the shorter ones, of nearly the same breadth, occur in small numbers among the smaller echinating spicules. The small number of acerates present may be due to the youth of the specimen; they are to be made

out, however, in almost every piece examined, and are well preserved and constant in their positions.

*Hab.* Sandy Point, 7–10 fathoms (on a piece of shell).

This specimen is finely preserved and is probably young.

*Obs.* The formation of the axial network mainly by short acute spicules, and echination of the axial column by isolated long acuates in addition to the diverging columns, distinguish, at any rate by the perfection to which they are here carried out, this species from all the species which have been assigned to either of the closely allied genera *Phakellia* and *Dictyocylindrus*. The absence of cylindrical spicules differentiates it from *P. ventilabrum* and *P. folium*, Sdt., but can hardly be said to ally it very closely to the other two species, *P. robusta* and *P. tenax*, which are similarly circumstanced; for in the one the long isolated acuates are wanting, and in the other a small spined cylindrical echinates the fibres. The long acute occurs, however, in many other Axinellida. Probably *Axinella cinnamomea*, Sdt., from the Adriatic and Algiers, is the species most closely allied to ours, of known forms—though the short acute is scarcely bent at all as it is here, and it wants the very stout long and short acuates which seem to connect this species with the Atlantic species *A. mastophora*, where these assume such a striking size.

Some of the chief differences between *P. cinnamomea*, Sdt., and this Sponge may be thus stated:—

	<i>Acerate Spicules.</i>	<i>Shorter Slender Acuate.</i>	<i>Stout Acuate.</i>
<i>Axinella cinnamomea</i> , Sdt. (Adriatic and Algiers).	{ Sharply bent, tapering gradually. Size .444 by .01267 millim.	{ Very scarce; possibly not proper to sponge; slightly bent. Size .2837 to .3863 by .01086 to .01267 millim.	{ Wanting.
<i>Phakellia egregia</i> (Straits of Magellan).	{ As in preceding. Size .304 by .01267 mm.	{ Very abundant; sharply bent. Size .2534 by .0095 millim.	{ Two sizes occur.

#### Order HOLORRHAPHIDOTA, Carter.

##### CIICALYPTA CALVA, sp. n. (Plate X, fig. 7.)

Massive. Surface smooth. Structure of Sponge cavernous. Colour whitish. Skeleton of widely separate spiculo-fibres rising from base, where they are contorted and form a layer. Fibres stout, flattened, multispicular, spicules parallel in them; at base containing a margin of sarcode of one fourth of diameter of fibre, superiorly becoming approximately Holorrhaphidote; beginning to branch and anastomose about halfway between base and dermis, ending in dermal membrane in tufts of slightly diverging spicules, which spread on the membrane without meeting neighbouring tufts. Dermis otherwise naked, subopaque, thin, fragile. Skeleton-spicule acute, slightly bent, tapering from head to a sharp point, size .577 by .01267 millim. No flesh-spicule.



*Examined.* In spirit and by mounting in balsam.

*External Characters.* Sessile, forming a beehive-shaped mass about 18 millims. deep by about 50 millims. long and 36 broad, growing on the surface of a large flexible worm-tube. Surface curved both actually and relatively to its base, so that the thickness of the Sponge at the edges is almost nil. Surface slightly irregular, owing to depressions between the ends of the skeleton-fibres, covered externally by a dirty-white dermis of the same colour as the fibres. Surface of dermis smooth.

*Vents? Pores?* apparently represented by oval openings, from  $\cdot 633$  to  $\cdot 16$  millim. in diameter, occurring in groups.

Fibre resembling that of *Desmacidon fruticosum*, Johnston, in amount of soft material, except at base, where the spicules lying in the centre occupy only about half the diameter of the fibre, and give it a strongly Chalinoïd appearance. Spicules lying parallel in the fibre, projecting from it only at the dermis. Soft material of fibre granular, yellowish, subopaque, not resembling ordinary horny fibre. Number of spicules in diameter of fibre varies from about 15 millims. in larger to 3 or 4 in small lateral fibres.

*Parenchyma.* Yellowish white, granular, adhering to fibres.

*Dermal Membrane.* Yellowish white, granular, in some parts possessing muscular or other fibres, apparently arising from beneath it.

*Skeleton-spicule.* Of one kind, acuate, slightly bent, tapering gradually from a well-rounded head to a sharp point. Size  $\cdot 577$  by  $\cdot 01267$  millim.

*Flesh-spicule.* None.

*Hab.* Sandy Point, 7-10 fathoms; on large worm-tube.

*Obs.* The strongly ceratinous character of the base of the fibres, the absence of fistulæ, and the absence of dense spicular axes from which the fibres should radiate, all tend at first sight to separate this species from the genus *Ciocalypta*, and, in fact, exclude it from that genus, if we limit it to forms included by Dr. Bowerbank's diagnosis; but the general structure of the fibre and the mode of termination of its outer extremity, together with the general agreement in the form of the spicules, ally it too closely to *C. penicillus* and *C. leei* to allow of a distinct generic appellation at this time, especially as the method of growth suggests that it may be merely a young or sessile form of a species closely allied to *C. leei*. The proportions of the skeleton-acuates are:—

<i>C. penicillus</i> ,	Bowerbank.	Britain.	$\cdot 6035$ by $\cdot 02058$ millim.
<i>C. leei</i> ,	Bowerbank.	Britain.	$\cdot 57$ „ $\cdot 019$ „
<i>C. calva</i> ,		Magellan.	$\cdot 577$ „ $\cdot 01267$ „

*C. tuberculata*<sup>1</sup>, Carter, is closely allied to these, but has a skeleton-spicule  $\cdot 023223$  millim. in diameter.

The specimen is remarkable for containing in its dermis a number of spicules belonging to *Esperia magellanica*<sup>2</sup>.

<sup>1</sup> Ann. & Mag. Nat. Hist. ser. 4, xviii. p. 235.

<sup>2</sup> Cf. Journ. Linn. Soc. (Zool.), xv. p. 149.

*ESPERIA MAGELLANICA*, sp. n. (Plate X. fig. 5.)

Massive, subcylindrical. Surface and interior coloured by cells containing a dark pigment. Dermis fragile, with a coarse skeletal network. Main skeleton composed of a central irregular compact meshwork, which sends ramifying and anastomosing fibres to the dermis. Fibres of main and dermal skeleton stout, composed of parallel spicula with a minimum of sarcode. Skeleton-spicules of one form only, viz. spinulate, with a very slightly marked oval head; length  $\cdot4615$  to  $\cdot544$  millim., breadth  $\cdot01267$  millim. Parenchyma pale yellow to ochreous brown when dry, dirty white in spirit. Flesh-spicules of two forms, viz.:—(i.) inequianchorate with the large palm about  $\frac{6}{15}$  of the total length of the spicule, and its lower angles turned upwards and inwards, length  $\cdot0444$  to  $\cdot05384$  millim., scattered; and (ii.) minute acerate, generally in bundles of two to four, sharply pointed, length  $\cdot0444$  to  $\cdot0634$ , breadth about  $\cdot001055$  millim., scarce.

*Examined.* In spirit, in dried state, and mounted in balsam.

*External Characters*<sup>1</sup>. Form irregularly cylindrical, rounded off rapidly below to a narrow base of attachment, and provided above with a slight neck at about 30 millims. from the superior extremity, where it is also rounded off. Below the neck the greatest diameter is about 60 millims., above it about 45 millims.; total length 120 millims. Colour in life very variable, yellow or green; in spirit grey, or dirty-white (in the dried specimens ranging from yellowish white to an ochreous brown). Surface entirely covered with mammi-form papillæ, from 3 to 6 millims. in greatest diameter, often coalescing into ridges; provided at the superior extremity with two circular vent-openings, respectively 7 and 8 millims. in diameter, probably much larger in life. Texture delicate, very readily compressible. *Pores?*

*Minute Structure of Surface.* Surface covered by a fragile dermis, of the thickness and texture (when wet) of blotting-paper, composed of a single layer of more or less loose spiculo-fibre, with polygonal meshes from  $\cdot25$  to  $\cdot5$  millim. in diameter, tympanized by a very pale brown sarcode more or less interspersed with loose spicules and greenish-brown granular cells, sometimes having the centre occupied by a dark patch of pigment.

The minute acerates occur in bundles of two to four, occasionally scattered; they are straight and sharply pointed at both ends. They are found at the sides of the dermal and main skeleton-fibres. They are of scarce occurrence; and for that reason and from the need of an exceptionally good light for finding them, they constitute an inconvenient character for reference. Probably they invariably occur in the place of tricurvates in *Esperia*, where these are absent.

*Hab.* Sandy Point, 7–10 fathoms; bottom, dead *Balani*, some of which are still, together with a good-sized *Terebratula*, embedded in its base.

Seven dry specimens from Otter Island, Patagonia, representing

<sup>1</sup> These refer to the spirit specimen, except where otherwise stated.

three specimens, were already in the Museum collection, and are evidently pieces of those mentioned by Dr. Cunningham at p. 481 of his 'Notes on the Natural History of the Strait of Magellan.' The following are their chief characters, arranged for comparison with those of the type specimen. It cannot, unfortunately, be determined *which* pieces formed part of the same original specimens:—

	Subspinulate spicule.	Inequianchorate spicule.	Bundles of Acerates.	Other characters.
No. 1 .....	Shape as in type; .497 mm. long by .01267.	Shape as in type; .04434 mm. long.	Scarce; .057 mm. long.	Surface <i>ridged</i> rather than papillose.
No. 2 .....	Ditto .....	Shape as in type; .05384 mm. long.	(Curved, very scarce; .07842 mm. long?)	Surface do.
No. 3 .....	Ditto .....	Shape as in type; .04434 mm. long.	?	Surface do.; vents?
No. 4 .....	Shape as in type; .4615 mm. by .01267.	Shape as in type; .05067 mm. long.	Very scarce, generally scattered; .06334 mm. long.	Surface papillose in one part, ridged in another.
No. 5 (most of surface gone).	As in No. 1 .....	As in No. 1 .....	Very scarce; .042339 mm. long.	Surface the same; a large internal cavity. Apparently 2 vents.
No. 6 .....	Shape as in type; .488 mm. by .01267.	Shape as in type; .047506 mm. long.	Very scarce; .044339 mm. long.	Surface ridged. Vents 3?
No. 7 .....	As in No. 1 .....	Shape as in type; .05067 mm. long.	Ditto.	Surface ridged and papillose. Vents 2?
Type specimen from Sandy Pt.	.544 by .01267 mm.	.0475 mm. long.	Scarce; .057 mm. long.	Surface mostly papillose. Vents 2.

