

place in this family in proportion as the ossification of the skin advances. This is the muscle above the ribs.

The second muscle, the *M. retrahens capitis collique*, is below the ribs. This muscle is peculiar to the Turtles, the conditions of its existence being a solid trunk and a very movable neck. It originates from the bodies of all or most vertebræ of the trunk, and is attached to the articulating processes of the vertebræ of the neck and to the occiput. In some Turtles, it would be better to consider it as divided into two distinct muscles,¹ as its action is not always simultaneous.

¹ Bojanus has described these muscles as one, in accordance with the subject of his investigations, the *Emys europæa*, in which the division into two muscles is much less marked than in many other genera, *Ozotheca*, for instance. In *Emys serrata*, we find it as in *Emys europæa*. In *Emys concentrica*, the muscle is one, originating from the eighth to the sixth dorsal vertebra, and attached from the sixth to the fourth neck vertebra, and with a long tendon to the occiput. In *Emys geographica* and *Lesueurii*, it is the same. In *Cistudo virginea*, it arises from between the ribs near the tenth to the second dorsal vertebra to the seventh and fifth neck vertebrae and the occiput. In *Ozotheca odorata*, we see distinctly two muscles. One of them, the *M. retrahens colli inferioris*, originates on each side of the dorsal column from the base of the third to the fifth rib, and is attached laterally to the penultimate (eighth) vertebra of the neck. This muscle draws the lowest part of the neck backwards and upwards. The other, the *M. retrahens capitis collique superioris*, originating from the bases of the fifth to the seventh ribs, is attached with one tendon to the uppermost part of the sixth neck vertebra, with another to the occiput. This muscle draws the uppermost part of the neck and the head backwards. When *Ozotheca* retracts its large head, which it does faster than any other Turtle, both muscles first operate simultaneously, but soon the short *M. retrahens colli inferioris* is entirely contracted, while the other is drawing further. Beyond these two muscles, we find in this genus a third muscle much developed, which serves the same purpose. The *M. lateralis retrahens ultimæ vertebræ colli*, originating from the base of the second rib and the space between this and the third, and

attached to the uppermost lateral part of the last (ninth) neck vertebra. This muscle is strong also in *Cistudo virginea*, where, however, it originates only from the base of the second rib. In our Green Turtle, (*Chelonia Mydas*), we find a distinct though weak *M. retrahens colli inferioris* from the first dorsal to the last neck vertebra, while the *M. retrahens capitis collique superioris* is entirely wanting. But at the same time, it is well known, that in this family the power of retracting the head and the extremities under the shield is very much reduced, indeed, almost entirely wanting. On the contrary, in *Testudo tabulata* these muscles are very strong. The *M. retrahens capitis collique superioris* originates from the seventh dorsal to the first sacral vertebra, and is attached from the third to the fifth neck vertebra and the occiput; the *M. retrahens colli inferioris*, from the first to the sixth dorsal vertebra, and from the sixth to the ninth neck vertebra. Thus, both these muscles occupy the dorsal column from the head to the sacrum. In these land Turtles we observe, indeed, the other extreme of what we have noticed in the sea Turtles, as in them all structural elements are employed for the purpose of covering all the soft parts by a thick, large shield, under which they are retracted. In *Chelydra serpentina*, we may consider these muscles as one, originating from near the tenth to the fourth dorsal vertebra, (rather from the bases of the ribs in this region,) and attached to the eighth and seventh neck vertebrae, and with a long tendon to the occiput. In this family, however, this muscle is not developed in the same degree as the remaining muscular system, and particularly that of the legs and tail, which is truly extraordinary, and aids in the peculiar darting motions of the body.