Bowel sounds were heard in 42 cases from group A compared with 13 from group B (χ^2 test, $P < 0.001$). When it became likely that an effect was present (after 50 cases) the scope of the investigation was widened to include observations of the bowel sounds 30 and 60 minutes later by trained recovery room staff who did not know which drugs had been injected. Of 31 patients from group A, 24 had audible bowel sounds at the end of the operation and 25 half an hour and 29 an hour later; for 19 patients from group B the figures were 5, 19, and 17 respectively. The first pair of figures show a significant difference ($P < 0.001$), but the remaining pairs do not. Moreover, in 11 cases, all from group B, the bowel sounds 30-60 minutes after operation were loud enough to be heard without a stethoscope.

Hyoscine butylbromide evidently has too short an action to be useful in this context and the rebound contractions that follow its use can be more powerful than those caused by neostigmine and atropine alone. The use of hyoscine butylbromide should therefore be avoided during the immediate recovery period following anastomosis of bowel.

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- ¹ Doughty, A G, and Wylie, W D, *British Journal of Anaesthesia*, 1952, 24, 66.
² Bell, C M A, and Lewis, C B, *British Medical Journal*, 1968, 3, 587.

Bran content of wholemeal bread

SIR,—In a recent reply to a query (24 January, p 203) it was erroneously stated that 900 g of wholemeal bread was equivalent to 150-200 g of bran. The correct value is of the order of 90 g bran (at 14% moisture content), assuming 40% moisture content in the bread and making due allowance for the yeast, salt, and fat used in bread-making. The calculation is based on a bran content of wheat of 15%.

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* * Our expert agrees that the corrected figure is right but does not think it alters the point he was trying to make—Ed, *BMJ*.

High-pressure medicine

SIR,—The statement in your leading article (6 December, p 541) that most surgeons operating at 20 atmospheres would prefer to rely on local anaesthetics with heavy doses of morphine if necessary is a facile and inadequate solution. This not only ignores the dangers of vomiting and respiratory depression associated with morphine but also ignores the ability of anaesthetists to cope with unfamiliar situations—an ability demonstrated throughout the development of modern anaesthesia at one atmosphere.

As Dr I C F Wisely (7 February, p 340) says, the problem is not simple. Even an invited paper in an anaesthetic journal on "The treatment of the diving casualty"¹ failed to give any guidance, though on reading the article it became obvious that the author's

remit was treatment of the patient once he had reached a casualty department. Ketamine alone is unsatisfactory in adults at normal pressure because of its hallucinogenic effects,² but combined with diazepam it has been used very effectively in emergency situations.³ Althesin (alphaxolone/alphadolone) alone does not guarantee sufficient anaesthesia.⁴ Nevertheless, a combination of Althesin or propanidid with neuroleptanalgesia may be satisfactory. There are therefore at least two potentially satisfactory techniques that would permit endotracheal intubation to protect the airway or the use of muscle relaxants if these were indicated.

As well as the academic projects mentioned by Dr Wisely, basic scientific research is continuing into the mode of action of inhalational anaesthetics utilising high atmospheric pressure as a research tool with potential spin-off information for deep-diving gas mixtures. However, there appears to be no research into the suitability of different intravenous anaesthetic agents for use at 20 atmospheres.

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- ¹ Elliott, D H, and Hanson, R de G, *Anaesthesia*, 1976, 31, 81.
² Hunter, A R, in *Recent Advances in Anaesthesia and Analgesia*, ed C L Hewer, 11th edn, chap 1. Edinburgh, Churchill Livingstone, 1972.
³ Carmichael M, personal communication.
⁴ Savage, T M, et al, *Anaesthesia*, 1975, 30, 757.

SIR,—Dr I C F Wisely (7 February, p 340) finds that Government expenditure on bone necrosis research is a luxury we cannot afford. I deny this.

I have, at the second Dartford tunnel, 320 men working to establish a new road link between the north and south sides of the river Thames. Scattered about the British Isles are numerous similar tunnels and underneath all our major cities are telephone cable tunnels, sewers, water conduits, and similar structures on which our society depends. Many of these tunnels could not have been constructed without the use of compressed air. The number of men who have been involved in this work up and down the country is somewhat close to the 25 000 sport divers who dive off our summer coasts. Unlike these divers they are at considerable extra risk from dysbaric osteonecrosis, and it was because of these men that the Medical Research Council Decompression Sickness Panel and Registry was first created.

I am probably the biggest single spender of the MRC's money for joint radiographs of these men and of divers. What depresses me most is the very small amount of money that can be made available for this study. I am personally proud to be associated with the work, which has established the diagnostic criteria for this disease throughout the world and continues to evolve higher standards of diagnosis and reporting.

The very fact that long-bone x-rays are now standard in our medical fitness examination for divers is clear indication that it has passed beyond the academic and is now of utmost clinical and medicolegal importance. The medical profession of late has been too involved with sordid commercial interests rather than professional activity. I am happy to inform Dr Wisely that my professional activities know no national boundaries; but, holding a British passport, I am jealous to preserve our commercial interests. In his penultimate

paragraph Dr Wisely asks for a single clear assessment of the various problems and asks for positive action to be taken. It is unwise for anybody to ask for single clear assessments. There is no single answer to any of the problems that presently beset the world of underwater and underground medicine.