All possess an abundance of the characteristic dark pigment, but concentrated at the centres of well-defined cells, whereas in the spirit specimen from Magellan's Straits it is generally, though not always, scattered over the cells.

It is very probable that the wrinkled or ridged character presented by the dermis of most of the dried specimens is due to the fact of their having been dried. In all cases except that of the extraordinarily broad specimen No. 6, the external characters of shape, surface-reticulation, and colour agree very closely in all the dried specimens, and must be almost, if not quite, identical with those which would be presented by the spirit specimen if it were dried.

*Obs.* This Sponge belongs to the section of *Esperia* which is devoid of bihamate flesh-spicules. It is to be wished that a distinct genus were formed for the reception of the numerous forms which belong to it. Possibly *Rhaphidotheca*, Kent, may ultimately be found to satisfy the requirements of the case (*cf.* Mr. Carter's remarks in the Journ. Roy. Micr. Soc. ii. p. 498); but until the questions which are suggested by the description of the type species

of that genus are settled, it will be well to adhere to the more comprehensive term *Esperia* for these forms.

The nearest allies of this Sponge, of which intelligible descriptions or specimens are available, appear to be:—

	<i>Spinulate spiculc.</i>	<i>Inequi- anchorate.</i>	<i>Accrates.</i>
<i>Esperia nodosa</i> , Schmidt, } Adr. Meer. Suppl. i. p. 33 } (Adriatic).	.4117 by .011085 mm.	.0577 mm.	.057 mm.
<i>E. bowerbanki</i> , id. Adr. } Meer. p. 55 (Adriatic)... } preceding.	About same as preceding.	.06334 mm.	Ditto.
<i>E. tunicata</i> , id. ibid. (Adri- atic) .....	.399 by .0095 mm.	.05334 mm.	.0475 mm.

*E. rhopalophora* and *E. intermedia*, Schmidt, from the North Atlantic, may perhaps prove, when more fully described, to come near this species. *Rhaphidotheca affinis*, Carter, from off the north of Scotland, differs but slightly from it in the forms of its spicules; but their sizes are greater.

For details of appearance in life see Dr. Cunningham's work on the Straits of Magellan above mentioned.

#### ALEBION PROXIMUM, sp. n. (Plate X. fig. 8.)

**Incrusting.** Surface covered with numerous narrow convolutions, and minutely roughened; vents scattered, .2 to .3 millim. in diameter. Colour dark brown. Main skeleton composed of primary columns of spiculo-fibre running from base towards surface; fibres 5 to 6 spicules thick, crossed by secondary bars approximately at right angles, bars 2 to 5 spicules thick. Dermal skeleton a regular polygonal network of spiculo-fibre, 1 to 5 spicules thick, beneath which lie irregular tracts of cylindrical spicules. Spicules united in fibres by a minimum of sarcode. Parenchyma very granular, reddish brown. Skeleton-spicules of two kinds:—(i) acute, covered from base to apex with short spines, tapering from within about 5 diameters of apex to a sharp point, size .15835 by .0095 millim., in main and dermal skeleton; (ii) cylindrical, tapering from middle to a neck, terminated by a distinctly spined head, at each end, size .15835 by .0079 millim., in subdermal tracts. Flesh-spicules of two kinds:—(i) inequi-anchorate, upper palm conical in outline, inferior edges angulated, shaft slender, lower palm small, triangular, terminated by a sharp point, length .02534 millim., scattered; (ii.) bipocillate, exactly similar to that of the British species *Halichondria hyndmani*, Bowerbank, size .01056 millim. broad (from back of shaft to front of the curves), scattered.

**Examined.** In spirit and by mounting in balsam.

**External Characters.** This species is represented by a specimen coating one valve of a *Pecten*. It resembles *Halichondria hyndmani* and other nearly allied British forms in its corrugated surface. At the centre of the shell it is merely a brown film. The convolutions are sometimes substellately arranged, and may be as much as

2 millims. in height. *Pores?* *Vents* distant from each other by 2 to 7 diameters. Texture fragile.

*Skeleton* appears somewhat confused in transverse sections; but this is partly due to the opacity of the sarcode, which conceals in part the relations of the fibres. Spicules aggregated loosely in fibres. The colour of the *parenchyma* resembles that of most *Microcionæ* and most of the British *Halichondriæ* (Bowerbank) which are related to this species.

*Skeleton-spicules.* The heads of the cylindricals are well marked, being nearly as broad as the maximum diameter of the shaft; their external halves are covered with small but distinct spines. The whole spicule presents an exaggerated form of the corresponding type in *H. pattersoni*, *H. hyndmani*, and *H. ingalli* (in which species its head is faintly microspined). *Flesh-spicules.* The inequianchorate is of the same form, down to the inferior spine of the small palm, as in the above-named species, as is the bipocillate ("bipocillated anchorate" of Bowerbank, "grotesque spicule" of Carter). The latter, which was very seldom found in the microscopic mountings, is decidedly larger than in any of the British allied species. For further relations to these forms, see table of comparison (*infra*) with the *type* specimens of Bowerbank's species.

*Hab.* Sandy Point, 7-10 fathoms (on a *Pecten*).

*Spicules—Characters and Proportions.*

	Spined Acuate.	Cylindrical.	Inequianchorate.	Bipocillate.
<i>Alebion proximum</i> (Straits of Magellan).	Slightly spined all over; tapering from near apex; ·15835 by ·0095 mm.	With distinct heads; ·15835 by ·0079 mm.	As in British species. ·025337 mm. long.	As in British species. ·01056 mm. broad.
<i>A. (Halichondria) pattersoni</i> , Bowk. (Britain).	Slightly spined all over; tapering from near middle; ·23436 by ·010537.	Heads scarcely distinguishable from shaft; ·247 by ·006334.	·025337 long.	About ·008 mm. broad.
<i>A. (H.) hyndmani</i> , Bowk. (Britain).	Spines mostly near base; tapering from middle; ·228 by ·0095.	Very slight, faintly spined heads; 19636 by ·038.	·02275 long.	·008445 mm. broad.
<i>A. (H.) ingalli</i> , Bowk. (Britain).	Spines mostly near base; tapering from middle; ·152 by ·006334.	Heads less visible and less spined than in preceding; ·1457 by ·02534.	·01583 long.	·008445 mm. broad.

*Alebion*, Gray (P. Z. S. 1867, p. 534) seems to be the only genus at all correctly defined, of the four in which he has placed these and the allied species; the character of "branching" should, however, be omitted from it.

Probably *Myxilla rubiginosa*, Sdt., from the Adriatic, is allied to these forms; but Schmidt does not mention any minute flesh-spicules from it.

## HYMEDESMIA POLITA, sp. n. (Plate X. fig. 9.)

Incrusting, thin. Surface glabrous, with minute scattered points, dark umber-brown. Vents chiefly grouped two or three together, minute. Pores scattered. Main skeleton of short primary spicular columns extending directly from base to surface, which break into a slight brush just below surface, and slightly project from it; bases surrounded by groups of small spined acute spicules. Dermal skeleton of a thin loose spiculo-fibre connecting the primary columns. Sarcode reddish brown. Main skeleton-spicules of two kinds:— (i) Spined acute, spines reaching to within one fourth of length of the sharp apex, most strongly developed at base, size  $\cdot 25337$  by  $\cdot 00887$  millim.; (ii) smooth acuates tapering from head almost to the apex, which is abruptly pointed, size  $\cdot 2407$  by  $\cdot 0038$  millim. Dermal skeleton-spicules same as latter. The small spined acuates are entirely spined, size  $\cdot 10135$  by  $\cdot 006334$  millim. Flesh-spicules confined to dermis, of one kind, viz. equianchorates in rosette-like groups, shaft slender, front palms entire, with a straight lower edge, tubercle prominent, length  $\cdot 01267$  millim.

*Examined.* In spirit and by mounting in balsam.

In *external characters* the single specimen is incrusting, very thin (about  $\cdot 6$  millim. greatest thickness); surface slightly uneven, glabrous, minutely punctate. Colour very dark umber-brown in spirit. *Vents* chiefly in groups of 2 or 3, oval or circular, opening obliquely to surface; diameter about  $\cdot 25$  millim. *Pores* oval, scattered, numerous, about  $\cdot 07$  millim. in greatest diameter.

*Skeleton.* No distinct basal membrane. Some lines of fine long acuates lie at the base. A set of distinct primary spicular bundles spring from the base at from  $\cdot 18$  to  $\cdot 36$  millim. apart; their bases are surrounded by groups of spined acute spicules; they proceed to surface approximately at right angles to it; and their spicules diverge laterally, echinating the fibre until just below the surface, where they diverge slightly; the apices of the terminal spicules project beyond the surface slightly.

*Dermis.* Lines of fine long subparallel acute spicules extend between the apices of the primary skeleton-columns, diverging from one another where the lines are bent.

*Hab.* On a *Balanus* sessile on large worm-tube. Sandy Point, 7–10 fathoms.

*Obs.* It approaches *Microciona tuberosa*, Bowerbank, from the Straits of Malacca, very closely in spiculation and some other characters.

	<i>Microciona tuberosa</i> , Bowk. (Straits of Malacca.)	<i>Hymedesmia polita</i> . (Ma- gellan.)
1. <i>Slender Acuate Spicule.</i>	{ Sometimes basally micro-spined very slightly. Length $\cdot 285$ mm.; breadth $\cdot 00475$ .	Always smooth. Length $\cdot 2407$ mm.; breadth $\cdot 0038$ .
2. <i>Stout Long Acuate.</i>		Spined for at least half of length. Length $\cdot 25337$ mm.; breadth $\cdot 00887$ .

