To the Editor:—Few investigations cannot be bettered by improved design or measurement. As Dr. Forrest points out, this applies to the study by Cullen, Margolis and Eger. In particular, their study would have benefited from randomization and perhaps from a "blind" approach (although the latter would have been technically difficult). However, I do not believe that the lack of blindness or randomization means that the implications of their study can be ignored by either the serious or the casual reader. Theirs is the only study of blood loss during therapeutic abortion in which blood loss was precisely measured, anesthetic concentration was specifically monitored, end-tidal carbon dioxide tension was held constant, anesthetic agents were studied without influence of premedication, and the dose of oxytocin was uniform. Their finding of gross increases in bleeding associated with low halothane concentrations (0.5 per cent) is not contested by any well controlled studies. There is a possibility that these results are wrong, but until proven so by a superior, "well designed clinical trial," the reader should not ignore them. To repeat the final sentence in my editorial, "the burden of proof now lies with those who suggest that halothane analgesia is as safe as other techniques."

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Hazards of Inadvertently Opposed Valves

To the Editor:—The recent warning by Leslie Rendell-Baker (Anesthesiology 31: 194, 1969) about the hazards of inadvertently opposed valves in the anesthetic circuit and the subsequent comment by John Ditzler (Anesthesiology 32: 87, 1970) that this complication can be avoided by "eternal vigilance" prompts recording of the following incident which occurred in spite of reasonable care.

A near-fatal accident involving inadvertently opposed directional breathing circuit valves occurred in a healthy young boy undergoing an elective surgical operation on the legs. Although a hazard had been recognized, we decided to equip machines with valves mounted on the absorber as well as others with valves in the Y-piece only to familiarize trainees with both. The two types of machines were kept in separate rooms. This worked reasonably well until the accident occurred.

Operation and anesthesia were uneventful. The patient was moved to an adjacent plaster room for application of a cast. The anesthetic system in the first room employed a valved Y-piece on a machine without valves, tested initially and found to be functioning satisfactorily. In moving the patient to the second room, the anesthesiologist elected to disconnect the rebreathing tubes at the machine rather than the Y-piece at its connection with the endotracheal tube. In the second room, the anesthesiologist removed the corrugated tubing and Y-piece from the machine there (which had also been separately tested) and applied the proximal ends of the tubes, attached to the patient, to the ports of the second machine. Unnoticed, the second machine had absorber-mounted valves; and the connection of the breathing tubes led to opposition of these valves and those of the Y-piece. Obstruction in the circuit followed.

Noting a collapsed rebreathing bag, the anesthesiologist opened the oxygen flush valve to fill the circuit. The bag remained deflated, suggesting a large leak somewhere in the circuit. The flush valve was opened a second time, and widespread subcutaneous emphysema developed over the patient's neck, face, chest, upper extremities, abdomen, and ultimately, the scrotum.

The blast of oxygen on the inspiratory side had herniated the rubber valve leaflet of the distal opposed valve at the Y-piece, thereby allowing the full force of the entering gas to distend the lungs on the first flush and to overdistend and rupture them on the second (see