Polyzoa.—*By G. Busk, F.R.S.*

(Plate X.)

Owing to the absence* of any published accounts of the Polyzoa collected at Kerguelen Island by the Challenger, the American Transit of Venus, and the German Surveying and Transit of Venus Expeditions in 1874–75, the subjoined list treats exclusively of Mr. Eaton's collection. The 26 or 27 species comprised in it are all of them inhabitants of the littoral or Laminarian zone, and were obtained with the grapple in Swain's Bay and Observatory Bay. Of the whole number 17 or 18 belong to the suborder *Cheilostomata*, 9 to the *Cyclostomata*. No representative of the *Ctenostomata* was collected.

The collection affords nine or ten forms previously undescribed; the remainder belong to a fauna which ranges from the southern extremity of S. America (which may be regarded as its "centre") to New Zealand in a westerly direction, one or two species extending even farther, to Australia and the Cape of Good Hope. It is observable that no Arctic form has been brought from Kerguelen Island, although some have been met with further south, two instances of the occurrence of the Arctic *Hornera lichenoides* obtained during the voyage of H.M.SS. "Erebus" and "Terror" having been communicated to me by Sir J. Hooker. Mr. Eaton suspects their absence may be attributed to the shallowness of the areas searched by him, the greatest depth being not more than 10 fathoms.

CHEILOSTOMATA.

Salicornariidæ.

Salicornaria malvinensis.

Busk, Brit. Mus. Cat. Polyzoa, part i., p. 18, Pl. lxiii. 1, 2, and lxv. (bis), 1.

Hab. and Dist.—Swain's Bay. Also East Falklands and S. Patagonia (Darwin).

Onchopora.

Ann. and Mag. Nat. Hist. 1876, xvii. 116.

The genus *Onchopora*, as originally constituted, embraced *Tubicellaria* of D'Orbigny, but in the place cited above I have proposed to restrict it to those forms which have no tubular prolongation of the mouth. They certainly constitute a very distinct type.

Onchopora sinclairii. (Plate X., figs. 1, 2.)

Busk, Quart. Journ. Micr. Soc. v. 172, Pl. xv. 1–3.

Hab. and Dist.—Swain's Bay. Also New Zealand (Sinclair).

The Kerguelen Island specimens have afforded me an opportunity of giving better figures of this species than the earlier drawings.

* This account was drawn up in 1876.

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Cellulariidæ.

Cellularia cirrata.

Cellularia cirrata, Ellis and Solander, Zooph. 29, tab. iv. D.

Menipea cirrata, Lamx., Exp. Méth. p. 7, pl. iv., fig. D.D 1; Bk. Brit. Mus. Cat. Poly. i., p. 21, pl. xx., 1, 2.

Hab.—Swain's Bay. Also S. Africa, Krauss.

Menipea fuegensis.*

Busk, Cat. Polyz. i., p. 21, pl. xix.

Hab. and Dist.—Swain's Bay. Also Falkland Islands (Hooker); Tierra del Fuego (Darwin).

Menipea patagonica.

Busk, Cat. Polyz. i., p. 22, pl. xxiii., 1, xxv., xxvi., 1, 2.

Hab. and Dist.—Swain's Bay. Also Falklands (Hooker); Port Desire, Patagonia, at low water (Darwin).

Cabereidæ.

Caberea boryi.

Caberea boryi, Aud. Savig. Descript. del Égypt. Explic. tab. xiii., 4; Bk. Brit. Mus. Cat. Polyz. i., p. 38, pl. xvi., 4, 5.

Caberea zelanica, idem, pl. xxxviii.

Hab. and Dist.—Swain's Bay. Also New Zealand, Cumberland Id., Australia (Hooker); Algoa Bay, Hastings (Tumanowicz); East Falklands, Patagonia (Darwin); coast of Devon (Miss Cutler); Jersey (Alder).

Flustridæ.

Carbasea ovoidea.

Busk, Cat. Polyz. i., p. 52, pl. xlix., 5–7.

Hab. and Dist.—Swain's Bay. Also S. Patagonia (Darwin).

Diachoris magellanica.

