

- Fig. 5.* Portion of fig. 3. *a*, deeper eye in median transverse section; *b*, portion splintered off; *c*, external eye; *f*, cuticle. Zeiss F, oc. 3.
- Fig. 6.* Portion of fig. 4. *a*, fragments of deeper eye; *b*, external eye; *cu*, cuticle. Zeiss F, oc. 3.
- Fig. 7.* Transverse section of foot immediately beneath the junction with the body. *m*, the four pairs of longitudinal muscles; *m. c.*, mucous cells; *cu*, cuticle. Zeiss F, oc. 3.
- Fig. 8.* Transverse section of foot three sections lower, showing considerable decrease in size. The lettering as in previous figure. Zeiss F, oc. 3.
- Fig. 9.* Fifth section of foot. The animal invariably dies with this region of the foot twisted. Zeiss F, oc. 3.
- Fig. 10.* Seventh section of foot. Zeiss F, oc. 3.
- Fig. 11.* Extremity of foot. *a*, the cup-like extremity; *b*, union of muscles. Zeiss F, oc. 3.
- Fig. 12.* Portion of cuticle under high power. *a*, cellular layer; *b* and *c*, granular. Zeiss K, oc. 3.

PLATE II.

- Fig. 13.* Almost vertical section of Rotiferon. *b*, "brain;" *s*, secretion; *m*, vestibule; *e*, embryo; *ov*, ovary; *cu*, cuticle. Zeiss E, oc. 3.
- Fig. 14.* Three sections later, showing the connexion between the lumen in the "brain" and the vestibule. Lettering as in previous figure. Zeiss E, oc. 3.
- Fig. 15.* Median transverse section of "brain." *cu*, cuticle. The secretion in central lumen is not figured. Zeiss F, oc. 3.
- Fig. 16.* Median transverse section of *Trypanococcus*. *cu*, cuticle of Rotiferon; *a*, cyst containing cilia; *b*, its opening. Zeiss F, oc. 3.
- Fig. 17.* Formation of gastrula by epibole. Zeiss F, oc. 3.
- Fig. 18.* Transverse section of ovary. *ov*, ovary; *a*, an ovum; *b*, membrane of ovary being detached with ovum and forming the vitelline membrane. Zeiss F, oc. 3.

II.—*Report upon the Hydrozoa and Polyzoa collected by P. W. Bassett-Smith, Esq., Surgeon R.N., during the Survey of the Tizard and Macclesfield Banks, in the China Sea, by H.M.S. 'Rambler,' Commander W. U. Moore. By R. KIRKPATRICK.*

[Plates III.–V.]

COLLECTIONS of the marine faunas of Tizard and Macclesfield Banks were made by Mr. P. W. Bassett-Smith, and were presented to the British Museum (Natural History) by the Lords of the Admiralty. A list of the Hydrozoa and Polyzoa obtained, with descriptions of new species, is given below.

HYDROZOA.

The collection of Hydrozoa from the Tizard and Maccles-

field Banks is a small one, but includes one specimen of great interest, viz. a new species of *Stephanoscyphus*, Allman.

With the exception of a specimen of *Millepora verrucosa*, the Hydrocorallinæ are represented merely by small fragments.

SIPHONOPHORA.

Physalia utriculus, Eschscholtz. Off Macclesfield Bank.

Velella, sp. Young forms in the "Rataria" stage.

Porpita, sp. No specimens were preserved, but sketches were taken from life.

HYDROCORALLINÆ.

Stylaster flabelliformis, M.-Edwards & Haime. Garvan Reef, 2 fath.

— *pulcher*, Quelch. Garvan Reef, 2 fath.

Distichopora violacea, M.-Edwards & Haime. Garvan Reef, 2 fath.

— *irregularis*, Moseley. Garvan Reef, 2 fath.

Millepora ramosa, Pallas. Tizard Reef, 10 fath.

— *verrucosa*, M.-Edwards & Haime. Tizard, $\frac{1}{2}$ fath.

HYDROIDA.

Sertularia distans, Lamouroux. Tizard, 27 fath.

Aglaophenia MacGillivrayi, Busk. Tizard, 5 and 27 fath.

The specimens of *Aglaophenia* are loaded with corbulæ. They vary slightly from the descriptions of Busk and Allman, but not to the extent of being specifically distinct. In the Tizard specimens the branches are shorter and more rigid, and the ridges of the corbulæ more prominent and interdigitating than in the 'Challenger' one.

Genus ZYGOPHYLAX, Quelch.

Zygophylax tizardensis, n. sp. (Pl. III. fig. 3.)

Trophosome: colony about $1\frac{1}{2}$ inch in height, the main stem bearing pinnately-disposed alternate ramuli and pinnate branches in one plane. Main stem polysiphonic, branches gradually becoming monosiphonic towards the periphery.

Hydrothecæ half-immersed on main stem, free and sub-stipitate on branches; oral end bent outwards and constricted at the bend; one or two annuli concentric with margin of orifice; with a knobbed chitinous ring internally at the base and a half-ring at the upper dorsal part, for muscular attach-

ments. Length of hydrothecæ .4 to .5 millim., breadth .1 millim.

Sarcothecæ numerous, cylindrical, varying in length from .1 to .4 millim., on the tubes composing the main stem and larger branches; a pair at the base of each hydrotheca.

