

is compact, like that of a Mammal, and generally very broad; but the brain-box and the brain are slender and small, while in all Mammalia and in all Birds, in which latter the skull is often very slender, the brain is broad, short, and high. The large development of the muscles, and especially of the bony framework of the head, and not that of the brain, accounts for the broad form of the skull of the Testudinata, the locomotive apparatus of the powerful jaws being chiefly placed on the sides of the skull. As we have already given a brief sketch of the brain of Turtles in general, when treating on their nervous system,<sup>1</sup> we have now only to compare the brains of different families with each other.

In spite of the constancy in the proportions of the brain, in the whole order, some differences may be noticed when comparing singly the parts of the brain of different families with one another. In the first place, it may be remarked, that the two sub-orders described above as Chelonii and Amydæ seem as well justified by the peculiarities of their brain as by the other characters they exhibit. In the sub-order of Chelonii proper, the large hemispheres are more cylindrical, nearly as high as broad, and, without broadening and forming an outgrowing angle behind, they taper into the posterior part of the brain, the corpora quadrigemina; while, on the contrary, in all the Amydæ, the hemispheres are much more depressed, generally marked with some folds, and always widen backwards, so as to form there an abrupt angle with the rest of the brain. This is particularly the case in Trionychidæ, much less so in Chelydroidæ, more again in Cinosternoidæ, and still more in Emydoidæ and in the land Turtles. In this respect the latter, the Testudinina, stand next to the Trionychidæ, which, as far as this point is concerned, seem to rank first. The large hemispheres are nearly smooth in Trionyx; in the Emydoids, and still more in Testudo, we see fine folds run along them. The corpora quadrigemina are largest in proportion to the hemispheres, and more longitudinal in Chelonii proper, smaller and more rounded in Amydæ, and often nearly entirely received into the posterior excavation of the hemispheres, as in Trionyx. The cerebellum is remarkably high in sea Turtles; it is flatter and thinner, more like a bridge, over the fourth ventricle, in the Amydæ. It is remarkably broad in Trionyx and Emys, narrower in Cinosternoidæ and in Chelydroidæ. In sea Turtles, the fourth ventricle is narrow; broader in the Amydæ, and very wide in land Turtles. In Trionychidæ, Chelydroidæ, Cinosternoidæ, and Emydoidæ, the whole ventricle has a constant typical shape; that is to say, it is much more slender when compared with that of the land Turtles, and broader in front; then follows a contraction, when it widens again, and runs out into a long.

<sup>1</sup> Comp.昌平. 1, Sect. 8, p. 274.