

The Journal of **THORACIC AND
CARDIOVASCULAR SURGERY**

J THORAC CARDIOVASC SURG 1993;106:769-78

Presidential Address

Giants

John L. Ochsner, MD, *New Orleans, La.*

As all of you know, the president of this Association has the prerogative of choosing his topic for this address. I quickly rejected the most obvious topics. To attempt to tell you anything concerning the achievements of thoracic surgeons in recent years would be like gilding refined gold, since this year's program covers every subject, which I am sure will be amply aired and discussed during the various sessions. I dare not depress you by looking into a crystal ball and predicting the villainous changes our specialty, or medicine in general, is soon to experience. Instead, I would like to give you my personal perspective of surgical giants.

As a child, I often heard my father refer to certain individuals as surgical giants. I can recall my vision of a gargantuan being, dressed in operating-room attire, wielding a scalpel. Not until I was older did I realize he was referring to a person of extraordinary abilities—one who is knowledgeable in the theory and practice of surgery, who has advanced his specialty by contributing to the literature, who has developed a large clinical practice, and who has the dexterity to perform surgical procedures with a minimum of risk to his patients.

From the Department of Surgery, Ochsner Clinic and Alton Ochsner Medical Foundation, New Orleans, La.

Read at the Seventy-third Annual Meeting of The American Association for Thoracic Surgery, Chicago, Ill., April 25-28, 1993.

Address for reprints: John L. Ochsner, MD, Ochsner Clinic 1514 Jefferson Highway, New Orleans, LA 70121.

Copyright © 1993 by Mosby-Year Book, Inc.

0022-5223/93 \$1.00 + .10 12/6/49320

I am proud to have had a father who was a surgical giant (Fig. 1). Through my intimate relationship with him, I also had the opportunity to know some of his mentors, colleagues, and students. My relationships with them varied from only a cursory acquaintance to strong and lasting friendships. Partly from what I learned from these acquaintances and partly from my interest in history, but mainly from my own experience as a surgeon for more than 40 years, I wish to hypothesize how and why the surgical giants have grown in number and changed with time.

I realize it is not humanly possible for all of you to be pleased with or agree with the views presented. Some may even be offended by one or more of my impressions, but let me assure you—no malice is intended. It will be obvious that some individuals are an exception to some of my opinions.

The period I wish to cover coincides with the lifetime of this organization, The American Association for Thoracic Surgery (AATS), and the changes I will mention did not occur abruptly.

Our Association was organized in 1917 by a group of New York physicians who saw the need for a society devoted to intrathoracic diseases. The impetus for movement came from our founder, Dr. Willie Meyer, who read a paper before the surgical section of the annual meeting of the American Medical Association (AMA) in 1913 entitled, "Extrathoracic and Intrathoracic Esophagoplasty in Connection with Resection of the Thoracic Portion of the Esophagus for Carcinoma." In his paper, he presented the first successful esophageal resection for cancer



Fig. 1. Alton Ochsner.

as performed by his associate, Franz Torek. When his monumental presentation went undiscussed, Dr. Meyer began to sense deeply the need to organize physicians interested in the management of intrathoracic pathology.

When this organization was founded, only a handful of surgical giants could be counted. The increase in the number of surgical giants since then can be attributed to changes in the methods of surgical teaching, advances in communication and transportation, and improved technology in medicine and surgery. However, I believe that, over time, the gradient has been progressive but not incremental (Fig. 2).

For example, only a modest increase in surgical giants was seen in the early decades of this century. Except for a few teachers such as William Halsted, the surgical giants in that era left few legacies. Most teaching consisted of formal lectures and clinical preceptorship in which the student acted only as an assistant. When students completed their training, they did not feel confident to perform complicated surgical procedures. Therefore, they usually referred patients requiring more challenging procedures to their mentors. Hence, a vicious cycle was perpetuated, with a few surgical giants performing large volumes of operations while the vast remainder of surgeons relegated their practices to uncomplicated operations.

To improve medical education, the Council on Medical Education of the AMA enlisted the aid of the Carnegie Foundation for the Advancement of Teaching, from

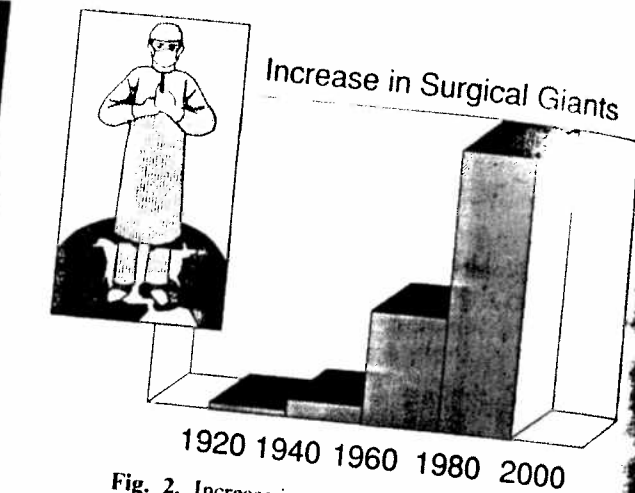


Fig. 2. Increase in surgical giants with time.

whose efforts came the Flexner report in 1910. However, the primary concern of the report was the improvement of undergraduate medical education, devoting little, if any, attention to the need for improvement in advanced education and training beyond medical school.

