

## SECTION VII.

## MUSCLES.

The ordinal characters of the Turtles, as far as the muscles<sup>1</sup> are concerned, are particularly obvious in the muscles of the neck and in those of the region of the trunk. That bulk of muscles which in Ophidians and Saurians lies above and below the vertebral column and the ribs has almost entirely disappeared, owing to the immovability of the trunk.<sup>2</sup> There exist only two muscles along the back of the Turtle, and even these disappear in that family, which is characteristic of the highest development of the order, in the land Turtles. These muscles are, a *musculus longissimus dorsi* and a *M. retrahens capitis collique*, both originating from the dorsal column or its neighborhood, and attached to the neck or to the head; so that, properly speaking, even these are more muscles of the neck than of the trunk.

The *musculus longissimus dorsi*<sup>3</sup> runs along the back on both sides of the vertebræ, between the ossified corium and the ribs. It originates from about the eighth or ninth to the fourth or third rib and the dorsal shield of that neighborhood, and is attached to the last or to the two last vertebræ of the neck. It is very large and powerful in the family of the Snapping-Turtles, (*Chelydroidæ*), the arches through which it passes being here high and broad. This passage is much narrower in the family of the *Emydoidæ*, and the muscle also much weaker; in *Cistudo virginea*, the highest of the *Emydoidæ* and the nearest to the land Turtles, we see it developed only in the anterior part of the trunk, until in the land Turtles it disappears entirely. Even the arches through which it passes in other Turtles disappear in consequence of the resorption of the ribs which takes

<sup>1</sup> For further details respecting the muscular system, see BOJANUS, *Anatome Testudinis Europææ*, Vilnæ, 1819-21, 1st vol. For a comprehensive abstract of what is now known respecting the muscular apparatus of all Turtles, see the valuable work of STANNIUS, *Zootomie der Wirbeltiere*, 2d edit., Berlin, 1856.

<sup>2</sup> A distinct muscular layer above the ribs, and distinct *musculi intercostales*, are only to be found in very young Turtles, in embryos, or in specimens recently hatched. I have seen these muscles most distinctly in the young *Cholydra serpentina* and in

*Trionyx ferox*. See also RATHKE, (R.), *Ueber die Entwicklung der Schildkröten*, p. 155.

<sup>3</sup> In *Emys serrata*, *Leaueurii*, and *geographica*, this muscle is much smaller than in *E. Europæa*, as it has been described by Bojanus. In *Emys concentrica*, it is the same as in the European species. But in *Cholydra serpentina* this muscle is very powerful, and the arches, near the dorsal column, through which it passes, are very large and high. In *Cholonia Mydas*, it is small. In *Cistudo*, we find it only in the anterior part of the dorsal column, and in *Testudo* there is no trace of it.