

SECTION XV.

THE PSYCHOLOGICAL DEVELOPMENT OF TURTLES COMPARED WITH THAT OF THE OTHER ORDERS OF REPTILES.

It is a question of the greatest interest, and one which must arise in the mind of every reader who has entered into the spirit of the First Part of this work, whether the psychological development of animals rises in the same degree as the development of the complication of their structure generally. If this be the case, it follows directly that the rank of the orders expresses at the same time the range of their psychological development. And we think that this is really the case. Now since we have shown that, owing to the complication of their structure, the Turtles are really the highest order among Reptiles, we must expect to find in them also the highest psychological development of the whole class, higher indeed than that of Lizards and Snakes.

But, to measure the psychological development of animals is one of the most difficult tasks in natural science, since it can only be done by a comparison of those functions through which the mental energies are manifested, and the gradation and intensity of which are not so easily ascertained as those of other organs. These functions are, the sensations and the motions.

With reference to the sensations, it cannot be doubted that they stand in

distinct in the young animal when hatching, more so indeed than in *Chr. picta*, in which, as stated above, I have sometimes seen such a mark when young; and while it now increases in *Chr. Bellii*, it disappears entirely, in the two or three following years, in *Chr. picta*. Then again, in relation to the form, we find that the specific character of the carapace, by which *Chr. picta* and *Chr. Bellii* are so easily distinguished when adult, (the large diameter of the hind part of the shield in comparison to its front part, as we meet it in *Chr. Bellii*, while in *Chr. picta* both these diameters are nearly equal,) only appears about the seventh year. Thus, we see that in this development there is not a definite and regular series in the appearance of specific, generic, family, and ordinal characters; a specific character may appear, while the family

character is not yet marked. The young *Chrysemys Bellii*, when hatching, has really in its forms, which constitute family characters, not much more relation to the family of *Emydoidae* than a *Trionyx*, when hatching, while it already exhibits its specific coloring in contradistinction to that nearly allied species, *Chr. picta*. The idea that an animal, in its development from the egg, exhibits first, class, then order, then family, then generic, then specific characters, may be true in some cases, but it is certain that in most species this is not the case. On the contrary. I do not hesitate to say that there are many animals which exhibit in their youth the characters of a different family from that to which they really belong when adult. It is evident that if this be the case, the supposed law, above alluded to, is positively denied in nature.