

Artificial Incubation.

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(Continued.)

The chicken inclosed in the egg is alone charged with the whole work before he can set himself at liberty. One would think the work above his strength, did not daily experience teach us what a share of vigour he has. The manner in which the outward parts of his body are situated would not lead us to think him able to overcome the obstacles which oppose his coming out of an habitation, now a prison to him: he is at that instant rolled up almost like a ball; his neck comes sloping towards his belly, about the middle whereof his head is placed; his bill lies under one of the wings like that of a sleeping bird, and that wing is constantly the right; the feet gathered up under the belly as those of the chickens ready trussed for the spit sometimes are, the claws bending backwards almost touch the head with their convexity, the fore part of the chicken is generally towards the biggest end of the egg, where there is always a vacancy. A thick, strong membrane surrounds him, and keeps him in that attitude, which seems to be so unfavorable to the motions he is in appearance obliged to give himself. It is nevertheless without changing this attitude that he performs the most difficult part of his task, breaks his shell and bares the solid membrane in which he is wrapt up, and which resists his struggling as much as a hard but friable shell can do. The shell is a kind of wall which must be broken through and pulled down, the bill is the instrument which is to be used to break it; it is with the point of this the chicken strikes many repeated blows; they are frequently strong enough to be heard, and if you watch the critical moments you will see him strike them. Nor is the head the less constantly under the wing for this. It reaches further under the wing, and the bill comes out from under it towards the back, the head by moving alternately backward and forward and the reverse, or more exactly, from the belly towards the back, and from the back towards the belly, reaches and strikes the shell more or less roughly according to the quickness of its motion; whilst in action it is in some degree guided by the wing and the body that hinder it from leaving its place. The head is very heavy, and makes with the neck a weight so very heavy for the chick that he is incapable to carry it for some time after his birth, but the manner in which all his parts are disposed whilst he is in the egg, and whilst they form a kind of ball by their disposition, renders that weight of the neck and

head then easy for him to bear; let the egg be in what position soever it may, the head is supported either by the body or by the wing, or by both together. In fine, the more considerable the bulk of the head is, the stronger the blows the chicken strikes with it are. The result of the first strokes of the bill of the bird is a small crack, sometimes simple and sometimes complicated, or composed of several cracks of unequal length and joining in one centre, that is irregularly radiated. This first crack is most commonly situated between the middle and the biggest end of the egg, nearer the latter than the former. The fore part of the chicken is turned towards the biggest end. However I have found a few who had broken through their shell nearer the smaller than the larger end, but notwithstanding this inversion of their position they live every whit as well as those which happen to be in a more natural one. When the crack is sensible they say that the egg is pecked; it becomes more so as the strokes of the bill are more frequent, they sometimes break off some small fragments that leave the white membrane quite naked. I have seen some of those shreds pushed so hard that they were thrown a distance of three or four inches from the egg. The membrane from which the first fragments of the shell are just thrown off is generally whole and sound, nor can any rent be perceived in it with a magnifying glass, and this probably is what has induced some to think that the eggs were pecked by the hen; the work seems to have been begun outside of the egg, and people thought if it had been done by the bill of the chick the membrane against which it strikes would have been pierced through before the shell was broken. They did not sufficiently reflect that the membrane being pliant and clapt against the shell, it might resist such strokes as would crack and split a substance of a more rigid and brittle nature. Strokes applied to a drinking glass covered with paper would break the glass without tearing the paper. When the strokes of the bill are directed against the membrane which is no longer covered with the shell, they then push it beyond the point of extension it is capable of, in which case they infallibly tear or pierce it. All, therefore, of importance to the chicken and all he endeavors to effect is, that two parts of his shell may be entirely separated from each other. The chicken is then furthermore obliged to tear that membrane and that by pecking it again and again, which it never fails to do as soon as any considerable portion of the shell has been fractured. Finally, all chickens do not employ equal time in doing this important work; some are able to come out of their shell in an hour after they have begun it, others are not hatched till two or three hours after, others not for 24 hours after their shell first appeared to be pecked. I