proportion have no pattern in time and are associated with stigmata of duct ectasia/periductal mastitis. The other patterns we recognise are Tietze¹ syndrome, trauma, sclerosing adenosis, and cancer (pain was the first symptom in 12 of 140 cancers, sometimes preceding other symptoms by many months). We shall shortly be reporting the diagnostic features of these various syndromes. Our clinical observations have been carried out in parallel with a questionnaire assessment of psychoneurotic traits² which shows overall that 80% of these patients have no gross psychological abnormalities.

We conclude that the presenting symptom of mastalgia is not purely functional and deserves the usual investigation and attempt at diagnosis that are appropriate to other breast complaints.

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¹ Tietze, A, *Berliner klinische Wochenschrift*, 1921, **58**, 829.

² Crown, S, and Crisp, A H, *British Journal of Psychiatry*, 1966, **112**, 917.

Pseudomonas aeruginosa in hospital pharmacies

SIR,—The letter from Dr D C Shanson (17 April, p 958) reminded me of a similar incident in another London hospital that came to my notice some two years before the one which he describes.

It had been noticed over a period of some weeks that the tracheostomies of patients in the intensive care unit almost inevitably became colonised by *Pseudomonas aeruginosa* followed in some instances by an overt respiratory tract infection with this organism. A search of the unit resulted in the isolation of *Ps aeruginosa* from an unopened bottle of mouthwash and, following this lead, a large stock bottle of the mouthwash (closed by a bare cord) was discovered in the hospital pharmacy. *Ps aeruginosa* was also isolated from the contents of this stock bottle and from the cork. All of the environmental isolates and most of those from the patients were indistinguishable by phage or serological typing. The elimination of this source of infection was followed by a marked fall in the number of pseudomonas infections in the intensive care unit.

It is interesting to note that the warning given by Hughes¹ against the possible use of contaminated mouthwash had already been justified by this event.

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¹ Hughes, M H, *Lancet*, 1972, **1**, 210.

Warning of severe asthma attacks

SIR,—I should like to comment on the paper on asthma deaths in Cardiff by Dr J B MacDonald and others (19 June, p 1493).

I am myself an asthmatic who has had to be admitted to hospital twice this year with severe attacks. As the authors indicate, the onset of bad attacks is often rapid and it is

difficult to predict when an attack will become severe on subjective symptoms alone. I have found from personal experience that the use of a peak flow meter is the best predictive instrument. A notable reduction in peak flow rate seems to occur before the symptoms become very severe and may give notice of an attack which is going to require medical help. I am now inclined to alert my doctor if my peak flow drops below 140 l/min. I would suggest that severe asthmatics be issued with peak flow meters and encouraged to keep a graphic record of their peak flow morning and evening and to inform their doctors immediately this drops below whatever their accustomed level is.

The use of a peak flow meter might also obviate calling the doctor when it is unnecessary. One can have quite severe asthmatic symptoms which prove to be transient, but on subjective evidence alone it is very difficult to tell which attacks are going to pass off and which are going to require medical help. Those who are reluctant to summon medical help in time, as obviously happened in some of the Cardiff cases, would find it useful to have an objective measurement which would indicate that they were not bothering the doctor unnecessarily.

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Pathological parasites in food handlers

SIR,—The otherwise valuable report by Dr A P Hall and others on intestinal parasites (19 June, p 1542) is marred by the incorrect conclusion that screening is desirable. The Public Health Laboratory Service, the majority of delegates to a WHO seminar on food hygiene, and most doctors working in the food industry in the UK all condemn such screening as being ineffective.

The widespread prevalence of parasites so ably demonstrated by the authors should be seen as justifying appropriate expenditure on adequate toilet facilities and confirms the importance of sound hygiene training and disciplines among food handlers. Such measures are effective and do not waste money which comes ultimately from the consumer.

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Unexplained hepatitis following halothane

SIR,—Dr W K Slack (19 June, p 1532) raises an interesting point in the story of unexplained hepatitis following halothane. He suggests that it might be rewarding to consider whether hypoxia may have occurred during the course of the anaesthetic. The same idea has occurred to me and no doubt to many others. Some years ago I began to wonder whether the techniques of administration were receiving a fair share of attention.

The liver may be particularly vulnerable to hypoxia because of its dual blood supply from the hepatic artery and portal vein; the mixing of these two sources results in the liver being normally exposed to a lowered oxygen environment. In certain pathological conditions—for example, in congestive cardiac failure—an increased systemic venous pressure subjects

the liver to a state of stagnant hypoxia and a centrilobular pattern of hepatic pathology is set in train. An anoxaemic anoxic state will be expected to produce a similar pattern.