Gonosome unknown.

Hab. Tizard Reef, 35 fath.

The type of the genus *Zygophylax* is *Z. profunda*, Quelch*, from Cape-Verde Islands, 500 fath.

The nearest ally to *Zygophylax* is the genus *Perisiphonia*† of Allman; in the latter the colony is polysiphonic throughout. The genus *Cryptolaria* includes forms in which the colony is entirely polysiphonic (as in *Cryptolaria prima*, Busk) and others in which it becomes monosiphonic towards the periphery. It would appear, then, that *Perisiphonia* is synonymous with *Zygophylax*.

The knobbed ring at the base of the hydrotheca in *Z. tizardensis* gives attachment to muscular fasciculi which unite to form a sheath (retractor muscle) surrounding the offset of the coenosarc as it enters the hydrotheca; the protractor muscle is attached to the chitinous half-ring on the upper dorsal part of the hydrotheca.

Genus STEPHANOSCYPHUS, Allman.

Stephanoscyphus, Allman, Trans. Linn. Soc., 2nd ser. Zoology, vol. i. 1875, p. 61.

Stephanoscyphus Allmani, n. sp. (Pl. III. fig. 1.)

Perisarc consisting of a monosiphonic, stout, irregularly-branched stem, straggling, flexible, partly decumbent, partly free; about .9 millim. in diameter, marked with circular rugæ and longitudinal striæ.

Hydrothecæ sessile, arranged in half-verticils on decumbent part, and in verticils of from three to five in free portions of stem; expanding gradually from base upwards, from 3–6 millim. in height, with strongly marked circular rugæ, connected by parallel longitudinal striæ. Inside the hydrothecæ a vertical chitinous lamella expanding into a funnel or basin, with thick, free, fimbriated edge closing in about three fourths of the lumen of the tube; sometimes a second chitinous process higher up in the tube.

Hab. Tizard Reef, 27 fath.

In consideration of the interest taken by Prof. Allman in

* Ann. & Mag. Nat. Hist. (5) xvi. 1885, p. 4, pl. i. fig. 4.

† 'Challenger' Report on Hydroida, pt. ii. p. 43.

the affinities of *Stephanoscyphus*, the specimen was sent to him for inspection. He replied that the material was not sufficiently well preserved for the exposition of anatomical details.

The specimen consists of four pieces from 2 to 6 inches in length, the colour varying from dark to pale brown.

Many of the hydrothecæ are empty, and where the polypites are present they are fully retracted, with the tentacles introverted.

The four longitudinal markings in the gastric cavity of the polypite are in some cases plainly visible; but whether these are solid projections of the mesoderm lined by endoderm, or canals lined by endoderm, owing to the state of preservation of the soft tissues it is not possible definitely to decide.

The main distinction between *Stephanoscyphus* and the closely allied genus *Spongicola* of F. E. Schulze* consists in the presence of a hypostome in the latter. So far as can be made out from preparations of *Stephanoscyphus Allmani*, the tentacles arise from the edge of the orifice of the invaginated polypite, and consequently there is no hypostome.

The internal chitinous projections of the perisarc have a remarkable shape in the new species, and are single on one plane. In the Mediterranean species usually four processes project inwards in the same plane, and two or three such partitions may be present in one hydrotheca. The presence of the chitinous processes probably arises from the necessity for support of the soft tissues, which otherwise could not have well maintained their position in the wide funnel-shaped tubes characteristic of the Spongicolidæ.

The specimens of *Stephanoscyphus* † *simplex* ‡, Allman (sp. MS. ?) (Pl. III. fig. 2), dredged by H.M.S. 'Valorous' in 1450 fath., North Atlantic, lat. 56° 11' N., 37° 41' W., consist of single funnel-shaped tubes attached to pebbles by a slightly expanded base.

The internal chitinous processes in this species form hemispherical swellings, four being formed on the same plane. These isolated hydrothecæ may be the initial stage of colonial forms, since solitary hydrothecæ of *S. Allmani* were found on shells from the Tizard Bank.

Claus § places *Stephanoscyphus mirabilis*, Allman, and *Spongicola fistularis*, Schulze, in the family Spongicolidæ.

* F. E. Schulze, "*Spongicola fistularis*, ein in Spongien wohnendes Hydrozoon," Archiv mikr. Anat. Bd. xiii. 1877, p. 795, Taf. xlv.-xlvii.

† Proc. Roy. Soc. Lond. 1876, vol. xxv. p. 223.

‡ The specific name "*simplex*" is on the bottle containing the specimen; but I have not seen a published description of that species.

§ Claus, 'Grundzüge der Zoologie' (1880), p. 262.

The choice of this name is somewhat unfortunate, since, although the Mediterranean forms are commensal with sponges, the specimen from the China Sea has not formed an alliance of this nature. Claus ranks the Spongicolidæ under the order Tubulariæ, and brackets the latter with the Gymnoblasteria of Allman. But Allman defines the Gymnoblasteria as Hydroida destitute of a hydrotheca, whereas in the Spongicolidæ the hydrotheca is a most conspicuous object. The misinterpretation probably arose from confusing the hydrotheca with the hydrophyton. The sessile tubes (hydrothecæ) of *Stephanoscyphus* can scarcely be considered homologous with the tubes of *Tubularia*.

