

in the outermost layers of this glairy substance has disappeared, and that the layers thus affected have shrunk toward the opposite side of the egg (Pl. 9b, fig. 3, a, 4, a, 5, a, 7, a). In this way the more interior layers of albumen become pressed against the shell, and the enlarging yolk sac on that side follows in their wake. In oval eggs, this absorption usually takes place at the side, midway between the two ends. Sometimes, however, when the egg is laid so as to rest in the nest with one end uppermost, the yolk mass shifts also, and the more buoyant portion, where the embryonic disc originates, faces toward the higher end of the shell; and here, too, the absorption of albumen first finishes: always above the embryonic disc, wherever it may be. In consequence of these changes, the centre of the yolk mass has not remained concentric to the outline of the shell, whether it be oval or spherical, and the layers of albumen appear proportionably much thicker on the under-side of the egg. It is very important to know that the absorption of albumen, and its infiltration into the region below the embryonic disc, commence in the oviduct, and not after the egg is laid; as we are thus enabled to determine at what part of an oval egg the albumen normally first enters the yolk sac.

Upon carefully opening a Turtle from above without disturbing the oviduct, it is possible to ascertain the exact position of every egg within the animal, and its relation to a horizontal plane. The embryonic disc, (that part of the egg which corresponds to the region of the cerebro-spinal axis,) is always next to the back of the animal. It is not, however, at all times situated at the highest point of the egg, nor as near as possible to the back of the Turtle, but may be found now and then down toward the side of the egg (Pl. 11, fig. 4a). The longer axis of oval eggs is usually horizontal, and the shorter axis perpendicular; so that, consequently, the longer curve of the shell is horizontal also, within the animal, excepting, perhaps, occasionally a slight elevation at one end, when the egg happens to be in a part of the oviduct which bends rather suddenly upon itself. Now if, within the oviduct, the embryonic area is always situated next to the back of the animal, it rests, of course, midway between the two ends of the oval egg, next to its longer curve, at what would naturally be called its side (Pl. 9b, fig. 1, 2, 2a, 3, 4, 4a). This, doubtless, is its normal position. The absorption of albumen normally commences above this point, as may readily be seen by opening Turtles just before the laying season. Therefore it is abnor-

men undergoes are intimately associated with corresponding changes in the embryonic disc and in the yolk sac, and do not take place in a manner to favor the idea that the albumen is merely a mass of nutri-

tive substance accumulated around the yolk. On the contrary, these changes prove that the albumen is organically connected with the yolk, and performs a regular function in the growth of the embryo.