anesthesia. It is amazing that there are hospitals of great size in which there are anesthesiologists as heads of departments of anesthesiology who allow the administration of anesthetics by those who have had little training in anesthesia.

Let us now examine group two, the anesthesiologists. Anesthesiologists may be divided into two principal categories: the clinical and the teaching-investigative. The clinical anesthesiologist, in general, is the physician in practice. Frequently, he is vociferous in his defense of the free enterprise system, rises up in righteous indignation at the mention of "third party medicine," and is struggling to maintain his status in the medical community. He is beset by numerous problems imposed by hospitals and, sometimes deservedly, by unsympathetic medical colleagues. If he is fortunate, he may participate in teaching programs and perhaps in investigative work.

The clinical anesthesiologist is quite an individual. He must be skilled in the evaluation not only of the cardiac, respiratory, and urinary systems, but of the whole patient. He must have an unusually good background of knowledge of nonsurgical diseases. He must have an intimate knowledge of surgical and obstetrical techniques. He must have a thorough knowledge of physiology and pathology. His pharmacological knowledge must encompass many drugs and gases. He must be mechanically minded. In the coming era of group practice, he should become a key group member as he will work with all group members, pediatrician, internist, surgeon, and obstetrician.

There is no necessity to dwell at length on the investigative-teaching anesthesiologist. All of the duties outlined above are his, but added to these are those which have to do with teaching or training young physicians. If he is to do investigative work, then he should have had special training for this. As a matter of fact, possibly there should be two types of residency training programs. One to train clinical anesthesiologists and a second to train the investigator-teacher. The latter should be a graduate school program leading to a graduate degree. It should be comparable to the programs of graduate students in other sciences.

The time has come for anesthesiologists to step out into the positions they deserve. Knowledge applicable to anesthesiology is accumulating at an amazing rate. Postgraduate courses are but one means of accumulating, analyzing, and disseminating this new knowledge. Its application will depend upon what kind of anesthesiologists we have and we train. Anesthesiologists must remember that with knowledge and seniority in the medical community, there come very real responsibilities. These must be met, accepted, and discharged with dignity, dispatch, courage, and at least a soupçon of unselfishness.

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Audio Education

UTTERED sound is a basic means of communication. The newborn inherits this capacity and exercises it with his first few breaths. Throughout time mothers have used sounds to teach their young the ways of survival.

The introduction first of executed and then of depicted signs did little to decrease the importance of the spoken word as an educational medium. Various cultures produced more complex and more adequate systems of writing, but these remained available and useful only to the learned. Until the Middle

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Ages a common feature of formal teaching was the process of "sitting at the feet of the master" and listening to lectures, dissertations and discussions. Scholars frequently lived in the home of the teacher so that their relation was partly that of father and son. The pupil acquired not only knowledge from his teacher but also elements of his personality and philosophy.

The advent of the printing press caused a revolution in educational methods. Relatively inexpensive books made information available to many people with the result that literacy steadily increased. The modern scholar acquires knowledge almost entirely by reading. Recorded thoughts of the living and dead are readily available to the student who is willing to read them. Residents should take heed of the fact that the quality and breadth of their reading is the best criterion of their professional proficiency to a certifying board.

As adaptable as the printed word is as a medium of mass education, it has not entirely supplanted the spoken word. Lectures and personal conversation continue to be an integral part of medical education but busy schedules limit the attendance at courses and lectures. If the spoken word could be more widely and easily distributed at less expense, it would be more useful as a medium of education. The availability of tape recording has partially solved the problem.

In anesthesiology, there is an opportunity to explore the value of audio education on a large scale. Tape recordings of abstracts of anesthesiological literature are now available. Interspersed with these abstracts are verbatim recordings from lectures and discussions by authorities in their field. By this medium, every anesthesiologist can obtain information presented at many more meetings than he could possibly attend.

The educational experience of centuries would seem to indicate that, if a recording of a lecture can include some of the individualism and personality of the teacher as well as authoritive information, it will have greater impact than the printed page. Under the proper circumstances it is possible for the listener to receive, absorb and remember some information better than he would from reading the same words. No doubt listeners vary in their capacity to absorb audible and visual education. Nevertheless there should be something of interest for all in the audio tape method of presentation.

Presently available audio-tapes are only a relatively recent application of the value of recorded audio education in medicine. Other applications are evident and more will become apparent with experience. Medical schools can be expected to support the development of this new educational medium. Those with basic science and clinical departments interested in the problems of the anesthesiologist are in position to prepare integrated lectures on various subjects. The American Society of Anesthesiology, a body dedicated to the elevation of standards of the specialty of anesthesiology, could play a vital role in stimulating interest and in distribution of these recorded lectures. A central library of tapes would provide to residents resources for didactic training from many institutions. Such facilities might encourage residents to continue their training in anesthesiology past the minimum required for certification.

Undoubtedly, the printed word will remain the principal means of transfer of information from one individual to another. This is especially true of technical details which must be assimilated by repetition and frequent referral. However, this does not diminish the advantages of a combination of audio and visual education. Much of the unique value of the lecture attended in person can be recovered by using 35 mm. slides of tables and charts to be viewed in inexpensive viewing boxes by the listener as directed by the lecturer. In the future, it may become feasible to record both visual and audible information on the same tape by a more convenient process than present day motion pictures and television systems.

The establishment of an Anesthesia Audio Archives, perhaps in conjunction with the Wood Memorial Library, would seem to be a project of national scope worthy of fostering. This project should be started without delay. Already some of the great pioneers in anesthesiology cannot describe the development of their contributions. A year from now other voices will be forever silent. Arrangements for recordings by famous men in our specialty is an obligation we owe to our successors if not to ourselves.

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