In its general appearance *Stephanoscyphus Allmani* resembles a Calyptoblastic Hydroid of the *Lafoëa* type. Prof. Allman is of opinion that whether the ridges in the gastric cavity have a lumen or not, the Spongicolidæ should be separated from the Gymnoblasteria and Calyptoblastea. Prof. Schulze concludes the paper embodying his researches on *Spongicola fistularis* with the following observations * : —

“It seems we can speak from abundant evidence that *Spongicola fistularis* is the *Scyphistoma* form of an Acraspedote Medusa ; nevertheless I repeat that we must first investigate the whole generation-cycle before the true position of this form can be determined.”

The specimen of *Stephanoscyphus Allmani* does not furnish us with any further data which would help to satisfactorily solve the problem of the systematic position of the Spongicolidæ. Since there are objections to classing this family under the Gymnoblasteria and Calyptoblastea, it will be advisable to retain the order Thecomedusæ (Allman), though this has been objected to by Claus.

Order THECOMEDUSÆ, Allman.

Family Spongicolidæ, Claus.

Genus STEPHANOSCYPHUS, Allman.

Stephanoscyphus mirabilis, Allman.

Stephanoscyphus simplex, Allman.

Stephanoscyphus Allmani, n. sp.

Genus SPONGICOLA, F. E. Schulze.

Spongicola fistularis, F. E. Schulze.

* Arch. mikr. Anat. Bd. xiii. p. 816.

POLYZOA.

CHILOSTOMATA.

- Ætea truncata*, Landsborough. Tizard, 27 fath.
Eucratea chelata, Linnæus. Tizard, 2 fath.
Catenicella elegans, Busk. Tizard, 6 fath.
Catenaria otophora, n. sp. Tizard, 27 fath.
Farcimia cereus, Pourtales. Tizard, 6 fath.
Scrupocellaria cyclostoma, Busk. Tizard, 27 fath.
 — *securifera*, Busk. Tizard, 27 fath.
Caberea lata, Busk. Tizard, 27 fath.
Bugula scaphoides, n. sp. Tizard, 27 fath.
Didymia simplex, Busk. Tizard, 27 fath.
Membranipora crassimarginata, Hincks. Tizard, 27 fath.
 — *hastilis*, n. sp. Tizard, 27 fath.
Cribrilina radiata, Moll. Tizard and Macclesfield, 5–30 fath.
 — *annulata*, Fabricius, var. *setosa* (nov.). Tizard, 27 fath.
Steganoporella magnilabris, Busk. Tizard, 27 fath.
Thalamoporella Rozieri, Audouin. Tizard, 27 fath.
Smittipora antiqua, Busk. Tizard, 27 fath.; Macclesfield, 36 fath.
Microporella ciliata, Pallas. Tizard, 27 fath.
 — *Malusii*, Audouin. Tizard, 27 fath.
 — *violacea*, Johnston, var. *plagiopora*, Busk. Tizard, 27 fath.
 — *coscinophora*, Reuss. Tizard, 35 fath.
Chorizopora Brongniartii, Audouin. Tizard, 27 fath.
Tubucellaria cereoides, Ellis & Solander. Tizard, 27 fath.
Leprælia foraminigera, Hincks, var. Tizard, 35 fath.
 — *lonchæa*, Busk. Tizard, 27 fath.; Macclesfield, 36 fath.
 — *quadrata*, Busk. Tizard, 27 fath.
 — *Poissonii*, Audouin. Tizard, 27 fath.
 — *turrita*, Smitt. Tizard, 27 fath.
 — *onucha*, n. sp. Macclesfield, 36 fath.
 — *cleidostoma*, Smitt. Tizard, 27 fath.
Phylactella geometrica, n. sp. Macclesfield, 36 fath.
Mucronella Thenardii, Audouin. Tizard, 27 fath.
Smittia rostriformis, Kirkpatrick (var.). Tizard, 27 fath.
 — *reticulata*, J. MacGillivray. Tizard, 27 fath.
Porella malleolus, Hincks. Tizard, 27 fath.
Schizoporella Cecilii, Audouin (var.). Tizard, 27 fath.
 — *unicornis*, Johnston. Tizard, 27 fath.

- Schizoporella venusta*, Norman. Tizard, 27 fath.
 — *lyncoides*, Ridley. Tizard, 27 fath.
Mastigophora Dutertrei, Audouin. Tizard, 27 fath.
Retepora monilifera, P. MacGillivray. Macclesfield, 27 fath.
 — *phænicea*, Busk. Tizard, 35 fath.
 — *pectinata*, n. sp. Macclesfield, 27 fath.
Cellepora Costazii, Audouin. Tizard, 27 fath.

CYCLOSTOMATA.

- Crisia setosa*, P. MacGillivray. Tizard, 27 fath.
 — *elongata*, M.-Edwards. Tizard, 27 fath.
Stomatopora granulata, M.-Edwards. Tizard, 27 fath.
Idmonea pulcherrima, n. sp. Tizard, 6 fath.
Diastopora sarniensis, Norman. Tizard, 27 fath.
Lichenopora simplex, Busk. Tizard, 2 fath.
 — *capillata*, n. sp. Garvan, 6 fath.

