

## SOME NEW RECORDS OF ANTHOZOA FROM BRITISH WATERS

R. L. MANUEL

Department of Zoology, South Parks Road, Oxford

(Plate I)

Three species of British Anthozoa are described, two of which, *Aiptasiogeton comatus* and *Cornularia cornucopiae*, are recorded from British waters for the first time. *Isozoanthus sulcatus* is described from a new locality and its taxonomic status reviewed.

### INTRODUCTION

During the course of collecting trips made in 1976-8 two anthozoans, the actiniarian *Aiptasiogeton comatus* (Andres), and the octocoral *Cornularia cornucopiae* (Pallas) were found in Portland Harbour. Neither species has been previously recorded in British waters. A third species, *Isozoanthus sulcatus* (Gosse), was collected on the shores of the Gower Peninsula, South Wales. Since this species was last recorded in British waters in 1861 and its true taxonomic status is uncertain it is described here.

### SYSTEMATIC ACCOUNT

Subclass *OCTOCORALLIA*

Order *ALCYONACEA*

Family *CORNULARIIDAE*

*Cornularia cornucopiae* (Pallas, 1776)

Plate 1 A

#### *Description*

The polyps arise from a narrow creeping stolon either at irregular intervals, or, less often, in small clusters. The stolon and proximal parts of the polyps are covered with a thin horny membrane; there are no spicules. The polyps are tall, up to about 2 cm in full extension, and transparent with a brownish tint. They expand readily and contract only when severely irritated.

#### *Remarks*

Two small colonies of this attractive octocoral were found on rock samples taken from beneath an overhang on a low reef in Portland Harbour in February 1977. They were growing amongst an extensive colony of a colourless variety of *Sarcodictyon catenata* Forbes, and numerous encrusting Bryozoa and Tunicata. The species is well known from the Mediterranean Sea and has also been recorded at Roscoff, Brittany (Teissier, 1965).

Subclass *HEXACORALLIA*

## Order ACTINIARIA

## Family AIPTASIIDAE

*Aiptasiogeton comatus* (Andres, 1881)

## Plate I B

*Description*

The base is broad and only lightly adherent, the limbus distinct but not sharply defined. The column is fairly tall in extension, not divisible into regions, and with prominent cinclides in its middle third. The oral disc is flattish and a little wider than the column, with prominent lips to the actinopharynx. The tentacles may be hexamerously arranged in five cycles, numbering about 60, the outermost cycle being incomplete; alternatively they may be irregularly arranged as a consequence of asexual reproduction. They are moderate in length and rather untidily displayed. The largest of the Portland Harbour specimens measures about 1 cm across the base.

Table 1. *Measurements of the nematocysts of Aiptasiogeton comatus from Portland Harbour, November 1976*

Tentacles	<i>p</i> -mastigophores	22-31 × 3.0-4.5 μm
	Basitrichs	14-19 × 2.0-3.0 μm
	Spirocysts	10 × 26-1.5-3.5 μm
Actinopharynx	<i>p</i> -mastigophores	17-23 × 3.0-3.5 μm
	Basitrichs	7-14 × 1.0-2.0 μm
Mesenteric filaments	<i>p</i> -mastigophores	25-35 × 4.0-5.0 μm
	<i>p</i> -mastigophores	12-16 × 3.0-4.0 μm
	Basitrichs	12-17 × 1.0-1.5 μm
Acontia	<i>p</i> -mastigophores	47-61 × 5.0-7.0 μm
	Basitrichs	21-32 × 1.0-2.0 μm

The column is translucent orange-pink, paler proximally, with a few irregular whitish streaks. The oral disc is colourless with blotches of opaque white around the mouth. In some of the Teignmouth specimens mentioned below there is a pair of small dark markings at the foot of each tentacle. The translucent tentacles are whitish at the base, becoming orange in the middle part, and shading to rich magenta at the tips. Some of the outer tentacles are faintly banded with white. The actinopharynx is deep orange and is clearly visible through the body wall.

A full account of the anatomy of this species, from Mediterranean specimens, was given by Schmidt (1972). The cnidom of two of the Portland Harbour specimens is given in Table 1. The basitrichs from the acontia are of the unusual form figured by Schmidt (1972, p. 9 Abb. 7d): these are unique to the family Aiptasiidae.

*Remarks*

*A. comatus* reproduces asexually by basal laceration (Schmidt, 1972): this method of reproduction was observed in several specimens from both Teignmouth and Portland Harbour. One of the larger specimens from the latter locality also produced young by

viviparity. Eight young anemones, tiny in comparison with those of other viviparous species, were produced during the course of a week. The occurrence of viviparity and fissiparity in the same species is rare in anemones but has been recorded in another aiptasiid, *Aiptasia mutabilis* (Gravenhorst), by Stephenson (1935, p. 211, as *Aiptasia couchii*).

