

as Ussow found in different species certainly do not exist between these organs of the various species examined by myself. The differences in Ussow's figures (pl. iii. figs. 11, 12, 13), might be accounted for by his having studied sections made in different directions.

The only form of this organ seen by me is the following :—

A sac is attached to the cuticle, which is about as deep as wide, cylindrical, rounded below, and opening outwards by a circular aperture, which is covered by a continuation of the cuticle as in the case of the simple organs without a pigment coat described above (Pl. LXIX. figs. 2, b, 5, 10; Pl. LXXII. fig. 38).

These sac-shaped organs measure 0.3 to 0.5 mm. in diameter. The sac (Pl. LXIX. fig. 5; Pl. LXXII. fig. 38) is formed of a dense layer of pigment, similar to the pigment found in the skin in other localities, and to the naked eye these organs therefore appear as *dark spots* scattered over the skin.

These pigment-sacs, which appear very striking and prominent in sections, are generally slightly expanded at the base and contracted near the mouth (Pl. LXIX. fig. 5), with their axis sometimes perpendicular to the surface of the skin (Pl. LXIX. fig. 5) as in *Astronesthes*, and sometimes oblique (Pl. LXXII. fig. 38), as in *Echiostoma barbatum*. The thickness of the pigment-layer forming this sac is 0.02 mm. The sac is surrounded by a loose plexus of bloodvessels¹ and nerves, from both of which branches arise and penetrate the pigment-layer. The cornea-like continuation of the cuticle which closes the sac is convex, watch-glass-shaped (see figures).

The internal structure appears to be very similar to that of the simple organs without a pigment coat. The lower, proximal part of the sac is occupied by radially placed pyramidal gland-tubes, closely packed, and, therefore, flattened against each other. Their wide distal ends are rounded, and nerves and bloodvessels radiate upwards between the tubes. The membranes forming the tubes are very fine, and the tubes have an average width of 0.04 mm. at the base and 0.02 mm. at the distal, open end.

These tubes are *filled* with spherical or slightly irregular granular cells, which are very similar to those attached to the wall of the gland-tube. The cells have an average diameter of 0.01 mm.; Ussow² has given a good representation of them. In the centre of the organ, within the terminations of the gland-tubes, there is a space 0.06 mm wide, which is filled with a granular secretion.

The portion of the organ underlying the cuticle is also granular, but it is easy to perceive that this portion of the gland is occupied by cells. In Ussow's³ figure (pl. iii. fig. 13), these cells are represented (*Scopelus rissoi*), but I have never observed them nearly so distinct. The spherical nuclei in the outermost layer, with a diameter of 0.002 mm. (which are not so large as represented in Ussow's figure, *loc. cit.*), become

¹ Compare F. Leydig, Die augenähnlichen Organe der Fische, pl. i. fig. 6.

² M. Ussow, *loc. cit.*

³ M. Ussow, *loc. cit.*