

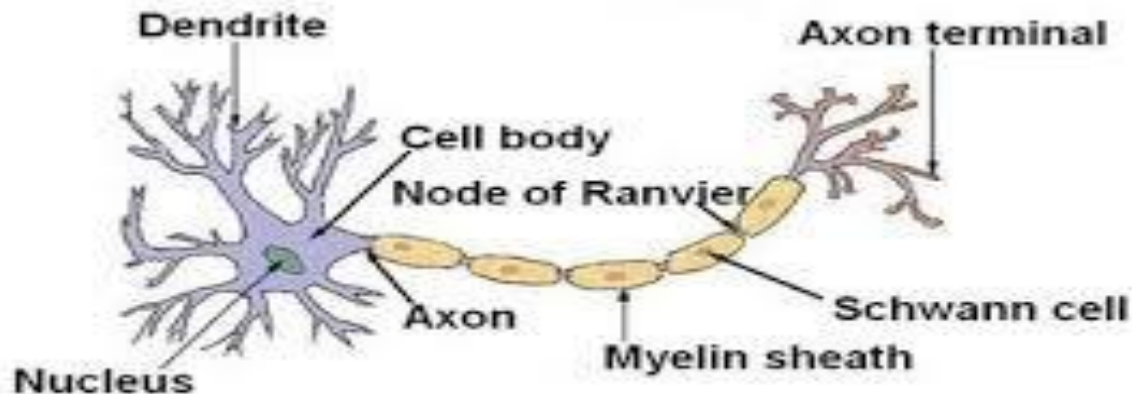
Importance of insect nervous system

IMPORTANCE OF INSECT NERVOUS SYSTEM

STRUCTURES OF AXONS

- **Axons** are extended regions of the neuron cell membrane. It starts from a portion of the cell body, known as the **axon hillock**. From there, the axon extends towards the target cell to what is known as the **terminal**. Along the cell membrane of the axon will be ion channels and ATP-driven pumps that will regulate ion concentrations within the axon.

Structure of a Typical Neuron

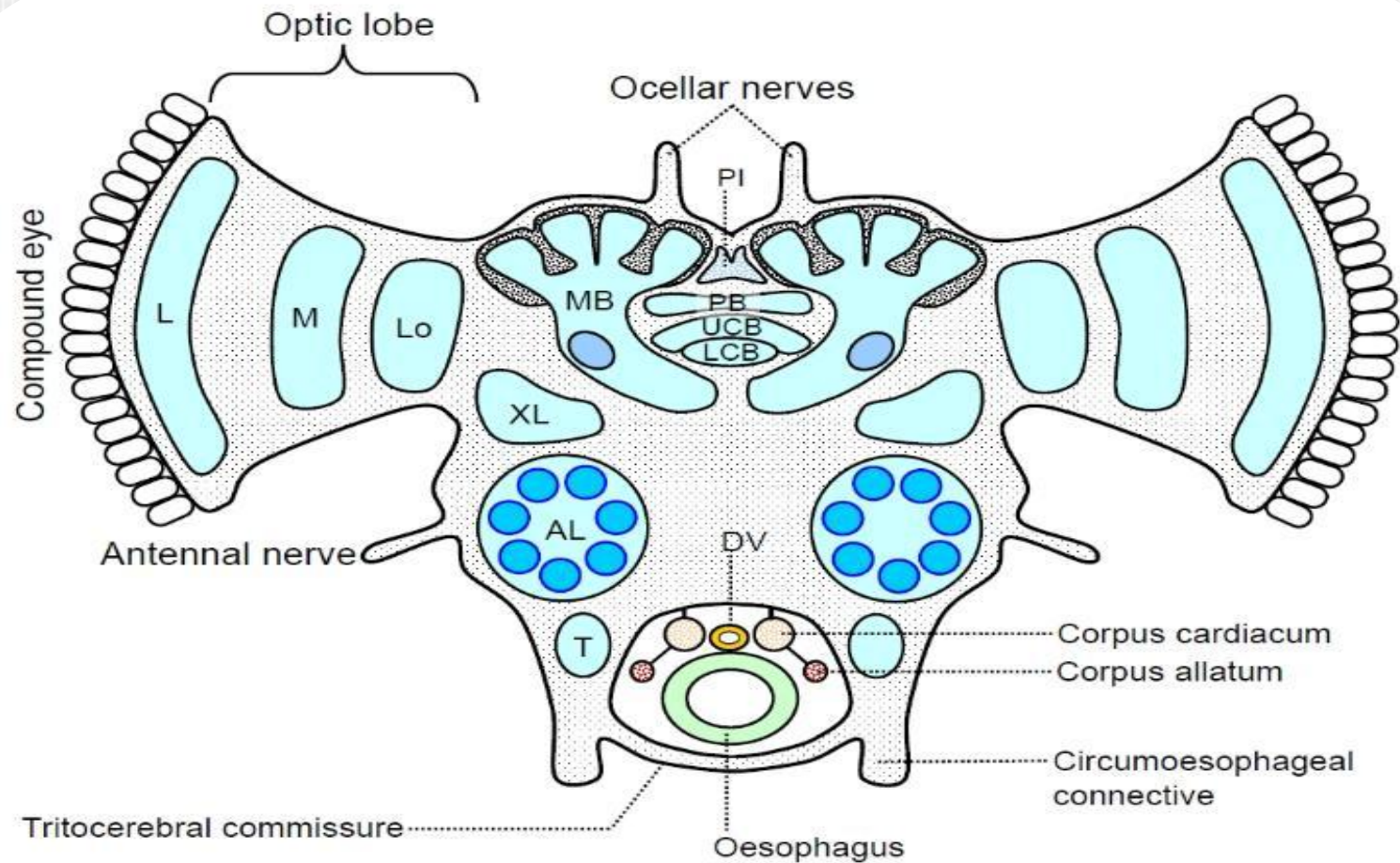


TERMIT E

- **Termite** (order Isoptera), any of a group of cellulose-eating insects, the social system of which shows remarkable parallels with those of ants and bees, although it has evolved independently. Even though termites are not closely related to ants, they are sometimes referred to as "white ants" because of their



PROTOCEREBRUM



The insect supraesophageal ganglion

PROTOCEREBRUM

- The **optic lobes** of the fly (an insect with particularly good vision) contains about 76% of the brain's neurons. The optic lobe connects directly to the sensory cells (retinula cells) in the retina of the compound eye. It contains three distinct regions (neuropils): the lamina, medulla and lobula, where processing of visual signals begins. The protocerebrum also receives inputs via the ocelli, when present, via the ocellar nerves.

DEUTOCEREBRUM

- This consists of two nerve centres - the main **antennal lobe (AL)** and the smaller **antennal mechanosensory and motor centre (AMMC)** or dorsal lobe. The AL receives inputs from the third (terminal) antennal segment (the flagellum, which is made-up of sub-segments called flagellomeres) via the antennal nerves. It contains from less than 10 to more than 200 sub-centres called **glomeruli** (singular glomerulus).