

acquired greater opacity from the increase and general distribution through it of minute interglobular spaces, with which the line of interglobular spaces already described in the upper part of the tooth became continuous. But there also appeared between the dentine and cement a definite layer, at first thinner than the cement, but increasing in thickness as it extended down the fang, in the lower part of which it equalled in thickness the cement and dentine together (fig. 22). This layer was readily recognisable to the naked eye from its opaque white appearance. It contained numerous branching and anastomosing canals, the chief of which lay perpendicularly to the surface of the tooth. The matrix between the canals was granulated. This layer corresponded, therefore, in structure to the modified vaso-dentine described in the teeth of *Mesoplodon layardi*.

To the naked eye the wall of the pulp-cavity had numerous hemispherical bodies projecting from its free surface. When examined microscopically they were seen to be continuous with the dentine, for the dentine tubes were prolonged into them. The dentine formed, therefore, the wall of the pulp-cavity in the greater part of its extent; but the wall of the constricted part of the cavity in proximity to the end of the fang, and at the sides of the chink-like opening in it, was not dentine, but consisted of the substance which I have named modified vaso-dentine. It was not, however, so regularly constructed as the layer between the dentine and cement, for the canals were few in number in proportion to the matrix, and had no definite arrangement.

I shall now make some observations on the leading differences between the tooth of this young *Mesoplodon sowerbyi*, and that of the adult animal described by Professor Lankester. In the first place, the crown of the tooth of the adult projected (as I have ascertained from a measurement of a cast of the jaw presented by Dr Acland to the Anatomical Museum of the University of Edinburgh) $1\frac{2}{10}$ ths beyond the edge of the alveolus, whilst only the tip of the tooth in the young animal projected out of the socket. The outer surface of the young tooth was almost uniformly smooth, and not rough and knotted as in the adult. The pulp-cavity, instead of being almost equal to the entire length of the tooth, was restricted in the adult to a small space in the crown, the rest of the tooth being solid. In this respect the tooth of *Mesoplodon sowerbyi* approximates to what I have described in the shaft of the tooth of the adult *Mesoplodon layardi*. The early stage of the closing up of the pulp-cavity is to be seen even in the young *Mesoplodon sowerbyi*, in which almost the whole of the cleft at the root of the fang is closed up, and the walls of the adjacent part of the pulp-cavity are closely approximated to each other. The enamel had evidently been worn off the crown of the adult, for Mr Lankester makes no reference to it. The dentine in the adult was confined to a small conical cap at the apex of the crown, and to a very thin layer extending about half-way down the tooth, instead of, as in the younger tooth, forming the larger proportion of its substance. The great bulk of the adult tooth was made up of cement, osteo-dentine, and of a substance which Mr Lankester calls globular matter. The cement was evidently considerably thicker in the adult than in