Busk, Cat. Polyz. i., p. 54, pl. lxvii.

Hab. and Dist.—Swain's Bay. Also New Zealand (Dr. Lyall); Straits of Magellan (Darwin); Adriatic (Heller; sub nomine *D. buskii*).

Diachoris inermis.

Busk, Cat. Polyz. i., p. 54, and ii., pl. lxxii.

Hab.—Swain's Bay. Also New Zealand (Dr. Lyall); Straits of Magellan (Darwin).

* Subsequent consideration of this form, which occurs abundantly in the "Challenger" collection, induces me to refer it to *C. aculeata*, D'Orb.

Diachoris costata. (Pl. x., figs. 4–6.)

Busk, Ann. & Mag. of Nat. Hist. 1876, xvii., p. 116.

Cells elongate-oval, posterior surface glistening; aperture covered in by numerous (9–12) acute, sometimes furcate costæ, which arch over and interdigitate in the middle line; 4–6 strong oral spines; a pedunculate, reclinate avicularium on one or (more usually) both sides near the upper part of the cell.

Hab.—Swain's Bay. Also Falklands (Darwin).

The cells in this very distinct form have some resemblance to those of *Beania australis* (Bk. Brit. Mus. Cat. Polyz. i., 32, pl. xvi., 1–3); but in the genus *Beania* the cells are more or less erect, and are attached to a connecting tube in a linear series, and there are no avicularia.

In *D. hirtissima*, Heller, the aperture is covered over in front by numerous marginal arched costæ or spines, and usually there are also two strong oral spines at the summit of the cell; but there are no *avicularia*, and the back of the cell is set with numerous forked spines or setæ.

MEMBRANIPORIDÆ.

Membranipora galeata.

Busk, Cat. Polyz. i., pl. lxv., 5, ii., p. 62,

Hab.—Swain's Bay. Also E. Falklands in 4–10 faths. on *Laminaria* (Darwin).

Membranipora spinosa. (Pl. x., fig. 3.)

Flustra spinosa, Quoy & Gaim. Voy. de l'Astrolable.

Hab. and Dist.—Swain's Bay.

This species is apparently the same as that described by Quoy and Gaimard (or probably by Lamouroux) in the place referred to; but I have thought it well to give an original figure.

Lepralia, *Johnston*.

§ *Armatæ*.

Lepralia galeata.

Busk, Cat. Polyz. ii., p. 66, pl. xciv., 1, 2.

Hab. and Dist.—Swain's Bay. Also Falklands, Fuegia, on Fucus and shell (Darwin).

Lepralia margaritifera.

Lamouroux, in Quoy & Gaimard, Voy. de l'Uranie, pl. xcii., 7, 8; Bk. Cat. Polyz., ii., 72, pl. ci., 5, 6.

Hab. and Dist.—Swain's Bay. Tierra del Fuego (Darwin).

In the description of this species given in the British Museum Catalogue (loc. cit.) no mention is made of the small avicularium with a semicircular mandible,

placed (as in *L. verrucosa*, a very closely allied form) on the upper side of the umbo. It should be remarked also that in the Kerguelen Island specimens the cells are much larger than those in examples from Tierra del Fuego, and that the avicularia (which in these last form a prominent feature) are very few and scattered. The Kerguelen Island form is in fact altogether a more robust variety than the other.

Lepralia ciliata.

Eschara ciliata, var. β, Pallas, Elench. 38.

Lepralia ciliata, Johnst. Brit. Zooph. 279, pl. xxxiv., 6; Bk. Cat. Polyz. ii., 73, pl. lxxiv., 1, 2, & lxxvii., 3, 4, 5.

Hab. and Dist.—Swain's Bay. Also S. Coast of England; Belfast Bay (Will. Thomp.); Adriatic (Heller); Mediterranean; America (Pallas); Beaufort Dyke 110–115 faths. (Capt. Beechy).

I have been unable to find more than one very small specimen of this species in Mr. Eaton's collection; but the characters are well marked.

§§ *Inarmatæ.*

Lepralia eatoni. (Plate X., figs. 7, 8.)