	<i>Microciona tuberosa</i> , Bowk. (Straits of Malacca.)	<i>Hymedesmia polita</i> . (Magellan.)
3. <i>Small Spined Acuate</i> .	{ Spined all over. Length ·1077 mm.; breadth ·0079.	{ Spined all over. Length ·10135 mm.; breadth ·006334.
4. <i>Equianchorate</i> .		
	Same characters in both.	
<i>Habit</i> .....	{ Very thinly incrusting?, sending out at intervals echinated columns about ·34 mm. long.	{ Incrusting. Echinating columns buried in sarcode, with the exception of ter- minal spicule-points.
<i>Dermis</i> .....		
<i>Sarcode</i> .....	{ Externally echinated by small spined acuates; sar- code dark, not constantly spicular.	{ Smooth, except at points of projection of skeleton- bundles; slightly but con- stantly spicular.
	{ Granular, reddish brown.	{ Granular, reddish brown.

This appears to be its nearest described ally; but it is placed with *Hymedesmia* provisionally (in spite of its wanting the bihamate spicule found in the type, *H. zetlandica*) in preference to *Myxilla* and *Microciona*, owing to its fundamental divergence in spiculation from the type species of those genera.

(Note. Any discrepancies between this account of *M. tuberosa* and that given by Dr. Bowerbank in his description in Proc. Zool. Soc. 1875, p. 281, are justified by an examination of the type specimen. The "somewhat complicated rete," said to be formed by the "skeleton-columns" (*l. c.*) appears to be not due to the sponge-skeleton, but to an anastomosing mass of tubes formed probably by an arenaceous foraminifer; for the axis of the "columus" is, as a rule, not spicular, but formed of minute grains of sand.)

#### TRACHYTEDANIA<sup>1</sup>, n. gen.

*Sponge*. Main skeleton composed of vertical inferiorly distinct spiculo-fibres, terminating on surface in radiating brushes; spicula siliceous, united by a minimum of sarcode, lying parallel in fibre, of three forms, viz. spined acuate, smooth acuate, terminally or subterminally inflated cylindricals. Flesh-spicules siliceous, slender, acerate. Sarcode pale-coloured. A basal lamina of spicules may be present.

This genus is based on the new species *T. spinata*. It differs from all the known species of *Tedania*, Gray, in having three kinds of skeleton-spicules, one of them being spined; that genus, however, seems to be the nearest genus at present defined.

#### TRACHYTEDANIA SPINATA, sp. n. (Plate X. fig. 10.)

Incrusting, laminar. Surface level, glabrous; under lens seen to be minutely but thickly pitted. Colour yellowish white. Vents? Pores? Main skeleton a series of independent, approximately vertical spiculo-fibres, about 3 to 6 spicules thick, rising from a basal lamina of fine cylindrical spicules, and deflected laterally at surface, there breaking up into a horizontal brush of somewhat radiating cylin-

<sup>1</sup> From *τραχὺς*, rough, in allusion to the *spined* basal spicules, and *Tedania*, the name of the allied genus.

dricul spicules, which, with loose ones of the same kind, form the dermal skeleton by the crossing of their ends. Main fibre, spicules united somewhat loosely. Parenchyma compact, almost perfectly colourless and transparent. Skeleton-spicules of three kinds, viz. :— (i) acuate, covered with sparse, short spines for about 4 diameters, from base, tapering to point gradually, size  $\cdot 1647$  by  $\cdot 006334$  millim., forming basal portion of vertical fibres; (ii) acuate, smooth, head almost pointed, apex generally somewhat abruptly pointed, size  $\cdot 196$  by  $006334$  millim., forming median portion of vertical fibre; (iii) cylindrical, smooth, of mainly uniform diameter throughout up to the heads, which are slightly swollen, and then end in more or less sharp hastate points, size  $\cdot 1774$  to  $\cdot 18736$  by  $\cdot 0038$  millim., forming basal and dermal skeleton and summit of vertical fibres. Flesh-spicules, besides the last-named, fine acuates, very slightly blunted at base, tapering to very fine apex; size  $\cdot 152$  by  $\cdot 0009$  millim.; scattered universally through sarcodæ.

*Examined.* In spirit and by mounting in balsam.

*External Characters.* The single specimen, which is extremely well preserved, coats the valves of a *Pecten*, which was alive when taken. It forms a thin film, varying in thickness from about  $\cdot 70$  millim. to tissue-paper thickness. It fills up the depressions between the ribs, and thus presents a very smooth rounded contour; but the lens shows that it is covered with minute points and shallow pits, the former probably representing the terminations of the primary skeleton-columns. *Vents* are possibly represented by two or three irregular depressions or openings,  $\cdot 25$  to  $\cdot 5$  millim. in diameter, near the thickest part of the sponge. *Pores* not found.

The *skeleton* is simple in structure, and represents the type assigned to *Hymedesmia* by Dr. Bowerbank. The basal lamina is composed of loosely aggregated spicules, about 3 or 4 spicules thick. The composite structure of the vertical fibre is remarkable, and well adapted to secure, by the spination of the basal spicules, solidity of rooting, and, by its shading off into less stout spicules above, pliability. No special cementing sarcodæ is apparent. The structure of the dermal skeleton is essentially that of the *Tedania*, though its connexion with the main skeleton is more marked than is usual in that genus. The parenchyma is slightly yellow, but in the almost entire absence of colour and of opacity resembles that of the *Renieridæ* in general. The two larger *skeleton-spicules* (acuates) are probably varieties of one original type; from its position, at the base of the columns with the roughened end downwards, the spined acuate is perhaps developed to suit the incrusting form of the Sponge; otherwise it differs from the smooth form mainly in being slightly shorter. The cylindricals are really sharply pointed; but the penultimate swelling is generally discernible, and sometimes gives a fine spear-head outline to the head; they seem to be a further development of the typical cylindrical form in the same direction as that shown by *Tedania tenuicapitata* (sp. n.).

*Hab.* Portland Bay, Chili (opposite the chief island of Madre-de-Dios Archipelago), 10 fathoms. On both valves of small *Pecten*.



*TEDANIA TENUICAPITATA*, sp. n. (Plate XI. fig. 1.)

Massive, almost white. Surface bearing scattered shallow pits from about  $\cdot 17$  to 1 millim. in diameter. Texture very soft and fragile. Vents small, scattered. Pores scattered. Main skeleton a very loose network of spicules, with triangular to polygonal meshes, extending from base to surface, crossed at nodes by spiculo-fibres lying parallel to surface; sides of meshes formed by groups of 2 to 5 acute spicules (sometimes of cylindrical spicules in whole or in part), scarcely touching. Dermal skeleton composed of sheaves of 20 or more cylindrical spicules, closely aggregated at one end, and radiating outwards with the other over the surface. Parenchyma very pale yellow to colourless, finely granular. Skeleton-spicules of two kinds, viz.:— (i) smooth curved acute, tapering to a sharp point from a distance of about 6 diameters from the point, size  $\cdot 38$  by  $\cdot 01267$  millim.; and (ii) cylindrical, double-headed, smooth, heads about one third as broad again as shaft, and oval, drawn out to a point, occurring in main skeleton, and alone forming dermal skeleton, size  $\cdot 2787$  by  $\cdot 006334$  millim. Flesh-spicules acerate, tapering from centre to very fine points, roughened almost imperceptibly on surface, one end slightly the stouter, scattered, size  $\cdot 316$  by  $\cdot 0021114$  millim.

*Examined.* In spirit, and by mounting in balsam.

*External Characters.* The single specimen forms a small subpyramidal mass, whose four uninjured faces form rounded angles of about  $120^\circ$  with one another. It appears to have been broken from a mass sessile by a broad triangular base. Among the numerous small pits of the surface, in which many of the pores are collected, and between which the Sponge forms insignificant ridges, are distributed the five *vents* which are still left. Three of these are close to the apex; they open on the surface level, and penetrate straight into the Sponge to a depth of 3 to 8 millims., where they suddenly terminate; they are oval, and  $1\cdot 5$  to 2 millims. in diameter. The *pores* lie on the ridges and in the small surface-pits.

The *main skeleton* is very vague, the spicules of the fibre being hardly in contact; it consists generally of the stout acuates; but sometimes groups of 6 to 10 cylindricals take their places, or they are mixed with a few of these; a horizontal network of stout acuates occurs throughout, but is especially developed just below the dermis. The *dermal-skeleton* bundles appear to radiate from certain centres with more or less regularity.

The *parenchyma* is very transparent, and is sufficiently well preserved to show, in Canada balsam, numerous round nuclei, of about  $\cdot 0095$  millim. diameter, transparent, and nucleolated.

The cylindrical spicule differs from that of all hitherto recognized species of the genus in being terminally pointed; the heads are very slightly marked and suboval in outline, and are not microspined as in the Mediterranean and Malacca species already known. The fine acerate has, as in other species, one end stouter than the other, though very slightly so: the roughening of the surface is often imperceptible; it takes the form, as far as can be made out, of sub-spiral scratches.

*Hab.* Trinidad Channel, near Madre-de-Dios Islands, off S.W. Patagonia, 30 fathoms.

*Obs.* The two already described species, *Halichondria aspera* and *Isodictya rudis*, Bowerbank, both from the Straits of Malacca, possibly merely varieties of one species, together with *Tedania suctoria*, Schmidt, from Iceland, resemble our species in important points. It is also noteworthy that Schmidt refers (Spong. atl. Geb. p. 43) to a shapeless white specimen of a *Tedania* from Rio de Janeiro, to which he gives no name. Looking at the locality and at this description, one would not be surprised to find that it proved to be our species.

