

PRESIDENTIAL ADDRESS

PROBLEMS OF NEUROSURGICAL TRAINING

Two years ago when it was announced that I was elected President-Elect, I was surprised, elated, thankful, humble, but very proud. This feeling of elation continued for only a matter of seconds when there flashed through my mind, the problem of preparing a Presidential Address. For a while, I tried to forget about it by tucking the problem away in my congested mind. I thought that this forgetting would be rather easy because of my memory impairment, but almost every time when Barnes met me in the hospital, he would ask, "What are you talking about in Miami?" On one occasion, he tried to be more helpful and suggested that I discuss one of his favorite topics, the Millis Report. This Presidential Address, therefore, has haunted me for two years and it is hard for me to believe that it will be over in a matter of minutes.

I selected the topic of Neurosurgical Training because it has been the one subject which I have had to think about constantly for several years. I also thought that it at least would give me an opportunity to express my evaluation of the various conditions which I have encountered in attempting to assess the neurosurgical training in the United States. It also has been the subject of a great deal of discussion by the American Association of Neurological Surgeons and by the Society of Neurological Surgeons. Great efforts have been made by individual members of the Academy to attempt to correct some of the deficiencies which have existed, to name a few, Matson, Walker, Murphey, Mayfield, and Alexander. At this time, I wish to make it clear that I am not speaking as an official of the American Board of Neurological Surgery and that the other members of the Board should not be held responsible for any of my remarks, especially for those with which they do not agree. You know that when I begin to discuss or to listen to someone discuss the problem of neurosurgical training, I am reminded of a story of the two men who were discussing foreign affairs. One said to the other, "You know that only one person in a million really knows anything about foreign affairs but that it is amazing how often you meet this individual."

Last year, Francis Murphey, in his Presidential Address before the Thirty-Fourth Annual Meeting of the American Association of Neurological Surgeons, discussed "Neurosurgery in American Medical Schools." He expressed his grave concern about the loss of neurosurgical curriculum time in our medical schools and its ultimate effect on patient care. At one phase, he stated, "One of the more startling points brought to light by this survey is that it is now possible for 50% or more of the students to go through 25% of the 64 medical schools without any personal contact with a neurosurgical patient." Such a possibility now exists at Duke with our change to a new curriculum. I'm not stating that the new curriculum may not prove to be a

great forward step in medical education, but I am pointing out what I think is one of the disadvantages. I can go one step further and state that it is possible for a member of the surgical staff at Duke to spend five or six years on the surgical service and never have the responsibility for the care of a neurosurgical patient. Several years ago, the Professor and Chairman of the Department of Surgery discontinued rotating a junior or senior resident through the neurosurgical program; and now, only a part of the intern group rotates through for a period of six weeks. Although I intend to discuss mainly postgraduate training, I think that the above situation is going to create a definite problem for a while for every neurosurgical training program throughout the United States, unless we become more cognizant of the situation and make a more determined effort to establish contact with the bright, promising students.

In order to give you a better insight into the training programs in this nation, I would like to review for you a few statistics. At the present time, there are 95 approved neurosurgical training programs in the United States and Canada. Of the 85 in the United States, 71 have university affiliations; and 14 do not. There are 2 in the Armed Services and 2 in the Veterans Administration. At the last meeting of the Residency Review Committee and the American Board of Neurological Surgery, 1 program was placed on probation and 1 program was reactivated.

Frequently, the number of affiliated hospitals in a program has been a bone of contention with the Board. There are 27 programs that have 1 affiliated hospital, 30 that have 2, 21 that have 3, 12 that have 4, and 1 that has 5 hospital affiliates. As you know, the Board tends to frown upon more than 3 hospitals in a program, because of the fact that such a program dilutes the residency staff and takes the trainee away from the parent institution where the major teaching conferences are held. Such a program also separates the trainee from the supervision and guidance of the program director who should be the main cog in the program. Frequently, where there are 3 or more affiliated hospitals, the trainee spends more time in the affiliated hospitals than he does at the parent institution. There is, of course, no problem when a group of affiliated hospitals, which are in walking distance of each other, is located in a medical center. Occasionally, it is necessary to add an affiliated hospital to a program in order to round out the training (a city hospital for traumatic work); but in many instances, the clinical material does not justify the time spent. This added affiliate is more frequently the situation where a trainee is sacrificed as "cheap labor." This result has been a major problem in many of the Veterans Administration hospitals throughout the United States. Trainees have been placed on a rotation at the Veterans Administration hospital for 6 to 12 months with insufficient clinical material. At the present time, there are 36 Veterans Administration hospitals affiliated with approved neurosurgical training programs. Last year, 18 (50%) performed fewer than 100 major operations and 12 (33%) fewer than 75. Only 9 did more than 40 craniotomies; and 12, more than 40 lumbar discs in a year. The affiliated programs were drained by the fact that 22% of the brain tumors, 14% of the intracranial aneurysms, and 33% of the lumbar discs were

