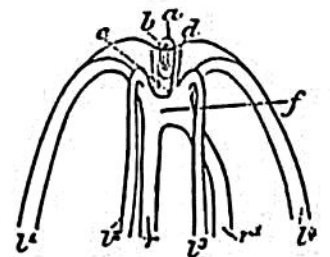


greatly vary when it is more or less distended (*Figs. 3 and 4*), but when it is entirely empty and the interambulacra have subsided, its walls are pressed against each other from the side. The whole surface of the digestive cavity is lined with a very peculiar epithelium (Pl. II. *Fig. 19*), resembling somewhat a vibratile epithelium, the cilia, however, being much stouter and blunter than those of ordinary vibratile cells, and resembling somewhat the baculi of the retina. Between them there are rows of branching pigment cells.

The structure of the mouth still requires further investigation. All my efforts to make out the microscopic structure of its edge have thus far been unavailing. From figures drawn in a natural size (Pl. I. *Figs. 2^a and 4*, and Pl. II. *Fig. 10*), it may be seen that the stout vibratile fringes lining the digestive cavity, and the pigment cells intervening between them, are arranged near the edge of the mouth in vertical rows, giving it a striate appearance (Pl. I. *Fig. 2^a*, and Pl. II. *Fig. 19* magnified). When the mouth gapes, the abrupt termination of these parts gives it a well-defined outline, which may be waving as in Pl. I. *Fig. 2^a*, or double S shaped as in *Fig. 9*, or straight by the apposition of the two sides when the mouth is closed, as in *Fig. 4*. Outside of this well-marked edge and between it and the circular oral tube (*Figs. 4 and 2^a*) is a pale circle, the most movable and most powerfully contractile part of the whole body. *Fig. 19* of Pl. II. represents that band magnified, in connection with the rows of vibratile cilia and pigment cells of the digestive cavity on the right of the figure, and the superficial stellate pigment cells scattered between the epithelial cells of the outer surface, on the left of the figure. The band without pigment cells, to the left of number 19, corresponds to the pale circle surrounding the mouth. It is evident, from the glimpses I could obtain of this part under the microscope, that cells arranged the edge of the mouth, and that its striated appearance is owing to the fibre-like aspect of the angles of these cells, over which a thick epithelium without pigment cells reaches from the outside to about as near the edge itself as the pigment cells extend on the inner surface. It is with this sharp edge that *Idyia* cuts its prey. While swimming in pursuit of it with the mouth gaping, the anterior and posterior interambulacra are so contracted as to appear more or less deeply emarginate, and the sides assume the form of two broad lips (*Figs. 1 and 8*).

The chymiferous cavity (*Fig. 97*) is very short, though wide; indeed, much shorter than in any other type of this order, and the digestive cavity opens into it through a long fissure, which may gape and contract so as to render it very difficult to trace its outlines, unless the whole chymiferous system be fully distended

Fig. 97.



Funnel, or central chymiferous cavity of

IDYIA ROSEOLA Ag.

a capsule of the eye-speck. — *b* eye-speck. — *c* tubercle of the eye-speck. — *f* funnel. — *r* cœliac tube upon the distended digestive cavity. — *r* cœliac tube, supporting the digestive cavity empty. — *l* lateral chymiferous tubes. — *p* anterior chymiferous tubes. — *d* cœliac aperture.