

avian anatomy, as Tiedemann, Cuvier, Meckel, Garrod, and others. Among these various contributions to the subject, that of Schoepss, published in 1829, is remarkable for accuracy of description of the muscles of the wing of *Aptenodytes demersus*, as well as for the excellent figures which illustrate the essay. This essay being exclusively devoted to the consideration of the arrangement and modifications of the muscles of the wing, left much to be done by subsequent workers in the same field before a complete account of the myology of the Penguins could be available to the comparative anatomist intent on working out the affinities of the group, so far as a consideration of muscular modifications might enable him to do so.

In 1835, Reid to some extent supplemented this deficiency by publishing the results of an investigation into the anatomy of a specimen of *Aptenodytes patachonica*, Forst. Reid's description of these muscles is however so defective, and indeed in many points so vague and unsatisfactory, that our knowledge of the anatomy of the group cannot be said to have been materially advanced by his well-meant effort. The identification of the muscles described by him is often impossible owing to the poverty of description, and any attempt to synonymize his designations with those of other authors, is, for the most part, productive only of failure.

In 1877, MM. Gervais and Alix published an instructive and excellent monograph on the osteology and myology of the Spheniscidæ, based upon an examination of the anatomy of *Eudyptes chrysolophus*. This monograph is frequently referred to in the following pages; and although in some parts, more especially in the account of the muscles of the vertebral column, the brevity of description leads to difficulty in the identification of the muscles referred to, yet, as a whole, the essay may be said to contain an accurate and able summary of the principal myological peculiarities of the single species to which it refers.

The collection of Penguins placed in my hands by Sir Wyville Thomson has afforded an opportunity of again examining the muscular anatomy, not only of the species described by the above-mentioned authors, but also of several others.

In drawing up my description, I have omitted no opportunity of directing attention to the observations of previous writers, and of comparing them with those made by myself. By so doing I trust I shall be able to render this monograph more complete than would otherwise be the case, being fortunately in a position not only to check the observations of previous anatomists, but to extend them by the examination of several species which have not hitherto been systematically dissected.

As it happens, the description of the myology of one species may be said (taking into account minor differences) to be that of all. I might therefore, to some extent, have curtailed my essay by adopting the description of MM. Gervais and Alix of the myology of *Eudyptes chrysolophus* as a standard with which to compare that of other species. On the other hand, the difficulty which I have experienced in the identification of several