

levator with a similar insertion, and in my dissections of the Phocinæ and *Arctocephalus* I find in all a levator which corresponds to the nuchal slips called serratus in *Otaria* and *Trichechus*, so that I regard the nuchal slips as the levator in the *Otaria* and *Trichechus*.

It pulls the scapula away from the spinal column, the posterior fibres rotate it outwards, and the anterior fibres from the neck must pull the shoulder forwards.

The MUSCLES OF THE SHOULDER.—In the Phocinæ are found the deltoid, subscapularis, subscapulo-capsularis, supraspinatus, infraspinatus, teres minor, and teres major.

In *Arctocephalus* the teres minor and subscapulo-capsularis are absent, but this animal possesses in addition an episubscapularis.

The *Deltoid* is placed upon the infraspinatus behind the scapular spine. It is in the form of a quadrant, and arises from the entire posterior border of the spine of the scapula, above the spinal origin of the infraspinatus; from the dense fascia between the outer termination of the spine and the shoulder-joint; slightly from the dorsal surface of the capsule of the shoulder-joint; from the scapula internal to the vertebral end of the spine and internal to the origin of the infraspinatus; from the dorsum of the cartilaginous plate to a small extent; and from a narrow surface between the infraspinatus and the dorsi-epitrochlear muscles. The fibres course towards the humerus, overlap part of the triceps, and cross the upper half of its dorsal surface; from the middle to the axillary end of the spine it receives some of the fibres of the anterior part of the trapezius, then passes over the shoulder-joint where the atlanto-humeral partly joins it along its anterior border. It is *inserted* into the lower half of the outer edge of the great humeral tuberosity (deltoid ridge).

In *Arctocephalus gazella* it lies posterior to the scapular spine, and is almost rectangular. It arises from the whole extent of the posterior lip of the spine, from the posterior border of it, from the capsule of the shoulder-joint dorsally, from the scapula by tendinous fibres between the spine and the vertebral border, from the vertebral border by muscular fibres, from the dorsum of the cartilaginous plate alongside of the vertebral border, and from the adjacent sides of both to the posterior angle. All the fibres incline to the outer surface of the humerus, a few to the outer end of the spine blend with a small group of the atlanto-scapular. It is *inserted* into the outer rim of the deltoid ridge, and into the dorsal part of the capsule of the shoulder-joint. The under two-thirds of the insertion is tendinous. From the corner of the muscle joining the lowest part of the deltoid ridge, a tendinous slip goes to the fibro-cellular bar lying upon the anterior border of the radius.

A glance at the scapulæ of the Phocinæ and *Arctocephalus* impresses one with their dissimilarity of mould. The spine, which is the boundary line between the supra- and infraspinous fossæ, is situated at the junction of the anterior third and the posterior two-thirds of the dorsum in the Phocinæ. In *Arctocephalus* it is at the junction of the anterior two-thirds and the posterior third (Pl. VII. fig. 2). The osteological differences between these two bones show clearly the variety in form, function, and development of the soft structures which are attached to them, and point to the likelihood of some muscles being present in the one and not in the other, which is the case. The form and position of the origin of the deltoid in the Phocinæ and *Arctocephalus* are markedly unlike. In the former it approaches the shape of a gun, with the stock at an acute angle to the barrel, in the latter it is like an old-fashioned scythe. The barrel of the gun and the handle