through a foramen between the middle and outer metatarsal bones to the back of the leg, while the other continues its course along the front of the metatarsus to the base of the digits, where it divides into two branches for the supply of the contiguous sides of the middle and outer toes.

Comparative Remarks.

Having now completed the description of the arterial system of the Penguins, it may be well in a few words to compare it with that of other birds.

The arrangement of the carotid arteries of birds has formed the subject of special essays by Bauer,[1] Meckel,[2] Nitzsch,[3] and Barkow,[4] all of whom have directed attention to a number of variations in respect of the arrangement and distribution of these trunks in different species. Among these various observations, Meckel[5] directs attention to the fact that in the genus *Aptenodytes* (species not mentioned) the two common carotids are of equal size, and that they are symmetrically arranged, and come off from the innominate arteries of opposite sides. Since that observation, I cannot ascertain that anything definite has been put on record with regard to the arterial system of the Penguins, until the late Professor Garrod,[6] in his paper "On the carotid arteries of birds," extended the observations of Meckel, and showed that in *Spheniscus demersus*, *Spheniscus humboldti*, and *Aptenodytes pennantii*, the common carotid arteries are of equal size. These observations I have now been able to confirm, and to show that they apply to every species of Penguin which I have had an opportunity of examining.

If now we look to the arrangement of the other arteries in the Spheniscidæ, we find that every member of the group is farther characterised by the possession of two arterial arrangements, which, taken together, appear to be characteristic of the group as a whole. I refer to the distribution of the arteries of the anterior and posterior extremities. In respect of the latter, as already noticed, the principal artery of the limb is not, as is usually the case in birds, the sciatic, but the crural trunk. Indeed, so far as I could ascertain after careful dissection of every species at my disposal, the sciatic artery is absent, except in *Spheniscus mendiculus*, in which I found a very minute twig derived from the abdominal aorta, accompanying the sciatic nerve. With this single exception, the crural artery entirely replaces the sciatic, and supplies those branches which in the majority of birds are supplied partly by the femoral, but chiefly by the sciatic artery. As before observed, Mr. Forbes informs me that he has discovered a similar arrangement in certain other birds, but in none "that can at all be considered as allied to the Penguins."[7]

[1] Disquis. circa nonnullarum Avium systema arteriosum, Berolini, 1825.
[2] Beitrag zur Geschichte des Gefässsystem der Vögel, Meckel's Archiv, 1826, pp. 19 and 157.
[3] Observationes de Avium arteria carotide commune, Hallæ, 1829.
[4] Anatomisch-physiologische Untersuchungen über das Schlagadersystem der Vögel, Meckel's Archiv, 1829, p. 305.
[5] Anatomie Comparée, vol. ix. p. 363.
[6] Proc. Zool. Soc., 1873, p. 457.
[7] Letter to the author.