These cause little vessel damage, since the needle is inside the cannula.

The skin around the groin is shaved and cleaned, and sterilized with 1% iodine in alcohol. For femoral arterial puncture a small skin incision with a No. 11 blade is made about 2 cm below the inguinal ligament, immediately in line with the femoral arterial pulse (fig. 1). The incision for the femoral vein lies about 1 cm medial to this. The skin incision protects the tip of the delicate cannula and facilitates its insertion. The cannula is now advanced gradually towards the femoral pulse for arterial puncture, or immediately medial to it for venous puncture, whilst continuously withdrawing the plunger of the attached syringe. If the cannula enters the artery, the red colour of the blood and its pulsating escape usually show this, but sometimes there is doubt about its source, especially in patients with a high venous pressure, or arterial desaturation from advanced heart disease. The behaviour of a column of heparinized saline in a manometer line swiftly gives the answer (fig. 2).

These techniques are especially useful in cardiac resuscitation, the spontaneous oscillation of the arterial bubble being a most useful monitor of the return of heart action, although, unlike more distal pulses, it cannot be used to measure the arterial pressure (Gilston, 1972). Unfortunately, in the absence of any spontaneous beats, it may be difficult to distinguish between artery and vein, since the combination of cardiac massage and arterial desaturation can produce obvious pulsation of dark blood in both arterial and venous cannulae. If there is any doubt, resuscitative drugs must not be injected at this site, for fear of arterial damage.

These cannulae are easily damaged by incorrect insertion, and this is the main immediate disadvantage of the technique. A haematoma may form after failure, but this is largely prevented by pressure. However, I have seen one which was about the size of a grapefruit, in a patient with Marfan's disease, after cardiac surgery, and in whom heparin probably aggravated the problem.

Femoral arterial cannulation is best avoided in children because of the risk of arterial damage leading to a shortened limb.

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REFERENCE

MODIFIED TONGUE BLADE FOR BOYLE–DAVIS GAG
Sir,—We should like to describe another modification of the Boyle–Davis gag with a central groove on the tongue blade and a sliding detachable tube clamp.

The tongue blade has a central groove running along the long axis of the surface of the palate (fig. 1). On each side of the groove a slot accommodates the flanged edge of the tube clamp so that it may slide over the endotracheal tube. The slot ends proximal to the tip of the tongue blade to prevent the tube clamp from slipping.
into the throat. The central groove in the tongue blades suitable for children accommodates half the circumference of the endotracheal tube, whereas in the larger blades the groove accommodates only one-third of the circumference. The tongue blades are manufactured in five different sizes corresponding to the measurements described in the instrument catalogue of Messrs Down Brothers.

The tube clamp is a thin, curved plate of approximately half the length of the blade, with a knob on its palatal surface to facilitate handling. This clamp prevents arching of the endotracheal tube, thereby providing improved surgical access. The apparatus does not produce a reduction in the internal diameter of the endotracheal tube, but in adults it may be necessary to open the gag fully, causing a kink of the endotracheal tube at its exit from the gag frame (fig. 2). To prevent this, we use a wider gag with limbs about 9 cm apart.

This modified tongue blade is useful for adeno-tonsillectomy and palatal repair.

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FIG. 2. Extent of kinking of the endotracheal tube when the gag is opened to the maximum.

a kink of the endotracheal tube at its exit from the gag frame (fig. 2). To prevent this, we use a wider gag with limbs about 9 cm apart.

An expired gas collection and disposal system

Sir,—As the inventor of the Ejector Flowmeter (Jørgensen, 1974), it pleases me to see that the necessity for a volume control on the discharge of overspill anaesthetic gas is now acknowledged by several authorities. The method described by Parbrook and Monk (1975) for the evacuation of overspill gas is the same as that used by the Dupaco Corporation (Whitcher et al., 1975). A flowmeter which shows the total evacuation of anaesthetic gas plus room air through a central suction system, or an electric pump in the theatre, is employed in both of these systems.

Parbrook and Monk mention the disadvantages of using an Ejector Flowmeter to be its bulk, the risk of explosion, the noise, the risk of leakage and the high cost. These are by no means in agreement with the facts.

In the Ejector Flowmeter, the driving gas passes across the upper end of a flowmeter tube calibrated for up to 15 litre of air per minute. An ejector suction unit is incorporated in the upper frame of the flowmeter box. Apart from a shut-off valve on this upper frame, the Ejector Flowmeter has the same appearance as all other flowmeters, and has the same bulk. I understand that the device described by Parbrook and Monk includes also a flowmeter, presumably of the same size, and attached to (the rail of ?) the anaesthetic trolley.

A compressed-air pipeline is installed in most operating theatres and may be used in many ways, such as to drive an Ejector Flowmeter. Parbrook and Monk include also a flowmeter, presumably of the same size, and attached to (the rail of ?) the anaesthetic trolley.

Fiberoptic bronchoscopy

Sir,—Dr F. I. Macnaughton’s (1975) paper was both interesting and informative as to the difficulties involved in fiberoptic bronchoscopy under general anesthetic in patients receiving positive pressure ventilation.

We have developed a low-resistance tube and endotracheal tube adaptor for use during fiberoptic bronchoscopy (Carden and Raj, 1975). The design is such that it resembles an adult version of the Cole endotracheal tube originally made for infants, being 11 mm in cross-section at the proximal end and 8.0, 8.5 or 9.0 mm at the distal end, which is inserted through the patient’s cords. The tube is made of silicone and has a low-pressure silicone cuff. On the top of this tube is an adaptor with a diaphragm to allow the bronchoscope to be inserted through it with minimal friction but maximum sealing. When the bronchoscope is not in use, a plug is provided to fit into this diaphragm. This tube would seem to be the most suitable for use during fiberoptic bronchoscopy, particularly in women. The tube, which was developed in the United States of America, is now available in the United Kingdom from Cory Brothers, 4 Dollis Park, London N3.

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REFERENCES
