enable a man to earn a passable living working at 25 per cent and an excellent one at 50 per cent of his capacity.) Perhaps it would be better for the American public if some of the young doctors now beginning surgical training entered anesthesiology instead.

Dr. Jones is right to warn us that as other countries develop their own training centers, America may receive fewer and fewer residents from overseas. We must take this into account.

My aim has been to stimulate debate and critical thinking about all aspects of the future of the speciality. The attitude which we adopt must, of course, be based on reality. However, that attitude itself, whether optimistic or pessimistic, will have a large influence on the image, status or prestige of the speciality in the eyes of the profession and of the public. In turn, this will help or hinder recruiting. So we must be doubly careful not to lose faith prematurely.

Under a democratic system of society it is our duty to strive to see the grand view of mankind. Nevertheless, as a minority group, we have the responsibility to plead our cause with all the vigor and eloquence which we can command. No one else will be advocates for us.

We can argue about what kind of anesthesia service is morally right in a modern affluent society. We can examine what has happened in the past and what is happening now. So far, the information we have is sparse. As we gather more we shall be able to debate its significance for the future. If, and when, we predict that we are headed for disaster (and Dr. Jones and others fear that this is now) we should have to change our course. There would be several alternatives—one is the nurse-anesthetist (supervised or unsupervised), another is increased recruiting from other fields of medicine. It would be fitting for the profession to look at all its branches, not merely anesthesia, to see where economies of manpower could reasonably be made. Form-filling, lumbar punctures, thoracenteses, assisting at operations and a hundred other tasks are all far less dangerous than anesthesia and could well be done by nonphysicians.

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Reference


Halothane and Cerebral Circulation

To the Editor.—We were most interested in the well-controlled study by Wollman, Alexander, Cohen, Chase, Mellman and Behar on the effects of halothane on the cerebral circulation of man. Their conclusion that halothane increases total cerebral flow confirms the suspicions of those who have observed a rise in intracranial pressure during the administration of this drug.

However, Wollman and his colleagues, in attempting to explain the differences between their results and our own make certain comments which we wish to discuss further. It is true that we induced anesthesia with thiopental; indeed, we gave further supplementary doses of this drug while surgery was proceeding, in order to ensure that anesthesia was adequate. However, after the surgical preparation had been completed, a pause of at least an hour was observed to ensure that the barbiturate effects had disappeared before making our control measurements (the disappearance of barbiturate depression was also confirmed by serial electrocorticograms). As the control—i.e., nitrous oxide without halothane—observations were made before the halothane ones, and as thiopental reduces cerebral blood flow, a residual barbiturate action would have had more influence in slowing the control measurements than the halothane ones.

Succinylcholine was employed by us but, as it was administered during both control and halothane measurements, it is difficult to see how its administration could selectively affect flow only during halothane anesthesia.
Our use of nitrous oxide while making the control measurements was essential since general anesthesia was required during the experiment. The statement by Wollman and his colleagues that “the effects of nitrous oxide on the cerebral circulation are not known” will cause some despondency to those who for 15 years have used the technique of Kety and Schmidt to measure cerebral blood flow.

We apologize for our errors of omission. The duration of halothane administration in our study was between 20 and 120 minutes. The pharyngeal temperature of the animals was maintained between 36°C and 38°C by controlling the environmental temperature.

We entirely agree that the most likely explanation of the differences between Wollman's results and our own is that the techniques used measure quite different parameters. We would, however, submit that blood flow through localized areas of cerebral cortex may not be without significance.

On the question of possible species differences, we enclose two plots of the clearance of xenon 133 from the brain of an anesthesized patient (1) prior to and (2) during halothane administration (this patient was studied by Dr. A. M. Harper, Mr. W. B. Jennett, Dr. J. L. Steven and Dr. J. Barker whom we wish to thank for permission to include this illustration). As this technique measures mainly the clearance of xenon 133 from the parietal cerebral cortex, these results give further support to the hypothesis that halothane, while probably increasing total cerebral blood flow, produces a reduction in flow in certain areas of the cortex.

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References

To the Editor.—I am glad to have the comments of Drs. McDowall and Harper on a problem which interests both their group of investigators and ours. While certain minor points in our paper and in their letter may bear further discussion among us, I am most pleased that in general we agree on the reasons for our differences. I am also gratified that we have available more than one method for attacking the problems of anesthetic effects on the brain.

The Kety and Schmidt nitrous oxide technique has certain drawbacks which we mention in an article in the Journal of Applied Physiology 15: 561, 1964. The inhalation of a low concentration of nitrous oxide (15 per cent) is probably not the most important of these. We are at present preparing two papers which bear on the effects of 70 per cent nitrous oxide on the cerebral circulation.

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