CTENOSTOMATA.

- Valkeria uva*, Linnæus. Tizard, 27 fath.
Flustrella flabellaris, n. sp. Tizard, 32 fath.
Cylindroecium dilatatum, Hincks (var.). Tizard, 27 fath.
Buskia setigera, Hincks. Tizard, 27 fath.

Pedicellinidæ.

- Barentsia gracilis*, Sars. Tizard, 27 fath.
 — *discreta*, Busk. Tizard, 27 fath.

Loxosomidæ.

- Loxosoma crassicauda*, Salensky (? sp.). Tizard, 27 fath.

Catenicella elegans, Busk.

The specimen consists only of a small fragment. The cells are very minute and transparent; but, apart from the difference in size of the cells, the specimen possesses all the characters of *C. elegans*.

Hab. Tizard Reef, 6 fath.

Catenaria otophora, n. sp. (Pl. V. figs. 1-1 c.)

Zoarium slender. Zoœcia in single series, not geminate, with horny joints; long, ovate, produced below into a hyaline tube forming an obtuse angle with the body; front

surface flat and punctured, dorsal surface smooth, ventricose; lateral surfaces with three large round pores; orifice subquadrate, with a concave lower border.

A small vertically-placed avicularium with pointed mandible on each side of the oral end of the cell.

Hab. Growing on Algæ, Tizard Reef, 27 fath.

Bugula scaphoides, n. sp. (Pl. IV. fig. 1.)

Zoarium reddish brown; branches slender, spreading horizontally; about eight to ten cells to each internode; zooecia alternate, boat-shaped, broad at the oral end, much contracted below, the area occupying almost the whole front of the cell; small stalked avicularia very convex dorsally, and with curved beaks, rising from the narrow produced portion of the cell.

Ooecium? Stout branching chitinous tubes given off from the dorsum of each cell.

Dimensions of zoecium : length .9 mm., breadth 2 mm.

height " " avicularia: length .08 mm., breadth .04 mm.,
height (including stalk) .08 mm.

Hab. Tizard Reef, 27 fath.

Membranipora hastilis, n. sp. (Pl. V. fig. 3.)

Zoarium incrusting. Zoecia large, oval; front entirely membranous; operculum without a hinge; placed transversely at the head of each zoecium an ear-shaped vibracular cell, toothed on one margin, with a vibraculum shaped like a double-edged spear.

Hab. Incrusting coral; Macclesfield, 36 fath.

In the position and shape of the vibraculum this species resembles certain forms of *Cupularia*. The present form is simply incrusting, the zoarium not presenting any definite shape.

Cribrilina annulata, Fabricius, var. *setosa*, n. var.
(Pl. V. fig. 4.)

The zoœcia are large, with from 6–8 rows of pores on each side of a slightly marked central ridge. The proximal border of the orifice is pectinate. At the head of each zoœcium a small square avicularian cell, with an acute vibraculoid mandible.

Hab. Incrusting shell; Tizard, 27 fath.

Microporella coscinophora, Reuss, var. (Pl. IV. figs. 5, 5 a.)

Eschara coscinophora, Reuss, Foss. W. Tertiärb. p. 67, pl. viii. fig. 20;
Stoliczka, Sitzungsab. Akad. Wiss. Wien, Bd. xiv. Abth. 1, 1862,
pl. ii. fig. 11, pl. iii. figs. 1, 2.

Zoarium forming slender, flat, bilaminate branches, from 1

to 1.5 mm. in diameter; front surface of young marginal zoëcia with from 4–8 circular stellate pores; orifice semi-circular with straight lower border, at each end of which is a small avicularium with a small pointed mandible; in older cells the surface of the zoëcium is sunk at the bottom of an oval depression, and one of the lateral avicularia rises on a calcareous stalk to a level with the general surface; a row of small avicularia present along the margins of the branches, and occasionally at the bases of the zoëcia.

Hab. Tizard Reef, 35 fath.

The Tizard-Reef specimen closely resembles Stoliczka's figure in Sitz. Ak. Wiss. Wien, Bd. xiv. pl. iii. fig. 1. Here there is a knob rising from the centre of a dark depression.

Lepralia lonchæa, Busk.

Lepralia lonchæa, Busk, Chall. Rep. p. 146.

Lepralia vestita, Hincks, Ann. & Mag. Nat. Hist. (5) 1885, xv. p. 256, pl. ix.

Mr. Waters, in his Supplementary Report on the 'Challenger' Polyzoa (p. 28), remarks that, without a more complete examination, he is unable to decide whether or not these two forms are identical. A plentiful supply of material enables me to state that the two species are synonymous. The opercula vary slightly in appearance, according to the mode of preparation; but the same variations (in appearance only) were obtained both in specimens from the Tizard Bank and from the 'Challenger' collection. Further, Mr. Hincks's description applies in every detail to the specimens from the China Sea.

Hab. Tizard Reef, 27 fath.

Lepralia foraminigera, Hincks, var.

Lepralia foraminigera, Hincks, Ann. & Mag. Nat. Hist. (5) 1883, xi. p. 200, pl. vii. fig. 1.

Hab. Incrusting coral, Tizard Reef, 35 fath.

