

XX.—On the British Actiniadæ. By EDWARD FORBES, Esq.

[With a Plate.]

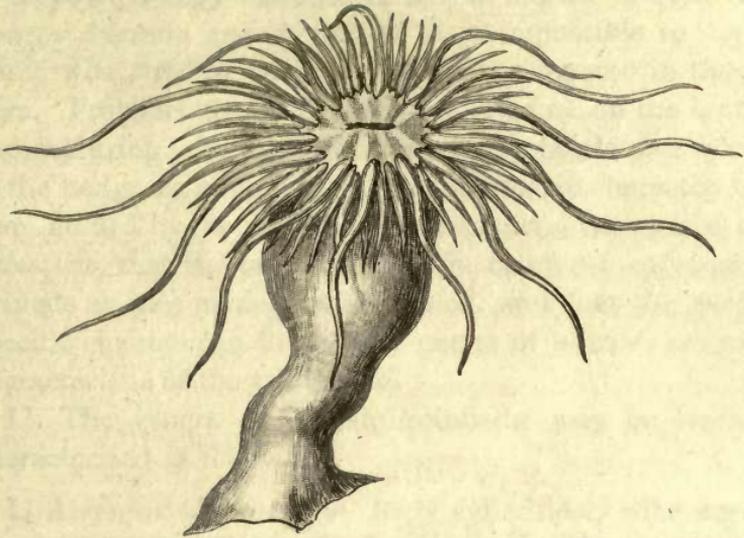
I. SUCH Actiniadæ or simple soft Helianthoid Polypes as are found in the seas of Britain may be arranged under five genera, namely, *Lucernaria* (Muller), *Anthea* (Johnston), *Actinia* (Linnæus), and two which I propose to constitute under the names of *Adamsia* and *Iluanthos*, the first for the reception of the *Actinia maculata* of Pennant, the second for a new animal procured on the west coast of Scotland during last summer. As the Actiniadæ conduct us very naturally from the Zoophytes to the Actinodermata, we should expect to find some two genera more closely linking the approaching families of each great order than the other genera composing these families; such seem to me to be found among the Zoophytes in *Lucernaria* and among the Actinodermata in *Vorticella*, which I regard as a pedunculated Actinodermatous animal. By the laws of analogy such an animal should exist, corresponding with the Crinoid Starfishes among the Echinodermata, which in like manner connect that order with the Zoophytes through the suborder Ascidioidea on the part of the latter.

As there can be but one analogy in the tribe of the importance assumed by *Lucernaria*, the other genera are representatives of minor groups, *Anthea* standing by itself as the typical genus of the Actiniadæ. *Actinia* we may regard as a soft *Carryophyllia*, *Iluanthos* as a soft *Turbinolia*, and *Adamsia* probably as an encrusting Zoophyte.

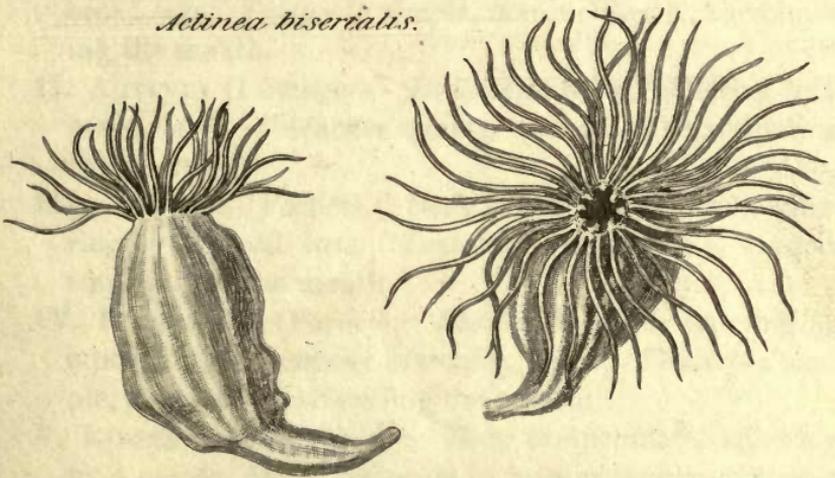
The points of generic character among the Actiniadæ appear to be, (1st,) the general form; (2nd,) the mode of attachment; and (3rd,) the arrangement and retractility of the tentacula.

