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XXVII.—*On the Calcispongiæ, their Position in the Animal Kingdom, and their Relation to the Theory of Descendence.*
By Professor ERNST HÄCKEL*.

I. THE POSITION OF THE CALCISPONGIÆ IN THE ANIMAL KINGDOM.

1. *The Primitive Form of the Spongiæ.*

The results of the examination of the comparative anatomy and developmental history of the Calcispongiæ (in the second section of this volume) not only furnish us with a satisfactory insight into the organization of this group of animals and of the Sponges in general, but, by comparison with the lower states of development of the higher animals, they lead us to general reflections which throw a new light upon the natural system, the genealogical tree of the animal kingdom.

In the first place, by our morphology of the Calcispongiæ the opinion entertained by most spongiologists is confirmed—namely, that they form a unitarily organized group, which, by its most important characters, belongs to the class of Sponges, but occupies within this an independent position. In the natural system we can express this relation by dividing the whole class of Sponges into three principal sections or subclasses, namely:—I. Gelatinous Sponges (*Myxospongiæ*), II. Fibrous Sponges (*Fibrospongiæ*), and III. Calcareous Sponges

* Translated by W. S. Dallas, F.L.S., from a separate copy of the last two chapters of the first volume of Prof. Häckel's monograph of the Calcispongiæ (Berlin, 1872), communicated by the Author.

which, if present, would have held on the real spicules, and have allowed the false ones to be easily extracted, thus causing doubt as to which spicules did and which did not really belong to the sponge.

At first the whiskered groups were observed to be composed of spicules far too robust for the size and nature of the sponge; then it was found that their inner ends were in many instances passed through the body, *above* the bottom of the cup, and then that they were abruptly broken off at their concealed or inner ends instead of passing into a finely attenuated extremity. Many of the robust form of spicules in the basal tuft, too, were observed to be in size out of all proportion to the size and nature of *Labaria*; besides, a few which fell out were observed to be fragments of much longer ones. Finally, by turning aside a little of the basal tuft which really belongs to the sponge, and which appeared to be twisted out of place, the end of the tuft bound round with the fibre was discovered.

I have thus noticed in detail this fraud in order that others may not be misled by similar practices; while they should be discountenanced by those who deal with the natives for such sponges, as their object is to present a saleable rather than a natural specimen, and the practice will cease when they find that the latter is most valued.

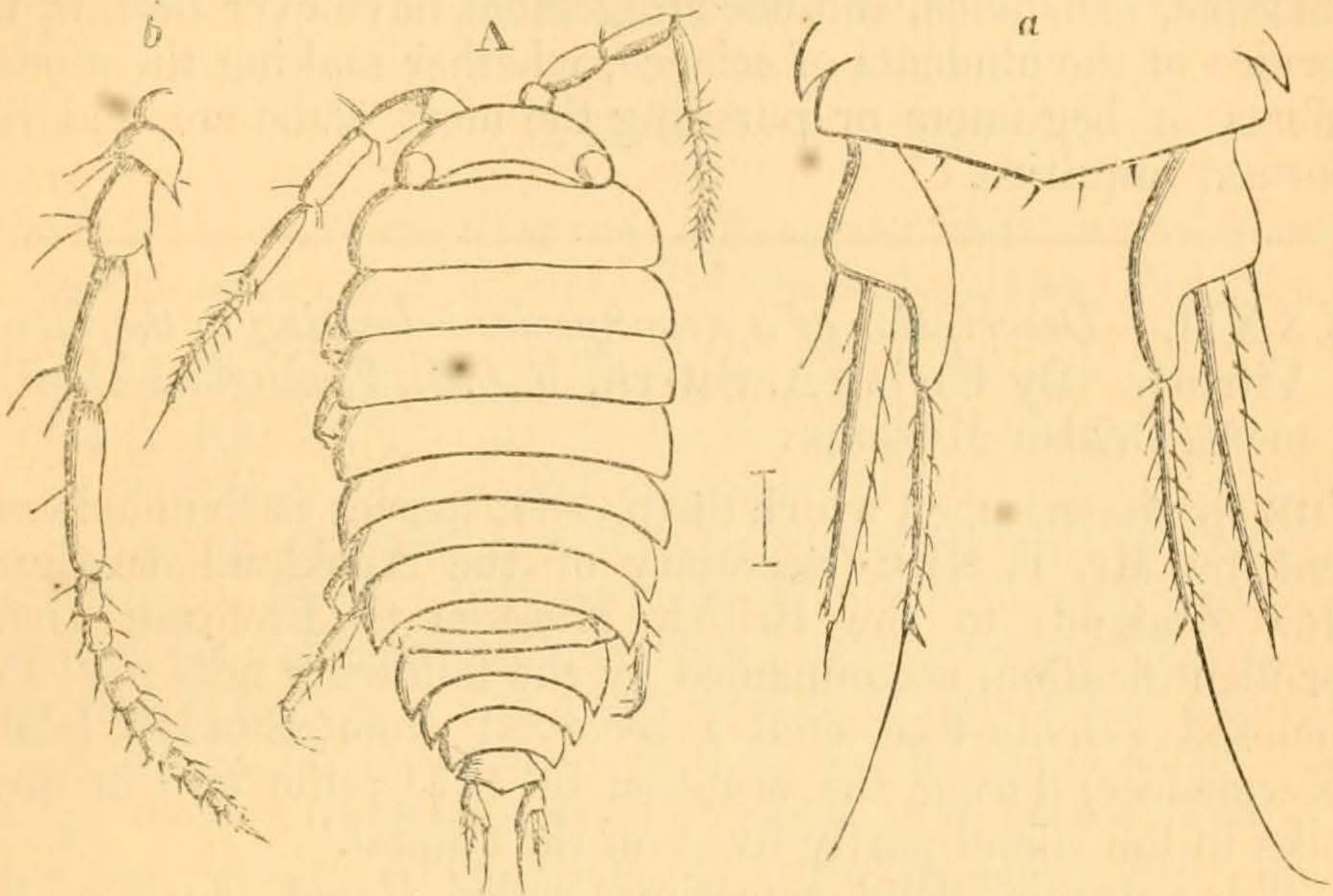
XXXI.—*On a Crustacean of the Genus Zia.*

By the Rev. THOMAS R. R. STEBBING, M.A.

