

deprives the student doctor of experience and is to the detriment of the community as a whole.

What are the disadvantages, real or imagined, to the patient attending a teaching hospital, and do they weigh heavily against the advantages to the patient and the necessities of teaching? Most patients are naturally apprehensive when they come to the outpatient department or are admitted to hospital. Their fears are likely to be heightened if they are met not merely by one strange doctor but by a doctor with a group of students. Here much can be done by the hospital staff from the receptionist through the nursing staff to the doctor to establish rapport and ease the patient's concern. On this first encounter the happiness and comfort of the patient greatly depend. Modern medical education requires that student groups must usually be limited to six or eight. Students are nearly always sensitive of a patient's feelings, but it might help patients to know that clinical students are already experienced men and women, often university graduates, and about one-third of them married. A kindly greeting from the teacher is clearly as essential as good manners, and no good doctor will fail to show an all-absorbing interest in the patient when *receiving* the history. (To *take* a history by interrogation will result in learning only about half of the patient's problem.) A secure, experienced teacher, who refuses to see too many patients per session, will have no difficulty in establishing trust and sympathetic co-operation. Lacking personal inhibitory problems, a physician can usually, even in the presence of student doctors, discuss without embarrassment to the patient or himself such personal matters as contraception and sexual gratification.

No systematic study has been made of the very few patients who decline to be taught upon, but there must usually be a psychological reason for their attitude. They are seemingly always women; most are middle-aged, and they often dislike biology or scientific subjects, or else have bizarre and inaccurate ideas about medical science. Patients have a perfect right to refuse to be taught upon, and the doctor must accept this right with good grace. At a second visit the patient may behave differently, perhaps because her fears have been dispelled. Refusals are so rare that a disproportionate issue should not be made of it. Though most patients attending a teaching hospital know they may be the subject of medical instruction, it is wise to draw attention to this eventuality on the outpatient appointment card or the printed information now sent to forthcoming inpatients, and perhaps to point out at the same time that co-operation in it is a valuable contribution to the community. General practitioners can help by recognizing the occasional patients who would be averse to teaching and sending them to non-teaching hospitals.

Even if the grounds for complaint are few, much could be done, given the money, to improve the present situation. Outpatient consulting-rooms should not be too large nor furnished like a supermarket. Examination rooms should be rooms and not curtained-off alcoves. Soundproofing must be adequate, and the all too common practice of six doctors working in one large room should be ended by providing the accommodation that patients and doctors deserve. The skilful use of blankets and coloured Turkish towelling and dressing-gowns can allow a complete physical examination without embarrassing exposure. Rectal and vaginal examinations are so personal a matter that they should be conducted in privacy with only the consultant, the attending nurse, and

the one student who is the patient's appointed friend and confidant in attendance. It is worth noting that the proud expectant mother in the second half of her pregnancy is usually at ease in this situation. Much should be done to improve inpatient teaching facilities. Few hospitals, teaching or otherwise, have a room adjacent to the ward in which a patient can be interviewed in private. It is as uncomfortable for the houseman as for the patient to receive a history when separated from a neighbouring patient by a bare 5 ft. and a linen curtain. The open ward round should go and with it open discussion of the patient's illness in front of other patients, but how many teaching hospitals yet have clinic rooms to which the patient can be wheeled and where certain aspects of their case can be discussed after they have returned to the ward?

In short, the response which every member of the staff of a teaching hospital would like to see was recently expressed by a patient in a famous London teaching hospital, who wrote on behalf of all those in her gynaecological ward: "At all times we have been treated with great courtesy and at no time have we felt any loss of dignity. . . . When I have my operation, I hope the medical students who attend my consultation learn something from it."<sup>4</sup>

## Rhythm of Life

Travel by jet aircraft has brought home to us that we are creatures of rhythm. We live adapted to a particular light rhythm, a particular repeating daily timetable, and suffer a malaise for a few days whenever jolted out of it. Every passenger who crosses the Atlantic finds his hunger, his urge to sleep, his enthusiasm for work, and his clear-headedness arising at the wrong times. The cosmonaut fired into orbit suddenly starts a life where day swiftly follows night in minutes, not hours. The soldier deposited for manoeuvres within the Arctic circle may face a summer day (or winter night) weeks long; and how to maintain the efficiency of both in a dramatically changed environment is a problem for the military scientist. The much less glamorous question of industrial health and the efficiency of the worker in industry on a different shift each week has received less attention.

