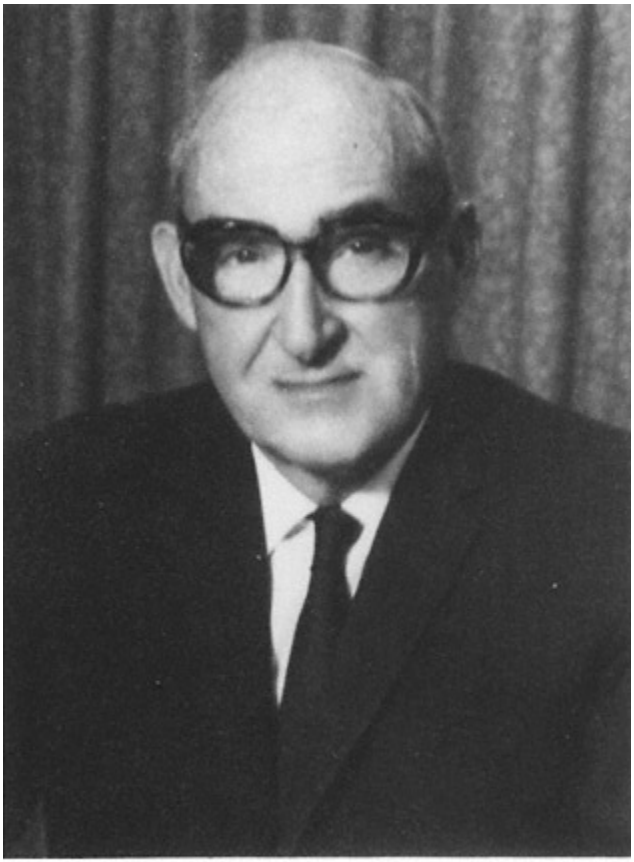

Carl Frederick Prutton

1898-1970

By Chalmer G. Kirkbride

Carl Frederick Prutton, educator, engineer, inventor, industrial executive, and philanthropist, died at the Columbia-Presbyterian Medical Center in New York City on July 15, 1970. He had a multitude of friends who respected and loved him.

He was born in Cleveland, Ohio, on July 30, 1898, and was the second of four brothers whose father ran a milk business. He attended Purdue University as a freshman at the age of sixteen. His economic situation, however, was so tight that he joined the Indiana National Guard in order to have the state pay for his Purdue military uniform.

This did not turn out as he had expected. He returned to Cleveland during the summer vacation of 1916 and was earning fifty-five cents per hour operating a grinding machine. He had been on the job two weeks when he was summoned to the Mexican border to help subdue Pancho Villa, for which he was paid $15 per month. This did not permit him to save anything, and, when he went back to Cleveland the following October, he could not afford to return to college.

Subsequently, he obtained a job as a locomotive fireman on the New York Central at $114 per month. In the fall of 1917, he entered Case Institute of Technology part-time and kept his locomotive fireman's job. By the fall of 1918, his savings were sufficient to permit him to leave the railroad and enter Case full-time.

He obtained his Bachelor of Science degree in chemical engineering in 1920, and, while serving as an Instructor at Case, he obtained his master's degree in 1923. He received his Doctor of Philosophy degree in physical chemistry at Western Reserve University in 1928.

It is apparent that, even though Carl's parents were unable to pay his way, he was sufficiently enterprising and energetic to work and pay for his education himself. This same spirit was always manifested by Carl throughout the balance of his life. Those who had the privilege of working with him never doubted this man's ability to succeed. We always knew he would be successful at whatever he undertook.

Carl served on the faculty of Case Institute of Technology from 1920 through 1948. He was Head of the Department of Chemistry and Chemical Engineering from 1936 to 1948. From 1942 to 1944, he was Chief, Process Development Branch, Office of Rubber Director, and Consultant for the War Production Board.

From 1921 through 1941, Carl served as consultant to the Dow Chemical Company. In the earlier years, he was involved in the development of processes for separation of calcium and magnesium chlorides brine, which matured into full-scale commercial plants.

