

Island) and individuals can be seen beneath the wharves at Port Chalmers. Other specimens have been collected at Weller's Rocks and isolated individuals have been seen, or collected from various other localities. Within the intertidal zone the species is quite rare except in shaded situations such as under wharves or alongside the hulk mentioned above, although occasional isolated individuals may be seen in completely unshaded positions. This anemone occurs from about the level of the low water of neap tides well into the subtidal. The most numerous population noted to date occurs between about the low water level of neap tides down to that of spring tides in the shade of the old hulk on Quarantine Island. The substrate in which the species lives is usually a muddy sand with rather numerous bivalve shells, pebbles and small stones present. It is to these latter items that the anemones attach, although occasional individuals, especially the smaller ones, seem not to be attached. In their natural habitat they usually live partially buried in the substrate, although some individuals, particularly smallish ones, may be found hanging from the underside of the old hulk. The base of the anemone may be attached from a few to 15 cm or more beneath the surface, depending upon the size of the individual, and only the upper third or half of the animal is to be seen above the surface of the substrate.

TYPE LOCALITY. Otago Harbour, N.Z.

HOLOTYPE. The holotype is the specimen photographed in life and shown in Plates 1, C and 1, D. In the preserved, semi-relaxed, condition it measures 9 cm long by 3.5 cm diameter at mid-column. The specimen has been deposited in the Otago Museum.

PARATYPES. Three specimens have been deposited at each of the following institutions:

- (1) The Otago Museum.
- (2) The British Museum (Nat. Hist.).
- (3) The United States National Museum.

DISCUSSION. The trivial name, *cryptum*, given to this species is meant to refer to the rather cryptic or shaded places in which the animal occurs. The species is probably a subtidal one and appears to live in the intertidal area almost exclusively in positions which guarantee it a minimal exposure to full sunlight.

The study of this animal has revealed a most interesting fact regarding the division of mesenteries into microcnemes and macrocnemes. Here it has been found that the course of development clearly proceeds from the micro-macrocnemous to the cyclical state, and if one were to examine only fully adult individuals one could not have made a correct family assignment for this species. Stephenson (1928, p. 52) noted that it was not always clear whether one was dealing with graded cycles of mesenteries or with those which possess two clear-cut types, and Carlgren (1949, p. 86) in his key to the Acontinaria used the wording, "Mesenteries divisible into macro- and microcnemes more or less distinctly", to express this difficulty. In the phylogeny of the anemones it appears that the development of cycles of mesenteries appeared later than the micro-macrocnemous condition, and the systematic arrangement of the Actiniaria of both Stephenson and Carlgren is an implicit acceptance of this. It was interesting, therefore, to find an anemone which in its development recapitulates the suggested phylogeny of mesenteries from one mode of arrangement to another, and by this seems to reinforce the correctness of our interpretation of evolution within the group.

In another fashion, too, this anemone may help better to interpret actinian evolution. The acontiate anemones are separable into two groups; one being the 3 families of acontiate Athenaria, anemones without basilar muscles, and the second the 11 families of acontiate Thenaria, anemones with basilar muscles (see