

spindle-shaped bundle. These fibres are usually of a clear yellow colour, and at the ends they become continuous with a very long delicate transparent fibre, which runs usually for a great distance through the mantle, and may either die away or may join a similar filament from another bundle. The whole arrangement is rather suggestive of a muscle with a belly and two long tendons as seen in higher vertebrates.

The chief features in the branchial sac of *Molgula* are the distinct folds and the more or less curved stigmata arranged in infundibula.

The alimentary canal is always situated on the left side of the branchial sac, and has one of the genital glands in its neighbourhood, the other being placed near the centre of the opposite side of the mantle, and always anterior to the sac-like renal organ (Pl. IV. fig. 7).

The Challenger collection contains six species of this genus, four of which were new to science.

*Molgula gigantea*, Cunningham (sp.) (Pl. IV. figs. 1-4).

*Cynthia gigantea*, R. O. Cunningham, The Nat. Hist. of the Straits of Magellan, Edin. 1871.

*Cynthia gigantea*, R. O. Cunningham, Notes on the Reptiles, &c., obtained during the voyage of H.M.S. "Nassau," Trans. Linn. Soc., vol. xxvii. p. 489.

*Molgula gigantea*, Herdman, Preliminary Report, part iv., Proc. Roy. Soc. Edin., 1880-81, p. 234.

*External Appearance.*—The body is oblong or oblong-ovate in shape, often cylindrical, and usually compressed laterally. The anterior end is usually narrowish, but truncated and flat. The posterior is rounded, usually broader than the anterior, and sometimes irregular; the dorsal and ventral edges are gently convex, and about equal in length.

The apertures are both at the anterior end; they are moderately distant, conspicuous, and slightly projecting. The branchial is at the ventral edge of the anterior end, on a distinctly six-lobed teat-like projection, and usually bent so that the aperture points ventrally and somewhat posteriorly. The atrial is at the dorsal edge of the anterior end; it is not so prominent as the branchial, is four-lobed, and directed more or less anteriorly.

The surface is even and moderately smooth in the upper part. The lower half is thickly incrustated with sand attached to fine hair-like processes of the test.

The colour in the upper part is usually a pale slate-blue.

Length of body (antero-posterior) in a specimen of medium size, 19 cm.; breadth of body (dorso-ventral), 10.5 cm.; thickness of body (lateral), 7.5 cm.

*The Test* is coriaceous, and rather thin but tough; it is opaque, and smooth in the upper (anterior) part, but bears hairs on the posterior part, to which sand grains are attached, forming an incrusting coat.

*The Mantle* is thick; and the musculature is strong, especially along the dorsal and ventral edges.