Competition: Perspiration to inspiration “Aut inveniam viam aut faciam”

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In life, very few things are certain. The famed hotelier Conrad Hilton, at the end of his storied career, was asked what he had learned with absolute certainty, and his response simply was that “the shower curtain should remain inside the tub.”¹ The only thing about which I am absolutely certain this morning is that I am far more surprised to be standing before you than those of you in this august audience are to see me here. If I engage you but a little and impart to you a few thoughts, and possibly some minor prejudices, I will have succeeded. If not, you should have embraced Norman Shumway’s advice from the 67th Annual Meeting of The American Association for Thoracic Surgery (AATS), at which he recommended that his be “the last presidential address.”²

Without a doubt, The American Association for Thoracic Surgery is the oldest and most prestigious organization of its kind within the specialty of cardiothoracic surgery. It seems like just yesterday I was introducing our then president, Dr Pedro J. del Nido, whose seemingly endless dedication to the AATS and effortless sharing of his wisdom with me have been a welcome and most special gift. The AATS is well deserving of its splendid reputation. This is, of course, the consequence of having eminently gifted and dedicated officers, committee members, journal editors, administrative organizational staff, and volunteers, whose unwearied and selfless work for this organization has been a marvel to behold. The heart and soul, and the vitality of this organization, come from the tireless input of the most creative and imaginative membership in cardiothoracic surgery.

Your Association has done anything but stand still, as a transformative effort has been made to further establish the AATS as a truly international organization. Affirmation of this comes from meetings held in Istanbul, São Paulo, and Shanghai. These successful collaborative efforts with our international members and colleagues have provided unique platforms for the exchange of knowledge and enhanced collaboration. The Association is currently

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Central Message

The presidential address discusses the role of constructive competition in fueling innovation in cardiovascular surgery.

assessing, in a comprehensive manner, its current operations and management, and evaluating options for significant structural improvement to prepare and position itself for the future.

As I stand before you today, I have a great deal to be thankful for. Foremost in receiving that gratitude are my parents, John and Doris, who instilled in myself and my 3 brothers integrity, morality, and an understanding of the value of both hard work and education. Sadly, both have passed. I am eminently grateful for the love of my life and wife of 25 years, Kelly, who has created a home for me and our 2 children, nurturing an environment that allowed me to pursue an occupation that is as unpredictable as it is consuming. I remain exceedingly proud of our 2 children: Catherine, 18, who could not be here today because she is off in Europe for education; and my son Joseph Jr, 17, who is here with us. Both of them uplift me every single day and make each of those days worth living. If family is the true currency of happiness, I am a very wealthy man.

I want to thank Dr Thor Sundt for that marvelous and most generous introduction. As you can clearly see, this post will be left in none other than the very best of hands. I am grateful beyond words for my colleagues at Baylor College of Medicine and the Texas Heart Institute. Their amazing clinical skills and devotion to education and research have provided us all with an environment conducive to enjoyable productivity and a well-deserved excellent reputation.

I would like to recognize and express my gratitude to Dr Scott LeMaire, my clinical partner of 25 years, and now the Vice Chair of Research for our department; Alan P. Stolz,

my division administrator for 15 years; and Jodie L. Magill, my administrative assistant for 9 years, all here today.

I would like to single out and draw your attention to one particular individual in the Association who deserves special recognition for his efforts as president of the AATS Graham Foundation over the last 5 years. Championing its mission of driving leadership, research, education, vision, and a dynamic and innovative future of continued excellence in cardiothoracic surgery, Dr David J. Sugarbaker, 94th president of the AATS and a recent addition to our department in Houston, has taken the Foundation from a modest effort to a true powerhouse in fostering leadership and maintaining excellence for future generations of cardiothoracic surgeons. Last year, the Foundation achieved a milestone: It provided research and fellowship opportunities to 134 surgeons and medical students from 5 continents. The Foundation launched 8 new clinical and research fellowship programs and established the AATS Graham Foundation Academic Excellence Award, which is given to the best abstracts at major international meetings. The Foundation's "Honoring Our Mentors" Fellowship Program, created in 2013 with the first in the series, the F. Griffith Pearson Fellowship, has been joined in the past year by the Marc R. de Leval Fellowship, the Denton A. Cooley Fellowship, and the Lawrence H. Cohn Clinical Scholar Program.

