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BIOLOGICAL RESULTS
OF
THE JAPANESE ANTARCTIC RESEARCH EXPEDITION

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A COMPOUND ASCIDIAN FROM
THE CAPE PROVINCE

BY

TAKASI TOKIOKA

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SIRAHAMA, WAKAYAMA-KEN, JAPAN

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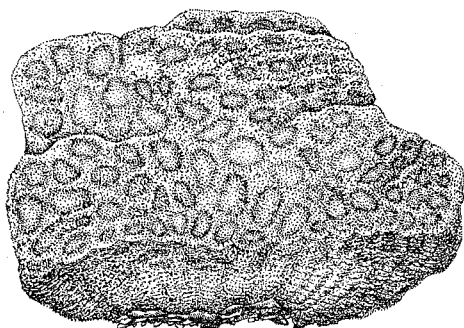
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A single specimen of compound ascidian brought by Dr. R. YOSII from the coast of Cape Town, further details of the locality and the date of collecting are unfortunately missing. The colony is roughly quadrate in outline, 34 mm long and 21 mm wide in extent and 10–15 mm in height and attached to the substratum by the underside. The upper surface is rather even, being divided into a few lobes by some irregularly formed deep grooves.

The test itself is soft gelatinous and translucent, but the colony is encrusted densely with fine sand grains over the whole surface and also impregnated with a small amount of sand between zooids within the test. There are many small elliptical areas of ca. 3 mm in diameter, quite exposed and coloured pale purplish brown against the whitish encrusted surface, on the upper surface of the colony. In each of these areas, a system of zooids is found; each system consists of six to ten zooids arranged encircling a single common cloacal aperture. Zooids are situated perpendicularly.



1

Fig. 1. *Amaroucium erythraeum* MICHAELSEN.
Entire colony, enlarged.

Zooid: The largest one of the examined zooids is 11 mm in length in a somewhat contracted state. The thorax is less than 1.5 mm and the abdomen is about 2 mm in length. Very probably, however, the thorax might be slightly larger than the abdomen when the animal is alive. The postabdomen is very long.

Thorax: The branchial aperture 6-lobed, sometimes 7-lobed; the atrial aperture is situated at the dorso-anterior corner of the thorax in the contracted

state and provided with an atrial languet which is rather short and distally ending in a single tip. There are about twenty longitudinal muscles on each side of the thorax. Ten stigmatal rows are present and about ten stigmata in each row. Tentacles about ten, dorsal languets are slightly displaced to the left side from the dorso-median line. The anus is located in the posterior part of the thorax; usually three stigmatal rows are found posterior to the level where the anus is attached; the anal margin is bilobed.

Abdomen: The stomach is roundish in outline, situated approximately at the middle of the abdomen and provided with many fine longitudinal plications on the surface, up to thirty in number; some of these plications are short and incomplete. The oesophagus is long. The hind-stomach is also long and distinctly constricted at the junction between it and the following short mid-intestine. The proximal end of the rectum is apparently constricted off from the mid-intestine, but no coecum is formed there.

Postabdomen: Testicular follicles are numerous; usually arranged in two rows, but in a single row in long but thinner postabdomen. Usually there is a space of a considerable length between the posterior end of the intestinal loop and the testis and one or two spherical eggs are found near the middle of this space, although such a space may be quite obsolete in some short postabdomens.