The term *resident*, used in the United States for more than 100 years, was instituted in 1889 at The Johns Hopkins Hospital to identify the young physician who, having completed an internship, continued his training in the hospital so as to perfect himself in a special field of interest. The resident was differentiated from the house officer hired to assist the medical staff in the care of patients, with little or no emphasis on graduate education. William Halsted, who had spent a great deal of time in Europe, introduced the Germanic system of *clinical training* of residents, heretofore unknown in the United States.

In 1935, only 35 of the 53 medical schools in the country had some form of graduate instruction in surgery or a residency program. Most of these were programs lasting only 4 years or less, with little or no emphasis on thoracic surgery. However, by the 1940s, a few institutions began to excel in the training of general thoracic or cardiac surgeons. Notable was the leadership of Drs. Alexander, Blalock, and Wangenstein.

John Alexander developed the first training program committed exclusively to thoracic surgery, and his program at the University of Michigan was the cornerstone for the building of general thoracic surgery in this country. The training scheme of Halsted produced the most talented and versatile group of clinical surgeons this country, or probably any other, has ever produced.

Never in history has a single program produced such notable cardiac surgeons, who went on to command chairmanship of university programs throughout our country, as the Johns Hopkins program under the lead-

ership of Alfred Blalock. This group, occasionally referred to as the Blalock Mafia, was by necessity very competitive to survive their pyramid system residency, and yet they were supportive of one another because of their extreme devotion to the Godfather.

The trainees of Owen Wangenstein were equally impressive in their achievement and their contributions to cardiac surgery. A few years later, Dr. Michael DeBakey (Fig. 3) trained a cadre of men who propelled vascular surgery toward becoming a recognized specialty.

There appeared to be a precipitous increase in the development of surgical giants immediately after World War II. At that time, the professors and chairmen became engrossed in directing huge departments, which included not only general surgery but also many subspecialties. The gold standard for the success of a department was measured by the amount of experimental work performed. Therefore, the number of grants and the amount of monies awarded became the measuring stick of accomplishment. The control of their empires left little time for the professors to spend in the operating room. By reason of that circumstance, clinical surgery became the domain of the junior staff and residents-in-training, particularly the senior residents. Physicians trained in the 1940s and 1950s had abundant opportunities to experience senior responsibility in a large volume of cases, particularly because many city, county, and Veterans Administration hospitals had adequate funding and were staffed almost exclusively by house officers. It was not uncommon to hear among the medical students that if you needed an operation, you should look not for the professor, but rather for one of the young staff men or a senior resident. Hence, many of these trainees left their training programs feeling as clinically competent as their mentors, if not more so. Although they respected and admired their chiefs and were grateful for their training, they did not need to refer patients to their professor or his institute. Thus, with time, the referral pattern changed, and more and more patients remained within or were referred to community hospitals, decreasing the referrals to teaching hospitals—a philosophy that, in general, continues today.

The trainees were allowed to benefit from a large clinical experience not only as a result of the professors' decrease in clinical activities but also by improvements in the organization of surgical specialty teaching. In 1917, the ophthalmologists created the first specialty board. There was the first effort to determine and uphold basic requirements in education and experience to qualify candidates for examination and certification. By 1923, the House of Delegates of the AMA, on recommendation of the Council on Medical Education and Hospitals, adopted standards for specialty training, one of which was that



Fig. 3. Michael DeBakey.

the training would be under the supervision of a physician recognized as an expert in the particular specialty, having the student gradually assume responsibility in the diagnosis and therapeutic or operative treatment of the sick. This standard still remains the core in all sound surgical residency programs. The American Board of Surgery was founded in 1937; the Board of Thoracic Surgery, as an affiliate of the American Board of Surgery, became active in 1949. On January 1, 1971, the Board of Thoracic Surgery became a primary board, and its name was changed to the American Board of Thoracic Surgery.

In 1950, a series of committee meetings, conferences, and discussions among representatives of the AMA, the American College of Surgeons, and the American Board of Surgery were held to adopt uniform standards for residency training in surgery, to sponsor a single inspection service for hospitals offering such training, and to improve and publish a list of acceptable residency programs. The deliberations of this tripartite committee by 1953 had established the Conference Committee on Graduate Training in Surgery and, subsequently, the Residency Review Committee for Surgery.

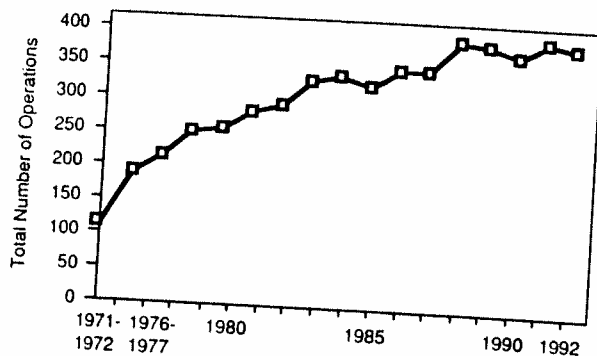


Fig. 4. Number of major operations performed by residents completing a 2-year program.

