

## THE RIDDLE OF THE UNIVERSE

girt with a nerve-ring, from which proceed five branches. The bi-symmetrical *platodes* and the *vermalia* have a vertical brain, or acroganglion, composed of two dorsal ganglia, lying above the mouth; from these "upper ganglia" two branch nerves proceed to the skin and the muscles. In some of the *vermalia* and in the *mollusca* a pair of ventral "lower ganglia" are added, which are connected with the former by a ring round the gullet. This ring is found also in the *articulata*; but in these it is continued on the belly side of the long body as a ventral medulla, a double fibre like a rope-ladder, which expands into a double ganglion in each member. The vertebrates have an entirely different formation of the psychic organ; they have always a spinal medulla developed at the back of the body; and from an expansion of its fore part there arises subsequently the characteristic vesicular brain.\*

Although the psychic organs of the higher species of animals differ very materially in position, form, and composition, nevertheless comparative anatomy is in a position to prove a common origin for most of them—namely, from the vertical brain of the *platodes* and *vermalia*; they have all, moreover, had their origin in the outermost layer of the embryo, the *ectoderm*, or outer skin-layer. Hence we find the same typical structure in all varieties of the central nervous organ—a combination of ganglionic cells, or "psychic cells" (the real active elementary organs of the soul), and of nerve-fibres, which effect the connection and transmission of the action.

The first fact we meet in the comparative psychology of the vertebrates, and which should be the em-

\* Cf. *Natural History of Creation*.