

Papers from Dr. Th. Mortensen's Pacific Expedition 1914-16.

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Oscar Carlsson.

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The Actiniaria and Zoantharia of St. Helena.

By  
Oscar Carlgren.

The Actiniarian fauna of St. Helena is very imperfectly known and no species of Zoantharia and Ceriantharia is described from this island. The present paper is based on examination of a collection made by Dr. Th. Mortensen who visited St. Helena in the beginning of 1930. At the same time the Danish exploring ship "Dana" called at St. Helena to assist Dr. Mortensen in his dredgings at the island; the specimens thus collected are here marked with "Dana". The collections contain the following species.

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| 1) <i>Edwardsia sanctae helenae</i> n. sp.   | 7) <i>Aiptasia insignis</i> n. sp.         |
| 2) <i>Anthopleura mortenseni</i> n. sp.      | 8) <i>Amphianthus sanctae helenae</i>      |
| 3) <i>Anthopleura sanctae helenae</i> n. sp. | n. sp.                                     |
| 4) <i>Pseudactinia varia</i> Carlgr.         | 9) <i>Amphianthus giganteus</i> n. sp.     |
| 5) <i>Phymactis sanctae helenae</i> (Less.)  | 10) <i>Anthothoë stimpsoni</i> (Verr.)     |
| 6) <i>Telmatactis valle-flori</i> Grav.      | 11) <i>Zoanthus sanctae helenae</i> n. sp. |

*Actiniaria.*

1. *Edwardsia sanctae helenae* n. sp.

Scapus with 8 rows of nemathybomes which are large in its upper part. Tentacles 12. Retractors of the macronemes concentrated with about 12 stronger, high and a little branched folds. The outer lamellar part of the macronemes is attached to the retractor not far from its outer edge. Parietal muscles in the upper part of the body strong,

fanlike, in the lower part considerably weaker. The extension of the parietal muscles on the column is of ordinary amount. Nematocysts of the nemathybomes partly

42.3—49.3  $\times$  about 2—2.5  $\mu$ , sparse, partly 56.4—81.8  $\times$  5—5.6  $\mu$ , common, both microbasic *b*-mastigophors, those of the filaments partly 14.8—17.6  $\times$  2.5—2.8  $\mu$ , basitrichs, partly 19.7—25.4  $\times$  4.2—4.9  $\mu$ , microbasic *p*-mastigophors.

Colour: Scapus of some examples ochre-coloured.

Size of the best preserved individual from Flagstaff Bay in contracted state: length 0.5 cm., breadth 0.18 cm.

Occurrence: St. Helena, Flagstaff Bay 60 m. "Dana" 24.II.1930, 1 specimen, off Sugarloaf. 25 fms., 2 specimens, St. James, False Bay 30.I.1930, 4 small specimens.

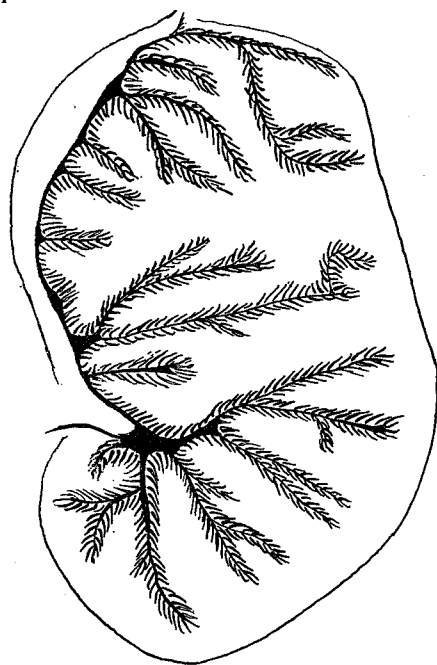


Fig. 1. *Edwardsia sanctae helenae* n. sp.

I have sectioned the example from Flagstaff Bay and another from Sugarloaf, the latter which I forgot to measure was the largest of all specimens but owing to bad preservation not fit for use. I have figured a transverse section of a retractor (fig. 1) in the upper part of the reproductive region and a parietal muscle (fig. 2) in the upper part of the body, both sections figured in same magnification. Both examples were fertile, one with large testes, the other with ovaries containing large, unripe ova. The smaller nematocysts of the nemathybomes varied only a little, the larger ones, however, fairly

much. They were in 3 examples 56.4—70.5  $\times$  5—5.6  $\mu$ —66.3—77.6  $\times$  5—5.6  $\mu$ —69.1—81.8  $\times$  5—5.6  $\mu$  (in the largest individual).

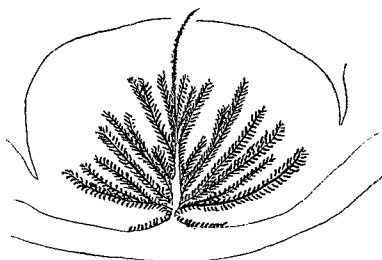


Fig. 2. *Edwardsia sanctae helenae* n. sp.

2. *Anthopleura mortenseni* n. sp.

Base broad. Column provided with verrucae, as it seems, only in its upper half, at the margin more numerous than below. Sphincter strong, broad, circumscribed with a weak main-lamella. Marginal spherules present. Tentacles conical, longitudinally furrowed, in number about 48, their longitudinal muscles ectodermal, palisade-like arranged, fairly strong, their endoderm strongly pigmented. Radial muscles of

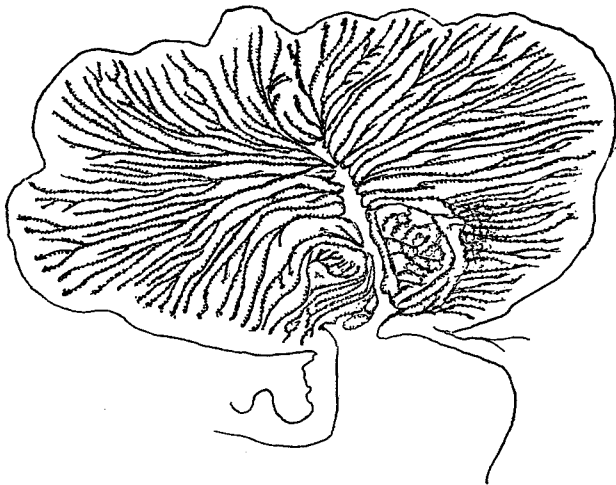


Fig. 3. *Anthopleura mortenseni* n. sp.

