assess this. We should be told how many patients receiving long-term anti-inflammatory therapy were examined in order to find the 249 patients who had no gastric lesions at the initial endoscopy, incorrectly named the pretreatment endoscopy. If few were rejected this would support the view that the lesions are often transient. We do not accept the authors' reasons for not including a control group, and would suggest the use of paracetamol in a group with osteoarthritis.

This is an important area of work in which much more information is required, but we would reluctantly question the conclusions drawn by these workers. Further studies of better design should be undertaken.

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¹Holdstock GE, Smith CL, Isaacson P. *Gut* 1979; 20:A901.

*We sent a copy of this letter to the authors, whose reply is printed below.—ED, *BMJ*.

SIR,—Drs Colin-Jones and Frost in their letter raise several interesting points and we undoubtedly agree with their statement on the importance of studies whose aim is to define the incidence and the characteristics of gastric injury due to anti-inflammatory agents in patients with rheumatic disease.

They wonder how "gastric lesions" were defined in our work. In this research endoscopic findings were classified as ulcers and erosions (and only these have been counted as "gastric lesions") and normal (the latter including also mild mucosal erythema or hyperaemia or both). Gastric ulcer, in agreement with a recent report by Silvoso *et al.*¹ was represented by a sharply circumscribed, three-dimensional lesion with a white base. Gastric erosion was represented by a superficial, white, two-dimensional defect in the gastric mucosa.

We also agree with Drs Colin-Jones and Frost on the importance of having histological support for the definition of such lesions; but the purpose of our study was limited to ascertain the degree of gastric injury due to anti-inflammatory drugs endoscopically visible, and not to speculate on its pathophysiological meaning.

Regarding the incidence of gastric lesions in patients who underwent the initial endoscopy, we would like to emphasise that, since only patients without visible mucosal abnormalities were included in the study, to find the 249 patients suitable for the research we had to examine 366 consecutive patients.

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¹ Silvoso GR, Ivey KJ, Butt JH, *et al. Ann Intern Med* 1979;91:517-20.

Lactation and breast cancer

SIR,—If breast-feeding reduces the risk of breast cancer it will probably not be through the magic of putting the baby to the breast, but will more likely be found in women whose babies are totally breast-fed for the first six months, with mixed feeding thereafter, and

with more than one baby. The state of prolonged amenorrhoea caused by breast-feeding could very well be the factor associated with the hormonal state that protects against cancer. In this day and age, when supplementary feeding and the early introduction of solids is popular, most breast-feeding is token, not total, and is not associated with the customary prolonged amenorrhoea of the totally breast-fed infant.

Neither Dr A Kalache and others (26 January, p 223) nor the study by MacMahon and colleagues¹ have secured adequate data to rule out this possible preventive factor.

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¹ MacMahon B, Lin TM, Lowe CR, *et al. Bull WHO* 1970;42:185-94.

Carbon monoxide yield of cigarettes

SIR,—Mr P N Lee says that there seems no strong case for publication of carbon monoxide yields of cigarettes (15 December, p 1584). We disagree.

Firstly, there are individuals with poor cardiac or respiratory function in whom even a small reduction in the oxygen-carrying capacity of the blood could be clinically serious. Such individuals may not always be able to stop smoking, and it may be helpful to advise them which cigarettes deliver the least carbon monoxide. Secondly, measurement of the carbon monoxide absorbed from each cigarette is an objective index of inhaling which may help to identify smokers at special risk of developing smoking-related diseases, and this cannot be done without knowing the carbon monoxide yields of the cigarettes. Thirdly, there is still uncertainty about the components of cigarette smoke responsible for producing an increased incidence of vascular disease, and carbon monoxide could be a contributory factor. It is therefore important that research workers should have the data relating to carbon monoxide yields, so that they can undertake appropriate clinical and epidemiological inquiries.

These, we think, are strong reasons for publication of the carbon monoxide yields of individual brands of cigarettes. We hope that the Department of Health and Social Security, which has the information, will publish it shortly. Up to now we have failed to obtain it.

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SIR,—Professor G E Moore (2 February, p 331) has not appreciated that my conclusion (15 December, p 1538) that the tar reduction in cigarettes occurred before publication of the first tar table in 1973 related only to the situation in the United Kingdom and to official publication.

His 1967 paper,¹ which gave data on United States brands only, was in any case not the first publication to do so there. Information was publicly available from two sources between 1953 and 1967: a series of reports from the laboratories of the Consumers Union and similar reports from Foster D Snell Inc, prepared for the *Readers Digest*.²

In the United Kingdom the first publication

of any sort was by the Consumers Association in 1971.³ A major part of the reduction in sales-weighted tar levels occurred earlier, from 31.4 mg in 1965 to 23.9 mg in 1968.⁴ Evidence that industry took an early initiative towards publication of tar and nicotine yields in league table form has appeared previously in the *BMJ*.⁵

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¹ Moore GE, Bross I, Shamberger R, Bock FG. *Cancer* 1976;20:323-32.

