COMMENTS ON THE TERM EPIPHARYNX

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PROFESSOR Cave's contribution to the *Journal of Laryngology and Otology* is extremely valuable in drawing attention to an inaccuracy of nomenclature; he refers to Professor Wood Jones' accurate recognition of the functional significance of the posterior part of the nasal chambers, but I believe the question as to designation requires further examination.

The term epipharynx denotes a position above the pharynx, and although admissible for man it fails, in my opinion, to be accurate when applied to most members of the vertebrate kingdom.

The pharynx is the region lying between the buccal cavity and the mouth of the œsophagus and in most species it is very insignificant. Reference to Fig. 1 demonstrates that in Crocodilia the buccal cavity is very long, with an elongated tongue which posteriorly forms a raised flap capable of pressing against the palate and thereby allowing the mouth to be open when the animal is submerged with its nostrils above water waiting for prey. Close behind this tongue flap is the aperture of the larynx; the œsophagus commences at the level of the fused laryngeal cartilages and thus the pharynx is extremely short.

On the other hand the nasal passages are extremely long, extending to the tip of the elongated snout and backwards as far as the aperture of the larynx. By this arrangement the reptile can breathe without fear of inundation when the mouth is open. Quite clearly, the whole of this long

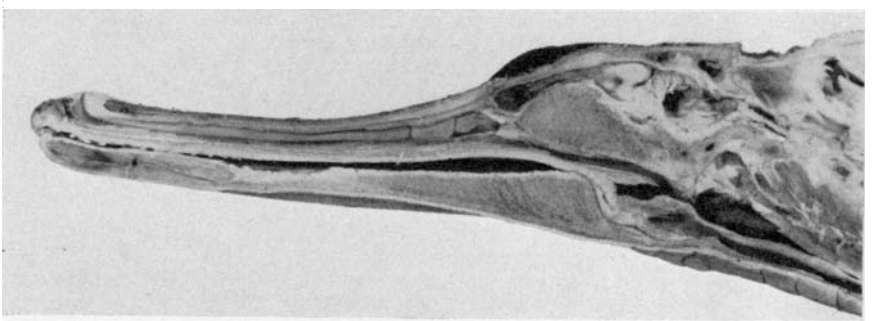


FIG. 1.

Sharp nosed crocodile (*Crocodilus americanus*). The posterior nasal passage carries air back to the glottis. The maxillary and ethmo-turbinal bodies are shown and also the upturned anterior naris.

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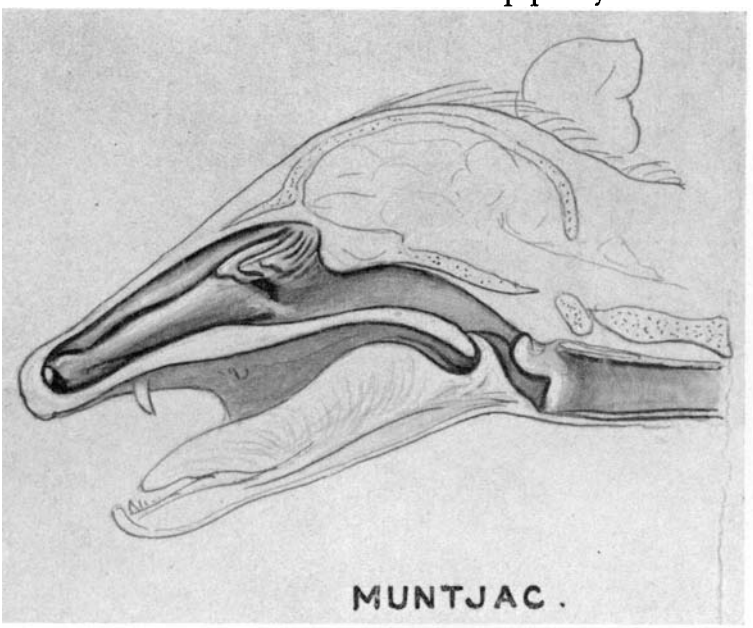


FIG. 2.

Muntjac or Indian Barking Deer (*Cervulus muntjac*). The epiglottis lies above the soft palate and this not only avoids the formation of eddies in the inspiratory current, but also prevents entrance of air by the mouth.

