

Harold James Charles (“Jeremy”) Swan, MD, PhD

James S. Forrester, MD*, Sanjay Kaul, MD, and Prediman K. Shah, MD, on behalf of the Cardiology Colleagues, Fellows, and Staff of H.J.C. Swan, MD, PhD

Jeremy Swan is best known to the current generation of physicians as the co-inventor of the Swan-Ganz catheter (Figure 1). Invented 37 years ago, the catheter allowed the measurement of cardiac output and pulmonary capillary pressure at the bedside for the first time, leading to development of the new discipline of bedside hemodynamic monitoring in critically ill patients. With the capacity to measure changes in cardiac function in response to therapy, the management of myocardial infarction, critical burn injuries, acute respiratory failure, and surgical anesthesia moved into the modern era.

One of 3 sons of 2 Irish Catholic doctors, Jeremy Swan was born in Sligo during the years of the Irish Revolution. At 17, he matriculated to St. Vincent’s College in Dublin, at a time when the German invasion of Eastern Europe was about to precipitate World War II. While in college, Jeremy lapsed into a coma and nearly died of meningitis, saved by the intervention of his mother, who administered sulfa drugs, the only effective antibiotic before Fleming’s discovery of penicillin. Jeremy graduated from St. Vincent’s in 1939 and moved on to the University of London for medical training. After graduation, Jeremy joined the Royal Air Force. In 1946, he found himself placed in a position of responsibility and authority as an acting squadron leader and medical specialist, with little previous training or experience, at a Royal Air Force hospital in central Iraq, an experience he described as “absolutely amazing for a green, wet behind the ears, 25 year old Irishman, with no military experience...or pretensions. How they ever accepted me I will never know, but they did and taught me the fundamental issues of one’s dependence on the support of staff.” Jeremy credited that critical experience with helping him hone the remarkable qualities of leadership that would characterize his subsequent career.

Returning from Iraq, Jeremy began his career in cardiology with his first mentor, the famed Sir Henry Barcroft. Together, they investigated the human vascular response to sympathomimetic agents.^{1,2} Published 60 years ago at the dawn of the era of cardiac catheterization in which he was a pioneer, these classic physiologic studies foreshadowed the research 3 decades later that led Jeremy to international acclaim. Jeremy’s landmark research caught the attention of Earl Wood, 1 of America’s leading cardiac physiologists.

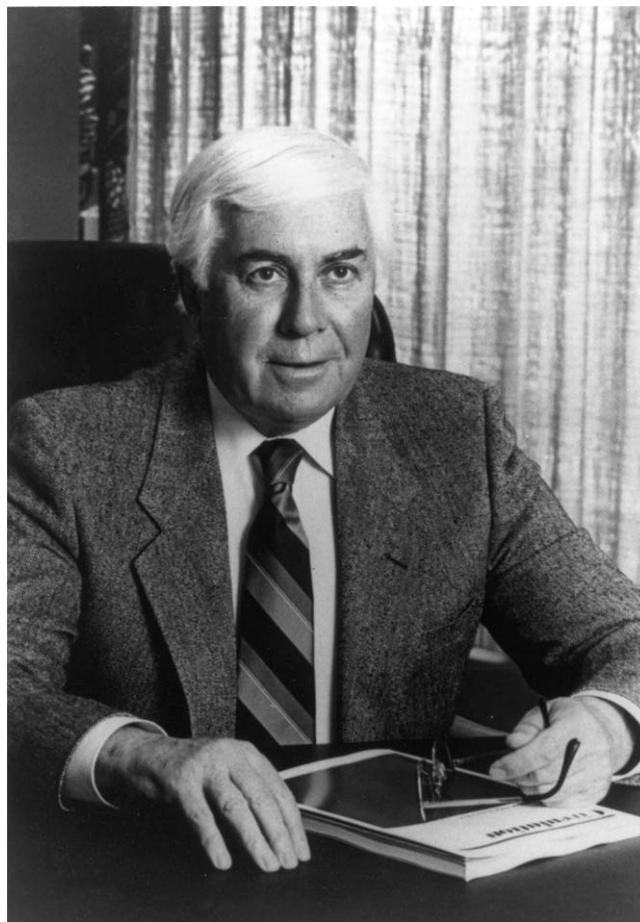


Figure 1. Harold James Charles (“Jeremy”) Swan, MD, PhD.

Wood approached Jeremy to join him at the Mayo Clinic in 1951. He and Wood began by defining the angiographic anatomy and physiology of congenital heart disease. His study with Zapata-Diaz, Burchell, and Wood,³ “Pulmonary Hypertension in Congenital Heart Disease,” became a classic. This work naturally evolved into the development of the indicator indocyanine green for the detection of intracardiac shunts using the indicator dye dilution technique. From that beginning, it was a short step to the use of the indicator dilution technique for the measurement of cardiac output. These accomplishments led to international recognition and to Jeremy’s appointment as director of the Mayo Clinic’s cardiac catheterization laboratory.