² Owen TB. In: Wynder EL, Hoffman D, Gori GB, eds. *Modifying the risks for the smoker* (Proceedings of the Third World Conference on Smoking and Health, vol 1). Washington: US Department of Health, Education, and Welfare, 1975:73-80.

³ Consumers Association. *Which?* September 1971: 280.

⁴ Lee PN. *Tobacco Research Council Research Paper No 1*, 7th ed. London: Tobacco Research Council, 1976.

⁵ Bentley HR. *Br Med J* 1975;iii:308.

Ketotifen in adult asthma

SIR,—The recent report by Drs A J Dyson and A D Mackay (9 February, p 360) on ketotifen in adult asthma suggests that drowsiness was a troublesome effect of the drug. However, the incidence of drowsiness was less than in a series of patients studied in this department.

Seventeen adults with asthma, including 11 atopic subjects, were given ketotifen 1 mg twice daily. After one week the drug had to be withdrawn in 11 patients because of severe drowsiness. It was subsequently withdrawn in a further three patients who were troubled by minor drowsiness which was sufficient to interfere with their normal occupation, which included driving. Two patients, both of whom had some drowsiness, had episodes of sudden and unpredictable loss of balance causing falls and injury. They also complained of a feeling of lightheadedness. All symptoms resolved when the drug was stopped. In one patient the drug was reintroduced while she was an inpatient and the symptoms, including the loss of balance, recurred.

Drs Dyson and Mackay concluded that the beneficial effect of ketotifen on asthma appeared slight, and the high incidence of side effects appears a high price for marginal benefit.

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Resuscitation of the newborn

SIR,—I have followed your series on the first year of life and found the summaries helpful.

I would like to take issue with the recommendation of the equipment suggested for assisted ventilation (24 November, p 1345). Fortunately most infants respond to the first few attempts at assisted inflation. In those where difficulty is experienced in initiating ventilation the limitation of inflation pressures to 30 cm H₂O may be insufficient. This applies to lungs when the alveoli are fluid filled and particularly to the premature infant.¹ High pressures of up to 70 cm H₂O may be required, but it is important that these peak pressures are only transitory. The use of a large-volume bag as in the Resuscitaire may tempt the less experienced to apply a more sustained pressure and be more likely to cause airways rupture rather than a transitory high pressure.

The Samson infant resuscitator² may be preferable, since although high transitory pressures may be achieved the smaller reservoir does not allow maintenance of this high pressure. The question is what to recommend for the relatively inexperienced person and there is a need for existing apparatus to be critically appraised.

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¹ Karlberg P, et al. *Acta Paediatr Stockh* 1962;51:121-36.

² Samson HH. *S Afr Med J* 1974;48:628-30.

SIR,—In the correspondence resulting from Dr Valman's article "Resuscitation of the newborn" (24 November, p 1343) reference is made to the use of the Cardiff infant inflating bag (Penlon bag). Dr A R J Bosley (15 December, p 1590) raises the point that the Cardiff bag is not suitable for use with an endotracheal tube. Dr M J Boscoe (26 January, p 252) is correct that in our original description,¹ reference was made to the use of the bag with either a face mask or an endotracheal tube. However, may we refer to our letter of over nine years ago,² in which "we assumed that in those instances when the baby was intubated there would necessarily be a skilled operator present and that the little bag would be squeezed in a controlled manner. We have gained the impression that this does not always follow, and that a further safety factor is required to prevent any excessive pressure which might result from overenthusiastic compression of the bag when resuscitating an intubated baby. The patient outlet of the inflating valve has therefore been modified. A D-shaped slot has been cut along the internal bore of this outlet, providing an additional leak when the endotracheal catheter mount is plugged into the valve. The result is that the bag now produces similar pressure changes within the baby's lungs whether it is used with a face mask or with an endotracheal tube."

All Cardiff infant inflating bags manufactured since 1970 incorporate the safety slot in the outlet of the inflating valve. Any bags still in use which were manufactured before 1970 should be replaced.

Notwithstanding its inbuilt protective measures, the Cardiff bag, albeit of an extremely simple design, like any mechanical device needs to be used with a modicum of training and understanding that the way the pressure develops in the infant's lungs depends mainly on the compliance but also on the volume and rate of gas transfer—that is, the way the bag is squeezed.

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¹ Mushin WW, Hillard EK. *Br Med J* 1967;i:416-7.

² Mushin WW, Hillard EK. *Br Med J* 1970;iv:622-3.

