

This article was downloaded by: [University of Florida]
On: 05 October 2014, At: 04:00
Publisher: Taylor & Francis
Informa Ltd Registered in England and Wales Registered Number:
1072954 Registered office: Mortimer House, 37-41 Mortimer Street,
London W1T 3JH, UK



Annals and Magazine of Natural History: Series 8

Publication details, including instructions
for authors and subscription information:
<http://www.tandfonline.com/loi/tnah14>

XLV.—Notes on *Actinostola callosa* (Verrill) = *Dysactis crassicornis* (Hertwig)

Olwen M. Rees B.Sc. U.C.W.^a

^a Aberystwyth

Published online: 15 Sep 2009.

To cite this article: Olwen M. Rees B.Sc. U.C.W. (1913) XLV.—Notes
on *Actinostola callosa* (Verrill) = *Dysactis crassicornis* (Hertwig),
Annals and Magazine of Natural History: Series 8, 12:70, 382-387, DOI:
[10.1080/00222931308693413](http://dx.doi.org/10.1080/00222931308693413)

To link to this article: <http://dx.doi.org/10.1080/00222931308693413>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of
all the information (the "Content") contained in the publications
on our platform. However, Taylor & Francis, our agents, and our
licensors make no representations or warranties whatsoever as to the
accuracy, completeness, or suitability for any purpose of the Content.
Any opinions and views expressed in this publication are the opinions
and views of the authors, and are not the views of or endorsed by
Taylor & Francis. The accuracy of the Content should not be relied
upon and should be independently verified with primary sources of
information. Taylor and Francis shall not be liable for any losses,
actions, claims, proceedings, demands, costs, expenses, damages,

and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

XLV.—*Notes on Actinostola callosa (Verrill) = Dysactis crassicornis (Hertwig)*. By OLWEN M. REES, B.Sc., U.C.W. Aberystwyth.

THIS Actinian was described by Hertwig in [2] as *Dysactis crassicornis* of the genus *Dysactis* (Milne-Edwards). It is also described by McMurrich as *Actinostola callosa* (Verrill). McMurrich obtained his specimen from off the coast of Ecuador, South America. Hertwig obtained his from the southern shores of America, 53° 38' S., 70° 56' W.

A specimen was collected by Mr. R. Vallentin, of Falmouth, during his visit to the Falkland Islands, and recently sent by him to Mr. C. L. Walton, who very kindly passed it on to me for examination. It was picked up on the 5th Sept., 1910, adhering to a root of *Lessonia*, during an onshore gale (S.W.) in King George's Bay, W. Falkland Islands.

External Characters of Actinostola callosa.

This specimen was in a state of contraction, yet all the tentacles were in full view, probably because the sphincter muscle was still expanded. The column is pillar-like, low, and broad, with the diameter exceeding the height. Height 11 mm., diameter of tentacular crown 16 mm., diameter of pedal disc 20 mm. The column-wall is firm and leathery and variously corrugated, owing to contraction. The margin is tentacular. The base is adherent, undulate in outline, and exceeding the column. The oral disk is concave, having the mouth raised on a cone. The diameter of the mouth is 7 mm. The oral fissure is bounded by swelling papillæ, of which two at either end enclose the entrance to the œsophageal grooves.

The tentacles are very numerous, and cover the whole of the disk. The tentacles lying towards the outside become shorter and also more slender than those near the mouth. The outermost tentacles are so small that they merely project as small knobs above the surface of the oral disk.

Length of tentacle of outer cycle is 1 mm.; length of tentacle from the innermost cycle is 3 mm.

They are arranged in five cycles: 12 + 12 + 24 + 48 + 96. There is a distinct orifice at the tip of each tentacle. The tentacles have no markings, but the outer ones are paler in colour than the inner.

