

lower jaw is very loose; it is formed by four or five triangular projections (fig. 11, *d*) on one side, dovetailing with a similar number of projections of the opposite side.

In the process of hatching, the young Turtle does not tear open the allantois, but simply forces apart the edges of the folds which inclose the head (Pl. 18, fig. 10*c*); but as the allantois is very tender at this time, it is more or less torn in the struggles of the animal to escape from the shell. The shell always breaks close to the end of the head, corresponding to the position of the sharp, hard beak (Pl. 9*c*, fig. 6 and 8). At this stage the yolk sac occupies about one fourth of the cavity of the shell. Before leaving the shell, the yolk sac is more or less flattened vertically (Pl. 18, fig. 10, 10*b*, 10*c*); but as soon as it is relieved of the pressure of confinement by the casting of the egg-shell it assumes a globular form, (fig. 10*d*, 10*e*.) but with less bulk external to the Turtle, a portion having been drawn into the body almost as soon as the hatching was finished. In a few hours the whole yolk sac (Pl. 25, fig. 3, *n'*) is drawn into the body, and occupies a large space in the abdominal region. The circulation of the blood in the yolk sac at this time is as active as ever. The external remains of the allantois (fig. 3, *n''*) are soon withered and dried, and finally, in two or three days they disappear; within the body, however, the neck of the allantois persists and becomes the urinary bladder, as mentioned above (p. 571-572). In a previous section (Chap. 1, Sect. 6, p. 486-489) we have already mentioned the persistency of the embryonal membrane, which may be recognized by its cells, (Pl. 9*a*, fig. 31, *a*, 31*a*, *a*.) along with those of the amnios (*b*) and of the allantois, (*c*.) till the embryo is hatched.

On account of the great amount of material that had accumulated, and the pressure of time, it was found impossible to investigate the state of all the organs just at the time the young Turtles were hatched. However, this did not interfere with the proper appreciation of the degree of development of these young animals about the time of hatching, since, almost from the time they were born till the space of four months had passed over, they remained in a state of torpor, being kept in a cold room, where at times they were frozen with the water in which they were preserved. During this time they evidently did not grow to any appreciable amount, since, as late as December 13th, two months after they were hatched, the yolk sac was not resorbed, but occupied a large portion of the abdominal cavity. Moreover, specimens were obtained from the fields as late as December which were not even hatched; so that no great dependence can be placed on the age to determine the stage of development. The successive phases of growth must therefore be determined by their sequence, rather than by the time required for their development. The following figures