linked to the size of the established senior registrar grade (section V, recommendations C and D) will only number between 1508 and 2011, if the calculation is made on the 3017 senior registrars shown in table XII.

Although it was missed in 1948, it has been known since 1966 that, to work efficiently and eliminate bottlenecks, a training-career system must be arranged so that the number of posts in each of the constituent grades, including the final or consultant grade, must be directly proportional to the tenure of office in years as 1:1.

In visits to the DHSS in 1969 I pointed out that they could not overcome their neglect of this rule by introducing differential growth rates—2.5% pa for the training grades and 4.0% pa for consultants—their objective of a ratio between the training grades and the consultants of 1.3:1 being virtually irrelevant. For what it is worth, this ratio, according to the working party, is 1.6:1 at the present time. Also I had the privilege, in January 1971, of explaining the practical consequences of the career rule to the executive subcommittee of the CCHMS.

This working party deplores the bottleneck between the registrar and senior registrar grades, but I doubt if they appreciate that the bottleneck is due to the authorities' neglect of the career rule, and that to ensure the success of their proposal the existing overall ratio of 2.1:1 between registrars and senior registrars must be reduced to a ratio of 0.5 or 0.66 of a registrar to each senior registrar. This step would result in a ratio of 0.14 of a registrar per consultant, or slightly less.

F S A DORAN

Ledbury, Herefordshire HR8 2HD

SIR,—I sincerely hope that the recommendations of the working party on medical manpower in hospitals (19 May, p 1365) are not implemented; such action would have disastrous consequences for patient care and the quality of clinical medicine and surgery in this country.

Many of your readers are already familiar with hospital consultant practice, with reduced or absent registrar support following the introduction of the junior doctors' contract: continuity of patient care no longer exists in many instances, and the medical or surgical team exists only during office hours and weekdays (bank holidays excluded). This system may work very well in the management of some patients but it is quite inadequate for the care of the seriously ill; these patients require continuous care by a team of doctors headed by the consultant. No consultant, however dedicated, is able to provide such care single-handed; nor is he able to maintain satisfactory standards when he is dependent on a constantly changing rota of on-call junior doctors imported from elsewhere in the hospital or, perhaps, elsewhere in the city.

The humanitarian aspects of your leading article (p 1299) are laudable but your solution to the problem of the career prospects of junior doctors spells disaster for the patients in our hospitals.

THOMAS T IRVIN

Royal Devon and Exeter Hospital,
Exeter, Devon

SIR,—If, as is generally held, the present pyramidal staffing structure is undesirable, it is regrettable that the Council working party

(19 May, p 1365) has not recommended a reduction in medical school intake. The only ways to arrest the imbalance are to reduce the input to the training grades or to increase the output from them, or both. However, because three times as long is spent in the career grade as in the training grade, an increase in output from the latter will continue to swell the numbers of the career grade for 30 years. Even if only 500 of the 1000 extra graduates entering the profession per year enter the career grade, ultimately 15 000 extra career posts will need to be created. Do we really need or want such a glut?

A superfluity of doctors will lead to much unhappiness in the profession, and it is doubtful whether it will do the public much good either. It is high time that a brake is put on the medical schools.

G H HALL

Exeter EX2 4AY

SIR,—The Council working party report (19 May, p 1365) draws together a number of ideas that have been put forward over recent years, in a constructive effort to plan a modified career structure.

Limitation of entry of foreign doctors has often been suggested; there would need to be quotas for each specialty, based on proper analysis of spare training capacity; and the manpower arithmetic would have to be more reliable than in the past. The great advantage of the present "cushion" is its ability to compensate for our failures in domestic production and in estimation of need. More important, perhaps, is the restriction of employment of overseas doctors to a maximum of five years, the political difficulties of which would be seriously compounded if we wished to eat our words in order to keep the service going.

Many problems would arise over the designation of two kinds of "registrar" posts, both within and between hospitals. Also, as the general practitioners have shown us, it is impossible to assume that training for a specialty requires only training in the specialty. Much more thought needs to be given to the planning of programmes of training at this level, with emphasis on the appropriate allocation of individuals rather than the immutable categorisation of posts. Opportunity for research and academic experience, for those who desire it, should be built into such programmes.

The withdrawal of juniors from hospitals and the compensatory payment of consultants would have serious effects on education and standards of practice. In the interests of specialist training and, more importantly, continuing education, every effort should be made to bring junior and senior people into contact in all hospitals.

The suggestion that doctors in some specialties might expect three or four years to be spent as an SHO before even the "probationary year" of training is alarming. It makes an average total of eight years of training, which in itself is too long, sound improbable.

We have learned the futility of trying to cram everything into the medical school course to produce a fully trained doctor on graduation. We are now learning that it is equally futile to pack our postgraduate training programmes with all that might be desirable, in order to create a "fully trained" specialist. Any imaginative concept of the career structure, fit for the future of medical practice,

should concentrate on transferring as much as possible to the phase of continuing education. We need to get on with training people quickly and effectively at what is now the registrar and early senior registrar level, in programmes based on the major teaching centres; such trainees could then go out as competent junior specialists to help in the work of more peripheral hospitals, to gain experience and carry with them the stimulus of new thinking and enthusiasm. For them, and their more senior colleagues, part-time courses and training programmes in specialised work and new techniques should always be available, with the possibility of moving from one consultant post to another as appropriate.

