

# LETTERS TO THE EDITOR

## The Actions of Drugs on the Isolated Trachea

SIR.—The isolated tracheal preparation has been much used recently.<sup>1</sup> Instead of simply tying the rings together, we have opened each ring and recorded only the movement of the circular muscle, thereby increasing the magnification at least three times. In the table are shown the minimal concentrations of histamine and acetylcholine necessary to produce constriction of various mammalian preparations. It will be noted that tracheæ of the dog are extremely sensitive to acetylcholine; those of the cat, rabbit and rat are insensitive to histamine. In these latter preparations, histamine reduces the acetylcholine response and that due to potassium chloride; a trachea contracted by acetylcholine, however, is partly relaxed by histamine whereas one contracted by potassium chloride is unaffected. It is suggested that permeability of the cell is affected.

SENSITIVITY OF TRACHEAL PREPARATIONS

Constrictor	Guinea-pig	Human	Dog	Cat	Rabbit	Rat
Acetylcholine ..	$10^{-7}$	$10^{-8}$	$10^{-9}$	$10^{-8}$	$10^{-6}$	$10^{-6}$
Histamine ..	$10^{-7}$	$10^{-6}$	$10^{-6}$	—	—	—

In all the species studied, calcium chloride potentiates the acetylcholine response but blocks the potassium stimulation. Magnesium chloride is much more effective in blocking the potassium stimulation than it is in reducing the acetylcholine response.

If only one tracheal ring is used, rhythmical activity may sometimes be seen. We have confirmed that this type of activity is present in the dog,<sup>2</sup> especially if small doses of histamine, acetylcholine or potassium chloride are introduced into the bath. It is present also in the rabbit and cat when the muscle is affected by small doses of acetylcholine or potassium chloride.

This smooth muscle preparation may be of value in assessing the activity of parasympathetic blocking agents, detecting the presence of minute quantities of acetylcholine in biological fluids, and studying the penetration of drugs through cell membranes.

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### REFERENCES

1. Castillo and de Beer. *J. Pharmacol.* 1947, **90**, 104.
2. Wick, *Arch. exp. Path. Pharmacol.*, 1950, **212**, 133.

## The Formation of Noradrenaline Using Ultra-violet Irradiation

SIR.—Extracts of posterior salivary glands of *Octopus vulgaris* contain a material named "octopamine" which has been identified as *p*-hydroxyphenylethanolamine (norsynephrine).<sup>1</sup> When this substance is irradiated with ultra-violet radiation in the presence of air, "hydroxyoctopamine" (i.e., noradrenaline) is formed.<sup>1</sup>