These efforts proudly represent the AATS's stated mission and goal, "to promote scholarship, innovation, and leadership in thoracic and cardiovascular surgery." An additional effort will begin in 2016-2017: The Surgical Investigator Awards, created thanks to the generous support of Dr Mehmet Oz, Ethicon, Intuitive Surgical, and the AATS.

The fortuitous association with marvelous teachers and master surgeons has surely enhanced my surgical education and clinical work. During my time, the Baylor College of Medicine General Surgery Program was primarily directed by Dr George Jordan, who personally saw to it that our experience was as robust as it was rigorous. Thoracic surgical residency, personally supervised by the iconic Dr Michael E. DeBakey, was a marvelous opportunity to study and learn at the foot of a true master. His international reputation as an outstanding clinical surgeon, educator, researcher, inventor, and medical statesman was absorbed first-hand and front-and-center. Both men instilled in generations of surgeons surgical values that remain relevant today. These include responsibility for your patients, and in training they gave us more than our fair share.

I have no words to describe my personal feelings when I was selected as the 96th president of the AATS, becoming the first such individual in Houston to follow Dr DeBakey, who served as the 38th president of the AATS in 1958-1959. Our personal relationship was such that I am certain he would be pleased and proud.

After completing my thoracic surgical residency, I had the incredible good fortune to join the faculty of Baylor College of Medicine and its Michael E. DeBakey Department of Surgery. The opportunity was to be remarkably transformative. I had been asked to work as a junior associate of the aortic pioneer Dr E. Stanley Crawford (Figure 1). Dr Crawford became a personal friend, but along the way, he, like Dr DeBakey, introduced me to the finer technical aspects of complex surgery and the intricacies of running a massive surgical practice. He emphasized the importance of conducting clinical research at the highest possible level, careful scrutiny and analysis of one's own results, evolving your practice over time, educational leadership, and that compassion for those we treat is crucially inseparable from our clinical efforts.

My professional good fortune seemed boundless in January 2005, when I had the opportunity to move the Cardiothoracic Division of the Michael E. DeBakey Department of Surgery to St. Luke's Episcopal Hospital and the Texas Heart Institute. This allowed a formal professional re-association with a near life-long friend, Dr Denton A. Cooley, the 28th president of the Society of Thoracic Surgeons (STS) in 1993-1994 (Figure 2). Dr Cooley has an international reputation as a surgeon's surgeon and a consummate southern gentleman. To me, personally, he has always been gracious, inspirational, and supportive. After all, it was my association with Dr Cooley and my exposure to the cardiovascular operating suites of the newly minted Texas Heart Institute as a college freshman that led directly to my becoming a cardiothoracic surgeon.

Another individual who had an immense impact on my surgical career is the 88th president of the AATS, Dr D. Craig Miller. More than 3 decades ago, Dr E. Stanley Crawford pointed out to me that Dr Miller was an unusually talented individual in the midst of an inspiring career, and a great innovator. Armed with cowboy boots, a Stetson hat, clinical acumen, and a sharp wit, he has been a mentor to so many along the way, and I am proud to have been a beneficiary of his mentorship. In Texas, we sometimes use the expression "all hat and no cattle" to describe someone who is all talk and no substance. That could not be further from the truth with these 2 surgical giants.

The Latin phrase "Aut inveniam viam aut faciam" is translated as "I shall either find a way or make one." The phrase has most often been attributed to Hannibal, who supposedly gave this bravado-charged response when his generals told him that it would be impossible to cross the Alps by elephant. More modern examples of people who struggled against and overcame seemingly insurmountable odds include such individuals as

- Walt Disney, who was fired from the *Kansas City Star* because his editor felt that "he lacked imagination and had no good ideas."³

FIGURE 1. E. Stanley Crawford holds a copy of his landmark atlas of aortic repair, *Diseases of the Aorta*, which he wrote with his son John L. Crawford. Although this book was published in 1984, it remains useful in contemporary practice. Used with permission of Baylor College of Medicine.

