Traditions, Transition, and the Torch

The 1981 AANS presidential address

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The President of the American Association of Neurological Surgeons (AANS) emphasizes the need to participate actively in the burgeoning field of neuroscience, and the unique opportunity of neurological surgeons to apply the new knowledge to the treatment of their patients. Clinician-investigators need to be trained in their formative years in the methodology and techniques of modern neurobiology. Diminishing governmental support for training poses a grave threat to carrying on the tradition of research in neurological surgery. To meet a critical need, the formation of a Research Foundation is announced as a function of the AANS. As Science is expanded and applied, the Art of neurosurgery will continue to be refined, along with the high tradition of Ethics which has been handed down over the years as part of the heritage of neurological surgeons.

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The American Association of Neurological Surgeons (AANS) is a vibrant organization. While we seek to retain the high purposes of a rich heritage, we also expect to retain the capacity for creative change, for we know our greatest task is to create a fertile foundation for the future. I will consider today some perspectives of this Association which you have generated for me during the last few years. I shall speak of Traditions, of Transition, and of the Torch.

Four major traditions have recurred in the annals of this Association and in the lives of those select individuals who prepared the future for neurological surgery in times past. I shall not, however, recount their historic expressions; rather, perceiving them to be essential cornerstones of neurological surgery, I will examine their expressions in neurological surgery today and in our plans for the future.

The Science of Medicine

The first, indeed the foremost, tradition I perceive is Science. By Science, I mean simply the search for new knowledge. In a time of diminishing faith in knowledge, it is worth restating in the first place that we cannot arrive at new knowledge by searching our conscience or our minds, by holding opinions based solely on observations or personal experience, by reiterating orthodox persuasions, or by contemplation.

The scientific programs and publications of this Association do set a standard for excellence in our field. This year, a Basic Science Poster Paper Session has been added to our program and a new Basic Science Section has been approved by your Board of Directors. These are limited but substantial statements of our determination to pursue science. There is an urgent call, however, for us to be much more assertive in this quest. That call comes from our patients; the millions who are disabled with disorders we can do all too little to relieve.

Meanwhile, the world of neurobiology is exploding. Concepts of nerve function are being revolutionized. If we do not actively share in developing and directing this scientific front, we are in peril of delaying unnecessarily, even precluding, the opportunity to adopt the burgeoning new knowledge into the practice of neurological surgery.
There are eloquent, new, highly specific and quantitative methods in cellular and subcellular chemistry, anatomy, physiology, immunology, and other forms of cell biology. These we must harness. But the skills which are required to use these resources to unfold new knowledge and then to enfold it into medicine will be harnessed only if trained minds pursue disciplined careers dedicated to that purpose.

A continuing supply of highly motivated, well trained investigators who teach, treat patients, and conduct research is essential to that end. More of those who conduct research must be physician-investigators, who can build and cross the bridges between the laboratory and the patient. The physician who is trained as an investigator is, in addition to that, able to collaborate in patient care and in basic research. His role in developing new knowledge is essential and unique, but he must be prepared in special ways to fill that role.

Clinician-investigators must be trained in the early years of their careers as basic scientists in neurobiology. Only then will they be prepared to take full advantage of new research methods, derive new insights into our clinical dilemmas and efficiently expand our understanding. A trained neurological surgeon must even be prepared to compete with basic science investigators, for they may not understand, at least for a time, the worth and feasibility of the venture the neurosurgeon-investigator seeks to pursue. Clinicians, as creative investigators, must retain a competitive edge in contemporary scientific methodology, language, and conceptual skills.

Research training in the neurosciences, especially for clinicians, is fast fading. Federal resources dedicated to funding research training have fallen to critically low levels. During the past two decades, the number of physicians engaged in research has decreased alarmingly. In 1968, 6% of the physicians in the United States reported research as their primary activity. Now less than 3% of the nation’s physicians conduct research. Fewer than one-third of our full-time medical school faculties are seriously committed to regular research activities.

The number now in training for careers in research is also declining. In 1963, the National Academy of Sciences reported that 49% of our medical students anticipated research as a primary career. By 1976, the number had dropped to 2%. The number of residents who consider research as a part of their careers has dropped 50%, to about one-third or one-half the number recommended by the National Academy of Sciences and the National Research Council.

