

In the lobes around the branchial aperture in *Doliolum*, in *Salpa*, and probably in other forms also, there are certain modified ectodermal cells, which appear to be nerve-endings. They have filamentous processes which extend to the surface, and these have probably a tactile function.

In *Pyrosoma* there is a visual organ formed of an outgrowth from the nerve ganglion, covered with pigment and having a refracting body imbedded in it; and in *Salpa* there is a similar organ also placed upon the ganglion.

The Neural Gland and Duct (The Hypophysial Gland, the Olfactory Gland).

Underneath the nerve ganglion, and imbedded in the innermost layer of the mantle, lies a gland first noticed by Hancock in 1868, afterwards more fully examined by Ussow

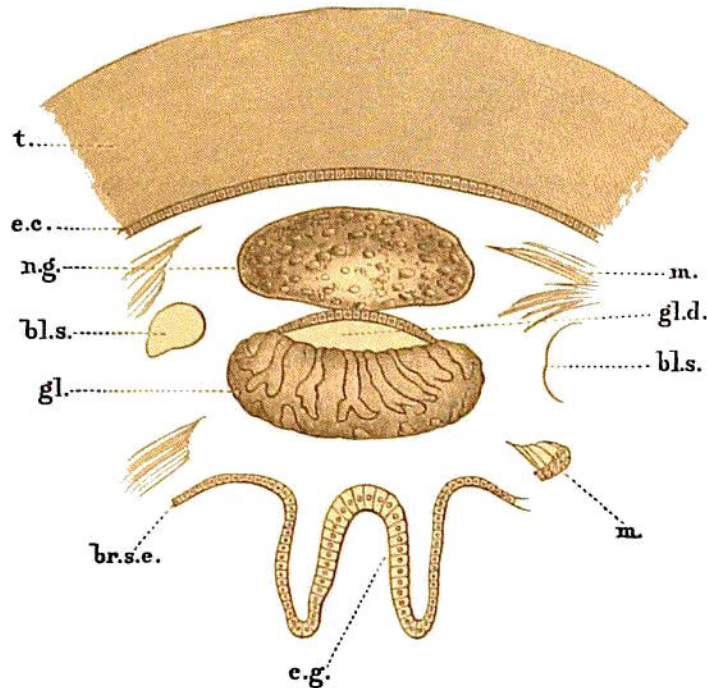


FIG. 10.—Diagrammatic transverse section through the dorsal region of the anterior end of a Simple Ascidian.
t., test; *ec.*, ectoderm; *n.g.*, nerve ganglion; *m.*, muscle bands; *bl.s.*, blood sinus; *gl.*, subneural gland; *gl.d.*, duct of the gland;
br.s.e., epithelium lining the branchial sac; *e.g.*, epibranchial groove.

and Nasonoff (who first demonstrated its glandular nature), and brought prominently into notice lately by Julin.¹ According to this author the neural gland corresponds to the pituitary gland of the vertebrate brain, and retains by means of its duct, to be presently described, that primitive connection with the pharynx which is lost in higher forms.

In structure it is a tubular ramified gland (fig. 10 *gl.*) having a number of cæcal tubes lined by cubical epithelium, and surrounded by connective tissue containing a very large number of blood sinuses. The cæca all converge towards the ventral surface of

¹ Julin, *Arch. de Biologie*, t. ii. p. 59, 1881.