

## 2. As to function—

- (a) Prehensile—when the mandible, beak, and muscles are adapted for prehensile purposes.
- (b) Retentive—when the mandible is thin, membranous, and weak, and adapted merely to serve as a lid to the cup or receptacle.

## 3. As to position—

- (a) Vicarious—when they represent or replace an ordinary zoecium.
- (b) Adventitious—when either attached to some part or other of a zoecium or interspersed among the zoecia.

## B. Vibracula, of which two varieties may be distinguished—

- 1. Simple—consisting of a basal cup, without a beak, to which the *seta* or *flagellum* is articulated, usually by a double joint, admitting of motion in only one plane.
- 2. Compound—in which the seta is continuous with or articulated to a basal mandibular portion, and the cup or receptacle has a more or less distinct beak.

VI. CHITINOUS ELEMENTS.—As will be seen in the Report, I have in several families largely resorted to the chitinous elements of the skeleton for diagnostic characters, for which purpose it is in many cases impossible to over-rate the value of these parts, as I have attempted partially to show in another place,<sup>1</sup> and further study has only convinced me that their importance extends far beyond the mere distinction of genera and species. But to render this manifest it would be necessary to embrace many forms besides those contained in the Challenger collection, and I am not as yet prepared to go fully into the subject, even were this the proper place.

The chitinous elements here principally intended, are the so-termed *opercula* or *oral valves* and the chitinous parts of the avicularia and vibracula, that is to say, the *mandibles* and *setæ* or *flagella*.

A. Opercula.—Although there are one or two forms which must be ranged under the CHEILOSTOMATA, in which the existence of a distinct operculum or articulated lid to the orifice cannot be detected, such an appendage in some form or another may be regarded as an all but universal characteristic of the sub-order.

The infinite variety in form and structure, and mode of muscular attachment of the opercula, is very remarkable, as is also the constancy of the characters presented by them in the different species, genera, and families.

1. *Form*.—They are all more or less circular or semicircular in outline, with the lower border either straight or sinuated, or forming the segment of a smaller circle than the upper part, or by a further constriction produced in the middle into a narrower or

<sup>1</sup> On the Use to be made of the Chitinous Organs in the Cheilostomata in the Diagnosis of Species, &c., *Journ. Linn. Soc. Lond.* (Zool.), vol. xv. p. 357, 1881.