The reasons for these trends are complex and varied. Few students are stimulated in medical school to pursue research. The application process for research training can be arduous, and the paperwork burdensome. Long delays occur between application deadlines and the availability of funds. Training periods are often too short to fulfill training requirements. Payback requirements are strong disincentives. Levels of funding are usually below stipends for other forms of graduate education. Mid-career economic and social rewards are often far greater for those who enter private practice. Research, clinical practice, teaching, and administration all compete for the time of full-time faculty. Research often acquires a low priority, particularly as medical schools demand more income from clinical faculties for general support purposes. Program directors must protect the research productivity of young faculty. Practicing neurosurgeons must acknowledge that a quality career in neurological surgery may be committed to clinical work, or research, or both.

Neurological surgery has been especially hard hit by the decline in budgeted research training funds. National Institutes of Health (NIH) funds going to the National Institute for Neurological and Communicative Disorders and Stroke (NINCDS) for research training have been cut nearly one-third during the past 7 years: from $12.3 million in 1973 to $8.9 million in 1980. During the same 7-year period, the amount set aside by the NIH for research training has risen just enough to counteract inflationary pressures (it has risen from $114.2 million to $172.7 million). Of the 10 institutes within the NIH that fund research training, only the NINCDS was operating with a lower research training budget in 1980 than in 1973 (down 28%); the budgets for training of the other nine institutes during the same time increased from a low of 11% to a high of 230%. Of the total NIH funding available for research training, the NINCDS has dropped from nearly 11% to just over 5%.

In January, 1981, four institutional training grants were approved by the NINCDS Advisory Council. None were new applications and none were under the aegis of neurological surgery. Special fellowship funds are dwindling. During the last 5 years, I am told only seven teacher-investigator awards have been granted in neurological surgery. The proposed NINCDS budget for fiscal 1982 does call for more dollars for research training, but will not keep pace with inflation. There is no reason to believe that funding for research training programs in neurological surgery by the NINCDS will improve.

They, and we, seem to have been ignoring what is self-evident; that is, without training the young, there will soon be no one to carry on the tradition of research in neurological surgery. To address this cir-
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cumstance, your Board of Directors on December 5, 1980, approved the formation of a Research Foundation as a function of this Association. The objective of the Foundation is to support rigorous research training programs for neurological surgeons in the neurosciences.

The role of the Foundation is not to replace federal programs; but it can establish realistic research training programs, free of serious disincentives, which will encourage young physicians to engage in research as a career option, foster their research efforts in the early years of their career, and promulgate within the profession and the public a heightened awareness of the compelling need for continuing research training in the neurosciences. It is to be a demonstration program instituted by and directed from the private sector.

The initial goal of the Foundation is to raise as "seed money" a capital fund of $2,000,000. The income from investments will be used to train highly qualified neurosurgeons as clinician-investigators. In this way, the Foundation will help in a substantial way to meet a pressing and critical need. Fulfilling that need is pertinent to the vitality of the neurosciences, to the growth of neurological surgery, and to the future of the Association.

I am pleased to tell you that all of your Board of Directors and the Executive Council of the Foundation have pledged their financial support and many hours of effort to this venture. The Foundation is assured at this time of a major capital gift. The general campaign will be extended to each of you. It will be inaugurated by the Campaign Committee Chairman, Dr. William Buchheit, at the close of this meeting. To achieve our initial target of $2,000,000 in the next 12 months, we will need the support and help of each of you. We expect to grant awards in 3 years.

By this action, your Board has recognized the importance of science as part of our heritage and the pivotal force of sustained research training. The creation of the Research Foundation is a strong statement that commits this Association to science in the future of neurological surgery. It is a restatement of a tradi-

The Art of Medicine

And so, the second tradition I perceive in the lives and annals of this Association is not Science, it is the Art of medicine. By Science, I have said I mean the search for new knowledge. By the Art of medicine, I mean how we use what we know from Science and how we practice medicine knowing as little as we do from Science.