- A young Einstein, who was expelled from school for his rebellious nature and was refused admittance to the Zurich Polytechnic School. Young Albert didn't speak fluently until he was 9 years old, causing teachers to believe that he was "slow."⁴
- Thomas Edison, whose teachers told him that he was "too stupid to learn anything."⁵
- Sidney Poitier, who, when he auditioned for the American Negro Theater, flubbed his lines and spoke in a heavy Caribbean accent, which made the director angrily tell him to stop wasting his time and to go get a job as a dishwasher.⁶
- Fred Astaire, who after his first screen test was thusly described by a studio executive: "can't sing, can't act, slightly balding, can dance a little."⁷
- Harrison Ford, who after his first small movie role was brought into an executive's office and told that he would never succeed in the movie business.⁸
- Theodor Seuss Geisel, better known as Dr Seuss, who had his first book rejected by 27 different publishers.⁹
- Henry Ford, whose first 2 automobile companies failed miserably.¹⁰
- Oprah Winfrey, who was fired from her first television job because her boss considered her to be simply unacceptable for TV.¹¹

A story familiar to virtually everyone involved in cardiovascular and thoracic surgery is that of Dr John H. Gibbon, Jr, MD, who witnessed on October 3, 1930, the collapse and eventual death of a patient with a massive pulmonary embolism.¹² The failure of a closed pulmonary embolectomy clearly had a profound and prolonged effect on Dr Gibbon and determined his lifetime academic interest. It took Dr Gibbon 23 years of intense effort to develop a machine

FIGURE 2. Joseph S. Coselli (left) and Denton A. Cooley (right) attend the 26th annual meeting of the National Marfan Foundation, held in Houston, Texas (2010). Photograph taken by Timothy D. Joyce Photography and used courtesy of The Marfan Foundation.

capable of providing sufficient mechanical heart-lung support to allow human cardiac operations to be performed successfully. He was assisted and supported in this work by his wife, Mary. Remarkably, he overcame the death of his first patient, a 15-month-old girl with an alleged atrial septal defect that at operation proved instead to be a left-to-right shunt through a large patent ductus arteriosus, and who unfortunately died on the operating table. The second operation, conducted on May 6, 1953, was the celebrated success of the first truly open-heart operation performed with the use of a heart-lung machine. The patient was an 18-year-old woman in whom a large secundum atrial septal defect was closed with running cotton suture. Dr Gibbon's next 2 operations were on young girls, each about 5 years old, both of whom died during surgery, most likely because of an imprecise preoperative diagnosis. After these last 2 tragic cases, Dr Gibbon, emotionally distraught, never again performed open-heart surgery, leaving his mentees and numerous others in the field to carry on with his historic work that many today simply take for granted.

All of these examples are intended to illustrate what I mean by perspiration to inspiration: Perspiration, the hard work required to rise above initial failure before achieving ultimate success; followed by inspiration, the passing on of the knowledge gained to those who would build on the initial accomplishment, advance the effort, and then pass the success on to the next generation.

In this context, I want you to consider the concept and definition of "competition." The word is defined by the *Cambridge Dictionary* as "a situation in which someone is trying to win something or be more successful than someone else."¹³ This type of competition is essentially noncooperative and arises whenever different people strive for a

goal that cannot be shared. However, competition is also defined as “a rivalry offered by a competitor.”¹⁴ In many cases, this latter form of competition can spawn a relationship that can be both combative and symbiotic, wherein the competitors are striving to achieve a common goal. Although subtle, the differences between these 2 forms of competition suggest that competition has both bright and dark sides, and that the nature of a given competition can have profound impact on the results. Whereas negative competition can impair overall progress toward an important goal, constructive competition can indeed be the fuel that enables us to overcome seemingly insurmountable odds—to find a way or make a way.

In recent years, in our so-called advanced Western societies, the word competition has taken on a pejorative connotation. Nonetheless, in many crucial ways, competition is an irrevocable common denominator of American—if not all Western—life. From our time as small children to the end of our days, we are busy struggling to outdo others, be it at school, at play, in sports, or at work.

When we think of Vince Lombardi’s famous comment, “Winning isn’t everything, it’s the only thing,” we are reminded that in many ways, competition is among Western civilization’s cultural addictions.¹⁵ Paradoxically, over recent decades, we have been inundated with the message that competition is detrimental and that it is nothing more than the attempt to be successful at the price of other people’s failure. The dark side and down sides of competition are thoroughly chronicled in such tomes as Alfie Kohn’s *No Contest: The Case Against Competition (Why We Lose in Our Race to Win)*.¹⁶ Kohn specifically and thoroughly denounces and repudiates what he calls “structural competition”: An activity defined by mutually exclusive goal attainment, more simply put as “my success requires your failure.”