oral disc ectodermal, palisad-like arranged. Endoderm of oral disc strongly pigmented. No zooxanthellae in the endoderm. Nematocysts of the column partly  $21-24 \times 2.5-2.8 \mu$ , basitrichs, common, partly  $17-21 \times 4.5-5 \mu$ , atrichs, those of the marginal spherules  $26.8-45$  (commonly  $41-42$ )  $\times 5-5.6 \mu$ , atrichs, moreover a few basitrichs, those of the tentacles  $18.3-21.1 \times 2 \mu$ , basitrichs, very numerous, those of the actinopharynx partly  $11.3-14.1 \times 2 \mu$ , partly  $21-24 \times 2.8 \mu$ , common, both basitrichs, partly  $21 \times 4.2 \mu$ , microbasic *p*-mastigophors; very rare, those of the filaments partly  $11.3-20.4 \times 2-2.5 \mu$ , basitrichs, common, partly  $25.4-28.2 \times (3.5)4.2 \mu$ , broader in the basal end, probably basitrichs, partly  $16.2-21.1 \times 4.2(24 \times 5.6 \mu) \mu$ , microbasic *p*-mastigophors, common; spirocysts of tentacles up to about  $28 \times 3 \mu$ .

Colour in formalin: brownish.

Size: height up to 0.8, breadth about  $1.5 \times 1$  cm. in very contracted state.

Occurrence: St. Helena, Jamestown, rocky coast 1.II.1930, 1 specimen.

The single, very contracted individual was badly damaged, the tentacles drawn into the actinopharynx and the lowest part of it together with a part of the central pedal disc lost, so that I cannot give a complete description of the species. The figure 3 shows the appearance of the sphincter drawn in same magnification as the figure 4 of the sphincter of *Anthopleura sanctae helenae*. The example was a female.

Remarks: The species is undoubtedly different from the following among other facts because it has no zooxanthellae in its endoderm.

### 3. *Anthopleura sanctae helenae* n. sp.

Pedal disc wide. Column with warts very close set and ampullaceous in its uppermost part, diminishing in number downward but not reaching the limbus. Marginal spherules present. Sphincter circumscript, weak, with a weak main lamella. Tentacles about 96, longitudinally furrowed in preserved state, their longitudinal muscles ectodermal; radial muscles of oral disc principally ectodermal but at the base the folds sometimes fuse together. 2 broad siphonoglyphs and 2 pairs of directives. Mesenteries hexamerously arranged, most of the mesenteries perfect. All or almost all mesenteries (directives?) fertile. Retractors, especially those of the stronger mesenteries, diffuse.

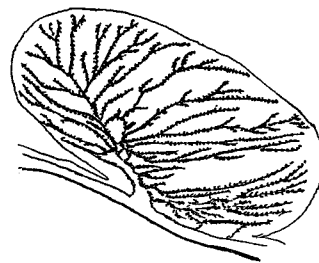


Fig. 4. *Anthopleura sanctae helenae*  
n. sp.

Parietobasilar muscles very distinct. Numerous zooxanthellae in the endoderm. Nematocysts of the column  $15.5 - 22.6 \times 2 - 2.7 \mu$ , basitrichs, those of the marginal spherules partly  $35.8 - 47 \times 4.9 - 5.6 \mu$ , very numerous, atrichs, partly  $12 - 25.4 \times 1.5 - 2.8 \mu$ , sparse, basitrichs, those of the tentacles  $24 - 32.4 \times$  about  $2.8 \mu$ , very numerous, basitrichs, those of the actinopharynx partly  $25.4 - 28.9 \times 3.5 \mu$ , numerous, partly  $14.8 - 18.3$ , few, both basitrichs, partly  $19 - 21.1 \times 4.2 - 4.9 \mu$ , fairly common, microbasic *p*-mastigo-

phors, those of the filaments partly  $11.3-16.9 \times 1.5-2.5 \mu$ , common, basitrichs, partly  $42.3-49.3 \times 3.5-5.6 \mu$ , probably basitrichs, partly  $18.3-22.6 \times 3.5-4.2 \mu$ , microbasic *p*-mastigophors; spirocysts of tentacles up to about  $33.8 \times 2.8 \mu$ .

Colour in formalin: column light-brown.

Size: height and breadth about 2 cm. Pedal disc, however, damaged.

Occurrence: St. Helena, rocky coast, 28.I.1930, 1 specimen.

As the pedal disc was very folded and partly damaged I could not decide if there were more mesenteries at the base than at the margin. Figure 4 shows a section of the small sphincter and the figure 5 a section of a pair of directives.

As the lower part of the column was very contracted it was impossible to state the distribution of the verrucae.

Remarks: The species recalls a little *Anthopleura insignis* (Carlgren 1940 fig. 1) but is certainly not identical with it.

#### 4. *Pseudactinia varia* Carlgr.

*Pseudactinia varia* nov. nom. Carlgren 1939, p. 57.

Occurrence: St. Helena, Jamestown, rocky coast 1.II.1930. 4 specimens, rocky coast 28.I.1930, 6 specimens.

Further distribution: Cape Province.

#### 5. *Phymactis sanctae helenae* (Less.).

*Actinia Sanctae Helenae* n. sp. Lesson 1830, p. 74, Pl. 2, fig. 1.

*Phymactis Sancta Helenae* Less. Milne Edwards 1857, p. 275, Andres 1883, p. 436.

