I hope I will be spared this method should I ever need a hypotensive anaesthetic.—I am, etc.,

D. A. BUXTON HOPKIN

Department of Anaesthesia,
Charing Cross Hospital,
London W.6

1 McDowall, D. G., *et al.*, *British Journal of Anaesthesia*, 1974, **46**, 327.

Solitary Pulmonary Nodules

SIR,—In your leading article on this subject (26 April, p. 157) the statement is made that "with few exceptions the nature of the lesion can be established only if it is resected and submitted to pathological examination."

We have found that aspiration biopsy under television fluoroscopic control[1] has markedly increased the number of such lesions whose nature can be established without resection. Out of a total of 334 patients examined a definitive diagnosis was made in 70%. The lesion was malignant in 83% of cases and non-malignant in 29%. By integrating this technique with the usual investigations (sputum cytology, bronchoscopy with biopsy and/or bronchial washings, and mediastinoscopy) we have been able to obtain a definitive diagnosis without thoracotomy in over 90% of all carcinomas which have passed through our unit in the past few years. Specific diagnoses have also been obtained in some cases of tuberculosis, fungal infections, and sarcoidosis by the use of aspiration biopsy.

The only significant complication of this technique is pneumothorax, which has occurred in approximately 25% of patients, half of whom have required temporary intubation.—I am, etc.,

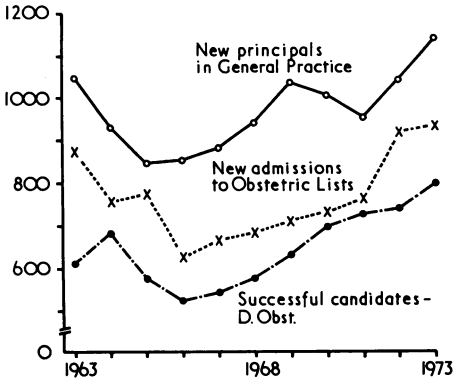
J. B. JAMESON

Department of Radiology,
Princess Margaret Hospital,
Christchurch, New Zealand

1 Dahlgren, S., and Nordenström, B., *Transthoracic Needle Biopsy*. Chicago, Year Book Medical Publishers, 1966.

G.P. Obstetrics in the Future

SIR,—I do not share Dr. G. Lloyd's pessimism (11 January, p. 79) regarding the future of the general practitioner obstetrician and suggest that some of his evidence is erroneous or open to alternative interpretation. Firstly, the number of successful candidates for the Diploma of Obstetrics has risen steadily since the mid-60s (see figure)



and, while obviously not all will have entered general practice in this country, the trend has run nearly parallel to that for new entrants and to new admissions to obstetric lists. This tendency is clearly at variance with the small sample from eight executive councils which Dr. Lloyd quotes.

Secondly, bed occupancy rate is a poor parameter when comparing G.P. with consultant bookings since duration of hospitalization as well as number of patients is a relevant factor and this is likely to be considerably lower for G.P. cases, which usually have a negligible antenatal component.

Thirdly, to be valid, extrapolation of claims for complete services should surely be computed as a percentage of total *births*. When this is done the apparent decline in involvement of G.P.s in intranatal care does not reach zero until 1990. Furthermore, evidence can be adduced from the same source (Claims for Maternity Medical Services—Annual Summaries, D.H.S.S.) to show that the number of cases originally *booked* for G.P. care fell only from 48·6% to 41·5% during the decade reviewed.

It is agreed that the pattern of G.P. obstetric care is changing radically and home confinements are now almost a rarity. On the other hand the integration of G.P. maternity units into obstetric hospitals gathers momentum and the success of a number of these projects is already documented.[1-3] Such schemes have the advantage of continuity of care with specialist back-up in the event of complications and the opportunity for the G.P. obstetrician to maintain and increase his experience. There is an economic aspect too, since it can be shown that G.P. cases can result in a cost per patient of almost half of that for those booked for full consultant care. Of course geographical factors militate against the universal application of this innovation, but since the majority of the population inhabit the larger conurbations, it may be that what has in the past traditionally been the province of the country G.P. will, in the future, become that of his urban colleague. However, whether participating in intranatal care or not, G.P.s still need adequate postgraduate training in obstetrics particularly at a time when undergraduate experience in this specialty is being reduced to as little as one month in the curricula of some medical schools. It is therefore encouraging to see that obstetrics is still a mandatory appointment in many G.P. vocational training schemes, and a survey of trainees[4] indicated that over 60% considered that it was an essential subject and another 35% felt that it was at least desirable.