The two Malacca species have a most interesting relation to the rest; for with the terminally microspined heads of the cylindrical spicule, characteristic of the Mediterranean *Tedanæ*, they combine a very marked *roughening* of the fine acerate—an irregularity of the surface which is only possible to make out, in the case of *T. tenuicapitata*, with very good light, and then not always, and which is, so far as I am aware, peculiar to the acerates of this genus, being wholly distinct from spination or "microspination."

*Tedania suctoria*, Schmidt, has cylindricals with two smooth heads, as in our species; but they are not terminally pointed as here. It is probably the most nearly allied of described species. Its spicule-characters, for comparison with those of *T. tenuicapitata*, are:—

	<i>T. suctoria.</i> (Iceland.)	<i>T. tenuicapitata.</i> (S.W. Chili.)
Smooth Acuate Spicule.	tapering very gradually from head. Size .5325 by .01583 mm.	Beginning to taper about 6 diam. from end. Size .38 by .01267 mm.
Cylindrical Bicapitate..	Heads oval, rounded off terminally. Size .3357 to .38 by 008445 mm.	Heads slightly oval, pointed. Size .2787 by .006334 mm.
Fine Acerate .....	Surface-roughness generally perceptible. Size .2924 by .00285 mm.	Surface-roughness rarely perceptible with certainty. Size .316 by .002114 mm.
Skeleton .....	Main-skeleton fibres more compact. Dermal cylindricals radiate more regularly; bundles larger and less distinct than in the other species.	Skeleton-fibres as loose as possible. Dermal cylindricals in distinct bundles, radiating each from a separate point.

AMORPHINA sp. inc.

A minute, thin, incrusting patch on the worm-tube which bore *Alelion proximum*. It is white; and the sarcode is granular, but almost colourless; the spicules are smooth, sharply bent acerates, ending rather abruptly in points, and resembling those of *A. genatrix*, Schmidt, but far smaller, and massed in flattened tracts.

*Hab.* Sandy Point, 7-10 fathoms.

RENIERA FORTIOR, Schmidt? (Plate XI. fig. 3.)

*Reniera fortior?* O. Schmidt, Spong. atl. Geb. p. 40.

A poorly preserved spirit-specimen, which has lost most of the dermal membrane and much of the internal sarcode.

*Examined.* In spirit and by mounting in balsam.

*External Characters.* Form massive, irregular, subglobose, attached by a short pedicel about one fourth as broad as the greatest diameter of the Sponge. Texture very elastic. Colour semitransparent dirty white; surface in present state chiefly regularly and minutely hirsute.

*Minute Surface-characters.* Where the dermal membrane is present, this consists of a very thin brownish-yellow lamina, resting on the ends of the primary skeleton-columns, and formed by a skeleton network of 1- to 2-serial lines of fine acerate spicules, lying in a fine fibre, with meshes of  $1\frac{1}{2}$  to 2 spicules' lengths in width, crossing each other at acute angles, the intervals being more or less occupied by fine and stouter acerates lying in the almost transparent, slightly granular sarcode which fills them. Where this membrane is absent, the ends of the skeleton-columns project as fine pencils.

*Vents?* apparently represented by 4 or 5 roundish apertures, of about 1 millim. diameter each, situated on a somewhat concave lateral surface; they appear to lead directly inwards.

*Pores?* apparently scattered or aggregated in twos, oval; largest diameter .045 millim.

*Main Skeleton.* Composed, in the older parts, of Chalinoid fibre, containing only about half its hulk of horny matter; in the younger parts a margin of this material is but rarely seen to surround the spicular axis; possibly this is partly due to imperfect preservation. Colour absent, or of the faintish possible tinge of yellow. Primary fibres contain a 2- to 4-, generally 3-serial axis of moderately stout, short acerate spicula; they run from the centre to the surface, meeting the latter approximately at right angles, and are distant from each other by 2 to 4 spicule-lengths. Secondary fibres at right angles to the primaries, usually composed of a double series of identical spicules; occur at intervals of 2 to 3 spicule-lengths.

*Skeleton-spicules.* Of one form—short stout acerate, slightly and gradually bent, or with a slight angle, tapering gradually to the points; size .13935 millim. long by .0094 broad.

*Flesh- and Dermal Spicules.* Of one form—short slender acerate, slightly and gradually bent, tapering gradually to points; size of average largest .10135 millim. long by .0038 broad, in the case of the dermal, .1077 long by .006334 broad, in the case of the flesh-spicules, which latter are probably merely young skeleton-forms.

*Hab.* Elizabeth Island, Straits of Magellan (eastern portion), sandy bottom, 6 fathoms.

*Chalina granti*, Bowerbank, strongly resembles this Sponge in its chief essential characters; the main differences between the two are those of *degree* rather than of *kind*. Thus the skeleton-spicule measures .133 by .01056 millim., and is of the same type of acerate, though, as the measurements show, it is, although shorter, actually

as well as relatively stouter than in our Sponge. Outward form branching and fan-shaped. Its primary-skeleton fibres are far nearer together than here; in composition they are 1- to 2-spicular in some parts, 2- to 3-spicular in others, while 2 to 3, occasionally 4, is the proportion in the present species. The proportion of horny matter in the fibre is generally, as here, only just sufficient to bind the spicules into a pliable fibre.

The chief differences are shown in tabular form:—

	<i>Chalinula granti</i> , Bowerbank. (S. of England.)	<i>Reniera fortior</i> , Schmidt. (Antilles.)	<i>Reniera fortior</i> , Schmidt. (Magellan.)
Skeleton-spicule .....	·133 mm. by ·01056 mm.	·13788 mm. long.	·13935 mm. by ·0094 mm.
Composition of primary fibre ...	1 to 3 spicules broad.		2 to 3 (occasionally 4) spicules broad.
,,       ,, secondary fibre..	1 spicule broad.		1 to 2 spicules broad.
Average maximum distance between primary fibres .....	·142 mm.		·284 mm.
External habit .....	Of irregularly shaped anastomosing branches, subsessile.	Amorphous.	Erect, subglobose.

*R. fortior* is only known to me by its *description*, as the Museum possesses no specimen of it.

#### SCHMIDTIA AULOPORA, Schmidt, var.

*Schmidtia aulopora*, Schmidt, Spong. atl. Geb. p. 44, pl. v. fig. 8.

*Thalysias subtriangularis*, Duchassaing de Fontbressin et Michelotti?, Spong. mer Caraïb. p. 85, pl. i. fig. C., pl. xviii. fig. 1.

*Isodictya mirabilis*, Bowerbank?, P. Z. S. 1873, p. 319, pl. xxviii.

*External Characters.* A single fistula, about 40 millims. long and 19 broad at the broken base, and 12 broad at the vent-opening. It has evidently been torn off from a larger specimen, as the oblique fracture of the base of the tube shows. The walls are thickest at the base, viz. about 7 millims., and taper gradually up to the edge of the mouth, where they are of the thickness of cardboard. The whole tube tapers in breadth from base to mouth; but the internal diameter remains the same throughout. It presents a slight constriction or neck about 7 millims. below the mouth, below which point it has obscure longitudinal ridges, which become more marked as they approach the base, and are there accompanied by slight papillary eminences. Besides the large mouth or *vent*, there is a lateral opening, about 3 millims. in diameter, leading upwards into the cavity of the tube. The colour is a dark brown throughout. The surface is regularly covered with minute points, between which lie the *pores*. Texture subelastic; the *interior* of tube has a honeycombed

surface, the openings being those of the excretory canals. *Main skeleton* of spiculo-fibre, the spicules united by a minimum of sarcode, consisting of a primary set of fibres, from 6 to 10 spicules thick, at right angles to the surface, from which they project (multiplying as they approach the surface by *branching*), connected by a secondary set at right angles to them, containing usually from three to four spicules in their diameter, and by an irregular network of single spicules or bispicular fibre, crossing the interspaces at various angles.

*Dermal Skeleton.* An irregular reticulation, 1 to 6 spicules thick, lying between the points of the primary-skeleton fibres in superficial pigmented layer. *Parenchyma* semiopaque, muddy-brown in colour. *Spicules*—but one form for all parts, viz. a smooth acerate, slightly bent at the middle, ending rather gradually; size  $\cdot 17736$  by  $\cdot 00887$  millim. *Embryos*, apparently in the *planula* stage, lie embedded near the interior surface of the Sponge; they are oval; the greatest diameter varies from  $\cdot 24$  to  $\cdot 43$  millim. In one place a dense mass of about 15 occurred. As the specimen was taken on March 3rd, 1879, the sexual period is hereby fixed.

*Examined.* In spirit, and by mounting in balsam.

*Hab.* Trinidad Channel, Chili (just north of chief island of Madre-de-Dios archipelago), 30 fathoms.

*Obs.* The specimen differs somewhat from the original specimens of the species, though hardly enough for it to form a new species. The chief differences are here tabulated:—

	<i>External Characters.</i>	<i>Skeleton.</i>	<i>Spicules.</i>
<i>S. aulopora</i> , West-Indian specimens ( <i>Schmidt</i> ).	{ Massive, sub-erect; vents along edge of column, in distinct tubes. Yellowish in dry state.	Primary <sup>1</sup> lines project slightly from surface; spicules 6- to 12-serial in them; secondary lines 5- to 7-serial.	Acerate, slightly bent at middle, tapering slowly off to points. Size $\cdot 165$ by $\cdot 00792$ mm.
<i>S. aulopora</i> , var., S.W. Chili.	{ Massive; vents on distinct tube or tubes. Dull brown in spirit.	Primary lines project considerably from surface; spicules 6- to 10-serial; secondary lines 3- to 9-serial.	As in preceding. Size $\cdot 17736$ by $\cdot 00887$ mm.

The probable type specimen of *Isodictya mirabilis*, Bowerbank, from the "East Indies," has spicules measuring  $\cdot 1771$  by  $\cdot 0079$  millim., and agrees well (apart from the presence of the polyp-cells) with Schmidt's species in external characters, although the tendency of the vents to become elevated on separate tubes towards the base is but slightly marked. If the locality for that species is correct, the distribution is a very wide one—assuming the identity of the

<sup>1</sup> It should be noted that the specimen from which the character was taken was probably dried before being mounted; therefore the ends of the fibres had probably been rubbed.

species. The skeleton, however, is less regularly rectangular; and the primary fibres appear to project but little.