Halothane is a powerful cardiorespiratory depressant. With spontaneous ventilation a patient can all too easily reach a state of hypoxia and profound hypotension which can be accentuated by positioning on the table. Is it not reasonable to suggest that the combination of a lowered alveolar oxygen tension and reduced tissue oxygen availability could provide the appropriate conditions for liver failure according to the degree and duration of exposure?

Although I am no longer directly employed in anaesthetic practice, I am interested in following the search for a solution to this mysterious ailment. Whenever I gave a halothane anaesthetic I was always impressed with its ease of administration and often I wondered whether this was its gravest danger.

F C SHELLEY

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Diamorphine for postoperative pain

SIR,—When someone as eminent as Professor Ian Donald draws our attention to the inadequacy of post-operative analgesia (leading article, 19 June, p 1491) then those responsible for the welfare of patients should pull their fingers out smartly, and we should be grateful to him for trying to ease us out of our habitual attitudes and take stock.

After the 1945 war there were many thousands of patients with tuberculosis, many of whom came to surgery for the then fashionable three-stage thoracoplasty, performed under local analgesia, a formidable prospect for the most courageous. Choice of drugs was limited in those days, but it soon became apparent that diamorphine was the drug of choice, both before and after operation. It provided not only excellent analgesia but also that mental tranquillity which was such an essential feature for patients who knew they must endure three such episodes at short intervals. I always believed that much of their calm courage was due in no little measure to the use of this drug, and so satisfactory was it that it passed into use for all forms of thoracic surgery for the next quarter of a century, proving overall a better drug than some of the newer analgesics, which were neither as efficacious, nor as free of side effects.

I well remember many years ago Ronald Jarman proclaiming to a meeting of anaesthetists in Dublin that diamorphine was the "only analgesic" for him after his major operation. I never saw a case of addiction, as patients were kept unaware of the drug used, and I would end by making a plea that more, responsible, use be made of this excellent calming analgesic.

LAURENCE O MOUNTFORD

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Hepatitis in patients with chronic renal failure

SIR,—With reference to the article by Dr R M Galbraith and others (19 June, p 1495) it is worth placing on record that there have been three patients in Newcastle who, although negative for hepatitis-B surface antigen, have

developed chronic hepatitis. Their sera were checked by Dr Eddleston and were also e-antigen and e-antibody negative.

As reported,¹ we have been using a test of in-vivo macrophage (Kupffer cell) function by means of the clearance of microaggregated iodinated human serum albumin. Our normal values expressed as half life are 14.1 ± 3.3 min, and these particular patients had values of 25, 40, and 40 min respectively. The last two patients have died. These results are in contrast to those of other patients with chronic hepatitis who have been studied and have been found to have normal Kupffer cell function.²

Dr Galbraith and his colleagues have evidence that their patients had some cellular and humoral immunity. We have evidence that the patients at risk have impaired macrophage function. Indeed it has previously been postulated that one of the important functions of the Kupffer cell is to protect the hepatic parenchymal cells from viral infection.

E N WARDLE

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¹ Drivas, G, Uldall, P R and Wardle, E N, *British Medical Journal*, 1975, 4, 743.

² Drivas, G, Uldall, P R and Wardle, E N. To be published.

Febrile fits

SIR,—I am glad to see that Drs S Livingston and Lydia L Pauli have once more (19 June, p 1530) explained febrile fits to the confused. It is high time that doctors learnt about the completely different prognosis of benign febrile convulsions, which satisfy the criteria laid down long ago by Livingston and others, from that of fits precipitated by fever in epileptics. It is the term "febrile fits" which is unfortunate. It would be better to use the term "benign febrile convulsions" if they satisfy Livingston's criteria.

Another source of confusion is the fact that any severe prolonged convulsion may itself cause a rise of temperature.

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Screening for Down's syndrome

SIR,—Dr Spencer Hagard and Miss Felicity A Carter are to be commended on their timely article (27 March, p 753). In general the authors' approach to the subject is straightforward and sound. However, there are a number of specific points that are of concern.

Firstly, the authors calculate cost based on two assumptions: with and without pregnancy replacement. The net economic benefit to the community of preventing the birth of handicapped people is the net cost to the community of their care. Consideration of replacement is irrelevant. The authors' assumption confuses the prevention of the birth of a handicapped person with the prevention of a birth per se. (Of course, increased terminations of pregnancy, for whatever cause, may affect the birth rate. However, cost-benefit calculations are usually performed *ceteris paribus*.)