The Residency Review Committee for Thoracic Surgery (RRC) was established in 1967 and is composed of two members from each of the three sponsoring organizations, the American Board of Thoracic Surgery, the American College of Surgeons and the Council on Medical Education of the AMA.

The primary purpose of the RRC is to assure proper training and education of residents. Before the written essentials of the RRC, many programs allowed only clinical training and used the residents purely as labor, with no educational aspect to their work. The essentials of the RRC insisted the resident be freed from laborious, time-consuming, and largely unrewarding ancillary duties to progress in management of the care of the patient and to eventually make demanding decisions. Review of the number and type of operations performed by the residents has demonstrated a progressive increase up to a number that is optimal and allows time for scholarly activities (Figs. 4 & 5). Thus the RRC has ensured complete training of all residents and, with natural ability and proper motivation, the opportunity to emerge from training as competent surgeons.

In the past two decades, teaching institutions have made a concerted effort to reestablish their referral patterns, and professors are attempting to recapture their role of premier operating surgeons. The greater part of the change is financially driven. Because of the overabundance of hospitals and surgeons in most communities, competition has been keen. To survive, departments and individuals must answer to the institution through cost-accounting. The high financial producer becomes the person with security and status. The staff also spends less time in research, because seed money from the institution and allotted by the government has proportionally increased with the increased demand. Also, many training programs have become longer to allow the resident dedicated time for research, or departments have hired

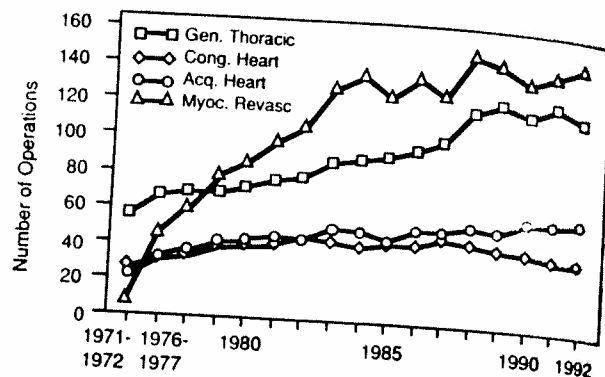


Fig. 5. Number of specific type of operations performed by residents completing a 2-year program.

personnel specifically assigned to do research, thus freeing the staff surgeon for time in the operating room.

The numbers game became an important status symbol in the minds of most surgeons, particularly since the advent of modern vascular and cardiac surgery. The number of patients available for a thoracic-cardiovascular operation in the second half of this century is astronomical compared with those available during the first half. Therefore, with more opportunities available, the level of proficiency required to become a surgical giant has become easier to attain. The young surgeon of today is busier than ever, exemplified by the fact that 85% of all cardiac operations and 75% of all general thoracic operations are performed by surgeons between 35 and 54 years of age. A 10- to 12-hour work day is not unusual, according to the manpower study conducted by this Association and the Society of Thoracic Surgeons.²

Thoracic-cardiovascular surgeons, because of the length of their training and the sophistication of their operations, have been viewed as the most prominent or authoritative surgeons within most institutions. In 1972, 94 surgeons certified by the American Board of Thoracic Surgery were chairmen of departments of surgery, representing over a third of all chairmen, and almost all of these were in prestigious institutions. Furthermore, most of these chairmen were actively practicing clinical thoracic-cardiovascular surgery. Today, only 45 chairmen hold certificates from the American Board of Thoracic Surgery, representing 16.5% of all chairmen. In reviewing the names, I recall to the best of my knowledge that only 21 are active in the practice of thoracic-cardiovascular surgery, representing fewer than 8% of all department chairmen. Why, then, are thoracic-cardiovascular surgeons being passed over as departmental chairmen?

Obviously, many of us who attempted to direct general surgical services, but had a greater desire to meet the challenges of cardiovascular surgery, allocated most of

our energies in the latter direction. The job of directing the general surgical service and training program was usually delegated to a person with less prestige and authority; if not, these programs suffered the consequences of lack of attention. Hence, at the earliest opportunity, deans and medical directors elected to appoint general surgeons or general thoracic or vascular surgeons who were not involved in cardiac surgery to chair surgical departments. In fact, many successful chairmen, both then and now, who had thoracic certificates found the challenges of cardiac surgery too demanding and were either unwilling to devote the necessary time or were not technically competent enough to achieve acceptable results in cardiac surgery.

Currently, of 93 thoracic residency programs, only nine (or fewer than 10%) are affiliated with an autonomous thoracic-cardiovascular department. The remaining 84 programs are administered as a section in the department of surgery. Thus thoracic surgeons have relinquished their premiere status as the surgeons with the most academic clout.

The majority of the pioneering work and advances in vascular surgery was made by thoracic surgeons. Shortly thereafter, with the introduction of extracorporeal circulation, most thoracic surgeons turned their attention to the development of modern cardiac surgery. When the American Board of Surgery decided in 1984 to issue certificates of special competence in vascular surgery, one avenue for obtaining certification was via a thoracic surgical residency program, and approximately one third of the programs were administered through the thoracic route. Today, there are 71 vascular residency programs, but only two of these are in a thoracic residency program, and the training in vascular surgery must be separated from any training in cardi thoracic surgery during the specified year. Accordingly, the thoracic surgeons have delivered to general surgery a specialty to which they themselves gave birth.