JAMES PARKHOUSE

University Department of Anaesthetics,
Withington Hospital,
Manchester M20 8LR

Continuous lumbar epidural analgesia for labour and delivery

SIR,—I am grateful for the opportunity of replying to the comments of Professor R Derom and others (19 May, p 1351), because they impinge on two of the features regarding epidural analgesia for labour and delivery which are a source, internationally, of dissent and confusion.

Firstly, vaginal delivery of a breech presentation—our goal, and that of probably most UK obstetricians—is an assisted breech delivery. It is to that end that we aim to abolish the bearing-down reflex. Under such a circumstance the mother is able voluntarily to bear down (this is so even with a properly administered spinal block, which we choose to provide in such cases if an epidural is not in progress) in order to supplement the expulsive efforts of the uterus and to allow the obstetrician to conduct a gentle and controlled assisted delivery. The pelvic floor is relaxed, but a generous episiotomy is also provided for increased safety. The advantages of this technique for the perinatal well-being of a mature (>2.5 kg) infant are considerable; but for the smaller infant they are absolutely decisive, as evidenced by the highly significant attendant reduction in the incidence of birth trauma. In regard to the effect on the mode of delivery, a recent analysis of our major series (results awaiting publication) revealed that the incidence of breech extraction was not significantly greater among "epidural" patients than among "non-epidural" patients when matched for gravidity and maturity.

Discussion of the second point raised by Professor Derom and his colleagues requires a more lengthy dissertation than would be acceptable in your correspondence columns, but the following argument may briefly be advanced. In their analysis of investigations performed in this hospital, Pearson and Davies¹ observed that in patients without pathology the foeto-maternal acid-base gradient during the first stage of labour was not significantly different in the epidural group from that in the non-epidural series (although the correlation between mother and fetus was slightly higher in the former group and, of course, the epidural patients were significantly less acidotic by the end of the first stage). In the second stage² the foeto-maternal difference progressively increased in both groups. However, the increase was greatest among those of the "epidural" mothers whose

bearing-down reflex had been abolished, because these mothers exhibited the least accumulation of metabolic acidosis (those epidural mothers who retained the bearing-down reflex were rather more acidotic because, presumably, of the greater exertion involved).³ The important point, however, is that at each designated duration of the second stage the "epidural" infants were less acidotic at delivery than were the "non-epidural" infants.

It appears from the reports of their studies^{4,5} that Professor Derom and his colleagues found no significant difference in the acid-base state of neonates referable to epidural analgesia, but they did not introduce into their analysis the duration of the second stage as a variable factor. I would contend that in the circumstances under review it is the contrast between the absolute values of neonatal acidosis which is of importance, and not the difference between the values of feto-maternal gradients.

J SELWYN CRAWFORD

Birmingham Maternity Hospital,
Queen Elizabeth Medical Centre,
Birmingham B15 2TG

¹ Pearson, J F, and Davies, P, *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1974, **81**, 971.

² Pearson, J F, and Davies, P, *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1974, **81**, 975.

³ Pearson, J F, and Davies, P, *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1973, **80**, 218.

⁴ Thiery, M, et al, *European Journal of Obstetrics, Gynaecology and Reproductive Medicine*, 1977, **7**, 181.

⁵ Vroman, S, et al, *European Journal of Obstetrics, Gynaecology and Reproductive Medicine*, 1977, **7**, 159.

Analgesia in terminal malignant disease

SIR,—Drs C Drinkwater and R G Twycross (5 May, p 1201) gave a pertinent account of how good analgesia can be achieved by the oral route in nearly all cases of advanced malignant disease so long as there is undeviating adherence to a four-hourly regimen and a more venturesome approach to the dosage than most of us have been brought up to expect. Our experience at Michael Sobell House certainly bears this out; and we likewise find no place for the traditional BNF Brompton Mixture, which lacks flexibility. It is simpler to vary the required dose of morphine or diamorphine in a standard 10 ml of chloroform water.

There remain, however, a small number of patients who find relief only from injections, usually because of intractable vomiting, severe dysphagia, or sometimes simply because no other method seems to work. Frequent injections for any length of time, however, can themselves be an ordeal, especially for a patient who has already lost much weight.

The Pye syringe driver designed by Dr B M Wright for the Medical Research Council overcomes these problems by providing a means of giving a continuous subcutaneous or intramuscular infusion of morphine or diamorphine over a prolonged period (our longest was six weeks with only one change of injection site). The instrument is simple to use, effective, reliable, foolproof, and, being small and lightweight, allows complete mobility, since it is carried in a fabric arm holster. After an initial intramuscular loading dose has been assessed and given, steady optimum analgesia is maintained, free from the peaks and troughs which follow intermittent injections. The rate of administration may be

readily varied by the attendant but not the patient. We have found it convenient to reload once daily (a great boon in domiciliary practice), and total doses have varied from 50 mg to 360 mg of diamorphine in 24 hours.