There are many diurnal or circadian ("about a day long") bodily rhythms. Some of them, such as body temperature, seem to be a direct consequence of changes in voluntary bodily activity as the day goes on, but others are endogenous, primarily independent of the vagaries of environment, though adaptable to it—sleep, for instance, or sodium and potassium in the urine. The excretion of these electrolytes waxes and wanes through each 24 hours regularly and steadily, unaffected in rhythm by the nature of the diet or the times of meals or by periods of bed rest or labour. Usually there is a maximum around midday, a minimum around midnight. The Londoner suddenly transported to New York continues to keep Greenwich mean time for a few days so far as his urinary electrolytes are concerned, and then the sodium peak shifts round to the New York noon, and the potassium peak follows days later. Thus the body has internal clocks of its own, keeping approximately 24-hour time even in the presence of changed environmental cues, or in their total absence in sensory isolation. The sodium clock and the potassium clock must have separate mechanisms, and both can be reset by local circumstances.

Such internal clocks governing many different physiological or biochemical processes are well known throughout the

<sup>1</sup> Bayliss, R. I. S., *Lancet*, 1964, 1, 770.

<sup>2</sup> Mitchell, J. P., *ibid.*, 1964, 1, 825.

<sup>3</sup> *Brit. med. J.*, 1966, 1, 1433.

<sup>4</sup> Wright, M. V., *Daily Express*, 15 December 1966.

animal and plant worlds,<sup>1 2</sup> and it is hardly surprising to find them present also in man.<sup>3 4</sup> The environment of most living things fluctuates regularly with changes of light and temperature which are diurnal, or seasonal, or annual, with a monthly cycle of moonlight as well. There are adaptive advantages to the organism in temporal harmony with its usual environment.

The human baby is not born with these daily rhythms. They develop slowly during the first twelve to twenty weeks of independent life,<sup>2</sup> later in the premature infant, and at different times for the different rhythms in the same individual. These facts once again emphasize that the rhythms are essentially endogenous, and not a passive response to the rhythmic environment. Their physiological mechanisms remain largely obscure, but it seems likely that human rhythms are imposed by the central nervous system (hypothalamic clocks, perhaps), which releases hormones at different times and so evokes some of the cyclical phenomena we observe. Thus under hypothalamic orders there is a diurnal variation in the level of plasma cortisol, with a peak in the early morning, and evidence<sup>5</sup> that these changes in level in turn control the urinary rhythm of potassium excretion. Adrenal corticoids also have some influence on the other urinary rhythms, since raised levels of corticosteroid in plasma and urine, whether from disease or drugs, are associated with suppression of the normal rhythms.

One difficulty in all research on rhythms is to disentangle the mechanism of time-keeping from the mechanism that shows us the time. The spring and balance wheel may be hypothalamic, so to speak, while the urinary sodium represents a hand of the clock. Hormones which influence renal function may make the kidney able or unable to respond in rhythm to a timed stimulus from elsewhere. They do not indicate what that stimulus is. More light on both kinds of mechanism will come from more clinical studies. Much remains to be done in observing changes in diurnal rhythms in infancy and in extreme age and in various endocrinological and neurological disorders. Encephalitis lethargica was noteworthy for its inverted sleep rhythm, and if it is coming back<sup>6</sup> there will be invaluable opportunities for studying its changed rhythms by modern methods. Diurnal rhythms also require study after psychotropic drugs or neurosurgical treatment.

To the psychiatrist diurnal variation in patients' behaviour is often striking. The person who is very depressed in the mornings may appear quite cheerful in the afternoons—to such an extent that the time of an outpatient appointment may make all the difference to a clinical assessment. This is one of the many difficulties in judging the value of treatment for endogenous depression. Dr. A. Elithorn and his colleagues have seized on this condition to study urinary electrolyte excretion rhythms, and their report appears at page 1620 of the *B.M.J.* this week. A substantial number of normal people feel inactive in the mornings and better by evening,<sup>7</sup> so that the mood swing in depressives might be an exaggeration of the normal, and if so it might be expected that the urinary electrolyte rhythm would show a similar sharpening in depressive illness. Dr. Elithorn and his colleagues find

rather the opposite. The rhythm is there, timing is normal (but would it respond so well to a change in environmental daytime?), but the peaks and troughs are less marked. The explanation of this might be the raised plasma cortisol often found in cases of depression.<sup>8</sup> Or it could, as the authors point out, be a reflection of something in the physical pathology of the disorder. This will become clearer when diurnal excretory rhythms have been studied in other psychiatric and neurological diseases and we have a background against which to view the present results.<sup>9</sup>

