RESPIRATORY ORGANS.

The Upper Larynx.

The framework of the upper larynx of every species of Penguin presents the same form, and consists of four separate cartilages—the thyroid, cricoid, and two arytenoids.

The Thyroid Cartilage (Pl. XVIII. figs. 1, 2) is usually extensively ossified, and somewhat resembles in form that of a shoe. Its lower surface is convex from side to side, and is covered by the thyro-hyoid muscles, while the upper or laryngeal surface is deeply concave. The lateral portions of the cartilage are prolonged backwards in the form of two processes or horns, the posterior extremities of which come into relation to, and articulate with, the lateral borders of the intermediate cricoid cartilage. The anterior extremity of the thyroid cartilage is somewhat pointed and convex. The posterior margin, on the other hand, is uniformly concave, with the exception of a small projecting nodule which occupies the middle line of the cartilage and projects horizontally backwards. The concavity itself is adapted to the reception of the anterior tracheal rings, which are incomplete, and limited to the lower aspect of the windpipe. From the middle line of the upper or laryngeal surface of the thyroid cartilage there projects upwards a vertical plate, which equals in length the cartilage itself. This forms an incomplete septum laryngis, which, projecting into the box of the larynx, divides the latter incompletely into two lateral compartments, each of which is bounded externally by the arytenoid cartilage and internally by the septum in question. The arytenoid cartilages are connected by means of ligament to the upper border of the thyroid cartilage, but nowhere directly articulate with it.

The Cricoid Cartilage (Pl. XVIII. fig. 2), or rather bone, for it is usually entirely ossified, completes the laryngeal box posteriorly, being wedged in between the extremities of the cornua of the thyroid cartilage. Its form is somewhat irregular, but two surfaces and two lateral margins may be distinguished. The anterior surface is smooth and covered by the laryngeal mucous membrane, while the posterior surface, deeply hollowed, affords attachment to the sphincter-like muscles of the upper larynx. The lateral margins are deeply concave, the concavity being due to the presence of a concave articular surface adapted to the reception of the posterior extremity of the corresponding thyroid cornu, which thus articulates directly with the cricoid cartilage. Each of the upper and lateral angles of the cricoid cartilage is, moreover, furnished with a deeply concave articular surface, with which the posterior extremity of the corresponding arytenoid cartilage directly articulates.

The Arytenoid Cartilages.—Each of these cartilages (Pl. XVIII. fig. 2) is of an elongated oval form, the anterior extremity of which is narrow and pointed, while the posterior is rounded and convex. Its outer surface is hollowed to accommodate the apertor