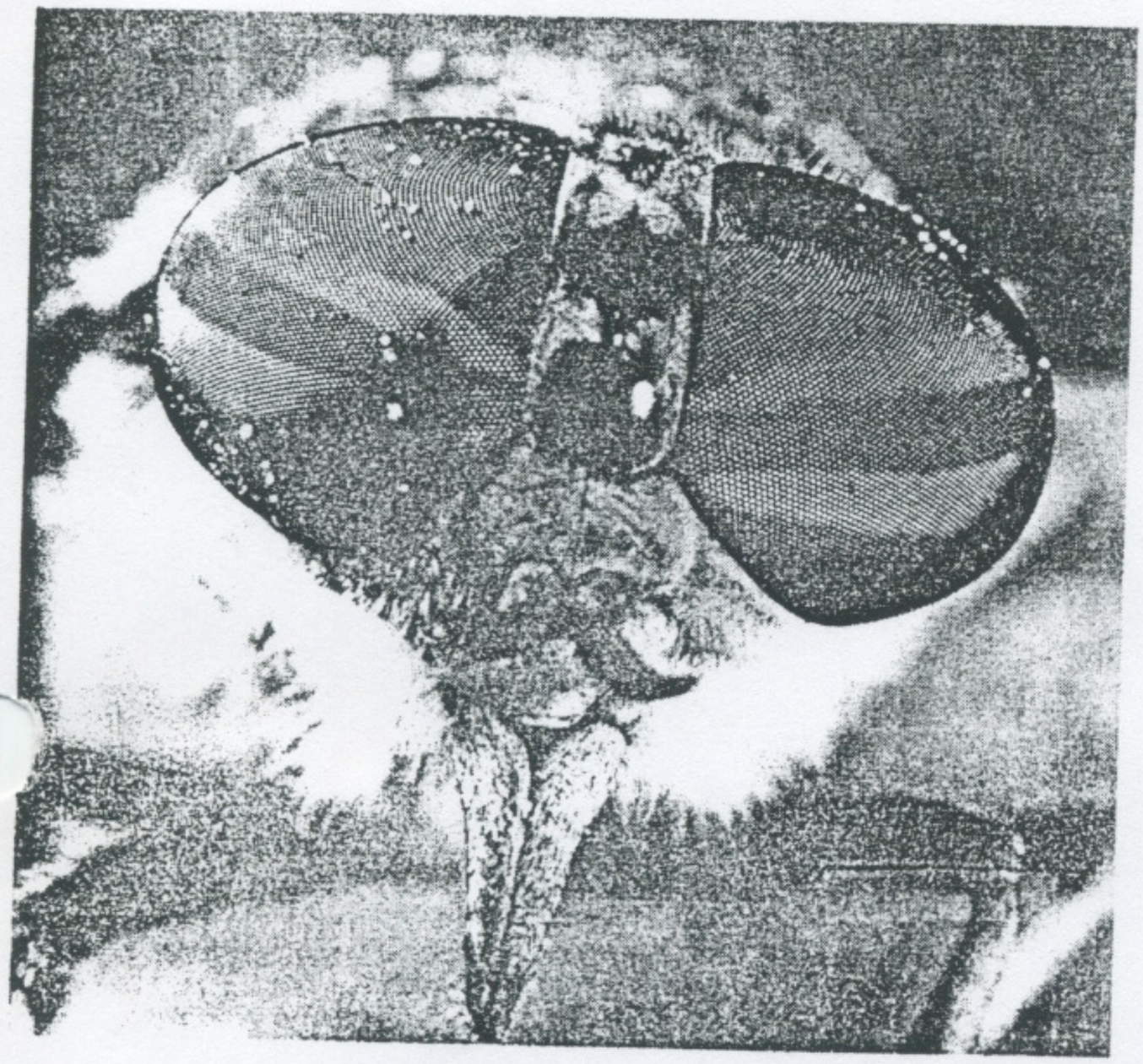
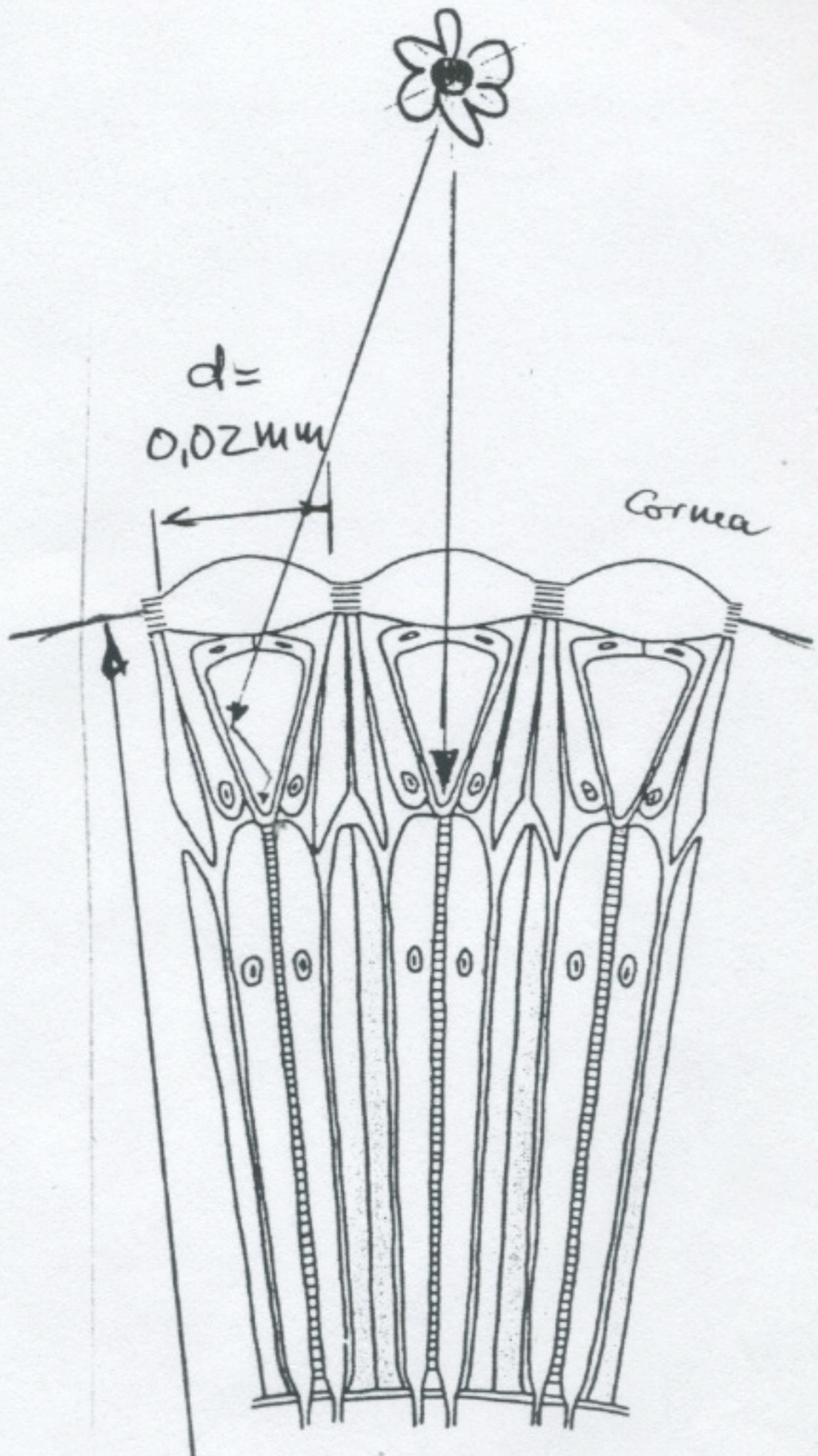
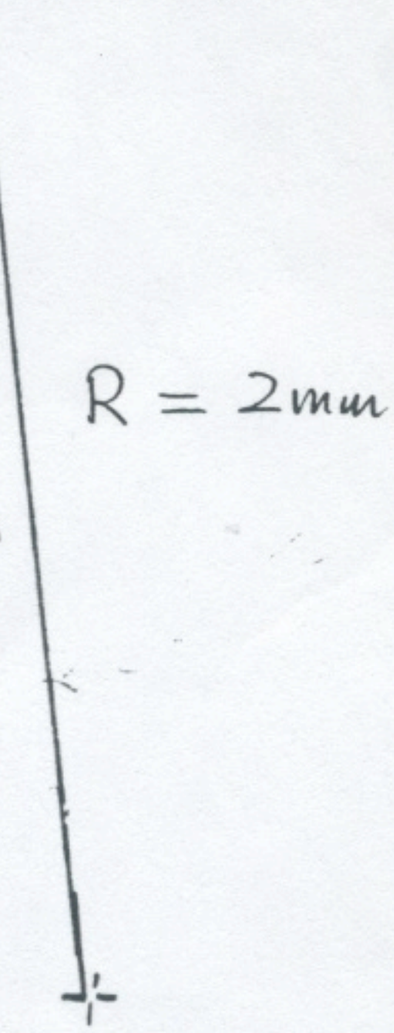
How Animals Make Use Of Physics





Schematic drawing of the ommatidia of the compound eye.



acceptance angle

$$\Delta\varphi = \frac{20\mu m}{2mm} = \frac{0{,}02\,mm}{2mm} = 10^{-2}\ \text{radians}$$

diffraction angle:

$$\Delta\varphi = \lambda/d = \frac{5\cdot10^{-7}m}{20\,\mu m} = 0{,}025$$ diffraction limited.

use $\lambda = 3\cdot10^{-7}$; $\Delta\varphi \Rightarrow 0{,}015$

September 27, 1997