Pedal disc broad. Column fairly low but broad, with vesicles very close set over its whole surface. Vesicles compound, probably without

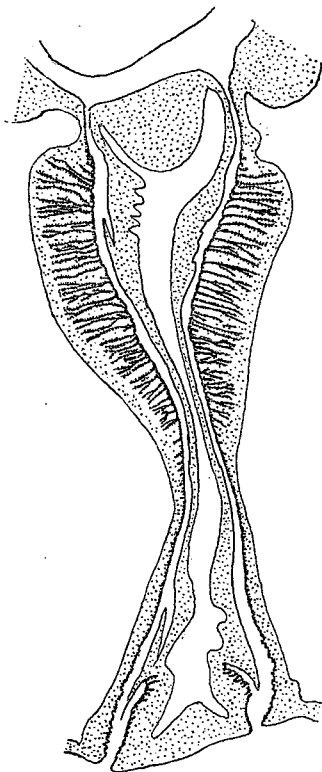


Fig. 5. *Anthopleura sanctae helenae* n. sp.

muscles, large in the most part of the column, smaller in the uppermost and lowest part of it. Marginal spherules very well developed at least 96, containing relatively sparse atrichs but numerous long basitrichs. Sphincter endodermal, diffuse about as in *P. clematis*. Tentacles conical, fairly short, close set, occupying about half of the wide oral disc, in number up to about 384, all of about same length. Longitudinal muscles of tentacles ectodermal, fairly weak. Oral disc with numerous

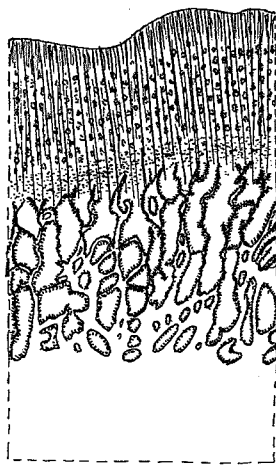


Fig. 6. *Phymactis sanctae helenae* (Less.).

radial furrows. Radial muscles of oral disc meso-ectodermal, strong, not weaker at the insertions of the mesenteries than between them. Actinopharynx with 2 fairly broad siphonoglyphs, aborally prolonged. Mesenteries very numerous, close set. 2 pairs of directives. Up to about 96 pairs of mesenteries perfect, the 3 oldest cycles sterile. Mesenteries thin with oral- and marginal stomata. Retractors diffuse, parieto-basilar muscles broad forming a distinct fold and reaching over the middle of the body. Nematocysts of the vesicles  $14.5-17 \times 2.5-2.8 \mu$ , basitrichs, those of the marginal spherules partly  $59.2-81.8 \times (5)5.6 \mu$ , partly  $35.2-53.6 \times 3.5-4.2 \mu$ , both atrichs, partly  $73.3-105.7 \times 2.8 \mu$ , numerous, basitrichs, those of the tentacles  $18.3-24 \times 2.5 \mu$ , rather sparse, basitrichs, those of the actinopharynx  $16.9-33.8 \times$  about  $2.5 \mu$ , common, basitrichs, those of the filaments partly  $18.3-19.7 \times 2 \mu$ , very rare, basitrichs, partly  $28.2-36.7 \times 4.2 \mu$  (broader in the proximal than in the distal end), probably basitrichs, partly  $19.7-22.6 \times$  about  $4.2(3.5) \mu$ , microbasic *p*-mastigophors; spirocysts of tentacles up to  $31 \times 2.8 \mu$

Colour: Column dark redbrown, marginal spherules blood-red; tentacles redbrown, oral disc brownish grey. Actinopharynx orange-coloured. Preserved in formalin the colour seems almost black.

Size of largest specimen in preserved state: breadth 5.5 cm., height 3.5 cm., length of tentacles up to 0.8 cm.

Occurrence: St. Helena, Jamestown, rocky coast. 30.I.1930, 7 specimens.

I have figured a part of the strong meso-ectodermal muscles of the

oral disc (fig. 6). Of two individuals examined the one had about 380 tentacles; in the middle of the actinopharynx 48 pairs of mesenteries were perfect, in the uppermost part probably 96 pairs, the reproductive organs were here very weakly developed. The other individual had about 330 tentacles and 21 pairs of sterile mesenteries.

Remarks: As to the nematocysts of the marginal spherules it seems to be characteristic of *Phymactis*, that the atrichs are comparatively scarce but the basitrichs numerous, very thin and long. Also *Rivetia* has a similar arrangement (see Carlgren 1924, p. 14), while *Actinia*, *Anthopleura*, *Bunodosoma* and other Actiniidae have very numerous atrichs but very few and short basitrichs in their marginal spherules. *Phymactis* and *Rivetia* are very close related to each other and it is perhaps best to demolish the latter genus (see also Stephenson 1922 p. 285).

#### 6. *Telmatactis valle-flori* Grav.

*Telmatactis Valle-Flori* n. sp. Gravier 1916, p. 236, 1918, p. 16, Pl. II, figs. 12, 13, Textfigs. 7—13.

Body elongated, column divisible into scapus and scapulus, the former provided with a cuticle. Sphincter very long, alveolar, wholly separated from the endodermal muscles of the column, of about same width, in its uppermost part a little stronger but not occupying more than half of the breadth of the mesogloea. Tentacles about 80 (79, 82), hexamerously arranged, rather short, not capitate but longitudinally furrowed in their whole length, their longitudinal muscles strong, palisade-like arranged, ectodermal. Radial muscles of oral disc ectodermal, weak. 2 deep siphonoglyphs not aborally prolonged. Mesenteries hexamerously arranged in 4 cycles but the last cycle incomplete (in the individual with 79 tentacles there were 85 mesenteries at the base). 2 pairs of directives, 6 pairs of perfect mesenteries. Retractors very strong, concentrated, with high and richly branched folds recalling those of *T. natalensis* Carlg. but with more principal branches and more divisible into portions (7—9). Mesenteries of the second and third cycles without retractors but provided with filaments and acontia. Oral and marginal stomata present on the perfect mesenteries. Nematocysts of the scapus  $15.5-18.3 \times 2.5-3 \mu$ , microbasic amastigophors?, those of the apex of the tentacles partly  $73.3-80.4 \times 2.5-3 \mu$ , very numerous, basitrichs, partly  $42.3-50.8 \times 5-5.6 \mu$ , fairly common,



microbasic amastigophors, those of the lower part of the tentacles  $57.8-64.9 \times 2.5-3 \mu$ , basitrichs, those of the actinopharynx partly (25.4)  $28.2-33.8 \times 3 \mu$ , partly  $16.2-21.5 \times$  about  $2 \mu$ , both basitrichs, partly  $48.3-53.6 \times 7-8.5 \mu$ , microbasic amastigophors, those of the filaments partly  $11.3-15.5 \times$  almost  $2 \mu$ , basitrichs, partly  $11.3-15.5 \times$  about  $4 \mu$ , microbasic *p*-mastigophors, those of the acontia partly

