

cranium, and partly from that which lies outside the entoderm of the fore-gut. They comprise the upper part of the occipital squama (interparietal), the squamæ and tympanic parts of the temporals, the parietals, the frontal, the vomer, the medial pterygoid plates, and the bones of the face. Some of them remain distinct throughout life, *e. g.*, parietal and frontal, while others join with the bones of the chondrocranium, *e. g.*, interparietal, squamæ of temporals, and medial pterygoid plates.

Recent observations have shown that, in mammals, the basi-cranial cartilage, both in the chordal and prechordal regions of the base of the skull, is developed as a single plate which extends from behind forward. In man, however, its posterior part shows an indication of being developed from two chondrifying centers which fuse rapidly in front and below. The anterior and posterior thirds of the cartilage surround the notochord, but its middle third lies on the dorsal aspect of the notochord, which in this region is placed between the cartilage and the wall of the pharynx.

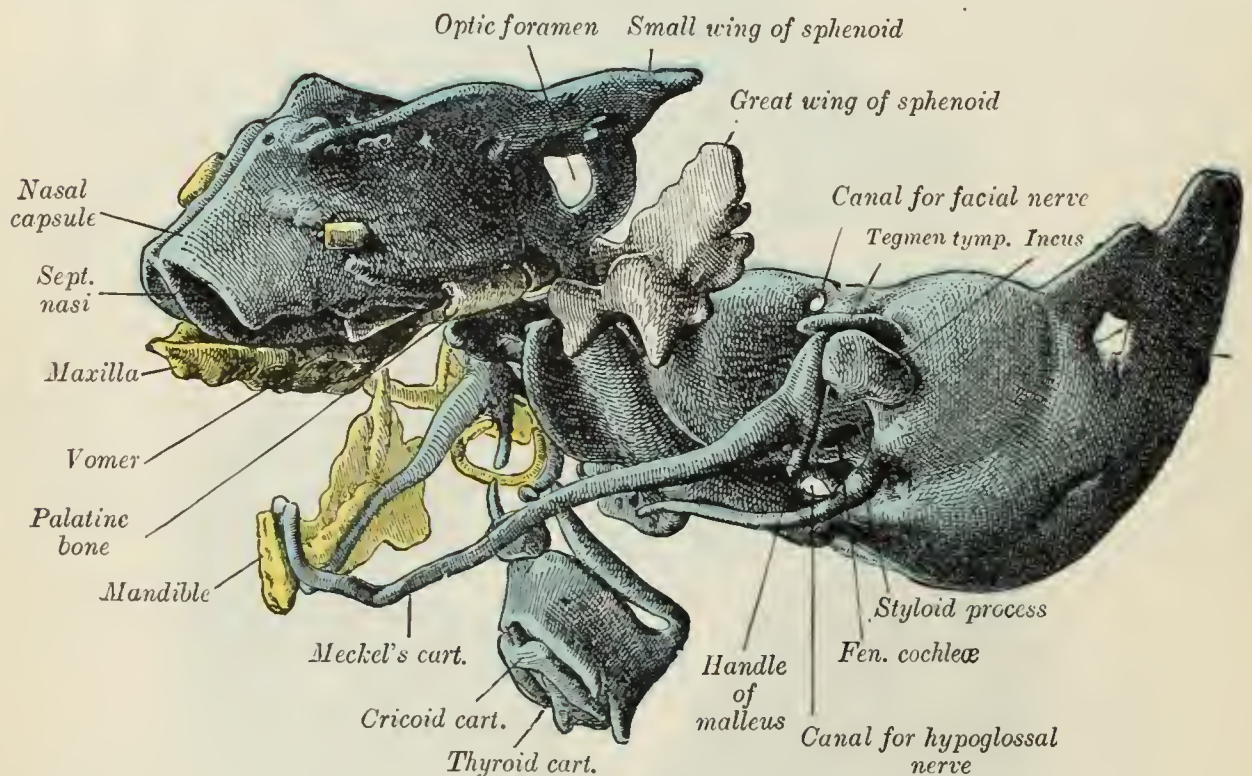


FIG. 71.—The same model as shown in Fig. 70 from the left side. Certain of the membrane bones of the right side are represented in yellow. (Hertwig.)

BONE

Structure and Physical Properties.—Bone is one of the hardest structures of the animal body; it possesses also a certain degree of toughness and elasticity. Its color, in a fresh state, is pinkish-white externally, and deep red within. On examining a section of any bone, it is seen to be composed of two kinds of tissue, one of which is dense in texture, like ivory, and is termed **compact tissue**; the other consists of slender fibers and lamellæ, which join to form a reticular structure; this, from its resemblance to lattice-work, is called **cancellous tissue**. The compact tissue is always placed on the exterior of the bone, the cancellous in the interior. The relative quantity of these two kinds of tissue varies in different bones, and in different parts of the same bone, according as strength or lightness is requisite. Close examination of the compact tissue shows it to be extremely porous, so that the difference in structure between it and the cancellous tissue depends merely upon the different amount of solid matter, and the size and number of spaces in each; the cavities are small in the compact tissue and the solid matter between