Third, inflation of the balloon may distort the position of the distal orifice so that an electronic artefact is obtained.

We further agree that perforation of a small pulmonary artery was possible, but would like to re-emphasize that the blood was bright red. This suggests that the bleeding was not from the pulmonary artery. Furthermore, in a patient with pulmonary hypertension, perforation of a pulmonary artery would have caused more catastrophic haemorrhage than the measured 200 ml.

JOHN F. VILJOEN
EVAN M. KRANTZ
Los Angeles, U.S.A.

REFERENCE

SKIN SENSITIVITY TO HALOTHANE VAPOUR
Sir,—The following anecdote is recounted as I do not remember having seen such a phenomenon reported before.

Recently a new nurse joined our operating room team. One day at the conclusion of the list she noticed that her face and neck had become red with itching; this increased and oedema of the eyelids developed. The discomfort was such that she could not sleep that night. On the following morning she still had residual flush of her face and puffy eyelids, which did not subside for 2 days. She then remembered that this had occurred to a milder extent one day in previous week.

On reflection, we remembered that on each occasion she had assisted at the induction of anaesthesia in an infant when I had used halothane and oxygen, using a face-mask fitted with a spill valve on the connector. I sat at the head of the table and the nurse stood on the right side facing me and holding the infant by the arms so that she was leaning forward directly over the expiratory valve: she thus received the spill of 3 litre of oxygen with up to 2% halothane directly in the face. The "pediatric set" is the only anaesthetic apparatus we use which has no scavenging device. All our anaesthetic machines are fitted with closed circuits and the gases from the spill valves are effectively removed from the room.

Scientific principles would require that I should ask the young lady to submit to an experimental exposure to halothane vapour and deliberately reproduce the effect. I am loath to do this as it is clearly an unpleasant experience, unless someone can adduce further evidence to confirm or deny that this is in fact a case of sensitivity to halothane vapour.

R. BODMAN
Carbonear, Newfoundland

EXTRADURAL ANALGESIA FOR CAESAREAN SECTION
Sir,—In his lucid editorial under the above title, Dr Donald Moir (1979) has summarized the current status of the technique. Appreciation of the physiological and pharmacological principles to which he refers should enable an anaesthetist in ideal circumstances, and after full unbiased discussion with the mother, to offer central neural blockade (CNB) by either extradural (EDB) or subarachnoid (SB) routes as an alternative to general anaesthesia.

In addition to the advantages which Dr Moir has outlined, there are other potential, yet poorly documented, merits of CNB (Brownridge, 1979a, b). First, paternal participation at the birth is possible; a preliminary survey has shown considerable demand for the satisfaction of this shared experience. Second, an earlier return of appetite and oral intake is possible using EDB rather than opiates for analgesia. This is supported by Nimmo and colleagues (1978) who described improved gastric emptying following hysterectomy with extradural analgesia and by Gelman and colleagues (1977) who used electroenterographic studies in patients undergoing cholecystectomy with or without EDB. Third, successful lactation and breast feeding is more likely to become established following early mother–infant contact (Salariya, Easton and Carter, 1978). Fourth, although recent authors, cited by Dr Moir, have shown a similar infant outcome after EDB and general anaesthesia, Hodgkinson and colleagues (1978) have demonstrated superior neonatal behavioural scores following Caesarean section with SB. Fifth, blood loss is reduced, as is the need for transfusion. Finally, EDB may reduce the frequency of deep vein thrombosis after surgery by virtue of large increases in lower limb flow (Cousins and Wright, 1971) and by inhibiting platelet aggregation. These factors may override any possible disadvantage from diminished leg movements.

Undoubtedly, intra-abdominal surgery is a major test of CNB, but maternal desire to be aware of birth is developed so strongly in some women that unpleasant symptoms are accepted. Analyses of the degree of discomfort and side-effects are difficult and it is not surprising that there is considerable variation in their reported frequency. Nevertheless, the important factor is the overall recurrence of the experience. Despite commonly recollected discomforts, most women are enthusiastic about the technique (Brownridge, 1979b).

Further refinements in technique and drug application may provide improvements. Dr Moir refers to imperfect and unpredictable sacral nerve blockade as a common source of discomfort following EDB. Although patient positioning is advocated by many authorities as a useful manoeuvre to improve spread, I am sceptical about its value. A simultaneous caudal block may be used to ensure sacral nerve root blockade, but systemic toxicity is more likely. The influence of local analgesic agents on the fetus remains controversial, but it seems sensible to reduce circulating concentrations to a minimum.

An alternative approach is to combine extradural blockade with subarachnoid block for Caesarean section (Brownridge, 1979a). Insertion of an extradural catheter in an upper lumbar interspace is followed by subarachnoid block and bilateral somatic blockade achieved by positioning of the patient. In this way, a rapid profound block of all sacral nerve roots is obtained. This combined blockade allows greater flexibility, a reduced total dose of local analgesic agent and permits continuous EDB for analgesia after operation. Initial experience with this technique has been encouraging. The frequency of spinal cephalgia is small.

Despite the use of oxytocin in preference to ergometrine, I have found the frequency of nausea to be greater with this drug than is commonly reported. However, it is usually transient and occurs before surgery; is it possible that magnesium trisilicate may be responsible for this?

Although the measures outlined to prevent hypotension