performed during a period of 1 year in Veterans Administration hospitals without a residency program. I am glad to state that the Veterans Administration is endeavoring to correct this situation by increasing the patient load in some of the affiliated hospitals.

Most training programs are 4 years in length, but some will vary from 5 to 7 years. In 1967, there were 487 trainees on approved programs in the United States; of these 109 are foreign trainees. The number of men on a program varies from 3 to 20, with 56 programs having more than 4 residents, 20 having 8 or more, and 8 having 10 or more. It is estimated that 125 men will complete their training in 1967. In 54 programs, 1 resident will finish; in 2, 18 will finish; in 13, 1 or 2 will finish; in 3, 3 will finish; in 1, 2 or 3 will finish; and in 1, 5 will finish.

In 1966, there were 1,603 practicing neurological surgeons in the United States - a number which was an increase of 133 over that of 1965. Of the 1,603, there are 1,207 certified and 396 noncertified. In the latter group, are the men who are completing their two years' practice time. An average of 55 neurosurgeons a year was certified during the years of 1954 to 1964. In 1965, there were 75; in 1966, there were 91; and in 1967, there were 72. This certification shows a rather marked increase in the number of men whom we can anticipate being certified each year. The highest concentration of neurosurgeons is in California (227); next, as would be expected, is New York with 155; and then, Texas with 79. Recently, the Manpower Section of the Office of Program Analysis of the NINDB has completed a study by states of the relationship of the number of neurosurgeons certified and noncertified to the population of the state and to the number of doctors. It was found that there were from 1-3 certified neurosurgeons per 500,000 population, with the highest ratio of 8 per 500,000 in the District of Columbia. California has 4 per 500,000 and New York, 2. In a similar study, done for neurologists, there was a much lower ratio of 1 per 1,000,000.

These figures are presented in order for us to discuss the problem as to whether or not we are training too many neurosurgeons and flooding the profession. When I completed my training, Dr. Penfield thought that I was making a bad decision by returning to New Orleans, which already had 2 neurosurgeons. At that time, it was estimated that there should be a million population to support 1 neurosurgeon. Dr. Penfield was afraid that we should starve to death slowly; and for a while, I thought that he was correct. There now are 13 neurosurgeons in New Orleans, and all are fairly prosperous. When I moved to Duke in 1943, there were 2 in the State of North Carolina; and now there are 28. The increase has been absorbed in most instances as a necessity because of the changes which have occurred in medical practice in the past 2 decades. I am afraid that we neurosurgeons now are reaching a saturation point and that within a short period of time, we shall be flooding the specialty. This fear is partly due to the fact that neurosurgery is a young specialty and that the percentage of older men retiring or dying will be rather small when compared with the number completing training for the next 5 to 10 years. If this saturation point occurs, and I believe that the trend already

has started, it will cause a decrease in the care of neurosurgical patients by forcing young trainees into small communities and hospitals without adequate facilities. I do not want to sound like an alarmist; but from reviewing applicants' records, it appears that frequent unnecessary diagnostic procedures, and even operations, are being performed.