Another fundamental change is the amount and source of financial remuneration of surgical giants. At my alma mater, Tulane University, at the beginning of the century, Dr. Rudolph Matas received no income from the university (Fig. 6). His income from teaching was derived from fees collected from the students for his lectures. In later years, he did receive an annual salary of \$4,000; however, he was able to amass a fair fortune from his exclusive private practice. The Flexner report, in 1910, recommended full-time faculty for medical teaching, and most universities adopted this philosophy. My father became the first full-time professor at Tulane in 1927. His salary was \$8,000, and any professional fees were turned over to the dean's office. In 1934, policy was changed so

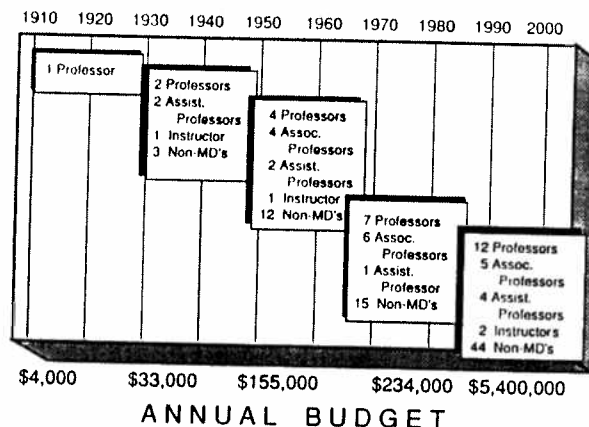


Fig. 6. Size of staff and budget of the Department of Surgery, Tulane University.

that professors could retain professional fees, but no greater than 15% of their time could be spent in private practice. I can recall my father stating many times that a surgeon's ability was inversely proportional to his income. In fact, most university professors at that time believed that money was the root of all evil. I vividly remember Dr. Wangenstein's telling my father of his concern about the large amounts of money his young faculty was receiving from performing heart surgery in those formative years. His fear was that their research and scientific achievements would suffer.

Needless to say, in recounting the contributions of Lillehei, Lewis, and Varco, we realize that these fears were unfounded. Jim Maloney, in 1970, in his presidential address before the Society of University Surgeons entitled, "A Report on the Role of Economic Motivation in Performance of Medical School Faculty," conducted a study to evaluate the effects of intellectual and economic motivation on patient care and teaching. He documented that significant problems were associated with a strict full-time system and that a geographic system with financial incentives was consistent with excellence in all components of academics. He forecast that clinical practice and its derived income would become progressively important to the vitality of a surgical department. His crystal ball proved to be correct, because all institutions eventually required departments to tender a financial account of their activities.

In 1940, the budget for the Department of Surgery at Tulane was \$33,000, and the staff was composed of two professors, two assistant professors, and an instructor, along with three non-MDs—a secretary, a photographer, and a medical artist (Fig. 6). By 1965, the budget of the department had increased to \$154,852. The departmental makeup consisted of four professors, four associate

professors, two assistant professors, one instructor, and 12 non-MD staff members. A few members of the faculty were active in private practice and were allowed to retain their fees. In 1972, the budget of the department totaled \$234,058 and was composed of seven professors, six associate professors, one assistant professor, and 15 non-MD staff members. No faculty practice plan was in effect at this time, and the surgeons were able to receive direct compensation for their practice, which in the case of a few was immeasurable. Last year, the budget of the department was 5.4 million dollars. At present, a school-wide faculty practice plan is in place, and the 5.4 million represents a net fee from which practice costs and various university taxes have been removed. Thus that figure reflects the total amount of money the department has to work with for that year. The faculty consists of 12 professors, five associate professors, four assistant professors, two instructors and 44 non-MD staff members. Needless to say, management of a surgical department of today mimics big business and requires a staff of business managers.

I am convinced that although the lifestyle of the surgical giants has changed greatly, their basic work ethic has not altered with time. Earlier this century, surgeons became steadfast pen pals, carrying out transmission of surgical progress through the mail. Available means of transportation were tedious; hence, when surgeons gathered for meetings, they spent extended periods together, because a short stay was hardly worth the effort. Travel by train for 2 to 3 days was not uncommon, and as various members of a society boarded the train along the itinerary to a particular destination, friendships were renewed, and frequently the entire scientific program would have been discussed by the time of arrival. Until 1940, most professors were full time, and the majority of their time was spent in undergraduate teaching. Most of their endeavors took place during the academic year, and in the summer they had a plethora of free time. Although the work ethic exerted so strong an influence that most spent this leisure time in clinical or experimental research, many took advantage of the opportunity to spend long periods visiting colleagues, either stateside or abroad. Strong friendships were created, and visitors would stay at the homes of colleagues. I remember many of the giants who stayed at our home—Allen, Blalock, Churchill, Cole, Coller, Wangensteen, Zollinger, and others. Not being interested in medicine as a child, I thought of them as I did my father—doctors who “operate on dogs and people.” The friendships of most of the giants at that time were forged through their academic associations and fostered through the long periods of contact at meetings, visits and travel clubs. The role of travel clubs diminished because of multiple society meetings and advances in

communication, although some of the older, more established ones that are very dear to their members still exist. In recent years, new clubs of particular interest in our specialty have been organized.

