of these animals to amphetamine. The concentrations of brain amphetamine and the effects of amphetamine may be modified by the morphological immaturity of the cerebral cortex in the youngest mice (Kobayashi, Inman, Buno & Himwich, 1963).

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Inability of antidepressants and morphine to reverse reserpine-induced hypothermia in adrenalectomized mice

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The interaction between imipramine-like compounds and reserpine on body temperature in rats may be mediated through the central sympathetic system (Bernardi, Paglialunga & Jori, 1968). In mice, however, Somerville & Whittle (1967) have proposed that the hypothermic action of reserpine may be peripheral rather than central. Since the reversal of reserpine-induced hypothermia by desmethylimipramine is enhanced rather than abolished in immunosympathectomized mice (Greenwood & Somerville, 1970) the possibility remains that the adrenal gland plays an important part in this response.

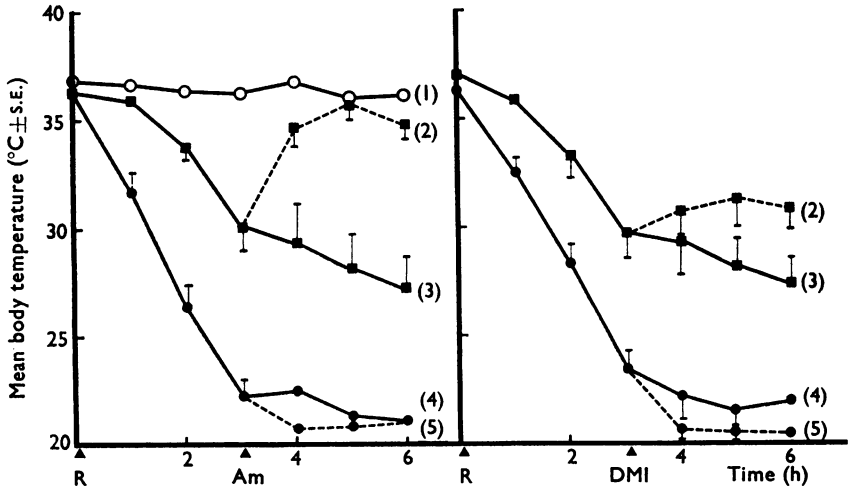

FIG. 1. Lack of antagonism by oral amphetamine (left) and desmethylimipramine (DMI) (right) of the hypothermic effect of reserpine (R) (2 mg/kg, s.c.) in groups of six adrenalectomized mice (ADX). (1) ADX+saline+saline. (2) Sham operated mice+reserpine+amphetamine (10 mg/kg) or DMI (10 mg/kg). (3) Sham operated mice+reserpine+saline. (4) ADX+reserpine+saline. (5) ADX+reserpine+amphetamine (10 mg/kg) or DMI (10 mg/kg).

We have examined the effect of adrenalectomy on the thermogenic response of antidepressants and morphine in reserpinized mice. Groups of six T.O. mice (male, 20–22 g) were adrenalectomized 40–44 h before the administration of reserpine (2 mg base/kg, s.c.) or saline. Three hours later the test compound or saline was given. Oesophageal temperatures were recorded every hour (room temp., 20±1° C) using an orally-inserted probe.

Adrenalectomized mice showed an enhanced sensitivity to the temperature-lowering effect of reserpine.

It was not possible to demonstrate reversal of reserpine-induced hypothermia in adrenalectomized mice with the following compounds which effect a reversal in normal mice: (+)-amphetamine (1 and 10 mg base/kg, p.o.), desmethylimipramine (1 and 10 mg base/kg, p.o., see Fig. 1), morphine (75 mg base/kg, s.c.), diprenorphine (30 mg base/kg, s.c.) and the dihydrocodeinone R & S 336-M (10 mg base/kg, s.c.).

Since the thermogenic effect of these compounds was only demonstrated in reserpinized mice with functional adrenal glands, this response would appear to be a peripheral phenomenon mediated by the release of catecholamines from the adrenal medulla.

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Alterations in the sleep/wakefulness cycle in rats after administration of (−)-LSD or BOL-148: a comparison with (+)-LSD

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In a previous communication (Depoortere & Loew, 1971a) we reported that treatment of rats with (+)-LSD produces quantitative and qualitative changes in the sleep/wakefulness cycle. In particular, (+)-LSD administration causes qualitative changes in paradoxical sleep as evidenced by changes in the electrical activity of the visual system. In the following experiments the effects of (+)-LSD were compared with those of its laevorotatory isomer and its non-hallucinogenic bromine derivative BOL-148.

Male Wistar rats, bearing chronically implanted electrodes for electroencephalographic and electromyographic recordings were used. Continuous recordings were made during 6 h after injection of drug or saline. Control experiments, using the same animals, were performed on the day preceeding treatment. In addition to the quantitative analysis of the durations of various phases of the cycle, the qualitative changes in paradoxical sleep were evaluated using a method recently described (Depoortere & Loew, 1971b).

(−)-LSD tartrate, 1 or 3 mg/kg, or BOL-148 bitartrate, 3 mg/kg were injected intraperitoneally in a volume of 5 ml/kg 15 min before the recordings. All the results