What, however, is responsible for the increase in the number of men on neurosurgical training programs? In answer, there are several possible causes. In 1948, the Council on Medical Education and the American Board of Neurological Surgery listed 57 hospitals as approved for training in neurological surgery. Of these, 24 were for 1 year; and 8, for 1 to 2 years. As previously mentioned, there now are 95 approved programs in the United States and Canada. This approved programing, however, has played only a small role, during the last few years because only 6 programs have been approved during the past 5 years and because during the same period of time, 6 programs were terminated. The addition of affiliated hospitals to already-approved programs has played some part because every time when a hospital is added, the addition means an increase in the resident staff by at least 1. These 2 factors, new programs and affiliated hospitals, fall under the jurisdiction of the Residency Review Committee and of the American Board of Neurological Surgery; and in this matter, I think that their responsibility is much greater than it is in examining applicants for certification. If a new program proves to be mediocre or poor, the trainee suffers and it becomes a much more difficult problem to drop such a program once it has been approved. It is believed that the Board should not approve new programs unless they have excellent potential and that affiliated hospitals should not be given approval unless they are definitely beneficial to the trainee. In order for them to improve training, it is necessary for the Residency Review Committee and the Board to assume the responsibility of disapproving poorly organized and poorly supervised programs. I think that both groups have faced-up to this responsibility in the last several years even though at times the action has created a rather bitter feeling among friends.

Almost every year, it is necessary for neurosurgical training to increase the number of residents on several training programs in order to handle the increase in the number of patients. If this increase is not made, the trainee is overburdened with clinical problems and is unable to do the essential reading to evaluate his cases properly and to keep up with current literature. The statement from the following letter could be repeated many times. (Sic) "For sometime I have planned to write you about a problem in our residency training program, which I am sure is a source of concern to many other programs in the country. Within the last few years we have simply been overwhelmed by patients to the point where we do not have the manpower in either the resident or the staff category to take care of them. This has been compounded by Medicare. From July 1, 1966 to July 1, 1967 we have had a total of 5,530 patients in the 2 institutions to be taken care of by a total of 6 neurosurgical residents (the other 2 on our service being in the basic science or laboratory work). This will get worse, and some changes must be made. We obviously cannot close down the service because business is so good.

(Sic) "As I see it, we have 2 real alternatives. We can increase the number of residents to 10 in a 5-year program, in which the resident would have to stay on clinical neurosurgery for 4 years, which I am sure you will agree is unwise, or we could increase the number of residents to 12."

In some centers, there is no way to avoid this type of situation if one is going to be fair to the trainee, as well as to the patient. It, however, is the main reason for the constant increase in the number of practicing neurosurgeons.

One of the big problems in neurosurgical training is the starting of a new program. A program cannot be approved until it is fairly well organized and meets the minimum requirements of the American Board of Neurological Surgery. It is very difficult for a medical school to obtain a house staff who is interested in specialty if the service is unapproved. The individual has to gamble that approval is forthcoming. If approval is given, he may receive six-months' retroactive credit but no more. If the service is not approved, he may lose a year or more of training time. There seems to be no way of overcoming this problem, and the matter of approval seems to be a gamble that the trainee and program director must face. It is not unusual for men to remain on an unapproved program for 4 years hoping that approval may be forthcoming.

The matter of approved programing leads us to the problem which is discussed frequently, and that is, whether or not certification is necessary. Two years ago on a site visit, I really put my foot in my mouth when I asked whether or not the chief of a service should be certified. The individual whom I was talking to was, in my opinion, one of the outstanding neurologists, if not the most outstanding neurologist, in the country. He was Professor and Chairman of the Department of Neurology at the University of Washington, Dr. Jim O'Leary. He did not answer the question, and only commented that he was not certified. This example, of course, is an exception, and there are a number of other very good doctors in all specialties who are not certified. One often wonders why examination for certification is necessary if the individual graduates from a Grade-A medical school, serves an internship in an approved service, and then spends 4 or 5 years on an approved training program, and has the endorsement of the program director. If he has done a good job and has met all of the requirements of the governing board, the program director should be better qualified to judge his ability than in a group of his peers who examine him for a period of four hours. Whether we like it or not, this certification is the law; and, right or wrong, certification is looked upon as a distinct achievement in a specialty. Gradually, medical societies such as ours, hospitals, Federal agencies, and the legal profession have made certification a necessity.