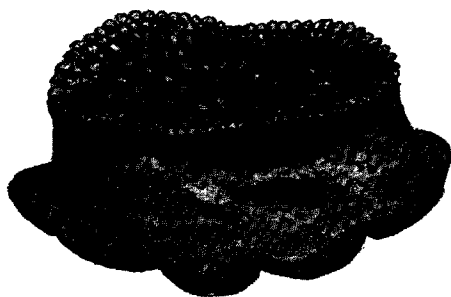
The colour of the body-wall is brick-red, the tentacles being of a paler hue with a deep dark band around the summit of the column.

Internal Characters.

There is a diffuse mesogloæal sphincter muscle extending a considerable way down the body-wall. It does not expand suddenly, but is largest in the middle region and tapers off very gradually as it is traced downwards. It does not occupy the entire width of the column-wall, but lies throughout its course nearer the endodermal surface than the ectodermal. On its inner surface its cavities pass directly into the ordinary longitudinal muscle of the mesogloæa of the column-wall. The sphincter muscle in cross-section appears as a network of fibrillæ, and the spaces between the fibrous meshes appear empty. [In spirit.]

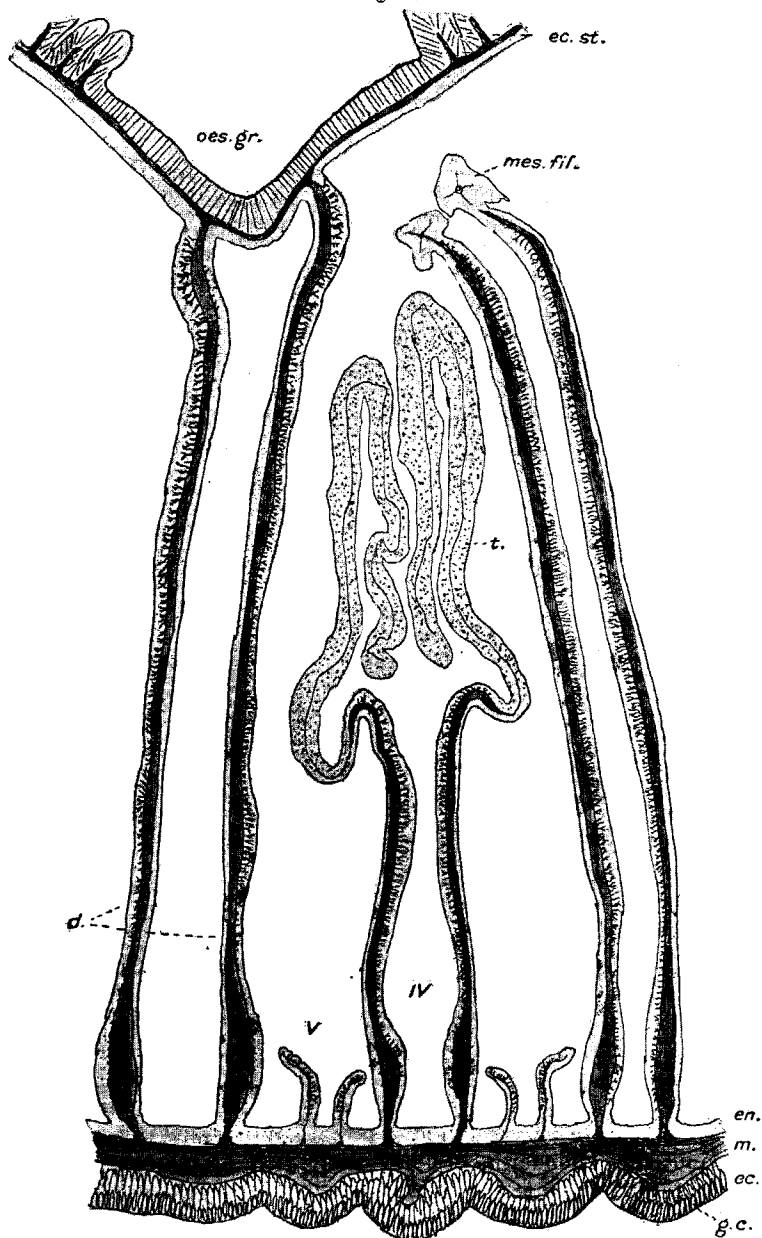
In the living animal these spaces are filled with the protoplasm and the nuclei of the muscular corpuscles. There is also a tendency for these closely packed cavities to be arranged in longitudinal bands separated from one another by strands of nearly homogeneous mesogloæa, recalling the arrangement described by Hertwig and McMurich.

