It has been an honor and a privilege to serve as your president during the past year. This society has shown exceptional growth, and it has provided a strong national forum for all practicing surgeons devoted to the art and science of vascular surgery.

One of the highlights of our annual meeting has been the presidential address, which has reflected on our past, dealt with our daily surgical practice, and helped to plan our future. In recent years, we have heard about surgical heroes and surgical education, and we have heard arguments on why we should continue doing what we do best: vascular surgery. Two years ago, President McCart even rearranged the “deck chairs on the Titanic” in an effort to keep the sinking boat of modern health care from being brought down by the rigid rules of HMOs and PPOs.

The topic I have selected is somewhat different, but it was an obvious choice for me. Today, I want to talk to you about art—about art and its relation to medicine and the clinical art of vascular surgery. Not science, but art. This thought is condensed into one beautiful line by American poet John Ciardi: “Where science touches man, it turns to art.”

Art in My Life

Art affected me much earlier than science. To tell you how, I have to share with you some details of my personal life. My first acquaintance with art was with a peculiar and mysterious form of the performing arts—magic. I was 10 years old and fascinated by a magic show given by a physician, a colleague of my father and a longtime member of the Amateur Magician’s Association in Budapest, Hungary. The tricks I liked most involved manual dexterity. The vanishing and reappearing coins and the magician’s clever card tricks inspired and excited me so much that I started practicing magic day and night. The magician, Dr Sandor Takats, became my first teacher, and he gave me my first books on magic. Soon, I found my world-class role model in magic: Harry Houdini. I was fascinated by the life and accomplishments of the world’s greatest and most mystifying magician and escape artist (Fig 1). The illusions he performed were incredible—handcuff escapes, rope escapes, disappearing elephants, walking through brick walls, and escapes from milk cans. In 1912 in New York, he did one of his most daring escapes ever. He was manacled with leg irons, handcuffed, and placed in a large wooden box that was then nailed with 36 wire nails and banded with iron. The box was weighted down with 200 pounds of lead and lowered from a barge down a chute into the East River. Almost 1 minute later Houdini surfaced, free of all manacles. Somehow, he had escaped from the box without either drawing a breath or removing a nail.
Houdini was a genius, a great role model, a world-class artist, a unique showman, and a bold adventurer. My admiration for his art resulted in my very first science project. Houdini’s father was a rabbi who immigrated to the United States from Hungary in 1874. Houdini always maintained that he was born in Appleton, Wis, on April 6, 1874. With members of the American Society of Magicians, who came to Budapest, I researched the birth certificates in the registry of the Pest Jewish Congregation and found that the fifth son of Samuel and Cecilia Weisz was born in Budapest on March 24, 1874. His name was Erik Weisz, later known to the world as Harry Houdini. I was very proud of Erik (his name was later changed to Ehrich Weiss), who came from Hungary to this magnificent country and became the world’s most famous magician. At age 14, I wanted to do the same.

When I turned 18, I had to make my first real choice between art and science. My mother loved magic, and my father wanted me to study medicine. I was already quite an accomplished magician, but I decided to enter the Semmelweis Medical School in Budapest. I have never regretted this decision. My role models changed as I learned more about medicine and recognized in my father the character of a true physician: expert and compassionate care and love of his patients, honesty, hard work, and the courage to stick to his principles. In communist Hungary, he insisted on sending his four sons to a Benedictine school at Pannonhalma, to give us the best education.

As a surgical resident in Budapest, my life became once again very close to the performing arts. This time the art was not magic, but it was the beginning of my lifelong friendship with my wife, Marta, without whom I would not be at this podium. Marta studied in the Academy of Dramatic Arts in Budapest and later, as a professional actress, had roles in dozens of plays, many by Shakespeare and Chekhov. With our move to the United States and the birth of our wonderful children, Peter and Julia, her interest in the arts has changed. First, the number of her paintings on the walls in our house increased, and then painting was traded for her ultimate love, ceramic art. She now finds tremendous satisfaction in working with clay and expressing her emotions in ceramic pieces. So, I live with art, I am surrounded by art, and in many forms art is very close to my heart.
What Is Art?