If certification is essential and training must be obtained on an approved program, why has there been a high failure-rate on the oral examinations of the American Board of Neurological Surgery? Since 1950, this rate has varied from 14% to 42%, with an average of approximately 33% a year. In the

16-year period of 32 examinations, the failure-rate was below 20% on only 5 occasions. Frequently, the examiners are placed at fault, as stated in the following letter. (Sic) "There is something radically wrong with the Board's ability to evaluate neurosurgeons when they can fail a man like Dr. X. I think the Board should take itself under study and find out what is wrong with the system." Another frequent reason given is that the individual "freezes up" and is unable to take an oral examination. These two possibilities, so far, seem to have been eliminated by the in-training written examination. The scores on the oral and written examinations have correlated very well. If an individual does fairly well on the written, he will pass the oral; if he fails the oral, his in-training written score is usually poor. For your information, that was true about the doctor mentioned in the letter above. There have been only a few instances when this result has not proved to be the rule. A frequent reason for a poor score or for failure has been the individual's failure to prepare for the examination adequately, especially from the standpoint of the basic sciences. What I consider the most serious reason for failure has been the fault of the program director. His problems, however, are manifold. First, there is the selection of the trainee. This selection always should be on the basis of the best available talent and not on the basis of necessary help. We all may pride ourselves on being able to judge various individuals according to their ability; but occasionally, one will "pick a lemon," and this result is to be expected. As yet, we have no specific method of selection — only one's own judgement, and one's relying on references. Personally, I prefer to have an applicant as a student or as a member of the house staff rather than to rely on letters of recommendation from other people. Data is being compiled by Dr. Edithe Levit of the National Board of Medical Examiners which may prove to be helpful at a later date. She already has correlated the results of those individuals who have taken the National Board and the in-training written examination, and she finds that the results of both examinations correlate very well. A very important responsibility of the program director is that of terminating a contract just as soon as he realizes that he has made a mistake in a selection or judgment and that the individual does not belong in neurosurgery. This act of termination is one of being much kinder to the individual than is that of allowing him to finish, and then not recommending him for examination or, what is worse, giving him a recommendation that is not justified. (Sic) The following letter is an excellent example of such a situation. "I think all of us are interested in the training of residents and the proper qualifications of the men before they go into private practice of neurological surgery. Occasionally this system breaks down, and it is when an occasional breakdown does occur, this entire system, I think, is in jeopardy. I was running between three towns, anybody trained in neurosurgery by a good man would have been most acceptable to retain as an associate and it did not occur to me to check into the man's qualifications. I found out too late, however, that Dr. X was not, to use Dr. John Doe's term, 'one of my strongest residents.' Within a few weeks this man had removed the motor nerves to the right eye after blundering into the orbit in the approach for a Frasier-Spiller procedure. A patient with a massive subdural hematoma was placed flat on the craniotomy side so that the brain would tamponade the bleeders. A patient with chronic amyotrophic lateral sclerosis had a

lumbar laminectomy for protruded nucleus pulposus because he had bilateral footdrop. This man is allowed to be in a teaching program where he is given the title of Associate Professor of Neurological Surgery, and he interprets coronal sutures as fractures. If this man achieves Board certification, then after all, what is ours worth? I wonder? Yet I wonder no more, how could anyone this incompetent be allowed to practice, to be allowed to leave a residency merely because he had put four years in servitude? Somehow we must control the products coming from the training centers, and if they are not 'strong,' keep them until they are or turn them elsewhere."

Occasionally, a trainee's service will be terminated for justifiable reasons; and later, he will be accepted by a second program director without any communication between the two program directors. As you know, the trainee must have the approval of both program directors to be eligible for examination, or to obtain credit for time spent on each service.

The most serious deficiencies of a program director are poor supervision of the house staff from the standpoint of clinical material and poorly organized teaching conferences. Such a type of individual is also the one who is willing to fill the openings in the affiliated hospitals with cheap labor and to leave him to care for patients with very little contact with the senior staff. At times, a program director may be very conscientious and very sincere in regard to the training of the house staff and yet not realize that deficiencies exist in the program. The program director is being helped at the present time by the Commission of the in-training written examination. It has been the duty of the Chairman of the Commission to point out to the program director the weaknesses that exist in his program. The program director, as well as the trainee, has had an opportunity to correct the deficiencies while the individual is still in training. The results of the oral and written examination have shown that a number of men have done poorly in various subjects on the written but very well in the same subjects on the oral. They have had their weak points brought out and have had an opportunity to correct them.

