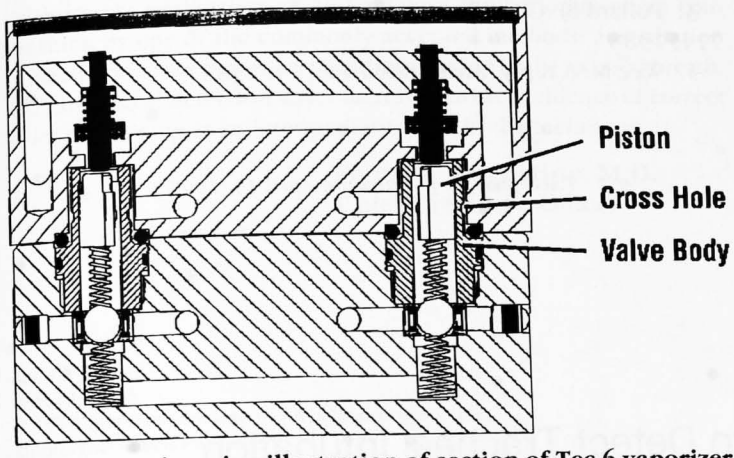

Fig. 1. An engineering illustration of section of Tec-6 vaporizer head and interface manifold. This adapter manifold required for use of the Tec 6 NAD Variant Vaporizer developed a significant fresh gas leak when the vaporizer was turned off after use, such as at the end of our case. This condition is caused by a manifold valve being held in an open position. The internal plunger of this valve can become lodged against the flow control holes of the valve body, creating a passageway for a gas leak. A leaking sound, such as a hissing noise, was present. (Courtesy of Ohmeda, Inc.)

used to deliver halothane, enflurane, and isoflurane, because of the physical properties of desflurane. The principles of operation of the Tec 6 are described elsewhere.[1,2,3]

The investigation conducted by Ohmeda identified a possible situation in which the valve piston could stay in the depressed position when the vaporizer control dial was returned to the stand-by position (fig. 1). This situation would be a result of the piston becoming temporarily lodged into a cross-hole feature of the valve body. In this condition, a gas path would be created that could vent fresh gas flow to the atmosphere.

To address this possibility, Ohmeda revised the valve body design to remove the cross-hole feature. Further, Ohmeda has conducted a field action to notify customers with affected units (Ohmeda Tec 6, desflurane vaporizer for use with North American Drager Anesthesia Systems), provided appropriate additional instructions for the user in the event of such a problem, and replaced the affected units with vaporizers containing the revised valve body component. The second issue involved the requirement to check and adjust the North American Drager anesthesia machine vaporizer interlock mechanism. This should be conducted on replacement of any vaporizer by authorized service personnel. After adjustment on the referenced machine, the interlock system operated appropriately, allowing the selection of any of the mounted vaporizers.

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Invention of the Esophageal Detector Device

To the Editor:—Sood *et al.* ascribe the first description of the esophageal detector to Wee.[1] This is not correct. Wee was an independent reinventor, the namegiver of the "esophageal detector device," and the first to publish a formal study on this issue.[2] But the first description of the syringe test was by Pollard 8 yr earlier.* Pollard and Wee agreed on these facts in the correspondence section of *Anesthesia*.[3,4]

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* Pollard BJ: A test to verify accurate placement of an endotracheal tube. World Congress of Anaesthesiology, Amsterdam, Excerpta Medica, 1980; Abstract 1112.

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Failure of the Augustine Stylet to Detect Tracheal Intubation

To the Editor:—We would like to report a case where an incorrect assessment of tracheal tube position was suggested by the Augustine stylet.

Intubation with the Augustine Guide (Augustine Medical, Inc., Eden Prairie, MN) was attempted after induction of anesthesia and muscle relaxation in a healthy 36-yr-old woman undergoing elective surgery. The stylet was successfully advanced into the trachea on the second attempt, and its position was confirmed by aspiration of "air" through the stylet. A 7.5-mm ID endotracheal tube could not, however, be advanced over the stylet. The guide was separated from the endotracheal tube and removed from the patient's mouth, but the tube still could not be advanced and thus was thought to be caught at the laryngeal inlet. After slight withdrawal and rotation, the tube advanced easily over the stylet. With repeat aspiration through the stylet, there was resistance after 10 ml of "air" was aspirated. Our initial impression was that esophageal intubation may have occurred as a result of the manipulations that had just been performed.

The endotracheal tube was connected to the breathing system, and positive pressure breaths were given. Auscultation of the chest and epigastrium indicated tracheal intubation, and the capnogram showed normal waveforms with no decrease in height of the waveforms over about eight breaths. This was highly suggestive of tracheal intubation. On examination of the stylet, clear thick secretions were seen occluding the tiny holes near the distal end. Room air could not be aspirated through the stylet. The secretions were wiped off and cleared from the holes by forceful suction. When the guide was reinserted through the endotracheal tube, air could be easily aspirated (as expected with tracheal intubation).

Although the manufacturer's package insert warns that thick secretions may lead to a false impression of esophageal position, we are not aware of any other report of failure to detect tracheal intubation with the stylet. The Augustine stylet has six holes (with diameters of approximately 1 mm each) near the distal end. Such small holes are easily occluded by thick secretions. We believe that larger side-holes in the stylet may reduce the chances of occlusion by secretions during the aspiration test.

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In Reply:—This seemingly rare but anticipated occurrence reflects Augustine Medical's intent to err on the side of patient safety. Certainly, the most serious error with the esophageal detector stylet would arise from a false-positive, indicating tracheal intubation with the stylet. Extensive research has shown that a false-positive will arise only when the stylet passes alongside an esophageal obturator airway.* Not surprisingly, this situation develops because an indwelling esophageal obturator airway opens the esophagus to air.

To minimize the incidence of a false-negative, we designed redundancy into the system by placing three holes on each side of the distal stylet. Any air leak negates a vacuum. The chance of all six holes obstructing is exceedingly small. We rejected the idea of increasing the hole size, as suggested by Haridas and Arsiradam, because it would have decreased the shaft strength, making it vulnerable to kinking.

* Kovac AC: Evaluation of the Augustine guide esophageal detection device stylet, The 5th Annual International Trauma Anesthesia and Critical Care Symposium, Amsterdam, The Netherlands, June 1992.