

skull, which is extremely thin and completely transparent in the region lying over them. This upper wall consists of membrane and membrane bone, but I was unable to ascertain the exact extension of the latter, since I had no macerated specimen to refer to and was obliged to decalcify the one used for sections. Where the bony matter is thinnest it appears as a more or less open network of very fine spicules embedded in the membrane. The margins of the phosphorescent organs are extremely clearly defined, because they bear at their edge a special band of dark pigment (Pl. LXVII.).

The organs rest in a pair of elongate cavities, one on either side of skull. These cavities are separated from one another by a longitudinal median septum, which in their anterior region is composed of a vertical plate of cartilage continuous with a horizontal plate of cartilage which forms the roof of the mouth cavity. The floors of the cavities are nearly flat, but owing to the rising in height of the septum and roof of the skull posteriorly, the cavities there become deeper, and are deepest in the region indicated by the letter *a* (Pl. LXVIII. fig. 1) immediately on either side of the base of the median septum. Probably these regions represent the former position of the orbital cavities, and the septum the interorbital septum, although all trace of eyes has disappeared. The skull-roof lying immediately over these areas forms a pair of convex cornea-like prominences (Pl. LXVIII. fig. 1, *a*). Beyond these anteriorly and laterally it is flattened, and shows concentrically disposed striæ (*Ibid.*, fig. 1, *b*). On either side of the median septum the skull-wall is traversed by a long closed canal (fig. 1, *T*). These canals are seen in section in fig. 2, and contain organs which in spirit are opaque, white, apparently mucous canals, and also transmit a nerve on each side to the nasal capsule, no doubt the nasal branch of the fifth nerve. The canals are continued outwards obliquely from a point coinciding nearly with the commencement of the cranial cavity and brain, and thus mark off a posterior region (*d*) of the phosphorescent organs.

The phosphorescent organs form membranous structures about 0.04 mm. in thickness, which are stretched over the entire floors of the two cavities described. They probably, in the recent state of the animal, lie close to the floors of the cavities. They rise vertically up the sides of the median septum as they extend inwards towards the middle line on either hand, and thus present their free edges to view on either side of the septum when viewed through the skull-roof from above. Their edges are similarly turned up to the surface all along their margins, and lie all round immediately in contact with the transparent skull-roof (Pl. LXVIII. fig. 2, *W.V.*).

The view of the phosphorescent organs is completely obstructed by the bony canals (fig. 1, *T*) and thus on either side of the median septum there appear to be isolated strips of the organ. The posterior areas of the phosphorescent organs (fig. 1, *d*) appear somewhat isolated as they lie immediately above the roof of the cranial region of the skull, and thus very near to the surface. In contrast with them the immediately adjoining regions