It may not be as politically correct, but consider with me the argument that the problem is not with competition per se, but rather with the way we compete, or the extent of our competitiveness. Kohn takes the more extreme position that competition is an inherently undesirable arrangement. We see this philosophy being implemented in our schools, where it is almost humorous to point out that kids are not to form a line but a circle, and that everyone gets a trophy—even little Johnny with the lowest score—just for simply trying. The reality is that competition, whether healthy or not, is an inevitable part of the human condition, manifesting not only in sports but in unavoidable rankings on an academic basis for college admission, medical school entrance, residency training, and academic promotion. I believe that in our effort to prevent damage to anyone’s self-esteem, we have lost the opportunity to instill the importance of healthy competition and the benefits it can produce.

I’d like to expand on this point by telling a few stories that illustrate the dark and the bright sides of competition in our profession.

Fierce competitiveness and even feuds are not unknown in medicine and surgery. One such feud was Franklin versus Wilkins, which revolved around the discovery of the structure of DNA. We are all aware that Francis Crick at Cambridge, along with James Watson and Maurice Wilkins, were awarded the Nobel Prize in Physiology or Medicine in 1962 for their part in the discovery of DNA.¹⁷ Clearly, much of what is truly exceptional in biology today, such as cloning, genetic therapy, DNA vaccines, and mapping of the human genome, finds its foundation in this incredible work. What is less known is the 3-way all-out race for the glory of the discovery among Cambridge, King’s College in London, and the Linus Pauling Institute at Caltech in the United States. Often left out of the story is the heroine Rosalind Franklin, a brilliant scientist who worked alongside Maurice Wilkins at King’s College.¹⁸ She was a talented expert in the overall study of crystalline structure referred to as crystallography. The study of X-ray diffraction, or X-ray crystallography, was at the time a highly complex procedure that often required intricate calculations and, frequently, deep intuition. Franklin’s famous photo, referred to as #51, was an excellent picture of a DNA sample, which showed a specific X-shaped pattern that was characteristic of a helical shape. She did not recognize the discovery at the time and, for inexplicable reasons, Dr Wilkins showed the X-ray to Watson and Crick, who then proceeded to unravel the secret of the helical form. The feud was multifaceted because there was a longstanding and severe rift between Franklin and her colleague Wilkins, which led to strained communication and facilitated Wilkins’ lapse in judgment during their race against Watson and Crick. Franklin died in 1958, 4 years before the 1962 Nobel Prize was awarded. She died of cancer, sadly almost certainly secondary to X-ray exposure, at the young age of 37. Had she survived, the Nobel Committee might have been faced with an interesting challenge, because no more than 3 honorees have ever shared a prize, and to include her would have broken that longstanding precedent. Also, the committee has a history of staying away from controversy.

Another medical rivalry of historic proportions was between Jonas Salk and Albert Sabin over the polio vaccine.¹⁹ In 1952—the year of my birth—the polio epidemic was in full stride, frightening and seemingly unstoppable. That year, in the United States alone, 58,000 fell ill, 3000 died, and 21,000 were left paralyzed. The search for a vaccine spawned a medical rivalry and feud of historic proportions. Jonas Salk, a medical scientist at the University of Pittsburgh who had a strong desire for professional recognition, championed the killed-virus method. Albert Sabin, a medical scientist at the Cincinnati Children’s Hospital who possessed similarly outsized quantities of ego and determination, championed the weakened-virus approach. Each had strong beliefs and reasons for backing their diverse

approaches. The Salk vaccine required multiple shots and provided limited immunity but did not transfer the disease. Sabin's approach harkened from the work of Louis Pasteur and was based on the belief that the best way to produce immunity was to induce a mild infection with a live but weakened virus. The Sabin technique was particularly attractive because the polio virus enters the system via the mouth and digestive tract, and a vaccine administered orally would be far simpler and less expensive than one administered via injection. Additionally, the resulting immunity could be transferred from an inoculated child to other children, who would then be protected. As described by one early biographer, "The professional controversies that obstructed the development in testing of his (Salk's) killed-virus vaccine were waged with the intensity that man usually reserved for his holy wars."²⁰ Sabin accused Salk of having "never had an original idea in his life" and remarked that "you could go into the kitchen and do what he did." As a consequence of the massive fundraising efforts undertaken by the March of Dimes and the Rockefeller Institute, in 1955 a double-blind study was carried out with 440,000 children inoculated, 210,000 receiving a placebo, and 1,180,000 serving as unvaccinated controls. This remains the largest controlled, double-blinded study in medical history.