*VIOA CARTERI*, sp. n. (Plate XI. fig. 2.)

Sponge composed of irregularly ramifying vesicular masses, lining similarly shaped perforations in solid bodies. Body-wall and membranes thin, carrying felted or fasciculated aggregations of the skeleton-spicule. Vents scattered, papillary. Colour (in spirit) vivid crimson. Skeleton-spicule smooth, stout, spinulate, slightly curved, tapering to point; head spherical, exceeding the body in diameter; length  $\cdot 394$  millim., breadth of body  $\cdot 0152$  millim. Flesh-spicules scattered, numerous, spiro-spinular (*i. e.* elongated, spiral, spined), the curves deep, alternately angular and convex; spines long and slender; length  $\cdot 0412$  millim., breadth (without spines)  $\cdot 00127$  millim.

*Examined.* In spirit, and by mounting in balsam.

*Hab.* Victoria Bank, off S. Brazil, lat.  $20^{\circ} 42' S.$ , long.  $37^{\circ} 27' W.$ , calcareous rock, nullipore (?) &c.; bottom, dead coral; 39 fathoms.

One specimen (or possibly more in the single mass of rock) represents this species in the collection, spreading in the interior of a flattish, irregularly excavated, calcareous mass, and appearing in section at the broken edge of the mass, as well as indicating its presence by its various vents scattered over the surface; at these points a dark-crimson central spot is seen, surrounded by a fainter colour, apparently the result of the staining of the surrounding rock by the Sponge.

*External Form and Characters.* To the above may be added that it forms botryoidal irregular deep-lying masses, which ramify irregularly to the exterior, by sending out long narrowing tubes which end on the surface in the vents.

*Obs.* The coloration of this sponge is exactly the same as that of dry specimens of *Vioa johnstoni*, Schmidt, or, rather, of the form wrongly described under that name in 1870 by Schmidt (Atl. Geb. p. 5, pl. vi. fig. 18), in which sponge, as in this, the tint is not permanently altered by the action of potash; it is almost identical with that of a reputed specimen of *Alcyonium purpureum*, Lamk., in the national collection referred to by Mr. Carter (Ann. & Mag. N. H. [4] xvi. p. 197).

The generic name *Vioa*, put forth in 1833 by Nardo (Isis, 1833, p. 523), for a genus said to be founded on "*Alcyonium asbestinum*, Linn.," and adopted by Schmidt (Spong. adr. Meer.), is here used in preference to *Cliona*, published in 1826 by Grant (Edin. New Philos. Journ. i. p. 79); for this name, under the form *Clione*, was already occupied, having been applied in 1774 by Pallas (Spicilegia Zool. fasc. x. p. 28) to a genus of Pteropodous Mollusca.

By the specific name the Sponge is dedicated to Mr. H. J. Carter, whose work in this difficult genus has done so much to elucidate its anatomy and determine its systematic position, and to whose assistance in my work among the British-Museum sponges I am so much indebted.

The species appears to stand near to the sponge figured by Schmidt as *V. johnstonii* in 1870 (*l. c. supra*), and there set down as a variety of the form which he described in 1862 (Spong. adr. Meer. p. 78, pl. vii. fig. 14), but which is obviously specifically distinct from that of 1862, on the ground of its almost totally different spiculation; for to the latter are attributed acerate and stellate forms as its complement, while the 1870 species<sup>1</sup> possesses a spinulate and two forms of spiro-spinular spicules (*cf.* Carter, Ann. and Mag. N. H. [5] iii. p. 149, who suggests this solution of the discrepancy between the two descriptions). It differs from this species chiefly in the absence of a short stout spiro-spinular flesh-spicule, and in the much greater fineness of the thin spiro-spinular form (the diameter being as 1 to 3 and the length as 1 to 2 of those of that species).

It seems to be also not far removed from *Clione lobata*, Hancock (Ann. and Mag. N. H. [2] iii. p. 343, pl. xii. figs. 4, 8, and [3] xix. p. 239, pl. vii. fig. 6), but differs from it in the stoutness of the spinulate spicule and the globose character of its head, and in the greatly inferior diameter and the less frequent angulation of the spiro-spinular spicule. That species is described as being *dark* in colour when dry; but as the colour when in spirit is not mentioned, it is not safe to compare it with *V. carteri* as to this point. Sollas's *C. subulata*<sup>2</sup> differs from this, apart from the colour (which is unfortunately not mentioned by him), in the greater stoutness of the body and greater distinctness of the head of the spinulate; its length and the length and characters of the spiro-spinular agree almost exactly with those of our species.

*Relations of the Horny and Siliceous Sponges of Magellan's Straits and the neighbouring Coasts to those of other Seas.*—I have gone somewhat more into details, in comparing the sponges described in this paper with allied forms, than is usual in papers of this kind. But I felt this to be desirable for two reasons:—1st, because the characters of the Sponge-fauna of these localities have hitherto been hardly investigated at all, and it is therefore important to ascertain its relations to those of other localities; 2nd, because in certain groups, chiefly in the *Renierida*, the possible range of variation of individual species seems to have been not clearly ascertained, owing mainly to the imperfection of our present knowledge of the relative classificatory values of the different characters; and as the nearest allies of the species here described were mostly from the Northern and Equatorial Atlantic, it was to be expected that in the passage to the southern part of the Atlantic Ocean we should find indications of the nature and extent of the changes which species have undergone (if that is the right way of expressing the relation) in making the same or the converse passage.

In the present state of our knowledge, the genera of the above groups of sponges as a rule embrace many species and are widely distributed. This is due probably to the want of a more minute subdivision of the genera, but also certainly to some extent to the great age of the group in time, and to its members being but little limited

<sup>1</sup> This should be renamed, and would be well called *Vioa schmidtii*.

<sup>2</sup> Ann. N. H. [5] i. p. 65, pl. ii. figs. 26–28.

in space by the natural barriers (wide and deep seas) which serve to break up such groups as the marine Mollusca and Crustacea into a very great number of comparatively distinct faunæ. In this collection, all the species but one have been assigned to genera already known from the North Atlantic, and three of the four already described species which occur in it were previously known as West-Indian forms, while the species most nearly related to the new species are chiefly Atlantic. When the Pacific sponges are as well known as those of the Atlantic, we may expect, looking at the geographical relations between this district and the Pacific, to find a considerable though probably much slighter resemblance between them and the Magellan forms. No detailed descriptions have been hitherto published of any New-Zealand sponges; so that such descriptions will be received with much attention when they appear, considering the intimate relations which the Vertebrate and Invertebrate faunæ of that district bear to that of the one at present under consideration, as far as they have been investigated. But indications are not wanting of a close connexion between the sponges of the two localities.

The results arrived at by comparison of the species found here with allied forms from other parts of the world may be conveniently arranged thus:—

Species already known.	Present locality.	Originally described as	Original locality.
<i>Hircinia hispida</i> , Lamk.	S.W. Chili.	<i>Spongia hispida</i> , Lamk.	"Southern Seas."
<sup>1</sup> <i>Cladochalina armigera</i> , Sdt., var. <i>pergamentacea</i> .	Off E. Brazil.	<i>C. armigera</i> , Sdt.	Florida and Antilles.
<i>Reniera fortior</i> , Sdt.?	St. of Magellan.	<i>R. fortior</i> , Sdt.	Antilles.
<i>Schmidtia aulopora</i> , Sdt., var.	S.W. Chili.	<i>S. aulopora</i> , Sdt.	W. Indies and Florida.

New species.	Locality.	Nearest described allies.	Locality.
<i>Aplysina?</i> <i>regularis</i> .	St. of Magellan.	Not determined.	
<sup>1</sup> <i>Chalina coppingeri</i> .	Off E. Brazil.	<i>C. gracilentæ</i> , Bowk.	Britain.
<i>Siphonochalina fortis</i> .	S.W. Chili.	<i>S. bullata</i> , Sdt.	West Indies.
<i>Phakellia egregia</i> .	St. of Magellan.	<i>Avinella cinnamomea</i> , Sdt.	Mediterranean.
<i>Cioecalypta calva</i> .	St. of Magellan.	<i>C. leei</i> , Bowk.	Britain.
<i>Esperia magellanica</i> .	St. of Magellan.	<i>E. nodosa</i> , Sdt.	Adriatic.
<i>Alecion proximum</i> .	St. of Magellan.	<i>Halichondria pattersoni</i> , Bowk.	Britain.
<i>Hymedesmia polita</i> .	St. of Magellan.	<i>Microcionia tuberosa</i> , Bowk.	Straits of Malacca
<i>Trachytedania spinata</i> .	S.W. Chili.	Atlantic <i>Tedaniæ</i> .	Atlantic.
<i>Tedania tenuicapitata</i> .	S.W. Chili.	<i>T. suctoria</i> , Sdt.	Iceland.
<sup>1</sup> <i>Vioa carteri</i> .	Off S.E. Brazil.	<i>Cliona subulata</i> , Sollas.	Hab. ?
Species undetermined.			
<i>Amorphinæ</i> sp.	St. of Magellan.	?	

<sup>1</sup> These species cannot be reckoned as belonging to the Magellanic fauna.



With regard to the *amount* of distinctness between the new species and their nearest allies, the remarks or tables given under each sponge should be consulted. It should be remembered, in estimating the relations of this fauna, that comparatively few species have been intelligibly described from any seas but the Atlantic and Mediterranean; but even allowing for that, the fact that in but one case the nearest ally is to be found outside those two areas speaks strongly for the *Atlantic facies* of the Magellan and S.W. Chilian fauna.

#### Subclass CALCAREA.

The technical terms here used are those employed by Hæckel in his 'Kalkschwämme,' and with the meanings there applied to them.

