The drug was administered after initial conditioning and prior to one session of reversal learning.

Rats were trained under water deprivation for 8 consecutive daily sessions of 10 min in a light-dark discrimination ; correct responses were rewarded with access to 0·2 ml tap water. The apparatus consisted of two parallel runways, at both ends of which a small water trough and manually operated pump delivered water when the animal traversed the correct runway. The brightness of each alley was controlled by a dimmer. Fifteen min before reversal learning, animals which had reached a previously determined criterion of learning were given an injection of saline, 6·25, 12·5, 25·0 or 50·0 μg/kg of LSD (I.P.) in 1 ml. Reversal learning consisted of 120 consecutive excursions through the runways, irrespective of whether the response was right or wrong. Reversal learning was facilitated by LSD at all dose levels except 6·25 μg/kg ; the results were statistically significant.

The effects of 12·5 μg/kg of LSD was observed at 5, 15, 45 and 90 min after injection. The results indicated that, although there was considerable variation within treatment groups, LSD facilitated reversal learning at all time intervals.

The effects of 25 μg/kg of LSD, administered 15 min prior to reversal, were compared with 25 μg/kg of bromolysergide (BOL 148) and a saline control group. Statistically significant facilitation was obtained with LSD ; the BOL 148 and saline groups did not differ.

Biochemical analyses of the brains of the animals used in these experiments are being carried out. Preliminary results indicate that the doses of LSD which caused a facilitation of learning produce increased 5-hydroxytryptamine (5-HT) levels.

The results of these experiments provide evidence for facilitation of learning by LSD. Subsequent experiments will be directed towards the identification of the neurotransmitter which may mediate these behavioural effects. Previous studies by Boakes, Bradley, Briggs & Dray (1970) and Appel, Lovell & Freedman (1970), have provided evidence that 5-HT may be involved.

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Study of the mechanisms of action of desipramine and chlorpromazine in reversing reserpine-induced hypothermia in mice

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A screening test commonly employed in the evaluation of compounds with potential antidepressant activity involves the reversal of reserpine-induced hypothermia in rodents, usually mice. Chlorpromazine has been reported to reverse reserpine-

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induced hypothermia in mice (Morpurgo and Theobold, 1965 ; Whittle, 1967) even though this compound finds clinical use in a completely opposite context to the antidepressants, as a major tranquillizer. In view of the apparently anomalous activity of chlorpromazine in the reserpine reversal test, we have carried out experiments to establish whether the thermogenic response to chlorpromazine is mediated by the same mechanisms as the thermogenic response to desipramine, a clinically proven antidepressant structurally related to chlorpromazine.

Groups of 6 male, albino mice (18–20 g) were injected subcutaneously with reserpine 2 mg/kg, and maintained at an environmental temperature of $20 \pm 1°$ C ; 17 h later, the test compound or control vehicle was administered. Oesophageal temperatures were recorded every hour using an orally-inserted probe.

A dose-related reversal of reserpine-induced hypothermia in mice was demonstrated with orally-administered chlorpromazine and desipramine.

The reserpine-induced hypothermia was also reversed by the injection of chlorpromazine or desipramine directly into the cerebral ventricles by the method of Haley & McCormick (1957). Desipramine was approximately 30 times as potent as a thermogenic agent when administered by the intracerebral, rather than the oral, route. Similarly, the thermogenic potency of chlorpromazine was increased some 8 to 15 times.

Pretreatment of the mice with chlorisondamine (1 mg/kg S.C.) 1 h before oral administration of chlorpromazine or desipramine completely abolished the thermogenic responses.

The reversal of reserpine hypothermia by desipramine was not demonstrated in mice bilaterally adrenalectomized 24 h before reserpinization. The reversal of reserpine hypothermia by chlorpromazine was considerably reduced, but not completely abolished, by adrenalectomy.

These results indicate that there needs to be functional ganglionic transmission for the manifestation of the thermogenic activities of chlorpromazine and desipramine, and that the activities are central, rather than peripheral, in origin. The presence of intact adrenal glands is required for the demonstration of the thermogenic response to desipramine and of the full response to chlorpromazine in reserpinized mice. The retention of some thermogenic activity, although much reduced, by chlorpromazine in adrenalectomized mice suggests that part of the temperature elevation elicited by this drug in reserpinized mice is mediated by effector systems apart from those involving the adrenal glands.

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The role of monoamines in the hyperthermia produced in cats and rabbits by irradiation of the hypothalamic area

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Irradiation of the hypothalamic area with X-rays in a dose of 600 or 200R produced, both in cats and rabbits, a rise in rectal temperature of about 1°C. The