By 1961, the Salk vaccine went into mass production and was administered to millions. Sabin, however, continued to press his case, and soon afterward the Sabin vaccine was accepted as the standard around the world. In a reversal of fortune, the US government declared at the end of 1999 that the Sabin vaccine, despite being simpler to administer along with other advantages, would be dropped and replaced by a series of the old-fashioned shots, essentially an upgraded, stronger version of the Salk vaccine. As mentioned, the Nobel Prize Committee classically avoids controversy and, as a consequence, no Nobel Prize was awarded to these individuals. An interesting prospect could have arisen from a friendlier competition, possibly ending in a scenario in which one or the other had convinced the other to switch sides. Although Sabin and Salk may have then benefitted as corecipients of the Nobel Prize, the rest of us are far better off for their intense competition and feud.

By the end of the 1970s, we thought we knew specific things with some certainty: That the modern world had moved beyond epidemic diseases, that retroviruses were found in animals and not in humans, and that cancers were not caused by a virus. All this was turned upside down with the AIDS war. In the first 20 years, HIV killed 16 million people and infected 33 million more. These numbers are probably a gross understatement. The AIDS virus and its ramifications were discovered simultaneously at 2 institutions. One team was led by Robert Gallo at the National Cancer Institute of the National Institutes of Health (NIH), and the other was led by his worthy French scientific opponent by the name of Luc Montagnier at the Pasteur

Institute in Paris. Gallo described the competition as "an acrimonious controversy involving legal, moral, ethical, and societal questions that soon spilled over into the world of scientific research and threatened to poison relationships between scientists, as well as between the research community and the general public."²¹ Gallo was able to show that a human retrovirus caused human leukemia, and for this he was awarded the Lasker Prize, the highest accolade in biomedicine short of a Nobel. The NIH was under significant political pressure to pursue the AIDS question, and because Gallo suspected that AIDS was linked to a retrovirus, he was enlisted in their effort. There was an exchange of samples and material between the 2 laboratories. The individuals, however, were each cantankerous. Gallo was friendly and charismatic yet aggressive, while Montagnier was aloof and patrician.

By the end of 1983, Gallo and his team were able to reliably identify the AIDS virus, and by early 1984, after extensive experimentation, testing, and culturing of numerous cell lines, they were fully convinced that they had found the causative agent for AIDS, which ultimately became known as HIV. The French researchers accused the Americans of using their material without appropriate recognition. A very public and international fight of mammoth proportions ensued. The stakes were enormous and complex; the fight was for credit between scientists and bureaucratic sponsors of research. Many considered the dispute to be not one of public benefit, but of very private competition for prizes, research funds, and of course, fame. Ultimately, each of the 2 institutions, the Pasteur Institute and the NIH, as well as Gallo and Montagnier, were to be considered co-discoverers of the AIDS virus.²² The valuable patents for blood tests for the disease were to be considered joint properties of the 2 institutions, which would share in the royalties. The dispute and the settlement were considered to be so significant that the final agreement had to be signed by the presidents of both countries. This is indeed an example of conflict and feud that do not benefit the public, institutions, or individual scientists; the only long-term value lies in the lessons learned, paid for with the price of lost time and lives.

To illustrate the positive aspect of competition specifically in surgery, we need to look back to 1969.^{23,24} That year, a 47-year-old gentleman by the name of Haskell Karp was admitted to St. Luke's Episcopal Hospital in Houston. He was a printing estimator from Skokie, Ill, and suffered from severe and early atherosclerotic coronary artery disease. He had suffered multiple myocardial infarctions, with markedly reduced ejection fraction and complete heart block, for which he had received a pacemaker. In severe congestive heart failure and with death imminent, he was brought to the operating room on April 4, 1969, by the then famed cardiovascular surgeon Denton A. Cooley. The planned procedure was left ventricular resection or

ventricular remodeling. Successful ventriculoplasty in such a patient was considered a long shot at best, so Dr Cooley called upon a back-up plan to use a total artificial heart to bridge the patient to transplant.

