

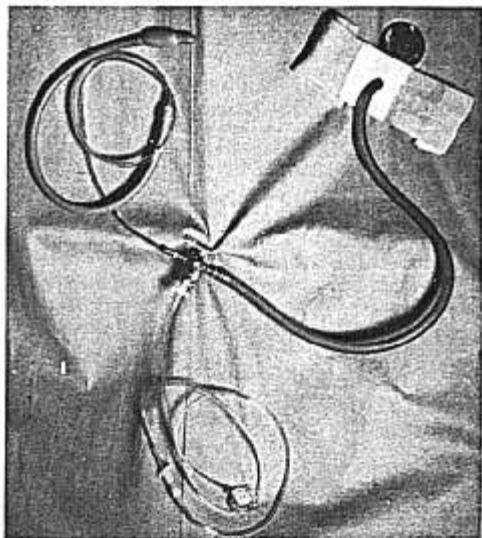
Having solved this important problem, we feel that from now on scientists could devote their effort to less important things, such as doing a reasonably good job, no matter where they are placed in the system. But, we admit that probably everybody will look down upon a scientist who devotes his effort to such an inferior task.

This comparatively anonymous contribution was sent to the Editor of ANESTHESIOLOGY after a discussion on the subject of "pecking order."

## TECHNIQUES AND GADGETS

### Three-way Stopcock

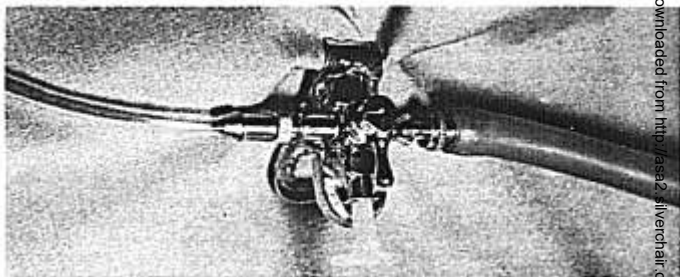
Drs. Donald R. Weis and Gene W. Mason of Tacoma, Washington, report on the use of a three-way stopcock in heart and blood pressure monitoring during anesthesia. In this day of cardiac monitoring during anesthesia many new devices have been developed. The caricature of the anesthesiologist as a many-armed octopus lost amongst a maze of tubes and wires is becoming only too true. In an attempt to simplify this problem they have utilized a three-way stopcock which enables the anesthesiologist to



Three-way stopcock with antibrachial stethoscope, esophageal stethoscope, and hearing-aid type earpiece attached.

switch from precordial or esophageal cardiac monitoring to the sphygmomanometer circuit by a simple one-handed movement.

Heretofore in taking the blood pressure while monitoring the heart by aural means, it has been necessary to remove the standard stethoscope earpiece or the hearing-aid type earpiece, which they prefer, to switch to the sphygmomanometer circuit. This is awk-



Close-up view of stopcock attached to clamp.

ward, time-consuming, and inefficient. Listening to both circuits by having a different earpiece in each ear not only isolates the anesthesiologist from communication with the surgeon, but is uncomfortable and difficult because of the difference in time interval at which the pulse reaches the two ears. The use of a three-way stopcock connected to both the antibrachial stethoscope and the precordial or esophageal stethoscope seems to alleviate some of these problems.

To aid one-handed manipulation Drs. Weis and Mason had a three-way stopcock soldered to an Edwards security clamp or a Bell cord and tubing clamp. Either of these holds the stopcock in any desired position preventing needless fumbling and a periodic one-handed chase whenever a switch from one circuit to the other is desired. Connections are made between the two circuits by Pentothal extension tubing which seems to be resistant to kinking, is cheap, and is easily replaceable.

### Pillow for Anesthesia

N. L. Wulfsohn, M.B., and E. M. Law, M. B., of Stoke-on-Trent, England, describe a pillow, based on an original sandbag cushion, which they devised for use in anesthesia and have used for more than a year. The pillow is made of sponge rubber and has a smooth covering of anti-static rubber. The external diameter is  $9\frac{1}{2}$  inches (24 cm.), the internal diameter is  $3\frac{1}{2}$  inches (9 cm.), and the height is 2 inches (5 cm.). This pillow maintains any desired position of the head, is washable, easy to use, and is a suitable size for an operating table. It can be used for both adults and children and is comfortable for a patient even when only local analgesia is given.



Sponge rubber pillow for anesthesia.

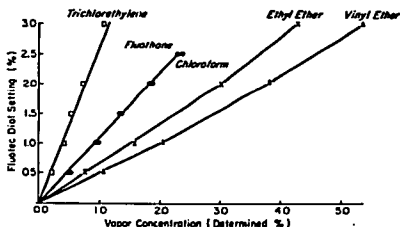
## Fluotec Performance

Drs. H. H. Kensing and C. B. Pittinger of Iowa City, Iowa, report on the relation between Fluotec dial settings and delivered vapor concentrations for various anesthetic agents.

During the course of a laboratory experiment involving the use of a "Fluotec" vaporizer (Mackay, I. M., *Canad. Anaesth. Soc. J.* 4: 235, 1957) it became of interest to know the actual output of vapor in relation to the indicated dial setting for various volatile anesthetic agents.

The vaporizer was filled with the appropriate liquid\* and weighed on an analytical balance (capacity 3 kgm., sensitivity 1 mg.). Then oxygen, delivered from a Foregger double kettle anesthetic apparatus, at an indicated flow rate of 8 liters/minute was passed through the Fluotec vaporizer and the outflow measured by means of a wet gas meter. The oxygen flow was discontinued when a total of 80 liters of oxygen and vapor were registered on the wet gas meter. The time required for the procedure was consistent with the indicated flow rate of oxygen. The vaporizer was reweighed and the

RELATION BETWEEN FLUOTEC DIAL SETTINGS AND DELIVERED VAPOR CONCENTRATIONS FOR VARIOUS ANESTHETIC AGENTS



loss in weight calculated. The vapor concentration, at the indicated dial setting, was calculated by adjusting the volume of the molar fraction of anesthetic agent at S.T.P. to the existing temperature and pressure. The calculated volume of vapor divided by 80 liters times 100 gave the per cent vapor concentration.

The relation between the Fluotec dial settings and delivered vapor concentrations is shown in the graph. Repeat determination with Fluothane indicated that the values agreed to within  $\pm 2$  per cent. The linearity of the curves for trichlorethylene, chloroform and Fluothane suggests that the Fluotec vaporizer provides good temperature compensation for these agents. The deviations from linearity of the curves for ethyl and vinyl ethers (at the higher vapor concentrations) suggest inadequate temperature compensation for these agents. (This study was supported in part by USPHS Grant B-1079.)

## CASE REPORT

### Spinal Analgesia

Dr. Thomas Davis of Iowa City describes 4 patients in which spinal analgesia precipitated pain, spasm, or both, in amputation stumps of lower extremities. Although this has been mentioned before (Harrison, G., *Anaesthesia* 6: 115, 1951; Maxson, L. H.,

\* U.S.P. grades of the anesthetic agents were utilized. The vapor concentrations were computed as though the liquids were 100 per cent stated agent. The Fluothane was supplied through the courtesy of Dr. John Jewell of Ayerst Laboratories.