

tunities of watching it for ten successive years. The other species, of which I possess less extensive series, are described in the following, third, Chapter.

Turtle, when hatching, are angular, when adult, rounded; the median ones are twice as broad as high in the young; they are as broad as high, or even higher than broad, in the adult. Granulated in the young, they are smooth in the adult. The granulated plate of the first year continues in some land Turtles, and also in *Cistudo virginica*, sometimes throughout life, as the centre of the plate. In *Chrysemys*, and in most Emydoidæ, the plates become entirely smooth after the second year. We meet similar discrepancies in reference to the plates of the plastron. While in the young they have all the same longitudinal diameter, they are of very different length in the adult, the three posterior pairs, particularly the second pair of the connecting plates, becoming much higher. All these changes in the form of the plates are, of course, connected with the changes of the general form of the carapace, as described above. We find, for the first time, the form of adult plates in specimens about six years old. But I must mention here a remarkable exception, which I once met with in this species, namely, a fine specimen of more than seven years exhibiting still all the forms of the plates of the young when hatching.

We observe similar changes with reference to colors. In *Chrysemys picta* just hatched, the back is of a dark gray brown color with a yellow middle line. The marginal plates are red above, each with three semicircular bands, the lowest one the broadest; they are red below, with a black circle. The plastron is red, in some specimens with a black, bottle-like mark in the middle, occupying the inner margin of all the plates of the plastron. The head is brown, with yellow stripes; a yellow spot behind each eye, and a broad, club-like band on each side running behind, are particularly conspicuous; over these there are yellow spots along the neck. Similar bands, forked in front, extend from the angle of the mouth to the fore leg; two other yellow bands are seen along the under-side of the neck; and finally, a short, imperfect one runs backwards from the middle

of the lower jaw, not touching the former ones, as in the adult. The fore legs have one red middle stripe in front, and another, very short, above it. All phalanges have reddish lines. The hind part of the fore leg is dark brown, with some little white spots. The hind legs are dark in front, with two yellowish bands behind, the lower one originating from the base of the tail, where it meets that from the other side, and hence forms one stripe along the under-side of the tail. The tail is marked above in the same way by a yellowish line, forked near the root. In the dress of the Turtle during the second year, there appear entirely new yellow stripes across the back, coloring the anterior margin of the plates and joining the yellow median stripe, which grows then much broader. Moreover, the plastron is no longer red, but yellow. The black mark upon it, if it still exists, extends only from the fourth pair of plates to the last. All the stripes upon the legs and feet are no longer red, but yellow. In the third year, the colors are brighter, especially the yellow cross bands on the back, which now turn reddish, extending more and more over the margins of the plates, with the exception of the exterior margin. The marginal plates, light red until now, change into a splendid purple. In the fourth year, we see already all the colors of the adult, though the Turtle of this year is not yet half-grown, and though its general roundish form, as well as the form of the head, of the tail, and of the single plates, still exhibits rather the youthful than the adult characteristics. (Comp. the table above, p. 292.)

It is interesting to follow out the same development in another Emydian, *Chrysemys Bellii*, which is very nearly related to *Chrysemys picta*. The organic laws of its development are exhibited in the same way as in *Chrysemys picta*, but we learn here that the specific character, so far as the coloring is concerned, namely, that black, bottle-like mark, (which we find so largely developed in the adult *Chr. Bellii*, while it is entirely wanting in the adult *Chr. picta*.) is already very