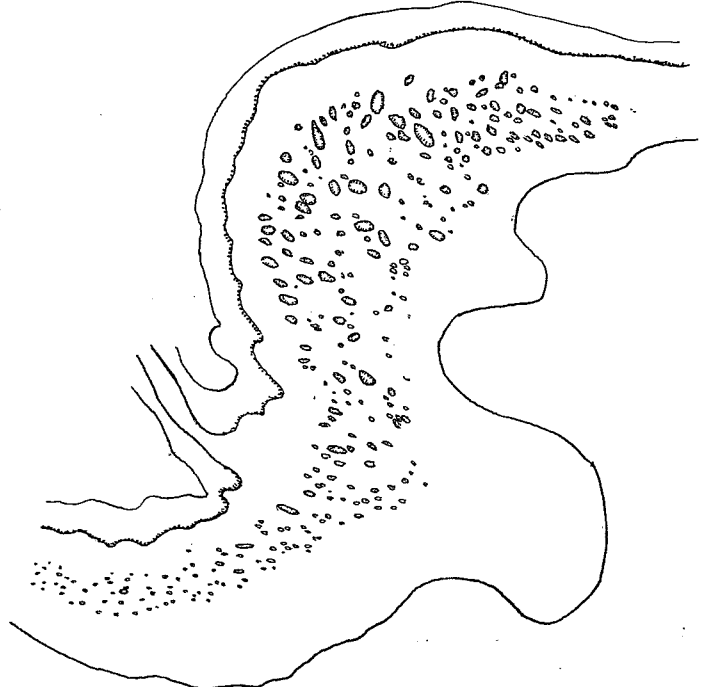


Fig. 7. *Telmatactis valle-flori* Grav.

$50.8-66.3 \times 8.5-11 \mu$ , microbasic amastigophors, partly  $22.6-29.6 \times 2.5 \mu$ , basitrichs. Spirocysts of tentacles up to about  $42 \times 3.5 \mu$ .

Colour in formalin: actinopharynx rose-coloured.

Size of the larger, well preserved specimen: length 5 cm., greatest breadth 2.5 cm., that of the smaller one: length 2 cm., breadth 2.2 cm.

Occurrence: St. Helena, Prosperous Bay about 50 m. 22.II.1930, 1 specimen, off Jamestown 20-30 fms., shell, II.1930, 1 specimen, off Egg Island, 20 fms., a fragment probably belonging to this species.

Further distribution: W. Africa, St. Thomé, Bella Vista.

I have identified the individuals with *T. valle flori* Grav. because the tentacles seem to show same exterior as in Gravier's species. According to Gravier's description and figure (Pl. II, fig. 13) of the tentacles they may have been longitudinally sulcated in about their whole length. True that the sphincter of *valle flori*, to judge from Gravier's text-figure 8 (1918), seems to have another structure than that of our specimens but I think that there is no cause to give attention to this difference because the figures given by Gravier are commonly very schematic. As a matter of fact I have get about same appearance of the sphincter as Gravier when it has been sectioned a little obliquely. Figure 7 shows a section of the upper part of the sphincter.

#### 7. *Aiptasia insignis* n. sp.

Pedal disc and column agreeing with those of other species of *Aiptasia*. Cinclides sometimes on elevations. Sphincter mesogloal, at least of same strength as that of *A. couchii* if not a little stronger. Tentacles delicate, fairly long, probably never more than 96, hexamerously (sometimes irregularly?) arranged. Longitudinal muscles of tentacles and radial muscles of oral disc ectodermal, weak. A very weak longitudinal muscularity in the uppermost part of the column. 2 very broad siphonoglyphs with well developed, aboral prolongations. Mesenteries up to 96; 6 pairs perfect, 2 pairs of directives. Retractors of the perfect mesenteries diffuse, a little stronger than those of *A. couchii* and with higher folds. Parietobasilar muscles very weak. Ova small. There are numerous zooxanthellae in the endoderm. Nematocysts of the column partly  $10-12.7 \times$  about  $2\mu$ , partly  $14.1-16.9 \times 2.8\mu$ , both basitrichs, partly  $15.5-19.7 \times 4.2\mu$ , often a little curved, common, microbasic amastigophors, those of the tentacles partly  $14.1-16.9 \times 2.8\mu$ , partly  $24-25 \times 2.8\mu$ , both basitrichs, partly  $21.1-29.6 \times$  about  $4.2\mu$ , microbasic amastigophors?, those of the actinopharynx partly  $8.5-11.3 \times 1.5\mu$ , partly about  $18.3 \times 2.8\mu$ , very rare, both basitrichs, partly  $9.9-11.3 \times 2.8\mu$ , microbasic *p*-mastigophors, partly  $24-28.2 \times 4.2\mu$ , often curved, microbasic amastigophors, those of the filaments partly  $8.5-11.3 \times 1.5$ , partly  $11.3-12.7 \times 2.8\mu$ , both basitrichs, partly  $9.9-11.3 \times (3)3.5\mu$ , common, microbasic *p*-mastigophors, partly  $31-33.8 \times 5-5.6\mu$ , common, microbasic *p*-mastigophors?, those of the acontia partly  $55-70.5 \times 7-8.5\mu$ ,

exploded shaft  $1\frac{1}{2}$  times that of the capsule, microbasic *p*-mastigophors, partly  $18.3-26.8 \times 2.5-2.8 \mu$ , basitrichs. Spirocysts of tentacles up to about  $27 \times 4.5 \mu$ .

Colour unknown.

Size: length up to about 2 cm., breadth up to 0.8 cm.