The variation consists in the presence of a peristome laterally and behind the mouth, and of an avicularium shaped like the spout of a jug, with a long narrow acute mandible, on the front wall of the cell.

Lepralia quadrata, Busk. (Pl. V. figs. 2, 2 b.)

Mucronella quadrata, Busk, Chall. Rep. p. 156, pl. xvii.

This species is removed from the genus *Mucronella* because

it does not possess the feature characteristic of that genus, viz. a mucro. The process present on the proximal border of the orifice is a prolongation of the front wall of the zoecium, which fits into a concavity in the operculum. The operculum possesses a peculiar framework. The ovicells are of immense size in comparison with the zoecia, and the orifices and opercula of fertile zoecia are enlarged and modified.

Hab. Tizard Reef, 27 fath.

Lepralia onucha, n. sp. (Pl. V. figs. 5, 5 a.)

Zoarium incrusting. Zoecia dull brown, .8 mm. long by .5 broad; surface flattened, rising at the oral end; walls thick, opaque, smooth, glistening; orifice rectangular, .2 mm. in length by .14 mm. in breadth, with slightly concave lower border, surrounded at the sides and back by a low peristome. Avicularia 0. Oecium forming an ill-defined swelling at the back of the peristome.

Operculum rectangular, .2 mm. in length by .14 mm. in breadth; with a thick rim surrounding the proximal half, with knobs for muscle attachment; giving off from about the middle of the upper surface a chitinous claw, which fits posteriorly into a groove in the peristome.

Hab. Incrusting coral; Macclesfield, 36 fath.

Phylactella geometrica, n. sp. (Pl. V. figs. 7-7 c.)

Zoarium incrusting. Zoecia ovate-elongate, slightly ventricose; front wall smooth, hyaline, bounded by an areolated margin; zoecia rising anteriorly to a tall cylindrical peristome; primary orifice quadrangular, with three denticles; by the side of the peristome a shallow rudimentary avicularium (in many cases aborted or absent), with broad pyriform mandible.

Oecium globose, punctured, hyaline.

Hab. Incrusting coral; Tizard Reef, 35 fath.

Mucronella Thenardii, Audouin. (Pl. IV. figs. 2-2 b.)

Flustra Thenardii, Audouin; Savigny, Descr. de l'Egypte, pl. x. figs. 3, 3 a.

Zoarium incrusting. Zoecia large, ventricose, with thick glassy walls, perforated by large round pores; from the middle of the lower border of the orifice a stout tridentate or cross-shaped process arises.

Orifice quadrate, with a central hammer-shaped and two

lateral sharp incurved denticles; gigantic avicularia, projecting obliquely forwards, with large spatulate mandibles.

Ooecium subglobose, prominent, slightly flattened in front; perforated by numerous pores, giving it a frosted appearance.

Hab. Tizard Reef, 6 fath.

Smittia rostriformis, Kirkpatrick.

Hab. Tizard Reef, 27 fath.

The specimen from the Tizard Reef varies slightly from the type specimen from Mauritius. The avicularium in the former does not project vertically upwards from the front of ooecium, but is situated obliquely along the border.

Schizoporella Cecillii, Audouin, var. (Pl. V. fig. 8.)

The specimen illustrates in a striking manner the transition from the zoœcial to the avicularian cell. The avicularia differ externally from the zoœcia in the prolongation of the operculum into a broad spatulate mandible and in the presence of from four to six short spines round the upper margin of the cell. The notch in the orifice and the separable opercular shaft which fits into it are present both in the zoœcial and avicularian cells.

Hab. Incrusting coral, Tizard Reef, 6 fath.

Retepora pectinata, n. sp. (Pl. V. figs. 6-6 c.)

Zoarium slender, branching freely without forming fenestræ; zoœcia flat, smooth, rhomboidal, rising anteriorly to a tall tubular hyaline peristome, equal in height to the length of the cell: summit of peristome denticulate, within the margin a circle of horizontal denticles. On the front of the body of the cell a small avicularium with a short broad spatulate mandible. Dorsal surface vibicate, showing areas of the individual zoœcia; small avicularia scattered about.

Ooecium very small, globular, hyaline, with a faintly marked vertical ridge, from each side of which radiate concentric striæ. Chitinous appendages. Operculum quadrangular; length .08 mm., breadth .06 mm.

Hab. Growing on *Retepora monilifera*; Macclesfield, 27 fath.

The single specimen of this beautiful species is about half an inch in height.

In the mode of branching, and in the presence of a high tubular peristome, the specimen resembles *Turritigera stellata*,

Busk. The remarkable position of the ovicells in the latter species, as elucidated by Mr. Waters (Suppl. Rep. 'Challenger' Polyzoa, p. 22, pl. i. figs. 22, 25), separates *Turritigera* from *Retepora*. *Retepora pectinata*, though branching freely, and with the tubular peristome, is not classed under *Turritigera*, because its oecium is in the usual position.

Idmonea pulcherrima, n. sp. (Pl. IV. figs. 6-6 b.)

Zoarium decumbent, dichotomously branched; the branches occasionally united by cross bars. Zoecia rather large, in alternate series of two or three, increasing in height from within outward, hyaline, punctured.

Dorsal surface punctured, marked with longitudinal lines and faint concentric striæ, with calcareous radical processes.

