Standards Topics



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A Tribute to Dr. Nathan Feldstein: 1937-1996

It is with great sadness that I write This small tribute to one of the most prolific innovators of our industry, Nat Feldstein. There are many attributes that can be used to describe Nat. The two that lead the list are friendliness—he offered friendship without reservation—and honesty for those of us who dealt with him on both a personal and business basis he was an absolute "straight-arrow."

I met Nat in 1968 at the first AES "Plating in the Electronics Industry" symposium. Nat was there for RCA and I was there for IBM. We hit it off right away. Our common ground, of course, was our intense interest in electroless nickel. At the outset we agreed that this coating had a potential to become one of the most important coatings in the industry.

Nat was born in 1937, in the British Protectorate of Palestine, now Israel. He grew up in very dangerous times and was only 11 years old when Israel declared its statehood in 1948. He did not talk very much about the warfare that raged about him, merely saying that he did what he had to do. In 1954, when Nat was only 17, he and his mother moved to the United States, so Nat finished his last year of high school at Boys High School in New York City. He was an outstanding student, and with only one year in a new school system, won the top prize in chemistry.

Nat received his BS and MS at the City College of New York, majoring in chemistry. He was drafted into the U.S. Army and stationed in Panama, where he was assigned as an instructor in chemistry. During a routine physical exam in Panama, the Army doctors discovered that Nat was blind in one eye and never should have been drafted in the first place. Nat's sense of duty wouldn't let him claim exemption from military service for what he felt was a minor handicap, even though this meant that he had to leave his new wife, Ruth, behind in New York.

Upon discharge from the Army, he entered New York University and was awarded a PhD in physical chemistry in 1967. Later that year he joined the Technical Staff of the David Sarnoff Research Laboratory of RCA in Princeton, NJ. Nat distinguished himself at the laboratory and was awarded three RCA Laboratories Outstanding Achievement Awards for his significant contributions in electrochemistry, electroless plating and electronic device manufacture.

In 1973 Nat resigned from RCA and chartered his own company, Surface Technology, Inc., as a New Jersey-based corporation for research and development activities and manufacturing in fields relating to metal finishing, chemical specialties, and processes for the electronics industries.

Nat had a hands-on approach to research and development that guaranteed no unusual result was left unexplained. His attention to minute details has resulted in significant discoveries and inventions. He was issued 83 U.S. patents, a number of foreign patents, and has 15 U.S. patents pending. He was truly a prolific inventor, and his expertise extended beyond R&D into the patent process itself. Nat recognized that a patent attorney was frequently at a disadvantage in attempting to represent to the Patent Office the fine nuances of complex electrochemistry, so he found that he needed to be

present with the attorney for the invention to be understood. He became so proficient that he was registered to practice before the U.S. Patent and Trademark Office as a patent agent.

Dr. Nathan Feldstein's patents cover significant inventions in the field of electronics, textile manufacturing, printing, printed circuits and plated-through-holes, etc. The extent of his work was such that I took out a license on all of his patents for IBM Corp., and more than 25 other major corporations have done the same.

During his career, he made more than 50 presentations at national and international conferences, published more than 40 technical journal articles in the field of metal finishing and its commercial applications, and contributed chapters to two books published in the field. He was a member of the Electrochemical Society, the American Electroplaters and Surface Finishers Society, Phi Lambda Upsilon, and Sigma Xi. He had served as chairman of the Electrodeposition Division of the Electrochemical Society and divisional editor for the Journal of the Electrochemical Society. He also served on many AESF committees, most recently the Paper Awards Committee.

Additionally, Dr. Feldstein had a strong interest in standardization and would frequently review national and international standards for me. His wise council was invaluable and will be sorely missed.

Nat is survived by his wife, Ruth, three sons, Jonathan, Michael, and Mark, and three grandchildren. Surface Technology, Inc., will continue under the direction of Michael Feldstein. *Pasf*