The collection, it will be seen, contains the British form *Clathrina coriacea* (hitherto known only from arctic and north temperate seas) and the Australian species *C. poterium* as its sole representatives of a Magellan fauna. Considering the number of dredgings in shallow waters which have been taken here, this result may be considered as probably showing the extreme poverty of this region in Calcisponges. A striking contrast to this is furnished by the dredgings at the Victoria Bank, a shoal to the north-east of Rio de Janeiro, which was not visited by the 'Challenger,' and from which no Sponges have hitherto been described. Of the four (or possibly five) species which come from this locality, three are new, and a fourth has been assigned with considerable doubt to one of the species obtained. The well-known littoral habits of the Calcarea are thus brought forcibly to mind; for had they been fitted to live in deeper waters, it is almost inconceivable that more of them would not have spread from the mainland, whose fauna is already somewhat known.

#### CLATHRINA CORIACEA, Johnston.

(*Clathrina*, Gray, P. Z. S. 1867, p. 557; *Ascetta*, Hæckel, Kalkschwämme, ii. p. 14.)

*Spongia coriacea*, Montagu?, Wern. Mem. ii. p. 116.

*Grantia coriacea*, Johnston, Brit. Spong. p. 183, pl. xxi. fig. 9.

This species occurs on a few species of dead *Retepora*, forming either (a) a minute tube (*Auloplegma* form of Hæckel) running over the surface, expanding at intervals into a bulbiform dilatation, and varying in diameter from  $\cdot 18$  to  $\cdot 426$  millim., or (b) apparently a thin-walled sac of not less than  $2\cdot 5$  millims. extreme diameter. The sarcode is coloured reddish brown by an unevenly distributed pigment. The spicules agree with the common type figured by Hæckel in the 'Kalkschwämme,' pl. v. fig. 2, differing slightly from it in being sharply though abruptly pointed, and in being slightly inequiradiate; they measure:—in (a), basal ray  $\cdot 1267$  to  $\cdot 14$  millim., laterals  $\cdot 095$  to  $\cdot 114$  millim. long, diameter  $\cdot 00844$  to  $\cdot 0095$ ; in (b), basal ray  $\cdot 114$  to  $\cdot 2027$ , laterals  $\cdot 114$  long, diameter  $\cdot 00844$  to  $\cdot 0095$  millim.

These measurements agree closely with those of the spicules of Johnston's specimens of *Grantia coriacea*. The distribution, already

increased by Carter (Ann. & Mag. Nat. Hist. ser. 4, xx. pp. 38, 40) to include the Arctic region, is now extended southwards and into the Pacific.

*Hab.* Tom Bay (S. W. Chili), 0-30 fathoms; on dead *Retepora*.

**CLATHRINA POTERIUM, Hæckel.**

*Ascetta primordialis*, var. *poterium*, Hæckel, Kalkschwämme, ii. p. 17, pl. v. fig. 1, *f-i*.

Found in the form of a running tube (*Auloplegma* form), as in (*a*) of the preceding species; diameter of tube  $\cdot 25$  to  $\cdot 53$  millim.; slightly pigmented with diffused red-brown pigment, concentrated into a granular mass in some places (possibly due to a siliceous or a horny sponge which grew in the neighbourhood). The triradiate spicules are of two sizes, as shown by Hæckel for his Australian variety *poterium*; but they are connected by intermediate stages. The large dermal form (which is occasionally bluntly pointed) varies in the diameter of its rays from  $\cdot 019$  to  $\cdot 02217$  millim.; one ray is usually about 7 : 6 of the length of the other two, being from  $\cdot 13937$  to  $\cdot 1774$  millim. long, while the smaller rays are  $\cdot 1267$  to  $\cdot 1584$  in length. The smaller, subdermal spicules have rays measuring about  $\cdot 118$  and  $\cdot 1267$  (respectively, in the one spicule) by  $\cdot 095$  to  $\cdot 01056$  millim. The largest of the larger triradiates only form a single surface layer; the smaller subjacent forms are much more numerous. The extreme diameter of the rays of the larger spicules is thus considerably less than the *average* diameter given by Hæckel for the Australian form, viz.  $\cdot 025$  millim.; and the smaller spicule-rays are considerably shorter in proportion to their length than in that form.

*Hab.* Tom Bay (S.W. Chili), 0-30 fathoms; on an *Idmonea* on which a horny sponge was growing.

*Obs.* I have followed Hæckel's suggestion (p. 23, *tom. cit.*), and advanced this form to the rank of a species, being justified, as I consider, in this course by the fact that it is constant to its main characters as described from the Australian specimens, even at the great distance from which it is now recorded. It is distinguished from *A. primordialis*, Hæckel, by the minimum diameter of its largest spicule-rays exceeding  $\cdot 02$  millim., and by the possession of a special dermal set of triradiate spicules considerably larger than those subjacent to them.

**NARDOA PELAGICA, sp. n. (Plate XI. fig. 4.)**

(*Nardoa*, Schmidt, *Adr. Spong.* p. 18; *Ascandra*, Hæckel, Kalkschwämme, ii. p. 80.)

Sponge forming a flattened cylinder, of about equal diameter from the mouth to the base, which is almost flat. Length 19 millims.; long and short diameters respectively 7 and 3 millims. Wall 1 millim. thick. Lip? Skeleton consisting of scattered stout acerates piercing the wall from the dermal to the cloacal surface, of an external layer of triradiates whose longest ray either points inwards or towards the base, of a less number of similar spicules imme-

diately interior to these and similarly arranged, and a gastral layer of sagittal triradiates, the basal ray pointing away from the gastral surface, which is covered with quadriradiates. Body-acerates straight, tapering from centre to sharp points, external end flattened, knife-like, with a central thicker longitudinal ridge, minutely roughened; size 1·25 by ·06334 millim. Fine linear spicules of lip smooth, straight, size about ·3 by ·00475. Triradiates smooth, external ones irregular, angles about equal, all rays somewhat curved; rays respectively ·1013 to ·20 millim., ·23 to ·4, ·32 to ·45 in length by ·019 to ·022 in breadth; intermediate triradiates sagittal, angles equal or oral angle about 130°; basal ray ·4624 by ·03167 millim.; lateral rays curved, ·2724 by ·03167 millim.; gastral triradiates sagittal, oral angle 160°, proportions and shape of rays the same as of intermediate spicules. Quadriradiates, two sizes: (1) with characters of gastral triradiate but with small straight apical ray; (2) smaller, lateral rays curved towards cloaca: sizes respectively, basal rays ·38 by ·03167 and ·1267 by ·0095 millim.; laterals ·29 by ·03167 and ·1267 by ·0095 millim.; apical ·0565 by ·01267 and ·1267 by ·0095 millim. Ratio of thickness of stoutest acerate to stoutest triradiate 2 : 1.

*Examined.* In spirit and by sections in balsam.

*Hab.* Victoria Bank (off S.E. Brazil), 39 fathoms; bottom, coral.

*Obs.* One specimen represents this species; the mouth is not well preserved. It is covered in places with a brown coating of degenerate tissue. It belongs to the same group of the genus as *N.* (*Ascandra*) *echinoïdes*, Hæckel, from Java, which it resembles in its flattened shape, and the form of the large acerate. But the largest triradiates are more than twice the size of those of that species, and two kinds of quadriradiate occur instead of one.

APHROCERAS SERICATUM, sp. n. (Plate XI. fig. 5.)

(*Aphroceras*, Gray, P. Z. S. 1858, p. 113; *Leucandra*, Hæckel, Kalkschwämme, ii. p. 110.)

Sponge tubular, elongate; tube of almost equal diameter from the slightly fringed mouth to near the rounded basal end; length from 2 to 3 times as great as the maximum diameter. Canal-system and spiculation that of *Leucandra*, Hæckel. Wall about 1 millim. thick, penetrated by long stout acerates measuring 2 to 3 millims. by ·06 to ·073 millim., smooth, sharply pointed, slightly thicker proximally, projecting from surface. Mouth fringed by a number of slender acerates about ·014 millim. in diameter, smooth and straight. Internal triradiates sagittal, rays smooth, tapering to sharp points, slightly undulating, oral angle varying from 110° to 160°, lateral angles equal, basal ray measuring from ·355 to ·52 by ·019 to ·032, the laterals slightly smaller; external triradiates with aboral lateral generally only about half the length of the sagittal. Quadriradiates, rays smooth, gently curved and sharply pointed, facial rays each measuring from ·18 to ·25 by ·0095 millim., apical ray from ·16 to ·2 by ·0095 millim. Ratio of diameter of stout acerate to maximum diameter of rays of triradiate between 2 and 3 : 1. Colour (in spirit) white.

*Examined.* In spirit, and by sections in balsam and in spirit.

*Hab.* Victoria Bank (off S.E. Brazil), 39 fathoms; bottom, coral. Six specimens, one young.

*Obs.* This Sponge shows a considerable amount of variation in the size of the spicules in different specimens. One variety is especially well marked: its length is only twice as great as the breadth; its acerates reach the diameter of  $\cdot 09$  millim. and length of  $3\cdot 6$  millims., its triradiates increasing proportionally in size, the diameter reaching  $\cdot 05$  millim. It appears to be most closely allied to *A.* (*Leucandra*) *asperum*, Häckel, from the Mediterranean, of described species; but differs from it in the inferior ratio of the thickness of the acerates to that of the triradiates, in the much thinner body-wall, in the larger and more slender apical ray of the quadriradiate, and in the formation of the oral fringe out of a special fine acerate form of spicule.

*APHROCERAS CAMINUS*, Häckel (Plate XI. fig. 6), and var. *CRASSIOR*, sp. nov. (Plate XI. fig. 7).

*Leucandra caminus*, Häckel, Kalkschwämme, ii. p. 175, pl. xxxi. figs. 1a-1d, xxxvii. figs. 5 A, 5 B, 6.

Three specimens occur in this collection from the same locality, two of which are apparently identical, and one differs considerably from them. The arrangement of the canal-system has not been made out very clearly; but it appears to be of the "traubenförmig" type described by Häckel (*op. cit.* vol. i. p. 233) in *A.* (*L.*) *ananas*, Montagu, &c. with small circular cavities scattered through the walls of the body.