Dr Cooley had been on the faculty of Baylor College of Medicine since 1951 but at the time was virtually independent at St. Luke's Hospital, the newly minted Texas Heart Institute, and of course, Texas Children's Hospital. Dr Domingo Liotta, a surgeon from the National University of Cordoba in Argentina, had begun to work with Dr DeBakey collaborating with the National Heart Institute and Rice University on an artificial heart program, which primarily focused on left ventricular assist device research. Independently and under separate funding, Dr Liotta had been working with Dr Cooley at St. Luke's Hospital on a total artificial heart. During the operation, when it became clear that the ventricular remodeling procedure was going to fail, Dr Cooley called for Dr Liotta and the artificial heart. Rather than let Mr Karp die on the operating table, Drs Cooley and Liotta implanted the total artificial heart. Three days later, Mr Karp underwent heart transplantation but died 32 hours afterward secondary to infection and complications arising from immunosuppression as was common at the time. That a total artificial heart could work as a bridge to transplant had been demonstrated for the first time.

There was a firestorm of international publicity and initial praise from such individuals as Dr Christiaan Barnard. That Dr DeBakey was displeased is an understatement. An 18-year partnership was dissolved as 2 iconic surgeons working in 2 hospitals, side-by-side, no longer spoke to each other. A nearly 40-year feud ensued during which they did not speak to each other, but rather competed with the ferocity of gladiators (Figure 3).²⁵ Dr DeBakey set about the chastisement of Dr Cooley, which included censure from committees of the NIH and the American College of Surgeons. This of course led to Dr Cooley's resignation as a member of the full-time faculty at Baylor College of Medicine later that year. There is no doubt that the ensuing decades were enormously productive for both surgeons to the benefit of the cardiovascular community.

Dr Denton Cooley went on to turn the Texas Heart Institute into a cardiovascular surgical powerhouse with an international reputation. At the institute, Dr Cooley and his team performed more than 120,000 open-heart operations and over 1000 heart transplants, pioneering work on valvular heart disease, coronary artery disease, aortic aneurysms, ventricular assist devices, and the treatment of cardiac anomalies in infants and children. He trained more than 800 surgeons who went on to form the Cooley Surgical Society. He has received more than 120 honors and awards, including the Medal of Freedom, the nations' highest civilian award, from President Reagan in 1984, and the National Medal of Technology presented by President Clinton in 1999.

FIGURE 3. On the cover of *Life* magazine, the feud between Denton A. Cooley and Michael E. DeBakey is publicized in 1970. What would become a nearly 40-year dispute, which stemmed from Dr Cooley's use of the artificial heart, helped shape the Texas Medical Center. Photograph taken by Ralph Morse for Life Magazine/Time & Life Pictures. Used with permission of Getty Images.

Dr DeBakey was already the head of a major medical school, had performed the first abdominal aortic aneurysm repair in the United States and the first carotid endarterectomy, and he had pioneered the use of Dacron grafts to replace or repair blood vessels. He went on to publish more than 1400 medical articles and chapters. His awards have included the Presidential Medal of Freedom with Distinction, the United Nations Lifetime Achievement Award, the National Medal of Science (awarded to him by President Reagan in 1987), and the Albert Lasker Award for Clinical Research. He has always considered his greatest contribution to be the numerous surgeons he trained.