*Aiptasiogeton comatus* was first found in Britain in November 1976, beneath overhangs in a low reef in Portland Harbour, Dorset. In February 1978, a few more specimens were found near the original locality. Thus it is reasonable to assume that the species has established itself in this region. Very recently, in October 1978, Dr R. B. Williams found the species in some abundance on the shore at Teignmouth, S. Devon. The anemones were living on the sides of large boulders, in and amongst empty barnacle shells. Outside British waters *A. comatus* is well known in the Mediterranean Sea, it has also been recorded from Arcachon, W. France (Schmidt, 1972).

Whether *A. comatus*, and indeed *Cornularia cornucopiae*, have always been present in the British fauna, or whether they are recent introductions, is an open question. Stephenson (1935, pp. 204–6) suggested that the arrival in Britain (*ca.* 1896) of *Diadumene luciae* (Verrill) (now known as *Haliplanella*), might have been effected by the anemone travelling on ship's hulls. Such a possibility might account for the presence of two previously unrecorded species in Portland Harbour, a large naval port. However, both species are rather inconspicuous and may have escaped notice in the past. Furthermore *A. comatus* bears a slight superficial resemblance to some other small orange anemones, such as *Diadumene cincta* Stephenson, and the young of *Metridium senile* (L.), and may have been mistaken for them on previous occasions.

## Order ZOANTHARIA

### Family PARAZOANTHIDAE

#### *Isozoanthus sulcatus* (Gosse, 1860)

#### Plate I c

*Zoanthus sulcatus* Gosse, 1860, p. 303; Hincks, 1861, p. 73.

*Polythoa sulcata* Faurot, 1895, p. 211.

*Isozoanthus danicus* Carlgren, 1913, p. 48.

*Parazoanthus sulcatus* Teissier, 1965, p. 46.

#### *Description*

The basal coenenchyme forms a very irregular creeping band from which the polyps arise either singly or in small groups. The column of each polyp is a tapering cylinder, narrowest at the base, with 18–22 shallow longitudinal grooves in the upper part. The ridges between the grooves form inconspicuous teeth at the margin. The coenenchyme and polyp walls are incrustated with fine sand grains, many of which are deeply imbedded in the ectoderm, and other debris. The oral disc is concave with the mouth on a slight cone. The tentacles are slender and moderately long; they number 18–22 in two equal cycles, each tentacle corresponding to a marginal tooth. This contrasts with the structure of many other British zoanthids (*Parazoanthus* and *Epizoanthus* spp.),

in which the marginal teeth occupy only alternate ridges, the teeth corresponding to the tentacles of the inner cycle. The column, disc, and tentacles vary from dull olivaceous to purplish brown, the disc with a few radial white streaks. The mouth and the tips of the tentacles are paler. The polyps are about 4 mm high in extension, with a diameter of about 2 mm.

The specimens proved to be difficult to section for histological study due to the abundant sand grains, but sufficient detail could be made out to determine the major taxonomic features. The arrangement of the mesenteries is macrocnemic. In the specimen sectioned all the mesenteries between the ventral directives and the macrocnemic couple were imperfect. The sphincter muscle is endodermal and there is no trace of a ring sinus such as occurs in *Parazoanthus* (see Haddon & Shackleton, 1891, p. 616). This combination of characters suggests affinities with the genus *Isozoanthus* Carlgren, 1905. All the endodermal surfaces are covered with a dense layer of zooxanthellae which almost fill the coelenteron. No other British zoanthid is known to possess zooxanthellae, but they are present in a Danish species, *Isozoanthus danicus* Carlgren, 1913.

Due to the contracted state of the formalin fixed material it was not possible to isolate all tissues satisfactorily for examination of their nematocysts. Those that could be determined were as follows: holotrichs of the ectoderm of the column 20–26 × 7–10 μm; holotrichs of the mesenteric filaments 20–27 × 8–9.5 μm; microbasic *p*-mastigophores of the mesenteric filaments 11–15 × 3.5–5 μm.

