

*stylohyal*, and does not appear until after birth. The tympanic ring unites with the squama shortly before birth; the petromastoid part and squama join during the first year, and the tympanohyal portion of the styloid process about the same time (Figs. 143, 144). The stylohyal does not unite with the rest of the bone until after puberty, and in some skulls never at all.

The chief subsequent changes in the temporal bone apart from increase in size are: (1) The tympanic ring extends outward and backward to form the tympanic part. This extension does not, however, take place at an equal rate all around the circumference of the ring, but occurs most rapidly on its anterior and posterior portions, and these outgrowths meet and blend, and thus, for a time, there exists in the floor of the meatus a foramen, the *foramen of Huschke*; this foramen is usually closed about the fifth year, but may persist throughout life. (2) The mandibular fossa is at first extremely shallow, and looks lateralward as well as downward; it becomes deeper and is ultimately directed downward. Its change in direction is accounted for as follows. The part of the squama which forms the fossa lies at first below the level of the zygomatic process. As, however, the base of the skull increases in width, this lower part of the squama is directed horizontally inward to contribute to the middle fossa of the skull, and its surfaces therefore come to look upward and downward; the attached portion of the zygomatic process also becomes everted, and projects like a shelf at right angles to the squama. (3) The mastoid portion is at first quite flat, and the stylomastoid foramen and rudimentary styloid process lie immediately behind the tympanic ring. With the development of the air cells the outer part of the mastoid portion grows downward and forward to form the mastoid process, and the styloid process and stylomastoid foramen now come to lie on the under surface. The descent of the foramen is necessarily accompanied by a corresponding lengthening of the facial canal. (4) The downward and forward growth of the mastoid process also pushes forward the tympanic part, so that the portion of it which formed the original floor of the meatus and contained the foramen of Huschke is ultimately found in the anterior wall. (5) The fossa subarcuata becomes filled up and almost obliterated.

**Articulations.**—The temporal articulates with *five* bones: occipital, parietal, sphenoid, mandible and zygomatic.

### The Sphenoid Bone (*Os Sphenoidale*).

The **sphenoid bone** is situated at the base of the skull in front of the temporals and basilar part of the occipital. It somewhat resembles a bat with its wings extended, and is divided into a median portion or body, two great and two small wings extending outward from the sides of the body, and two pterygoid processes which project from it below.

**Body** (*corpus sphenoidale*).—The body, more or less cubical in shape, is hollowed out in its interior to form two large cavities, the **sphenoidal air sinuses**, which are separated from each other by a septum.

**Surfaces.**—The **superior surface** of the body (Fig. 145) presents in front a prominent spine, the **ethmoidal spine**, for articulation with the cribriform plate of the ethmoid; behind this is a smooth surface slightly raised in the middle line, and grooved on either side for the olfactory lobes of the brain. This surface is bounded behind by a ridge, which forms the anterior border of a narrow, transverse groove, the **chiasmatic groove** (*optic groove*), above and behind which lies the optic chiasma; the groove ends on either side in the **optic foramen**, which transmits the optic nerve and ophthalmic artery into the orbital cavity. Behind the chiasmatic groove is an elevation, the **tuberculum sellæ**; and still more posteriorly, a deep depression, the **sella turcica**, the deepest part of which lodges the hypophysis cerebri and is known as the **fossa hypophyseos**. The anterior boundary of the sella turcica is completed by two small eminences, one on either side, called the **middle clinoid processes**, while the posterior boundary is formed by a square-shaped plate of bone, the **dorsum sellæ**, ending at its superior angles in two tubercles, the **posterior clinoid processes**, the size and form of which vary considerably in different individuals. The posterior clinoid processes deepen the sella turcica, and give attachment to the tentorium cerebelli. On either side of the dorsum sellæ is a notch for the passage of the abducent nerve, and below the notch a sharp process, the **petrosal process**, which articulates with the apex of the petrous portion of the temporal bone, and forms the medial boundary of the foramen lacerum.