CHAP. IL.

HISTOLOGY.

The Trachea. A short time before birth, the cartilage rings of the trachea, (Pl. 24, fig. 6) are composed of quite thick-walled cells, which contain numerous minute, dark granules (Pl. 20, fig. 6). The cells are as yet in close contact with each other, and have sharp, polygonal contours. At birth, the cartilage cells (fig. 3, b) are widely separated from each other by the development of an amorphous, intercellular substance. At the middle (b) of the ring, these cells are more or less rounded; but, as they approximate the fibrous bands (a) which alternate with the rings, they gradually flatten, and diminish in size, till, at the edge (c) of the layer, they are mere thick, dark lines. The fibrous bands (a) consist of very fine threads, or strings, of granules, interwoven, and oftentimes crossing each other at very broad angles.

The Liver. A short time before the Turtle is hatched, and about the period when the allantois has surrounded the whole yolk sac, the cells (Pl. 19, fig. 32) of the liver are moderate in size and polygonal. They are filled by densely crowded, dark granules, in the midst of which is a clear, round mesoblast. When separated from each other and immersed in water, they assume a spherical form (a, b, b', c, c'). Just before birth, the liver cells are much larger than those mentioned here. They are more or less polygonal, and contain a crowded mass of coarse, dark, oily looking granules and a bright yellow mesoblast, with a minute, sharply defined entoblast (fig. 31, a). When isolated (b) from each other, and treated with a little water, they show that they have (a) very thin walls and a rather opaque but bright yellow mesoblast.

The Gall Cyst. At the last stage mentioned, the wall of the gall cyst is a single layer (Pl. 19, fig. 29) of cylindrical, wedge-shaped cells, with the broader ends next to the outer surface (a) of the wall. They are very transparent, and contain scattered, faint granules and an excessively hyaline mesoblast near the broader end. Seen endwise, they appear polygonal (fig. 29a).

The Bloodvessels. Just after birth, a bloodvessel that had been isolated from the pia mater had an excessively thin wall, (Pl. 19, fig. 14,) which appeared to be built up of excessively hyaline, polygonal cells, each one of them containing a large but rather faint mesoblast and perfectly homogeneous contents. In some places, the mesoblast appeared in profile (a, b); yet outside of it no wall, but that of the cell. could be detected.

The Genital Organs. Just before the Turtle is born, the ovary (see p. 573 and Pl. 25, fig. 7, n) is composed of moderately large, polygonal, and extremely transparent cells, (Pl. 19, fig. 30,) each one of which contains a large, densely granulated mesoblast.

The Kidneys. By the time the embryo can freely move its eyes, jaws, and toes, (see p. 565, and Pl. 18a, fig. 2 and 3.) the Malpighian bodies (Pl. 20,