The sources of primary specific character are in *Lucernaria*, (1st,) the mode of attachment; (2nd,) the number and arrangement of tentacula; and (3rd,) the presence or absence of intermediate marginal tubercles (eyes?).

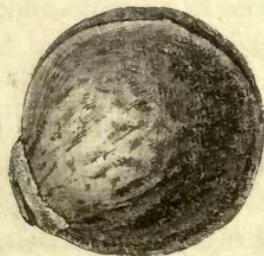
In *Anthea*, (1.) the characters of the body; (2.) the length; and (3.) the structure of the tentacula.



Actinea biserialis.



Iuanthus scoticus.



Snake Nut.



In *Actinia*, (1.) the arrangement of the tentacula; (2.) the structure of the oral disk; and (3.) the shape of the body.

As there is only one species as yet known of each of the genera *Adamsia* and *Iluanthos*, it is impossible to say certainly what are the points of specific character in those genera. Probably they will depend in the first on the tentacula and colouring; in the second on the tentacula and sulcature of the body. In assigning sources of specific character I have been guided by the analogies of the genera, taking it as a *probable law*, that the points of specific character correspond in animals at once analogous and allied, and that the points of specific character in the typical genus of a tribe are mainly characteristic of the tribe itself.

II. The genera of British Actiniadæ may be essentially characterized as follows:—

I. ANTHEA (Johnston). *Body* cylindrical, adhering by a broad *base*. *Tentacula* simple, non-retractile, surrounding the mouth.

II. ACTINIA (Linnæus). *Body* cylindrical, adhering by a broad *base*. *Tentacula* simple, retractile, surrounding the mouth.

III. ADAMSIA (Forbes). *Body* expanded, bilobed, adhering by a broad *base*. *Tentacula* subretractile, simple, surrounding the mouth.

IV. ILUANTHOS (Forbes). *Body* cylindrical, tapering to a point at its posterior extremity, free? *Tentacula* simple, retractile, surrounding the mouth.

V. LUCERNARIA (Muller). *Body* campanulate, adhering by a narrow *base*. *Tentacula* in tufts at regular distances on the oral margin.

As among zoophytes anatomical characters are of secondary generic, though of primary ordinal importance, I have not reckoned them essential. The two last genera may however be distinguished anatomically from the other three by their converging ovaries. This organization is the result, not the cause, of external form. In drawing up the above generic characters, I have borne in mind the existence of single Helianthoid Polypes wanting tentacula or with branched tentacula.

Of the former the genus *Discosoma* is an example; of the latter *Thalassianthos*, both inhabitants of the Red Sea, where they were discovered by Ruppell and Lauckart.

III. When in Guernsey in August last, I found a species of *Actinia* frequent among the rocks at low water in the island of Herm, which I have reason to consider undescribed. It was a cylindrical species, appearing as if pedunculated, from the narrowness of the lower part of the body, about one inch and a half high and one inch across the disk. The oral disk is surrounded by numerous tapering tentacula in two rows, the inner row consisting of sixteen long tentacula, three times as long as the outer, placed at some distance from each other: the outer forms a circle of numerous shorter tentacula, about a quarter of an inch in length. The colour of the body is dark brown with blue stripes, which bifurcate towards the base. The tentacula are paler, as also the disk, which is ornamented with bright blue stripes radiating from the mouth. This pretty species I propose to name *Actinia biserialis*, and characterize as follows:—

A. corpore elongato-cylindrico, brunneo, cœruleo-lineato; disco rotundo; tentaculis in duabus seriebus digestis, serie internâ longissimâ, externâ numerosissimâ.

This *Actinia* has no tubercles on the disk. The nature of such tubercles has not as yet been rightly investigated. *Actinia mesembryanthemum*, which generally has them, is sometimes without them, and so also with *Actinia viduata*; but wherever they are present in the latter species they are white, whilst in the former they are blue, an additional argument for the distinctness of the two species.

