

includes, according to ornithologists, the two separate species *Eudyptes chrysocome* and *Eudyptes chrysolophus*, along with others which I have not had an opportunity of examining. Of these *Eudyptes chrysocome* has much the more extensive geographical range, being met with as far north as the Island of Tristan da Cunha, whence it extends southward to Kerguelen Island. *Eudyptes chrysolophus* inhabits Kerguelen Island, whence it extends southward to the islands of the Antarctic.<sup>1</sup> The genus *Aptenodytes* (including *Pygosceles*) has a wide geographical range in the southern hemisphere, extending from the Falkland Islands to the islands of the Antarctic Ocean. The limitation of the geographical range of the group to the southern hemisphere is not a little remarkable, and so far as I am aware no explanation of the fact has hitherto been offered.

“That it does not depend on temperature alone seems probable from the fact that they are met with from the equator southwards to the Antarctic Ocean. At the same time, it is interesting to observe that Penguins reach the equator only on the coasts of Chili and Peru. Along these coasts the cold Peruvian Current from the Antarctic Ocean carries a low temperature northward as far as the Galapagos Islands. This current, as shown by the position on the map of the isothermal or cold water line, extends from the Antarctic Ocean along the west coast of South America, and has a surface temperature at the equator of from 62° to 68°, whereas elsewhere the equatorial region of the Pacific Ocean has a temperature varying from 81° to 88°. Now, it will be observed that the most northern geographical limit of the Penguins corresponds with that of this cold Peruvian Current, and it seems not improbable that while temperature does not directly affect the distribution of these birds, it may do so indirectly, inasmuch as this cold current passing from the pole to the equator will facilitate the passage northward of those cold water organisms which, inhabiting the Antarctic Ocean, constitute the food of the Penguins. The home of the Penguins is undoubtedly in the cold regions of the Antarctic, but their food supply being carried northward by means of the cold Peruvian Current, the area of distribution of the Spheniscidæ has been correspondingly extended, and now reaches from the Antarctic Ocean to the equator.

“The fact that the Challenger officers seldom noticed these birds more than 40 or 50 miles from land<sup>2</sup> or ice, seems to show that having once adopted a residence, they are very far from being addicted to those migratory habits which their peculiar structure and mode of life seem so well adapted to encourage.

“With regard to the distribution in time of the Spheniscidæ, we know very little at present, our knowledge of fossil forms being limited to a humerus, coracoid, and tarsometatarsal bone, which were discovered in the Eocene formation of New Zealand.<sup>3</sup> The metatarsal bone has been described by Professor Huxley,<sup>4</sup> who established the genus

<sup>1</sup> Gray, Handlist of the Genera and Species of Birds, part iii. p. 98, 1871.

<sup>2</sup> Selater, Zool. Chall. Exp., part. viii. p. 132, 1880.

<sup>3</sup> Hector, J., *Trans. New Zealand Inst.*, vol. v. p. 438, 1872.

<sup>4</sup> *Quart. Journ. Geol. Soc.*, vol. xv. p. 670, 1859.