During this century, growth and development in many fields of technology have changed the work ethic and lifestyle of surgeons. Communications have advanced from the wireless to telecommunication satellites, and transportation has gone from the Wright brothers' first flight at Kitty Hawk to Apollo's voyage to the moon. In the past 50 years, the explosive growth in thoracic-cardiovascular technology has allowed a greater number of surgeons to become giants. Rapid air travel has allowed surgeons to meet and discuss surgical topics within a short time frame. During the 1960s and 1970s, many cardiovascular surgeons had such strong clinical demands that they would go to the extreme and fly out to a meeting to give a paper, fly back the same day, and then fly out again a day later after performing a series of operations at home.

Although such extreme measures were undertaken mainly to accommodate a busy schedule, other contributing factors were the desire to control patient referrals and to indulge in self-importance, inasmuch as some believed their uniqueness precluded their duties being carried out by anyone else. For years, the program committee of the AATS selected and designed the program in such a fashion that as many members as possible would be present through the entire meeting. However, in 1991, they recognized the time constraints of their members and attempted to redesign the program so members would only need to attend the meeting when subjects of the program were relative to their interests. Instead of lodging in the homes of colleagues, today's surgeons stay at hotels to make better use of their time. In this way, they have control over their commitments, such as putting slides together for a lecture, but they are also able to perform everyday business activities while away from home with the help of portable Dictaphone machines, faxes, and multiple telephone calls to their secretaries or nurses to ensure regulation of their business and proper care of their patients.

Although among thoracic-cardiovascular surgeons, friendships of today are not founded on relationships formed during long meetings and intimate visits, the advances in technology that improved lifestyle allowed for more frequent visits and probably more exclusively social time, which has resulted in equally strong friendships. Some of the closest relations in our specialty were fostered and made secure during modern surgical training when, because of the stress and demand, residents tended to rely on each other. This is in contrast to the early part of this century, when surgeons did not undergo lengthy formal training, vigorously structured as we know it today.

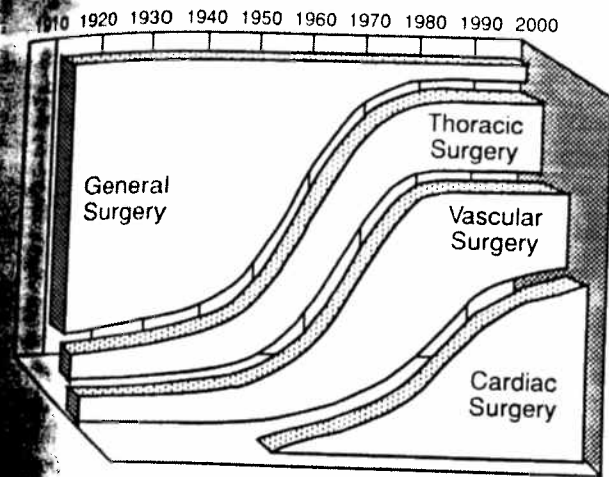


Fig. 7. Change in practice profile of thoracic-cardiovascular surgeon through the years.

The lifestyle of those in training has also changed. In the first half of the century, the personal and social lives of those in training was of no concern. Professors in that era would not allow those in training to be married. What would Harvey Cushing's reaction have been to learn that today the Special Requirements of the RRC for general and thoracic surgery, IV A 2c, reads: "It is the responsibility of the program director to ensure assignment of reasonable in-hospital duty hours so that the residents are not required regularly to perform excessive prolonged periods of duty. It is desirable that residents' work schedules be designed so that on average, excluding exceptional patient care needs, the residents have at least one day out of seven free of routine responsibilities and be on call in the hospital no more often than every third night. . . ."

My mother once told me that one of the great disappointments of her life was that A. J. Ochsner, my father's mentor and second cousin, died before my father was appointed professor and chairman of the Department of Surgery at Tulane. A. J. Ochsner believed that none of his pupils should marry before they achieved their academic goal and that marriage would prevent them from attaining their goal. Mother felt that had A. J. Ochsner known of my dad's appointment, she would have been exonerated.