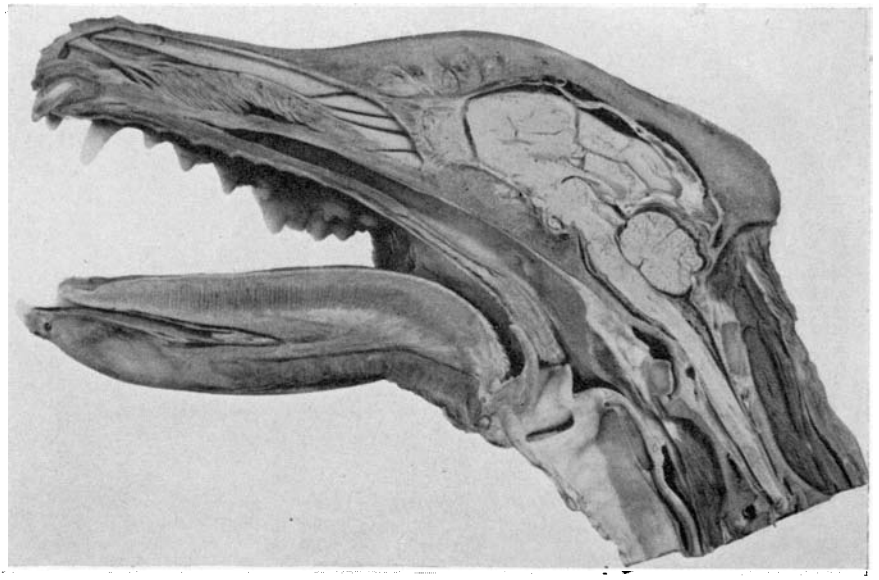


FIG. 3.

Sagittal section of head of a long snouted Collie dog. (*Canis familiaris*). In the dog tribe the epiglottis is in contact with the inferior surface of the velum palati, thus allowing expiration by the mouth when necessary for cooling of the body by evaporation from the tongue.

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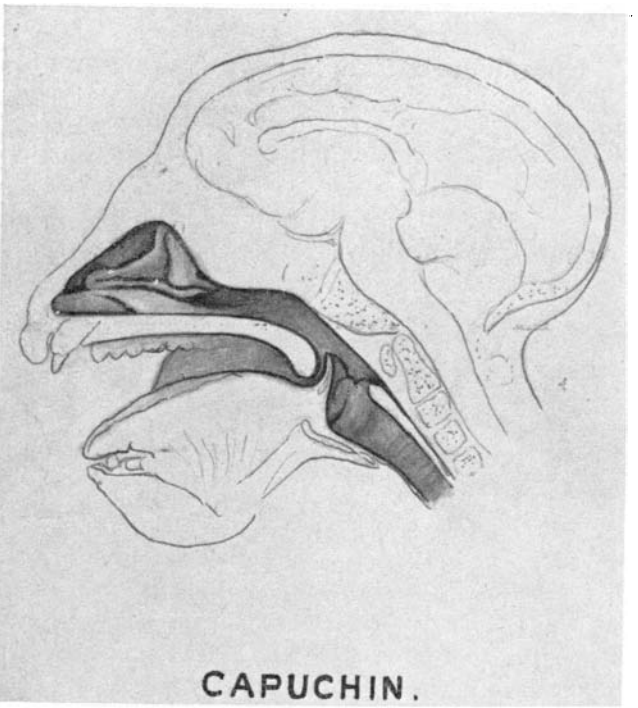


FIG. 4.

Diagrammatic drawing of right side of the head of a Capuchin monkey (*Cebus fatuellus*). As in deer, the epiglottis lies above the soft palate; the posterior nasal passage is of wide calibre.

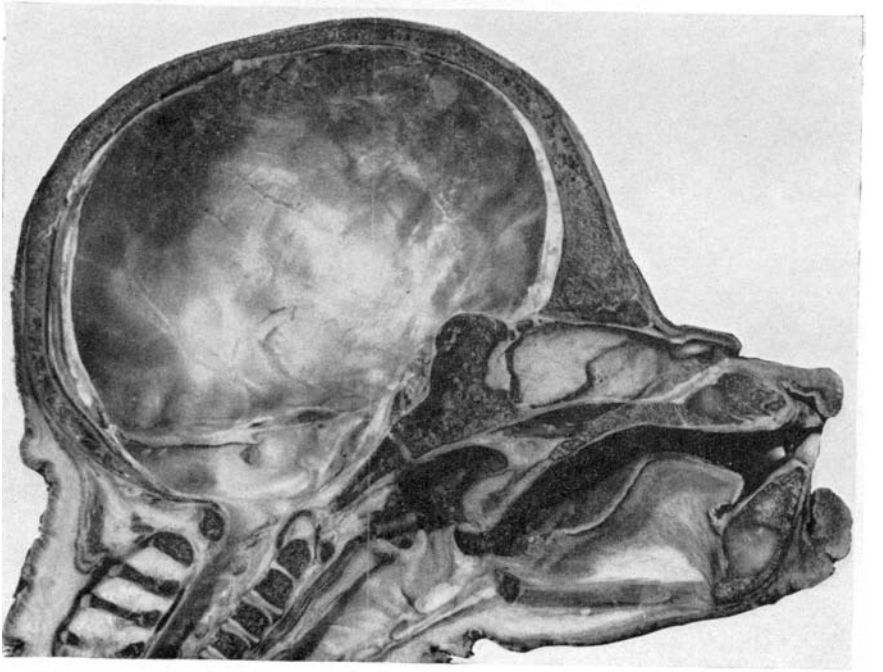


FIG. 5.

