

the Tubinares, and in all these forms it is associated with short colic cæca of peculiar shape (absent altogether in the Cathartidæ, as in some of the Tubinares), more or less completely webbed feet, tufted oil-gland (except in the Cathartidæ), holorhinal nostrils, a tendency of the palatine bones to unite behind the posterior nares, truncated mandible, broad, strong, well-developed sternum, and strongly curved, well-developed clavicles. These birds also agree together in being "Altrices," the young birds being quite helpless after birth, and requiring to be fed for a long time by their parents—and in generally laying eggs of a white, or nearly white, colour.

The group so constituted, of which the Ardeidæ and Falconidæ must also be considered as aberrant members,—the first family being closely related to the Ciconiidæ through *Scopus*, whilst the Falconidæ are probably, though much more remotely, connected with the Steganopods,—corresponds to the Ciconiiformes of Garrod,¹ with the addition, as he had already himself suggested,² of the Tubinares.

But his earlier definition of that group, in so far as it relates to the absence in it of the accessory femoro-caudal muscle (B), will have to be modified, inasmuch as this muscle is, as shown above, generally present in the Tubinares. These too, differ markedly from the other Ciconiiformes in the well-developed *pectoralis tertius* (very small or absent in the others), in the large size of the vomer, and the non-desmognathism of the palate, though as regards this latter character it has already been pointed out that the Albatrosses are nearly desmognathous, whilst the desmognathism of the Cathartidæ is of a different kind to that prevalent in the other forms concerned.

The two existing groups of Petrels are clearly related to each other so much more nearly than to any other group of birds that it is evident that they must have had a common ancestor that possessed the peculiar features characterising the Tubinares as an order. Such a form may therefore be safely assumed to have had—

1. The characteristic nostrils of the group.
2. The equally characteristic stomach and duodenum.
3. Webbed feet, with a small hallux of a single phalanx.
4. A double great pectoral muscle, and large *pectoralis tertius*.
5. A formula AB.XY, a *gluteus primus* and an *ambiens* muscle.
6. Short colic cæca of characteristic shape.
7. A tufted oil gland, and the pterylosis characteristic of the group.
8. A holorhinal schizognathous skull, with large depressed vomer, great supra-orbital glandular depressions, no basipterygoid facets, and a truncated mandible.
9. A short, broad, deeply-keeled sternum, more or less entire behind, with strong clavicles.
10. A peculiar humerus, and tibia with large cnemial crest.

¹ Collected Papers, p. 218.

² *Loc. cit.*, p. 521.