Fig. 1.

Falkland specimen of *Actinostola callosa*.

The number of septa is large. They amount to ninety-six pairs, which are distributed in five cycles. Twenty-four pairs reach the stomatodæum to a less extent than the other twelve. In addition to these, there is another cycle of twenty-four imperfect pairs—this is the fourth cycle; while the fifth cycle of forty-eight pairs consists of imperfect mesenteries which are very small and project only a short distance beyond the endoderm. They bear neither reproductive organs nor mesenterial filaments, but of each pair one mesentery is more highly developed than its fellow. This specimen is a male, and the testes are borne on all the

Fig. 2.

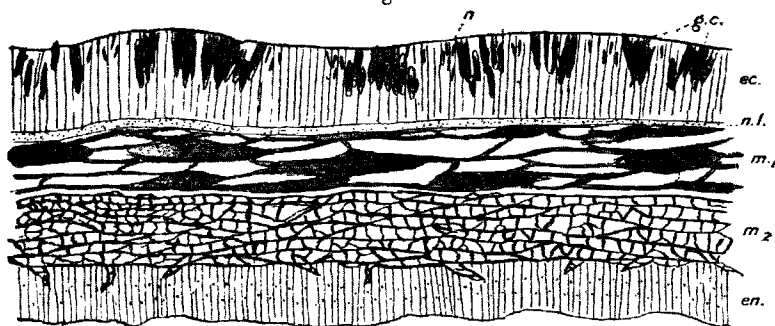


Portion of a transverse section through the mesenteries, showing one pair of directives.

mesenteries of the fourth cycle. The mesenteries are therefore arranged in five cycles, thus :—6 + 6 + 12 + 24 + 48.

The musculature of the mesenteries is not very strongly developed. There is a fairly distinct parieto-basilar muscle, which, on its distal end, is continued into a slender elongated longitudinal muscle. The muscle-folds are not numerous. They are slender, swollen at the tips, and sometimes divided. The ectoderm of the column-wall is thick, and contains numerous large yellowish gland-cells. The mesogloea is

Fig. 3.



Portion of a transverse section through the oral disc, showing two layers of muscles.

Index to lettering.

- d.*, directive mesenteries.
- ec.*, ectoderm.
- en.*, endoderm.
- oes.gr.*, oesophageal groove.
- ec.st.*, ectoderm lining the stomatodæum.
- mes.fil.*, mesenteric filament.
- g.c.*, gland-cells.
- m.1*, upper layer of muscle.
- m.2*, lower layer of muscle.
- n.*, nematocysts.
- n.l.*, nerve-layer.

strong, becoming fibrous towards the inner surface. On its outer surface it is raised into lobes, and these are covered with ectoderm. These account for the wrinkled appearance of the exterior of the animal. The ectoderm lining the stomatodæum is much folded, and its cells form a spongy mass. The mesogloea is dense and thin, sending out pointed projections into the ectoderm. The mesogloea of the tentacles is also very thin and, in longitudinal sections, is seen as a uniform layer reaching the base of the tentacle without giving

off any muscle-folds. The ectoderm of the tentacle is very thick and uniform, with very numerous nematocysts and with a definite nerve-layer lining its inner surface. The nerve-layer is clear and wide around the tip, becoming narrower near the base. The endoderm is very thin, and here also are numerous nematocysts. The ectoderm of the oral disk shows a few small nematocysts and gland-cells, and has a definite nerve-layer at the base of its cells. The mesogloea is peculiar, being divided into two layers. The upper consists of a network of elongated fibres, the section having been cut parallel to the muscle-strands. The other layer shows a series of much denser fibres with small cavities, this being a cross-section of the muscle. In each case the fibres are arranged parallel to the surface of the oral disk. We thus have two layers of muscles, running practically at right angles to one another and parallel to the surface of the disk.

