

ages, and the simplicity of their forms. As a roundish form is an attribute of the young, which we may trace throughout the animal kingdom, so also has simplicity of ornamentation, particularly of color, been considered as characteristic of the younger age. Most Birds furnish examples of this law, in their monotonous gray plumage at the time of hatching, when contrasted with the beauty, gayety, and variety of colors in the adult. But in Reptiles this law is not so obvious, and there are even very striking exceptions, if the opposite is not actually to be considered as the rule. A Boa constrictor, a striped Snake, a Rattlesnake, when hatching, show the same purity of colors as the adult, or even a greater brilliancy. The same seems to be the case with Turtles, if we compare, for instance, the beautiful network of yellow lines in *Graptemys Lesueurii* and *geographica*, when hatching, with the pale colors of the adult. Still, the law mentioned above is maintained, at least thus far, that few young Turtles have really purer colors than the adults. Yet there are some, which in middle life are more brilliant than either in their earlier years or in old age. This is, for instance, the case with *Ptychemys concinna*, (*E. floridana*), and *rugosa*, (*E. rubriventris*), and with *Emys Meleagris*, (*Cistudo Blandingii*.) From all those instances which I have investigated more thoroughly, it may be inferred that the fading of the colors in adult specimens is either owing to the thickness of the grayish epidermis, which thus obscures the Malpighian layer, in which the color resides, or to external mechanical influences which injure the smoothness of the epidermis.

In order to illustrate this subject more fully, I add in a note more minute details relating to the development of *Chrysemys picta*, not only as far as its form is concerned, but also respecting its colors. A large series of specimens of all ages, from the youngest, just hatched, to the adult, including very old ones, collected in the same season of the year and at the same time, enables me to present this sketch.¹ I have selected this species to illustrate the changes which

¹ When comparing young specimens of our most common Turtles with adult ones, our *Emys picta* for instance, when just hatched, there are three points which strike us at first sight. A large, full head, a circular, flat carapace, and a long tail, vertically compressed. The head, at first almost a regular ball with three prominences, the two large eyes and the nose, becomes in more advanced age more and more pyramidal; it has in the adult four distinct sides, a very flat upper surface, two lateral surfaces, which are slightly bent, and a flat under surface. But it is remarkable, that in *Emys concentrica*, and also, though in a less degree, in the type of *Emys floridana*,

that youthful form of the head continues throughout life. This is more remarkable still, if we remember that just these species are the most aquatic among Emydoidæ, and further that our young *Emys picta* is itself much more aquatic in its habits, during the first years of its life, than it is in later life. In relation to the changes of the forms of the carapace, I have presented these in the shape of a table, in which the differences arising during the growth, in the relative proportions of the different diameters of the body, may be seen at a glance. See p. 292.

Thus we may say that this *Emys*, for the first four or six years of its life, has the shape of the