

senses, (such as the *Aplysia*, of which the nervous system is exhibited in Fig. 446,) there is generally a special cephalic ganglion (c,) which may be supposed to serve the office of brain.* In others, again, as in the *Patella*, (Fig. 447,) the cephalic ganglion is scarcely discernible, and its place is supplied by two lateral ganglia (L. L;) and there is besides a transverse ganglion (r,) below the œsophagus. The cephalic ganglion, on the other hand, attains a considerable size in the Cephalopoda (c, Fig. 448,) where it has extensive connexions with all the parts of the head: the optic ganglia (o, o,) in particular, are of very great size, each of them, singly, being larger than the brain itself.†

§ 2. *Nervous System of Vertebrated Animals.*

THE characteristic type of the nervous system of vertebrated animals is that of an elongated cylinder of nervous matter, (m, z, Fig. 449,) extending down the back, and lodged in the canal formed by the grooves and arches of the vertebræ. It has received the name of spinal marrow, or more properly, spinal cord; and, (as is seen in the transverse section, Fig. 450,) is composed of six parallel columns, two posterior, two middle, and two anterior, closely joined together, but leaving frequently a central canal, which is filled with fluid. On each side of the spinal cord, and between all the adjacent vertebræ, there proceed two sets of nervous filaments, those which are continuous with the posterior columns (p,) being appropriated to the function of sensation; and those arising from the anterior columns (a,) being sub-

* This figure also shows a ganglion (A,) which is placed higher, and communicates by lateral filaments with the cephalic ganglion (c;) two lateral ganglia (L, L,) of great size; and a large abdominal ganglion (G.)

† Some peculiarities in the structure of the cephalic ganglion of the *Sepa* have been supposed to indicate an approach to the vertebrated structure; for this ganglion, together with the labyrinth of the ear, is enclosed in a cartilaginous ring, perforated at the centre to allow of the passage of the œsophagus, and imagined to be analogous to a cranium.