In doing my research for this presentation I found that defining art was most difficult. Skill is definitely a major part of art, and for some that is the first meaning of art. The dictionary tells you that art is skill and imagination, the creation of an aesthetic object, the creation of environments and experiences.7

A few weeks ago, I met a young art student from New York. She came to my office complaining of pain and numbness in her right arm after painting on her canvas. I asked her what art really meant to her. Her eyes opened wide, and suddenly she started to smile and said, “Art is passion. Art is everything.”

Art is also a mode of expression, categorized by the medium used or by the form of the product; thus, we speak of painting, sculpture, ceramics, filmmaking, music, or dance.7 All of these may have tremendous power because they affect the essence of our human being: our emotions.

Art inspires all of us. How can you not be affected by listening to Vivaldi’s The Four Seasons, to Beethoven’s Ninth Symphony, or to “All You Need Is Love” from the Beatles? How can you not be impressed by the masterpieces of Michelangelo and Leonardo da Vinci? We can only admire the grace and courage of David and the beauty of Mona Lisa; we can feel the love and the burning desire while looking at a statue by Rodin; and we can relive the depression and sorrow in the paintings of Piet Mondrian.
Art and Medicine

Art has many connections with medicine, with our patients, and with our hospitals. Art objects humanize the environment, they have a healing power, and they provide diversion, inspiration, and enjoyment for our patients. Art is present in our architecture, landscaping, and interior design. It is present in the sculptures and the paintings in our waiting areas and hallways. Children’s art also has become important in many pediatric hospitals. Our new pediatric hospital features children’s drawings on ceramic tiles.

Visual and performing arts are used at our institution and elsewhere to combine arts with the ethics of medicine in an effort to foster compassion, sensitivity, and insight into patient-physician relationships and also to support collegiality among physicians. The goal of the work done in the Mayo Center for Humanities in Medicine comes from the ideal of the Mayo Clinic that the needs of the patient come first. Events organized by the center have included stage plays, with well-known actors such as Jason Robards helping to answer a key question in medicine: “What does it feel like to be a patient?” We have poetry readings, guest lectures, musical performances, and art exhibits, such as the recent staging of several sculptures by a Mayo alumnus, the late surgeon Dr Kaare Nygaard (Fig 2).

Creativity and Illness

The way art affects patients and illnesses, patients and illnesses also affect art. In an inspiring book on creativity and disease, Dr Philip Sandblom, a Swedish surgeon and president of the University of Lund, showed us how illness affected the work of writers, artists, and composers.

Illness has exerted great effects on artists and contributed to masterpieces and unforgettable experiences. A drawing by Maclise of the violin virtuoso Paganini shows the hyperflexible joints of the artist typical of his congenital disease, Ehlers-Danlos syndrome. His illness constituted the basis for his virtuosity and enabled him to perform the astonishing double-stoppings and roulades for which he was famous.

Late in his life, the great impressionist Monet developed cataracts, an illness that clearly affects visual arts. Monet’s paintings before and after his eye problems were distinctly different. One wonders how the deafness of Beethoven, who had Paget’s disease, affected his compositions. In Gauguin’s work the association of disease and artistic performance is clear; his manic-depressive attacks were reflected in his paintings.

