

## V.—THE VISCERAL MASS.

The body-cavity enclosed between the dorsal skeleton and the ventral perisome of a Crinoid consists of two principal parts, which have been conveniently designated by Ludwig<sup>1</sup> as the "intervisceral" and the "circumvisceral" cœlom respectively. In some Comatulæ, such as *Antedon rosacea* and *Actinometra strota*,<sup>2</sup> these two divisions of the cœlom are very distinctly separated; while in other types, such as *Antedon eschrichti*, *Actinometra parvicirra*, and also in the stalked Crinoids, it is difficult to fix a definite boundary between them. In the former case the coiled digestive tube, which is covered in above by the ventral perisome, is protected below by a continuous sheet of connective tissue. This forms a definite membrane enclosing the lower part of the visceral mass or disk, and has been spoken of as the visceral layer of the peritoneum.<sup>3</sup> In *Antedon rosacea*, *Actinometra strota*, and similar forms, this visceral layer is only loosely attached to the parietal layer which lines the interior of the cup formed by the rays and arm-bases. The result is that a comparatively slight amount of violence is sufficient to separate the visceral mass from the calyx and to tear the ambulacra across at the arm-bases. The whole visceral mass, including the digestive tube and plexiform gland, together with the circumoral rings of the blood-vascular, water-vascular, and ambulacral nervous systems, is very apt to be turned out of the calyx, which is then left to swim about on its own account.

The so-called "recent Cystidean," *Hyponome sarsii* of Lovén,<sup>4</sup> is, in fact, nothing more than the much-plated visceral mass of an *Antedon* common at Cape York (Pl. LV. figs. 3, 4); and the same thing may happen to the disks of the equally abundant *Actinometra strota* and *Actinometra jukesi*. Several of these isolated disks were dredged by the Challenger, together with a number of entire individuals and some eviscerated calices; and Sir Wyville Thomson informed me that he had observed them perform slow movements of locomotion over a flat surface; while we know from Dr. Carpenter's experiments that the eviscerated but arm-bearing calyx of *Antedon rosacea* will execute the usual graceful movements of swimming as perfectly as the entire animal had previously done.<sup>5</sup>

The characters of the perisome covering the ventral surface of a Crinoid vary considerably. It may be more or less completely covered by plates (Pl. VI. figs. 1-4; Pl. XVII. figs. 6, 10; Pl. XXVI. figs. 1, 2; Pl. XXX. fig. 2; Pl. XXXIII. fig. 7; Pl. XXXIV. fig. 2; Pl. XXXIX. fig. 2; Pl. XLIII. fig. 3; Pl. L. fig. 2; Pl. LV.;

<sup>1</sup> Beiträge zur Anatomie der Crinoideen, *Zeitschr. f. wiss. Zool.*, Bd. xxviii. pp. 306-308.

<sup>2</sup> The specific formula of *Actinometra strota* is— $a . R . 10 . \frac{b}{2} \cdot \frac{a}{a}$ .

<sup>3</sup> *Proc. Roy. Soc. Lond.*, vol. xxiv. pp. 213-215.

<sup>4</sup> On *Hyponome Sarsii*, a recent Cystidean, *Canadian Naturalist*, N. S., vol. iv., 1869, pp. 265-268.

<sup>5</sup> *Proc. Roy. Soc. Lond.*, vol. xxiv. p. 453.