

Carlgren, 1949, and Hand, 1956, for families concerned). The manner in which these two groups may be related has long been a puzzle. Stephenson (1920, p. 444) was of the opinion that all forms possessing acontia were descended from a common ancestor, while the arrangement of families in Carlgren's (1949) "Survey" suggests that the acontiate thenarians are a more recent than early evolutionary development. *Mimetridium*, except for its possession of basilar muscles, could readily be classified as a member of the Haliactiidae, an athenarian family, and it is of interest that 2 genera of haliactiids, *Pelocoetes* and *Phytocoetes*, were originally thought to be members of the genus *Metridium*. These latter misidentifications resulted, as in the instance of *Mimetridium*, from the similarity in external appearance of the forms to *Metridium*. In the present case, however, it is intriguing and of possible significance how closely *Mimetridium* approximates the haliactiids. The cnidom, nematocysts of the acontia, general mesenterial arrangement, distribution of gonads, rows of cinclides, habit of burrowing and living partly buried, and even the numerous acontia (as in the haliactiid *Phytocoetopsis*) are all haliactiid-like. Certain haliactiids, such as *Pelocoetes*, also have lobed oral discs. These similarities, taken together, may be interpreted as suggesting that *Mimetridium*, a thenarian, is closely related to the athenarian acontiates, most particularly to the haliactiids. At exactly what time or in what group a true base with basilar muscles first evolved cannot be answered; however, if we accept that the Athenaria are more primitive than the Thenaria, then the acontiate thenarians should take their place close to the stem of the Thenaria. An alternate possibility is that the acontiate athenarians represent a group evolved from the Thenaria with a loss of basilar muscles. If the view that the acontiate thenarians are the most primitive of the Thenaria is accepted, then one must also accept that the non-acontiate Thenaria are derived from those with acontia. Our other choice here is to propose a polyphyletic origin for the Thenaria. It is clear that there are at present several, essentially equally plausible paths which can be suggested as outlining the evolutionary steps discussed above, but from the study of *Mimetridium* it also is evident that a close relationship must be recognized between the athenarian and thenarian acontiate anemones.

In working on this anemone it was originally assumed that the form described by Parry (1952, p. 133) as *Metridium canum* was the same as the Otago Harbour form. This impression was arrived at because of the apparently identical habitats, appearance (including colour and lobed or undulating disc) and by all of the comments Parry makes referring to external characters. Unfortunately, Parry did not deposit types or reference specimens of this or other anemones described by her, nor did a visit to the Heathcote Estuary, guided by a map sketched by Parry, yield any specimens of *M. canum*. From information provided by a resident near the site of the "old boat slipway" where Parry collected *M. canum*, it was learned that there has been much deposition of silt in the area, and it appears that there has been considerable filling around the slipway. If *M. canum* of Parry still exists in the Heathcote Estuary area, it must occur elsewhere than described by her. While in that area a search of other likely locations was made by myself and Dr. E. J. Batham, but to no avail.

If one compares the description provided herein of *Mimetridium cryptum* with Parry's description of *Metridium canum*, one will note several striking differences. For example, Parry records a mesogloea sphincter, a sterile first order of mesenteries but an additional 3 or more fertile cycles and no cinclides. In contrast, I have found no sphincter, three cycles of fertile mesenteries (including the first cycle), no additional mesenteries (i.e., no more in the area where gonads occur) and cinclides. Moreover, the nematocysts reported in the two descriptions do not compare well. Dr. Parry (now Dr. Howells) has kindly sent a microscope slide she prepared to Dr. Batham, and I have examined the longitudinal serial sections it contains. That preparation shows the anemone it was made from had no