Occurrence: St. Helena, Jamestown, rocky coast, 1.II, 1930, several specimens.

The figure 8 shows the appearance of the sphincter. Two examined individuals had 82 resp. 96 tentacles. I have measured the nematocysts of the acontia in 4 individuals. They were: 1)  $(55)62-67.7 \times 7 \mu$ ;  $18.3-24 \times 2.5 \mu$ . 2)  $56.4-66.3 \times 7 \mu$ ;  $21.1-25 \times 2.5-2.8 \mu$ . 3)  $56.4-69.1 \times 7-8.5 \mu$ ;  $21.1-25.4 \times 2.5-9.8 \mu$ . 4)  $60.6-70.5 \times 7-8.5 \mu$ ;  $21.1-26.8 \times 2.5-2.8 \mu$ .

Remarks: Pax (1909, p. 337) and Gravier (1918, p. 14) have described individuals from the Canary Islands and St. Thomé and identified them with *A. couchii*. According to these authors the examples had no sphincter (in contrast to *couchii* which is provided with a very weak

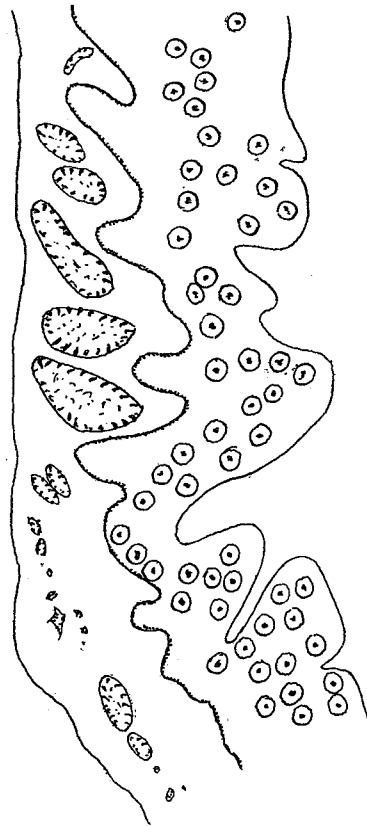


Fig. 8. *Aiptasia insignis* n. sp.

mesogloecal one) for which reason Stephenson (1920, p. 531) proposed the name *Aiptasiomorpha paxi* n. gen. n. sp. for Pax' species. Although it is very possible that Pax and Gravier have overlooked the small sphincter in their individuals I think that it is at present best to separate our individuals from *paxi* as well as from *couchii*. Further examinations of Pax' and Gravier's examples may decide if our species is identical with *paxi* or not.

#### 8. *Amphianthus sanctae helenae* n. sp.

A small species. Pedal disc wide. Body drawn out in transversal direction. Column thick, smooth, with about 24 very distinct, longi-

tudinal furrows in its upper part. Cinclides 1 + 1? on elevations. Sphincter mesogloea, strong but consisting of isolate muscle fibrillae, occupying the most of the thickness of the mesogloea, wholly separated from the endodermal muscles of the column. Tentacles thick, fairly long, in number about 44, not thickened at the aboral side. Arrangement of the mesenteries unknown. Mesenteries more numerous than the tentacles. Nematocysts of tentacles  $15.5-22.6 \times$  about  $3.5 \mu$ , basi-



Fig. 9. *Amphianthus sanctae helenae* n. sp.

trichs, those of the filaments  $19.7-24 \times 4-4.5 \mu$ , microbasic *p*-mastigophors, those of the acontia  $39.5-56.4$  (in exploded state up to  $62$ )  $\times 4.5-5.6 \mu$ . Spirocysts of tentacles up to  $43 \times 7 \mu$ .

Colour unknown.

Size in contracted state: height 0.4 cm., breadth  $0.6 \times 0.45$  cm.

Occurrence: St. Helena, 2 miles S.  $49^\circ$  E. off Long Range Point 360-380 m., hard bottom, "Dana" 24.II.1930, 1 specimen.

The single individual was badly preserved especially as to the mesenteries. The pedal disc was for the most part lost and the upper part of the body was so strongly contracted that the tentacles filled up the whole actinopharynx. The description of the species is therefore very incomplete. I give here a figure (fig. 9) of a transverse section

of the sphincter. The example had well developed testes which, however, were very macerated.

Remarks: The species is nearly related to *Amphianthus capensis* Carlgr. which, however, has several more tentacles.

9. *Amphianthus (Stephanauge?) giganteus* n. sp.

A very large species. Body seen from above oval. Column thick, smooth, in its upper part provided with fairly deep longitudinal furrows, Cinclides absent? Sphincter reticular in its uppermost part, for the rest alveolar with tendency to transversal stratification. Tentacles about 170, close set, with strong mesogloecal swellings on the aboral side especially on the outer tentacles. Longitudinal muscles of the tentacles ectodermal, very weak on the swellings, the ectoderm of which is provided with fairly numerous microbasic *p*-mastigophors. Oral disc wide, radially sulcated. Radial muscles of oral disc meso-ectodermal, very strong at the insertions of the mesenteries, weaker at the insertions. Actinopharynx wide with 2 broad siphonoglyphs.

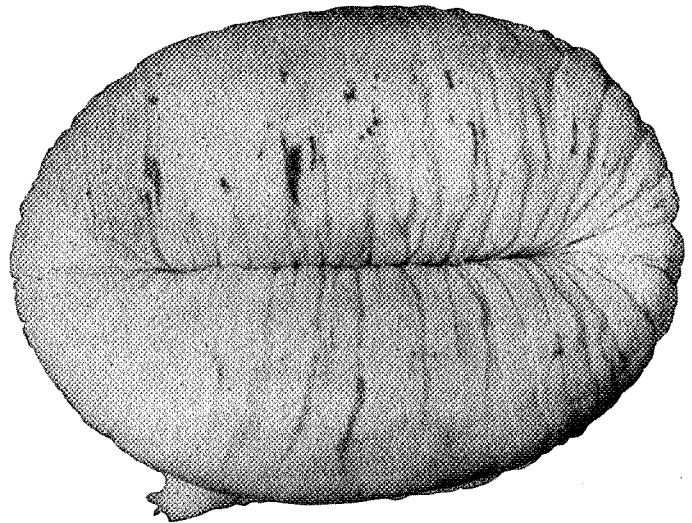


Fig. 10. *Amphianthus (Stephanauge?) giganteus* n. sp.

