region. Soon, however, the subsidiary layer forms a wall around the cavity of the heart, partly by a direct hollowing in its own thickness, thus constituting the lower wall, as we may see by the thinness of the layer at this spot (Pl. 12, fig. 7, *h*, *i*); and partly by elevating the edges of the channel and closing them over, so as to form an arch, or superior wall. Thus, in the beginning the heart is a simple, straight tube, (fig. 7, *h*,) trending in the same direction with the axis of the body. The posterior end of the heart becomes connected, or rather continuous, with a transverse channel (fig. 7, *i*) which is formed in the same way, and the anterior end with two other channels (fig. 7, *j*) of similar origin, which pass, one on the right, and one on the left, up along the sides of the head. Presently the heart bends upon itself at two different points; at one point, behind, it curves to one side, (Pl. 12, fig. 10, *h*,) and at the other, before, downward, as it joins the branchial aortæ (fig. 10, *j*). About this time, too, it begins to swell in its middle region, (fig. 6, *h*,) and curves outward; moreover, it has become separated from the subsidiary layer by a kind of longitudinal constriction; but the rest of the channels of circulation remain as they originated. These curves grow stronger until there are three quite distinct chambers, one in front of the anterior curve, the aortic bulb (Pl. 18a, fig. 13, h^1); another, the ventricle, (h^4,) just behind, trending in an obliquely transverse and backward direction toward the right side; and the last, the auricle, (h^3,) running from right to left and obliquely forward and downward. The communications between these three cavities, and also between the last and the vena afferens, (*i*,) are still very broad. The wall of these cavities, especially that of the auricle, (h^3) has become very thick. At this time there is a complete system of efferent and afferent vessels throughout the body, so that the blood passes in a perfect circle from and to the heart.

Another chamber is subsequently formed, by a median transverse constriction of the auricle, making in all three distinct compartments, (Pl. 13, fig. 2,) communicating with one another by narrow channels in the heart proper, and a fourth, just in front of it, the aortic bulb. The relative positions of the three chambers become changed at this time: the anterior one, the ventricle, (Pl. 18a, fig. 11, h^4, fig. 12, h^4; Pl. 24, fig. 7, h^4,) falls to a lower level, which is the same, or nearly so, with that of the middle chamber, the left auricle (Pl. 18a, fig. 11, h^3, fig. 12, h^3; Pl. 24, fig. 7, h^3). The inversion of the heart goes on till the relative positions of the auricles and ventricle are totally opposite to what they were at first; the auricles (Pl. 24, fig. 9, h^3) being situated next to the back and directly above the ventricle, (fig. 9, h^4, fig. 9a, h^4,) which occupies the ventral region, to the total exclusion of the other chambers of the heart. This is the position which the heart holds in the adult. The ventricle, (fig. 9, h^4, fig. 9a, h^4,) at the same time