## Abortion Law

The Bill to “amend and clarify the law relating to termination of pregnancy by registered medical practitioners” is due to reach its Committee stage in the House of Commons on 18 January. It is a private Bill and was introduced by Mr. David Steel, Liberal member for Roxburgh, on 15 June and received its second reading on 22 July, when it got the backing of the House by 223 votes to 29.<sup>1</sup> Though medical men and women hold diverse views on the many controversial questions surrounding the termination of pregnancy, few of them would go all the way with the Bill as it stands, and partly to meet some of the criticisms made of it Mr. Steel, together with Dr. M. Winstanley and Dr. M. S. Miller, tabled an amendment on 21 December. The texts of the Bill and amendment are reproduced at page 1650.

The Bill as now amended would legalize abortion if two registered medical practitioners are of the opinion, formed in good faith—

“(a) (i) that the continuance of the pregnancy would involve risk to the life or of injury to the health or wellbeing, whether physical or mental, of the pregnant woman whether before or after the birth of the child; (ii) in determining whether or not there is risk of injury to health or wellbeing account may be taken of the patient's total environment actual or reasonably foreseeable; or,

“(b) that there is a substantial risk that if the child were born it would suffer from such physical or mental abnormalities as to be seriously handicapped; or

“(c) that the pregnant woman's capacity as a mother will be severely overstrained by the care of a child or of another child as the case may be; or

“(d) that the pregnant woman is a defective or became pregnant while under the age of sixteen or became pregnant as a result of rape.”

Thus the Bill seeks to codify in statutory form the case law that has grown up on the termination of pregnancy, and at the same time to extend the grounds on which termination would be legal. The medical profession is not unanimous that the first is necessary for the patient's well being or the second desirable, but some general expressions of opinion have now been published that do show broad agreement on some of the issues to be decided. Reports have come from the council of the Royal College of Obstetricians and Gynaecologists,<sup>2</sup> a special committee of the British Medical Association,<sup>3</sup> the Royal Medico-Psychological Association,<sup>4</sup> and the council of the Medical Women's Federation.<sup>5</sup> In addition the B.M.A. and the R.C.O.G. have sent a joint statement of views to the Home Secretary, the Minister of Health, and to Mr. D. Steel and Dr. M. Winstanley, sponsors of the Bill. This was approved by the Council of the B.M.A. at its meeting last week and is published in this issue of the *B.M.J.* at page 1649.

<sup>1</sup> Bünning, E., *The Physiological Clock*, 1964. Berlin.

<sup>2</sup> *Cold Spring Harbor Symposia on Quantitative Biology*, 25: Biological Clocks, 1960. New York.

<sup>3</sup> Richter, C. P., *Biological Clocks in Medicine and Psychiatry*, 1965. Springfield.

<sup>4</sup> Reimann, H. A., *Periodic Diseases*, 1963. Philadelphia.

<sup>5</sup> Imrie, M. J., Mills, J. N., and Williamson, K. S., *Hormones and the Kidney*, Mem. Soc. Endocrinol., No. 13, 1963.

<sup>6</sup> Hunter, R., and Jones, M., *Lancet*, 1966, 2, 1023.

<sup>7</sup> Hampf, H., *Arch. Psychiat. Nervenkr.*, 1961, 201, 355.

<sup>8</sup> Gibbons, J. L., and McHugh, P., *J. Psychiat. Res.*, 1962, 1, 162.

<sup>9</sup> *Brit. med. J.*, 1966, 2, 373.

<sup>1</sup> See *Brit. med. J.*, 1966, 2, 311.

<sup>2</sup> *Ibid.*, 1966, 1, 850.

<sup>3</sup> *Ibid.*, 1966, 2, 40.

<sup>4</sup> *Brit. J. Psychiat.*, 1966, 112, 1071.

<sup>5</sup> *Brit. med. J.*, 1966, 2, 1512.