Physicians in Art

Physicians and surgeons have contributed to the visual and performing arts for centuries. For some, art became more important than medicine. These include the poet John Keats, who was Sir Astley Cooper’s student at St Thomas’s Hospital in London, where his most frequently quoted line, “A thing of beauty is a joy for ever,” was created. The poet Friedrich Schiller, the playwright Chekhov, and the novelist Somerset Maugham were physicians. Others have taken both surgery and art very seri-
ously, such as Joe Wilder, who with his colorful and emotional paintings of surgeons and operations gave our profession special recognition.12

Finally, to stay in my own area of performing arts, for some surgeons art meant a wonderful hobby that enriched their lives and entertained people, patients, and physicians alike. Dr Oliver Beahrs, past president of the American College of Surgeons and one of the most skillful, if not the most skillful, surgeon the Mayo Clinic has ever had, has been performing astonishing magic shows throughout his life (Fig 3).

Art and Surgery

In our surgical history, art has helped us preserve our heritage and understand our past. Ira Rutkow’s wonderfully illustrated books on the history of surgery are great resources of paintings and drawings, telling us about diseases, surgeons, and surgical procedures performed by our forefathers.13,14

Art, in the form of medical illustrations, plays an important role in our academic activities. Medical artists have contributed to our profession for centuries, from the magnificent woodcuts in the masterpiece of Vesalius, De Humani Corporis Fabrica, to the beautifully detailed medical illustrations by the great medical illustrator of the 20th century, Dr Frank H. Netter. We should also give credit to current-day illustrators of our vascular surgery atlases—Perrin Sparks Smith, who worked with Stanley Crawford15; Lori Manzardo, who illustrated for Berguer and Kieffer16; John Foerster, Dr Rutherford’s medical artist.17 Our own institution has a division of medical illustrators, including Bob Benassi, David Factor, and John Hagen, who have done an extraordinary job in helping our presentations.

Art or Science

Finally, let’s talk about art in our profession, about the clinical art. Is medicine or surgery art or science? Can one be separated from the other? Raymond Chandler said “There are two kinds of truth; the truth that lights the way and the truth that warms the heart. The first is science, and the second is art.”

Nobel Prize–winner Roger Sperry maintained that in people the left hemisphere processes logical thinking, whereas the right hemisphere processes imaginative thinking.18 Therefore, artistic, intuitive people are right-hemisphere thinkers, and people who are scientific and analytical are left-hemisphere thinkers. The renaissance idea of whole-brain thinking is to combine science and art, emphasizing the interdependence of these two disciplines.19

Leonardo da Vinci, the greatest genius of all time, maintained that science is always indispensable, but never sufficient. Better than anyone, he could balance analysis and intuition, seriousness and play, planning and improvisation, art and science. Leonardo also said that “those who become enamoured in arts, without having previously applied to the diligent study of the scientific part of it, may be compared to mariners who put to sea without rudders or compass and therefore cannot be certain of arriving at the wished for port.”19

I believe what Osler said was true: “The practice in medicine is an art, based on science.”20

The harmonious interrelationship between medicine and science, quality and quantity, practitioners and academicians was analyzed in detail in an emotional presidential address by Jim Foster.21

The Clinical Art of Vascular Surgery

As vascular surgeons, we are dedicated to practicing the clinical art of vascular surgery. Science is, however, indispensable for developing new therapies and providing data on the effectiveness of our interventions. Emerging technology is important for us to deliver effective, modern, and also minimally invasive care. But the decisions of how and when to use science and technology are in our hands, and these decisions require sound judgment and surgical intuition.
To practice our clinical art, a surgeon has to be both a compassionate clinician and a skillful and competent master of surgery. At the Mayo Clinic each year our peers select three distinguished clinicians. One of the recent recipients, Dr Edward Rosenow, listed six characteristics of a distinguished clinician: consistency, intuition, sensitivity, attitude, communication, and caring. Consistency means consistently good behavior, with reliability, predictability, and a strong work ethic. Dr Will Mayo called intuition a sixth sense. It is an intrinsic system of ethics that allows the physician to always do what is best for the patient. Sensitivity, or empathy, can be described as a lack of arrogance, because arrogance destroys the relationship between the physician and the patient. A positive attitude brings security to the patients and conveys confidence. Communication through actions or words is imperative. Good communication skill is an art, with an important component being to listen to the patient. Eye-to-eye contact, appropriate touch, a smile, and unhurried examinations are all part of the ability to communicate. Character is really what we are and what we are doing when nobody is watching. Character involves establishing a trust with the patient, and integrity is the basis of the trust. Finally, caring for the patient is the essential quality of a physician. The platinum rule of medicine for Dr Rosenow is that we care for every patient like we would want our family to be cared for.

