

least so. All agree in having a deeply four-notched sternum, in having well developed uncinatæ bones, in the possession of one or two accessory wing-ossicles developed in the termination of the *tensor patagii* tendons, in the spiny tongue (? *Adamastor*), and the palatal armature of spines (? *Adamastor*), and in there never being even indications of lateral lamellæ on the beak.

Æstrelata differs from its allies in having only a single ulnar ossicle, there being two in all the others.

Puffinus and *Adamastor* are more closely connected together than they are with *Majaqueus*, easily distinguishable by its more normal nostrils, less compressed tarsi, and specialised (? *Adamastor*) syrinx. *Bulweria* is a peculiar form, with no very close ally, and must be regarded as a highly specialised form, as shown in its myological formula being reduced to A.X, and its peculiar cuneate tail. It has no close relationship at all to the Stormy-Petrels, as already pointed out by Dr. Coues,¹ and Garrod.²

These views on the classification of the Tubinares may be represented in the annexed diagram (p. 61).

V. THE AFFINITIES OF THE TUBINARES.

The Tubinares as a group may be shortly defined as follows:—

Holorhinal schizognathous birds with a large, broad, depressed, pointed vomer, and truncated mandible; with the anterior toes fully webbed, and the hallux either very small and reduced to one phalanx, or absent; with a tufted oil gland and large supra-orbital glands furrowing the skull; with the external nostrils produced into tubes, usually more or less united together dorsally; with an enormous glandular proventriculus and small gizzard of unusual shape and position, and with the commencing duodenum ascending; with a completely double great pectoral muscle, and a well-developed *pectoralis tertius*; with the femoro-caudal and *semi-tendinosus* muscles always present, and the *ambiens* and accessory femoro-caudal only exceptionally absent.

Some, at least of these characters—the structure of the hallux, the formation of the nostrils³ and the form of the stomach are quite peculiar to the Tubinares, not being found in any other birds, though of universal presence in these. These features alone would at once suffice to distinguish them from any other Avian order, whilst the combination of other characters is as unique. It is therefore a difficult task to assign to this group a satisfactory position in any arrangement of the class Aves, owing to its much isolated position.

¹ S.c., 1866, p. 139.

² Coll. Papers, p. 221.

³ The Caprimulgine genus *Siphonorhis* (Selater, Proc. Zool. Soc., 1861, p. 78) perhaps approaches the Tubinares more nearly in this point than any other bird known to me.