In conclusion it is my contention that the G.P. still has an important role in the maternity care team, and can, if he so wishes, play an active part in both antenatal and intranatal care provided he is prepared to demonstrate by training, enthusiasm, and practice that he is competent to do so.—I am, etc.,

M. J. V. BULL

Oxford

1 Barnard, M. J., *et al.*, *Journal of the Royal College of General Practitioners*, 1970, **19**, 211.
2 Banwell, G. S., and Hamilton, I. G., *Journal of the Royal College of General Practitioners*, 1970, **19**, 282.
3 Oldershaw, K. L., and Brudenell, J. M., *British Medical Journal*, 1975, **1**, 139.
4 Drinkwater, C. K., *British Medical Journal*, 1972, **4**, 96.

Malaria Vaccines

SIR,—I think it might be helpful if I stated the current position concerning erythrocytic malaria as I see it.

Freund *et al.*[1] and Targett and Fulton[2] vaccinated rhesus monkeys against *Plasmodium knowlesi* malaria using formalized *P. knowlesi* schizont-infected cells in Freund's complete adjuvant (F.C.A.) containing dead *Mycobacterium tuberculosis*; adjuvant without myocobacteria (Freund's incomplete adjuvant (F.I.A.)) was useless.

In 1965 and 1968 we demonstrated repeated antigenic variation in *P. knowlesi* infections, thus explaining their chronicity.[3,4] We then studied the immune response described by Freund *et al.*, in the context of antigenic variation. Our antigen was freeze-thawed schizont-infected cells, and the F.C.A. included *M. butyricum*, not *M. tuberculosis*. The immunity we obtained was less effective than that obtained by Freund, but because we were aware of antigenic variation and its implications we were able to carry the subject forward. Monkeys challenged with a variant different from that used to immunize died of the resultant parasitaemia, but the majority of monkeys challenged with the same variant survived. They developed a brief parasitaemia, with breakthrough parasites of a new variant form. Their infection was rapidly eliminated. These animals were then able to eliminate challenge infections with other variants of that strain and other strains of *P. knowlesi* and their variants.[5,6]

Much of the evidence quoted by Professor P. H. Silverman (10 May, p. 335) has yet to be published, so it is difficult to evaluate. If his claims are substantiated, then this group has made a useful advance, particularly if the result with "adjuvant 65" plus B.C.G. holds up and the local tissue reactions produced are acceptable.

The merozoite preparation in F.C.A. used by Cohen's group[7] appears to produce a quantitatively better immunity than that found in the Mill Hill experiments, but not a lot better than that found by Freund using formalized schizont-infected cells. The protection against other variants and strains, which we found, may develop more quickly with the merozoite vaccine, though this is an open question since Freund *et al.*, whose results were most like those of Cohen *et al.*, were not in a position to explore this aspect. The protocols of Freund's experiments however, suggest that they probably immunized and challenged with different variants. The Guy's group do not say which mycobacterium they used, but I believe it was *M. tuberculosis*. Since their published results include only one animal vaccinated with schizont-infected cells, a strict comparison of schizont-infected cells and merozoites has yet to be made. The *P. knowlesi* strain used to immunize in our experiments was also different from that used at Guy's. The experimental animals were wild caught rhesus.

Successful vaccination techniques against *P. knowlesi* apparently require the use of F.C.A., adjuvant 65 plus B.C.G., or F.I.A. plus B.C.G. or high doses of Poly AU.[8] This need is consistent with the crucial role of T lymphocytes and other immunological responses in malaria[9,10] rather than a simple requirement for a certain antiplasmodial antibody.

Let us be realistic. We are beginning to