Thus, palmitylcarnitine seems to represent a water-soluble, activated fatty acid metabolized by mitochondria. The enzymatic synthesis of this compound remains to be demonstrated. If carnitine, as suggested, functions as a carrier of activated fatty acids across the mitochondrial membrane for utilization in the citric acid cycle, an extramitochondrial localization of the carnitine acylating system should be expected.

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Polyphenolic Derivatives in Rhabdomeres of the Compound Eye

The chemical composition of a homogenized compound eye was reported by Langer[1], but until now nothing was known about the components of rhabdomeres alone, although the presence of photosensitive substances in rhabdomeres has been anticipated by many investigators from a long time ago. During the course of histochemical studies on the compound eye of a house fly, *Musca vicina* Macquart, periodic acid–Schiff-positive substances were found to be distributed in rhabdomeres of a dark-adapted eye. The periodic acid–Schiff reaction of rhabdomeres was always positive both in a dark-adapted eye treated with saliva for 1 h in an incubator and in a light-adapted eye (Fig. 1). In addition to this, Bauer's reaction of rhabdomeres was very weak.

From these results, it was considered that most of the substances in the rhabdomeres are not polysaccharides. According to Lison[2], the substances showing a positive periodic acid–Schiff and a negative Bauer's reaction are regarded as proteins or other elements

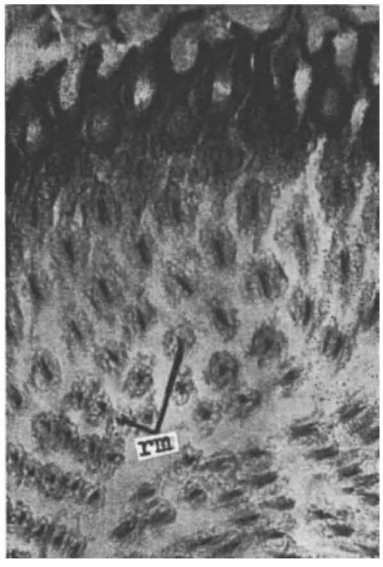

Fig. 1. Cross-section of a light-adapted eye. Periodic acid–Schiff reaction is still evident in the rhabdomeres (*rm*)

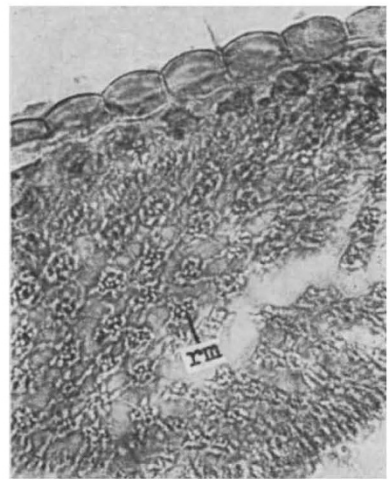

Fig. 2. Chromaffin reaction in a dark-adapted eye (cross-section)

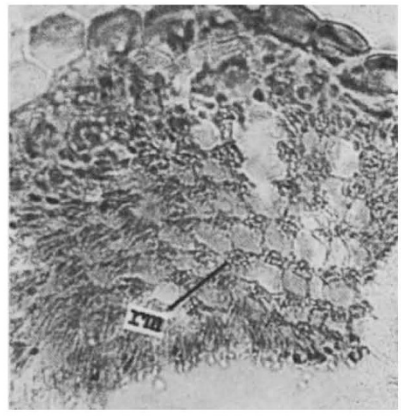

Fig. 3. Chromaffin reaction in a light-adapted eye (cross-section)

different from polysaccharides. In my investigations, the fly's rhabdomeres were proved to be positive for Millon's reaction, potassium iodate, potassium bichromate and ammoniacal silver, but negative for both the detections of α-amino radical with a ninhydrin and indole radical with a syrupy phospholic acid. In general, the positive Millon's reaction is considered to indicate the existence of tryptophan, tyrosine and other phenolic compounds; but from the negative reaction for both indole and α-amino radicals, it may be suggested that the rhabdomeres of *Musca* do not contain α-amino-acids such as tryptophan and tyrosine. Therefore, in the present circumstances, the positive Millon's reaction of the rhabdomeres may be regarded as proof of the presence of phenolic derivatives. These reactions become more indistinct in a light-adapted eye than in a dark-adapted eye (Figs. 2 and 3).

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