

vitreous body itself, instead of being placed *above* it and in close proximity to the cornea.

I was unable to detect with certainty these nuclei of Semper in the eye of *Serolis bromleyana*, but in another deep-sea form, *Serolis neæra*, having an eye of similar structure they were very conspicuous, and situated above the "vitreous body" between it and the cornea. Each of the vitreous bodies of *Serolis bromleyana* is enclosed in a cup-shaped sheath of tissue (Pl. X. fig. 5) in which no trace whatever of any structure could be made out. This sheath possibly corresponds to the pigment sheath which encloses the vitreous body in other Arthropoda, but in *Serolis bromleyana* it is entirely free from pigment. Below this portion of the eye, and corresponding to each of the vitreous lenses, is a roundish mass of cells which are separated into groups by ramifying trabeculæ of pigmented connective tissue; from the posterior end of this mass of cells a delicate bundle of nerve fibres arises which passes back to the ganglion; it is clothed externally by a layer of pigmentiferous ramified cells continuous with those in front.

The eyes of *Serolis neæra* resemble in external characters the eyes in the shallow-water species of *Serolis*; they are distinctly faceted, and a great deal of pigment is present; they are also proportionately larger than in any of the shallow-water species.

The minute structure, however (fig. 3), agrees in the main with that of *Serolis bromleyana*, but is a little less degenerated; the cornea, as already stated, is distinctly faceted; beneath each facet are two large and conspicuous nuclei ("nuclei of Semper"), these are round or oval, sometimes pear-shaped; they are surrounded by a distinct membrane showing a double contour, and contain a highly refractive nucleolus. The vitreous bodies, like those of *Serolis bromleyana*, are of an irregular oval form and granular opaque consistency; the upper half is encircled by a ring of pigment. At the lower end of each is a roundish mass of small nucleated cells (*g*), probably nerve cells, and these are connected posteriorly with a nerve bundle, partly sheathed with pigment cells, which extends into the mass of nerve cells dividing it up into lobules. Fig. 8 is a single element isolated by teasing in glycerin; the vitreous body (*V*) is very distinctly cup-shaped.

The results of my investigations into the minute structure of the eye in *Serolis* may be briefly summed up as follows:—(1) The shallow-water species invariably possess well-developed eyes which are fundamentally similar to those of other Isopoda, but differ in several particulars; the retinulæ are composed of only four cells; the rhabdom is often a highly complicated structure unlike that of other Crustacea. Another element unrepresented (?) in the eyes of other Crustacea is present, consisting of two large hyaline nucleated cells placed below the rhabdom and between the retinal cells. (2) In the deep-sea species the eyes are either altogether absent (*Serolis antarctica*), or, if present, show signs of structural degeneration; no retinula, at least nothing comparable to the retinula in the eyes of the shallow-water species, is present, but the vitreous body is represented. The vitreous bodies may be enclosed in a sheath of