Oecium forming a flattened punctured inflation, whence arises a curved tube expanded at the orifice, and with the margins rolled out.

Hab. Tizard Reef, 6 fath.

In this species the oecial orifice has become greatly modified. In the specimen all the orifices are turned in one direction, towards the periphery of the colony.

Diastopora sarniensis, Norman.

Diastopora sarniensis, Norman, Ann. Nat. Hist. (3) xiii. p. 89, pl. xi. figs. 4-6; Hincks, Brit. Mar. Pol. p. 463, pl. lxvi. figs. 7-9.

Hab. Growing on coralline; Macclesfield, 36 fath.

The tubules do not project from the summit of operculate zoecia, as they generally do in British specimens, but are within the zoecial tubes and concentric with them. If these tubes are vasa deferentia, the specimen is monoecious, since ovicells are also present on the zoarium.

Lichenopora capillata, n. sp. (Pl. IV. figs. 4, 4 a.)

Zoarium composed of confluent disks (meandrine), concave in the centre, with a somewhat thick laminar margin.

Zoecia in uniserial radiating series, with two or three rows of cancelli between. Zoecial orifices oval, much produced on the central side, with from 6-12 fine setose processes on the margin; numerous calcareous bristles growing from the body-wall. Cancelli rounded, about half the diameter of the zoecia.

Oecia scattered, each forming a conical swelling, produced into a wide tubular orifice.

Hab. Garvan Reef, 6 fath.

Flustrella flabellaris, n. sp. (Pl. IV. figs. 3, 3 a.)

Zoarium brown, forming a flat soft flexible expansion, loosely adnate to the surface on which it grows, extending by narrow ligulate anastomosing processes. Zoœcia large, long, hexagonal, 1.2 mm. by .6 mm., flattened, rising at the oral end to a tall tube (.6 mm. in height in retracted state), with flat sides. No spines. Ctenostome? Tentacles of polypide 20.

Hab. Growing over a sponge (*Axinella*); Tizard, 32 fath.

Loxosoma crassicauda, Salensky, ? sp.

Loxosoma crassicauda, Salensky, Ann. Sci. Nat. 6 série, vol. v. p. 2, pl. xii. figs. 1, 2; Etudes sur les Bryozaires Entoproctes.

The specimens have the tentacles retracted, so that it is difficult to accurately determine the number of them. In general appearance, in the relation of the stalks to the polypides, in the arrangement of the buds, and in the absence of a basal peduncular gland, the specimens answer to the description of *L. crassicauda*. The material is scarcely sufficient for the purpose of making a satisfactory diagnosis.

Hab. Growing on algæ; Tizard Reef, 27 fath.

EXPLANATION OF THE PLATES.

PLATE III.

- Fig. 1.* *Stephanoscyphus Allmani*, n. sp., natural size. 1 a. Hydrotheca, showing the polyp with gastral ridges and introverted tentacles, $\times 60$ diam. 1 b. Section of hydrotheca, showing internal chitinous processes, $\times 60$ diam.
- Fig. 2.* *Stephanoscyphus simplex*, Allman, natural size. 2 a. Section of hydrotheca, $\times 60$ diam.
- Fig. 3.* *Zygophylax tizardensis*, n. sp., natural size. 3 a. Branch, $\times 40$. 3 b. Showing paired basal sarcothecæ. 3 c. Portion of a main branch, showing bundles of tubes from which arise sarcothecæ. 3 d. Hydrotheca, $\times 100$ diam.

PLATE IV.

- Fig. 1.* *Bugula scaphoides*, n. sp., $\times 60$ diam.
- Fig. 2.* *Mucronella Thenardii*, Audouin. 2 a. Tridentate orifice. 2 b. Mandible.
- Fig. 3.* *Flustrella flabellaris*, natural size. 3 a. Ditto, $\times 60$ diam.
- Fig. 4.* *Lichenopora capillata*, $\times 4$ diam. 4 a. Zoœcium, $\times 60$. 4 b. Oœcium, $\times 30$.
- Figs. 5, 5 a.* *Microporella coscinophora*, Reuss.
- Fig. 6.* *Idmonea pulcherrima*, natural size. 6 a. Oœcium. 6 b. Oœcial orifice.

PLATE V.

- Figs. 1, 1 a, 1 b. Catenaria otophora*, n. sp. 1 *c.* Operculum.
Fig. 2. Lepralia quadrata, Busk. 2 *a.* Operculum. 2 *b.* Operculum of fertile cells.
Fig. 3. Membranipora hastilis, n. sp.
Fig. 4. Cribilina annulata, Fabricius, var. *setosa*.
Fig. 5. Lepralia onucha, n. sp. 5 *a.* Operculum.
Fig. 6. Retepora pectinata, n. sp., natural size. 6 *a*, 6 *b.* Anterior and dorsal surfaces, $\times 60$ diam. 6 *c.* Operculum.
Fig. 7. Phylactella geometrica, n. sp. 7 *a.* Tridentate orifice. 7 *b.* Operculum. 7 *c.* Mandible.
Fig. 8. Schizoporella Cecilii, Audouin, var.

III.—*Descriptions of twelve new Species of Lycænidæ from West Africa and one from the Solomon Islands, in the Collection of Herbert Druce.* By HAMILTON H. DRUCE, F.E.S.

