

Introduction by the Guest of Honour
THE PRIMARY FUNCTION OF THE NOSE

Sir Victor Negus, M.D.

The function of the nose has become confused because secondary functions have been added to that for which it was designed. To olfaction, respiration has been added as one of its duties.

The sense of smell is of great importance for finding and recognizing food, and in fish the olfactory organ has no other purpose. Particularly in carnivoraes mammals the number of olfactory receptors has been enormously increased, with a very extensive area of olfactory mucosa and, in consequence the sense of smell is very acute. To carry in olfactory molecules the olfactory organ opens into the pharynx and the inspiratory current of air provides a means of keeping up the sense of smell.

Various stages in olfactory elaboration can be observed in amphibia and reptiles and in various mammals, there being a multiplication of specialized turbinal bodies, with great complexity in macrosmatic carnivores and with extension of olfactory turbinals into frontal and sphenoidal sinuses to provide increased area.

In the arboreal apes and in man reliance is placed on sight rather than on smell and a regression into olfactory area is to be observed.

To prevent olfactory molecules from passing straight through the nose, inspiratory air is saturated with moisture, thus assisting in the deposition of odorous particles. The warming and moistening of air is effected mainly by the maxillo-turbinal bodies, which in animals of keen powers of scent are very complicated and of extensive area, while in species of fable olfactory powers they are of greatly reduced area.

Since this reduced area is sufficient for the purposes of the respiratory tract it is concluded that the great increase in some species, especially carnivores, is designed for the benefit of the olfactory sense. There is a direct relationship between the olfactory and the air conditioning areas of the nose and the conclusion is drawn that the function of the nose is olfactory, with respiration playing a minor rôle.

The shape of the snout is of interest, it being modified in accordance with the necessities of obtaining food; thus in ungulates it is long to reach out for herbage, while in many carnivores it is similarly extended in order to grasp prey. The nasal organ does not determine the shape but adapts its olfactory and air conductioning sections to that of the snout; in same carnivores it adds frontal sinuses to accomodate an increased number of olfactory turbinals.

As regards prevention of infection, the nose looks after its own regions by virtue of lysozymes carried in a blanket of mucus and propelled by cilia; entangled organisms are dumped in the nasopharynx and are destroyed by gastric juice. Although the nose filters off a certain number of bacteria, yet nose respiration is not designed with this end in view.

Sir Victor Negus, M.D., Hill Farm, HASLEMERE, Surrey/England.