On February 10, 2006, Dr DeBakey underwent repair of a DeBakey type II aortic dissection he had initially suffered on New Year's Eve, December 31, 2005. After a prolonged and arduous recovery, he was discharged in September 2006 in relatively good health. After fits and starts, Dr DeBakey and Dr Cooley ultimately reconciled their nearly 40-year feud (Figure 4). On October 27, 2007, at the Denton A. Cooley Cardiovascular Surgical Society's 15th International Symposium, Dr DeBakey was awarded honorary membership in the Society for his lifetime achievements,

FIGURE 4. Photo of Michael E. DeBakey and Denton A. Cooley taken at the 15th Symposium of the Denton A. Cooley Cardiovascular Surgical Society held in Houston, Texas (2007). After a reconciliation, Dr Cooley honored Dr DeBakey with membership in the Cooley Society at this time. Used with permission from the Texas Heart Institute.

to a spontaneous standing ovation.²⁶ This was followed by Dr DeBakey receiving the Congressional Gold Medal in Washington, DC, in the US Capitol on April 23, 2008, presented to him by President George W. Bush. Dr Cooley was present for the event at Dr DeBakey's personal invitation. Then, on May 2, 2008, the Michael E. DeBakey International Surgical Society honored Dr Cooley with an honorary membership and a lifetime achievement award (Figure 5). At that event, Dr DeBakey stated, "I don't think I could have made it without Dr Cooley; in fact, I know I couldn't."²⁷ Dr DeBakey died on July 11, 2008, only 2 months before his 100th birthday. Both Drs DeBakey and Cooley have stated publicly, as well as in writing, that their historic feud pushed each to rise to greater heights and accomplish more than they might have otherwise. In his memoir titled *100,000 Hearts*, Dr Cooley writes, "Ironically, I think our historic rivalry enhanced his reputation as well as mine, serving both of our careers well. Most of all, our competitiveness benefitted the Texas Medical Center and its patients. For me, that is the greatest good that could have come from it all."²⁷

I don't believe that we should in any way embrace "feuding"; however, the positive aspects of competition simply cannot be ignored, even in this age of political correctness. Dr DeBakey, in his presidential address to the 39th Annual Meeting of The American Association for Thoracic Surgery, implied that precision is critical in all aspects of the technical details of a cardiovascular surgical procedure, and technical errors, which in other fields of surgery might be considered insignificant, in cardiovascular surgery can make the difference between life and death. He stated, "a surgeon must be willing to put forth the necessary effort

FIGURE 5. Photo of Michael E. DeBakey and Denton A. Cooley taken at the 2008 Joint Session of the 6th Current Trends in Cardiothoracic Surgery Conference and the 17th Congress of the Michael E. DeBakey International Surgical Society in Houston, Texas (2008). At this time, Dr DeBakey honored Dr Cooley with membership in the DeBakey Society. Photo taken by Agapito Sanchez. Used with permission from Baylor College of Medicine.

to perfect and refine his technical precision and skill in carrying out difficult procedures if he wishes to attain the highest possible degree of success."²⁸

It is competition between the surgeon and the disease that led to the pioneering efforts and numerous contributions of a host of investigators over the past decades. I hope you will agree that the presentations at this 2016 meeting of The American Association for Thoracic Surgery represent the finest of surgical science and address the critical issues facing this generation and the next. The knowledge gained and shared will arm surgeons at all stages in their careers with information that will complement the technical aspects of our competitive challenge against disease. Going forward, we have an opportunity to embrace healthy competition to drive the advances that would make our predecessors proud and benefit our future generations of surgeons and patients. Healthy competition can be the fuel that drives us to expend enormous effort to overcome great challenges—to find a way or make a way—and to inspire subsequent generations to build on the resulting advances. You don't have to be Rasputin to predict that the tsunami of work and volume facing our specialty in a very few years will require more than just an increase in our numbers.

One final point: As we shower honor and praise upon cardiovascular surgical pioneers, I think it is worth remembering that the unsung heroes in the entire process are the brave patients and their families. Examples include Esperanza Del Valle Vasquez,¹ in whom Dr DeBakey implanted the first left ventricular assist device in 1966; Louis Washkansky from Cape Town, who underwent the first heart transplant in 1967; Everett Thomas, who in 1968 underwent the first heart transplant in the United States; and Barney Clark, a Seattle dentist who became the first human recipient of a permanent artificial heart in 1982.²⁹⁻³³ These are

just a few of the many thousands of patients who willingly contributed to the advancement of surgical knowledge, technology, and cardiovascular medicine. As we praise the giants upon whose shoulders we stand, we should respectfully remember their patients' contributions and self-sacrifices, as well.

I sincerely appreciate your attention this morning, and the opportunity to serve as president of The American Association for Thoracic Surgery. Thank you.

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