The two specimens, which agree with each other and with Häckel's description, are ovate, 6 to 7 millims. long by about 4 millims. broad; the body-wall is  $1\cdot 5$  millim. thick at the sides; the mouth is funnel-shaped owing to the downward convergence of the walls of a slightly projecting "collar," which is  $2\cdot 5$  millims. across; the body-cavity is about 1 millim. broad. The other specimen, which may be termed var. *crassior*, is 7 millims. long by 4 broad; body-wall  $1\cdot 5$  millim. thick at sides; mouth probably about the same as in the normal forms (most of it has been broken away). The microscopic characters are tabulated below. Var. *crassior*, however, has the triradiates much larger (maximum size of ray of those of *caminus* =  $\cdot 65$  by  $\cdot 075$  millim.), the angles are all equal, not paired. The acerate is apparently longer; and the rays of the quadriradiates are straight, instead of the laterals and the apical being bent (as in *caminus*). Perhaps therefore *crassior* constitutes another species; but in the face of the single imperfect specimen it will be well to await better information.

	<i>A. caminus</i> from off Brazil.	Var. <i>crassior</i> .
<i>Stout Acerate</i> Spicules.....	{ 1.4 to 1.6 mm. by .04434, smooth, straight, tapering to sharp points, scattered, not projecting.	About 2.5(?) mm. by .04434 to .06334, smooth, straight, taper- ing from near middle, scattered, not projecting.
<i>Fine Acerate</i> of "Collar" ...	{ About 1.4? mm. by .0095 to .01108, straight, smooth.	About 1.25(?) mm. by .095, straight, smooth.
<i>Triradiates</i> ...	From outer surface to near inner surface.	From outer surface to near inner surface.
i. Ray.....	{ Basal aborally(?) placed, .497 mm. to .53 by .057 to .075.	.64 mm. by .06334.
ii. & iii. Rays	{ Laterals .39 mm. to .43 by .0475 to .057.	.816 mm. by .06334.
	Rays tapering to sharp points from near base, slightly undu- lating. Gastrally-placed spic- ules directed towards cloaca, oral angle about 150°; the rest irregularly placed.	Rays smooth, slightly undulating, tapering to sharp points from base; angles equal; spicules variously placed.
<i>Quadriradiates</i> ...	On gastral surface and aggregated in groups in interior of wall.	On gastral surface and aggre- gated in groups in interior of wall.
	Lateral rays .14 mm. by .01267, or .228 by .019.	Facials about .32 mm. by .019.
	Basal, aborally placed, .14 mm. to .19 by .01267.	
	Apical .076 mm. by .0095.	Apical .16(?) or 32 mm. by .019, and some smaller ones like those of the typical form.
	Rays smooth, tapering to sharp points from base; basal and oral laterals slightly undulating, the rest straight. Oral angle 150° to 160°.	Rays smooth, tapering to sharp points from base, generally all somewhat curved. Oral angle either about 160° or 200°.

*Examined.* In spirit, and by sections in balsam.

*Hab.* Victoria Bank (off S.E. Brazil), 39 fathoms; bottom, coral.

**GRANTIA ATLANTICA**, sp. n. (Plate XI. fig. 8.)

(*Grantia*, Fleming, Hist. Brit. Anim. p. 524. *Sycandra*, Häckel, Kalkschwämme, ii. p. 291.)

Sponge forming a single oval tube. Walls very thick (about two thirds the diameter of the cloaca) at centre, tapering to vent and closed end. Colour yellowish white in spirit. Vent surrounded by slight fringe of acerate spicules. Outer surface slightly roughened by points of acerate spicules, &c.; inner surface similarly roughened by apical rays of quadriradiates. Arrangement of canal-system agreeing with that of *Sycandra*, Häckel; the straight radial tubes extend to within a short distance of the dermal surface; they are hexagoual, and are completely fused with each other by broad connexions; this intermediate substance is penetrated by narrow roundish "intercanals" running parallel with the radial tubes. The dermal layer, interposed between the ends of the radial tubes and the surface, consists of stout triradiate spicules and the exterior ends of the acerates. The substance of the wall between this and the cloacal surface is filled with the bases of the acerates, and with some more slender triradiate

spicules, whose sagittal rays lie between the radial canals, and whose lateral rays serve to enclose them. The cloacal surface is formed of a layer of mingled small and larger quadriradiate spicules.

*Acerate Spicules.* Straight, surface minutely rough, tapering to sharp points from the centre. Average maximum size 2.1 by .095 millim., extending from just beneath the cloacal to about one fourth of their length beyond dermal surface.

*Stout Triradiates.* Sagittal rays straight, surface slightly roughened, tapering to approximately sharp points from the base, forming three angles of about  $120^\circ$  each. Size of rays varying (average maximum size): basal from .304 by .04434 millim. to .424 by .05067, laterals from .2217 by .038 to .3167 by .04434—the proportion between the lengths of the two being thus 5 : 3 or 4 : 3. The basal ray is generally parallel to the long axis of the sponge, while one of the laterals projects from the dermal surface.

*Slender Triradiates.* Rays smooth, tapering from base to sharp points; the basal ray straight, the laterals either straight, or curving slightly forwards, or slightly undulating; the inwardly facing laterals form an oral angle of from  $160^\circ$  to  $180^\circ$  with each other; the basal points outwards; lateral angles equal. Size of rays varying (average maximum size): basal from .38 by .019 millim. to .3167 by .019, laterals from .152 by .0158 to .139 by .158; the proportion between the lengths of the rays is therefore 5 : 2 or 7 : 3.

*Quadriradiates.* Rays smooth, tapering from base to sharp points; basal straight, laterals slightly curved, either to or from cloacal surface, forming an oral angle of from  $130^\circ$  to  $170^\circ$ . Apical ray straight, projecting into cloaca. Size of laterals almost constant; apicals and basals vary inversely in length with each other. Basal ray either about .285 by .019 millim., or .04434 by .0095; laterals (average maximum) .08235 by .0095 to .101 by .01267; apical either .019 or .0507 by .006334.

*Examined.* In spirit and by sections mounted in balsam.

*Hab.* Victoria Bank (off S.E. Brazil), 39 fathoms; bottom, dead coral.

*Obs.* The species is represented by a single specimen 10 millims. long by 5.5 in extreme breadth. The projection of the points of the acerate and stout triradiate spicules from the surface is disguised to some extent by an aggregation between them of a yellowish material, which appears to be the result of desquamation of the surface tissues. This species resembles *Leucandra cyathus*, Verrill<sup>1</sup>, from Casco Bay, U. S., in its spicule-characters, and differs from all the species assigned to *Sycandra* in the 'Kalkschwämme' of Hæckel by the possession of a cortical layer of triradiates with rays at least twice as stout as those of the triradiates forming the main substance of the sponge.

<sup>1</sup> Proc. Amer. Assoc. Adv. Science for 1873, p. 392.

## EXPLANATION OF THE PLATES.

## PLATE I.

(FISHES.)

*Neophrynichthys latus*, two fifths natural size, p. 20.

## PLATE II.

(FISHES.)

Fig. A. *Melanostigma gelatinosum*, p. 21.B. *Gymnelis pictus*, p. 20.C. *Maynca patagonica* ad., p. 20.

D. ——— juv. p. 20.

All of the natural size.

## PLATE III.

(MOLLUSCA.)

Fig. 1. Terminal club of tentacular arm of *Onychoteuthis ingens*, p. 25.

1 a. Lateral view of one of the largest suckers.

1 b. A row of the teeth on the odontophore.

1 c. Upper mandible.

1 d. Lower mandible.

2. Dorsal view of *Loligo patagonica*, p. 24.

2 a. Side view of upper part of the body.

2 b. Lower or ventral side.

2 c. The shell.

2 d. A section of the broadest part of the shaft.

3. Dorsal view of *Rossia patagonica*, p. 22.

3 a. Ventral view of ditto.

## PLATE IV.

(MOLLUSCA.)

Fig. 1. *Pleurotoma (Bela) cunninghami*, p. 27.2. ——— (*Mangelia*?) *coppingeri*, p. 27.3. *Lachesis meridionalis*, p. 28.4. *Trophon fimbriatus*, p. 28.5. *Euthria atrata*, p. 29.6. ——— *meridionalis*, p. 29.7. *Nassa (Tritia) coppingeri*, p. 30.8. ——— (—?) *tæniolata*, p. 30.9, 9 a, 9 b. *Lamellaria patagonica*, p. 32.10, 10 a. *Collonia cunninghami*, p. 33.11. *Trochus (Ziziphinus) consimilis*, p. 34.12, 12 a. *Tectura (Pilidium) coppingeri*, p. 35.13, 13 a, b, c, d, e. *Chiton (Ischnochiton) imitator*, p. 35.14, 14 a. *Helix (Patula) coppingeri*, p. 36.15, 15 a, b. *Helix (Patula) magellanica*, p. 36.16, 16 a. *Helix (Zonites?) ordinaria*, p. 36.17, 17 a. *Suceinea patagonica*, p. 37.18, 18 a. *Chilina amœna*, p. 37.

## PLATE V.

(MOLLUSCA.)

Fig. 1, 1 a, b, c. *Diplodonta lamellata*, p. 38.2, 2 a, b. *Mactra (Mulinia) levicardo*, p. 39.3, 3 a. *Malletia magellanica*, p. 39.4, 4 a, b, c. *Pandora (Kennerlia) braziliensis*, p. 40.5. *Loripes pertenuis*, p. 41.6, 6 a, b. *Kellia magellanica*, p. 41.7. *Astarte magellanica*, p. 41.8. *Carditu (Aetinobolus) velutinus*, p. 42.9, 9 a, b. *Carditella pallida*, p. 43.

## PLATE VI.

(POLYZOA AND CŒLEENTERATA.)