Young Orang-utan (*Simia satyrus*). The epiglottis only just reaches the soft palate but does not complete the airway as in mammals with keen powers of scent. The larynx can be pulled away from the palate, thus allowing air to pass through the mouth. The tongue is almost flat and the posterior nasal passage lies above it.

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air channel, made up of an anterior passage in the snout, a median region containing small maxillary and ethmoidal turbinals and a posterior passage leading to the larynx, lies above the buccal cavity and tongue and has no relation to the pharynx.

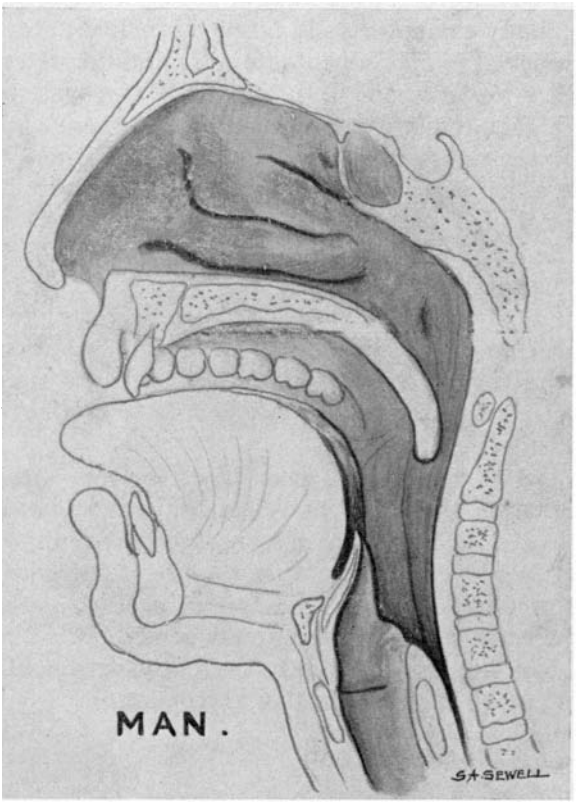


FIG. 6.

Upper respiratory passages of a man. The epiglottis is separated by a wide gap from the posterior nasal passage, which opens into a capacious pharynx; the airway is tortuous.

Consequently in this animal the term nasopharynx is incorrect, while epipharynx appears to me to be inapplicable; post-nasal space will not do, because the passage is not behind the nose but is part of it.

I would therefore suggest that the name posterior nasal passage is preferable.

It is necessary to see whether this reasoning is applicable to mammals; examination of the figures showing an ungulate (Fig. 2), a carnivore (Fig. 3) and a capuchin monkey (Fig. 4) confirm the correctness of the term. In the deer the posterior part of the palate is in direct relation with the

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epiglottis, for purposes of olfaction; the pharynx is neglible, since the œsophagus commences behind the cricoid. The structure is similar in the dog, as an example of carnivora and in a monkey amongst the lower primates.

In these and a vast number of other species the designation of epipharynx would be incorrect, while that of posterior nasal passage appears to fit the case; many examples could be given, such as anteaters with very long snouts, designed to pick up ants from the interior of a nest under the guidance of the sense of smell.

When the higher apes are examined (Fig. 5) a change is found, dependant mainly on the recession of the sense of smell, with increased reliance on vision; the assumption of a semi erect posture, with bending of the vertebro-occipital and pituitary angles have an influence in allowing diversion of the air stream through the mouth when the latter is open, since olfaction is not of vital necessity; the epiglottis is not in close relation to the soft palate and in consequence the pharynx is increased in size.

In man this change is more marked because, in addition to flexion of the head on the spine, recession of the snout causes the tongue to be recurved, part lying in the pharynx, which is of considerable capacity. (Fig. 6).

If anatomical nomenclature were based on the structure of man alone the designation of epipharynx would be justified, but if a wider view is taken, with insistence on the reasons for piping air directly to the larynx and tracheo-bronchial tree, then the use of posterior nasal passage appears to be preferable.

This alteration in nomenclature would be acceptable not only to the morphologist, the human anatomist, the pathologist and the clinician, but also, I believe, to the comparative anatomist.

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