12 perfect pairs of mesenteries. Nematocysts of the column partly  $12.7-16.9 \times 1.5 \mu$ , partly  $21-36.7 \times 2.8-3.7 \mu$ , common, both basitrichs, partly  $38-47.2 \times$  about  $4.2 \mu$ , fairly common, microbasic

*p*-mastigophors, those of the distal part of the tentacles  $45.1-49.3 \times$  about  $3 \mu$ , common, basitrichs (in some tentacles also opaque nematocysts  $36-40.9 \times 4.9-6.3 \mu$ , probably development stages of basitrichs as they sometimes are very irregular; in certain tentacles also very rare microbasic *p*-mastigophors  $26-29.6 \times 3.5-4.2 \mu$ ), those of the tentacle swellings partly  $19.7 \times 1.5 \mu$  very rare, partly  $42.3-49.3 \times 3 \mu$ , rare, both basitrichs, partly  $46.5-52.2 \times 4-4.2 \mu$ , fairly com-

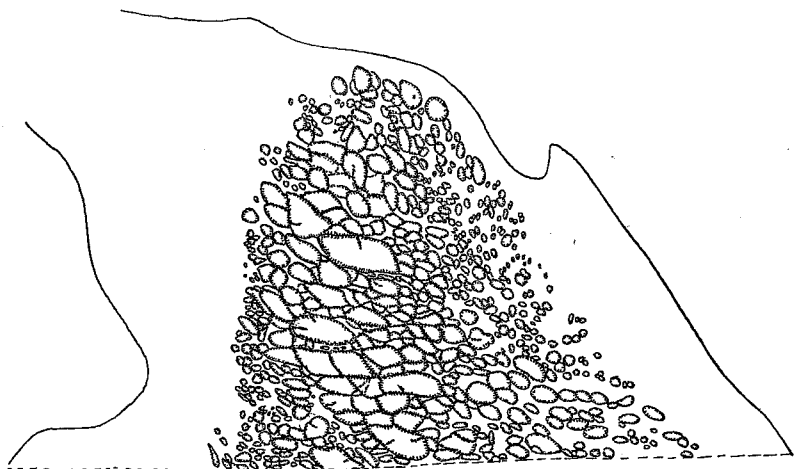


Fig. 11. *Amphianthus* (*Stephanauge*?) *giganteus* n. sp.

mon, microbasic *p*-mastigophors, those of the actinopharynx partly  $16.9-21.1 \times 2.5 \mu$ , partly  $38-45.8 \times$  about  $3.5 \mu$ , both basitrichs, partly  $28.2-39.5 \times 4.5-5.5 \mu$ , common, microbasic *p*-mastigophors, those of the filaments partly  $14.7-19 \times 1.5-2 \mu$  (in the middle streak), partly  $16.9-21(25.4) \times 2-2.5 \mu$ , both basitrichs, partly  $32.4-45.1 \times 4.2(4.5) \mu$ , microbasic *p*-mastigophors, those of the acontia partly  $39.5-50.8 \times 3-3.5 \mu$  numerous, partly  $15.5-18.3 \times 2 \mu$ , sparse, both basitrichs. Spirocysts of tentacles up to  $73 \times 8.5-9 \mu$ .

Colour unknown.

Size: breadth  $9.5 \times 6.5$  cm., height 6 cm., the proximal part of the body, however, lost.

Occurrence: St. Helena, 2 miles S.  $49^\circ$  E. off Long Range Point 360-380 m., hard bottom, "Dana" 24.II.1930, 1 specimen.

As the pedal disc and the most part of the body below the actinopharynx were lost I cannot give any information of them. The rest

of the thick column was provided with numerous longitudinal furrows, fairly deep in the upper part of the column, weaker on the lower one. Seen from above the form of the body was oval (fig. 10). The tentacles, in number about 170, were situated close to the indistinct margin and arranged in several cycles, the arrangement of them was, however, difficult to decide because the tentacles were close set and provided with strong mesogloea thickenings at the base of their outside, especially strong on the outer tentacles. As the mesenteries were hexamerously arranged there is no doubt that also the tentacles showed

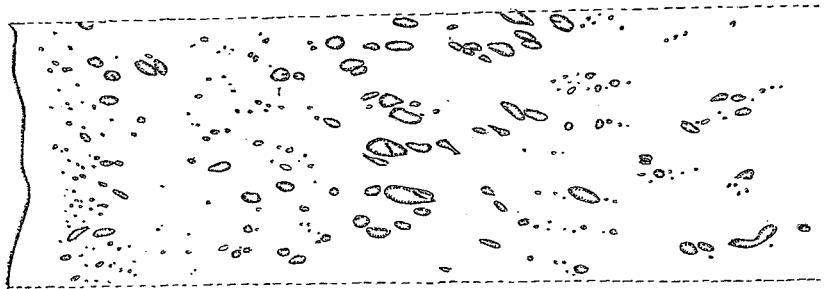


Fig. 12. *Amphianthus* (*Stephanauge*?) *giganteus* n. sp.

a similar disposition. The most part of the very wide oral disc was devoid of tentacles. The actinopharynx was wide and furrowed, with 2 broad siphonoglyphs.