The patient receiving 360 mg daily suffered exceptional pain from a bronchial carcinoma and was also our longest user. He remained ambulant to the last day of his life.

P S B RUSSELL

Michael Sobell House,
Mount Vernon Hospital,
Northwood, Middx

Relief of postoperative pain

SIR,—We have been following the correspondence on this subject with interest because for the last six months we have been using slow infusion of pethidine for this purpose. Our procedure is so simple that, although our observations are uncontrolled, we think they are sufficiently promising to justify a brief preliminary report.

We give 1.3 mg/kg in 10 ml by slow intramuscular infusion over an eight-hour period, using a Pye syringe driver, so that even if through some mischance the whole dose were injected at once it would have little more effect than a normal four-hourly dose of 1 mg/kg. We do not therefore have to worry about respiratory depression or stop the infusion during sleep, as suggested by Scott.¹ The infusion is started as soon as the patient leaves the theatre, so that by the time full consciousness returns the blood concentration has reached an effective level.

The evidence for its effectiveness is that none of the 12 patients so far treated has complained of serious pain and most have been sleepy throughout the infusion. The infusions have been given only for the first eight hours after operation and no attempt has been made to vary the rate of infusion according to the patient's response, but this could very easily be done. We feel that this procedure is so simple and safe that it is suitable for use by nurses and that the more complex and labour-intensive systems advocated by Scott,¹ Fry,² Church (14 April, p 977), and Rosen and Vickers (12 May, p 1278) are probably unnecessary, though demand analgesia may well be desirable in obstetrics.

A fully controlled trial of the method, carried on for longer periods and including varying the rate of infusion according to the patient's requirements, is in progress and the results will be reported in due course.

H T DAVENPORT
B M WRIGHT

Northwick Park Hospital and
Clinical Research Centre,
Harrow, Middx HA1 3UJ

¹ Scott, J S, *American Journal of Obstetrics and Gynaecology*, 1970, **106**, 959.

² Fry, E N S, and Desphande, S, *British Medical Journal*, 1977, **2**, 870.

SIR,—In reminding us of the efficacy of self-administered narcotics for the treatment of pain in labour I think that Drs M Rosen and Professor M D Vickers (12 May, p 1278) may be mistaken in extending their experience to the treatment of postoperative pain.

The patients on whom they, and others, have based their experience are an entirely different group from those patients suffering from postoperative pain. The former are fit,

young, rational women experiencing intermittent pain, the interpretation of which is subject to an unpredictable psychological overlay. The postoperative patient—particularly the one for whom severe pain may increase morbidity—is in an older age group undergoing a stressful event at an age when he is less well equipped, physiologically, to cope with this stress. Psychologically, however, he may have considerably more resolve than the younger group. For these patients a self-triggered analgesic regimen would seem inappropriate, particularly in the immediate postoperative period, frequently a time of relative confusion and non-cooperation fuelled by postoperative hypoxia, cardiovascular instability, and inevitable polypharmacy. I have my doubts whether many of them could rationalise sufficiently to manage their own pain relief. Furthermore, the self-regulation technique must lead to swinging blood levels of analgesic similar to the intramuscular route, although of course the amplitude will be smaller.

I was therefore particularly interested to read that Dr Rosen and Dr Vickers are using a patient demand device for postoperative patients and that they have found that demand is reduced quickly over the first 24 hours. In my experience postoperative pain increases during the first 12 hours, then remains steady for a further 12 hours, and only starts to decrease later the second day. I put this down to the elimination of residual effects of anaesthesia, to wound oedema, and to early mobilisation. Hence I make provision for at least 36 hours' analgesia. Dr Rosen and Professor Vickers point out that this may lead to overkill and overdosage—quoting two cases from my paper (14 April, p 977). These two patients were, as I stated, receiving morphine 0.03 mg/kg hour and not pethidine 0.3 mg/kg/hour; the cases occurred within four hours of returning to the ward and were spotted early by the nursing staff when the respiratory rate reached 10 per minute. I have used pethidine 0.3 mg/kg/hour in over 500 cases and overdosage has not occurred in any of them.

I would also add that although the technique I described was devised and first used in Australia it appears to work equally well in this country with a matching enthusiasm from the nursing staff. Finally, I know we must all swim with developments in microelectronic technology, but human contact cannot be bad and it is that too which is provided by close supervision from the nurses.

JEREMY CHURCH

Anaesthetic Department,
St Mary's Hospital,
Portsmouth

Seat-belt legislation

SIR,—It is to be regretted that the Government has declared that it has no plans to introduce a new Bill on the compulsory wearing of seat belts (announced in a written answer in the Commons on 25 May 1979). This decision appears to have been taken without any further serious consultation with interested parties, either pro or con.

It is now up to the BMA and the Royal Colleges of Surgeons to take this matter up at the highest level in Government. The possibilities of saving some 1000 lives and 10 000 serious injuries per annum are not to be trifled with on the grounds that seat-belt legislation