Legionnaires' disease and hypoplastic anaemia

SIR,—I was interested to read the report of Drs V J Hajiroussou and R C Joshi (9 February, p 366) on the association of legionnaires' disease and hypoplastic anaemia. However, I feel that the role of co-trimoxazole and the nature of the anaemia should be further discussed. I agree that co-trimoxazole usually

produces different haematological effects than were seen in their patient. It interferes with the conversion of folic acid to folinic acid and thus features of a megaloblastic anaemia may be found. Yet co-trimoxazole therapy can have other effects. Depression of reticulocytes, neutrophils, and platelets without megaloblastic change in the marrow has been shown,¹ and aplastic anaemia has been reported.²

In the 11 months that this patient was observed, on only one occasion were his reported haemoglobin, white cell count, and platelets all normal on the same sample. The progress of this patient is similar to that in chronic acquired aplastic anaemia. This disease can have a protracted course with remissions and relapses over months or even years.³ In one reported case³ a 39-year old woman showed a remission which was followed by relapse and death two and half years later. In the patient of Drs Hajiroussou and Joshi chronic acquired aplastic anaemia cannot be excluded. Additional investigations that may be of value are the assessment of bone marrow cellularity by an objective method,⁴ neutrophil alkaline phosphatase, and fetal haemoglobin estimations.

In a patient who is still pancytopenic 10 months after discharge from hospital it would appear premature to assume that this is a transient hypoplasia associated with legionnaires' disease. Indeed, chronic acquired aplastic anaemia, in which in about one-third of all patients there is an association with a drug or chemical, would be a more likely diagnosis.

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¹ Dawborn JK, Castaldi PA, Kilgour A, Parkin JD, Pattison G. *Med J Aust* 1973;i:52-6.

² Salter A. *Med J Aust* 1973;i:70-4.

³ Lewis SM. In: Hoffbrand AV, Lewis SM, eds. *Tutorials in postgraduate medicine*. London: Heinemann, 1972:92-121.

⁴ Ho-Yen DO, Slidders WJ. *Clin Path* 1978;31:753-6.

Bone marrow aplasia associated with metronidazole

SIR,—In recently reported cases of leucopenia arising during metronidazole treatment (29 September, p 795; 18 November, p 1219) other drugs known to cause bone marrow depression have been given simultaneously. The role of metronidazole in these cases remains unclear. However, neutropenia during metronidazole treatment alone has been recorded.¹ We would like to report a patient who developed bone marrow aplasia that could be attributed only to metronidazole.

A 74-year-old man underwent right hemicolectomy for carcinoma of the colon. He received metronidazole, 200 mg thrice daily, orally for seven days before and 10 days after operation. Apart from anaesthetic agents and analgesics the only other drugs he received were ferrous sulphate and neomycin orally. Eleven days after operation he developed a generalised, erythematous, macular rash and a high, fluctuating pyrexia. Sixteen days after operation his leucocyte count had fallen from $8.2 \times 10^9/l$ to $1.2 \times 10^9/l$ and bone marrow examinations revealed markedly reduced erythropoiesis and granulopoiesis. Viral agglutination, monospot, and hepatitis B surface antigen tests were negative. The patient died 18 days after operation. Post-mortem examination revealed disseminated adenocarcinoma with secondary tumour in the liver, right kidney, right adrenal, and right lung. Bilateral pulmonary embolism from a deep-vein thrombosis of the right leg was the cause of death.

None of the other drugs given to this patient are known to cause bone marrow aplasia and we conclude that metronidazole was responsible. Although the leucopenia contributed to his death, it is possible that if he had lived longer his bone marrow would have recovered.

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¹ George R H. *Prescriber's J* 1979;19:18.

Group work with the elderly in a long-stay hospital

SIR,—We read with interest Professor Rudolf Klein's article on doctors and social workers (12 January, p 132), and would like to draw attention to group work with the elderly in a long-stay hospital as a "specific form of social work intervention, in specific circumstances, which can make a difference." As social workers specialising in the elderly, we felt that group work could be of value to help counteract the apathy of patients in a long-stay hospital, and promote self-development and growth in the elderly patients.

Our first group session was for 10 weekly hour-long meetings with a group of 10 elderly patients in the minimal care unit. We chose an activities-based group—making stuffed animals, knitting, playing draughts, etc; we found that this stimulated a much more positive approach from the elderly person. The patients rediscovered skills they thought they had lost forever, and recovering confidence in one small area of life made them more confident in other areas, and thus encouraged self-esteem. We found we had to be quite directive, and initiate and supply various forms of activities; but once we had done this the elderly were pleased to partake, and there were many chances for the discussion of feelings about handicap and life in hospitals during these sessions.

Our next 10-week session was in the day ward, with 15-20 long-stay patients with a mixture of physical and mental handicaps. We tried to break down their feelings of isolation and institutionalisation by bringing bits of the outside world to them and using these as a basis for communication and discussion. Different types of fur and leather awoke memories, as did bunches of flowers (including lavender), smells of paraffin, coffee, pictures of animals, fir cones, fruits, etc. One of the highlights was the visit of a dog which gladdened many hearts.

We did some basic exercises, arm lifting, etc; and played some ball games such as throwing, passing, and even wheelchair football. There is little outlet for overt frustration and aggression in hospital and it was interesting to watch its appearance in these games. The most important activity of all was singing. It was something even the most handicapped could join in with. We sang the "good old songs" and it was rewarding to watch those patients who could not speak properly managing to sing the words of their favourite song. We felt even the most brain damaged rediscovered something of themselves during these sessions, and one hopes that this will lead to their fulfilling more of their own potential. We are now running six once-weekly sessions with the nursing staff,