

substance, especially towards the circumference. The nuclei of the pigment cells become conspicuous in teased preparations of the eye depigmented by means of nitric acid.

At the upper extremity of each retinula cell, and lying upon the inner margin, is a clear chitinous rod, the "rhabdomere" (fig. 18, *r*); the four rhabdomeres are more or less closely united to form the rhabdom, which is shown in figs. 2, 5, *r*; the lower extremity of the rhabdom is produced into a fine thread, reaching nearly as far as the pigmented membrane which bounds the inner surface of the eye. Below this membrane, which is of some thickness and pigmented only upon its upper surface, the retinal cells are continued into stout nervous rods which are slightly swollen at the upper end, where they come into contact with the retinal cells.

The pigment sheath of the retinal cells is continued for a short distance along the nerve rods; the latter exhibit transverse markings, and are a little like striated muscular fibres; it is very likely that these structures in other Crustacea have contributed to the erroneous idea that the Arthropod eye possesses intrinsic muscular fibres serving as a focusing apparatus. It has, however, been clearly shown by several investigators that there are no such muscular fibres present.

So far the eye of *Serolis schythei* only differs from that of other Isopoda in unimportant details. I now proceed to describe another structure which enters into the composition of the eye in all the species of *Serolis* that I have examined, but which has not to my knowledge been figured or described as occurring in the eye of any other Arthropod; this structure consists of two large hyaline bodies situated below the rhabdom, and enclosed by the upper extremities of the four retinal cells (fig. 2, *h*). Occasionally only one seems to be present in a single retinula, and very often the size of the two is unequal, one being considerably larger than the other (fig. 10). Each of these bodies is clear and transparent, the substance of which it is composed having very much the appearance of chitin, and I was at first inclined to think that the whole structure in all probability represented the rhabdom of other Arthropod eyes. Seeing, however, that a rhabdom is present—though rather small and inconspicuous—this comparison cannot hold good, and moreover each of these hyaline bodies shows an irregularly shaped granular mass, deeply stained by carmine and other reagents, which would seem to be a nucleus; it is evidently therefore an independent structure and not a product of the retinal cells; the lower end of the rhabdom is imbedded in these two cells, and the filiform prolongation of the same appears to pass through their substance. The large size and transparency of these hyaline cells seems to indicate that they serve as a dioptric medium. I am not able to say whether these structures represent highly modified retinula cells or intrusive connective tissue cells, inasmuch as I have found them already well-developed in the youngest specimens that I have examined.

In *Serolis paradoxa* the structure of the eye is in most respects similar, but each of the cells which compose the retinula secretes in addition to the rhabdomere a small highly