

longi colli muscles, while in the succeeding vertebræ they form large, laterally compressed plates of bone of larger size, which present no trace of bifidity. These processes in *Eudyptes chrysocome* have their bases attached to the whole length of the vertebræ to which they belong. They diminish slightly in size from the fourth to the eighth dorsal vertebra.

The following variations with respect to the bodies of the dorsal vertebræ occur in different species.

In *Aptenodytes*, *Pygosceles*, and *Eudyptes chrysolophus* the body of the first dorsal vertebra is destitute of the articular surfaces for the reception of the heads of the first pair of ribs, these bones in the species named articulating only with the transverse processes of the first dorsal vertebra.

The hypapophyses in all three varieties of *Eudyptes chrysocome*, as also in *Aptenodytes* are attached by their bases to the whole length of the bodies of the vertebræ to which they belong, while in *Pygosceles*, *Eudyptes chrysolophus*, and every species of *Spheniscus* the bases of the hypapophysial spines are attached only to the anterior half of their respective vertebræ. In *Pygosceles* and *Eudyptes* these processes are relatively larger than in other species. In *Spheniscus demersus*, *Spheniscus magellanicus*, *Spheniscus minor*, and *Aptenodytes* the hypapophysis of the fifth dorsal vertebra differs from the corresponding process of other species in being bifid. In *Spheniscus minor* the last dorsal vertebra possesses a small hypapophysial spine.

The *transverse processes* are long, pointed, and flattened in the dorsal region. With the exception of those belonging to the first dorsal vertebra they are all directed slightly backwards. The transverse processes of the first dorsal vertebra differ from those of the others, inasmuch as they more nearly resemble those of the last cervical than those of the other dorsal vertebræ. They are, moreover, inclined slightly forwards instead of backwards. The articular surfaces for the tubercles of the ribs are situated on the free extremities of the transverse processes, except in the case of the first dorsal vertebra, in which they are situated midway between the base and apex of its transverse process. The apex of the transverse process of the last dorsal fuses with that of the first lumbo-sacral vertebra. With this exception all the transverse processes are quite distinct and in no way connected with one another.

The *articular processes* present the usual arrangement; the posterior articular processes are destitute of the bony spines which characterise certain of them in the cervical region.

The *spines* of the dorsal vertebræ are broad, flattened, quadrilateral plates of bone, and thus differ much in form from those of the cervical region, with the exception of the last, the spinous process of which closely resembles that of a dorsal vertebra. The spine of the last dorsal vertebra like the transverse process is ankylosed with that of the first lumbo-sacral, and forms a portion of the bony ridge formed by the fusion of the spines of another, and secondly, the lumbo-sacral vertebræ.

*Comparative Remarks.*—The peculiarities of the dorsal portion of the vertebral