



## IN MEMORIAM

Arnold St. Jacques Lee  
Professor of Anesthesiology, Emeritus  
Los Angeles  
1921 — 2000

Arnold St. Jacques Lee was intent from the moment of his arrival to have profound impact on the Department of Anesthesiology at UCLA by designing, inventing and influencing the instrumentation underlying peri-operative patient care as well as a wide range of laboratory instruments. He is remembered with affection for his generosity of spirit and for numerous deeds couched in an uncompromising, seemingly unpredictable, and often undiplomatic style, rare even in academic circles. Arnold was clearly an original; touched by genius, undaunted by obstacles, and impatient with delays. He was guided throughout his career by a truly philanthropic idiosyncratic manner that was immediate, often overwhelming, usually cunningly eccentric and mischievously confrontational, not because he was ill-tempered, but rather because he enjoyed observing the fireworks. Not surprisingly he was generally described as a ‘curmudgeon’. It served him quite well in continually attracting a wide coterie of friends of remarkable diversity and he exuded joy in serving them with kind deeds that extended from his desire to feed their minds, their personal needs and especially their enjoyment of food. In all that he did, striving for excellence verging on perfection pervaded his efforts, and virtually everyone who knew and worked with him was recipient of his skills as an imaginative cook, bread-baker and maker of gizmos, ranging from the ‘wacko’ to the indispensable. He described his role in life as that of a “Professional Engineer” with the mission of using his gifts to altruistic ends as broadly as possible.

He was born in Brooklyn, NY on October 30, 1921, and grew up on a farm in rural New Jersey, the irascible son of a strong-minded Russian immigrant father with whom he established the style of combativeness mixed with affection that dominated his life. He obtained his education in mechanical engineering at Lehigh University and received a BA in science after his wartime army service at Temple University where he was taken under the wing of the professor of Medical Physics. Arnold started as a lab technician who soon became the physicist that reshaped the activities of the neurologists and neurosurgeons, Spiegel and Wycis, designing and building the earliest human stereotaxic apparatuses, later devising more sophisticated models for Philadelphia brain surgeons George Austin and Francis C. Grant and later in New York a skull-attached model for Irving Cooper for whom he designed, built and patented the first successful cryosurgical instrument, the “cryoprobe”; the original can be found on permanent exhibit in the Smithsonian Institution in Washington, DC.

Thus began the career of one of the earliest ‘bioengineers’ before the term entered common usage, but the description he identified with in a productive career of amazing diversity. It included several forays into the business world of engineering including design, construction and measurement of highly accurate linear potentiometers for what became Litton Industries and in Bomarc accelerometer development for Boeing. The remainder of his career was largely devoted to instrumentation for hospital operating rooms and medical research. In 1965 he founded a Medical Instrumentation Laboratory at Columbia University’s College of Physicians and Surgeons and established modern standards of safety and design at Presbyterian Hospital.

The sojourn at Columbia also led to the great romance of his life, meeting an exceptional Anesthesiology resident, Dr. Shirley Markee, whom he married and who lured him to California (initially to Stanford), and ultimately to Los Angeles at a time when the UCLA Department of Anesthesiology was undergoing a sweeping transformation, with a new chairman recruited from Columbia University. Some of the OR

instrumentation developed were love tokens for Shirley, supplements to the inventive, and sometimes weird lunches he prepared for her at 4:30 AM for the rest of his life. He designed and built a new advanced respirator, a long- term infusion system for automated drug delivery, and devices for automatic, indirect monitoring and display of blood pressure. He also obtained several important patents for ballistocardiography and electroencephalography. The impact of these and other instruments as well as the numerous patents developed by Arnold did much to change anesthesiology instrumentation in surgical facilities throughout the US, but his greatest delight was in educating the residents and especially the senior faculty and their laboratory research projects. These include precise measurement of muscular relaxant effects and applying them during anesthesia (with RLK); a variety of valves and flow- meters that led to a new approach to ventilation- perfusion distribution and its relation to blood gas tensions (with RDF); and a device for measuring intraneurial pressure for models of inflammatory injury in compressed peripheral nerves (for LK). The last series of patents were aimed at developing a home medical surveillance system, by telephonic connection initially, for non- invasively monitoring such things as blood glucose for the home- bound geriatric population. These projects were pursued in his latter years as an emeritus professor of anesthesiology, without (as he insisted) remuneration.

His teaching throughout his career was one- on- one and ranged from high school kids in the labs to the department chairs; consistently demanding, brilliant, funny, cranky and inspiring. Arnold's legacy includes legendary accounts of how he singularly influenced clinical anesthesiology techniques, the admiration and thanks of his many colleagues who became his devoted friends, and the love of his wife Shirley, who continues to practice anesthesiology at its best, happily surrounded by instruments bearing Arnold's imprimatur.

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