

appear as two pairs of suborbital organs, an anterior and a posterior. The anterior patches are about twice as large as the posterior, and their outline is irregularly lobate. With a magnifying-glass a radial structure can be detected in the patches (Pl. LXIX. fig. 11). In sections we see that the whole organ is composed of cylindrical gland-tubes of uniform width, which commence at the anterior margin and extend to the posterior end, which is slightly drawn out. The organ is sunk in the surface, so that its upper side lies at the same level as the surrounding surface (Pl. LXIX. figs. 12, 13). Near the anterior margin it has the greatest depth, and from this region the floor rises gradually towards the posterior margin (Pl. LXIX. fig. 13). It is covered on the outer side by a thin, transparent epithelium, whilst the gland-tubes, which extend from the broad to the narrow end of the wedge-shaped organ, have an inner coating of cells which are about as high as broad (Pl. LXIX. fig. 14, *b*). A narrow lumen is left in the centre of the gland-tube, and this is filled by the slimy secretion, precipitated in granular form by the action of the spirit (Pl. LXIX. fig. 14, *c*). A special membrane can be observed enclosing each gland-tube (Pl. LXIX. fig. 14, *a*). Between the gland-tubes bloodvessels and nerves, extending mainly in a longitudinal direction, parallel to the tubes, are found.

The number of gland-tubes in the thick anterior portion is much greater than in the narrow posterior part, where they lie side by side, forming a single layer (Pl. LXIX. fig. 12). The floor of the organ is formed by a thin, light-reflecting membrane backed by the usual pigment layer, but as in the organs described above from the sides of the body of *Astronesthes*, the lower jaw of *Sternoptyx*, the gills of *Halosaurus*, and the barbels of *Opostomias* and other fishes, no typical phosphorescent gland-cells have been observed.

(2) *Opostomias micripnus*.—In this species a single phosphorescent organ is found on each side of the head just below and a little behind the eye. It appears, when seen from the surface, as a slit (Pl. LXXII. fig. 39, *d*) commencing below the eye and extending backwards and slightly downwards. This slit is 12 mm. long and in the centre 2 mm. wide. In the anterior quarter of it a small white patch—an aperture—is seen in the gray, pigmented, soft membrane which covers the slit. It appears that this membrane is movable, the underlying phosphorescent organ emitting its light through the aperture. The margin of the gray membrane adjoining the pore is soft and movable, covering the underlying organ more or less like a lid. The aperture may be contracted, so as to screen that organ partially or entirely, or on the other hand dilated and opened wide, leaving a large aperture through which it becomes visible. In Pl. LXXII. fig. 39 this aperture is drawn, as it appears in the spirit specimen, in a very much contracted condition.

The phosphorescent organ which lies below this membrane is a very remarkable structure (Pl. LXXII. fig. 40). It consists of a lamella abruptly folded in the middle so