

the organism is prevented by the great development of the subcutaneous fatty layer which is found in every member of the group. The muscular system is further characterised by the great strength of all, and the peculiar disposition of certain of the extensor muscles of the vertebral column, more especially of the biventer cervicis, which extends from the iliac bone to the skull, these peculiarities being associated with the erect attitude of the Penguin when on land; by the presence and arrangement of the transverse cloacal muscle; by the great strength of the muscles which act at the shoulder-joint, that is upon the wing as a whole; by the peculiar disposition of the brachialis internus muscle; and by the almost complete atrophy of the muscles which act upon the fore-arm and hand, the last-mentioned peculiarities being associated with the alteration which has taken place in the function of the wing. As regards the muscles of the leg, the Penguins do not differ essentially from other Palmipedes.

“The peculiarities of the arterial system are no less striking than are those of the bony and muscular systems. They consist in (a) the presence of two common carotid arteries of equal size, symmetrically disposed on either side of the middle line; (b) the peculiar mode of distribution of the subclavian artery, which breaks up into an axillary and brachial rete mirabile from which branches are derived for the supply of the fore-arm and hand; (c) in the absence of the sciatic artery as a direct branch of the abdominal aorta, and its substitution by a branch of the crural artery.

“The respiratory organs closely resemble those of other birds in their general arrangement. In one important particular, however, they differ from all with the exception of those of the Procellariidæ. The presence of a tracheal septum, which more or less completely divides the air-tube into two lateral chambers, is met with only in the Spheniscidæ and in the Procellariidæ. This tracheal septum is usually but not constantly present in the Spheniscidæ. I found it in all the forms which I examined, with the exceptions of *Eudyptes chrysocome* from Tristan da Cunha and *Spheniscus minor*. The occasional absence of a tracheal septum, therefore, shows that this structure, *per se*, cannot be considered as a constantly reliable anatomical character of this group any more than of the Procellariidæ.

“The geographical distribution of the Spheniscidæ is of interest.<sup>1</sup> The various members of the group are entirely confined to the southern hemisphere, not one single species of Penguin being found north of the equator. In the southern hemisphere, however, their distribution is very extensive, reaching from the Galapagos Islands on the equator southwards to the Antarctic Islands. Of the various species of Penguin collected by the Expedition and referred to in the Report, *Spheniscus demersus* is confined to the vicinity of the Cape of Good Hope, *Spheniscus magellanicus* to that of Cape Horn, *Spheniscus mendiculus* to the coast of Chili, while *Spheniscus minor* inhabits the South Pacific, in the neighbourhood of Australia and New Zealand. The genus *Eudyptes*

<sup>1</sup> Wallace, Geographical Distribution of Animals, vol. ii. p. 366, 1876.