Busk, Ann. & Mag. of Nat. Hist. 4th Ser. 1876, xvii., p. 117.

Cells broadly oval, distinct; mouth semicircular, lower lip straight, notched in the middle; 4 to 8 erect oral spines. Surface of cells in the interior of the zoarium smooth, entire, or obscurely pitted round the border, sometimes umbonate; in the marginal cells there is a row of distinct pores round the border: ovicell prominent, subglobose, with faint radiating lines in front, and a row of small pores round the base.

Hab.—Swain's Bay.

Lepralia hyalina. (Pl. X., fig. 9 normal; fig. 10 var. ζ; fig. 11 var. η.)

Linn. Syst. Nat. ed. xii., 1286; Bk. Brit. Mus. Cat. Poly. ii., p. 84, pl. lxxxii., 1, 2, 3; xc.; xcv., 3, 4, 5; ci., 1, 2.

Lepralia hyalina usually forms very regular circular patches (most commonly upon seaweeds) composed of hyaline, elongated, cylindrical or barrel-shaped cells, having the mouth circular and of variable size, sinuated or notched in the lower margin, the peristome thin and usually quite unarmed (though in some instances there are two short blunt marginal projections on the upper edge,—processes rather than spines—as in the var. *cornuta*, Bk. Brit. Mus. Cat. Poly. ii., 84, and in M. D'Orbigny's *E. chilina*). But with these general characters occur several forms, apparently varieties of one species, which differ very widely from one another in the extremes. Some of them indeed might (perhaps more properly) be regarded as distinct species; but on the whole, when the intermediate forms are taken into consideration, it seems allowable to treat them as varieties.

In addition to such varieties, then, of this protean species, as are given in the British Museum Catalogue, Kerguelen Island affords what appear to be three others. These, together with one of those referred to in the Catalogue, which is in Mr. Eaton's collection, make four forms in the present series doubtfully ascribed to *L. hyalina;* viz.:—

Var. δ, *discreta*, Bk. Cat. Polyz. ii., p. 85; pl. ci., 3, 4.

Hab. & Dist.—Swain's Bay. Also, Falkland Islands, 4–10 faths.; Fuegia (Darwin); California (Greville).

Var. ϵ, *conferta*, Bk. Ann. & Mag. of Nat. Hist. 4th ser. 1876; xvii. p. 117.

Characterised by the crowded and compressed growth of the cells and ovicells in the central portion of the patch, which gives the zoarium the aspect of a cellepore, and by the wide patulous mouths of the cells, and more especially of the marginal cells.

Hab.—Royal Sound, or Swain's Bay.

Var. ζ *bougainvillei*, Bk., Ann. & Mag. of Nat. Hist. 4th ser. 1876, xvii. 117.

(Pl. X., fig. 10.)

This appears to be identical with the form figured by M. D'Orbigny, and therefore I have retained his specific name.

Hab.—Swain's Bay, or Royal Sound.

Var. η. *muricata*, Bk., l. c. (Pl. X., fig. 11.)

Characterised by the smaller size of the cells, and by their surface like that of the ovicells being thickly studded with short spines.

CYCLOSTOMATA.

CRISIIDÆ.

Crisia edwardsiana.

Crisidia edwardsiana, D'Orbigny Voy. d. l'Amér. Merid., Polyp. 7, pl. i., 4–8.

Crisia edwardsiana, Bk. Brit. Mus. Cat. Poly. iii., p. 5, pl. ii., 5, 8.

Hab.—Swain's Bay. Also, New Zealand (Sinclair); Australia (M'Gillivray); Tierra del Fuego (Darwin); Patagonia (D'Orb.).

Crisia kerguelensis. (Pl. X., figs. 17, 18.)

Busk, Ann. & Mag. of Nat. Hist. 4th ser. 1876; xvii., 117.

Zooœcia 3 to 5 in each internode, branches arising from the second or third, elongated, curved abruptly forwards, mouth slightly expanded, peristome thin membranous. *Ooœcia* pyriform, somewhat compressed and subacuminate at the top; opening behind, curved, tubular. Growth lax, straggling, irregular.

Hab.—Swain's Bay.

