Michael E. DeBakey, 1908 to 2008

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Michael Ellis DeBakey, MD

Dr Michael Ellis DeBakey—surgeon, scientist, and teacher—died suddenly at home on July 11, 2008, at the age of 99 years—2 months before his 100th birthday. Dr DeBakey, Chancellor Emeritus of Baylor College of Medicine, was a preeminent and predominant force in the development of the field of cardiovascular surgery in the twentieth century.

Born in Lake Charles, Louisiana, on September 7, 1908, Dr DeBakey was the son of Lebanese immigrants. His parents instilled in him the virtues of learning, pursuit of excellence, dedication, self-discipline, and the abhorrence of wasting time. His ability to organize every facet of his life contributed greatly to his success. In addition to performing 60,000 surgical operations during his long and constantly productive career, Dr DeBakey published more than 1600 medical articles, chapters, and books on various aspects of surgery and medicine, as well as ethical, socioeconomic, and philosophic essays. In this effort, he was aided by his sisters Selma and Lois DeBakey, who were pioneers in the field of professional medical writing and editing. Dr DeBakey's lifelong love and study of music and literature, particularly poetry, gave him a unique perspective in his writing. His productivity attests to an exceptionally rare degree of self-discipline. "Inattention to detail is the hallmark of mediocrity" was a frequent exhortation to his many trainees.

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Because his father owned 2 pharmacies, Dr DeBakey was exposed to the world of medicine early in life, and he decided in his youth that he wanted to become a doctor. To that end, he earned his bachelor's degree, master of science, and medical degree at Tulane University and Medical School in New Orleans, where he graduated with high honors. While a medical student, he was mentored by Surgery Department Chairman Dr Alton Oschner, with whom Dr DeBakey published several scientific articles, including one of the first to associate lung cancer with smoking. Dr DeBakey told me that one of his other activities as a medical student was to organize the library of Dr Rudolph Matas, the pioneer of aneurysm surgery. He helped Dr Matas by translating journal articles into English from French, a language in which Dr DeBakey was fluent. One of the benefits of this effort was a front-row seat for the annual New Orleans' Mardi Gras parade, which passed in front of the Matas' home.

Also while a medical student, Dr DeBakey developed a roller pump intended to facilitate blood transfusion. This pump was eventually incorporated into Dr John Gibbon's revolutionary heart-lung machine, and the technology remains in use today. By the time Dr DeBakey graduated from medical school in 1932, he had achieved a great deal. He went on to complete a 2-year surgical training program at New Orleans' Charity Hospital and then spent an additional 2 years training in Europe, first with Dr René Leriche, the world's leading expert in vascular surgery, in Strasbourg, France, and then with Dr Martin Kirschner in Heidelberg, Germany, at a center recognized for outstanding surgical education. Afterward, Dr DeBakey returned to Tulane, where he became an instructor in the Department of Surgery under Dr Alton Oschner.

When World War II began, Dr DeBakey volunteered his services to the military and was assigned to work in the surgeon general's office. During his 4 years of service, he earned the rank of colonel and championed the development of what eventually became known as Mobile Army Surgical Hospitals (MASH). For this innovation, Dr DeBakey received the Army's Legion of Merit medal in 1945. Also during his service, Dr DeBakey found that the Army's medical library, although excellent, required better facilities. After World War II, as a member of the Task Force on Medical Services of the Hoover Commission, he led a movement to establish a much-needed national library for medical articles. This culminated in the establishment of the National Library of Medicine on June 12, 1959. Dr DeBakey served on its first Board of Regents, and he was later appointed Chairman of its Board of Regents.

In 1944, Baylor University College of Medicine relocated from Dallas to Houston. In 1948, Baylor administrators

asked Dr DeBakey to join its faculty as Chairman of the Surgery Department. At the time, Dr DeBakey considered Baylor to be a third-rate medical school, but Dr Ochsner encouraged him to consider the offer, because Houston's Texas Medical Center seemed to have a promising future. Because of Dr Ochsner's encouragement, Dr DeBakey accepted Baylor's third offer, but only after he was told that a clinical service would be established for him in a nearby hospital. When that did not happen, Dr DeBakey considered returning to Tulane but, instead, decided to take matters into his own hands. His affiliation with the Hoover Commission helped him establish a large Veterans' Administration hospital in Houston. This institution, coupled with an affiliation with the Jefferson Davis Charity Hospital, gave him his clinical service. Both hospitals became fully staffed Baylor teaching facilities, and Dr DeBakey remained in Houston. (In 2003, that now preeminent Veterans' Administration hospital was renamed for him.) As a result of Dr DeBakey's extraordinary administrative talents and leadership, in less than 10 years Baylor became one of the leading medical schools in the country.

