

direct relation to the development of the organs of the senses and of the brain; while the motions are dependent upon the development of the muscular system.

Now, accurately to determine the standing of the Turtles in their class, as far as their psychological development is concerned, a glance at the position of the whole class, in its branch, may furnish some valuable hints. Though the orders have been represented¹ as the natural groups which, being founded upon the complication of the structure of animals, above all determine their relative rank, it is equally true, that the classes, when compared with one another, stand lower or higher, in proportion as the systems of organs which are developed in them have a higher importance, or are built upon a more perfected pattern. In the branch of Vertebrata, there can be no doubt that the class of Fishes, as a whole, occupy the lowest position, that Amphibians rank next to them, that Reptiles come next, that Birds stand above these, and that Mammalia are the highest. Their whole structure shows this plainly. But, to consider only the points which have a bearing upon the question under consideration, it is obvious, that the Fishes, in which the whole bulk of the body is one undivided mass, the vertebral column continuous in one horizontal line with the base of the skull, the muscular system uniformly extended over the whole trunk, so as to allow only lateral motions, and the limbs reduced to branching digitations without concentrated activity; in which the brain is only a slight enlargement of the spinal marrow, and some of the organs of senses are either wanting or very imperfect, while the others are rather blunt and obtuse;—it is obvious, I say, that this class occupies, not only structurally, but also with reference to its psychological endowment, a much lower position than the classes of Amphibians and of true Reptiles, in which the different regions of the body are more distinct, the motions more localized, the organs of the senses more perfect, and the brain larger.

In these two classes, the preponderance of the head is already fully indicated by its position, being somewhat raised above the bulk of the body and forming with it a more or less marked angle, whilst in most of them the limbs are detached as locomotive appendages, distinct from the trunk, though not yet so free as to move with perfect independence. In Birds and Mammalia, the progress is still more distinct. The different regions of the body are not only better marked, they are also more diversified in their structure; the body is no longer so prone upon the medium in which the animal lives; the head has acquired a special movability in connection with the highly organized organs of the senses, the larger brain and the commanding position it has assumed; the motions also are more diversified, not only in themselves, but the anterior and posterior pair of

¹ See Part I. Chap. 2, Sect. 3, p. 150.