

is very evident that the optic nerves (fig. 2, *k*, fig. 2b, *k*) arise directly from the optic thalami, (*k*,) and not from the corpora quadrigemina, (*b*,) as would appear from the figures of the adult brain given by Bojanus.<sup>1</sup>

The corpora quadrigemina (fig. 2, *b*, fig. 2a, *b*, fig. 2b, *b*) gradually lose their large, open cavities, in consequence of the elevation of the lower floor, the aquæductus Sylvii, (fig. 2b, *o*,) of this part of the brain. The volume of the corpora quadrigemina, (fig. 2, *b*, fig. 2a, *b*, fig. 2b, *b*,) compared with that of the hemispheres, (fig. 2, *a*, 2a, *a*, 2b, *a*,) is at this time about as two to three, which is a very large proportion, compared with what it is in the adult (Pl. 25; compare fig. 13, *cq*, fig. 13a, *cq*, with *h*). The corpora quadrigemina are heart-shaped, with the broader end next to the hemispheres, which have a similar shape, but in a reverse position from that of the former.

The cerebellum (fig. 2, *e*, fig. 2a, *e*, fig. 2b, *e*) continues to bulge out behind the corpora quadrigemina, and to gain in bulk, but at a slow rate when compared with the other parts of the brain. The Schneiderian membrane enlarges more rapidly in a vertical direction (Pl. 23, fig. 3, *e'*) than horizontally, and becomes gradually compressed, at the sides, so as to contain a very high but narrow chamber. The exterior opening of the cavity of this membrane first appears as a narrow channel (fig. 3, *g*) with a very thin wall. The pineal gland (fig. 3, *d*) becomes constricted at its base, and thus the first step is taken to form its pedicel. The corpora quadrigemina (fig. 3, *b*) become more constricted and depressed at the base behind, and in consequence more shut off from the cerebellum (fig. 3, *e*). The latter, in continuing to increase in size, gradually bends obliquely upward, so as to cover by degrees a considerable portion of the fourth ventricle (fig. 3, *p*). The fourth ventricle, (fig. 3, *p*,) by bending forward upon itself, allows the cerebellum (*e*) and the posterior end of the corpora quadrigemina (*b*) to sink into the angle formed by its approximating anterior and posterior borders. The edges of the opening (fig. 3, *e'*, *f*) of the medulla oblongata grow thicker, until in time they equal in this respect its lower wall.

At the time the embryo is hatched, (Pl. 23, fig. 4, 4a, 5, 6, 7, 8, 9, 10) the brain is far from having that long, slender, and flat shape which obtains in the adult (Pl. 25, fig. 13, fig. 13a). In addition to what has already been pointed out, (p. 575,) it may be added that the Schneiderian membrane is very thick, especially the wall (Pl. 23, fig. 4, fig. 11, w-c. 3, *b*, w-c. 11, *a*) facing the median line of the upper jaw. The channel (fig. 4, and w-c. 3, *a*) leading from the Schneiderian membrane gradually narrows, till, at the nostrils, it opens externally with a

<sup>1</sup> L. H. Bojanus, *Anatome Testudinis Europææ*, etc., Vilnæ, 1819-1821. Compare his tab. 21, fig.

88, ii., ii.<sup>1</sup>, ii.<sup>2</sup>, with our Pl. 25, fig. 13a, and the explanation of his figure, p. 91, with ours.