It has much of the habit and general aspect of *Crisidia geniculata*, but differs from it in the number of cells in each internode, the very sparse punctulation of the surface, and the peculiar form of the oœcia.

IDMONEIDÆ.

Idmonea marionensis. (Pl. X., figs. 15, 16) (young state).

Busk, Brit. Cat. Poly. iii., p. 13, pl. vii. 78 (young state); pl. xiii. 3–5.

Hab.—Swain's Bay. Also, Auckland (and Orakei Bay, fossil?), New Zealand (Stoliczka); Marion Island, 80 faths. (Hooker); Gulf of Florida, Bahia (fossil; Smitt).

Numerous instances of the initial growth of this species, as well as of *Pustulopora delicatula*, *Tubulipora*, &c., affixed to the surface of seaweed, occur in the collection. Two such specimens of the *Idmonea* are here figured (Plate X., figs. 15, 16). The zoœcium springs in the usual way from a small hemispherical vesicle, rising at once in a tubular form, and soon sending forth a lateral bud or secondary tube, and so on. In no stage does it resemble a *Tubulipora*, not being adnate except at the extremity, or merely by a few lateral struts from the first cell or two.

Pustulopora delicatula.

Busk, Cat. Poly. iii. 20; pl. vi., B. 3.

Hab. and Dist.—Swain's Bay. Also Australia, 15 fathoms (Voyage of Rattlesnake); Madeira? (J. G. Jeffreys).

TUBULIPORIDÆ.

Tubulipora organizans. (Plate X., figs. 20–25.)

Tubulipora organizans, D'Orbigny, Voy. d. l'Amér. Mérid. p. 19, pl. ix., 1–3.

Hab.—Swain's and Observatory Bays; abundant on *Macrocystis*. Also Falkland Islands (D'Orb.).

M. D'Orbigny's figure appears to represent the mode of growth of this form; and as the species is extremely abundant on the kelp at Kerguelen Island, I have little hesitation in applying to it the appellation given by him to the Falkland Islands form. The manner of growth in narrow, ligulate, dichotomously dividing branches that hardly expand at all at the extremity and which are composed of short irregular series of tubes diverging on either side from the median line, is not unlike the growth of *T. serpens;* and I am not certain whether *T. organizans* might not well be regarded as a variety of that species. Upon the whole, however, sufficient diversity is apparent between the two to justify their specific distinction. One marked character which I consider important, is the manner in which the growth of the zoarium commences. This proceeds as usual from a semiglobose vesicle; but in the form considered by me to be *T. organizans* this vesicle or *bulla* is supported by numerous short processes, which form a kind of denticulate border round its attached base. From this *bulla* arises a single tube whose mouth expands and gives rise from its interior to a second tube which buds forth laterally in the usual way,—and so on.

Tubulipora stellata. (Plate X., fig. 26.)

Busk, Ann. & Mag. of Nat. Hist. 4th. ser. 1876, xvii. 118.

Zoarium irregularly stellate. Zooœcia diverging from the centre in all directions.

Hab.—On *Macrocystis;* Swain's Bay.

DISCOPORELLIDÆ.

Discoporella infundibuliformis. (Plate X., fig. 19.)

Busk, Ann. & Mag. of Nat. Hist. 4th ser. 1876, xvii. 118.

Zoarium stipitate, infundibuliform. Zooœcia arising from the interior of the funnel; mouth expanded, with 5–6 acute teeth.

Hab.—Swain's Bay.

Not more than two or three specimens of this very peculiar form have been met with, and these may eventually prove to be only the initial stage or young growth of the species.

Discoporella fimbriata.

Busk, Cat. Poly. iii. 32, pl. xxvii.

Hab. and Dist.—Swain's Bay. Also Tasmania? (Mrs. Smith); Tierra del Fuego, Cape Horn at 40 faths., Chiloë at 96 faths., Chonos Archipelago at 13 faths. (Darwin).

