

of the specimen does not allow of the minute structural details being made out, but it appears not improbable that the vertical striation of the superficial layer is the expression of a structure somewhat similar to that described above in *Opostomias micripnus*.

γ. The larger posterior organs.—These organs are similar to the foregoing, but the reticulate glandular layer is absent. The light-reflecting spicule-layer encloses the proximal, immersed, spherical portion of the organ (Pl. LXXI. fig. 28, c) and does not extend beyond the constriction, which is more conspicuous and deeper than in the smaller anterior organ. Here the spicule-layer, which is 0.4 mm. thick in the fundus, terminates in a thin margin. This proximal portion of the organ has the shape and size of a pea, and lies below the posterior end of the superficial portion. The spicule layer is perforated by very numerous, slightly branched, more or less oblique canals, which have a circular transverse section and are on an average only 0.01 mm. wide (Pl. LXXI. fig. 31). These are occupied by nerves and bloodvessels. The contents of the proximal portion, that is to say, the part surrounded by the spicule-layer, is a large, somewhat irregular gland. The gland-tubes, which are comparatively wide, having an average diameter of 0.05 mm., appear to commence in an irregular tangential position close to the spicule-layer, and they converge in the interior towards the narrow neck, where the proximal and distal portions of the organ are joined (Pl. LXXI. figs. 28, d, 31). Between the gland-tubes comparatively thick layers of fibrous tissue are met with, which contain nerves and large bloodvessels. The superficial portion of the organ shows the same vertical striation which has been described above in the smaller anterior organ. In this case also the indifferent state of preservation precludes a precise account of the minute structure being given.

c. Innervation.

(1) *In general.*—As mentioned above, the nerves which are found in these organs enter them in the shape of a stout bundle. They spread out to form a nervous plexus, which either appears as a film on the outer side of the spicule-layer in the posterior organs, or sends its branches along the threads in the reticulate portion of the organ below the spicule-layer in the anterior organ. Fine branches of the nerve penetrate the spicule-layer and enter the distal portion of the organ, where they can be traced for some distance in the fibrous tissue which surrounds the gland-tubes. The superficial portion of the larger posterior organ of *Pachystomias microdon* is supplied by a special nerve (Pl. LXXI. fig. 28).

(2) *The brain of Echiostoma barbatum.*—In this species the suborbital phosphorescent organs are highly developed. I have dissected the brain of this species to ascertain what nerve supplies the suborbital organs. The brain (Pl. LXXII. fig. 42) exhibits for the most part no striking peculiarity. The Nervi Olfactorii (*i*) are dilated