

spine family — that it was probably a flat-headed animal, and that the discovery of a head or of a jaw might prove that the genus *Dendrodus* did not differ from it. All these conjectures were completely confirmed by Mr. Miller, after a careful examination of the specimens of Mr. Dick.

Before proceeding to describe the structure of the gigantic *Asterolepis*, Mr. Miller devotes a long and elaborate chapter to the subject of the cerebral development of the earlier vertebrata, in order to ascertain in what manner their true brains were lodged, and to discover the modification which the cranium, as their protecting box, received in subsequent periods. This inquiry, which he has conducted with great skill and ability, is not only highly interesting in itself, but will be found to have a direct bearing on the great question which it is his object to discuss and decide.

The facts and reasonings contained in this chapter will, we doubt not, shake to its very base the bold theory of Professor Oken, which has been so generally received abroad, and which is beginning to find supporters even among the solid thinkers of our own country. In the *Isis* of 1818, Professor Lorenz Oken has given the following account of the hypothesis to which we allude. "In August, 1806," says he, "I made a journey over the Hartz. I slid down through the wood on the south side, and straight before me, at my very feet, lay a most beautiful blanched skull of a hind. I picked it up, turned it round, regarded it intensely; — the thing was done. 'It is a vertebral column,' struck me like a flood of lightning, 'to the marrow and bone;' and since that time the skull has been regarded as a vertebral column."

This remarkable hypothesis was at first received with enthusiasm by the naturalists of Germany, and, among others, by Agassiz, who, from grounds not of a geological kind, has more recently rejected it. It has been adopted by our distinguished countryman, Professor Owen, and forms the central idea in his lately published and ingenious work "On the Nature of Limbs." The conclusion at which he arrives, that the fore-limbs of the vertebrata are the ribs of the occipital bone or vertebra set free, and (in all the vertebrata higher in the scale than the ordinary fishes) carried down along the vertebral column by a sort of natural dislocation, is a deduction from the idea that startled Professor Oken in the forest of the Hartz. Whatever support this hypothesis might have expected from Geology, has been struck from beneath it by this remarkable chapter of Mr. Miller's work; and though anatomists may for a while maintain it under the