The ectoderm of the column was thin, the mesogloea very thick especially in the upper part of the body. The sphincter was mesogloea, fairly long, in its upper part occupying about two thirds of the thickness of the mesogloea, in the middle only half of the thickness, diminishing downward little by little, reticular in its uppermost part (fig. 11) for the rest alveolar. Figure 12 shows a section of the sphincter in its middle part. The ectoderm of the tentacles was low on the bulbous swellings, considerably higher on the oral side, the former contained fairly numerous microbasic *p*-mastigophors which in other parts of the tentacles were few or absent. The longitudinal muscles were very weak on the swellings, stronger on the inside of the tentacles. Possibly some folds of the muscle lamella fuse together here but at any rate the muscularity was almost ectodermal. The figure 13 shows a transversal section of a tentacle. The radial muscles of oral disc were meso-ectodermal, very strong and forming very high

and close set folds between the insertions of the mesenteries, weaker between them. They are principally ectodermal but at the base enclosed in the mesogloea perhaps a little more at the insertions. Because the lowest part of the body was lost I can not say anything with certainty as to the mesenteries in this part. In the upper part there may have been about 170 mesenteries in uniformity with the number of tentacles. 12 pairs of mesenteries were perfect and there were certainly 2 pairs of directives. The longitudinal muscles of the mesenteries were diffuse and, as it seems, weak also on the stronger mesenteries. The single individual was a male with well developed testes on the imperfect mesenteries.

Remarks: The genetic position of this species is somewhat uncertain because I cannot decide whether the perfect mesenteries were fertile or sterile and whether there were more or fewer mesenteries at the base than at the margin. I have tried to examine the mesenteries in the lowest part of the specimen but as the mesenteries were often very damaged here it was very difficult to count them. It seems, however, that there were more mesenteries here than tentacles. The species recalls undoubtedly those belonging to the genera *Amphianthus* and *Stephanauge* not only in the external but also in several anatomical characters. I refer at present our species to the genus

*Amphianthus* but in this case it must be a very aberrant species characteristic by its size. All previously known species of *Amphianthus* are namely small and the few species of *Stephanauge* reach not more than an ordinary size. If an examination of more material should state

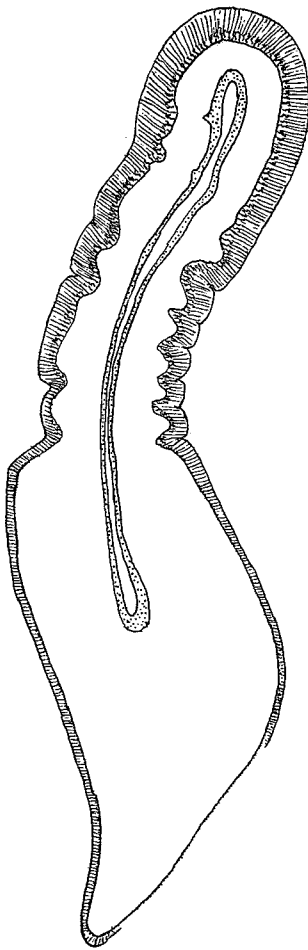


Fig. 13. *Amphianthus*  
(*Stephanauge*?) *giganteus* n. sp.



that the perfect mesenteries are sterile in our species which I call *giganteus*, a new genus — I propose *Chondrodaster* — should be established for it. At any rate this genus is nearly related to *Amphianthus* and *Stephanauge*.

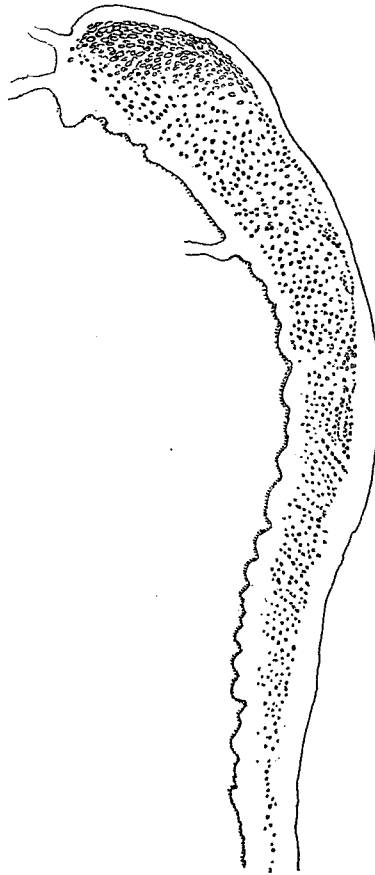


Fig. 14. *Anthothoë stimpsoni* (Verr.).

10. *Anthothoë stimpsoni* (Verr.).

Synonyms see Carlgren 1938, p. 86.

Colour in formalin: brown.

Size of largest individual in fairly contracted state: height 0.9 cm., breadth  $1.4 \times 0.9$  cm.

Occurrence: St. Helena, Jamestown, rocky coast 1.II.1930. 6 specimens.

Further distribution: South-west Africa, Cape Province to Durban.

I have with some hesitation referred the specimens to *stimpsoni*. The pedal disc was well developed the column smooth with cinclides in the middle part, sometimes on elevations. The sphincter agrees with that of *stimpsoni* but is more alveolar (fig. 14). The number of tentacles were in two specimens about 140 and 200. The radial muscles of oral disc was principally ectodermal but at the base sometimes folds of the mesogloea fuse

together. Of three examined individuals two had 2 siphonoglyphs and 2 pairs of directives, the third only 1 siphonoglyph. One of the former had 28, as it seems, perfect pairs, between the two pairs of directives 15 pairs resp. 11 pairs were present. The example was sterile. Another individual provided with only one pair of directives had 18 perfect with strong retractors provided pairs, 9 of which, the weaker, seem to be fertile and provided with well developed testes. 2 other individuals were sterile. The retractors recall those

of *stimpsoni*. The nematocysts agree fairly well with those of this species only those of the actinopharynx were shorter. The nematocysts of the column were partly  $14.8-19.7 \times 3.5-4.2 \mu$  fairly common, often curved, probably microbasic amastigophors, partly  $8.5-10 \times$  about  $1.5 \mu$ , rare, basitrichs, those of the tentacles partly (17.6)  $22.6-25.4 \times 3-4.2 \mu$ , fairly sparse, often curved, microbasic amastigophors, partly  $14.1-24 \times 2.5-2.8$ , very common, basitrichs those of the actinopharynx partly  $15.5-19.7 \times 4.2-4.9$ , fairly common, broader in the basal end than in the distal one, microbasic *p*-mastigophors?, partly  $21.8-26.8 \times 2.8$ , common, basitrichs, those of the filaments partly  $15.5-19 \times$  about  $4.2$  agreeing with those in the actinopharynx, partly  $14-16.9 \times 1.5-2 \mu$  basitrichs, partly  $8.5-11.3 \times 4.2 \mu$ , fairly common, microbasic *p*-mastigophors, those of the acontia partly  $65-80 \times 7-7.7 \mu$  microbasic amastigophors (nematocysts of 2 individuals measured) partly  $21-31 \times 2.5-2.8 \mu$  partly  $8.5-15.5 \times 1 \mu$ , both basitrichs. Spirocysts of tentacles up to about  $25.5 \times 4.2 \mu$ .

