of poisoning the use of a dose of a narcotic three times the medium therapeutic dose qualified for an act of self-poisoning being regarded as suicidal.

I still think that for the time being a non-fatal act of self-damage falling into the above definition should be described as attempted suicide and a fatal one as suicide. Attempted suicides should be sub-classified or graded according to their 'lethality' (2) and other criteria. In the proposed operational definition, suicidal acts of various degrees of dangerousness are viewed as parts of a continuum in which the relatively harmless to the almost certainly fatal can be placed. Terms like 'parasuicide', 'pseudocide' (3) or 'suicidal gesture' tend to deny or at least to obscure this fundamental fact for which there is ample clinical evidence.

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CIRCADIAN RHYTHMS IN MANIC-DEPRESSIVE PSYCHOSIS

DEAR SIR,

The interesting survey of circadian rhythms in 12 depressive patients by Drs. Moody and Allsopp (*Journal*, August, 1969, pp. 923–28) seems to suggest that a disturbance of man's central timing device may lie at the root of this malady.

It is about ten years since Dr. Janet Harker first described the isolation and successful transplant of a central physiological clock. Although the animal concerned was only the humble cockroach, this work does seem to have great theoretical importance. Somehow it carries the implication that in higher creatures as well this internal clock is likely to be an anatomical entity, probably placed in close relation to the hypothalamus.

That normal man is subject to an inner, 'circadian' rhythm, at variance with that of the solar day, has been thoroughly proved by isolation experiments on healthy volunteers, such as those by Professor Aschoff. It has been argued therefore that in health the central physiological 'clock' is highly responsive to external (or solar) time, and synchronizes with it. However, in depression this internal clock tends to re-establish its 'primitive' dominance. That this change-over to an intrinsic circadian timing is likely to be only partial is due to some residual influence being retained by the solar time-scale, at least during the active hours of the day. It is such an uneasy equilibrium which may account for the variations in the shift of water and electrolyte excretion, such as the authors noted in their twelve patients.

Certainly, the classical disturbance in the sleep pattern of this illness could be seen to fit into this schema of 'time out of joint'. In these circumstances, the central or intrinsic clock may be said to exact its own pathological tribute by triggering the arousal mechanism at inappropriate times.

As for the seasonal increase in depressive illness in spring and autumn, this could be explained by the changes in background illumination acting as a stress on the smooth running of the solar rhythm. This may enable the intrinsic rhythm to break through, with subsequent release of the depressive reaction.

This model lends itself quite well to testing by experiment, where isolation facilities are available. A suitable depressed subject may be monitored under conditions of complete deprivation of external (solar) time. One might predict that this would eliminate the stress which stems from the postulated conflict between external and inner time, and may in this way lead to clinical amelioration. Alternatively, a fit volunteer could, in a similar setting, be administered depression-inducing drugs in order to discover if changes such as the 'functional shift' in hypothalamic function, described by Dr. Pollitt, will still ensue.

Also, such a model could provide a gratuitous bonus for those interested in the physiology of sleep. The paradoxical and non-paradoxical alternating phases of the sleep cycle could then be considered as a dynamic equilibrium between the intrinsic rhythm emanating from the central clock, and the solar-conditioned rhythm. It is the REM phase of sleep which would need to be equated with the 'primitive' inner rhythm control.

However, experimental EEG findings, such as those obtained by Dr. Oswald in depressed subjects, remain inconclusive in that direction.

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DEAR SIR,

In their article, Moody and Allsopp (*Journal*, August, 1969, p. 923–8) reported water and electrolyte circadian rhythm changes in twelve female manic-depressive subjects, and concluded that, although there was a tendency for the water rhythm to be associated with the depressive phase of the illness, 'no constant pattern of change' could be determined, the water rhythm being advanced in six subjects and delayed in six.

Although the authors note that 'seven of the group were pre-menopausal whilst five were post-menopausal' there is no indication that this significant difference in endocrine status was considered a factor influencing the inconclusive results from this study.

The effects of sex hormones upon water and electrolyte balance and the implication of sex hormone imbalance in certain depressions (Rees 1966, Hamilton 1962) and in other psychiatric conditions (Torghele 1957, Taylor 1969) suggest that a re-evaluation of the data from this study with consideration for the endocrine status of each subject, might clarify Moody and Allsopp's inconsistent findings.

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DEAR SIR,

In specifically studying patterns of water and electrolyte excretion, our prime object was to establish whether significant differences did in fact exist on comparing the profile of urinary output in the depressed and normal periods. This was a necessary prerequisite to investigating the factors responsible for any such changes.

Dr. Heymann's interesting hypothesis would, on present evidence, appear to be well worth testing if the rather difficult combination of isolation, metabolic and monitoring requirements could be met in psychiatrically ill as well as in normal subjects. An extension of such work could have fascinating implications for researchers in psychiatry and in aviation medicine interested in problems related to phase shifts.

Dr. Taylor raises the complementary and related point of looking at the possibility of explaining the observed phenomena on the basis of 'hormone imbalance'. We had examined the data in relation to several parameters not listed in our paper, and found that the pre/post-menopausal status and phase of the menstrual cycle in our patients were not correlated with delay or advancement of the water or sodium rhythms. However, we should like to stress the point that to draw more than the most tentative conclusions about the endocrine status of the patients from purely clinical observations would be quite unwarranted. A study aimed at obtaining the relevant data would involve the formidable task of measuring production and secretion rates, plasma levels and excretory patterns of the relevant sex hormones at frequent intervals. Furthermore, careful studies (Watson & Robinson 1965; Bruce and Russell 1962) have often failed to demonstrate a clear relationship between the phase of the menstrual cycle and water and electrolyte changes. We feel that the examination of aldosterone secretion rates and control mechanisms is more immediately relevant to the problem, and one of us (M.N.E.A.) is now engaged in such a study.

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NURSES FOR CHILDREN'S UNITS

DEAR SIR,

Dr. Wardle (*Journal*, October, 1969, p. 1228) has written about a problem of great importance to those concerned with the running of psychiatric in-patient units for children and adolescents.

My own view, based on four years' experience of an in-patient unit dealing with 20 psychiatrically disturbed children from 10 to 16 years of age, is that there is a definite but limited place in such units for nurses,