had received one of the mixtures for at least five days. This was found to reflect the effective analgesic dose on which the patient had been stabilized.

Of the 116 patients, 61 received diamorphine and 55 morphine. Other drugs, prescribed by the ward physician when necessary, were distributed equally between both groups. A comparison of the maximum doses revealed unequal distribution, the morphine group being 'weighted' in favour of the smaller doses. By dividing the diamorphine group into high (>20 mg) and low ($\leqslant 20$ mg) subgroups, it is possible to compare the diamorphine with the morphine doses at three different ratios. A balanced distribution occurs at a ratio of 1:1·5.

As a more exact test the total daily dose of diamorphine or morphine was compared after three weeks in the 41 surviving patients. The totals were compared in the same way as the maximum individual doses. A ratio slightly in excess of 1:1·5 was obtained.

The fact that the equipotent oral dose ratio is other than unity demonstrates that diamorphine can survive, at least in part, in a form other than morphine until it has been absorbed by the alimentary tract.

This work was supported by the Sir Halley Stewart Trust and the Department of Health and Social Security.

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Effects of chlorpromazine on thermoregulatory reflexes in man

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Although chlorpromazine is used primarily as a major tranquillizer, it also produces a fall in body temperature when administered systemically to man and animals in relatively large doses (Dobkin, Gillent & Lamoureaux, 1954; Kopera & Armitage, 1954). Use is made of this property of the drug in the production and maintenance of hypothermia in clinical medicine (Gray & Graham, 1971). However, the mechanism by which chlorpromazine produces its effect on temperature is unclear. It could act within the central nervous system by reducing the sensitivity of thermoregulatory processes, or peripherally by interfering with thermoregulatory vasomotor control by producing vasodilatation (Ginsburg & Duff, 1956).

It has been shown in man (Cooper, Cranston & Snell, 1964) that a linear relationship exists between an applied thermal load (cal kg^{-1}) and the integral of the induced oral or ear temperature change (°C min). The slope of the line relating these two variables provides an index of thermal sensitivity (S_t) with dimensions of cal kg^{-1} °C min^{-1}. Control estimations of S_t were made in six healthy male volunteers. Each subject then received oral chlorpromazine (30 mg/day in divided doses) for 3 days; S_t was determined at the end of this period and again one week later. Mean pre-treatment and post-treatment (1 week) values for S_t were

91 (S.E. of mean ±23) and 92 (S.E. of mean ±23) (cal kg)/°C/min respectively. At the end of the three days of chlorpromazine treatment, however, mean S_t was reduced to 43 (S.E. of mean ±8) (cal kg)/°C/min which was significantly different from both the pre-treatment ($t=1{\cdot}95$, $P<0{\cdot}05$) and 1 week post-treatment ($t=2{\cdot}01$, $P<0{\cdot}05$) values. The resting oral temperature was not significantly different between any of the three periods studied.

In 3 subjects cardiovascular reflex activity was assessed before and after 3 days chlorpromazine treatment by measuring forearm blood flow during lower body suction and hand blood flow during the application of ice to the neck (Foley, 1970). Mean forearm blood flow during lower body suction was (2·2 ml/100 ml)/min both before and during chlorpromazine treatment. Mean hand blood flow during the application of ice to the neck was 7·3 ml/100 ml before and (7·1 ml/100 ml)/min during chlorpromazine treatment.

The results indicate that chlorpromazine impairs thermoregulatory mechanisms at doses which do not result in a fall of body temperature or alteration in cardiovascular reflexes. This impaired sensitivity does not appear, therefore, to be mediated by a peripheral effect on the vasomotor control of thermoregulation.

This work was supported, in part, by the Medical Research Council, and the National Fund for Research into Crippling Diseases.

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The distribution of solutes in cerebral cortex slices and the effects of drugs on the permeability of intracellular compartments to glucose

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Investigations of monosaccharide transport systems involving incubated cerebral cortex slices have required that the total slice water to be quantitatively partitioned between intracellular and extracellular compartments (Bachelard, 1971; Gilbert, 1966). It has been customary, therefore, to include in the incubation medium a solute whose distribution is restricted to the extracellular compartment. The difference between the volume of distribution of the solute (solute space) and the total slice water is then taken to represent the magnitude of the intracellular compartment. At 37° C raffinose becomes distributed in a space which behaves as an extracellular compartment (Gilbert, 1966). However, studies conducted at 1° C have shown that phenobarbitone can increase the rate of transport of glucose through the raffinose space (Gilbert, 1972). This suggested that at 1° C the raffinose space