



Elkan Blout



In the world of scientific research and development, few investigators could be considered “renaissance” persons, capable of seemingly integrating the various realms of this world – industry, academe, government and public service. Elkan Blout was such a renaissance person. His research interests spanned chemistry, protein science and medicine. He was a prolific inventor at Polaroid, a wise manager, and leader of colleagues both in industry and in the Harvard Medical School and Harvard School of Public Health. He was a creative and influential advisor to the FDA, to the NAS, and to the America Academy of Arts and Sciences. Most of all, he was a devoted teacher and mentor, whose commitment, warmth and enthusiasm to his students and trainees was the foundation for his resolve to offer elegant clarity in communicating complex formulations.

Elkan was born in New York City on July 2nd 1919 and was the only child in his family. Precocity was evident in his progress through school as he skipped grades and graduated from high school just before turning 15. To temper his youthfulness before entering college, Elkan spent a postgraduate year at Phillips Exeter Academy and then enrolled at Princeton. After a brief foray in chemical

engineering, he majored in Chemistry, graduating in 1939. He enrolled in the chemistry department at Columbia for graduate studies and completed the PhD in 1942 at the still tender age of 23. A year spent at the Harvard Chemistry Department as a postdoctoral fellow with Profs Louis Fieser and Robert Woodward proved highly consequential. Woodward introduced Blout to Edwin Land at Polaroid who talked Elkan into foregoing employment at a pharmaceutical company to take a chance at doing something “practical” at Polaroid.

For 19 years, from 1943-1962, Elkan flourished in collaboration with Land, contributing significantly to development of the instant photographic process and color film development. In his scientific role at Polaroid, Elkan was an inventor of dozens of patents; his leadership capacity was recognized by promotion

*In tribute to their dedicated efforts to science and medicine, deceased members of the Harvard Faculty of Medicine (those at the rank of full or emeritus professor) receive a review of their life and contributions with a complete reflection, a **Memorial Minute**.*

to associate director of research in 1948 and vice president and general manager for research in 1958. Getting to work intimately with Edwin Land, one of the great American industrial innovators of the twentieth century, gave Elkan a unique perspective on discovery and development in research. The financial success of Polaroid in those two decades also gave Elkan the opportunity to become expert in finance and investing, a skill he would put to use as treasurer of the National Academy of Sciences in the 1980s and of the American Academy of Arts and Sciences in the 1990s.

Elkan's capacity for work was prodigious and was fueled by his joy for learning. While engaged at Polaroid with a full plate of scientific and managerial responsibilities, from 1950 onwards Elkan established a spectroscopy laboratory at Children's hospital to study biophysics of peptides and proteins. He was a research associate in pathology starting in 1950, became a lecturer in biophysics in 1960-1962, and accepted a Professorship in the Department of Biological Chemistry at HMS in 1962, leaving Polaroid after almost two decades.

Elkan's move to HMS reinforced the strong tradition of protein chemistry in the HMS Department of Biological Chemistry from the days of EJ Cohn and the Laboratory of Protein Structure that had worked out blood fractionation and serum albumen purification. After Cohn died and his successor L. Oncley was recruited to Michigan in 1962, it was clear that Elkan would be a superb appointment given his expertise in physical biochemistry and spectroscopic characterization of proteins and peptides by optical rotary dispersion methods.

Typically, Elkan's combination of energy, wisdom, and respect for his colleagues led him to great success as a fulltime academic. In 1964, he became the Edward Harkness Professor and held that chair until his retirement in 1990. He had great gifts as an ambassador for biochemistry and protein science and became department chair in 1965, only two years after his arrival, and was an effective recruiter, persuading one of us (CCR) to join the department in favor of other alternatives.

