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On the organ called “Dorsal Chord” in *Amphioxus lanceolatus*

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Very closely allied to *D. substriatus*; but, besides being nearly double the size, it differs in having the thorax less convex, with a slight impression on the disk, the sides are less arcuate and more distinctly margined, and the posterior angles are much more diverging. The elytra are more distinctly broader than the thorax, more evidently striated; and, lastly, the pubescence on the head and thorax is more erect and darker in colour.

Hab. Formosa.

British Museum,
May 15, 1878.

On the Organ called "Dorsal Chord" in Amphioxus lanceolatus.

By MM. J. RENAULT and G. DUCHAMP.

In the Vertebrata the tissues of the skeleton may be divided into three principal categories:—1, the primary axis, formed by the dorsal chord; 2, the cartilaginous tissue; 3, the osseous tissue. These different tissues succeed one another in the higher animals, and the definitive skeleton is formed by bone, or at least by true or calcified cartilage. At this period there only remain rare vestiges of the primary axis or dorsal chord; so that, except *Amphioxus*, we know of no Vertebrate of which the definitive skeleton is represented solely by a persistent notochord.

This organ, moreover, possesses in the series typical characters which it is necessary to refer to briefly; it is formed of globular cells, soldered to one another after the fashion of epithelia, as transparent as glass, and possessing a very distinct nucleus (usually thrown back to the periphery).

The dorsal chord of fishes does not differ fundamentally from that of the embryos of the highest Mammalia. That of *Amphioxus*, on the contrary, presents no arrangement resembling the structure just described. It is contained in a cylindrical sheath which envelops it on all sides; and, in sections made perpendicularly to the general axis of the body, after hardening in dextrine and alcohol, it proves to be constituted as follows:—

In the interior of the sheath, stretched horizontally from the left to the right side, are seen some fibres of uniform diameter, cylindrical, solid, and adhering by their extremities to the general envelope. In proportion as they approach the dorsal surface these fibres curve gently upwards, so as to circumscribe in the median line, between the sheath and the chord, an empty spindle-shaped space. On the ventral side the same arrangement is repeated in the opposite direction; so that only the fibres of the middle plane are horizontal and rectilinear.

In a longitudinal section passing through the axis of the chord and the two sides of the body the sheath is shown divided in the direction of its length; and the area thus intercepted is occupied by the fibres of the chord, which consequently offer a scalariform arrangement relatively to the two margins of the sheath.

In such a preparation, suitably coloured by means of picrocarmine of ammonia or of eosine dissolved in water, we observe the following details:—

The sheath of the notochord becomes uniformly coloured red by the carmine, without showing any nucleus either in its interior or at its outer surface; the eosine leaves it absolutely colourless. All the inner surface bristles with a multitude of little conical projections, which are continuous at their base with the hyaline substance of which the envelope is formed. These little cones remain colourless with carmine, and acquire a bright rose-colour with eosine; they do not present the appearance of nuclei, and are entirely homogeneous. At the extremity of each of them is inserted, at the same time capping it, one of the fibres of the notochord. Each fibre answers by each of its extremities to one of the projections just described; it is regularly cylindrical, contains no nucleus, and becomes coloured, like elastic tissue, yellow by the action of the picrocarminate, and bright rose by eosine.

The action of potash does not cause the breaking-up of these fibres into nucleated masses; carmine, hæmatoxyline, and the other reagents for nuclei do not reveal any in the thickness of the sheath. We are therefore justified in regarding them as non-cellular bodies, having no relation either with the characteristic tissue of the notochord or with cartilage. On the other hand they present a structure and histochemical reactions exactly analogous to those offered by the fibres which compose the axial organ of the Calamary known as the *pen*.

From what precedes, it appears that the *Amphioxus*, which is destitute of red blood containing hæmoglobine enclosed in special elements, also does not possess a dorsal chord comparable by its structure to that of all vertebrate animals. It therefore seems permissible to raise doubts as to the morphological value of its notochordal axis.—*Comptes Rendus*, April 8, 1878, p. 898.

On the Zoological Affinities of the Genus Mesites.

By M. A. MILNE-EDWARDS.

In 1838, I. Geoffroy Saint-Hilaire described a very remarkable bird from Madagascar under the name of *Mesites variegatus*. From its external characters he had great difficulty in referring it to any definite place in the system; and he remarked that it resembled the *Heliornithes* in its head, the *Penelopes* and *Curassows* in its body, and especially its wings, and the *Pigeons* in its feet. Some years later M. Desmurs described a somewhat different bird under the name of *Mesites unicolor* as a new species. G. R. Gray, in his 'Genera of Birds,' arranged *Mesites* in the family *Megapodiidæ*, close to *Leipoa*; and in this he was followed by Bonaparte, Reichenbach, and Hartlaub; but in the British-Museum Catalogue of Birds, Gray shifted the genus to the *Passeres*, as forming a section of the family *Eupetidæ*. Sundevall accepted this view; and Hartlaub, in his last work on the birds of Madagascar, placed *Mesites* after the *Motacillidæ*, among the *Dentirostres*.

All this time the only known specimens were the two originally described respectively by Geoffroy Saint-Hilaire and Desmurs; but M. A. Grandidier has recently received from Tamatava two