



"Pulmonator" bags, Western Anesthesia Equipment Co. *Left*, old model; *right*, new model.

used by non-anesthesiologists who are not expert in using a mask, and who sometimes even apply a mask upside down. Thus, in practice, there are frequently major leaks around the mask. If this is the case it may be impossible to ventilate a victim adequately using the new model: only a volume equal to dead space may be given to the patient. The large size bag of the old model could deliver plenty of air to ventilate a patient's lungs in spite of major air leaks.

One other point is that the new model is quite stiff, and cramps in the hand and forearm of the rescuer occur early in resuscitation.

A recent communication from the Company indicated that another model is under development which might eliminate the above objections.

### Modification of Crowe-Davis Gag

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A new modification of the Crowe-Davis tongue depressor is described. Although reports in British literature of attempts to place the endotracheal tube between the tongue and tongue depressor go back almost twenty years, this approach has only recently been of interest in the United States. This has been accomplished in the past by devising slotted and grooved blades, the most widely reported being the "Doughty" blade (Doughty, A.: *Brit. J. Anaesth.* 29: 407, 1957). A similar blade was reported (Modification of the Crowe-Davis Mouth Gag, *ANESTHESIOLOGY* 22: 494, 1961). The modification which I wish to report is different in that the groove extends the full length of the blade, opening to the front through a slot in the vertical shank. This enables insertion of the depressor over the tube without the necessity of disengaging the

endotracheal tube from the anesthetic machine. The endotracheal tube can thus be taped in place prior to insertion of the mouth gag. Once the gag is opened pressure against



View of the blade in a McIvor gag. A relatively long portex endotracheal tube is curved to the left and up. Tube is taped to chin only.

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the tube prevents it from moving. In several hundred cases in which this blade has been used, pinching or obstruction of the tube has not been a problem even though soft portex tubes are used. Surgeons are quite satisfied since exposure of the oral cavity is not sacrificed and there is no endotracheal tube to interfere with surgery. Three sizes were used (now available commercially) and they appeared to accommodate all patients. It has been observed that if care is taken to place the endotracheal tube and blade exactly in the midline of the tongue, the tongue is adequately retracted and the gag need not be re-adjusted.



View of blade in a Davis gag with slot opening to the left and endotracheal tube lying in the groove.

The names and addresses of the manufacturers of the products described in this section are available from the Journal office: ANESTHESIOLOGY, J. B. Lippincott Co., East Washington Square, Philadelphia 5, Pennsylvania.

## CASE REPORT

### Contamination of Soda Lime with Methoxyflurane

Prior to anesthetization of the case reported, a Heidbrink canister with attached wick vaporizer containing methoxyflurane was removed from the machine. A Bloomquist circle was then mounted and an anesthetic given. For the following case, the canister was placed on the machine. The wick vaporizer was removed and halothane administered from a Vernitrol vaporizer.

Induction was smooth with gravity cyclopropane. As consciousness was lost, halothane was substituted for cyclopropane, the patient's trachea was intubated, and the operation begun. The concentration of halothane was progressively lowered as the patient seemed to require less and less anesthetic. Concentrations from 0.5 to 0.1 per cent were administered for 1¼ hours. Halothane was discontinued and the patient, now near respiratory arrest, was ventilated with 100 per cent oxygen without appreciable change. The odor of methoxyflurane was

noted in the exhaled gases. To facilitate clearing agents, a T-tube was substituted for the circle system and ventilation with 100 per cent oxygen was continued. Forty-five minutes later extubation was possible and 1½ hours later consciousness returned.

Examination of the equipment revealed that the soda lime in the canister contained methoxyflurane. Apparently, the canister and vaporizer had been inadvertently tipped, and liquid methoxyflurane entered the canister. Because of its low vapor pressure, significant amounts of the agent remained. Because of the large vaporizing surface, a high concentration of methoxyflurane was attained and administered with near fatal result.

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