the mode of origin of whatever other organs may make their appearance in these later stages of embryonic growth.

In a slightly farther advanced stage, (Pl. 18a, fig. 13,) we find the amnios (a1) has nearly closed over; the nervous system is about the same as in the last; the eyes (k) have each a distinct crystalline lens (Pl. 24, fig. 8, k^3); the ears are more trumpet-shaped, (Pl. 18a, fig. 13, l,) and extend deeper into the head; and the dorsal vertebræ are perhaps more separated from each other. In this embryo we have been enabled to trace very distinctly the connection of the forked vessel, (i,) which opens into the heart, (h,) with the converging vessels mentioned above, (see Pl. 12, fig. 7, i'-i; Pl. 14, fig. 11,) which come from the outer edge of the area vasculosa. From the anterior part of the heart, the ventricle, (Pl. 18a, fig. 13, h_{i}^{4}) a large vessel $(h^{1})^{1}$ arises and passes along just below the branchial fissures (m, m) towards the head. From the dorsal side of this large vessel, the aorta, (Pl. 18a, fig. 11, h^1)² other small vessels (h^2 , h^2 , h^2) proceed between the branchial fissures (m) on each side of the head upwards, and join another large vessel, the dorsal artery (j^2) . The dorsal artery follows closely against the median line of the vertebral layer above, till it reaches the posterior end of [See a little older embryo, (Pl. 18a, fig. 14, j^2 ,) to trace its course as the body. seen in profile.] When the embryo is viewed from below, (Pl. 18, fig. 7,) the dorsal artery may be seen giving off to the right and to the left in the abdominal region, numerous vessels, which at once spread and ramify through the vas-These numerous and minute vessels, the omphalo-meseraic cular area (p. 538). arteries, have a general trend towards the circular channel spoken of above, (p. 549,) the so-called vena terminalis, into which they empty. On each side of the head the vena terminalis converges and joins the forked vessel, (Pl. 18a, fig. 13, i, i,) which is connected with the posterior end, the auricle, of the heart. Thus we have a perfect circuit in the circulation of the blood. At the outset, the heart, the first part of the vascular system in which a fluid may be seen in motion, sends the blood forward, through the arteries of the branchial fissures, to the dorsal artery; the dorsal artery sends off currents into the area vasculosa; these currents, the omphalo-meseraic arteries, empty into the vena terminalis; and the vena terminalis returns the blood to the heart, through the forked vessel, the vena afferens.

There are also, within the body, circuits of blood of lesser extent than that

¹ Pl. 18a, fig. 13, h^a , h^a . The dotted line, extending in the original drawing from these letters to the parts they designate, has been accidentally omitted here. From h^a the dotted line should extend to the dark hole, in the nearest part of the heart, to that part of the north which is just below the longest brunchial tissure, (m.) which runs from the car (l) downwards.

² This figure, although representing a little older phase, will serve to show the direction of the vessels in this region of the body.