

fellows in certain important particulars, at the same time that they differ from the members of every other genus.

The various species of Penguins which I have had an opportunity of examining have been arranged by ornithologists, relying on the consideration of skins and feathers, into five genera, namely—*Aptenodytes*, *Pygosceles*, *Spheniscus*, *Eudyptes*, and *Eudyptila*. Such are the genera to be found in Gray's hand-list of the genera and species of birds, and, with the exception of *Eudyptila*, in Selater's Report on the Birds collected by the Challenger.<sup>1</sup> The examination of the complete anatomy of these birds appears to me, so far as the species examined are concerned, to lead to the conclusion that they ought all to be included within the limits of three genera,<sup>2</sup> to wit,—*Aptenodytes*, *Spheniscus*, and *Eudyptes*.

In accordance with this view, the genus *Aptenodytes* would include the two species *longirostris* and *tæniatus*. The anatomy of these two birds, although presenting specific differences, does not, as it seems to me, justify their separation as types of two distinct genera, seeing that in every anatomical point which can be considered of generic value *Pygosceles* and *Aptenodytes* entirely agree. This much may certainly be said without fear of contradiction, that in respect of their anatomy *Pygosceles* and *Aptenodytes* differ less from one another than do undoubtedly distinct species of either the genus *Eudyptes* or *Spheniscus*. In all essential points of their anatomy, moreover, these two birds differ similarly from that of the members of other genera.

The distinctive features of the genus *Aptenodytes* are to be found in the large size of the birds composing it, forming as they do the largest members of the entire group of Spheniscidæ; in the greatly elongated form and the corresponding slenderness of the bones which enter into the formation of the upper and lower jaws; in the persistence throughout life of the inter-maxillary suture; in the elongation of the anterior narial apertures, and the relation which these bear to the lachrymo-nasal fossæ; in the narrowness of the supra-orbital grooves; in the small development of the transverse temporal crest; in the small size and vertical direction of the post-orbital processes; in the large size of the scapula; in the absence of a complete coracoidal foramen for the transmission of the nerve to the middle pectoral muscle; in the elongated form of the pelvis; in the parallelism of the conjoined metatarsal bones; in the elongation and papillate structure of the tongue and palate; in the form of the proventricular gland, which may present the form either of a triangular patch as in *Aptenodytes longirostris*, or of a complete belt as in *Aptenodytes tæniatus*; in the length of the small intestine, which varies from six

<sup>1</sup> Challenger Reports, Zoology, vol. ii.

<sup>2</sup> Since writing the above, I have been able to consult Coue's paper on "Material for a Monograph of the Spheniscidæ," in Proc. Acad. Nat. Science Philad., 1872, p. 184, and am pleased to observe that, relying on an examination of the skulls of different species of Spheniscidæ, that author had previously arrived at the same conclusion as I have with regard to the subdivision of the group into three genera. In this conclusion we are supported by the high authority of Professor Huxley, in his Essay on the Classification of Birds, Proc. Zool. Soc., 1867, p. 458.