

the vascular area enlarges; but we do not believe that this occurs extensively, nor that the vascular area expands beyond a certain limit. By the time these walls are formed, the yolk begins sensibly to diminish in bulk, and the vascular area gradually folds around this shrinking mass; thus essentially covering a greater proportion of its circumference, but by no means a wider extent of actual surface. Toward the end of the period of incubation it even diminishes in area, till finally it disappears altogether, within a few months after the Turtle is hatched.

A peculiarity, which, until quite a late period, distinguishes the omphalo-meseraic arteries from the veins, is that they run, even to their outermost extremities, (Pl. 17, fig. 6, fig. 7,) in a very shallow stratum, the subsidiary layer, without plunging into the yolk mass beneath. Finally, however, they extend into the mass of the yolk, (Pl. 17, fig. 1,) and anastomose with the branches of the omphalo-venous system (Pl. 18, fig. 4). The irregularity of development of the vascular area is particularly noticeable among the other inequalities of the development of the organs. Pl. 13, fig. 11, Pl. 14, fig. 6, 9, 11 are all drawn, on the 10th and 11th of July, from eggs laid by the same Turtle, on the 18th of June; and yet, in Pl. 14, fig. 11 the vena terminalis is partially formed, in Pl. 13, fig. 11 it is a little more advanced, in Pl. 14, fig. 9 it is complete, and the vascular area covered with bloodvessels; and in Pl. 14, fig. 6 the omphalo-meseraic arteries are still more numerous. Another, laid on the 13th of June, (fig. 8,) is not so far advanced as one laid on the 18th of June, (fig. 6,) whilst the latter is less advanced than one (fig. 7) laid on the 23d of June. Compare also Pl. 13, fig. 4 and 5 with fig. 6, 7, 8, 9, all of which were laid on the 12th of June, and opened July 11th. Within the body, the changes in the omphalo-meseraic arteries are very simple. At first they are numerous, (Pl. 18, fig. 7,) and spring from along the whole length of the dorsal artery; but after a while they become concentrated within a certain area, (Pl. 13, fig. 3,  $q$ ;) midway between the head and tail, and finally merge into a single thick vessel, (Pl. 18a, fig. 14,  $j^4$ ;) which branches beyond the body as it passes into the vascular area. It soon begins to elongate, at the same time lessening in diameter, (Pl. 18a, fig. 8,  $j^5$  to  $j^4$ , fig. 9,  $j^4$ ;) and passes down between the anterior (fig. 8,  $n'$ , fig. 9,  $n'$ ) and posterior (fig. 8,  $n^1$ , fig. 9,  $n^1$ ) limbs of the curve of the intestine, where the latter protrudes beyond the body, in the shape of a U; it then forks, one branch passing on the right, and the other on the left, of the curve. Each branch of the fork divides again, almost as soon as it leaves the main vessel, and these branches give rise to others, and these to still others, and so on until they become very numerous. At last, the efferent artery gives off branches, within the body, which ramify extensively over the intestine (Pl. 17, fig. 1).