Another noteworthy change with time has been the practice profile and academic orientation of surgical giants and, in particular, the thoracic-cardiovascular surgeon. No matter how intent the interest in various aspects of thoracic-cardiovascular surgery, technical advances usually governed the practice profile (Fig. 7). In the early part of this century, little thoracic and vascular surgery and no cardiac surgery was being performed, and the surgical giants of the time were in essence general surgeons. Over the first four decades, general thoracic

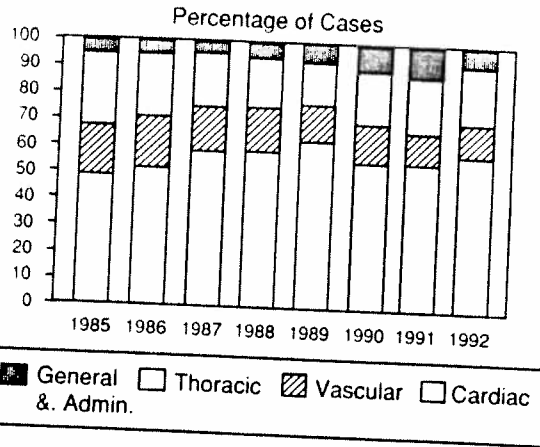


Fig. 8. Practice profile of diplomates of the American Board of Thoracic Surgery recertified since inception of recertification.

surgery and, to a small extent, vascular surgery progressively increased. Beginning with Robert Gross' first successful ligation of a patent ductus arteriosus in 1938 and Charles DuBost's resection of an abdominal aortic aneurysm in 1951, surgeons began an attack on cardiovascular disease. This onslaught continued at a record-breaking pace, and an explosive growth was seen in vascular surgery in the 1950s and 1960s, and in cardiac surgery in the 1960s and 1970s.

This growth was driven by the development of operative procedures for treating specific cardiovascular anomalies and diseases. With the increase in the number of patients, surgeons had the option of limiting their practice to one or more specific subspecialties, depending on achievement, ability, personality, and competition within the area in which they practiced.

According to a review of the practice profiles of the thoracic-cardiovascular surgeons recertified from 1985 through 1992, very little has changed (Fig. 8). Because these surgeons have already been in practice for 10 years, the profile for each year may well remain stable. I looked at my own practice profile at 10-year intervals throughout my career, and I noticed that the changes were related to the development of specific surgical procedures, to my own changing interests, and to the changing needs within the institution where I practice (Fig. 9).

In the early days of modern thoracic-cardiovascular surgery most, if not all, of the surgical giants were academicians. Today, the majority are no doubt still academicians, but with time, a noticeable number of persons in private practice are reaching giant status. Because of ongoing socioeconomic changes, the heretofore meaningful distinction between the academician and the private practitioner has become less meaningful. Today, academic surgeons typically engage in private practice. Also,

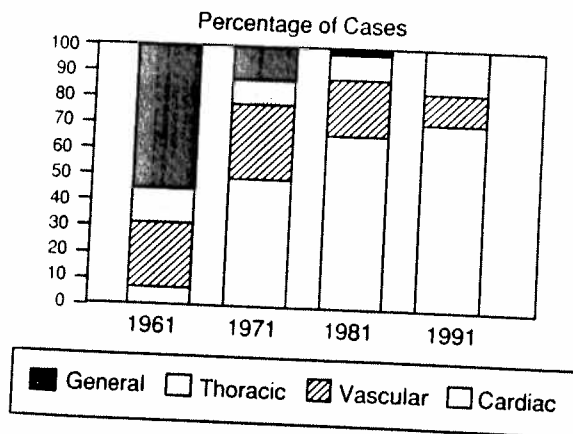


Fig. 9. Personal practice profile during my career at 10-year intervals.

academia is no longer able to sustain the myth of prestige.

Having an even greater impact on blurring the line between clinical surgeon and academician is the tremendous recruitment of thoracic, and particularly cardiovascular, surgeons into community hospitals. To stay financially competitive, hospitals must perform the procedures that bring in the big bucks. Never in history have such vast resources been available to a group of surgeons as to cardiovascular surgeons in the past 40 years. With support provided by the community hospitals and the substantial fees available immediately out of training, the cardiovascular surgeon is able to amass large sums of money in a short time. Hence hundreds of cardiovascular surgical group practices have developed around the country. In essence, these group practices are sizable businesses that employ a fairly large staff of non-MD personnel who help maintain the practice and allow it to grow. This arrangement provides a mechanism for cardiovascular surgeons in group practices to make scientific contributions to the profession and thereby to reach giant status.

In the early meetings of the AATS, the distribution of papers between university and private practice was fairly equal, mainly because most practitioners were only loosely associated with the universities. As surgeons became dedicated to the universities, more and more scientific papers originated from this setting, and by 1950, with the increasing amount of experimental research, 90% of papers presented at the meetings of the AATS were from university surgeons. However, with the advent of open heart surgery, and particularly coronary artery surgery, many of the advances were made in non-university settings. In 1979, 34% of the papers presented were from non-university institutions. There are sound reasons for these changes. Most surgical specialties developed operations through knowledge gained by trial and error in