Another troublesome point is the authors' consideration of lost maternal income. They

assume that "labour force participation among mothers of children with Down's syndrome would be half that of average mothers with children of the same age." This assumption neglects the age of the mother and the birth order of the affected child as determinants of labour force participation. A 40-year-old woman giving birth to her first and only baby and a 22-year-old mother giving birth to her second (of three) may have affected children of the same age, but the effect on their participation in the labour force may be quite different. As is evident from table III, column 8 (maternal income cost), changes in these costs could significantly alter the cost-benefit ratios.

Thirdly, the authors consider only the cost to the community of caring for a handicapped person over his or her lifetime. No provision is made for life-time *earnings* of the person, whether or not handicapped. The authors' assumption on cost, that *all* births are a net cost to the community, is counterintuitive. It may indeed be the case, but it is removed from the authors' central premise.

Finally, in any cost-benefit calculation one can always take issue about data, particularly the magnitude of benefits and costs. One point is noteworthy with respect to the authors' amniocentesis programme, however. Would it not be possible to reduce the cost of the programme (without adversely effecting medical outcomes) by a greater reliance on paramedical personnel, for example? After all, a cost-benefit analysis has no inherent value. It is only a means of examining the costs and benefits of particular strategies in an attempt to optimise resource allocations.

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Doctors and administrators

SIR,—The stage for the discovery by Mr R J Luck and his colleagues (19 June, p 1534) that the salary scale of district administrators is more than that of a full-time consultant was set 20 years ago. At that time, as a registrar earning £750 a year, I could have bettered myself by £100 a year by becoming a *trainee* hospital secretary. It was apparently not relevant that I had five years' experience after achieving a medical degree which itself took twice as long as an honours degree; that I had a specialist diploma, the result of much careful postgraduate study; that my working week stretched through the nights and weekends. The trainee post referred to did not even demand a degree in any subject, though such would have assisted in selection for the course. I made my choice—and have been paying for it ever since.

A S GARDINER

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Medical manpower and the hospital service

SIR,—The problems of staffing the hospital service (leading article, 19 June, p 1492) and of medical manpower (Dr R B Hopkinson,

p 1549) are enormous. On the one hand is the spectre of the direction of medical labour (possibly by specialty and by geography) and on the other the doleful prospect of the results of the Hospital Consultants and Specialists Association/Junior Hospital Doctors Association federation's proposals of doubling the number of hospital junior staff, which would greatly exacerbate the pyramidal problem.

The truly sad thing is that although this situation has been acknowledged to exist for many years, nobody has succeeded in doing anything about it. It may be said that our problems arise from Lord Moran's "All consultants are equal." It may also be true that the European-type specialist concept could resolve this problem, though the European specialist works in a very different milieu from that enjoyed by most practitioners in Britain at present. It is perfectly true that so far as the hospital junior staffing position is concerned we have been "protected" from feeling the reality of the situation by the flow of doctors born overseas ever since the early 1960s. However, this problem now affects all doctors of whatever "craft."

There are two things to be said about the problem. Firstly, if the present NHS staffing structure is allowed to continue there will inevitably be trouble because it contains inherent contradictions. Secondly, there is no forum in which these problems can be discussed. Unless such a forum is devised rapidly, and one capable of producing workable solutions, then I believe that profession, service, patients, departments, and administrators alike will soon get into an awful (traditional meaning) mess.

DAVID BELL

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SIR,—Your leading article (19 June, p 1492) coupled with Dr R B Hopkinson's article (1549) reminds us all yet again of the steadily approaching crisis that we are going to have to deal with in the hospitals. It has been perfectly obvious for many years that some form of permanent subconsultant career grade would have to be introduced and I think the sooner we all accept this and start considering how best to implement it the better it will be for all of us working in peripheral hospitals.

You yourself, however, are contradictory in your argument, for in your third paragraph you remind us of the "hazards of having more than one full-time career grade" while in your next paragraph you state that the possible solution to the staffing dilemma is "the introduction of a grade closer to the European specialist." What, apart from the terminology, is the difference between a senior hospital medical officer, a medical assistant, and a specialist? If you wish both to reduce our dependency on imported doctors and to provide a satisfactory career structure in permanent hospital work for local graduates, then I am afraid some form of subconsultant grade is the only way of achieving this aim unless we double or treble the total number of consultants, giving them very little in the way of supporting staff.

This latter solution might well be a possibility if general practitioners were prepared to look after their own patients in hospital, but since I am quite sure they will do nothing of the sort we cannot run a system which depends almost entirely on highly trained