In 1965, with >100 peer-reviewed publications in basic and clinical cardiac physiology, Jeremy was recruited to be chief of cardiology at Cedars of Lebanon Hospital. At that time, Cedars was best known as the hospital of the movie

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stars,* with only a modest academic reputation.† The development of hemodynamic monitoring 3 years later brought international recognition to his fledgling division. To those who knew Jeremy in those years, he was an innovator with the charisma to attract bright young people to work with him, the intellectual brilliance to inspire them, and the wisdom to give everyone the freedom to pursue their own innovative ideas. Jeremy generated tremendous loyalty among this young cadre, as a father figure and as a caring, deeply principled physician. Of his tenure at Cedars, Jeremy said, “My time there was really one of the right person at the right place at the right time. What I was able to do, could not be done at any later time because of the changing organization structure and the funding of research. One’s personal success is dependent on the collective successes of your younger people and how you can direct and train them. I regard my job as one that made it possible for my younger faculty members and the cardiovascular trainees and fellows, to do their very best and protect them from intervention. Cedars was very good to me. I could not have achieved anything like as much in London, or at the Mayo.”

Jeremy’s lucidity and his compelling ability to express ideas also helped shape the mission of the American College of Cardiology during his >40 years of service. In 1973, Jeremy was elected president of the college, and along with Eliot Corday, MD, played a central role in the creation of the Heart House in Bethesda, Maryland. After he retired as chief of the Division of Cardiology at Cedars-Sinai Medical Center in 1987, Jeremy was repeatedly honored by the college for his many lifetime contributions. He was named distinguished fellow in 1985, received the Distinguished Service Award in 1999, was named a master of the college in 2001, and received its highest academic award, for distinguished scientific achievement, in 2003. Jeremy was honored by the Walter Dixon Memorial Award of the British Medical Association, the Maimonides Award of the State of Israel, the Herrick Award for Outstanding Achievement in Clinical Cardiology from the American Heart Association, and the Theodore Cummings Humanitarian Award from Cedars-Sinai and was named a master of the American College of Cardiology and of the American College of Chest Physicians. Perhaps his most treasured honor was the annual Stokes Lecture and the honorary doctorate he received at Trinity College Dublin, where he had trained so many years before.

In his early years at Cedars-Sinai, Jeremy met Roma Shahbaglian. Those who were at their marriage saw Jeremy become complete. For many years, Roma and Jeremy became 1 of cardiology’s most visible and most beloved couples. Jeremy’s personal life, however, was not without tragedy. In the early 1990s, his beloved daughter Katherine,

a beautiful, compassionate young Harvard physician, died after a heroic struggle with metastatic cervical cancer, which had been missed on an earlier Pap smear. Jeremy wrote about the struggle in the most poignant eulogy we have ever read, titled “Kath,”⁴ and published in the *Annals of Internal Medicine* in 1992. The eulogy ends with by quoting a note Jeremy received from his friend Charlie Hennekens: “Contrary to outside opinion, we who have had the pleasure and privilege to know you, also know that Jeremy Swan’s greatest contribution to this world was not the catheter but the Katherine.” To which Jeremy replied, “Right on, Charlie.”

The second great tragedy of Jeremy’s life was the stroke he suffered in 2001. Jeremy recognized the onset of progressive symptoms immediately. He was able to walk into a nearby hospital that claimed to have an early stroke treatment program, where he had a computed tomographic scan that revealed a treatable condition. A series of delays, however, led to Jeremy lying acutely aware of his developing paralysis beyond the point at which thrombolytic therapy might have been effective. After his stroke, Jeremy had a severe residual hemiparesis. Despite his physical limitations, his intellect remained sharp and clear, and Jeremy continued to mentor young doctors when they dropped by the house to visit.

Jeremy served as a mentor to many younger cardiologists, on whose behalf we write. Many on his staff went on to achieve substantial international reputations. For those who dealt with him in his 22 years as chief of cardiology, his Irish wit and his Irish temper were legendary. He could converse on music, poetry, religion, culture, history, philosophy, and politics and hold his own in any company. No doubt everyone who knew him carries different memories of our years with Jeremy, but all of us would agree that he was among the most remarkable men we have met in our lifetimes. His passing on February 7, 2006, just months after his final publication,⁵ brought to an end an illustrious career. Jeremy Swan, teacher, scientist, and compassionate physician, indeed met what Walter Lippman once called the final test of a leader: he leaves behind him in other men the conviction and the will to carry on.

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* Quotes are from an oral history recorded on videotape by Jeremy at Cedars-Sinai Medical Center.

† Cedars of Lebanon Hospital was, however, already known for having one of the finest coronary care units in the country.

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