

It thus appears that each of the constituent eyes, which compose this vast aggregate, consists of a simple tube, furnished with all the elements requisite for distinct vision, and capable of receiving impressions from objects situated in the direction of the axis of the tube. The rays traversing adjacent corneules are prevented from mixing themselves with those which are proper to each tube by the interposition of the black pigment, which completely surrounds the transparent cylinders, and intercepts all lateral or scattered light. Thus has nature supplied the want of mobility in the eyes of insects, by the vast multiplication of their number, and by providing, as it were, a separate eye for each separate point which was to be viewed; and thus has she realized the hypothetical arrangement, which suggested itself in the outset of our inquiries, while examining all the possible modes of effecting this object.

This mode of vision is probably assisted by the converging powers of each corneule, although in parts which are so minute it is hardly possible to form an accurate estimate of these powers by direct experiment. In corroboration of this view I am fortunately enabled to cite a valuable observation of the late Dr. Wollaston, relative to the eye of the *Astacus fluviatilis*, or cray-fish, where the length of each component tube is short, compared with that of the *Libellula*. On measuring accurately the focal distance of one of the corneules, Dr. Wollaston ascertained that it corresponds with

filaments (γ) of the optic nerve, in their progress inwards, as passing through a second membrane (κ , Fig. 428,) which he denominates the *common choroid*, and afterwards uniting to form an expanded layer, or more *general retina* (π ,) whence proceed a small number of short but thick nervous columns (π ,) still converging towards the large central ganglion (σ ,) in which they terminate. The use he ascribes to this second choroid is to intercept the light, which, in so diminutive an organ, might otherwise penetrate to the general retina, and produce confusion, or injurious irritation. The colour of the pigment is not always black, but often has a bluish tint: in the common fly, it is of a bright scarlet hue, resembling blood. In nocturnal insects the transverse layer of pigment between the corneule and the vitreous humour is absent.