

cellular tissue, I could not be positive as to a natural division. However, as the presternal fibres in the Phocinæ and *Arctocephalus* are the only ones of the pectoral muscle which are not *inserted* into the humerus and forearm, but end among the fibres of the sternal part in the Phocinæ, and of the sterno-cleido-mastoid and sternal part in *Arctocephalus*, it shows how closely these præsternal parts are allied.

In *Otaria* the second division (*i.e.*, the thoracico-abdominal) is *inserted* partly by fascia, which joins the aponeurotic fascia of the forearm. In *Arctocephalus* there is no fascia going to that of the forearm.

In *Trichechus* the second division, deep layer or pectoralis minor (*i.e.*, the thoracico-abdominal part), is *inserted* directly into the whole length of the shaft of the humerus, so there is no blending of the second part with the first as in *Arctocephalus* and *Otaria*.

Neither in the Phocinæ nor in *Arctocephalus* have I made out the third and smallest division (sterno-scapular) described in *Otaria* and *Trichechus*, and Professors Vrolik, Humphry, and Lucae do not mention such a muscle in their researches on *Phoca*.

Dr. Murie inclines to the view that the two most superficial layers in *Otaria* are a divided pectoralis major, and not the minor; the third layer he classes as the sterno-scapular. In describing his *Trichechus*, he uses the names first layer or pectoralis major, second layer or pectoralis minor, and third layer. Although the name pectoralis minor is used by Murie, I do not think this muscle really exists in the Phocinæ and other Seals, for as the insertion acts as a guide in determining the identity of a muscle, and as there is a well-marked lesser tuberosity in the humeri of the Phocinæ, and a better representative of it in the *Arctocephali*, still no fibres of the pectoral muscle find their way to it, but all pass over to the deltoid ridge. If the pectoralis minor did exist, the insertion would be into the lesser tuberosity of the humerus, because the coracoid is inside the shoulder-joint in the seals.

The LATERAL THORACIC REGION contains the *Serratus magnus*, which covers the trunk and the neck. This muscle *arises* by five muscular slips from the ventral transverse processes of the five posterior cervical vertebræ behind the scalenus anticus, from the outer and posterior surfaces of the nine anterior ribs at the junction of the bones with their cartilages. The five lowest interdigitate with the external oblique; the slips from the first and second ribs are not divisible near their origin. From the insertion into the base of the scapula it is seen that the muscle is fixed in three ways. The five cervical slips are *inserted* into the vertebral border of the scapula, between the anterior angle and the cartilaginous plate, to 1 inch posterior to its anterior end. The four anterior thoracic digitations crossing from the trunk are *inserted* obliquely across the ventral surface of the cartilaginous plate between the cervical part ending 1 inch posterior to the anterior end of the cartilaginous plate, and the osseous posterior angle of the scapula. The five posterior ascending from the trunk are *inserted* into the vertebral border of the cartilaginous plate, and slightly into the ventral surface of it, extending as far forward as 1 inch posterior to the spine. These five digitations are attached in the opposite order of origin; the 5th goes into the posterior angle, the 6th is placed anterior to it on the scapula, and the 9th is the highest. In the large *Phoca vitulina* there were ten digitations from the trunk.

In *Arctocephalus gazella* it *arises* by sixteen digitations, almost as in *Phoca vitulina*. The fibres course to the base of the scapula. The six posterior digitations from the trunk form a strong