Remarks: As to the structure of the thorax of the zooid, the present form resembles *Amaroucium lubricum* SLUITER (10 stigmatal rows and ca. 10 stigmata in each row), *Amaroucium altarium* SLUITER (9 stigmatal rows and ca. 10 stigmata in each row), *Amaroucium erythraeum* MICHAELSEN (12–13 stigmatal rows and ca. 9 stigmata in each row) and SLUITER's *Psammaplidium pantherinum* – *Amaroucium flavo-lineatum* – *Amaroucium simplex* (12–13 stigmatal rows and ca. 12 stigmata in each row), all known from South Africa. *Aplidium petrense* MICHAELSEN has only 5–7 stigmatal rows and so may be put aside out of the present consideration. Next, as to the structure of the abdomen, especially the surface appearance of the stomach, SLUITER's three species and *Amaroucium lubricum* seem to go out of the present consideration, because the former have only 10–12 and the latter has ca. 16 longitudinal plications on the stomach surface; these are much fewer than those found in the present specimen. Thus, here remain *Amaroucium altarium* and *Amaroucium erythraeum*; the former with 30–43 and the latter with 28–30 longitudinal plications on the stomach surface.

The consistency of the test is soft, translucent and without any foreign matter embedded in the test or encrusting the surface in *Amaroucium altarium*, while it is rather firm and sometimes encrusted and to some extent impregnated with sand in *Amaroucium erythraeum*. Moreover in *Amaroucium altarium*, the thoracic musculature consists of both longitudinal and transverse muscles,

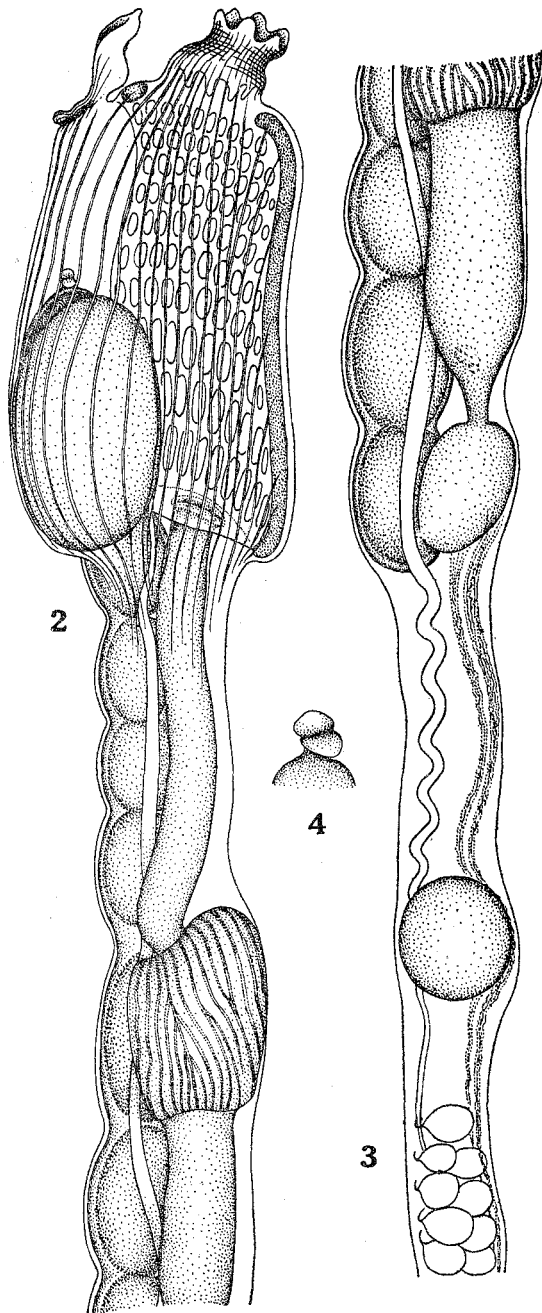


Fig. 2. *Amaroucium erythraeum* MICHAELSEN. 2 -- Right side of thorax and the anterior half of abdomen. 3 -- Right side of the posterior half of abdomen and the proximal part of postabdomen. 4 -- Anus. All magnified.

of which the latter are quite missing in the present form. For these reasons mentioned above, the present specimen may safely be identified as *Amaroucium erythraeum*.

Of slight differences between the present specimen and *Amaroucium erythraeum*, the situation of the stomach is variable according to the degree of contraction and the difference found in number of the stigmatal rows may be included in the intraspecific variation.

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