1. *Epitola pinodes*, sp. n.

♂. Upperside dull black. Fore wing with a patch of scarcely perceptible dull bluish scales in and below the cell. Hind wing more or less covered with dull bluish scales, excepting the margins.

Underside dull light reddish brown. Fore wing with the lower half black, extending from the base to near the outer margin. Hind wing with no markings.

Head, thorax, and abdomen black; legs black, with white spots; antennæ black above, alternately spotted with black and white below.

Expanse $1\frac{3}{5}$ inch.

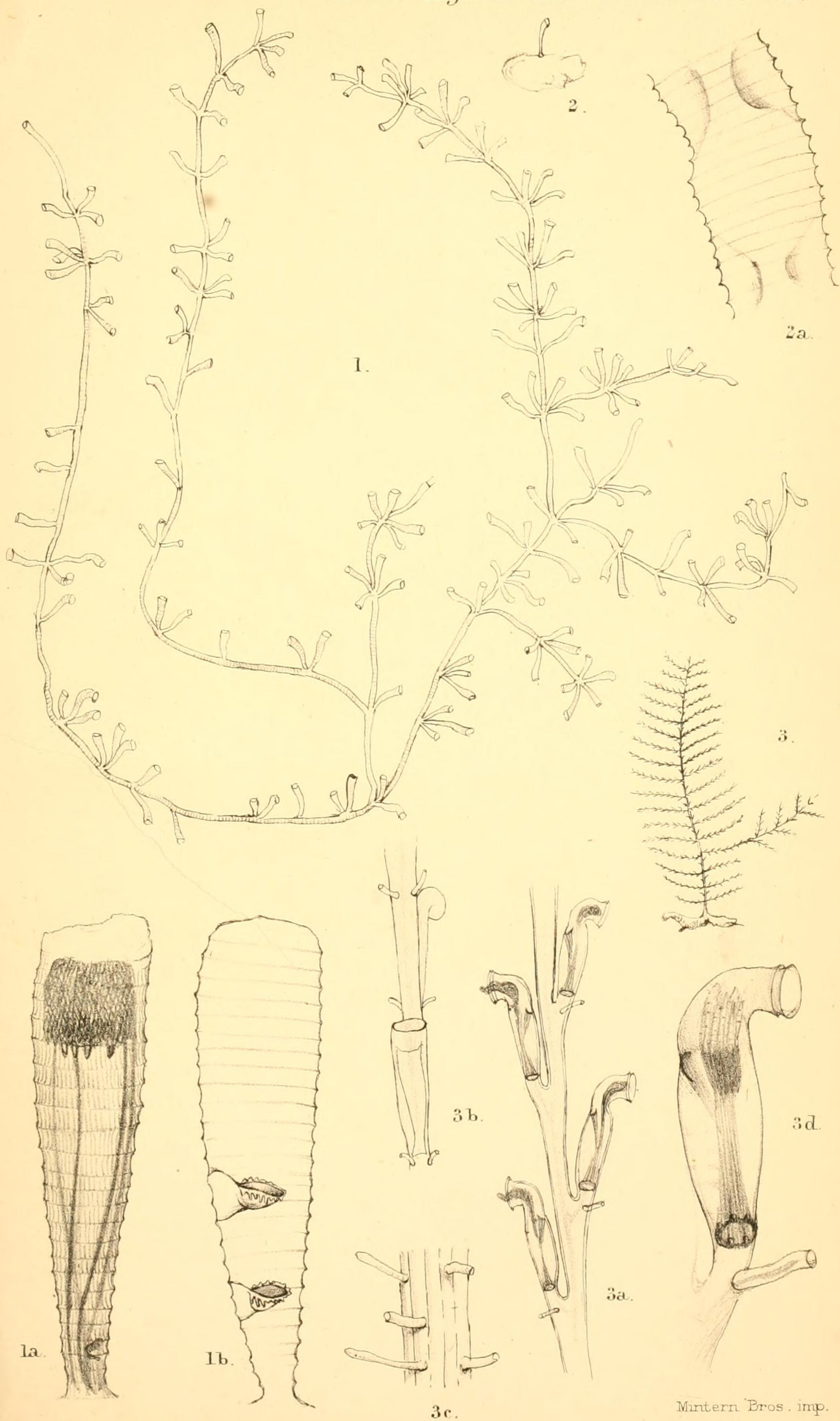
Hab. W. Africa, Lagos.