**Compassion, Commitment, and Competence**

To me, the main characteristics of a great surgeon are compassion, commitment, and competence. Sir Astley Cooper said, “A surgeon has an eye of an eagle, heart of a lion, hand of a woman and mind of a scholar.” The surgeon must learn how to operate. A competent surgeon must know what has to be done and can do it effectively. Vascular surgery can offer great technical challenges, from microvascular anastomoses to thoracoabdominal aortic repairs, from aortic and visceral revascularizations to various venous reconstructions. I love new and minimally invasive technology, and I have a confession to make—I also like aortic endografts. But nothing is more rewarding than to heal visible disease or disability; to heal a painful ulcer or a bad-looking gangrene by revascularizing an ischemic leg and removing the necrotic and infected parts and finishing up with a functional foot suitable again for ambulation.

Technique and skill are most important, but they are not enough. As Horsley said, “The career of a surgeon who merely is a cutter is of very doubtful benefit to himself and to humanity.” To be competent, we need to learn from our mentors and learn from our peers. A surgeon’s approach to surgery is not his or hers alone but is a composite of the best of which one has seen and learned in the course of educational experience. This education includes our institutional experience, and also our heritage. I, like so many of my colleagues, have been greatly influenced by the spirit of Mayo Clinic’s founding fathers, the Mayo family, who gave us our primary value, that the best interest of the patient is the only interest considered.

To practice our clinical art, a surgeon has to be both a compassionate clinician and a skillful and competent master of surgery. At the Mayo Clinic each year our peers select three distinguished clinicians. One of the recent recipients, Dr Edward Rosenow, listed six characteristics of a distinguished clinician: consistency, intuition, sensitivity, attitude, communication, and caring. Consistency means consistently good behavior, with reliability, predictability, and a strong work ethic. Dr Will Mayo called intuition a sixth sense. It is an intrinsic system of ethics that allows the physician to always do what is best for the patient. Sensitivity, or empathy, can be described as a lack of arrogance, because arrogance destroys the relationship between the physician and the patient. A positive attitude brings security to the patients and conveys confidence. Communication through actions or words is imperative. Good communication skill is an art, with an important component being to listen to the patient. Eye-to-eye contact, appropriate touch, a smile, and unhurried examinations are all part of the ability to communicate. Character is really what we are and what we are doing when nobody is watching. Character involves establishing a trust with the patient, and integrity is the basis of the trust. Finally, caring for the patient is the essential quality of a physician. The platinum rule of medicine for Dr Rosenow is that we care for every patient like we would want our family to be cared for.22

To be competent, we need skillful surgical mentors. If you want to learn to golf, you’d want to learn it from Jack Nicklaus or from Tiger Woods. Professor Soltesz, pioneer surgeon and founder of vascular surgery in Hungary (Fig 5), was a great mentor to me during my surgical residency. My true role model in vascular surgery, however, could not have been anyone other than the Hungarian-born D. Emerick Szilagyi. I was also extremely fortunate to have the best mentors at the Mayo Clinic. I would not be where I am without my teacher and friend Larry H. Hollier, and I also owe a lot to another great surgeon, Peter C. Pairolero.

If you have completed your training, the way to keep up your competence is by teaching. Nothing is more satisfying than, year after year, training talented young surgeons who then become your friends and continue to build on what you have started. I am greatly impressed by how many of our previous fellows are here with us today.