When dredging on the Manx coast in Sept. I took several specimens of *Actinia bellis**, a species which has been little noticed since Gaertner's time; and as doubts have been thrown on its specific identity, I add a note or two drawn from the living animal. The body is cylindrical, of a reddish or reddish white colour, regularly and finely striated longitudinally and transversely, and having glands of a bright yellow colour, small and not very numerous, scattered over the surface. At

* Of British authors, but not of Rupp.

the oral end the body bulges, forming a calyx, on which the furrows are fewer but more granulose. When the disk is expanded, this calyx laps back, and is then almost even with the expanded tentacula. Disk angular, in my specimens square, surrounded by three or four rows of short tentacula, thickly set, of a white or brownish colour, variegated, having generally a white line down the centre of each. The disk is broad, brownish or orange, with white lines. The margin of the mouth is bright orange. The animal can project its disk forward in a pouting manner. Tentacula and disk are retractile. The specimens described were about one inch long when expanded, but I have seen larger.

IV. The propriety of constituting a separate genus for the reception of the *Actinia maculata* of Adams must be evident to every one who has studied this beautiful family and has seen the species in question alive. The characters I have given above are sufficient for the genus; the species has been fully described before, both at home and abroad. On two points I have a remark to make. This year when dredging I paid particular attention to the alleged horny disk said to be secreted by the animal, and to the presence of the Hermit Crab, in the shells on which it is parasitical. Not a single specimen taken this season had either Hermit Crab or horny disk. That both such coincidences are common however may be seen by reference to a paper by Duges, "Sur une nouvelle espèce d'Actinie," in the 'Annales des Sciences Naturelles,' 2nde Série, Zoologie, vol. vi. p. 93. pl. 7. c., in which he describes this species, apparently unaware of its prior discovery. On the Manx coast in September last I found an unspotted variety. I have named the genus ADAMSIA after Mr. Adams, who first noticed it, and who contributed largely to the British Fauna in an age less favourable to natural history than the present; and for the species I have retained its original appellation of *maculata*, referring to it as synonyms the *Actinia carcincopados* of Otho, the *Actinia picta* of Risso, and the species described but not named by Duges.

V. Last summer, in company with Mr. Smith of Jordan Hill, we dredged up among *Corbulæ* and other inhabitants of mud, in four fathoms water, in Loch Ryan on the west coast

of Scotland, the remarkable zoophyte, for the reception of which I have constituted the genus *Iluanthos*. It is a free *Actinia*, about an inch and a half in length, the body large above, but tapering at its posterior extremity to a point. The mouth is round and rather small, surrounded by a circle of numerous long filiform tentacula, which are nearly equal in thickness throughout their lengths. The body is of a pink colour, with regular distant longitudinal white stripes: the tentacula are greenish, with a dark line down the middle of each*. It is probable the animal fixes itself in mud by means of its attenuated extremity, which I regard as analogous to the terminations of *Virgularia* and *Pennatula*. In its anatomy it differs not from other *Actiniae*, save that its ovaries converge. I propose to name the genus *Iluanthos*, from ἰλὺς, mud, and ἄνθος, a flower; and the species *Iluanthos Scoticus*.

REFERENCE TO PLATE III.

Actinia biserialis, and *Iluanthos Scoticus*.

XXI.—*A short Outline of a Fauna for Part of Herefordshire.* By R. M. LINGWOOD, Esq., F.L.S.

THE district included in the following list lies S.E. of the town of Hereford, and is exceedingly interesting in a geological point of view, as it comprises the Townhope Valley of Mr. Murchison's Silurian Regions; and the remainder is the Old Red Sandstone; it is about ten miles long from N.E. to S.W., and six broad from N.W. to S.E. I have thought that a list of the animals and birds might not be unacceptable to some of your readers. I have followed the nomenclature of Jenyns's British Vertebrata.

MAMMALIA.

Meles Taxus. (Badger.) Not uncommon.

Mustela Putorius. (Polecat.) Common.

——— *vulgaris*. (Weasel.) Common.

——— *Erminea*. (Stoat.) Common. I have a specimen shot in February of this year, quite white except the back of the head and the tip of the tail.

* Resembling very nearly the tentacula of Rupp's *Actinia filiformis*.

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“Omnes res creatæ sunt divinæ sapientiæ et potentiæ testes, divitiæ felicitatis humanæ: ex harum usu *bonitas* Creatoris; ex pulchritudine *sapientia* Domini; ex œconomia in conservatiõne, proportione, renovatiõne, *potentia* majestatis elucet. Earum itaque indagatio ab hominibus sibi relictis semper æstimata; a vere eruditis et sapientibus semper exulta; male doctis et barbaris semper inimica fuit.”—
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