clinical situations. Before Harvey Cushing, the risk of removing a brain tumor carried an 80% mortality, and even in our own specialty the mortality risk from a pneumonectomy was 52% in the early years. However, the evolution of cardiovascular surgery clearly showed the importance of the experimental laboratory in the development of techniques and other information needed to achieve the objective of a contemplated operation. Cardiovascular surgery emerged almost full-fledged from the experimental laboratory before moving into the clinical arena. Perhaps because of the psychic importance of the heart to the laity, extensive experimental research was expected before heart surgery would be accepted by the public. On the other hand, in the early days various laboratory animals, particularly the dog, proved to be poor models, and a cardiac operation was evidently less likely to be survived by a dog than by the higher *Homo sapiens* mammal. For these reasons, many advances in cardiac surgery were made in the clinical arena, giving the non-university surgeon the opportunity to pioneer. Another factor contributing to the development of surgical giants was that general practitioners, internists, and cardiologists were content to refer their patients within their own community hospitals. Successful operations were being achieved without scientific proof of the reason for their success. Accordingly, the need arose to return to the laboratory to prove why certain maneuvers were successful. The academician once again answered this challenge. Through experimental research, the reason for the success of certain methods of extracorporeal circulation and technical maneuvers in cardiac surgery was proved. After demonstrating the reason for success, academicians extended their efforts toward improving on their discoveries. In the past 10 years, 90% of the papers presented at the AATS have once again come from universities. However, this high percentage does not mean that non-university hospitals were not involved in teaching and research, exemplified by the fact that the first award for research, given by the Thoracic Surgery Directors Association to maintain productive young surgeons in academic medicine, was won by a resident from Allegheny General Hospital—a non-university hospital.

The American Board of Thoracic Surgery at its annual meeting, April 4, 1987, amended the Bylaws, Article III, membership Section 2—Nominees. "... in making such nominations, consideration shall be given to achieving a geographic distribution of the Board members with a balance between academic and private practitioners." The underlined text was deleted, because the board believed that in this day, a defined difference between the role of an academician and a private practitioner does not exist.

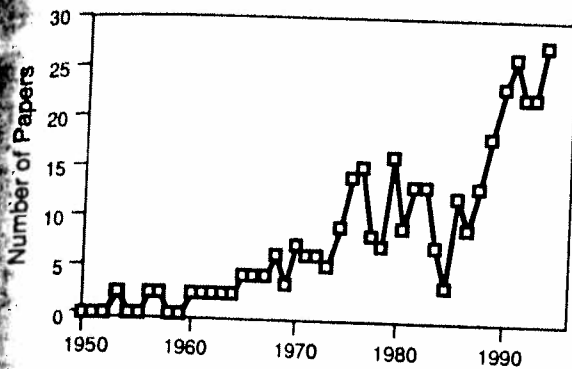


Fig. 10. Number of papers presented at AATS annual meetings by non-North Americans.

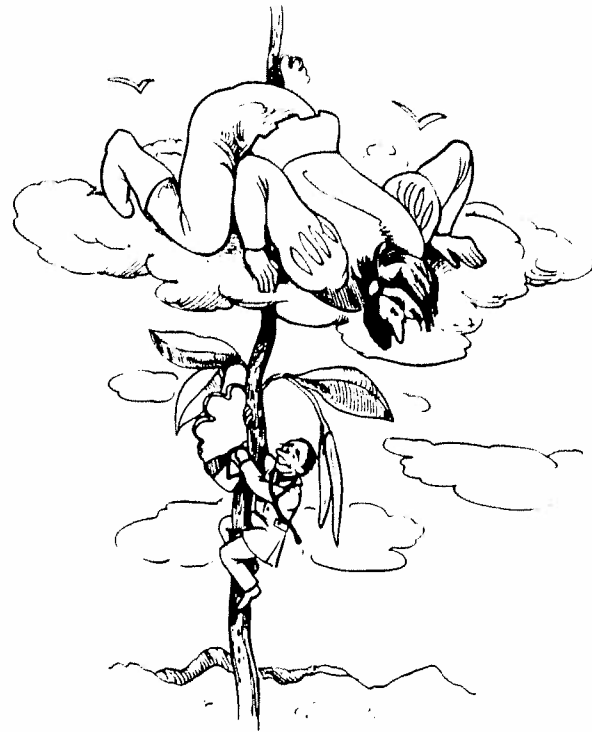


Fig. 11. My alignment to Jack and the beanstalk.

Before World Wars I and II, the vast majority of the surgical giants resided in Europe, predominantly Germany and Austria. Surgeons of the world traveled to Europe to learn both established and newly developed surgical techniques. Many of the early founders and presidents of this Association were born in Germany, among them, Willy Meyer, Franz Torek, and Carl Eggers, and some later presidents received much of their training in Europe, among them, Leo Eloesser, Alton Ochsner, Richard Churchill, Michael DeBakey, and Frank Gerbode. Hundreds of North Americans took the opportunity to visit European surgical giants such as von Mikulicz-Radecki, Sauerbruck, Schmeiden, Leriche, and others. My dad once told me that if you ever think you are the first to perform a certain cardiovascular operation, best you read the works of Sauerbruck, for more than likely he has already done it. During both wars, except for trauma surgery, advances in surgery were severely curtailed. Europe was able to maintain its surgical preeminence for a short period after World War I; however, around 1935, there was a surge of innovative teaching and surgical practices in America. The disparity between the surgical standards of Europe and those of the United States narrowed, became equal, and eventually reversed as the result of World War II. This Second World War caused destruction of many European clinics, with long-term isolation of their physicians from the rest of the world and even a manpower loss through the war. Many of the European countries, particularly those of the Axis, were diminished to a subordinate role in medicine and surgery. The enormous advances in cardiovascular and transplant surgery were almost exclusively initiated in the United States.

