cartilage, close to the posterior border of the latter. The fibres converge as they pass forwards, and are *inserted* into the basi-hyal, into the uro-hyal, and to a small extent into the base of the apo-hyal bone.

Action.—The thyro-hyoid muscle approximates the larynx to the hyoid bone.

Relations.—This muscle is separated from its fellow by the uro-hyal cartilage. Its origin corresponds to the insertion of the contractor-tracheæ muscle.

Nerve supply (?)

Concluding Observations.

A consideration of the facts above detailed regarding the muscular system of the Spheniscidæ, leads to the conclusion that so far as their muscular system is concerned, these birds constitute a clearly defined group of the Palmipedes. Agreeing essentially with that of the order just named, the muscular system of the Spheniscidæ nevertheless presents certain modifications which, occurring in every member of the group, justify us in associating together the various individuals composing it as members of a natural family, at the same time that they enable us to separate that family from those which in respect of muscular arrangement most nearly approach it. These modifications are most observable in the muscles of the wing, and to a less extent in those of the leg, and stand in direct relation to the habits of the various members of the group.

The wing of the Penguin is useless as an organ of flight, but is of first-rate importance as a paddle wherewith the bird may propel itself through the water. In accordance with this modification in function of the wing, we find an enormous development of the muscles which act at the shoulder joint, that is, on the wing as a whole. These muscles, together with those which act upon the scapula, are developed in the Penguin to an extent observable in no other bird, and enable the wing, converted into a paddle, to act as a powerful propulsive organ of the body of the bird through the relatively dense medium in which the greater part of the life of the animal is passed. This arrangement would be superfluous in the case of birds adapted to an aerial existence, the medium in which they live offering much less resistance to locomotion than the water in which the Penguin spends the greater part of its life. On the other hand, the atrophy of the muscles of the forearm and hand of the Penguin is consequent upon the comparative fixity of the joints below the elbow, and prevents the performance of those delicate movements of flexion, extension, and rotation that are essential to flight—movements, the ability to perform which would be positively prejudicial to an organ whose principal function is that of an oar or screw.

The leg of the Penguin, except in respect of the great development of the muscles as a whole, does not present any peculiarities worthy of note beyond those already referred to at page 129.

The most striking features of the muscular system of the Spheniscidæ, apart from