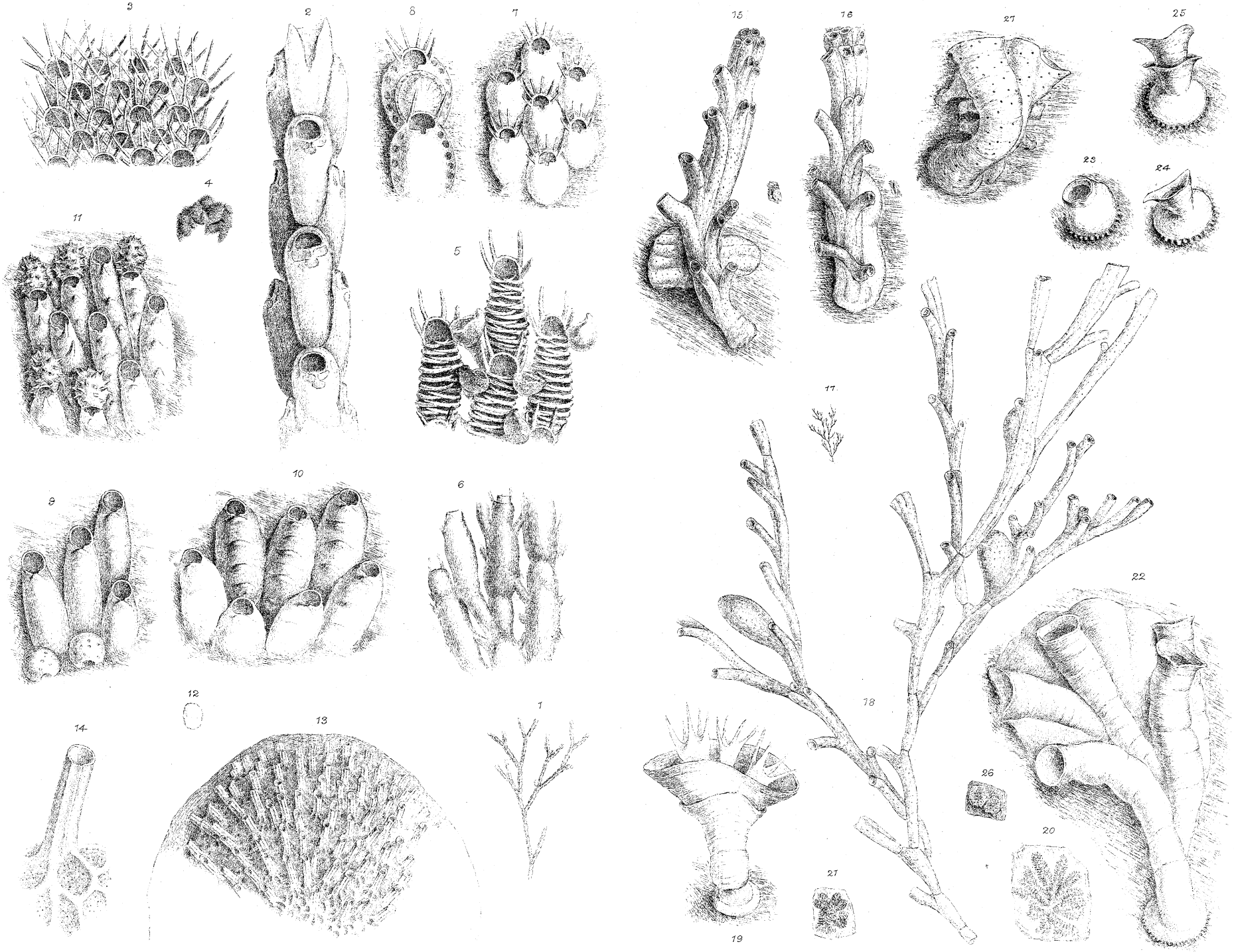
Discoporella canaliculata. (Plate X., figs. 12–14.)

Busk, Ann. & Mag. of Nat. Hist. 4th ser. 1876, xvii. 118.

Zoarium circular, bordered, slightly convex; tubes very irregularly uniserial, with a raised canalicular fillet on one side; interspaces cancellous.

Hab.—Swain's Bay.

[A considerable proportion of the specimens stated to have been obtained at Swain's Bay must have come really from Observatory Bay.—*A. E. E.*]



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