

however, the anterior border of the gastric glandular patch accurately defines the junction of the œsophagus with the stomach.

The walls of the œsophagus are exceptionally thick. This is due partly to the large development of the muscular coat, which consists of two layers, an external and an internal, but chiefly to the exceptional thickness of the mucous membrane, which is extremely dense and very elastic. Owing to the elasticity of its lining membrane, the œsophagus is capable of enormous dilatation. So much is this the case, that in many specimens of Penguin which had been killed after taking a meal, I found the lower portion of the œsophagus distended with food to such an extent that its diameter almost equalled that of the stomach. On the other hand, when the stomach is empty, the œsophagus, by virtue of the elasticity of its mucous lining, contracts so that its lumen is almost obliterated, and the lining membrane is thrown into the well-defined longitudinal rugæ represented in Pl. XIII. fig. 4.

Variations in respect of the *Œsophagus*.

In all the Penguins which I have examined, the structure and relations of the œsophagus are similar to those above described in *Eudyptes chrysocome* from Tristan d'Acunha.¹ The length of the tube, however, varies in different species. The accompanying table shows the length of the œsophagus in the different species examined, in inches.

LENGTH OF ŒSOPHAGUS FROM POSTERIOR BORDER OF LARYNGEAL PADS TO ANTERIOR BORDER OF PROVENTRICULAR GLAND.

<i>Eudyptes chrysocome</i> , from Tristan,	.	.	.	.	.	.	9
<i>Eudyptes chrysocome</i> , from the Falklands,	.	.	.	.	.	.	10½
<i>Eudyptes chrysocome</i> , from Kerguelen,	.	.	.	.	.	.	8½
<i>Eudyptes chrysolophus</i>,	.	.	.	.	.	.	11½
<i>Spheniscus demersus</i>,	.	.	.	.	.	.	12
<i>Spheniscus magellanicus</i>,	.	.	.	.	.	.	14½
Do. do. second specimen,	.	.	.	.	.	.	13½
<i>Spheniscus mendiculus</i>,	.	.	.	.	.	.	9½
<i>Spheniscus minor</i>,	.	.	.	.	.	.	6½
<i>Pygosceles tæniatus</i>,	.	.	.	.	.	.	13½
<i>Aptenodytes longirostris</i> , ²	.	.	.	.	.	.	20
Do. do. second specimen,	.	.	.	.	.	.	18½

¹ According to Reid (Proc. Zool. Soc., 1835, p. 147), the œsophagus of *Aptenodytes patachonica* is provided with a "gular pouch." There was no appearance of any such pouch in any species of Penguin which I examined. I am therefore inclined to consider the "gular pouch" of Reid as nothing else than the upper portion of the œsophagus, which at certain times is found to be packed with undigested food, and thus performs a function similar to that of the "crop" of some birds, at least in so far as it is the receptacle of a quantity of food, which is gradually thereafter transferred to the stomach to undergo digestion.

² In *Aptenodytes patachonica* the œsophagus measures 20 inches in length—Reid, Proc. Zool. Soc., 1835, p. 147.