

my specimen, and the osteo-dentine and globular matter together formed a large proportion of the adult tooth. In the younger tooth, well-marked vaso-dentine was present, as already described, but I could not say that I recognised any definite osteo-dentine. The material which I have named modified vaso-dentine was also present in considerable quantity, and in its opacity it corresponded with the globular matter of Prof. Lankester. In its structure, however, it appears to differ, for he describes the globular matter as having "no structure excepting an indistinct botryoidal character visible with a low magnifying power." "The amorphous matter at length shades off into the dentine, numerous distinct, minute, 'interglobular spaces' becoming more and more distinct as one recedes from the opaque stratum, and their number diminishes." It is probable that this globular matter may represent in the adult the modified vaso-dentine of the younger tooth, for the numerous vascular canals which the latter contains may become obliterated through an extension of the process of calcification, so as to give it the more solid character present in the fully-formed tooth. In the granulated matrix of the younger tooth, an appearance was not unfrequently seen, which might have been described as interglobular spaces.

From Professor Flower's description of the structure of the teeth of *Berardius arnouxii*,¹ it would appear that in that ziphioid the teeth are very similar to those of the adult *Mesoplodon sowerbyi* described by Prof. Ray Lankester.

The observations which I have now recorded on the non-erupted teeth, both of *Mesoplodon layardi* and *Mesoplodon sowerbyi*, prove, that in the earlier stages their structure does not differ materially from the ordinary type of tooth one meets with, say in the human or carnivorous jaw, the crown being covered by enamel, the fang by cement, whilst the great body of the tooth consists of dentine, in which is a well-marked pulp-cavity, communicating with the exterior by a slit-like aperture at the root of the fang. The exceptional character which these teeth exhibit in the erupted condition is due to the disappearance of the enamel from the crown, to the cessation in the development of the ordinary dentine, to the excessive formation of osteo-dentine, of modified vaso-dentine, and of cement, by means of which the pulp-cavity becomes almost obliterated, and the fang assumes dimensions which, in the case of *Mesoplodon layardi*, lead to the production of a tooth having the very remarkable form and relation to the beak which I have described.²

I shall next describe the other bones of the axial skeleton of the younger *Mesoplodon layardi* (specimen *C*), which consisted of the spinal column, ribs, sternum, and a portion of the hyoid bone.

Spinal column.—The length of the column in the macerated spine was, with the

¹ Trans. Zool. Soc., vol. viii. p. 223.

² I have not thought it necessary to figure the skull of the adult *Mesoplodon layardi*, as the illustrations given by Professor Owen in his Monograph on the British Fossil Cetacea in the Memoirs of the Palæontographical Society, 1878, express so well the characters of the adult skull. As the petrous bone, however, of the adult has not been figured, and as so immature a skull as that described in the text has not previously been examined, I have had them drawn in Plate I.