

## CURRENT COMMENT AND CASE REPORTS

CURRENT COMMENT is a new department in ANESTHESIOLOGY. In it will appear invited professional and scientific correspondence, abbreviated reports of interesting cases, material of interest to anesthesiologists reprinted from varied sources, brief descriptions of apparatus and appliances, technical suggestions, and short citations of experiences with drugs and methods in anesthesiology. Contributions are urgently solicited. Editorial discretion is reserved in selecting and preparing those published. The author's name or initials will appear with all items included.

### AN EASY METHOD OF PUTTING INFLATABLE CUFFS ON ENDOTRACHEAL TUBES

Many anesthetists have encountered considerable difficulty in applying inflatable cuffs to endotracheal tubes. Gillespie describes an elaborate three pronged instrument devised by Waters for this purpose. We have found a much simpler and more readily available instrument surprisingly satisfactory. This is a Doyen  $8\frac{3}{4}$ " intestinal forceps. The serrations on the blades should be ground down to make a smooth inner surface, but this is not essential. Talcum powder is applied generously to the endotracheal tube, the cuff and the forceps. With the forceps closed the blades are passed into the cuff until the tips of the blades project just beyond the end of the cuff. The end to which the pilot catheter is attached should be at the tip of the blades. The forceps are then spread apart far enough to allow the endotracheal tube to be inserted to the desired position (fig. 1). Withdrawal of the forceps is surprisingly easy.



FIGURE 1.

The maneuver is most easily carried out by two people, one manipulating the forceps and the other inserting the tube. However, it can be accomplished by one person if necessary.

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### AN AID IN PREVENTING THE INTERCHANGE OF CYLINDERS DURING THE ADMINISTRATION OF ANESTHETIC GASES

As long as the human element enters into the administration of an anesthetic, accidents from carelessness will occur. One such accident occurs by attaching the wrong cylinder of gas to the valve of the machine. The following case report is that of a fatality from such an accident.

#### CASE REPORT

During an operation in which spinal analgesia was employed, a 57 year old man complained and refused to keep his head

and arms quiet. Inhalation anesthesia was started with nitrous oxide. The apparatus consisted of an anesthesia machine, with two "E" cylinders each of oxygen and nitrous oxide, and a truck containing one "G" cylinder each of oxygen and nitrous oxide, fitted with reducing valves. One "E" cylinder of oxygen was replaced by tubing to the "G" cylinder of the same gas and a similar arrangement was followed for the nitrous oxide. For reasons of economy this is customary in this hospital when a

continuous flow of nitrous oxide and oxygen is to be used.

Anesthesia was produced easily, using a high percentage of oxygen, and was maintained without difficulty for over an hour. At this time the sedation began to wear off and the patient moved slightly. An increase in the concentration of nitrous oxide failed to produce deeper narcosis. Thinking that something was amiss with the "G" cylinder of nitrous oxide, the anesthetist changed to the "E" cylinder still on the apparatus. During the next two or three minutes the patient grew increasingly cyanotic and finally stopped breathing. The mask was removed and a few inflations of his lungs with air restored normal respiration. This occurrence was attributed to circulatory collapse, possibly from surgical trauma. Inhalation anesthesia was not resumed for some fifteen minutes. At the end of this time the patient began to move and complain, and inhalation anesthesia was begun again, the "E" cylinders of nitrous oxide and oxygen being used. All went well for about thirty minutes; then a change was made to the "G" cylinder of oxygen again for purposes of economy. Immediately the patient became deeply cyanotic and, after a few gasps, stopped breathing. Two minutes of artificial respi-

ration with "pure oxygen" from the "G" cylinder produced no improvement. By this time his color was purplish-black and the thought occurred to the anesthetist that the patient was breathing pure nitrous oxide. A quick survey of the apparatus showed that, in attaching the "G" cylinders to the machine, the tubing from the nitrous oxide cylinder had been connected to the oxygen port and vice versa so that artificial respiration had been attempted with nitrous oxide. The error was instantly righted, but inflation of the patient's lungs with oxygen was without avail.

To obviate recurrence of this accident, an attempt was made to alter the apparatus in such a way that it would be impossible to attach the tubing from a cylinder to the wrong port on the machine. It was found to be impracticable, however, since the shape of the port had to be preserved to accommodate an "E" cylinder head. The best method that could be devised for the time being was to fasten a T-type key permanently, by means of a pin, to the metal end-piece of the nitrous oxide tubing so that it is necessary to unscrew the tubing below the end-piece, insert the end-piece into the port from above and rescrew the tubing to the end-piece below the port (fig. 1). This system is by no

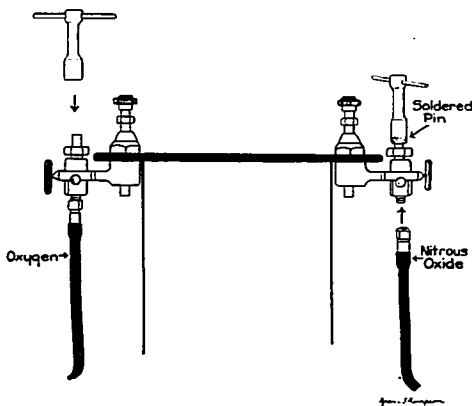


FIGURE 1.

means fool-proof. It merely draws the anesthetist's attention to the fact that the tubes leading from the nitrous oxide and oxygen cylinders are different. It is perhaps only slightly more effective than different colors for the tubing. Neither method will make impossible the replacement of the "E" cylinder of oxygen or nitrous oxide on the wrong port when the "G" cylinder is disconnected.

The ideal means of overcoming the difficulty would be to have a different shape of cylinder-head and end-piece for the tubing used for oxygen and for each anesthetic gas, with correspondingly shaped ports.

This system has been adopted at the Mayo Clinic for oxygen and carbon dioxide cylinders.\* The problem has been under investigation for some time, but the safety equipment devised may not be available until after the war because of the critical materials necessary for its manufacture.

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\* J. S. Lundy: *Clinical Anesthesia*, p. 295.