The Art of medicine, as we have come to know it, emerged slowly in the 19th century when it was recognized that nostrums, purges, and herbs, indeed most therapeutic efforts, were of little predictable value. Many were harmful. Describing the unmolested natural history of disease became the quest and chief reward of astute clinicians. Treatment, other than for time, rest, comfort, and nutrition, held a limited chance of helping and often did harm. Patient care under those circumstances was Art in a special form. It required great powers of self-restraint, observation, and persuasion. There was little science to help test clinical interpretations or observations.

Medicine still extends far into that world today. Victor Weisshoof, a learned and eminent scientist, has also written, concerning the limits of science: "A Beethoven sonata is a phenomenon which can be analyzed physically by studying the vibrations in the air, as well as chemically, physiologically, and psychologically by studying the processes at work in the brain of the listener. However, even if these processes are completely understood in scientific terms, this kind of analysis does not touch what we consider relevant and essential in a Beethoven sonata — the immediate and direct expression of the music. One can understand a sunset or the stars in the night sky in a scientific way, but they cannot be replaced by science. There is something in experiencing these phenomena which lies outside of science." Large portions of every interaction between physician and patient lie well outside of science and in the realm of art.
It is true, of course, that only a master of what we know from science can become a responsible master of this art. Competence does not stem only from a heart of gold; indeed, compassion without science is dangerous. Errors born of ignorance are as lethal as actions that stem from a venomous spirit.

Among our founders are many who became masters of both the Science and the Art of medicine. Sir William Osler was such a master. He had little to work with by way of modern science as we know it, but he pursued new knowledge avidly and practiced the Art with eloquence. He deeply influenced Dr. Cushing, Dr. Penfield, and many others who have contributed to our heritage; indeed, he remains a challenge for us today through Cushing’s biography. He knew Science as it was known in his day and practiced the Art of medicine with consummate skill where Science could not lead him.

You will have asked, “Where is this Art in the functions of an Association such as this?” For I have said already that our traditions are expressed in personal as well as corporate ways.

The Art in our heritage is surely explicit in the memorabilia which are a special element of this meeting. But it is also a universal element in all our scientific programs, for these are filled with reminders of the limits of our knowledge, of floundering conjectures, and revised dictums. So long as that is so, each presentation at these meetings must remind us more of what we do not know than of what we grasp. Each is a call to renew our dedication to and enhance our skills in the practice of the Art of medicine. So long as caring for each other calls for more than what we know, and so long as our response to the challenges of ignorance leads to higher levels of knowledge, medicine can not be only science. We practice medicine more in ignorance than in knowing, and this Art will assure that our caring will be more noble as we learn.

So, it is Art with Science that sustains the practice of our profession in a tightly closed loop where each creates the other (Fig. 1). That closed loop is one of our traditions. A part of our heritage, it is essential to each of us and to this Association. Science and Art: each draws and draws upon the other! This closed loop of Art with Science in medicine, however, is also a limited case.

**The Ethics of Medicine**

A third tradition is evident in the lives of our founders and the annals of this Association. It is essential, especially in times of rapid change. It is more personal than Science or Art and its corporate counterpart is more difficult to appreciate. It keeps the closed loop of Art and Science stable and steadier on its course.

Physicians are buffeted by many external forces and internal stresses, just as others are. As we enter a time of zero sum budgeting, social turbulence, and political, economic, and philosophical uncertainty and restructuring, these perturbations will be exaggerated — for us and for our corporate structures. What will keep us steady so that we may ride out storms, and yet with confidence and candor retain our sense of direction and optimistic purpose?

R. S. Morison gives a strong answer to that question. He speaks of Ethics. By Ethics, I mean that system which governs our decisions and choices, especially in turbulent times. He notes that our forefathers nurtured an inner force. That force operated as a gyrocompass, wound up in us by earlier generations. It could keep the keel down, steady one’s ship, and help hold us on course through turbulence and uncertainty. Moreover, if things went wrong, the gyrocompass took note and initiated corrective measures from within the system.

Recently, he observes, something akin to a radar set has replaced the gyrocompass in some of us and in our culture. Now radar, to be sure, is useful. It can anticipate dangers lurking in the dark or in the future. Obstacles that lie hidden can thus be dodged. Controversy and confrontation can be avoided, and decisions made safer. If things go wrong, it is for external reasons — because something is wrong out there, as
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FIG. 2. The closed loop of Art and Science is kept steady and on course by a gyrocompass-like Ethic.

it were. In that circumstance, it becomes as acceptable to dodge an encounter as to correct a wrong.

