

## APPENDIX.

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### NOTE A.

(Pages 2, 157, and 168.)

#### ON THE HOMOLOGIES OF THE CRINOIDAL CALYX IN THE OTHER ECHINODERMS.

THE relations of the plates which enter into the composition of the calyx of a Crinoid to those constituting the apical system of an Urchin or a Starfish are still the subject of much discussion.

The apical system of an Urchin, as described by Lovén,<sup>1</sup> consists typically of a dorso-central plate enclosed within two rings of five plates each. The plates of the proximal ring (genitals, *Auct.*) are interradial in position, while those of the outer ring (oculars) are radially situated. Believing that the dorsocentral is represented in the Pentacrinoid larva of a *Comatula* by the terminal plate at the base of the stem,<sup>2</sup> I have suggested that the basals of the Pentacrinoid are homologous with the so called genitals of an Urchin; while the ocular plates of the latter correspond to the radials of the Crinoid. So far as the basals and radials are concerned this view is fundamentally the same as that previously expressed by Lovén and Agassiz, allowance being made for the difference between their terminology and that employed by myself; so that the homology between the basals and radials of a Crinoid and the two rows of plates surrounding the dorsocentral of an Urchin has been pretty generally accepted.

Dr. R. Hoernes,<sup>3</sup> however, objects to this homology (which he associates with my name) on the ground that the resemblance should be most marked in the geologically oldest types, "was keineswegs der Fall ist, da gerade der Scheitelapparat der Palæchinoiden durchaus nicht an die Basis-Entwicklung der Crinoiden-Kelches sich anschliesst." This objection may be answered in two ways. 1. Lovén<sup>4</sup> says that the general formula of the apical system of Echinoidea "has remained, more or less altered, but always recognisable, from Palæozoic to recent time." 2. The positive fact that the basals and radials of

<sup>1</sup> Études sur les Échinoïdées, *K. Svensk. Vetensk. Akad. Handl.*, Bd. xi., 1874, No. 7, p. 65.

<sup>2</sup> *Quart. Journ. Micr. Sci.*, 1878, vol. xviii., N. S., p. 374.

<sup>3</sup> *Elemente der Palæontologie (Palæozoologie)*, Leipzig, 1884, p. 130.

<sup>4</sup> On *Pourtalesia*, a genus of Echinoidea, *K. Svensk. Vetensk. Akad. Handl.*, Bd. xix., 1883, No. 7, p. 62.