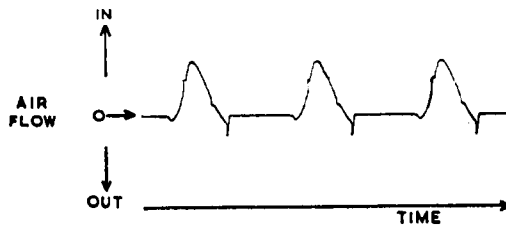


the response of the respirometer on sinusoidal flow is as though the whole tidal volume were delivered at the peak flow.

There appear to be a number of possible reasons why the respirometer should overread on the *inflow* phase of the Starling pump. Firstly, its peak flow to minute volume ratio is high (5 compared with 3.14 for a pump generating a sine wave). Secondly, the pneumotachogram of the inflow phase of our own Palmer pump (see figure) shows backflow, valves opening during movement of the piston and a tendency towards oscillation. The respirometer has a remarkable capacity to respond to rapidly alternating gas flows, but it will record only the forward component of such flows.

The response of the respirometer during tidal flow is governed by at least four factors—minute volume, wave-form, temperature and gas composition. All must be considered when assessing the likely error when it is used during anaesthesia. After studying the influence of these factors Dr. Ezi-Ashi and I concluded that no correction factor was required under the conditions of anaesthesia and we were able to demonstrate that, between minute volumes of 3.8 and 8.2 l./m. (BT_{PS}) when the patient was breathing 70 per cent nitrous oxide, the minute volume indicated by the respirometer lay between the minute volume simultaneously recorded by a spirometer (AT_{PS}) and this volume corrected to BT_{PS}.³ This we thought adequate for clinical monitoring.

JOHN NUNN, M.B., PH.D.
Royal College of Surgeons
London, England



Pneumotachogram of inflow into Palmer-Starling 'ideal' pump.

References

1. Hall, K. D., and Reeser, F. H.: Calibration of Wright spirometer, *ANESTHESIOLOGY* 23: 126, 1962.
2. Wright, B. M.: A respiratory anemometer, *J. Physiol.* 127: 25P, 1955.
3. Nunn, J. F., and Ezi-Ashi, T. I.: The accuracy of the respirometer and ventigrator. *Brit. J. Anaesth.* 34: In press, 1962.

To the Editor.—I agree with Dr. Nunn that the Starling pump may have exaggerated the coasting error of the Wright meter because of its flow characteristics and thank him for his fine analysis of this. We have observed some coasting, however, when breathing through the meter as well as when pumping through it. I certainly agree, as mentioned previously, that for usual clinical use, no correction is necessary. I am very glad that the corrosion problem has now been solved by using stainless steel rotor shafts.

KENNETH D. HALL, M.D.
Duke University Medical Center
Durham, North Carolina

Function of the Anesthesiologist

To the Editor.—I could not be in more complete agreement with the statements made in the Letter to the Editor by Drs. Brown, King and McLaughlin (*ANESTHESIOLOGY* 23: 272, 1962). To me it appears axiomatic that a consultant (anesthesiologist) who finds himself in "serious or basic disagreement" with the referring doctor (surgeon) has no choice but to withdraw from the case. It is rare indeed that one can truthfully say there is one and only one agent, method or technique which is applicable or safe in a particular situation.

I have found it necessary to decline to serve for this reason on only one occasion in more than twenty years, without either abrogating the responsibilities of an anesthesiologist or enforcing a dogmatic and arbitrary opinion upon a reluctant surgeon. He who frequently finds himself in basic disagreements which cannot be reconciled should either strengthen his powers of persuasion or seek out less recalcitrant surgeons.

FORREST E. LEFFINGWELL, M.D.
Pasadena, California