It is thought that the failure-rate can be decreased by the Commission's continuing the in-training written examination under the sponsorship of the American Association of Neurological Surgeons for several more years. The purpose of such a continuing would be to give each program director the opportunity to determine the weaknesses in his training program. Both the Residency Review Committee and the American Board of Neurological Surgery must face the responsibility of eliminating the poor programs with consistent high failure-rates.

Attempts should be made to salvage some of the weaker programs which seem to have an excellent potential. It may be possible to accomplish this salvage with Federal support — a developmental grant in order to increase the faculty and to obtain more supervision, not only in the clinical field but also in the basic sciences. At the present time, the NINDB is supporting 19 neurosurgical training programs at a cost of just under three quarter of a

million dollars. This is a very recent increase from 7 training programs at a cost of five hundred and twenty-seven thousand (\$527,000), a little over a half million. This increase in support will strengthen some of the programs, especially if it does not just include the programs that are already well established. You will recall that at the meeting of the Society of Neurological Surgeons in St. Louis in 1955 the neurosurgeons went on record as refusing to accept Federal aid for training. Only since we have been stimulated and have become aggressive during the last several years, have we dipped our fingers into the pot and found that the pie tastes very good. This stimulus also has obtained for us representation on the Council.

During the past decade — of possibly slightly longer, teaching hospitals have experienced a gradual decrease in the number of staff patients available to the various residents. This situation has been created by the fact that more and more individuals are able to afford some type of voluntary health insurance and are admitted to the smaller hospitals in their own community. The increase in the number of neurological surgeons and orthopedists in small cities and towns is responsible for the decrease in number of referred problems to the staff service of teaching hospitals.

In our own State of North Carolina — and in others, compulsory liability insurance has decreased the number of trauma cases on the staff service and the number of operations performed by the resident. The majority of the insurance companies have inserted a clause in their policy to the effect that they will not pay for operative procedures performed by the resident staff. The increase in the number of compensation problems also has drained the staff service further. I fully realize that it is possible, in some instances, to turn over to the resident some cases that are liability and compensation problems and for that matter, some private patients, but this procedure also creates a problem from a legal standpoint when one is called upon to testify.

To add further to the staff-service drainage has come the insurmountable, unsolvable problem of Medicare and Title 19. Unless some solution is reached in the near future, there will be no such thing as a staff patient over the age of 65 available to the resident. As has been typical with various other Federal projects, it is involved in so much red tape that no one has been able to find a satisfactory procedure. A number of hospitals are permitting the staff service to function in an illegal manner. The Federal Agency states that in the care of a Medicare patient, the surgery must be performed by a capable individual who is not a resident, and that the responsible surgeon must be in the operating room during the surgery. This ruling has provoked numerous Committee meetings by the American College of Surgeons, the Advisory Board for Medical Specialties, and the representatives of medical schools and hospitals; but as yet, no one has reached a solution to the problem. I honestly believe that the Federal Agency is as anxious as the medical profession to find a face-saving solution and that in the meantime, it has not attempted to force the issue. It seems that the Department of Health, Education, and Welfare before changing the ruling actually is permitting various hospitals to try out different plans which do not

conform to the law. At Duke during the past year, all residents have been appointed instructors and no longer wear the usual housestaff uniform. The powers in Washington are familiar with this method of operation, and I have been informed that they consider this system as one of the experimental models which they are permitting to function in order to seek a solution. Some arrangement has to be worked out by the Council on Medical Education of the AMA, the Residency Review Committee, the Specialty Boards, and the Social Security Administration in order to reach a practical definition of the point at which a person in formal training ceases to be defined as a resident and becomes a junior attending physician; or, some other appropriate designation which makes clear the eligibility of such physicians to file Part B claims for service must be made. The medical profession cannot permit this change designation to happen under the present terminology of a resident. If, at the present time, a resident is permitted to file for services rendered, the money will be collected by the hospital and this, in turn, will place the hospital in the practice of medicine. The following quotation has been taken from a letter received in late September from a member of this Society. He spent a page or more discussing his problem with the staff service and then stated, (Sic) "The amount of operating that the resident would do would be diluted by a third, unless in some way, not only Medicare patients but private patients as well could be used, as is done at some places, where the senior resident is actually put on the staff and given the title 'Assistant to the Staff.' This, of course, is pure subterfuge unless the Board is willing to say that the length of the training program is three years, plus an additional year as an apprenticeship under the supervision of the staff. A third, and very unrealistic alternative would be not to assign the residents to so many of the faculty, but this is not possible here. Sooner or later the Board is going to have to come to some decision concerning the senior resident accepting prime responsibility for private patients, whether they are Medicare or not, and the sooner they start discussions the better. I know a letter such as this will probably spoil a couple of days for you and I want you to know that you have my sympathy." For his information, I accept his sympathy because as Don knows, this is something seldom received by the Secretary of the Board. By lessening the referral cases in the future, Medicare and Medicaid will decrease the staff service gradually. Patients who would have been referred as staff patients in the past, now will be kept in the local hospital because the physician will be able to submit a reasonable charge for services rendered.

