

TABLE 1. Potencies of adrenaline (A), isoprenaline (ISO), and phenylephrine (PE), relative to noradrenaline (N) as free bases on a number of human tissues containing smooth muscle

Tissue		Number of specimens	Type of response	Mean relative potencies			
				A	N	PE	ISO
Vein	Saphenous circular muscle	3	Contraction	4	1	0.08	0.005
Artery	Popliteal circular muscle	1	Contraction	4	1	0.2	—
Oesophagus	Lower third circular muscle	1	Contraction	5	1	0.2	—
Stomach	Pyloric antrum longitudinal muscle	4	Inhibition of acetylcholine induced contractions	>1	1	<1	≤1
Ileum	Longitudinal muscle	3	Relaxation	5	1	0.2	0.005
Colon	Longitudinal muscle	3	Relaxation	3	1	0.2	0.005
Rectum	Longitudinal muscle	3	Relaxation	3	1	—	0.04
				10	1	—	0.03
				3	1	0.1	0.003
Bladder	Detrusor muscle	1	Contraction	2	1	0.1	0.2
				4	1	—	0.1
				2	1	0.3	—

—, No response obtained in the concentrations used.

amechol (0.1 to 5 µg/ml.) to induce tone. Relative potencies were determined by the method of Furchgott (1967), the results being shown in Table 1.

In all tissues studied the order of potency was adrenaline, noradrenaline, phenylephrine followed by isoprenaline. In artery and vein the response to these sympathetic amines was contraction (excitation). In gastro-intestinal, smooth muscle the response was relaxation (or inhibition) apart from oesophagus, in which contraction (excitation) occurred. The order of potency obtained in these tissues indicates a significant α -adrenoceptive receptor population (Furchgott, 1967; Ahlquist, 1948).

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Effects of prostaglandin E₂ (PGE₂) on the output of histamine and acid in rat gastric secretion induced by pentagastrin or histamine

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The relationship between the output of histamine and acid from the rat stomach has been studied *in vivo* during intravenous infusion of pentagastrin and histamine. The lumen of the stomach was perfused with 0.8% saline (0.2–0.5 ml./min) and samples of perfusate were collected at 15 min intervals. Acid content was estimated by titrating an aliquot of each sample with N/100 sodium hydroxide and the histamine content of the remainder was assayed on isolated superfused ileum from the guinea-pig.

In five out of six experiments with pentagastrin ($0.05\text{--}0.2\text{ }\mu\text{g/min}$ intravenously) there was a significant correlation between the outputs of histamine and acid. The ratio of histamine (ng base) to acid ($\mu\text{-equiv}$) in different rats ranged from 0.22 to 1.43 with a mean of 0.57, similar to the ratio of 0.86 reported by Adam & Main (1960) during intravenous infusion of histamine.

Preliminary results suggest that inhibition of pentagastrin-induced acid secretion by PGE_2 ($0.2\text{--}2\text{ }\mu\text{g/min}$ intravenously) is not accompanied by a corresponding reduction in histamine output. During histamine infusion ($5\text{--}20\text{ }\mu\text{g/min}$ intravenously) PGE_2 inhibited acid secretion but increased histamine output which may indicate an increase either in mucosal blood flow or in permeability.

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ADAM, H. M. & MAIN, I. H. M. (1960). Reported in *Gastroenterology*, **39**, 827.

A digital oscillogram analyser used in biological assay and other experimental procedures

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This instrument consists of a micrometer with a travel of 150 mm, linked through

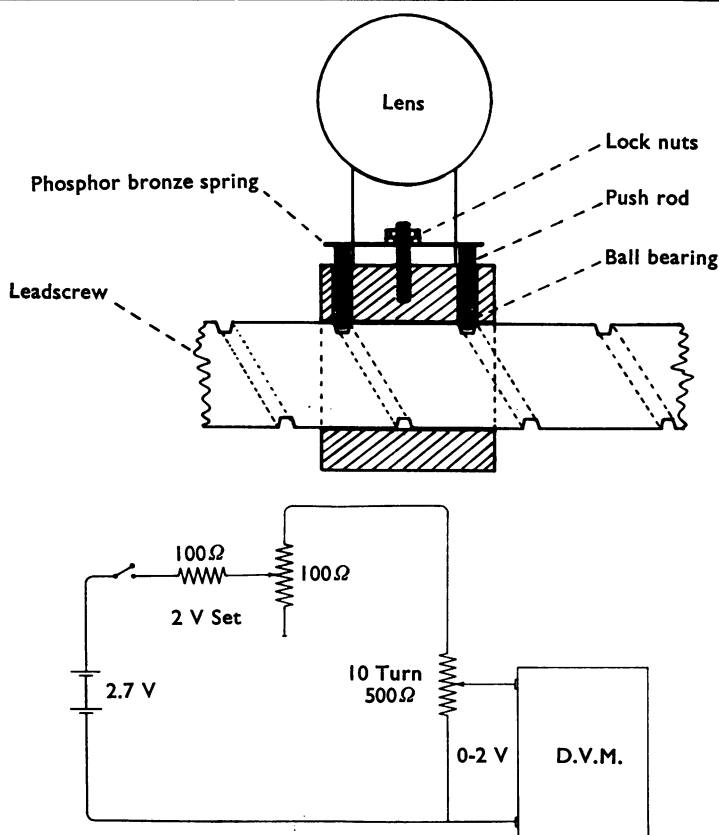


FIG. 1. The top diagram shows the moving parts of the micrometer showing the bearing between the saddle and the rotating rod. The bottom diagram shows the electrical circuit of the oscillogram analyser.