of the valve is, moreover, prolonged transversely across the wall of the auricle, and comes into relation with the orifice of the left superior cava, which it in part defends. The valvular apparatus at the mouth of the left superior cava, however, is much less effective than that met with in connection with the other two caval orifices. The fossa ovalis is well marked. Beneath the raised margin which surrounds it, a small cul-de-sac extends forwards from the auricular cavity. There is no aperture of communication between the right and left auricles, but doubtless the presence of the cul-de-sac in question is due to the closure of the originally open foramen ovale.

The cavity of the right ventricle (Pl. XI. fig. 2) resembles in form that of other birds. The wall which is formed by the septum ventriculorum is almost smooth and devoid of muscular bands, while the opposite or anterior wall is rough, owing to the presence of numerous decussating muscular bundles. The right auriculo-ventricular valve is arranged as in the majority of birds, but the two muscular flaps which form it are relatively stronger than in most. The left or smaller flap, which in some birds, *e.g.* the Emeu, is so small as to be scarcely distinguishable, is in the Penguins of large size, although of course smaller than the right flap, which in all birds is the larger of the two. The orifice of the pulmonary artery is provided with three semi-lunar valves.

The cavity of the left auricle (Pl. XI. fig. 3) receives the pulmonary veins—one from each lung. They open on the upper wall of the left auricle. These orifices are usually described as being destitute of any valves, but in the Penguins I find a muscular structure, which may, and I believe does, act as an incomplete valve to these orifices. This structure consists of a shelf-like muscular fold, which extends across the upper wall of the auricle from side to side, being attached to the auricular wall in front of the two openings of the pulmonary veins, over which it hangs like a curtain. It appears to me that when the auricle contracts this curtain must be thrown across the orifices of the pulmonary veins, and thus prevent the regurgitation of blood from the auricular cavity into these vessels. The lower wall of the left auricle presents a few muscular bundles, but the upper wall is uniformly smooth.

The wall of the left ventricle (Pl. XI. fig. 3) is nearly twice as thick as that of the right. It is provided with numerous columnæ carneæ, which have a very regular arrangement, and decussating with one another at regular intervals form the boundaries of small diamond-shaped spaces on the ventricular wall. The columnæ carneæ are met with on every portion of the wall of this ventricle. In section this ventricle is circular, while the right is semi-lunar in form. The left auriculo-ventricular valve consists of two cusps, which are disposed much as in the mammalian heart. The chordæ tendineæ attached to them spring in some species from the wall of the heart, in others from rudimental papillary muscles. The latter, when present, are, so far as I have observed, always three in number. Two are placed opposite the intervals between the two cusps composing the valve, to both of which they supply chordæ tendineæ, while the third