Once at HMS, Elkan brought all the warmth of his personality, his intellectual breadth, his capacity for organization, and his love of learning to his teaching and interaction with students. Before the institution of the "New Pathway", Elkan was the course director of the "Honors" biochemistry course offered to those HMS students and GSAS (graduate) students that had already taken biochemistry in college. Elkan conceived that course and carefully marshaled its content. It was a "topics course", delving into great detail on aspects of biochemistry – at the forefront of the field – that most (if not all) students had not been exposed to previously. The course provided education on the structural biology of protein (using collagen as an example – taught by Paul Gallop), on aspects of glycobiology (taught by Robert Spiro), on nucleic acid structure and biosynthesis (taught by Roger D. Kornberg) and on principles and application of mass spectrometry and protein crystallography (taught by Elkan). This was a truly "All Star" cast of leading researchers and educators, handpicked by Elkan to inspire students to view biochemistry as an evolving science, not merely a string of metabolic pathways. In his choice of topics, Elkan was a visionary in educating students through a host of evolving/underappreciated subjects that are now at the forefront of medical sciences. Elkan attended all lectures and discussions and was consistently meticulously dressed, typically in a pressed suit of highest quality, leading most students to admire his sense of style. However, Elkan held no pretense with any student and quickly knew all students by first name. More importantly, Elkan treated each student with great personal warmth and dignity. He would greet students enthusiastically as he walked through the Quadrangle, stopping to answer any question at any time. Not infrequently, he would be accompanied by a colleague, and would politely excuse himself instantly from his ongoing discussion to attend to a student's query. Every

student felt his special devotion to their education and wellbeing. Elkan's consistently gentle and patient demeanor in expressing the most difficult of formulations inspired a generation of followers, in turn bringing forth scientists willing to tackle the most challenging problems and teachers who sought only to communicate effectively. These were his most treasured gifts to his students.

His scientific investigations into peptide structure and conformation, including of cyclic peptides were properly perceived as ground breaking by the biochemistry and biophysics scholarly communities. Indicative of his stature in the field of biopolymers, Elkan was a founding editor of the journal *Biopolymers*. His scientific achievements won him election to the National Academy of Sciences in 1969 and the Institute of Medicine in 1979. He was subsequently honored for lifetime achievement in peptide chemistry by the Ralph Hirschmann award from the American Chemical Society in 1991. But the epitome of Elkan's recognition for contributions to the broad sweep of chemical and life sciences came with the award of the National Medal of Science in 1990.

As testimony to his wisdom and insight into both the management and execution of Science, Elkan agreed to assume the responsibility of Dean for academic affairs at the Harvard School of Public Health from 1978-1989, even serving as Chair of the Department of Environmental Science and Physiology from 1986-1988. Among his innovations was the establishment of the division of biological sciences at HSPH. As an indication of the unusual esteem for this wise colleague at both schools, friends joined with Elkan to create Elkan Blout professorships at both HMS and HSPH on the occasion of his move to emeritus status in 1990.

In all of his interactions across the many arenas and constituencies of his life, Elkan approached opportunities and challenges with a balance and open nature which endeared him to friends and made him a much sought after advisor. In strategic thinking Elkan not only thought out of the box, but seemed to operate easily in multidimensional space. In twentieth century sports metaphors, one talked of rare and perhaps mythical athletes who were triple threats. Elkan Blout was such a paragon, standing out in the industrial sphere, the academic sphere, and the public service sphere. Beyond all this, Elkan's judgment on scientific opportunities and on financial matters was legendary. The former skill set led the FDA to appoint him as senior scientific advisor for the period 1991-1998. For the latter knowledge Elkan was a much beloved treasurer of the NAS endowment, overseeing a 5-fold increase in assets during his 12 years (1980-1992) as treasurer.

Elkan had many interests to complement his love of science, his capacity for invention, and his financial acumen on behalf of nonprofits. Among them were a love for fishing and an appreciation for the intricacies of the poker table. But the center of Elkan's universe was his wife, Gail, his constant source of love and companionship. Gail's support enabled Elkan to succeed in so many professional endeavors. He was deeply devoted to her and to his four children, James, Susan Merry Lausch, William and Darya. He died in December 2006.

Respectfully submitted,

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