Later his major efforts were expended in building up and operating a research and field development organization and equipment for the Dowell Division. This Division required a very special form of research organization and techniques. It included a field development group that was tightly integrated into the commercial end of the business.

Developments during Carl's years with Dowell included improvements in acidizing procedures, new inhibitors, plastic water shutoff methods, bottom-hole survey equipment and procedures, and the use of acid and other chemicals for the cleaning of scale from industrial equipment. Dowell blazed the way in the employment of acid and other chemicals to greatly increase the productivity of oil, gas, and water wells.

In 1929, Carl became a Consultant to Lubrizol, which entailed the beginning of research on additives at the Case Institute of

Technology laboratories. At that time, Lubrizol was marketing only a graphite-containing spring lubricant. No additives were being made and sold by Lubrizol. The total additive business in the United States was minute.

Between the years 1929 and 1951, Carl served Lubrizol in the varied capacities of Consultant, Director, and Research Director, while the Company assumed a leading position in the lubricant-additive field. The use of lubricant additives in the United States grew to over $200 million per year by the time of Carl's death.

Initial lubricant research work at Case demonstrated the effectiveness of chlorine compounds in lubrication and later the synergistic effect of chlorine on the action of sulfur compounds in extreme pressure lubrication. Research centered on the fundamental mechanism of action of lubricating additives and on corrosion in lubricating systems.

In 1944 and 1945, Carl served full time at Lubrizol in charge of research and pilot plant development. During that period a number of improved additives for postwar civilian markets were developed under Carl's guidance. Several batch manufacturing plants were converted into simplified continuous processes. Several plants for manufacture of substitutes for unavailable chemical intermediates were set up and operated.

The decision by our armed forces to require additive-treated crankcase lubricants for all internal combustion military units, as well as additive-treated gear lubricants, had made tremendous demands on the additive manufacturers. The result of such military use was to prove beyond all doubt the efficiency and necessity of such materials that Carl had pioneered.

During Carl's years with Lubrizol, he led the Company in both fundamental and applied research concurrently. The chief areas explored were crankcase lubricant additives, gear lubricant additives, cutting oil additives, metal drawing compounds, lubricating greases, engine fuel additives, asphalt additives, and synthetic lubricants.

The research on lubricant additives, under Carl's leadership, produced outstanding benefits, one of which made possible the use of the hypoid gear by increasing the load-carrying capacity of a

mineral oil more than tenfold. This had a revolutionary effect on the automobile industry.

Another benefit was greatly increased life and efficiency of Diesel engines by keeping the pistons clean, so the piston rings remained loose and effective. Periods between engine overhauls, in general, increased over tenfold in length. This greatly reduced maintenance and improved reliability of performance.

In 1948 Carl left Case and went into business on his own as a consultant to companies interested in research and development. One of his clients in his new business was Mathieson Chemical Corporation, now Olin Mathieson Chemical Corporation. Carl was employed on a part-time basis in 1948 to appraise the Corporation's research and development program.

In 1949, the Corporation acquired the business and assets of two companies with eight plants. Carl was invited to become Vice-President and Director of all manufacturing and of all their research and engineering. Carl accepted and sold his consulting business and went with Mathieson.

While Carl was with Mathieson, he championed the need for industry-sponsored basic research in engineering schools. He felt that the increased Government support of research projects could lead to indirect or direct control by Government of a large part of our advanced education system. He felt that the uncertainty of Government contracts creates an unwholesome atmosphere for the campuses.

When the Olin Mathieson Chemical Corporation was formed in 1954, it moved into such remote areas of chemistry as Kraft paper, guns, and shotgun shells. At that point Carl concluded that he was spreading himself too thin, since he had fifteen different vice-president titles. Furthermore, he did not believe that the best way to build a company was to buy other companies. When his contract expired in 1954, he terminated his connection with Olin Mathieson.