Dr DeBakey's interests, abilities, and energy were applied to many areas. Shortly after his arrival in Houston, he introduced the surgical repair of aortic aneurysms. Initially, such aneurysms were repaired with aortic homografts, but their availability was limited. Therefore, Dr DeBakey began to explore the use of commercial materials for aortic replacement. The story of his making the first such graft on his wife's sewing machine, using Dacron purchased at a local department store, is well-known. (Ironically, a Dacron graft was used to save his own life in January of 2006 after he underwent emergency surgery for an acute ascending aortic dissection performed by his long-time assistant Dr. George Noon.) In addition to his personal achievements, Dr DeBakey recruited an outstanding and productive staff. He and his team were responsible for many important surgical innovations, including techniques for treating coronary and carotid artery disease, as well as aortic aneurysmal and occlusive disease. As a result of his efforts, by the mid-1950s Houston had become the world's most important center for cardiovascular surgery.

In the early 1960s, Dr DeBakey began research in the area of artificial hearts and mechanical cardiac-assist devices. His belief in the therapeutic potential of such devices was grounded in the proven value of the temporary replacement of cardiac function in routine cardiopulmonary bypass, and in his observation that simply prolonging cardiopulmonary bypass sometimes enabled the heart to recover from postcardiotomy failure. Dr DeBakey also believed that the complexity of developing such devices required government funding, and, in 1963, he testified before Congress regarding the need for a program to develop an artificial heart. His testimony was instrumental in convincing the National Institutes of Health to establish the Artificial Heart Program in 1964.

At Baylor, Dr DeBakey assembled a team of top physicians and scientists to develop cardiac-assist devices and total artificial hearts. The Baylor surgical laboratories quickly became a leading center for such research. Among their inventions was a pneumatically powered ventricular assist device (VAD) that, after successful animal trials, was the first to be implanted in a patient with postcardiotomy shock in 1963. The VAD supported the patient for 4 days until he died of causes unrelated to the device. In 1966, a second, more sophisticated pneumatic pump developed at Baylor was implanted in a woman who also had postcardiotomy shock. The pump supported her for 10 days, after which she had recovered sufficiently for the device to be explanted. She lived for many years thereafter. This research culminated in the development of a total artificial heart, based on the design of their earlier VADs. A version of this pump was implanted clinically by Dr Denton Cooley in 1969, who, at the time, had been an associate of Dr DeBakey's.

In 1971, Dr DeBakey published a landmark article outlining the challenges for further development of cardiac support devices, which included a better blood biomaterials interface, less operative trauma, and a portable control mechanism that would allow patients to be discharged from the hospital. He did not become actively involved in this field again until the mid-1980s, when he and his colleagues began development of a small, continuous flow VAD, which was the first of this type to be implanted for chronic use. This pump, the MicroMed DeBakey Ventricular Assist Device (MicroMed Cardiovascular Inc, Houston, Tex), is now being used clinically in Europe. In the United States, it is approved for pediatric use and is in clinical trials for adult use.

Dr DeBakey's many accomplishments earned him a vast array of awards, which are too numerous to recount. Among the honors he valued highly were the American Medical Association's Distinguished Service Award in 1959, the Lasker Award in 1963, the Presidential Medal of Freedom in 1969, and the National Medal of Science in 1987. In 2000, he was declared a Living Legend by the Library of Congress. Most recently, in April of 2008, he was presented the Congressional Gold Medal, becoming only the third physician to receive this high honor, the first having been awarded to General George Washington in 1776. On his death, Dr DeBakey received one more honor—to be the first person ever to lie in repose in Houston's City Hall.

Dr DeBakey had a unique way of stimulating and inspiring his trainees and professional colleagues to achieve their full potential. He could be difficult, but his lessons left indelible imprints. His goals, however, were exemplary: to benefit the patient and to advance science and the medical profession. He taught his students that commitment to patients always came first and that there was no excuse for ineptitude or mediocrity. He did not expect difficulties to be overcome

without sacrifice and care to be given without compassion. Lack of dedication, no matter the personal cost, was never acceptable. I began my surgical career under Dr DeBakey's mentorship, and the principles that he instilled have influenced me throughout my career. On my 60th birthday, I happened to be at a meeting with Dr DeBakey. I will always remember what he said to mark that occasion: "Bud, now you must really start to work. Take every job you can, because the knowledge and wisdom you've gained can finally be put to some use."

Dr DeBakey's pursuit of perfection lasted throughout his long career. Recently, I was fortunate to become involved with him again on a project to develop a total artificial heart using 2 MicroMed DeBakey continuous flow pumps. At the age of 99 years, as sharp and dedicated as ever, he was ex-

cited about the potential of this new device. In fact, shortly before his death, we finalized plans to implant our newest experimental version of this pulseless total artificial heart. We had planned to scrub together in September to implant the device.

More than anyone I have ever known, Dr DeBakey clearly embodied the poet Dylan Thomas' admonition, "Do not go gentle into that good night." In his early 90s, he was stopped on a deserted Texas Hill Country road for driving more than 100 miles per hour. Just 3 months before his sudden, untimely and unexpected death, he bought a new Porsche. Dr DeBakey's life clearly outdid any fictional script that could have been written about him.

To paraphrase Hamlet, "We shall not look upon his like again."