THE little Crustacean represented in the accompanying figure I took last August in a ditch near Cophorn Common in Surrey. At the first glance it presents an obvious resemblance to animals of the genus *Philoscia* (Latreille), which Spence Bate and Westwood, in their standard work 'The British Sessile-eyed Crustacea,' make synonymous with Koch's genus *Zia*. They introduce their description with the following remarks:—"It is a curious circumstance that the animals of this genus, common as they are, and well described by Latreille and Zaddach, should have been unknown to Brandt, Lereboullet, and Milne-Edwards, who have affirmed that the genus ought to be re-united to *Oniscus*, whereas it is in fact more nearly allied in several respects to *Ligia*. The typical species appears to have been figured by Koch under the name of *Ligia melanocephala*, which in his generic table he subsequently altered into the generic name of *Zia*, giving, however, fifteen joints to the antennæ, the flagellum being represented as composed of ten articulations."

Upon examining my little Cophorner, I found, first of all,

that the uropoda, or tail-appendages, were quite different, not only from those of any species of *Philoscia* described by Messrs. Bate and Westwood, but also from those of any of the Aërospirantia described in their work. In the next place, it turned out that the antennæ possessed fifteen joints, the flagellum being composed of ten articulations. My impression that it must therefore belong, not to *Philoscia*, but to the genus *Zia* as described by Koch, has been kindly confirmed by Mr. Spence Bate, who will himself in due time publish a communication on the subject.



A. *Zia Saundersii*. a. tail-appendages; b. antenna.

Meanwhile the following characters will probably suffice to identify the species:—Figure ovate. Cephalon rounded. Outer antennæ cylindrical and fifteen-jointed, the ten terminal joints forming the flagellum, which is tipped with an articulus; all the joints armed with bristles. Tail-piece narrower than the terminal segment of the body; terminal segment of the tail-piece quadrate, its lower border forming a very obtuse angle. The uropoda, or caudal appendages, almost entirely exerted, the basal portion having a finger-like prolongation on the inner side, from the extremity of which extends a thin ramus, itself terminated by a seta as long as the ramus or longer; a minute hair projects from the ramus close to the starting-point of the long seta. The outer ramus thicker and longer than the inner one, but, with its short terminal seta, not equal to the combined length of the inner ramus and its long seta. A stout bristle projects from the outer angle of the uropoda, and is about half as long as the basal portion above described.

The skin is smooth and shining, the surface under the microscope presenting the appearance of very minute curved scales. Colour fulvous. Length $\frac{1}{4}$ inch.

From what has been said it seems clear that the genus *Zia* must be added to the genera *Ligia* and *Ligidium*, which, according to Messrs. Bate and Westwood, have hitherto constituted the subfamily *Ligiinæ* in the family *Oniscidæ*.

Supposing this species to have been hitherto unobserved, I venture to name it *Zia Saundersii*, in honour of an intimate and dear friend, W. Wilson Saunders, Esq., F.R.S., whose example, assistance, and encouragement have ever been at the service of the students of science, whether making the modest efforts of beginners or pursuing the most elaborate and important inquiries.

XXXII.—*Description of a new Species belonging to the Genus Vitrina.* By EDGAR A. SMITH, F.Z.S., Zoological Department, British Museum.

THE specimens upon which the present species is founded were sent by Mr. T. Kirk (Secretary of the Auckland Institute, New Zealand) to the British Museum to Professor Owen for identification, accompanied by the following note:—"The enclosed *Vitrina*-like shell I received from Sunday Island (Kermadees) during the eruption of 1871; the two or three folks in the island partly lived on the animal."

This volcanic island, sometimes called Raoul, is one of the Kermadee group, and situated about 550 miles to the north-east of Auckland, New Zealand.

Vitrina kermadeensis.

V. testa depressa, tenuissima, pellucida, nitida, vitrea, epidermide pertenui virenti-cornea amicta, incrementi lineis levissime, prope suturam fortius, striata; anfr. $3\frac{1}{2}$, celeriter accrescentes, primi $2\frac{1}{2}$ convexiusculi, supra ultimum pauxillulum prominentes, ultimus magnus, superne vix depressus, ad peripheriam rotundatus, basi subinflatus, versus aperturam non descendens; sutura aliquanto depressa, angustissime marginata; apertura lunato-ovata, paululum obliqua, fere horizontalis; perist. epidermide duplicata incrassatum, basi recedens, marginibus approximatis.

Alt. $4\frac{3}{4}$ mill.; diam. maj. $9\frac{1}{2}$, min. $7\frac{1}{2}$.

This is a very fragile species, of a greenish horn-colour, very glossy and transparent, so much so that the outline of the body-whorl is quite apparent through the upper surface until its junction with the apex.

No spiral sculpture can be traced by using an ordinary lens,