

No one of our Turtles makes more than a single nest. They deposit all their eggs at once. *Chrysemys picta* has an almost identical period of incubation with *Chelydra serpentina*, namely, from the eleventh to the twenty-first of June, and even to the twenty-fifth; since eggs were found in the oviduct, as late as the latter date, in a Turtle picked up in the field and opened at once. *Thalassochelys Caouana*, a southern marine species, lays as late as the fourth of June. Later than the dates mentioned above, no Turtle has been known to lay, except in confinement, where the time of laying is occasionally delayed for a whole month, namely, till the eighteenth and twentieth of July; and yet, in very many instances, the embryo of such eggs was alive, and continued its normal development. A *Cinosternum pennsylvanicum*, kept confined, did not lay till the seventh of October, and then only brought forth a single egg, which was in all probability not fecundated, judging from the unnatural appearance of the yolk.

The beginning of the development of the embryo, in the ordinary acceptance of the term, coincides neither with the act of fecundation nor with the laying of the eggs. But, even if we should extend the meaning of the term embryo to the whole body of the egg, there is no appreciable connection, in Turtles, between its developing and the acts just alluded to, such as is known to exist in other animals. The egg is formed, and its development goes on to a certain point, long before the first copulation takes place. After this it continues to increase in size and to undergo a series of internal changes, during several successive years, before segmentation takes place; and, though this process follows the last connection of the sexes which precedes the laying of the eggs, it is hardly legitimate to ascribe it to that act, since copulation has been repeated again and again years before segmentation introduced another phase in the development of the yolk, and eggs were found in which segmentation had begun, though they were not fecundated. It seems to me more concordant with the facts observed to infer that fecundation is another of those organic impulses under which the development of the egg, begun without it, is now impelled into new phases, concomitant with this act, but not absolutely initiated by it. The autumnal copulation, which thus far has not even been found to coincide with any particular movement in the growth of the egg, certainly justifies such a view. But, though I would insist upon this interpretation of the facts, as observed in Turtles, it does not follow, that, in other animals, the influence of fecundation is not more directly connected with the changes the eggs undergo. In this respect again every type must be investigated for itself, before any general theory of fecundation can be attained. The only fact relating to Turtles which remains unquestionable in this connection, is, that the eggs are still in the ovary when the last copulation takes place, but soon afterwards pass into the oviduct.