the Spheniscidæ; in the presence of two sesamoid bones, developed in connection with the tendon of the triceps muscle; in the peculiar form and mode of articulation of the carpal bones; in the union of the first or radial, which, although independent in the embryo, becomes inseparably anchylosed with the second metacarpal bone in the adult; and in the absence of a free pollex.

The skeleton of the leg of the Penguin is modified to a less extent than is that of the wing, but here likewise certain peculiarities are met with. The patella is of larger size than, and differs somewhat in form from, that of the majority of birds; the tarso-metatarsus presents features which serve at once to distinguish that bone from the corresponding skeletal element of any other group of birds, being altogether shorter and broader than in these, with the single exception of the genus *Fregatta*. From *Fregatta*, however, as from all other birds, the Penguin is distinguished by the clearly-defined separation of the metatarsal elements, the shafts of which are differentiated from one another, while in other birds these bones are indistinguishably fused together.

In respect of the form and mode of articulation of the various joints, with the exception of those of the wing, the Penguins do not differ from other birds. In the wing of the Spheniscidæ, in accordance with the alteration of function of that member, the various joints, with the exception of that at the shoulder, present an amount of rigidity met with in no other group of birds. The shoulder joint is as perfect in the Penguins as in other birds, but the more distal articulations are arranged so as almost entirely to prevent those movements of flexion and extension which are essential to an organ of flight. This limitation of movement is partly dependent on the form of the articulations, and partly on the arrangement of the ligaments, which here as elsewhere not only serve to attach the bones to one another, but to limit the amount of movement permissible at the various joints, in accordance with the anatomical arrangement of the muscles, and the physiological requirements of the organism.

The muscular system of the Penguins is characterised by the great development of the cutaneous muscles, which present an arrangement quite peculiar to the group. It has been suggested to me that the large development of the cutaneous muscles in these birds is probably a means whereby water may be readily expelled from the interstices of the plumage so soon as the bird quits the water. Were it otherwise, in the low temperature of the Antarctic region which the majority of these birds inhabit, the plumage would soon be frozen into an icy mass, the high temperature of the bird being of itself insufficient to obviate this, seeing that the ready conduction of heat from the interior of the organism is prevented by the great development of the subcutaneous fatty layer which obtains in every member of the group. The muscular system of the Penguins 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