A good surgeon should have the commitment to perform long and hard operations with attention to details to the last minute. Commitment separates the doers from the dreamers; it starts from the heart and is tested by action. When Michaelangelo was asked why he was working so diligently on a dark corner of the Sistine chapel, which no one would ever see, his reply was: “God will see.” As Michael Jordan said, “Heart is what separates the good from the great.”

Compassion, commitment, competence. To me, the most important is compassion. Compassion is love of the patient and care for the patient. Some of the greatest surgeons I have known have been the most compassionate physicians. To illustrate this, let me read you a few lines that a nurse, Sister Cashel Weiler, wrote about the late cardiac surgeon Dwight McGoon, one of the greatest men and master surgeons the Mayo Clinic has ever known. This is how Sister Cashel Weiler remembered him:

One that is always uppermost in my mind when I think of him, is that of his attention to the comfort of his patients. He did not waste time on rounds, but his rounds always lasted longer than other cardiac surgeons. One of
the reasons was that he always took time to fluff up the patient’s pillows, among many things. He would make sure the patient was comfortable after placing the pillow under the patient’s head and shoulder. Another thing he did on rounds was to bring the patient fresh water, if needed. Ice was not available at that time, or pitchers that would keep water cool. So Dr McGoon, in filling the patient’s glass, would run the water in the bathroom, and make sure it was cold before returning it to the patient. It seemed that everything he did, he did well whether it was giving the patient water, sewing a valve in the heart or presenting a program.

The Art Spirit

American artist and teacher Robert Henri, in a beautiful book entitled The Art Spirit, published in 1923, described his beliefs that everyone is vitally concerned with the happiness and wisdom to be found through the arts. He wrote, “A museum of art will not make a country an art country. But where there is an art spirit there will be precious works to fill the museums. Better still, there will be happiness that is in the making.”

When you leave today, I want you to remember these three words: the art spirit. I am asking you to take the art spirit with you, to your hospitals, to your offices, and to your operating rooms. And when you reach out for your patient, when you treat his or her disease, remember that technology is here only to help, that science is necessary to discover treatment and to prove benefit, but that the decisions of when and how to treat your patient are yours. And you, a compassionate and competent surgeon, you are committed to providing your patient the best possible care. You perform a skillful and ingenious operation, but your goal is also to do no harm, and you want to treat your patient as you would want someone to treat a member of your own family. This is what I would call our mission and our clinical art. Not science, but art. Because, as the poet said, “Where science touches man, it turns to art.”

REFERENCES

Submitted Apr 13, 2000; accepted Apr 25, 2000.
Sixteen-year-old Lena has lived near the water her whole life, watching her father carefully avoid touching the ocean and obeying his demands that she stay close to the shore. Now, however, she’s done waiting for her father to get on board with the idea of her surfing.

A corporate author may include a commission, a committee, a government agency, or a group that does not identify individual members on the title page. List the names of corporate authors in the place where an author’s name typically appears at the beginning of the entry.


Scientists and physicians demonstrated to the whole world the need for international cooperation in their fields, as well as the importance of rapidly exchanging information and educating the general public. We believe that Russia, so far, has missed the opportunity to unite scientists and scholars with the rest of society in the fight against the pandemic. Consequently, the country has not tapped a powerful resource for reducing international tensions through cooperation against the coronavirus. Instead, we witness attempts to lead Russia down a path of isolation by actively mobilizing its ci

My presidential address identifies the pathways to disadvantage that complicate our understanding of purposive action. The article explains that (1) first, deception can deepen inequality; (2) disadvantages can emerge in midcourse, as new and unanticipated virtue of what other policy commissions across the globe are doing about the same social problem. Finally, (5) when there is an unlucky turn of events that leads to a deepening of disadvantage, its consequences depend on more than mere chance to make those disadvantages durable. My article concludes with a brief discussion of the implications for reparations and repair. While these pathways may not be exhaustive, they systematize the sociological intuition that things are not as they appear.