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Annals and Magazine of Natural History: Series 5

Publication details, including instructions
for authors and subscription information:
<http://www.tandfonline.com/loi/tnah11>

On the structure of some coralliaria

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Published online: 09 Oct 2009.

To cite this article: M.C. Merejkowsky (1880) On the structure of some coralliaria, *Annals and Magazine of Natural History: Series 5*, 5:30, 502-503, DOI: [10.1080/00222938009459452](http://dx.doi.org/10.1080/00222938009459452)

To link to this article: <http://dx.doi.org/10.1080/00222938009459452>

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Peristeropode, still less to a Talegalla or a Megapode. From this negative result we may, I will not say assert, but at least suppose that at that distant epoch this remarkable type of Gallinacæ was already foreign to Europe, and was confined to the Indo-Australian region.—*Comptes Rendus*, April 19, 1880, p. 906.

On the Structure of some Coralliaria. By M. C. MEREJKOWSKY.

Among the Coralliaria, the Actiniæ especially have been the best investigated. The almost total deficiency of facts relating to the microscopic structure of the other groups decided me to undertake a special study of some species common in the Bay of Naples, such as *Astroïdes* &c. The following are the results at which I have arrived.

The *ectoderm*, examined by means of sections and of maceration, proved to be composed of the following elements:—

1. Ordinary *ectodermic* cells of very elongated form, strongly depressed and dilated at the superior extremity, which is constantly furnished only with a single cilium. In this respect the *ectodermic* cells of *Astroïdes* are very notably distinguished from those of the Actiniæ described by M. Heider, which have always several very short cilia.

2. The preceding cells, but with this difference, that they become transformed at their base into an excessively long and delicate filament, sometimes furnished with several inflations, which our knowledge of the group of the Cœlenterata authorizes me to call *nervous filaments*.

3. Epithelio-muscular elements composed of cells no. 1 (more normal, that is to say shorter and broader) united at their base to muscular fibrillæ. This kind of element is not, however, so frequently met with here as in the endoderm; at their apex there is always a long cilium.

4. Nematocysts of two kinds: larger ones, often surrounded by protoplasm, with a nucleus and a long filament (nervous) in the posterior part; the others smaller, of a different form, and always provided with a long posterior filament; the filament here and there bears small nodosities.

5. The last elements of the ectoderm are the glandular cells, always pyriform and with coarsely granular contents.

Mesoderm.—The elastic and structureless membrane which separates the ectoderm from the entoderm varies in thickness in the different parts of the body; it forms longitudinal protuberances upon the faces of two mesembryenthal septa which unite at the surface of the stomach. The muscles which line this elastic membrane in a single layer are longitudinal in the interior of the animal, and arranged in horizontal circles at the exterior. They are either long slightly flattened filaments, the relations of which to the other histological elements it is not easy to ascertain, or they are fibrillæ forming a part of the epithelio-muscular elements.

We must also mention another very curious element, consisting of cells of comparatively large size and exceedingly flattened, much

ramified, united to each other by their ramifications, and filled with granular contents, with nucleus and nucleolus. They are arranged in a layer, and rest immediately upon the outer surface of the elastic membrane. In some cases I have been able to convince myself that their ramifications, which, beyond all doubt, are nervous, are continued into strongly refractive fibrillæ. Their form, their whole habit, their position beneath a layer of ectoderm rich in cells furnished with long filaments directed towards the elastic membrane, and, lastly, the fibrillæ in which their ramifications sometimes terminate, leave no room to doubt that they are nervous ganglia in which the numerous fibrillæ of the different ectodermic cells terminate. This supposition is rendered the more probable by analogous facts observed in the *Actiniæ* and the *Medusæ*.

Entoderm.—The entoderm is almost exclusively composed of very typical epithelio-muscular cells. The epithelial cell is not so strongly elongated as in the ectoderm; it is broader and shorter, with the base much dilated, and furnished at the extremity with a single cilium. The muscular fibril is very refractive, fusiform, nearly three times as long as the cell itself. Besides these elements we also find glandular cells not differing essentially from those already described. These unicellular glands are met with in great numbers, especially upon the parts of mesembryenthal partitions nearest the stomach, as well as on the mesembryenthal filaments.

Besides *Astroides*, I may cite *Sagartia parasitica* and *Medusa æquorea* as having shown me epithelio-muscular elements in very great numbers in the entoderm. As to the presence of a single cilium at the extremity of the ectodermic cells, this is not a character peculiar to *Astroides*, but appears to be very common in the *Coralliaria*; I have ascertained its occurrence, for example, in *Paralcyonium elegans*, *Isis*, *Caryophyllia*, *Anthea cereus*, and *Sagartia parasitica*.

Mesembryenthal filaments.—The surface of the stomach is not smooth, but covered with longitudinal elevations, each of which corresponds to the place where a partition is united with the stomach. These protuberances are very rich in glandular cells, and it is only in them that the stomach presents such cells. At the extremity of the stomach the protuberances form the free edges of the mesembryenthal partitions; there is therefore an uninterrupted continuity of these longitudinal protuberances at the surface of the stomach with the mesembryenthal filaments; and this fact explains the complete unity in the structure of these two organs, and enables us to assert that they can only act as stomach, that is to say, as organ of digestion. The filaments are solid and have no cavity in the interior; they have in the centre a mesodermic trunk formed by elastic membrane, which unites with that of the partitions. I have been able to demonstrate the absence of any canal passing through the partitions and uniting the chambers formed by them.

The organs of generation and the development of this coral will constitute the subject of an early communication.—*Comptes Rendus*, May 3, 1880, p. 1086.