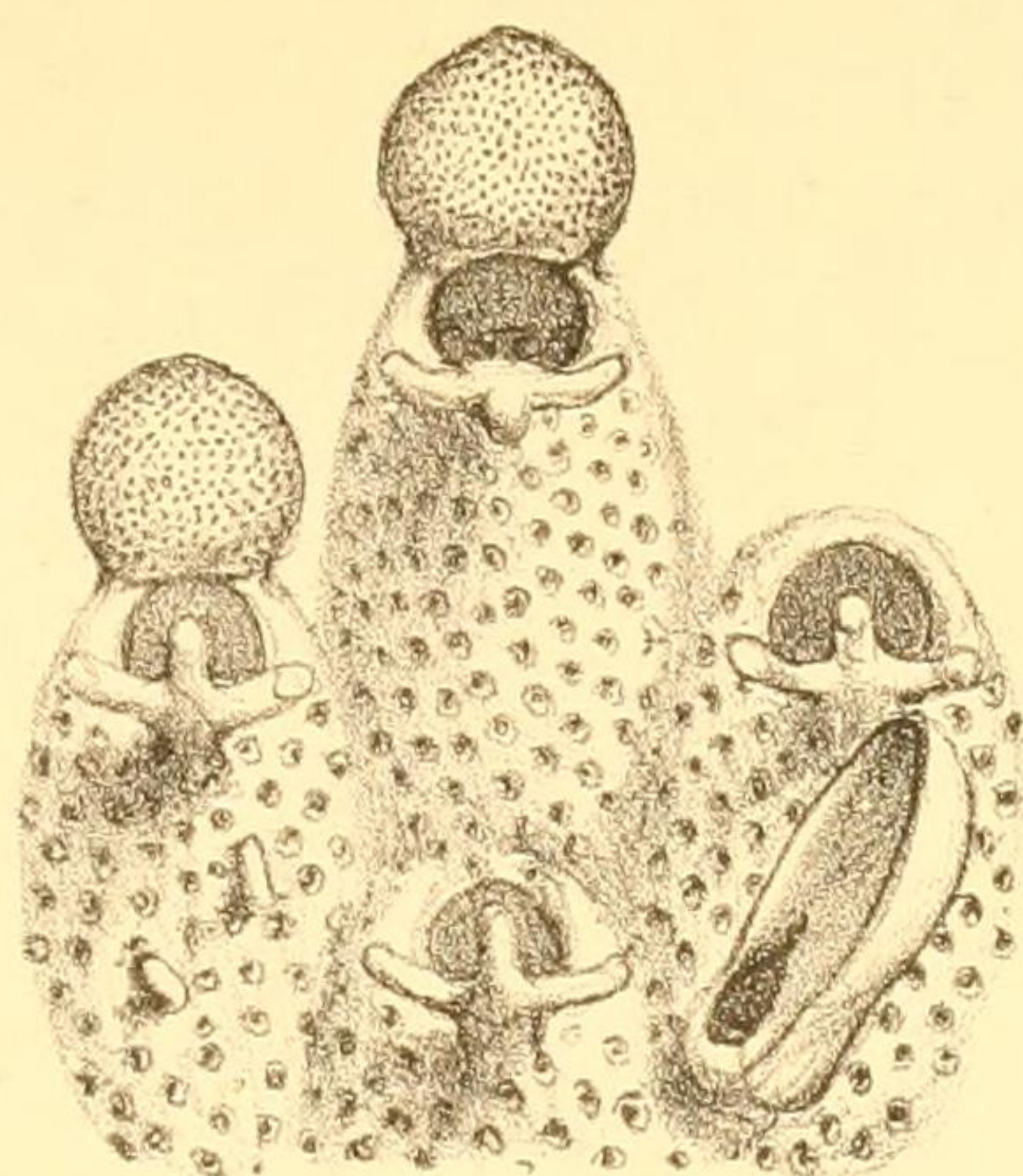
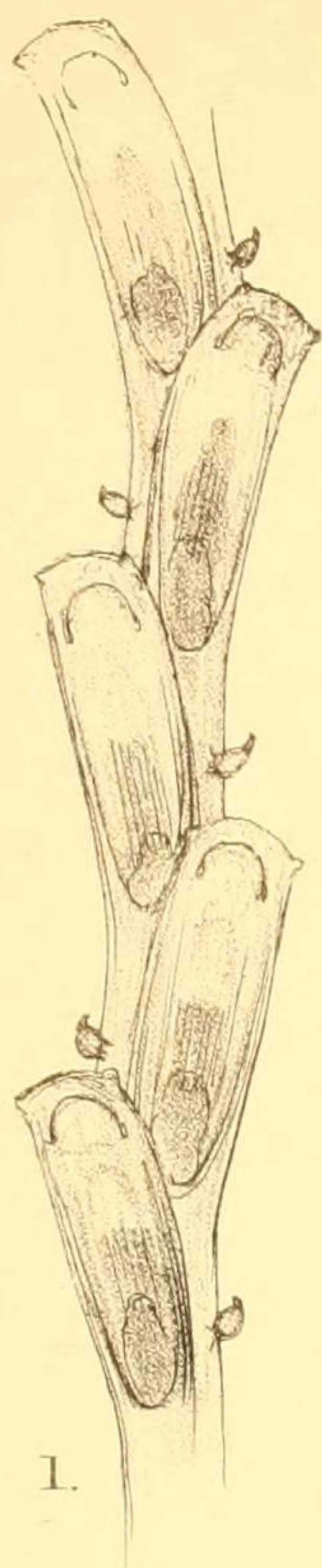
This species is not nearly allied to any other, but in form and size approaches *E. dunia*, Kirby.

2. *Lycænesthes lithas*, sp. n.

♂. Upperside.—Fore wing dull glossy brown, darker on the costal and outer margins; bright violaceous from the base along the inner margin, extending upwards into the cell and bordered by the lower median nervule. Hind wing bright violaceous, apex tipped with brown; the margin very narrowly black from the apex to the anal angle; the inner margin covered with whitish hairs.

Underside brownish white, with light brown lunular





3a.

