ing devices and a single pressure transducer, assures the continuous flushing of both lumens and permits the monitoring of either pressure by rotation of a single handle. In the PA position, the distal lumen is connected to the continuous flush with the transducer while the patency of the proximal lumen is maintained by the other continuous flush (fig. 1). Rotating the valve handle through 90 degrees essentially switches the proximal and distal connections so that the CVP is now presented to the transducer (fig. 2). Conventional three-way stopcocks may be inserted at the proximal and distal connections to facilitate calibration procedures and blood sampling.

We have constructed and are using a prototype assembly based on a commercially available chromatographic four-way valve with flow through any two adjacent ports† (fig. 3). The valve and fittings have been mounted on a piece of plastic that fits into a conventional manifold holder for convenient attachment and positioning. Because the chromatographic valve is designed to rotate through 360 degrees, mechanical stops that limit rotation and align the ports must be added. Utilization of a miniature pressure transducer is a desirable but unnecessary feature. Standard-sized transducers can be connected by a short length of appropriate tubing or can be mounted directly onto the valve assembly with only a slight alteration in the configuration.

† Hamilton Company, P.O. Box 10030, Reno, Nevada 89510.

Hazard of Disposable Diaphragm Domes

To the Editor: —We read with interest and concern the paper reporting a hazard in using disposable diaphragm domes.‡ A tragedy was averted by the presence of mind of one of the anesthesiologists.

The actual pressure cannot reach the transducer when the dome is loose. Leakage will be obvious in the case of a non-diaphragm dome, but inaccuracy without visible leakage occurs when a diaphragm dome is loose. The user is directed several times to tighten the dome very firmly: in an instruction sheet in the bag with every TA1009D (and other Gould Statham® disposable) dome, on an illustrated 8½ × 11-inch sheet packed in every box of 12 domes and in the instruction booklet accompanying all P23-series transducers. We emphasize the necessity of a firm installation torque.

The distance from fully tight to complete thread
disengagement of all domes for the P23Db transducer is somewhat less than two turns. Sisco et al. reported that the dome was discovered to be one turn loose. This means a separation of the diaphragms of 1/16 inch, and that the dome was actually half off the transducer.

A locking mechanism for the dome should be unnecessary. When properly tightened, the dome will not easily work loose, and a latching device could complicate more than benefit the operation. Confirming that the dome is properly tightened is just as easy as checking any of the other connections in the line. It is to be hoped that Sisco et al. and our communication will alert others to the importance of this maneuver.

Methodology for Studying Cerebral Evoked Potentials Challenged

To the Editor:—Chapman and Benedetti1 are very likely correct in their prediction that measurements of evoked central nervous system activity will be useful in studying pain. Unfortunately, several problems in study design leave their specific conclusions open to question.

First, both subjects and observers knew when nitrous oxide was being administered and seemingly expected analgesia and changes in cerebral evoked potentials (CEP). They also knew when naloxone was given and that it was expected to change CEP; at least the observers (and very possibly the subjects) anticipated reversal of analgesia after injection. Evoked potentials in the latency range considered (100–500 msec) could surely have been affected by the subjects' expectations. Attention level, vigilance, and expectancy are known to alter long-latency, sensory-evoked waveforms.2 Double-blind administration of nitrous oxide and naloxone would have lent considerable credibility to the authors' conclusions.

Second, administration of nitrous oxide by nasal mask with the mouth open leaves considerable doubt as to actual inspired concentrations, and duration of inhalation prior to testing is not stated.

Third, constancy of stimulus application is not at all assured with the method employed. Not only was the stimulating probe hand-held; it was held by the subject! Monitoring the stimulus waveform on an oscilloscope does not ensure uniform delivery of a constant stimulus in this setting. Nitrous oxide, 8–12 per cent, has been shown to impair psychomotor performance.3

What part might the subject's impaired probe-holding performance have played in changes in CEP and pain reporting found with nitrous oxide?

Finally, room air is compared with nitrous oxide in oxygen, 67 per cent. Room air itself may have some anesthetic effect,4 and we do not know whether increased inspired concentrations of oxygen alter long-latitude CEP.

Evoked potential measurement may well prove to be a valuable tool in pain research. The work reported by Chapman and Benedetti invites replication under a more stringent experimental protocol.

REFERENCES