Morison clearly commends the advantages of a gyrocompass energized by our predecessors and transmitted as part of our heritage. Usually we receive it early in life and strengthen it. It helps us hold a course, establish sound thinking, and make choices that will represent the accumulated wisdom of our heritage. It charges us to take corrective action in adversity, to make a difference in our time, and not to dodge the hazards of today nor those we fear tomorrow. The substitution of the permissiveness of radar for the self-discipline of a gyrocompass could be devastating for us as individuals and to this Association as a corporate entity.12

We often fail to recognize expressions of our corporate ethic.1 Medical is permissive in this matter, presuming that those found wanting will fall out along the way. Some say a physician's conscience is his only guide and the patient's only protection. Others, however, contend the patient might be well and better served by the exercise of some corporate conscience. Surgeons dwell on ethical concerns privately, in groups, on rounds, in conversations, and in conferences. Indeed, I would argue, contrary to some, that the graduate and continuing education of surgeons is perhaps above all else ethical training, and it is an expression of corporate ethics.

In the ultimate state of the ascent of man, I assume individual controls will be so hypertrophied that corporate controls may be allowed to wither and die, and they should be. But we are at least as far from that happy state as we are from a full realization of the knowledge that Science can bring or Art reveal. Until man's ascent has reached that state, our corporate responsibilities to enhance a growing Ethic should be strengthened. If we fail in this, we will not find ways to deal with the mavericks among us or with those features of human behavior and social malfunction that are less than the highest notions of what the practice of medicine might be.

Corporate expressions of gyroethics in this Association, however, are strong. I see them operating in many of our activities, albeit, more clearly in some than in others. What, if not an expression of corporate ethics, are our efforts to build strong scientific programs, to develop reliable procedures for technology assessment, to collaborate with the President's Commission on Ethics in Medicine, to establish improved standards of graduate education, patient care, and professional conduct, to engage in resolving the ethical conflicts that are inherent in some clinical trials, or to persuade our legislators of actions that serve first the public weal. These are all expressions of a corporate ethic.

We are not perfect in these efforts. It is difficult to educate those who do not wish to learn. It is difficult to restrain the inappropriate use of fads or fanciful technology. It is difficult to enforce standards of professional conduct and behavior. It is difficult to safeguard the welfare of patients while we search for higher levels of scientific knowledge in clinical trials or innovative care. But these are issues that find expression in the programs of this Association. Some do need to be strengthened, but they all give testimony to a strong gyrocompass-like corporate Ethic.

And so, the closed loop of Science and Art also requires, if that closed loop is to be kept steady and on course, a gyrocompass-like Ethic (Fig. 2). We need it as individuals and we must nurture it as an Association of physicians. But even this combination of Science, Art, and Ethics could lead to a stale and steady state.

Transition

A fourth tradition is essential. If Science is the search for new knowledge, and Art is what we do with what we know, and Ethic directs our purpose, we still need more to prepare a foundation for the future. We need the capacity to change, to pass through periods of Transition without losing sight of our purpose. We must be persistent in our awareness of the need to
Fig. 3. The Association prepared to move on through a time of Transition.

evaluate, and when indicated, change our patterns to engage new challenges.

This Association has, of course, revamped itself many times. You are familiar with those milestones. From a group of 23 men and their mentor, it has become a major shaker and mover of national and world neurological surgery — a pacesetter.

The activities of this Association and its members multiplied rapidly during the 1970's. A complex matrix of relationships developed with other professional groups, reflecting the widening interests of neurological surgeons. Our scientific meetings expanded to accommodate new information which was pertinent to the practice of the competent neurological surgeon. The Joint Committee on Education expanded its programs and publications in continuing medical education and self-assessment. As State Societies became more active, the Council of State Neurosurgical Societies joined in the deliberations of an expanded Joint Socio-Economic Committee. The Washington Committee began to monitor and then to participate in Washington affairs. Liaison or representative ties developed with well over a 100 other scientific and professional organizations. While the federated directorship and officers of the Association encouraged these expanded roles, it became increasingly apparent that these new enterprises could no longer be orchestrated from the private offices of the directors and officers — a system of management which had served a smaller society well for many years.