### *Zoantharia.*

#### 11. *Zoanthus sanctae helenae* n. sp.

Polyps fairly long, sometimes close set, sometimes more scattered on a flat, ordinary thick coenenchyme. Capitular ridges distinct. Cuticle of the scapus fairly well developed. Ectoderm of scapus discontinuous. Mesogloea of the column fairly thick with rather numerous cells and cell-islets. Canal system of the column forming a simple network of rounded meshes situated practically in a

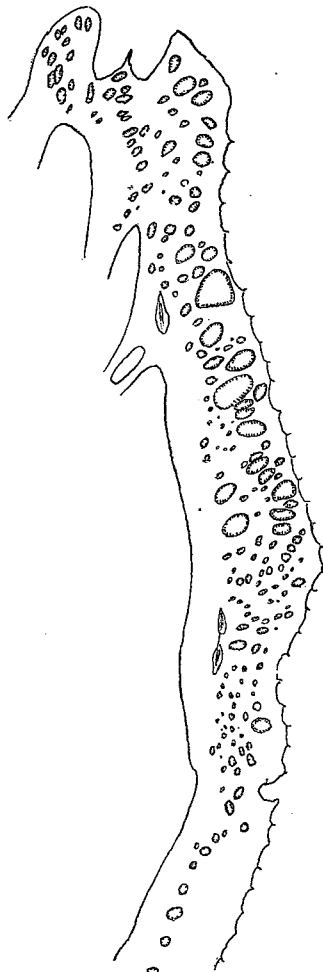


Fig. 15. *Zoanthus sanctae helenae* n. sp.

single plane about in the middle of the mesogloea, sometimes communicating with the ectoderm. Lower sphincter long, occupying most of the thickness of the mesogloea, diminishing downwards, its muscle meshes rather large in the upper part. Upper sphincter not very strong. Tentacles 44—48 with fairly numerous spirocysts. Siphonoglyph very indistinct, its mesogloea not thickened. Mesenteries about 44—48, thin, their muscles very weak. Basal canal of the mesenteries very large. Ciliated tracts of the filaments very well developed. Dioecious. Zooxanthellae present only in the endoderm and in the ectoderm of the column, especially numerous in the endoderm of the tentacles. Holotrichs in the ectoderm of the column about  $12.7\text{--}14 \times$  about  $5.6\mu$ , in the endoderm of tentacles  $11.5\text{--}14 \times$  about  $5.6\mu$ , in the mesenteries  $11.3\text{--}14 \times 5.6\text{--}$

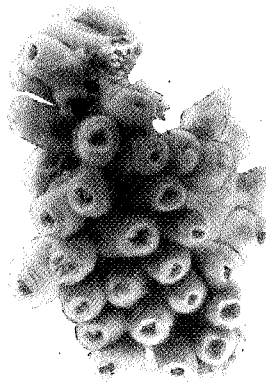


Fig. 16. *Zoanthus sanctae helenae* n. sp.

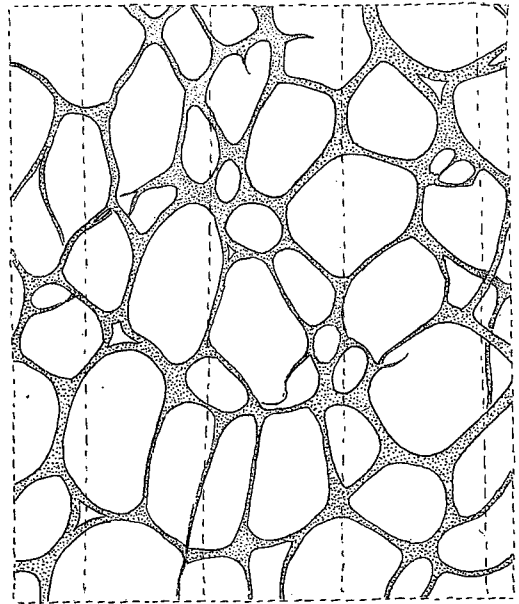


Fig. 17. *Zoanthus sanctae helenae* n. sp.

$6\mu$ , microbasic *p*-mastigophors of the actinopharynx  $25.4-29 \times 4.9-5.6\mu$ , those of the filaments  $25.4-28.2 \times$  about  $5\mu$ .

Colour in formalin: brownish.

Size of polyps preserved in formalin: length up to about 1 cm., breadth 0.5 cm.

Occurrence: St. Helena, Prosperous Bay, rocky coast 17.II.30, several colonies.

The coenenchyme of most of the colonies were overgrown by numerous tube-worms. The lower sphincter is drawn in figure 15. Figure 16 shows the typic colony, figure 17 part of the canal system below the actinopharynx, the dotted lines mark the insertions of the mesenteries. The mesenteries were in 5 sectioned polyps 48, 46, 46, 44, 44. The figured colony seems to contain only males (7 polyps examined).

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The Actinaria of St. Helena show some relation to those of South and West Africa but contain several probably endemic species. It is very doubtful whether there are any species in common with South America as, unfortunately, the Actinian fauna of Brazil is almost unknown.

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In the collection made by Dr. Mortensen also some examples of a young Cerianthid was present. They were taken in False Bay at Jamestown in Januar 1930. They were small, one measured individual was 1.2 cm. long and 0.15 cm. broad and had 27 marginal tentacles. As the individuals have been almost dried the sections of a specimen are not good but all mesenteries seem to be short and reproductive organs are wholly absent. The siphonoglyph was narrow, the longitudinal muscles of the column extraordinarily strong especially in the middle of the body. Probably we have to do with a young species of *Pachycerianthus*.

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