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Geriatric patients in acute medical wards

SIR,—I have been interested to see the very different interpretations of our paper on this subject (6 December, p 568). Several correspondents have questioned the economics of the study. In reply I would point out that the figure of £178.60 is the 1974 average weekly cost of an acute medical bed in this hospital. It represents the "opportunity cost"—that is, the availability of the acute medical bed. However few of the ward's resources patients use, this opportunity cost remains the same. In contrast to Dr P W Hutton (3 January, p 41) I believe that patient costs do in fact depend on the type of ward in which a patient is treated.

The fixed costs of being able to offer acute medical care are far higher than the variable costs of actually providing it. The facilities associated with acute medicine are expensive—for example, purchase, maintenance, and depreciation of machinery, provision of highly specialised medical, technical, and general hospital staff, who are paid for being available rather than on an item-of-service basis. By comparison the additional costs of actually treating a patient are small—for example, reagents, drugs, syringes, and x-ray films.

As Professor B Isaacs (p 40) says, had the study patients been transferred and those waiting taken their places the cost of the 160 bed-weeks might not have been saved in overall terms. However, the money and beds in the acute medical ward could have been used by those in need, while the study patients would have benefited from the specialised resources of a geriatric ward.

Dr Monnica C Stewart's (p 41) mind boggles to read that a patient died for whom medical treatment had been completed. Perhaps she is forgetting that the average age of these patients was over 79 years and that patients, no less than "ordinary people," die some time.

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Oxytocin and neonatal jaundice

SIR,—Professor E A Friedman and Mr M R Sachtleben's suggestion (24 January, p 198) that operative delivery and not oxytocin induction is responsible for an increased incidence of neonatal jaundice prompts comment.

An association between oxytocin use and neonatal jaundice was first described by Mast and his co-workers in two studies^{1,2} which are seldom mentioned by those discussing this field. An association with instrumental delivery was sought but not found. Most of the subsequent work has emanated from Britain, where there has apparently been an epidemic of

non-haemolytic neonatal jaundice.³ Professor Friedman and Mr Sachtleben have not made it clear whether their experience has been similar in this respect. In addition, their practice clearly differs from British obstetrics in that 35% of their infants were delivered by forceps, while only 7.4% were born after oxytocin induction. One result of this pattern is that statistical significance would be detected more easily in the case of instrumental delivery than oxytocin induction.

Our own study⁴ in this field did not discriminate between cases in which oxytocin had been used to induce labour and those in which it had been administered to accelerate labour of spontaneous onset. This omission is rectified in the accompanying table.

Type of delivery	Jaundiced*		Total
	No	%	
Spontaneous ..	476	8.1	5896
Accelerated (oxytocin) ..	134	11.3	1188
Induced (oxytocin) ..	278	13.0	2138
Induced (artificial rupture of membranes) ..	82	6.0	1369
Total ..	970	9.2	10 591

*Plasma bilirubin 17 μ mol/l (10 mg/100 ml).

The incidence of jaundice was higher in the induced group than the accelerated group, but this did not reach statistical significance ($\chi^2=1.934$). The incidence in both these groups differed significantly from that among babies born following spontaneous labour or induction by amniotomy alone.

Since our earlier publication further observational studies have suggested that an increased risk of neonatal jaundice is related to induction with oxytocin⁵ or to oxytocin dosage.⁶ Campbell *et al*³ suggested that the delivery of more infants before 40 weeks' gestation might be a contributory factor. The only relevant experimental evidence so far published records hyperbilirubinaemia in 10.9% of 111 cases with a 90.1% induction rate compared with an incidence of 5.1% among 117 random controls with an induction rate of 46.2%. Instrumental delivery rates were similar in the two groups.⁷

If the use of oxytocin to induce or accelerate labour is indeed causally related to the development of neonatal jaundice this may be due to some direct toxic effect of synthetic oxytocin, although whether or not it reaches the fetal circulation is not known. However, another possibility is that those cases selected for both oxytocin induction and acceleration have in common a relative immaturity of the physiological mechanisms related not only to uterine contractility but also to bilirubin metabolism. These questions will be resolved only by further experimental studies.

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¹ Mast, H, *et al*, *Geburtshilfe und Frauenheilkunde*, 1971, **31**, 443.

² Quackernack, K, and Mast, H, *Archiv für Gynäkologie*, 1971, **211**, 144.

³ Campbell, N, *et al*, *British Medical Journal*, 1975, **2**, 548.

⁴ Chalmers, I, *et al*, *British Medical Journal*, 1975, **2**, 116.

⁵ Sims, D G, and Neligan, G A, *British Journal of Obstetrics and Gynaecology*, 1975, **82**, 863.

⁶ Beazley, J M, and Alderman, B, *British Journal of Obstetrics and Gynaecology*, 1975, **82**, 265.