The National Office was therefore established in 1977 as a major step toward more effective management. Many administrative procedures were centralized, adding a new element of continuity, efficiency, and professional guidance to those functions. The National Office has helped facilitate the growing activities of our members, committees, directors, officers, and affiliated societies in many ways which would have been quite impossible without that resource.

It also became evident that an in-depth reevaluation of the AANS was essential. President Drake, therefore, called a meeting of a steering committee in Kansas City on January 14, 1978. It was a “think tank” day which confirmed the notion that well defined goals, program changes, and inefficient management all required urgent attention by the directorship of the Association.

That meeting was the beginning of a thorough reevaluation of every facet of our structure and function. Although, in the end, the operating machinery of the Association has remained largely intact, the administrative and management machinery has been substantially altered.

The Long-Range Planning Committee came to rec-
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recognize during 1979 that a key issue we must resolve depended on how we viewed the pros and cons of a federated as opposed to an independent directorship. Because strong leadership qualities of our members were emerging from within our own expanded programs, a persuasive argument could be made that the Association had matured to a circumstance wherein the Board of Directors should be drawn directly from our own resources.

Changes in the composition, responsibilities, and selection of the Board of Directors were therefore designed to heighten membership participation, to add further definition and continuity to our leadership, to ensure for us more freedom of action, and an independent responsibility for our own destiny.

A new nominating process was developed in which all members of the Association could be considered for all elected offices, and in which all members of this Association and other national, regional, and state neurosurgical societies could participate. That nominating process is intended to view neurological surgery as a national community. The nominating process is the hub of governance in all voluntary groups. It must foresee our needs as they will be determined by both external and internal forces. It must match an evaluation of those future forces to the membership and see that the right people reach the right jobs at the right times.

A new set of by-laws was developed for the Association which reflected these persuasions. With the support of the Board of Directors, they were adopted by the Association in 1980. These changes and the persuasions they represent are major departures from any historic precedent in the administration and management framework of the Association, except as they reflect a continuing capacity to adapt to changing circumstance.

They are, in a sense, a reorganization in preparation for the adventure of the 1980's. In that adventure, we will be challenged by new issues in science, education, technology, manpower, regulatory agencies, relicensure, liability, health delivery systems, and financing. The directions which this Association will choose and the success with which it will pursue new patterns of performance in responding to these issues will test the wisdom of this reorganization and the intellect, imagination, and dedication of us all.

House maintenance is not as exciting as building new castles. It has required a lot of hard work from many of you. Now we are in a time of Transition but with a well organized Association, a vastly improved communication format, a dedicated, creative membership, and well defined leadership.

Fig. 4. Traditions, Transition, and the Torch.

Antoine de Saint-Exupery heard Alfred North Whitehead's statement concerning Adventures in Ideas: "Adventure rarely reaches its predetermined end." He responded, "It never does."

That exciting view of adventure declares that we can move on into the 1980's through a time of Transition with confidence (Fig. 3). Further Transitions we must also expect as, from time to time, we remeasure our own performance and pursue more effectively our quest for excellence. Our heritage entwines Science, Art, Ethics, and the capacity for change. These are also hallmarks of this Association today, and will serve us well as we begin the next 50 years.

The Torch

There is a dialogue which reminds me of many members of this Association and, indeed, of this Association as a corporate body. In it (Fig. 4), the famous Greek physician Euryphon, father of Daphne,
the bride, gave a lighted torch to Hippocrates saying, "You, Hippocrates, are not like other men, content to teach the learning of the past. You dream of a new science and of the art of life. You set new goals for physicians. Do not be discouraged that the light of your knowledge is so feeble, the darkness of the unknown so vast; keep this torch lit; hand it on. It is a torch for all time." We remember with deference and gratitude the great company who have handed us our Torch. It is our heritage, and so long as we expand Science, refine Art, enhance our Ethic, and anticipate change, we, and this Association, may also come to have it said of us, "You kept the Torch lit, held it high, and passed it well."

References


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