Because of the magnitude of the situation, I specifically have avoided the problem of foreign trainees. It should be pointed out, whether it is their fault or not, that they are carrying the blunt end of the training in neurosurgery in the United States. As previously mentioned, 109, or 22%, of the neurosurgical trainees in the United States are foreign trainees. In many instances, they are found on the weaker programs; and in fact, some programs have only foreign training. They also are forced to accept positions on services that are on probation or unapproved; and as a result, they end up by having difficulty with the State Department before they are able to complete their training. They are filling the positions that are not accepted by the men

in the United States and Canada. The problem of foreign trainees is being investigated by a Committee of the American Association of Neurological Surgeons, of which Joe Evans is Chairman; and it is hoped that the Committee will be able to solve some of the difficult problems.

I realize that I have not solved any of the problems that exist in neurosurgical training and that it is much easier for me to point out weaknesses than to correct them. I do believe, however, that we are going through a changing phase in medical education and that this phase applies to postgraduate training. In order to meet the changing times, it is going to be necessary for medical training to re-evaluate the requirements of the various governing bodies, such as the Specialty Boards, the Council on Medical Education, and the Residency Review Committees. It may be necessary to broaden the requirements of the training programs and to place more responsibility in the hands of the program director. The time has come for the surgical staff of each university teaching hospital to begin the transition of using private patients to increase the surgical experience of the house staff. During the past year, the surgical staff of Columbia University College of Physicians and Surgeons at Presbyterian Hospital in New York have experimented with a project of this type. Dr. R. B. Hiatt states "the service is called *the small unit teaching service* in order to avoid the categorization attendant with the word *semi-private*." Their conclusion for the one year's experiment is as follows. "From an educational point of view, we have been amazed and pleased by the success of this experiment. We have succeeded in proving to ourselves that the 'heart and guts' of ward teaching can be transposed to a private teaching service without subterfuge. Eighty per cent of the patient candidates for the private teaching service seen in the responsible surgeon's private office accepted without question the idea of the resident doing the operation under the responsible attending's supervision.

We have also learned some things that are not good. It would appear that legislators, insurance carriers, and those who would be 'spokesmen' for medicine, from the profession itself, care very little about graduate medical education, and have allowed rulings and laws to be written that seem to preclude any other than a one-to-one relationship between a patient and his physician."

If the changes are made that seem essential to maintain adequate postgraduate teaching in our training programs, it will require closer supervision and evaluation of the residency training by the program director. There can be no question that our method of postgraduate teaching and residency training has been outstanding but that adjustments have to be made for changing times. If we as members of the medical profession do not open our eyes to the problem of postgraduate medical education, some other organization will take it over. An attempt has been made by the AMA, through Citizen's Commission with its Millis Report, to establish an all-powerful Board with unlimited power and independent of many of the agencies that now have the responsibility for some part of graduate medical

education. This report states that all members of the Board will be appointed by "The Council on Medical Education of the AMA and that all members serve as individual statesmen of medical education rather than as representatives of particular organizations." You may be thoroughly familiar with the Millis Report, but if you are not, you should be. It is an indication of what can be expected, not only in neurosurgical surgery, but in all training programs if we, who have so much at stake, do not attempt to find a solution to the problem.



*President-Elect
and His Friends*