

Reports of Scientific Meetings

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A. S. A. Workshop on Teaching

Four years ago Dr. John Steinhaus (Emory Univ.), initiated a program of internal evaluation and improvement of the educational process in anesthesiology by conducting the first of a series of educational workshops. In May, 1967, Dr. N. W. Brian Craythorne (Univ. of West Virginia), organized, under the sponsorship of the American Society of Anesthesiologists, the fourth meeting of this series, an A. S. A. Workshop on Teaching.

After an introductory period devoted to description of the objectives and role of the A.S.A., the American Board of Anesthesiology, and the American College of Anesthesiologists in education, Dr. Walter Wiggins (A.M.A. consultant to the Millis Committee) reviewed the Millis report on graduate medical education. The report emphasizes that with the ever increasing accumulation of knowledge present educational techniques are no longer adequate and there is now a need in graduate education for a controlled, progressive sequence with clear specific goals stated for each level, goals which are formulated and continually re-evaluated by university faculties or hospital staffs. The Millis report also suggests that specialization should start at the end of medical school, with internships incorporated into residency training programs. In addition, the report advocates that in recognition of the role of the entire hospital in the training of residents, and in order to help eliminate inadequate apprenticeship-type programs, approval for residency programs should be given to institutions, rather than to individual services within institutions. A straw vote revealed the views of the 155 member audience on several of these suggestions: (1) only about 10 per cent of the group believed that at the time of graduation from medical school students

know which medical specialty they wish to practice; (2) the vote was about evenly divided between retaining the internship and absorbing it into the residency; and (3) 9 out of 10 of the audience, composed largely of program directors and assistants, believed that residencies should be approved by service, not by institutions.

On the subject of continuing medical education beyond the residency period, Dr. John Dillon (U.C.L.A.) stressed the increasing public and government pressure for upgrading of medical care and suggested the possibility of having periodic in-hospital training programs for physicians in private practice, including assistance in the form of a subsidized *locum tenens*. Dr. Peter Bosomworth (Univ. of Kentucky) discussed the program used by the Univ. of Kentucky to bring training to outlying areas wherein, at the invitation of hospital staffs, small teams of physicians and nurses travel from the university to give one or two weeks of intensive training in anesthesiology, surgery, recovery room technique and inhalation therapy. Dr. Frank Moya (Univ. of Miami) presented other methods of providing continuing education, including scientific meetings at hospital, regional and national levels. No one type of meeting being ideal for all purposes, a wide variety of meetings is required to reach large numbers of physicians. A comment was made in the discussion period that fewer meetings of better quality were needed, rather than more meetings of indifferent or erratic quality. The subject was raised of repeated certification by the A.B.A. or A.C.A. as a means of encouraging continuing education. Dr. Dillon suggested that a better solution might be recognition by certifying bodies of participation on the part of individual practicing physicians in continuing

education, whether by correspondence courses or by attendance at meetings.

Several papers were presented on the value of aids to education. Dr. James Eckenhoff (Northwestern Univ.) spoke of current techniques of teaching the basic sciences, including lecture courses, seminars, third-year fellowships in basic sciences, and the presence of "basic scientists" or, better, anesthesiologists trained in basic sciences in the anesthesiology department. The point was emphasized that basic science is best taught as an integral part of clinical management. Dr. Michael Romano (Univ. of Kentucky) discussed the value of television as an educational tool, as a method for monitoring patients or instruments, and as a technique for image magnification or intensification. One of the greater potential uses of television is for a consultation or conference between parties separated by great distances, as well as for establishment of courses, seminars or general education of large and separated audiences. Perhaps one of the most important functions of television will be in videotaping of information for recording and subsequent replaying at more convenient times, for repetitive presentation, and for information transmission at different rates of speed.

The role of examinations in postgraduate education was discussed, including a talk by Dr. David Little (The Hartford Hospital) on in-training examinations as a guide for both resident self-evaluation and for teacher evaluation of the residents and the training program as a whole. Dr. Leonard Fabian (Univ. of Mississippi) mentioned that the objective examinations offered by the A.C.A. at the end of one year of residency training are a valuable means already available for in-training examinations. Dr. James Matthews (Univ. of Minnesota) presented a comprehensive analysis of the quality of the A.B.A. examinations. The written examination, a test of fundamental scientific scholarship, had a mean reliability index over the years 1955-1965 of 0.902, an excellent score. The oral examination, a test of medical judgment, technical knowledge and scholarship, was rated extremely high for an oral exam, with a reliability index of 0.81 (in 1961). Several other facts about the A.B.A.

examinations were noted: (1) the overall failure rate is about 50 per cent, (2) graduates of 2-year programs have a greater failure rate than those who have had 2 years of training in a 3-year program, and (3) 3-year residents have the lowest failure rate.