Carl had about decided to "retire" to a part-time teaching position when Food Machinery and Chemical Corporation (FMC) persuaded him to join them on a full-time basis. He did so in June

1954. At that time the company had been in the chemical business only a few years and conducted its operations through five different divisions.

Carl immediately set out to consolidate the company's chemical operations into a logical and effective organization. His study reached into all management activities. After about eighteen months, Carl presented the management with a plan for reorganization and consolidation of its chemical interests.

Emphasis at every level was directed toward improving efficiency of operation and making the most effective use of the organization's staff without regard to "how it used to be done." Much duplication of effort and responsibility were eliminated with the result that the company was able to reduce the personnel of the chemical divisions by nine percent. The whole spirit of the organization changed from old-line conservatism to a new aggressive approach.

In June 1956 Carl was elected Executive Vice-President of the Corporation in charge of five chemical divisions. As a result of Carl's efforts in management reorganization of chemical activities, the Corporation received from the McGraw-Hill Publishing Company, in December 1959, the first Kirkpatrick Award for Management Achievement in Chemical Industry. The building of a strong technical program, fully integrated with management planning and action, was the principal foundation on which this achievement was based. This involved the construction of modern research facilities and the building up of superior research and development groups.

Carl retired as Executive Vice-President of FMC on June 30, 1960, but continued with the firm as a Corporate Director and Consultant until his death. He served as Special Assistant to the Governor of West Virginia on Industrial Development. He served on the Board of Directors of Commercial Solvents Corporation and Sawhill Tubular Products, Inc. He also served on the Board of Directors of the American Institute of Chemical Engineers and on the Board of Trustees of Clarkson College of Technology. He rendered advisory service to many educational institutions such as

Clarkson and Manhattan College. He also served on several committees of the National Academy of Sciences Advisory Committee to the Office of Emergency Planning.

Carl had over 100 patents and was a prolific writer in the scientific, technical, and trade journals. He was coauthor of the widely used textbook, *Principles of Physical Chemistry,* and was an authority whose advice was sought by educators, industrialists, and those in Government.

He received honorary Doctor of Engineering degrees from Case (1954), from Clarkson College (1960), and from Manhattan College (1960). He received honorary Doctor of Science degrees from Marietta College (1962) and from Western Reserve University (1963).

Carl was elected to the National Academy of Engineering in 1966. He received the Founders Award of the American Institute of Chemical Engineers (1965), the Modern Pioneer Award of the National Association of Manufacturers (1940), the annual Honor Award of the Commercial Chemical Development Association (1961), and the coveted Perkin Medal from the Society of Chemical Industry (1961). In November 1961 he spoke to the assembled chemical society groups in Cleveland and received their annual Chemical Profession Award of Merit.

Carl was active in many professional organizations. He was a Member of the American Institute of Chemical Engineers, the American Chemical Society, the Society of Automotive Engineers, the National Association of Corrosion Engineers, the Institute of Petroleum (British), the American Petroleum Institute, the Society of Chemical Industry, Sigma Xi, Tau Beta Pi, Theta Xi, and the New York Academy of Sciences.

After retirement from FMC, Carl and his wife moved to Coronado Pines, Florida, and he undertook with his usual vigor to upgrade the natural beauty and appearance of the Lake Weir area. He established a nursery, Coronado Gardens, and led this Florida community into a long-range beautification program.

Carl is described by his widow as "a compassionate man who was always willing and eager to help those less fortunate than he....

He loved young people and was untiring in his efforts to help them get a good education."

Carl set up a scholarship fund at the Baptist Church in Candler, Florida, whereby any young person who showed promise would have the chance of getting a good education and of becoming a valuable member of society.

Carl Frederick Prutton is survived by his widow, Marie; two sons, John and Carl F., Jr.; and four daughters, Mrs. George D. Conrad, Jr., Mrs. Robert D. Sutherland, Mrs. J. R. Small, and Mrs. J. M. Castillo.