is greater than is realizable, and erroneous assumptions about the Hb-HbO<sub>2</sub> relationships and dissociation curve. Precisely which of these is involved is not clear to me at this time, and the suggestion of Prys-Roberts and ourselves to use a value for F less than 1.39 represents merely an empirical solution to the problem.

Hopefully, this interchange will provoke the interest of our physical chemist friends, who will, I believe, find this to be a challenging problem. Finally, I can only admire Dr. Van Slyke, who assiduously avoided the entire problem by labeling the method for determination of the chemically combined component "O<sub>2</sub> Capacity Method" and leaving for the individual the hazard of deriving Hb or F or HbO<sub>2</sub> from his findings.6

RICHARD A. THEYE, M.D. Department of Anesthesiology Mayo Clinic and Mayo Foundation Rochester, Minnesota 55901

## REFERENCES

- Foëx P, Prys-Roberts C, Hahn CEW, et al.: Comparison of oxygen content of blood measured directly with values derived from measurements of oxygen tension. Brit J Anaesth 42:803-804, 1970
- Theye RA: Calculation of blood O<sub>2</sub> content from optically determined Hb and HbO<sub>2</sub>. ANESTHESIOLOGY 33:653-657, 1970
- Harington CR, Van Slyke DD: On the determination of gases in blood and other solutions by vacuum extraction and manometric measurement: II. J Biol Chem 61:575-584, 1924
- Theye RA: Blood O<sub>2</sub> content measurement using the O<sub>2</sub> electrode. ANESTHESIOLOGY 28:773– 775, 1967
- Solymar M, Rucklidge MA, Prys-Roberts C: A modified approach to the polarographic measurement of blood O<sub>2</sub> content. J Appl Physiol 30:272-275, 1971
- Peters JP, Van Slyke DD: Quantitative Clinical Chemistry. Vol. I. Interpretations. Baltimore, Williams & Wilkins, 1931

## Instrumentation in Operating Rooms

To the Editor:—The device described by Lomanto and Leeming ("A Safety Signal for Detection of Excessive Anesthetic Gas Flows," ANESTHESIOLOGY 33:663, 1970) is another example of unneeded instrumentation. Instruments can and often do not work. And, a very simple test is available to detect this problem. An anesthesiologist should breathe through the anesthetic circuit before applying it to a patient every time anesthesia is given. In addition to detection of the presence of anesthetic agents, valves can be checked for competence and leaks can be detected. This is an essential step in setting up.

Selma Calmes, M.D. 2932 North Fresno Street Fresno, California 93703

To the Editor:—It appears that Dr. Calmes does not understand the purpose for which the safety signal is designed. I agree that in recent times there has been a great clamor for more and more instruments in the operating room, and that the demand may be greater

than the actual need. Monitors, however, should be used when indicated.

Dr. Calmes suggests that the anesthesiologist breathe through the anesthetic circuit to test for leaks and competency of valves before applying it to the patient. I disagree. This would constitute a breach of sterile technique, because in our institution all anesthetic equipment employed, from the patient to the soda lime canister, is gas-sterilized. One need not breathe through the circuit to test for leaks and competency of valves. This can be accomplished by merely occluding the Y connector and simultaneously squeezing the reservoir bag with the pop-off valve closed.

There has been much discussion about the anesthesiologist's educated hand. I am now informed that the anesthesiologist also has an educated nose. Admittedly, those gases with characteristic odors are readily detected. However, nitrous oxide, which is virtually odorless, would be extremely difficult to smell, and if it were flowing in quantities in excess of 80 per cent the sniffer would be firting with danger. This practice is foolhardy and unnecessary, be-