This specimen is found to possess nearly all the characters described by McMurrich for *Actinostola callosa* and by Hertwig for *Dysactis crassicornis*. My specimen, however, is much smaller in size than any of those previously described. McMurrich mentions in *Actinostola callosa* the beginning of a sixth cycle of mesenteries, and also showing gonads on the mesenteries of the fifth cycle.

In the Falkland specimen the mesenteries of the fifth cycle are still very small, and there are no traces of any mesenteries arising to form a sixth cycle: this being probably due to the fact that the specimen is a young one. McMurrich, in his generic definition, says: "The tentacles are short and stout, fluted, and with their longitudinal musculature embedded in the mesogloea." Hertwig also, in his 'Supplement to Actinariæ,' says that the tentacles are fluted.

The Falkland specimen shows no fluting either in preserved specimen or in transverse section. On comparing the figures of transverse sections of tentacles drawn by Hertwig for *Dysactis crassicornis* and by McMurrich for *Actinostola callosa*, it is seen that Hertwig shows a definite series of furrows, and even the mesogloea is distinctly corrugated; whereas in McMurrich's figure there is only a slight folding of the ectoderm. Thus the fluting on the tentacles is a variable character, dependent on the age and state of contraction of the animal. There is also a difference in the musculature of the oral disk of this Falkland specimen as compared with that of Hertwig's specimens. Hertwig found no indications of the presence of two sets of muscle-fibres. This character, however, is not of sufficient specific importance to be of any weight in deciding the identity of the specimen.

The species *Actinostola callosa* was first established by Verrill. Hertwig, however, in 1876, described specimens as *Dysactis crassicornis*. At first it was doubtful as to whether *Actinostola callosa* was identical with *Dysactis crassicornis* or not; but in 1888 McMurrich described a specimen as *A. callosa*, and found that it possessed many important characters described for *D. crassicornis*. He therefore proved that his specimen was identical with Hertwig's *Dysactis crassicornis*, but ultimately decided to adopt Verrill's name in its entirety and call it *Actinostola callosa*. This Falkland specimen, possessing important characters common to both McMurrich's *Actinostola* and to Hertwig's *Dysactis crassicornis*, proves further that these forms belong to the same species.

(I should like to thank Mr. F. S. Wright of this College for his help in preparing fig. 1.)

Bibliography.

- [1] Report on Actiniæ collected by United States Fish Commission Steamer 'Albatross' during Winter 1887-1888. By J. P. McMURRICH.
- [2] Report on Scientific Results of Voyage of the 'Challenger,' 1873-1876. Vol. vi. Actinaria. By R. HERTWIG.
- [3] Report on Scientific Results of Voyage of the 'Challenger,' 1873-1876. Vol. xxvi. Supplement to Actinaria. By R. HERTWIG.

XLVI.—*A new Species of Dwarf Potto.*

By OLDFIELD THOMAS.

(Published by permission of the Trustees of the British Museum.)

Arctocebus ruficeps, sp. n.

Near *A. aureus*, but the body speckled grey-brown instead of rufous.

General characters as in *A. aureus*, agreeing with that species in all the points in which it differs from *A. calabar-ensis*. Fur thick, close, and woolly. Head golden rufous, as in *A. aureus*, though a little darker, but the body, instead of being also uniformly rufous, is a dark grizzled greyish-brown colour, more like some of the ordinary Pottos. Of the wool-hairs the basal three-fourths are slaty, the ends being brown ("snuff-brown," Ridgway). The longer hairs have a subterminal band of black, their tips being white, these giving a speckled appearance to the general colour.