#### Remarks

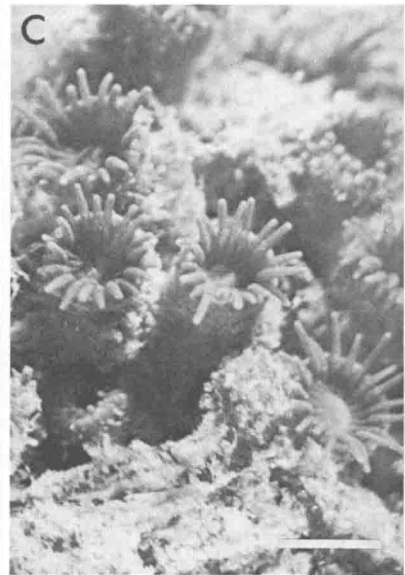
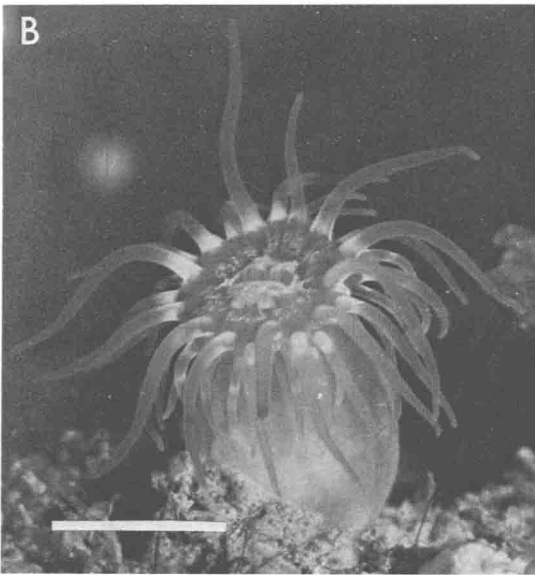
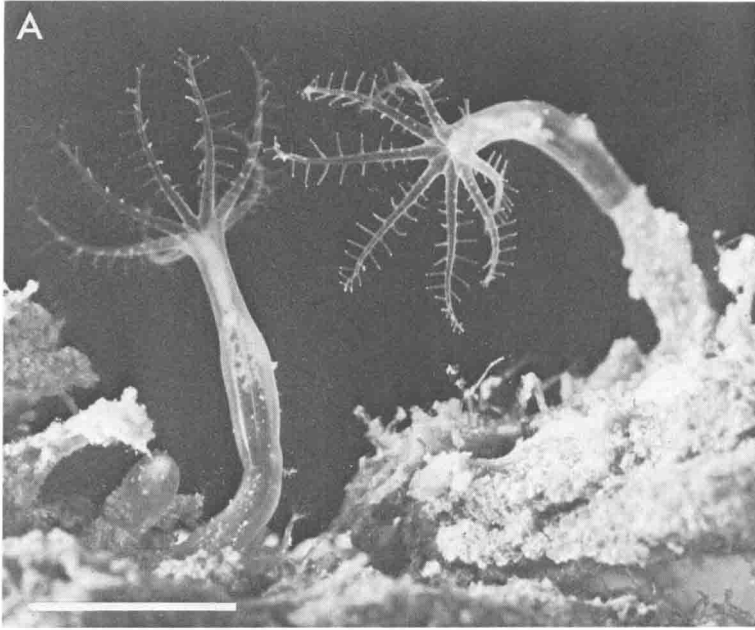
I have no doubt that *Isozoanthus danicus* is conspecific with *I. sulcatus*. All the characters given by Carlgren (1913) for *I. danicus* agree with *I. sulcatus* and particularly striking is the presence of zooxanthellae in both species. *I. danicus* can therefore be considered a junior synonym of *I. sulcatus*.

Gosse (1860) collected specimens on the shore at Broadsands, near Brixham, S. Devon. Hincks (1861) recorded the species as numerous in rock pools in Torbay. Elsewhere it is known from several localities in N. France (Faurot, 1895; Teissier, 1965). Carlgren's specimens of *I. danicus* were collected by Mortensen in the Limfjord, N. Denmark. The specimens described above were found by myself on the shore at Worms Head, Gower Peninsula, S. Wales, in March 1976. They occurred in small rock pools exposed to wave action, and were growing amongst the calcareous algae *Corallina* and *Lithothamnion*.

Although *I. sulcatus* has been recorded only twice before in Britain there is no reason to suppose that it is a rare species. Its very small size, together with its cryptic habits, have probably caused it to be overlooked in many localities.

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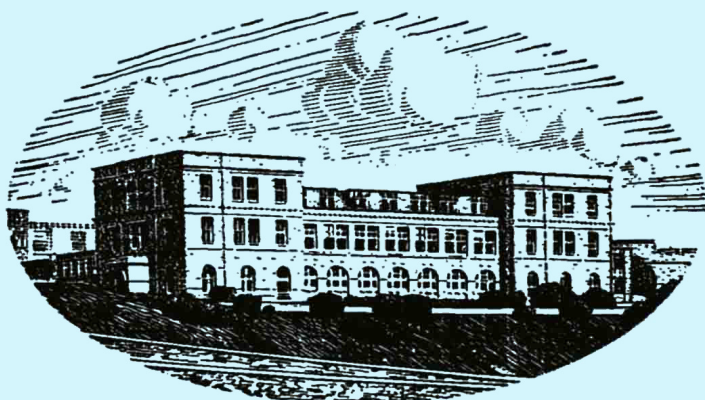
## EXPLANATION OF PLATE

## PLATE I

- A. *Cornularia cornucopiae*: Portland Harbour. The absence of spicules, which if present would be visible at this magnification, is diagnostic of the genus. Scale bar: 10 mm.
- B. *Aiptasiogeton comatus*: Portland Harbour. Scale bar: 10 mm.
- C. *Isozoanthus sulcatus*: Worms Head. The species is very much smaller than any other British zoanthid. Scale bar: 2 mm.

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