formed with ease and tracheal intubation could have been readily accomplished. Saliva-
tion occurred occasionally, but in no instance was it objectionable with either agent, despite
the absence of a belladonna drug.

SUMMARY

Ethane appeared similar to halothane in this small crossover study. Both were readily
accepted by volunteers. Induction and emer-
gence were alike in duration. Muscular re-
lexation of the jaw was acceptable with both
agents.

The principal difference was that spontaneous
respiration was well maintained with
Ethane at levels where serious depression oc-
curred with halothane.

Ethane was supplied through the kindness of
Mr. James Witcha of Ohio Medical Products, Di-
vision of Air Reduction Company, Incorporated.

REFERENCES

1. Virtue, R. W., Lund, L. O., Phelps, M., Vogel,
J. H. K., Beckwitt, H., and Heron, M.: Di-
fluoromethyl 1,1,2-trifluoro-2-chloroethyl ether
as an anesthetic agent: Results with dogs and
a preliminary note on observations with man,

2. McDowell, S. A., Hall, K. D., and Stephen,
C. R.: Difluoromethyl 1,1,2-trifluoro-2-chloro-
ethyl ether: Experiments in dogs with a new
inhalational anesthetic agent, Brit. J. An-

3. Dobkin, A. B., Heinrich, R. G., Israel, J. S.,
Levy, A. A., Neville, J. F., and Ounkasem,
K.: Clinical and laboratory evaluation of a new
inhalation agent: Compound 347 (CHF3-
OCF3-CF3), Anesthesiology 29: 275,
1968.

C. R.: Clinical experiences with Compound
347, a halogenated anesthetic agent, Anesthes.

A Safe Method for Discharging Anesthetic Gases

R. ANTHONY MARRESE, M.D.*

Of increasing concern to every anesthetist is
his daily exposure to potentially toxic vapors.
Davis4 discusses contamination of the operat-
ing room by effluent anesthetic gases, and
Bruce et al.5 point out the possible relation-
ship of toxic vapors to the incidence of lymph-
oidal malignancy. A new method* has been
developed to provide a way to vent excess
gases from high-flow semiclosed or nonre-
breathing anesthesia circuits into central hos-
pital vacuum systems without exposing operat-
ing room personnel to the potential environ-
mental hazards of these vapors.

DESCRIPTION

In this closed-discharge-into-vacuum-line sys-
tem, a needle flow valve is attached in parallel
with the conventional pop-off valve (fig. 1).
The discharge side of the flow-reducing valve

* Staff Anesthesiologist, Pensacola Naval Hos-
pital, Naval Air Station, Pensacola, Florida 32512.
* The method utilizes the Marrese "Safe-vent"
adapter. Patent pending. This adapter is avail-
able from the Marosul Company, Post Office Box
216, River Forest, Illinois 60305.

is connected to a central vacuum line. In
most hospitals, the vacuum line is attached to
a central pump and a roof vent. Figure 2
shows the Marrese "Safe-vent" adapter in
place with a flexible suction hose attached;
the pop-off is above.

OPERATION

When discharging into the vacuum system,
the pop-off valve is closed. Gas flows around
the primary anesthesia circle to the pressure-
relief valve area, where the volume of dis-
charge is regulated by the needle valve, which
allows the vacuum line to remove from the
circuit only that volume of gas which is in
excess, while maintaining gas bag tension and
pressure at the desired levels.

RESULTS

This method of discharging gases was used
without untoward incident in several hundred
anesthetic administrations. Proper adjustment
of the "Safe-vent" adapter was accomplished
easily, and no patient was subjected to mea-
surable positive pressures except when intentionally used in pulmonary edema, laryngeal spasm, controlled hypotension, or ventilatory assistance. Gas flows ranged from 2 to 12 l/min. Since the safety of discharging explosive gas mixtures into a vacuum system could not be ascertained in our hospital, this method was confined to use with non-explosive mixtures. If the hospital vacuum system should fail, the needle valve can be closed and the pop-off relief valve used in the traditional manner.

This closed-discharge-into-vacuum-line method has the following substantial advantages over most pop-off valves: 1) complete elimination of anesthetic gas pollution of operating rooms; 2) rapid reproducible micrometer adjustments of anesthesia circle pressures to zero levels in the steady state; 3) no opening valve pressures required to vent gases; 4) fewer valve adjustments with controlled, assisted, or spontaneous ventilation; 5) no change in valve adjustment necessary to sigh the patient; 6) quieter operation than that of pop-off discharging; 7) complete compatibility with existing gas machines.

The device described was developed by the author on his own time, without the use of government funds, materials or personnel.

REFERENCES
