

In the posterior two-thirds of the bone the canal is situated nearer the internal surface of the mandible; and in the anterior third, nearer its external surface. It contains the inferior alveolar vessels and nerve, from which branches are distributed to the teeth. The **lower border** of the ramus is thick, straight, and continuous with the inferior border of the body of the bone. At its junction with the posterior border is the **angle of the mandible**, which may be either inverted or everted and is marked by rough, oblique ridges on each side, for the attachment of the Masseter laterally, and the Pterygoideus internus medially; the stylomandibular ligament is attached to the angle between these muscles. The **anterior border** is thin above, thicker below, and continuous with the oblique line. The **posterior border** is thick, smooth, rounded, and covered by the parotid gland. The **upper border** is thin, and is surmounted by two processes, the **coronoid** in front and the **condyloid** behind, separated by a deep concavity, the **mandibular notch**.

The **Coronoid Process** (*processus coronioideus*) is a thin, triangular eminence, which is flattened from side to side and varies in shape and size. Its *anterior border* is convex and is continuous below with the anterior border of the ramus; its *posterior border* is concave and forms the anterior boundary of the mandibular notch. Its *lateral surface* is smooth, and affords insertion to the Temporalis and Masseter. Its *medial surface* gives insertion to the Temporalis, and presents a ridge which begins near the apex of the process and runs downward and forward to the inner side of the last molar tooth. Between this ridge and the anterior border is a grooved triangular area, the upper part of which gives attachment to the Temporalis, the lower part to some fibers of the Buccinator.

The **Condyloid Process** (*processus condyloideus*) is thicker than the coronoid, and consists of two portions: the **condyle**, and the constricted portion which supports it, the **neck**. The **condyle** presents an articular surface for articulation with the articular disk of the temporomandibular joint; it is convex from before backward and from side to side, and extends farther on the posterior than on the anterior surface. Its long axis is directed medialward and slightly backward, and if prolonged to the middle line will meet that of the opposite condyle near the anterior margin of the foramen magnum. At the lateral extremity of the condyle is a small tubercle for the attachment of the temporomandibular ligament. The **neck** is flattened from before backward, and strengthened by ridges which descend from the forepart and sides of the condyle. Its posterior surface is convex; its anterior presents a depression for the attachment of the Pterygoideus externus.

The **mandibular notch**, separating the two processes, is a deep semilunar depression, and is crossed by the masseteric vessels and nerve.

Ossification.—The mandible is ossified in the fibrous membrane covering the outer surfaces of Meckel's cartilages. These cartilages form the cartilaginous bar of the mandibular arch (see p. 66), and are two in number, a right and a left. Their proximal or cranial ends are connected with the ear capsules, and their distal extremities are joined to one another at the symphysis by mesodermal tissue. They run forward immediately below the condyles and then, bending downward, lie in a groove near the lower border of the bone; in front of the canine tooth they incline upward to the symphysis. From the proximal end of each cartilage the malleus and incus, two of the bones of the middle ear, are developed; the next succeeding portion, as far as the lingula, is replaced by fibrous tissue, which persists to form the sphenomandibular ligament. Between the lingula and the canine tooth the cartilage disappears, while the portion of it below and behind the incisor teeth becomes ossified and incorporated with this part of the mandible.

Ossification takes place in the membrane covering the outer surface of the ventral end of Meckel's cartilage (Figs. 178 to 181), and each half of the bone is formed from a single center which appears, near the mental foramen, about the sixth week of fetal life. By the tenth week the portion of Meckel's cartilage which lies below and behind the incisor teeth is surrounded and invaded by the membrane bone. Somewhat later, accessory nuclei of cartilage make their appearance, viz., a wedge-shaped nucleus in the condyloid process and extending downward through the ramus; a small strip along the anterior border of the coronoid process; and smaller nuclei in the front part of both alveolar walls and along the front of the lower border of the bone. These accessory nuclei possess no separate ossific centers, but are invaded by the surrounding membrane