blood pressure waveform and measures the "zero-offset" (also called
the "bias" or "DC component" of the waveform. It appears that Marcy's
device did not satisfy parts 1, 3, and 5 of our definition.

Reference 7 cited by Bruner (O'Rourke et al.) does not support his
contention that arterial tonometry was invented before 1890. For ex-
ample, O'Rourke et al. state that "His (Marcy's) techniques for pulse
recording . . . were improved and extended principally in England
by Mahomed" (page 9). O'Rourke et al. then contrast a modern to-
nometer with Mahomed's device as follows: "a new instrument . . .
unlike Mahomed's instrument depends on the established principle
of tonometry" (page viii).

Describing modern arterial tonometry, O'Rourke et al. state, "The
theoretical basis on which arterial tonometry is founded is solid and
has been developed over a period of 20 years. The earliest studies by
Pressman and Newgard used . . ." (page 26).

We thank Bruner for pointing out our error concerning the Food
and Drug Administration's (FDA) name. We do not dispute his
description of FDA approval. We agree that FDA approval is not com-
pelling evidence, but neither is it irrelevant.

Bruner's disaste for "proprietary" drugs is understandable. On the
other hand, the manufacturing processes used to produce many drugs are
proprietary, and physicians have no reservations about using these
drugs. We further submit that numerous medical instruments such as
imaging devices and analytical instruments use algorithms that are (at
least in part) proprietary. Some balance must be made between the
medical professional's "need to know" and the legitimate protection
of proprietary technology. We are constrained by the equipment
vendor's willingness to divulge details of the algorithms.

We point out that the basic strategy and effects of the "proprietary"
algorithm are revealed in our paper: "Mean arterial pressure is taken
as the cuff pressure at which the amplitude of the cuff pressure oscil-
lations reaches a maximum. The oscillometric measurements then
are used to compute two coefficients (essentially a "gain" and "offset")
that are used . . . and so on.

Anesthesiology
77:398, 1992

When the Endotracheal Tube Will Not Pass over the Flexible Fiberoptic Bronchoscope

To the Editor—Katsnelson et al.¹ point out that it is often necessary
to rotate the tracheal tube to facilitate its passage through the glottis.
It is interesting to note that Dogra et al.² made similar recommendations
for passing a tube over a gum-elastic bougie.

Their letter suggests that they are using preformed tubes. Tubes
with a preformed curve do not rotate well and in our experience can
cause the fiberoptic bronchoscope to "flick out" of the trachea. Flex-
ometalic tubes, such as those produced by Mallinckrodt, have very
little preformed curve and can be rotated through the glottis without
risk of displacing the fiberscope. Also, being flexible, they follow the
fiberoptic bronchoscope through the curves formed by the glottis and
trachea. When passing the tube one should rotate more than push.
We find that flexometalic tubes are much easier to pass, and being
softer, are kinder both to the tissues and the bronchoscope.

Anesthesiology
77:398–399, 1992

Machine Wars: Another Cause of Pressure Loss in the Anesthesia Machine

To the Editor—As requests increase for anesthesia services outside
of the operating room, the potential for equipment-related problems
also increases. Technologic advances in medicine have created a literal
explosion in the use of electronic mechanical equipment, enhancing
the chances of inadvertent machine interaction. We report an incident
whereby a fluoroscopic machine disabled an anesthesia machine (Mod-
ulus II, Ohmeda, Madison, WI) during a vascular procedure performed
in the radiology department.

We appreciate Bruner's careful reading of our paper. We hope the
above comments will satisfy his concerns.

OSAMU KEMMOTSU, M.D., PH.D., F.C.C.M.
Professor and Chairman
Department of Anesthesiology
Hokkaido University School of Medicine
Sapporo, Japan 060

JOSEPH S. ECKERLE, S.M.
Senior Research Engineer
Mechanical Design and Development Program
SRI International
Menlo Park, California 94025

REFERENCES

1. Kemmotsu O, Ueda M, Ohtsuka H, Yamamura T, Winter DC,
Eckerle JS: Arterial tonometry for noninvasive, continuous
blood pressure monitoring during anesthesia. ANESTHESIOLOGY
75:335–340, 1991

2. Bedford RF: Invasive blood pressure monitoring. Monitoring in
anesthesia and critical care medicine. Edited by Blitt CD, New
York, Churchill Livingstone, 1990, pp 93–134

3. Mangano DT, Hickey RF: Ischemic injury following uncomplicated

4. Thomas F, Burke JP, Parker J, Ormo FJ, Jr, Gardner RM, Clemner
TP, Hill GA, MacFarlane P: The risk of infection related to
radial vs femoral sites for arterial catheterization. Crit Care Med
11:807–812, 1983

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IAN CALDER, M.B. CH.B., F.R.C.A.NA.E.
Consultant Anaesthetist
National Hospitals for Neurosurgery and Neurology
Queen Square
London WC 1
Great Britain

REFERENCES

1. Katsnelson T, Frost EAM, Farcon E, Goldiner PL: When the en-
dotracheal tube will not pass over the fiberoptic bronchoscope.
ANESTHESIOLOGY 76:151–152, 1992

2. Dogra SS, Falconer RF, Latto IP: Tracheal tube placement over

(Accepted for publication April 17, 1992.)