(1.0–3.0 μg/min), acetylcholine (3.0 μg/min) and bradykinin (0.3–1.0 μg/min). With a second or third infusion the responses to histamine or bradykinin were reduced, due to the development of tachyphylaxis.

In some experiments infusion of histamine or acetylcholine was followed by an increase in lymph flow without a concomitant increase in protein concentration. A further dissociation between these two parameters was more evident when the substance were infused together with the inhibitor Glyvenol® (ethyl-3,5,6-tri-*O*-benzyl-D-glucofuranoside) (Jaques, Huber, Neipp, Rossi, Schär & Meier, 1967). During such a combined infusion, although there was little change in the vascular or lymphatic response, the increase of protein concentration in the lymph was not as great as when histamine or bradykinin were infused alone.

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Catecholamine excretion in mice subjected to the stress of a test for anti-inflammatory activity

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Cocaine and a number of α-receptor blocking agents have been shown to reduce the permeability of the mouse peritoneal vascular bed to plasma albumin. The effect was antagonized by β-receptor blocking agents, so it was suggested that cocaine-like drugs reduced vascular permeability by potentiating the effects of endogenous catecholamines. As a continuation of this study, the urinary excretion of adrenaline and noradrenaline has been examined in mice subjected to the stresses involved in a test for anti-inflammatory activity similar to that described by Northover (1963).

Female Schofield mice (25–30 g) were injected intraperitoneally with 4 ml. of 0.05% acetic acid in normal saline at 39°, and intravenously with 0.2 ml. of 0.5% Evans blue in normal saline; urine was collected over the next 4 hr. Catecholamines were extracted by a modification of the method of Anton & Sayre (1962). The adrenaline and noradrenaline contents were estimated by a differential assay using the propranolol- and cocaine-treated pithed rat, and the electrically stimulated isolated rat uterus. The average recovery of adrenaline added to urine was 74%, and for noradrenaline the recovery was 68%.

During the 4 hr period of collection, normal mice excreted adrenaline 0.12 ± 0.02 (S.E.) μg/kg and noradrenaline 0.52 ± 0.07 μg/kg. Mice injected with Evans

blue and 4 ml. acidic saline excreted adrenaline 0.31 ± 0.03 μg/kg and noradrenaline 1.30 ± 0.08 μg/kg (values not corrected for losses in recovery).

Cocaine (15 mg/kg), piperoxane (4 mg/kg) or phenoxybenzamine (4 mg/kg) further increased the excretion of adrenaline and noradrenaline, but a significant increase was not obtained with desipramine (15 mg/kg). Reserpine (1 mg/kg given intravenously immediately before the collection of urine) caused a 5-fold increase in the excretion of adrenaline, but the output of noradrenaline was reduced.

It appears that tests for anti-inflammatory activity that stress the animals, are liable to give false positive results with substances which potentiate and/or release endogenous catecholamines.

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The effects of isoprenaline, atropine and disodium cromoglycate on ciliary motility and mucous flow measured *in vivo* in cats

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Lung clearance mechanisms, such as ciliary motility and mucous transport, form an essential part of the body's defence against air pollutants. We have used the method of Dalhamn (1960), originally devised for studying tobacco smoke and toxic gases, to examine the effect of isoprenaline, atropine and disodium cromoglycate, which are administered therapeutically by inhalation, on ciliary motility and mucous transport in the trachea of anaesthetized cats *in vivo*.

After dissecting the trachea free, a small " window " was cut in the ventral surface so that the inner ciliated surface could be viewed using a Leitz ' Ultrapak ' microscope. The trachea was made air tight by means of a special rubber tube and bellows linking the trachea with the lens of the microscope, so that the ciliated surface could be seen through the " window." The advantage of this method is that there is minimal disturbance of intratracheal conditions. The animal breathes normally and heats and humidifies the respiratory air.

Cell debris and air bubbles, trapped in the mucous blanket, were used as markers to measure directly mucous flow rate. Ciliary movement could be seen on the edge of a highlight caused by the reflection of incident light by the cilia. This movement was filmed with a high-speed cine camera through the microscope at 200 frames/sec.

Projection of this film at normal speed enabled counts of ciliary beat rate to be made. The compounds were applied topically to the surface of the ciliated epithelium in 0.01 ml. saline (0.9%) delivered from a micrometer syringe through the rubber connection. Readings of ciliary activity and mucous flow route were taken 10 and 20 min before application of physiological saline alone or containing test compound and at 10, 30 and 60 min afterwards.