

refractive lens-like body or "phaosphere." The shape of these bodies as well as their position varies considerably; sometimes they are quite spherical, occasionally they are oval, and more rarely bean-shaped; they are more usually found in front of the nucleus of the retinula cell, sometimes within its swollen anterior extremity; often they lie behind the nucleus, and in a few cases they were observed in close contact to the nucleus and slightly to one side. The phaospheres of all the four cells of a single retinula in some instances occupied an approximately similar position, though more generally this was not so.

I only succeeded in making out these structures in *Serolis paradoxa*; in *Serolis schythei* and *Serolis cornuta* they appear to be absent.

*Serolis cornuta*.—In this species the cells composing the retinula are longer and more slender than in *Serolis schythei* or *Serolis paradoxa*, and the pigment upon their outer surface is comparatively feebly developed, being chiefly massed round the rhabdom; in other respects their structure is similar, and very thin longitudinal sections show that intrinsic pigment is present within the cells themselves in addition to the intrusive pigmentiferous connective tissue corpuscles which clothe them externally. The rhabdom is a remarkably complicated structure, and differs greatly from the simple rhabdom found in the two species just described. It is displayed in figs. 3, 9–15, which have been drawn from preparations teased out in glycerin after having been depigmented by means of nitric acid and in figs. 7, 8, 16, 17, which represent longitudinal sections of this portion of the eye undepigmented. In the latter the rhabdom is seen to consist of a number of coiled threads running in various directions and coated externally with a thick layer of black pigment. The lower extremity of the rhabdom projects into the "hyaline cells" and is surrounded by their substance. In fig. 4 is displayed a teased preparation of the eye of *Serolis cornuta* undepigmented, and it may be seen that the rhabdom ends below in blunt rounded prolongations which project into the "hyaline cells"; the lower extremity of each of these prolongations—which indicate the composition of the rhabdom out of four rhabdomeres—is devoid of pigment, so that the rays of light can pass through. In longitudinal sections of course only one or two of these can be seen, though there are in reality four.

The shape of the rhabdom can best be made out by teased depigmented preparations; fig. 3 represents a single retinula prepared in this way; the rhabdom is here seen in profile and resembles an irregular coil of rope projecting below into the hyaline cells (*h*) and continued into a thin filamentous prolongation which appears to pass through the substance of these cells or between them, and extends nearly as far as the lower end of the retinula cells. Figs. 9–15 represent the rhabdom and the two hyaline cells viewed in such a position as to bring out the symmetrical character of the former. The form of the rhabdom, however, differs widely in detail; some of the varieties are displayed in these figures; in all it appears to consist of a median unpaired portion which is continuous below with four symmetrically arranged portions which project into the substance