

at first; and notwithstanding the most diligent search, my efforts to trace the spermatic particles through the oviduct, as high up as the ovarian eggs, have been unsuccessful. Turtles do not copulate in confinement; and those which I could catch in coitu in their native haunts have only exhibited spermatic particles in the oviduct. I have, still less, been able to trace the sperm into the egg itself. Indeed, there is no micropyle in the egg of Turtles; and I must confess that I have not yet seen the first fact which could lead me to admit that the spermatic particles penetrate into the egg. I am therefore obliged to abstain from expressing any decided opinion upon the question of the penetration of the spermatic particles into the egg, which has of late attracted so much attention among embryologists. I can only say, that, notwithstanding the high authority upon which it is asserted as a fact that the spermatic particles do pass into the substance of the egg through a definite aperture of its envelope, I am still rather inclined to doubt it.

The aperture observed in the outer membrane of the egg, which has been called micropyle, has always appeared to me to be the result of the separation of the sac in which the egg is developed, and by no means to pass through the vitelline sac. Without the most careful examination it is not possible to perceive how complicated the sac is, in which the egg is inclosed; and I suspect that a kind of Graafian follicle, which in many animals drops from the ovary with the egg, has frequently been mistaken for a vitelline membrane. I believe, further, that the scar resulting from the separation of that follicle forms the opening called micropyle, and that this opening does not traverse the vitelline membrane. In Turtles the perforated appearance of the yolk sac arises from the presence of the Purkinjean vesicle near the surface of the yolk, and not from the existence of a real hole. (Comp. p. 456, 459, and 460.) After what has been said above of the lateral origin of the Purkinjean vesicle, it is superfluous to insist upon the incorrectness of the view of those who would ascribe its superficial position to the influence of fecundation. It is formed in that position, and preserves it as long as it exists.