

that it sinks toward the ventral side, increases very much in size, so as to equal in bulk both auricles, and, moreover, undergoes a remarkable internal change, which consists in the formation of a thick network of high and narrow semi-partitions on its inner surface, occupying nearly the whole cavity of the chamber.

The figures of the next stage, (Pl. 18a, fig. 8, 9, 10,) which, by the way, have already been sufficiently described, (p. 559,) apparently contradict the statements just made in regard to the relative size of the chambers of the heart; but this is readily explained by the fact, that, during the contraction of the ventricle, (fig. 8, h^4 , fig. 10, h^4 ,) the auricles (fig. 8, h^3 , fig. 10, h^3) become very much distended and enlarged. Now that the heart has assumed a position which it ever after holds, the only further changes which it undergoes relate to the comparative size of the different chambers, the narrowing of their channels of communication, and the formation of valves at the mouths of these channels. The ventricle (Pl. 24, fig. 10, 10a, 10b, h^4) finally becomes twice as large as the two auricles combined (fig. 10, 10a, 10b, h^3); the meshwork of semi-partitions disappears, and is replaced by a very thick wall, (fig. 10b, h^4 ,) traversed by irregular canals. It can hardly be doubted, from the appearance of the wall of the ventricle, that the semi-partitions have become obscured simply by thickening until they touch each other, except at a few points, which correspond to the irregular canals which pass from the internal nearly to the external surface of the wall.

The manner in which the valves (Pl. 24, fig. 10b, v) are formed has not been ascertained by tracing their development; but, as they are simple projections from the edge of the opening (fig. 10b, vo) of the passages from the auricles (h^3 , h^3) into the ventricle, (h^4) it is very probable that they originate by a gradual elevation of this edge until it constitutes a lappet, or fold, sufficiently broad to extend across the whole diameter of the opening. These two valves are properly within the ventricle, (fig. 10b, h^4 ,) and, when inactive, hang loosely into its cavity; but upon the contraction of this chamber they are pressed upon by the blood, and apply themselves over the apertures to which they respectively belong, and prevent the regurgitation of blood into the auricles (fig. 10b, h^3 , h^3). The valves at the opening of the venous sinus (fig. 10a, vs) are mere protrusions of the lips of a transverse fissure into the right auricle. The passage of the blood through the heart at this phase is very irregular; first entering at the venous sinus, (fig. 10a, vs ,) it passes into the right auricle, and thence, in part, directly into the ventricle, (h^4 ,) and in part into the left auricle, and from that into the ventricle, (h^4 ,) thence again to pass out through the right¹ and left (fig. 10,

¹ The right aorta, unfortunately left by mistake unlettered in the figures, doubles at a little distance

from its point of origin, and may be recognized here as the shortest vessel in the figure.