

means of which the young, like young Birds, break through the hard shell. Dr. Weinland tells me, that in a beautiful series of specimens of Crocodiles in the Museum of Berlin, the snout of the embryo about hatching is sufficiently hard to break the egg, and that there is no such tubercle upon it; neither is there a tooth in the intermaxillary bone for this purpose.

The cloaca is very large in both sexes; it opens on both sides into a large pouch, (*sacci anales*), the function of which is not yet fully ascertained; it may stand in connection with the reception of water into the cloaca, mentioned above. The cloaca is exceedingly long in *Trionyx*. In female Turtles, we see in the bottom of the cloaca a longitudinal furrow, with thick, rounded walls, running out generally into fringed appendages behind. This serves as a vagina in the act of copulation. Interiorly we find, in the cloaca, first, the opening for the urine, then behind and outside of it, on each side, that for the oviduct.

The copulation is generally said to take place only once in a year; but my observations have satisfied me, that, at least in some species, it takes place twice every year, namely, in the spring and in the autumn.

It is, perhaps, the proper place to mention here some glands in Turtles which open outward and secrete a strong, odoriferous oil. These glands seem to have a more immediate reference to the relations of the animal to its fellow-beings than to its own individual organism. We find such glands in the lower jaw in *Testudo*, in the neck and shoulder region in sea Turtles, while in the family of the *Cinosternoidæ* there are two larger glands on each side under the carapace, near the bridge which unites the carapace and plastron, the excretory ducts of which

the year 1841, p. 329 and foll.) The operation of the tooth itself in the living animal has been observed in young Snakes, while hatching, by Dr. Weinland, (see *Württembergische naturwissenschaftliche Jahreshefte*, XII., for the year 1856, p. 90 and foll.,) so that there can be no doubt about the function of this strange tooth, which is fixed in the intermaxillary bone, where afterwards, at least in most Snakes, no tooth at all is to be found. Nor can there be any question of its being common to all Snakes and Lizards, when hatching, for after Müller had already found it in very different families, it has been traced by Dr. Weinland in all the German Snakes and Lizards. Now neither J. Müller nor Dr. Weinland could find this tooth in the young Crocodiles when hatching. This is remarkable, because it strangely coincides with the suggestion of

Stannius, (see above, p. 288, note,) to unite the Snakes and Lizards on one side, and the Turtles and Crocodiles on the other side, into two large groups; the first of which have such an egg-tooth, whilst the latter have none. But, as far as the Turtles and Crocodiles are concerned, this resemblance is evidently only negative, and cannot, therefore, prove any affinity; while the fact, that the egg-tooth is common to the Lizards and Snakes, is another striking instance of their close affinity, and of the correctness of the views of Stannius, who proposes to unite them into one group, in opposition to Turtles and Crocodiles, as Merrem has already done. Thus, the Reptiles would really form only three large groups, one comprehending the Lizards and Snakes, another the Crocodiles, and a third the Turtles.