

Professor Humphry mentions two divisions in *Phoca vitulina*—(1) the first or pectoral proper includes the presternal and sternal; (2) the second is the same as the abdominal.

In *Arctocephalus gazella* there are also three—(1) the *Presternal*, (2) the *Sternal*, (3) the *Thoracico-abdominal*. The last is so named because it covers the thorax and abdomen, and is not wholly abdominal as in *Phoca vitulina*.

Dr. Murie in the *Otaria* gives three divisions—(1) a *first division* (which embraces the presternal and sternal parts in *Phoca vitulina* and in *Arctocephalus*), (2) a *second* (representing the abdominal part in *Phoca vitulina* and the thoracico-abdominal in *Arctocephalus*), (3) a *third* (not found in *Arctocephalus* and *Phoca vitulina*, and called the sterno-scapular).

The same author in the *Trichechus* gives three divisions—(1) a thick fleshy *pectoralis major* (equivalent to the presternal and sternal parts in *Phoca vitulina* and *Arctocephalus*), (2) a *second layer* or *pectoralis minor* (which is the abdominal part in *Phoca vitulina* and the thoracico-abdominal in *Arctocephalus*), (3) a *third layer* (called the sterno-scapular by Dr. Murie in *Otaria*).

The muscle fibres are not arranged alike in the Phocinæ and *Arctocephalus*, but form muscular layers of very different shapes. The presternal and sternal parts in comparing their form can be combined, and this gives two masses for examination. The presternal and sternal parts in the Phocinæ form a large triangular layer, with the anterior and middle fibres transverse, and the posterior obliquely directed forwards; the base of the triangle springs from the whole of the presternum, meso-sternum, and xiphi-sternum. In *Arctocephalus* and in *Otaria* the same mass consists only of transverse fibres, and stretches from the presternum and meso-sternum directly outwards to the flipper. Judging by the drawing of the *Trichechus*, the configuration of the same division is more like that of the Phocinæ, for it approaches the triangular shape, and the posterior fibres are not directly transverse as in *Arctocephalus* and *Otaria*, but obliquely directed forwards as in the Phocinæ. The abdominal part in the Phocinæ approaches the triangular shape, and consists of an inner or mesial belt of fibres directed forwards and outwards, and an outer or lateral belt running along the lateral abdominal wall and a number of intermediate muscular bars or fingers filling in the triangle. All these fibres go to the axilla. In *Arctocephalus* the thoracico-abdominal part is a large badly formed triangle nearly like that of *Otaria* and *Trichechus*.

Humphry describes the second division (*i.e.*, abdominal part) of the pectoral muscle in *Phoca vitulina* as arising "from the linea alba, the pubes, and also from the margin of the ilium, covering the fibres of the external oblique which were seen running transversely between the iliac and pubic portions." This being a most interesting point in the anatomy of the pectoral muscle, I made a series of dissections to ascertain the exact condition, and in the large *Phoca* had special opportunity of investigating this among many other points, and wish to emphasise what was ascertained. A group of fibres did come from the linea alba, also one from the back of the leg, and an intermediate number of digitations from the fascia on the external oblique muscle whose hindmost ends did not pass a line drawn from 3 inches behind the xiphi-sternum to the inner side of the patella, so none reached the pubes. In this animal the digitations of some of the intermediate group of fibres of the abdominal part reached the outer side of the rectus sheath.

As no other writer describes a presternal part, but includes it with the sternal, I give my reason for so doing. In the Phocinæ some were fresh specimens, and in these there was a slight separation of the fibres at the junction of the presternum and meso-sternum; but in *Arctocephalus*, the specimens being at least ten years old and preserved in brine, which had hardened the flesh and