⁷ Cole, R A, *et al*, *Lancet*, 1975, **1**, 767.

Otitis media

SIR,—I read with interest the article by Mr J F Birrell (21 February, p 443) and found his comments on chronic otitis media and glue ear helpful. However, I believe he is on much more insecure ground when he writes about acute otitis media, a condition which is predominantly one of general practice. Doxycycline is not the first alternative choice to penicillin when there is a history of known allergy. This drug is a tetracycline and like all other members of the group can cause staining of the teeth in children even after relatively short courses. Furthermore, it is about seven times the price of erythromycin, which does not suffer from this defect.

Mr Birrell suggests that children should be referred to hospital if the drum is still flushed or if the hearing has not returned to normal after seven days' treatment. In at least 50% of patients the drum remains discoloured for two weeks. The hearing is almost invariably diminished and it may be up to three months before the hearing is normal by audiometric testing. His advice would not help ENT outpatient clinics, at which there is, in any case, a wait of several months already for patients to be seen.

His comment that the pain should have subsided by three days after the starting of treatment is surprisingly pessimistic. I would expect the pain to have settled within 12 hours on treatment with an appropriate antibiotic and if it had not gone in 24 hours would consider this a good reason for suspecting antibiotic-resistant organisms and making a change.

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A place to be born

SIR,—In the debate generated by your leading article (10 January, p 5) little attention seems to have been given to the fact that in the NHS of the 1970s the pursuit of ideal solutions must be moderated by the constraints imposed by limited financial and other resources. The problem faced by the NHS in the delivery of maternity care is to ensure that the available services are distributed among the mothers who need them in the most effective and efficient way. The swing towards hospital confinement during the past two decades has necessarily involved an element of dilution of standards, in the sense that a substantial proportion of such deliveries take place at institutions where the levels of staffing and other resources fall far short of those which the advocates of universal hospital confinement normally have in mind. It is unfortunate (and also surprising) that the cost per average case at these institutions can be much greater than in the better equipped units and also greater than the domiciliary services which have been displaced.¹

The much-quoted evidence about the supposed greater risk of home confinement derived from trends in perinatal mortality and in the proportion of births taking place in hospital is illusory, since other factors that have also been changing in time may account for part or all of the observed fall in death rates. However, a comparison of hospital confinement rates in the various local authorities of England and Wales with the corresponding mortality

rates points to a different conclusion.² Analysis of the data for some 170 local authorities year by year between 1956 and 1969 shows that in the first part of the period local authorities with the higher institutional confinement rates tended to have lower mortality and vice versa. The strength of the relationship tended to decrease year by year, so much so that by 1968 the trend was reversed, the local authorities with the higher institutional confinement rates tending also to have higher mortality. On this basis an optimum was reached in 1967-8, when about 200 per 1000 births took place at home or in private nursing homes. Of course uncontrolled observational data of this kind can never provide absolute proof, but the results do throw doubt upon the assumption that any hospital must always be safer than home confinement. Indeed, local studies of perinatal mortality suggest that remote general practitioner units can involve a higher risk of perinatal death than deliveries in the same area taking place at home.³ It is unfortunate that data about the mortality at different grades of NHS institutions and the associated case-mix are not generally available.

In summary, we feel that much may be lost by the over-precipitate withdrawal of NHS facilities for home confinement. In a time of acute financial crisis the need to use scarce resources selectively is particularly acute, and evidence suggests that the existing patterns of obstetric care are far from the best that might be devised.⁴

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¹ Ferster, G, and Pethybridge, R J, *Hospital and Health Services Review*, 1974, **70**, 82.

² Fryer, J G, and Ashford, J R, *British Journal of Preventive and Social Medicine*, 1972, **26**, 1.

³ Ferster, G, and Pethybridge, R J, *Hospital and Health Services Review*, 1973, **69**, 243.

⁴ Ashford, J R, Ferster, G, and Pethybridge, R J, *Community Medicine*, 1973, **129**, 309.

SIR, The correspondence following your leading article (10 January, p 55) and the article by Dr C A Cox and others (p 84) has produced many letters restating previously heard arguments supporting the aim for 100% hospital confinements. As much of the comment has been directed against our previous letter (31 January, p 279) and on our supposed activity in this area of debate we would first like to correct any impression that we are concerned with promoting domiciliary confinements. Rather, we are engaged in looking at the many facets of childbirth and how these are reflected in its management, whether in hospital or at home. While assessing critically the evidence that is being used to dictate present policies, we feel it is important to maintain a system which allows a woman the right to choose her place of confinement until such time as it is shown that this is an unjustified stance to adopt.

Two of the authors of the original article (Drs A E B Matthews and J S Fox, 14 February, p 395) deride as "emotive" the findings that 80% of women with experience of both home and hospital deliveries preferred the former, and their co-authors (Drs P Zinkin and C A Cox, p 395) misquote our letter by stating that we infer that the choice for mothers lies between a "nasty" hospital and "nice" home confinement. It is accepted that a high rate of domiciliary confinement in Holland is associated with a very low level of neonatal