- Fig. 1. *Chaunosia fragilis*, p. 45. Zoecia  $\times 40$  diam.  
 a. From front; b. From side.
2. *Lichenopora grignonensis*, p. 57.  
 a. Portion of peripheral part of colony, viewed from above,  $\times 26$  diam.; b. Single zoecial tube from peripheral aspect, to show the outwardly opening sinus in its wall,  $\times 26$  diam.
3. *Gigantopora lyncoides*, p. 47.  
 a. Two adjacent zoecia seen from front; b. Single zoecium seen somewhat from the side: both  $\times 40$  diam.
4. *Lepralia appressa*, var. *vinosa*, p. 51.  
 Two zoecia,  $\times 40$  diam.
5. *Retepora altisulcata*, p. 53.  
 a. Two adjacent oecia,  $\times 40$  diam.; b. Portion of back,  $\times 40$  diam.; c. Avicularium from middle of front wall,  $\times 80$  diam.
6. *Schizoporella marsupium*, p. 48.  
 Group of two zoecia and one oecium,  $\times 40$  diam.
7. *Axohelia brueggmanni*, p. 102.  
 a. Part of branch of the Brazilian specimen,  $\times 4$  diam.; b. Single calicle of the same specimen,  $\times 26$  diam.
8. *Pedicellina australis*, p. 60.  
 Full-grown zooid, with part of basal stolon, showing partial expansion of the disk,  $\times 17$  diam.
9. *Smittia trispinosa*, var. *ligulata*, p. 53.  
 Two zoecia,  $\times 40$  diam.
10. *Tubulipora dichotoma*, var. *serialis*, p. 59.  
 Part of zoarium,  $\times 30$  diam.
11. *Labiopora moseleyi*, p. 106.  
 a. End of small branch,  $\times 4$  diam.; b. Portion of surface of the same,  $\times 40$  diam.; c. Gonangium and surrounding tissue, from decalcified fragment, mounted in glycerine,  $\times 67$  diam.

[N.B. It should be noted that the preparation from which the last drawing was taken was made from the *dry* specimen; hence the indistinctness of the cœnosarcal canals.]

## PLATE VII.

(CRUSTACEA.)

- Fig. 1. *Glaucothoë rostrata*, sp. n.,  $\times 3$  diam., p. 62.
2. Frontal and antennal region of the same,  $\times 9$  diam.
3. Fourth thoracic leg,  $\times 12$  diam.
4. Fifth thoracic leg,  $\times 12$  diam.
5. Terminal segment and uropoda,  $\times 12$  diam.
6. *Pandalus paucidens*, sp. n.,  $\times 1\frac{1}{2}$  diam., p. 74.
7. Rostrum of the same,  $\times 3$  diam.
8. Terminal segment and uropoda of *Squilla gracilipes*, sp. n., nat. size., p. 75.
9. *Arcturus coppingeri*, sp. n.,  $\times 2$  diam., p. 75.
10. *Æga punctulata*, sp. n.,  $\times 1\frac{1}{2}$  diam., p. 77.
11. Anterior view of the head of the same, showing eyes and antennæ,  $\times 3$  diam.
12. First thoracic leg of the same,  $\times 3$  diam.
13. Terminal segment and uropoda of *Corallana acuticauda*, sp. n.,  $\times 6$  diam., p. 78.

## PLATE VIII.

(ECHINODERMATA.)

- Fig. 1. Apical area of *Strongylocentrotus bullatus*, slightly magnified, p. 88.
2. A small portion of the ambulacral area of the same, slightly magnified.
3. Apical area of *S.*, spec. juv., rather more highly magnified, p. 89.



4. A portion of the ambulacral area of the same, rather more highly magnified, p. 89.
5. *Calliderma grayi*, abactinal surface, natural size, p. 95.
6. *Ophioscolex coppingeri*, side view of part of an arm, to show the spines, magnified four times, p. 98.

## PLATE IX.

(ECHINODERMATA.)

- Fig. 1. *Asterias brandti*, sp. nov.,  $\times 2$  diam., p. 91.  
 2. — *alba*, sp. nov.,  $\times 2$  diam., p. 92.  
 3. — *obtusispinosa*, sp. nov.,  $\times 2$  diam., p. 92.  
 4. — *neglecta*, sp. nov.,  $\times 2$  diam., p. 94.  
 5. *Cycethra simplex*, sp. nov., nat. size, p. 96.  
 6. — —, actinal surface of ray,  $\times 1\frac{1}{2}$  diam.

## PLATE X.

(SPONGIDA.)

- Fig. 1. *Aplysina? regularis*, p. 108.  
 a. Fibre of external portion of section taken perpendicular to surface,  $\times 34$  diam.; b. Portion of skeleton,  $\times 375$  diam.  
 2. *Chalina coppingeri*, p. 110.  
 Spicules,  $\times 375$  diam.  
 3. *Siphonochalina fortis*, p. 111.  
 a. Fibre from section perpendicular to surface,  $\times 34$  diam.; b. Spicules,  $\times 375$  diam.  
 4. *Cladochalina armigera*, var. *pergamentacca*, p. 112.  
 a. Fibre from section perpendicular to surface,  $\times 34$  diam.; b. Spicule,  $\times 375$  diam.  
 5. *Esperia magellanica*, p. 117. Specimen from Sandy Point.  
 a. Entire Sponge, reduced to one third nat. size; b. Main-skeleton spicule,  $\times 134$  diam., and head, further enlarged, to show character of central canal; c. Dermal-skeleton spicule,  $\times 134$  diam.; d. Inequianchorate flesh-spicule, from front and side,  $\times 375$  diam.; e. Bundle of fine acerate spicules,  $\times 375$ .  
 6. *Phakellia egregia*, p. 114.  
 The various forms of spicules,  $\times 67$  diam.  
 7. *Ciocalypta calva*, p. 115.  
 a. Part of fibre near its base, showing the imperfectly Holorrhaphidote character of the fibre,  $\times 67$  diam.; b. Skeleton-spicule,  $\times 134$  diam., and head, further enlarged, to show character of central canal.  
 8. *Alecion proximum*, p. 119.  
 a. Skeleton-spicules; b. Inequianchorate flesh-spicule, from front and side; c. Bipocillate flesh-spicule: all  $\times 375$  diam.  
 9. *Hymedesmia polita*, p. 121.  
 a. Smooth acute spicules,  $\times 134$  diam., and head, further enlarged; b. Spined spicules,  $\times 134$  diam.; c. Inequianchorate flesh-spicule, from front and side,  $\times 375$  diam.  
 10. *Trachytedania spinata*, p. 122.  
 a. Skeleton as seen in a perpendicular section of the entire thickness of the sponge,  $\times 34$  diam.; b. View of surface, showing dermal skeleton and its connexion with the main skeleton,  $\times 34$  diam.; c. Spined, and d, smooth acute spicules,  $\times 34$  diam.; e. Cylindrical spicule,  $\times 134$  diam., and head, further enlarged; f. Fine acute,  $\times 134$  diam.

## PLATE XI.

(SPONGIDA.)

- Fig. 1. *Tedania tenuicapitata*, p. 124.  
 a and c. Acuate and acerate spicules,  $\times 134$  diam.; b. Cylindrical spicule,  $\times 134$  diam., and extremities, further enlarged.

2. *Vioa carteri*, p. 129.  
a. Skeleton-spicule,  $\times 134$  diam.; b. Different forms of the flesh-spicule,  $\times 375$  diam.
3. *Reniera fortior*?, p. 126.  
a. External portion of section of skeleton perpendicular to surface,  $\times 34$  diam.; b. Main-skeleton spicule,  $\times 375$  diam.
4. *Nardoa pelagica*, p. 133.  
a. Spicules of main wall in their natural mutual positions, as seen in a section perpendicular to surface,  $\times 34$  diam.; b. Portions of two of the fine acerate spicules,  $\times 67$  diam.
5. *Aphroceras sericatum*, p. 134.  
a. Spicules of main wall in their natural mutual positions, as in fig. 4 a,  $\times 34$  diam.; b. Portions of fine acerate spicules,  $\times 34$  diam.
6. *Aphroceras caminus*, p. 135.  
a. Spicules of main wall in their natural mutual positions, as in fig. 4 a,  $\times 34$  diam.; b. Portions of fine acerate spicules,  $\times 67$  diam.
7. *Aphroceras caminus*?, var. *crassior*, p. 135.  
a. Spicules of main wall in their natural mutual positions, as in fig. 4 a,  $\times 34$  diam.; b. Portions of fine acerate spicules,  $\times 67$  diam.
8. *Grantia atlantica*, p. 136.  
Spicules of main wall in their natural mutual positions, with the exception of the acerate, which is displaced inwards,  $\times 34$  diam.

## 2. Descriptions of some new Exotic Species of Moths. By J. O. WESTWOOD, M.A., F.L.S., &c.

[Received December 15, 1880.]

(Plates XII., XIII.)

Genus *CASTNIA*, Fabricius.

*CASTNIA ERYCINA*, sp. nov. (Plate XII. fig. 4.)

*Species minima in genere: alis anticis nigro-fuscis, certo situ metallice, basi chalybeo-, apice viridi-nitidis; alis posticis supra chalybeo-nigris, costa late sanguinea, dimidio postico late viridi-argenteo, venis nigris diviso; corpore antennisque nigris chalybeo tinctis.*

*Expans. alarum anticarum lin.* 19.

*Hab.* Eastern Ecuador (*Buckley*). In Mus. Salvin et Godman; etiam in Mus. Hopeiano Oxoniæ.

This lovely little insect formed part of a collection of insects from Eastern Ecuador, belonging to Messrs. Godman and Salvin, to whom the Hopeian Collection is indebted for a specimen. It was at first regarded as a butterfly and placed in the family Erycinidæ, to some of the species of which it bears a striking resemblance. The arrangement of the veins of the wings, however, proves its position in the genus *Castnia*, with none of the species of which, however, does it possess a very decided relationship. The branches of the postcostal vein form an oblong cell in front of the anterior division of the discoidal cell, which is closed in its upper part by the angulated base of the two discocellular veins (See fig. 1, p. 142, b 5\* and c 3\*). The anal vein emits a short branch in the middle of its hinder margin.

Mr. Clarence Buckley, by whom this species was captured, informs me that he took the specimens at Sarayacu, in a little clearing caused