Because the above methods of presenting opportunities for learning are only a small part of the educational process, one of the highlights of the meeting was the 2-part presentation of the science of education by Dr. Alexander Anderson (Univ. of Illinois) and Dr. J. P. Lysaught (Univ. of Rochester). Dr. Anderson, a physician with a master's degree in education, presented his views on the role of a teacher and commented on the inability of many current anesthesia residency training programs to appreciate and define exactly what is expected of an instructor. At a resident level of training the functions of a teacher are to provide "guide lines of expectation" of performance and to be a model for emulation, especially in attitude. The teacher is expected by the beginning resident to be immediately available in the operating room, not just for his knowledge, but also for the confidence he creates. At a later stage of resident training the instructor should not be as available during the administration of anesthesia in order to allow the resident to gain confidence in himself. However, he should, at opportune times, provide critical analysis and correction of resident performance since repetition can be considered a learning experience only if accompanied by evaluation. During the last stage of training the teacher should again be present in the operating room to provide the "grooming" necessary for the style and polish of an accomplished anesthesiologist. On the basis of interviews with residents and junior attendings, Dr. Anderson formulated the following list of inadequacies of resident training: (1) insufficient specific goals as a guide to progress, (2) poor correlation between didactic and clinical material, (3) repetition without sufficient evaluation of correction, and (4) unresolved difference in attitude between resident and staff concerning the purpose of patient care. The staff views patient care as a stimulus to learning while the resident sees it as a payment for instruction.

The science of learning, as distinguished from the art of teaching, was the subject of J. P. Lysaught, Ed.D., of the College of Education (Univ. of Rochester). From investigations reaching back to the work of Edward Thorndyke in the 1920's, three principles of efficient learning have evolved. The first, "Law of Effect," states that for learning to occur problem solving must be followed by knowledge of results. Repeated experiences without knowing "consequences of responses" is inadequate for learning. Secondly, the "Law of Recency" states that the results must rapidly follow the experience. The shorter the elapsed time from stimulus to response to awareness of result the more efficient the learning process. The third principle is that the

most efficient pace for learning differs significantly among individual students. Programmed learning, a process of arrangement of presented materials for maximum learning, provides the essentials of (1) individual control of pacing, (2) immediate feedback and (3) behavioral statement of objectives. For the skeptics Dr. Lysaught presented the evidence of 30 studies on programmed learning carried on from 1962 to 1967. Twenty studies showed programmed learning more effective than more traditional methods; in only one study was programmed learning less effective.

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Anesthesia

LOCAL WITH ADRENALIN "Local anesthesia, especially with adrenalin content is best avoided as it lowers the resistance of the tissues. Tissues must have maximum vitality. Adrenalin should never be injected into a digit because from this gangrene has often resulted." So states Bunnell's Surgery of the Hand. The current misconceptions concerning the use of local anesthetic and epinephrine (Adrenalin) mixture in the hand stem from this source. Accurately calibrated and stable mixtures of a local anesthetic and epinephrine (0.5 per cent lidocaine with 1:200,000 epinephrine) are available and can be safely used for local infiltration for surgery of the hand. It was used without complication in 421 patients requiring surgery of the hand. Slow, careful infiltration with minimal amounts of agent, sedation, and a fine, low-intensity cautery for complete hemostasis are essential. The use of this method and its lack of complications can often eliminate the use of the tourniquet and the annoying pressure of "tourniquet time" and the inherent danger of general anesthesia in emergency patients. (Johnson, H. A.: *Infiltration with Epinephrine and Local Anesthetic Mixture in the Hand*, J.A.M.A. 200: 990 (June) 1967.)

SPINAL BLOCKS Vasoconstrictor drugs were added to tetracaine solutions to be injected into the subarachnoid space in 8,851 patients to determine the optimal dose which would safely and consistently prolong the duration of spinal block for a significant period of time. Epinephrine, 0.2 mg. extended the anesthesia 50 per cent; phenylephrine, 5 mg. approximately 100 per cent and ephedrine sulphate 50 mg. did not prolong the duration. No systemic or serious neurological complications resulted. Regardless of the volume or dosage of local anesthetic solution, the optimal dose of epinephrine in the subarachnoid space was 0.2 mg. and that of phenylephrine 5 mg. Epinephrine, 0.5 mg. increased the duration of some but not all by only 15 minutes more than did the 0.2 mg. dose. Smaller doses of phenylephrine were not as effective in prolonging the duration of anesthesia. (Moore, D. C., and others: *Prolongation of Spinal Blocks with Vasoconstrictor Drugs*, Surg. Gynec. Obstet. 124: 983 (Nov.) 1966.)