

and 8 represent the whole of the brain tissue, figs. 5-7 and 9 the fibrous core, as it is enclosed by the nerve-cells, the limit of this cellular investment being given in outline in the latter figures. It must, however, from the first be remarked, that this outline should be completed by the plexus, and by the median medullary nerve. They are not indicated in these figures, although both of them are found along the whole length of the lateral nerve-stems, and reach forward as far as the region of the dorsal brain commissure.

It is seen at a glance that the fibrous core repeats the external folds and prominences of the brain-masses, that the lateral nerve-stem is continued into the lower lobe, and that the upper lobe is distinguished by a prominent fold of its surface, a gyrus (fig. 1, *SL*), into which a separate knob of the fibrous core is seen to pass, and by two other fibrous projections—the one stretching towards the blunt end of the posterior lobe, the other running forwards and accompanying the ciliated canal, which is also marked in outline in fig. 6, and (in red) in fig. 5. The canal *cc*, in figs. 2, 3, 4, 8, is the exterior portion of this duct. The different thickness of dorsal and ventral brain commissure may be gathered from figs. 1, 3, 8, 9; from the latter two, the fact that the nerve-fibres are very strongly preponderant in these commissures over the cells. Close behind the ventral commissure the nerve for the œsophageal wall, *vg*, the so-called vagus nerve, is seen to leave the common fibrous core of the brain, whereas the nerves for the proboscis (*pn*) spring from the inner surface of the ring, where the fibrous core turns up from the ventral to the dorsal commissure (figs. 5, 9). The vagus nerve is soon after its origin connected by transverse fibres with its opposite neighbour; this vagus commissure is sometimes repeated; it will be again referred to in the general considerations on the nervous system. The cephalic nerves that leave the brain and innervate the head are only very imperfectly rendered in these figures; their number is far greater than might be concluded from figs. 5, 6, *an*.

The aspect of several portions of the brain of *Eupolia*, in transverse section, is represented in Pl. VI.

It will there be noticed that fig. 4 represents an anterior section through the inferior brain commissure and the point of innervation of the proboscis, fig. 5 one just behind this, cutting the dorsal commissure and the vagus root at the same time. The exact situation of these sections will be best understood by comparing them with Pl. V. fig. 9, where the respective positions of the commissural ring, the proboscidian nerve, and the vagus are clearly indicated. Fig. 7 is a transverse section lying further backwards, almost in the level where the dotted line, *SL*, in Pl. V. fig. 4 terminates, whereas the section fig. 8 lies again somewhat behind this, at a point where the "gyrus" of the superior brain-lobe actually divides the central fibrous nerve-substance into an upper and a lower portion. These sections, at the same time, show the difference in size between the brain-cells and the glandular elements partaking in the constitution of the brain, along the superficial part of what I have called the posterior brain-lobe (side-organ, *auct.*).