

goids articulated with each other mesially for 4 inches from the base of each plate in the adult skull, but then diverged, and allowed first the vomer, and then the two superior maxillaries to appear between them. In the younger skull, the mesial articulation between the two pterygoids was more complete, for the vomer intervened only at the anterior part.

The posterior nares and the basis cranii had a similar shape and arrangement of bones to what I have elsewhere described in *Mesoplodon sowerbyi*. The occipital surface of the skull also had a similar form, and the jugal process of the ex-occipitals was separated by a cleft from the lateral elevation of the basi-occipital; there was little difference in the configuration of these parts in the young and adult crania. In both an extensively ossified falx was situated in the mesial plane of the cranial cavity.

The general shape of the squamoso-zygomatic part of the temporal resembled that bone in *Mesoplodon sowerbyi*, but the fossa in front of the petro-tympanic bone was not so smooth, and had an irregularly ridged and furrowed surface in both the adult and younger crania. A curved spur-like process descended in the younger skull from the squamous temporal in front of the petro-tympanic and aided in retaining it in place. In the adult skull this process was absent (probably broken off), the tympanic bullæ had been removed and only the left petrous bone was in place. In the younger specimen the mastoid, tympanic, and petrous portions of the temporal were distinctly differentiated: the petrous part was a separate element, but the mastoid and tympanic were fused together. The mastoid articulated behind with both the jugal process of the occipital and the posterior prolongation of the squamosal, by a broad roughened surface, whilst anteriorly it was continued into the tympanic by a constricted neck. I have carefully compared the tympanic and petrous bones of *Mesoplodon layardi* with the corresponding bones of the *Ziphius cavirostris* from Shetland which I described some years ago.¹ In *Mesoplodon* the inferior surface of the tympanic was one inch in breadth at its posterior end, where it was divided into an outer and an inner lobe by a groove extending forwards from its posterior end, the outer of these lobes was more boss-like and smoother than the inner (Pl. II. fig. 7). In *Ziphius* this surface was not bilobed and possessed a ridge extending in the antero-posterior direction (Pl. II. fig. 9). The outer surface of the tympanic was deeper in *Ziphius* than in *Mesoplodon*, and the groove on this surface was more vertical and elongated in the latter than in the former. The inner surface in *Ziphius*, where it turned into the bulla, was more deeply denticulated than in *Mesoplodon*. The tympanic in *Ziphius* was somewhat larger than in *Mesoplodon*, and the same also was the case with the petrous bones. The longest diameter of the petrous bone in *Ziphius cavirostris* was $2\frac{4}{10}$ inches, of the adult *Mesoplodon layardi* $1\frac{8}{10}$, of the younger specimen the same: the greatest breadth in *Ziphius cavirostris* was $1\frac{4}{10}$, in the adult *Mesoplodon layardi* $1\frac{2}{10}$, and in the younger specimen $1\frac{3}{10}$ inch. The

¹ Trans. Roy. Soc. Edinburgh, 1872, vol. xxvi.