segments, the *ceratohyal* laterally and the *basihyal* ventrally where it fuses with its fellow of the opposite side. Sometimes an *epihyal* intervenes between the hyomandibular and the ceratohyal. Behind the hyoid arch are usually five branchial arches, though in Hept- anchus there are as many as seven. These are divided into a number of segments, and outside these there is often another series of arches called *extra-branchials* which are probably homologous with the branchial basket of the Cyclostomata.

The chimaeroid fishes are called Holocephali because in them the palato-quadrate bar is fused with the rest of the skull. In the bony ganoids and teleosteans (Teleostomi) the palato-quadrate bar ossifies to form the palatine, ecto-, meso- and meta-pterygoids and quadrate bones from before backward, while outside these is another row of dermal bones formed by the *premaxilla, maxilla* and *jugal* or *malar.*

In the lower jaw, Meckel’s cartilage is ossified at its proximal end to form the *articular bone,* but distally it remains and is partly en­cased by the *dentary,* and more posteriorly by the *angular,* both of

which are membrane bones. The jaw joint therefore is between the quadrate and the articular. In comparing this description with the section on human embryology it will be seen that certain bones, like the palate and pterygoids, which in the fish are ossifications in cartilage, become in the higher vertebrates membrane bones, and so it is clear that too great stress must not be laid on the histological history of a bone in determining its morphological significance.

The branchial arches of the Teleostomi closely resemble those of the Elasmobranchii except that they are ossified and that the extra- branchials have disappeared.

In the Dipnoi (mudfish) the Suspensorium is autostylic, and either five or six branchial arches are present. In the Amphibia, too, the Suspensorium is autostylic, the palato-quadrate bar remains largely cartilaginous, though its posterior part is often ossified to form the quadrate. The membranous *premaxilla, maxilla, palatine, pterygoid, quadratojugal.* and *squamosal* bones are developed in connexion with it, though it is interesting to notice that the pterygoid is sometimes partly cartilaginous and the quadrato-jugal is absent in the tailed forms (Urodela). In the lower jaw a *splenial* element has appeared, and in the frog a cartilaginous *mento-meckellian* bone develops close to the symphysis. In the larval stages there are rudiments of four branchial arches behind the hyoid, but in the adult these are re­duced in the Anura and their ventral ends are united into a broad basilingual plate.

In the Reptilia the site of the palato-quadrate bar is surrounded by the same series of bones that are found in the Amphibia, but in lizards and chelonians a *para-quadrate* bone is found which, according to E. Gaupp, is the precursor of the tympanic ring of mammals. In the crocodiles the maxilla and palate grow inwards to meet one another and so form a hard palate. The mandible has *dentary, splenial, angular, surangular, articular* and *coronoid* ossifications and in some cases a *mento-meckellian* as well. The quadrate bone with which it still articulates is becoming included in the wall of the tympanic cavity, and, according to H. Gadow, it is this bone and not the para-quadrate which will become the tympanic of mammals. The hyoid arch is sometimes suppressed in snakes, but in Sphenodon its continuity with the *columella* or *stapes* can be demonstrated.

The branchial skeleton is reduced with the cessation of branchial respiration and only the ventral parts of two arches can be seen; these unite to form a plate with the hyoid *(basihyabranchial)* and with this the glottis is closely connected. In birds the morphology of the visceral skeleton is on the reptilian plan, and, although the modi­fications are numerous, they are not of special interest in elucidating the problems of human morphology.

In the Mammalia the *premaxilla, maxilla, palate* and *pterygoid* bones can be seen in connexion with the region where the palato­quadrate cartilage lay in the lower Vertebrata (see fig. 34). The *premaxilla* bears the incisor teeth, and except in man the suture between it and the maxilla is evident on the face if a young enough animal be looked at. The *maxilla* bears the rest of the teeth and articulates laterally with the *jugal* or *malar,* which in its turn articulates posteriorly with the zygomatic pro­cess of the squamosal, so that a zygomatic arch, peculiar to mammals, is formed. Both the maxilla and palate form the hard palate as in crocodiles, though the pterygoid bone does not do so but fuses with the sphenoid to form the internal pterygoid plate (see fig. 34, Pt). The *mandible* no longer articulates with the *quadrate* but forms a new articulation, by means of the con­dyle, with the *glenoid cavity of the squamosal,* and many modern morphologists, including the writer, are inclined to agree with H. Gadow that the quadrate has probably become the *tympanic bone.* In many mammals *(e.g.* Carnivora) this bone swells out to form the *bulla tympani.* The derivation of the auditory ossicles has been discussed in the section on embryology as well as in the article Ear. The presence of a chain of ossicles is peculiar to the Mammalia.

In many of the lower mammals *(e.g.* Ungulata and Carnivora) the hyoid arch is much more completely ossified than it is in man, *tympano-, stylo-, epi-, cerato-* and *basihyal* elements all being bony (see fig. 34). It is of interest to notice that in the hares and rabbit's the body of the hyoid has occasionally been found in two pieces, indicating its derivation from the second and third visceral arches. The fourth and fifth arches, which form the thyroid cartilage in mammals, are considered in the article Respiratory System.

For further details see S. H. Reynolds, *The Vertebrate Skeleton* (Cambridge, 1897); W. Flower, *Osteology of the Mammalia* (London, 1885); R. Wiedersheim, ' *Comparative Anatomy of Vertebrates,* adapted and translated by W. N. Parker (London, 1907); C. Gegenbaur, *Vergleich. Anat. der Wirbeltiere,* Bd. i. (Leipzig, 1901). (F. G. P.)

**SKELTON, JOHN** (c. 1460-1529), English poet, is variously asserted to have belonged to a Cumberland family and to have been a native of Diss in Norfolk. He is said to have been educated at Oxford. He certainly studied at Cambridge, and he is probably the "one Scheklton ” mentioned by William Cole (MS. *Athen. Cantabr.)* as taking his Μ.A.degree in 1484. In 1490 Caxton writes of him, in the preface to *The Boke of Eneydos compyled by Vyrgyle,* in terms which prove that he had already won a reputation as a scholar. "But I pray mayster John Skelton,” he says, “late created poete laureate in the unyversite of Oxenforde, to oversee and correct this sayd booke . . . for him I know for suffycyent to expowne and englysshe every dyffyculte that is therin. For he hath late translated the epystlys of Tulle, and the boke of dyodorus siculus,@@1 and diverse other works . . . in polysshed and ornate termes craftely . . . I suppose he hath drunken of Elycons well.” The laureateship referred to was a degree in rhetoric. Skelton received in 1493 the same honour at Cambridge, and also, it is said, at Louvain. He found a patron in the pious and learned countess of Richmond, Henry VII.’s mother, for whom he wrote *Of Mannes Lyfe the Peregrynacioun,* a translation, now lost, of Guillaume de Deguille- ville’s *Pèlerinage de la vie humaine.* An elegy "Of the death of the noble prince Kynge Edwarde the forth,” included in some of the editions of the *Mirror for Magistrates,* and another (1489)

@@@1 The MS. of this translation is preserved at Corpus Christi College, Cambridge.