

[**Frank Cooke**]
1913-2005



Frank Cooke, a pioneer of optical fabrication, died December 10, 2005, at the age of 92.

Frank was born in 1913 in Bismarck, N.D. Initially named Elmer after his paternal grandfather, he adopted the name Frank—his mother’s maiden name—early in life.

Frank graduated from Wabash College in 1936 with a degree in English. His unusual demeanor was evident even then. A recommendation written on his behalf by a college professor reads in part, “Mr. Cooke combines, in a way that has been an unending delight to me, the skill and ingenuity and curiosity of the scientist with a quick and dependable and always intelligent interest in ideas, and with an unflinching appreciation of beauty, of fun and of goodness in nature and in people.” Many in the optical community who got to know Frank shared this delight.

He graduated during the depths of the Depression, but managed to hold a wide-ranging series of positions, from meter reader for Commonwealth Edison in Chicago, to seaman with the Merchant Marines, to an X-ray technician working for General Electric X-Ray Corporation. During this period, Frank also demonstrated his outstanding photographic skills by extensively photographing the far West.

During World War II, Frank worked at the Polaroid Corporation. He worked with Edwin Land and eventually supervised Polaroid’s wartime optical fabrication efforts. There he met a young woman, Marjorie Stevens, whom he later married; they had five children together.

At the end of World War II, Polaroid’s optical production activities shrank precipitously, and Frank collected enough equipment to start an optical shop of his own. He and his wife had intended to move to California, and on their trip west, they stopped to say farewell to his wife’s parents. His in-laws made him an offer he could not refuse—enough capital and a building in which to start the business locally in North Brookfield, Mass.

Frank quickly became known as an innovator in optical fabrication technology. He had brought from Polaroid the designs for the Blanchard tilting head generators, and his business was one of the few independent shops in the United States that could fabricate large optical components. He manufactured unusual components for Polaroid, Baird-Atomic, Perkin-Elmer and others. He helped pioneer planetary polishing in the United States, and developed techniques for polishing soluble salt crystals of NaCl, KBr, and CsI, as well as low-scatter, super-smooth mirrors for imaging X-rays. In the late 1970s and early 1980s, Frank Cooke, Inc. was the sole fabricator of high-quality infrared beamsplitters for Fourier-transform spectrometers.

Frank was the editor and principal author of the Optical Activities in Industry Column that ran in *Applied Optics* from January 1962 through the late 1980s. This column appeared nearly

every other month. In 1984, OSA published a compilation of 166 columns titled the *Optics Cooke Book*.

Frank’s employees were predominantly women and he fostered an atmosphere in the 1960s and 1970s that provided flexibility for working mothers. He also claimed that these women had manual skills and patience that were rarely found in the men of the time. The shop had an unusually high level of productivity, and employees of modest educational background or training carried out complex tasks such as figuring aspherics or polishing super-smooth optical surfaces. Virtually all of them obtained their optical fabrication training on the job.

Frank had a natural understanding of optical fabrication. Surprisingly, he was not a trained engineer and did not use mathematics beyond trigonometry. When mathematical analysis was required, Frank sought assistance from a Harvard graduate and long-time employee, Ray Boyd.

Frank was one of the central personalities of the Optical Fabrication and Testing Workshops (OF&T) initiated by the OSA in the 1970s. He, along with a core group including Paul Forman, Norm

Brown, Joe Houston, John Plummer and others held a traveling topical meeting in key optical centers across the United States. These workshops are generally credited with spawning a revitalization of the precision optical fabrication industry in this country.

In 1971, Frank was the recipient of OSA's Richardson Medal, an award that recognizes individuals who have made significant contributions to optical engineering, primarily in the commercial and industrial sector. In 1984, he received the SPIE's Gold Medal, their highest award.

He was quite open about sharing his approach to optical fabrication with others. He was an excellent speaker and provided multi-media presentations at a time when they were uncommon at technical meetings; he made several

16-mm movies of optical fabrication operations, including planetary polishing, tilting head generators, and aspheric generation and polishing, and showed them at the OF&T workshops and OSA Annual Meetings. He kept very few secrets to himself, knowing that how and when methods are applied is often as important as the methods themselves.

Frank's studies in English served him well. He could recite poetry from memory for hours, had an encyclopedic knowledge of English literature, and even claimed to have contributed a poem that appeared in roadside Burma-Shave advertising from the 1930s through the early 1960s. He was a raconteur, a role he loved.

His prominence in the optical industry was matched by his reputation in the vintage automobile restoration

community. Frank Cooke, Inc. operated the Vintage Garage, an automobile restoration business that specialized in pre-war Rolls Royces and occasionally Stanley Steamers. For many years, Frank was the technical vice-president of the Rolls Royce Owner's Club.

When the weather was good in North Brookfield, you might find Frank riding one of his Rolls Royce Phantoms or Stanley Steamers around town. The Vintage Garage had visitors from around the world, including rock stars and public figures. He spoke of himself and these automobile lovers as "those who worship at the altar of old iron."

Frank is survived by a brother, a son and three daughters.

— Stephen D. Fantone
President, Optikos Corporation

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