After World War II, surgeons around the world took the opportunity to visit American institutions, in turn bringing back to their countries new knowledge in research, teaching, and the practice of surgery. The world

has been relatively peaceful for 45 years, and the developed countries have been free of war on their soil. Thus, in recent years, the contributions to the development and improvement of surgery have been global. The rate of production of foreign surgical giants today parallels that of North America. The activity of foreign surgical giants in this Association is noted by the progressive increase in the number of papers they presented at our annual meeting (Fig. 10). The first foreign paper in modern times I could find was that given by Dr. M. P. Susman of Sydney, Australia, in 1953, when he presented, "Hydatid Disease as It Affects the Thoracic Surgeon." Most early papers were presented by surgeons from European countries that belonged to the Allied Forces. Most of these papers were given by Drs. Senning, DuBost, Ross, and Belsey and a cadre of surgeons from Great Ormond Street Hospital. Currently, 49 members in the AATS are foreign, three fourths having been elected in the past 10 years.

I do not consider myself a surgical giant but align myself with Jack in the English folk tale, "Jack and the Beanstalk" (Fig. 11). I was fortunate enough to have had a sturdy beanstalk to climb and to reach a height at which I could pluck a few gold coins and golden eggs from the giants. My beanstalk was sturdy because my mentors (Drs. Michael DeBakey and Denton Cooley) taught me

basic surgical and physiologic principles that I could adjust as technology advanced. It was also sound because I had a family that supported me despite long hours away from home. I was fortunate to have begun my training the year John Gibbons first used extracorporeal circulation to correct an intracardiac defect. Thus I had the opportunity to witness firsthand all the modern advances in thoracic cardiovascular surgery.

Because of this exposure, I have not limited my practice to a specific interest in this, our specialty. I recognize the importance of subspecialization in thoracic surgery and the desirability of being able to practice comfortably and competently and to be authoritative and have the perks of fame and fortune. However, for the benefit of the younger surgeons and our future giants, I have reservations over subspecializing too early. First, I think many of the advances in thoracic surgery would not have been made were not the innovators trained in many aspects of thoracic surgery. Stanley Crawford's monumental work on thoracoabdominal aneurysm resulted from his being thoroughly versed in peripheral vascular and thoracic surgery. Jatene's operation for transposition of the great vessels was the culmination of all the years he had spent perfecting coronary artery surgery. Many other advances throughout the years have been performed because the thoracic surgeon was versed in and actively engaged in many aspects of thoracic-cardiovascular surgery. Second, the amount of pleasure derived from practicing all aspects is unlimited. Most of my exposure during training was in vascular surgery with some general thoracic surgery, primarily in complications of tuberculosis and in the early stages of congenital heart surgery. Had I declared myself a specialist in one of those three areas of study, I would have missed much of the excitement that came later in the development of valvular heart disease, coronary artery disease, and both heart and lung transplantation.

Today, the American Board of Thoracic Surgery and the RRC for Thoracic Surgery are fully aware of the importance of obtaining complete training in all aspects of thoracic-cardiovascular disease. Once a sound foundation is laid, a subspecialty can be chosen, or training can possibly be continued in all aspects, if time allows and the institute where the practice takes place agrees. Also, with breakthroughs in medicine, a particular disease or the

need for a particular operation may not exist forever. Thus many pulmonary diseases are now curable with antibiotics or will be in the future. The advances made in immunology and chemotherapy and the progress of oncogene inhibition and monoclonal antibodies and irradiation could limit other aspects of general thoracic surgery. Prenatal care may limit, genetic engineering may prevent, and ethical laws may prohibit operations for congenital heart disease. We have already witnessed the impact of minimally invasive techniques on the management of valvular and coronary artery disease and do not know what further technical advances are likely to evolve. We have noticed the impact of preventive medicine on the control of certain diseases, and hence the surgeon may be denied the treatment of their complications. Those who perform transplants continue to be frustrated by the limitation of donors. We must be concerned about the possible restraints managed health care places on us and the changes that are imminent in the forthcoming health care reforms, no matter what our specific interest.

Finally, having expounded on the virtues of multiple interests and the fear of subspecialization, I believe that because of the demand for excellence and the amount of knowledge needed to meet these demands, surgeons will be forced to limit their practices to a particular interest. I envision for the future many thoracic-cardiovascular giants working in a smaller sphere, with organized lives that will allow them to become effective trustees of health for years to come.

I acknowledge the help given by Dr. Ward O. Griffen, Jr., Executive Director of the American Board of Surgery; Dr. Glennis Lundberg, Administrative Director of the American Board of Thoracic Surgery, Inc.; and Dr. Jack Boberg, Executive Secretary, Residency Review Committee for Thoracic Surgery, Accreditation Council for Graduate Medical Education, for useful information in preparing this paper.

REFERENCES

1. Flexner A. Medical education in the United States and Canada. Boston: Merrymount Press, 1910.
2. Loop FD, Wilcox BR, Cunningham JN Jr, et al. Thoracic Surgery Manpower: The Fourth Manpower Study of Thoracic Surgery: 1985 Report of the Ad Hoc Committee on Manpower of the American Association for Thoracic Surgery and the Society of Thoracic Surgeons. *Ann Thorac Surg* 1987;44:450-61.