as it passes backwards to its insertion, lies along the outer side of the corresponding ureter, and nearly in contact with the depressor coccygis muscle. In action it would appear that they draw forwards the posterior extremity of the gut, and probably assist in everting the cloaca during copulation and defæcation.

The sphincter ani consists of a stout bundle of muscular fibres, which surrounds the anus and the posterior extremity of the anal passage.

Bursa fabricii.[1]—The bursa fabricii varies much in size and structure in different specimens of one and the same species. Its size does not appear to be in any way dependent on sex, but rather on functional requirements which influence both sexes alike at various periods. What the nature of these functional requirements really is, I am unable to say. That they are not confined to one sex is abundantly proved by the fact that in some individuals, both male and female, the bursa presents the appearance reproduced in Pl. XVII. fig. 5, where it assumes the form of a relatively small pyriform sac, the blind extremity of which does not extend farther forwards than the middle in length of the globular cloaca. In other specimens, again, the bursa fabricii, when distended, equals, or even exceeds in size the cloaca itself (Pl. XVII. fig. 6).

In those specimens in which the bursa was of small size, whether male or female, I found its lining membrane to be uniformly smooth, thin, and delicate, while in those in which it presented the larger size represented in Pl. XVII. fig. 6 the lining membrane of the bursa appeared to have become hypertrophied, and presented a soft, spongy, and succulent character. In the latter the succulent mucous membrane was thrown into well-defined rugæ, which for the most part were longitudinal in direction, but communicated freely with one another by means of short, more or less transversely placed folds (Pl. XVII. fig. 6). The difference in size and structure of the bursa in different specimens of one and the same species is difficult to account for. According to Mr. Forbes,[2] the bursa fabricii is of larger size in the young bird, and undergoes a process of atrophy as maturity or old age is reached. It is possible that this observation may hold good in the case of the Penguins, as in that of the birds which he examined. At the same time it appears to me to be exceedingly doubtful. The majority of the Penguins at my disposal, as proved by an examination of their skeletons, were certainly adult specimens, and yet the bursa presented the very remarkable variations, both in size and structure, above referred to. In none have I seen it of smaller size than in that delineated on Pl. XVII. fig. 5. It seems, therefore, more likely that the variations in size and structure of the bursa fabricii of the Penguin are associated with certain periodic requirements experienced by both sexes, with the exact nature of which, we are still

[1] Professor Owen in his paper "On the morbid appearances observed in the dissection of *Aptenodytes forsteri*," Proc. Zool. Soc., 1865, p. 439, directs attention to the large size of the "urinary bladder," by which I understand he means the bursa fabricii in that bird, and remarks that it constitutes one of the peculiarities in the anatomy of the Penguins as compared with other birds.

[2] Proc. Zool. Soc., 1877, p. 304.