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JAMES A. RAFFERTY -- THE MAN AND HIS WORK

by

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To me it would be a real pleasure to be present at this outstanding gathering under any circumstances. To be here on this particular occasion, which brings to my distinguished friend and associate such a signal and deserved recognition, is an exceptional pleasure, and to participate in the program is a definite honor.

For thirty years it has been my very good fortune and genuine pleasure to be associated in the business of Union Carbide and Carbon Corporation with Mr. James A. Rafferty, affectionately addressed and referred to as "Jim" by those of us who know him so well.

Our professional educations followed different lines; his the scientific, mine the legal. Nevertheless our trainings and experiences have largely merged as we have worked together in the management of the Corporation. Though, from these long associations I, even as a layman, have learned much of his scientific attainments, I shall leave comment upon Jim's definite accomplishments with respect to their effect on the overall history and development of the chemical industry to another of our speakers. I shall speak primarily of Jim as the man, and give you as clear a picture as possible of how his personality dovetailed into the industrial career which he carved for himself.

James A. Rafferty was born May 4, 1886, in Chicago, Illinois. He obtained his elementary education in the Chicago public schools and at St. Ignatius College. Early in life Jim realized that his interests and talents were in the

realm of science. Accordingly, in the fall of 1903 he entered Lewis Institute of Technology where he specialized in engineering and chemistry. Jim was seeking a thorough education in both engineering and chemistry, not a speedily obtained formal college degree. He, therefore, did not hurry towards graduation but proceeded deliberately in order that he might master both subjects. That he did. And in 1908 he was graduated at Lewis Institute of Technology with the degree of Mechanical Engineer, while his graduation thesis was in chemistry, entitled, "Effect of Low Temperature on the Candlepower and Calorific Value of Carburetted Gas," and presenting a very profound and scholarly study of that gas. It is my information that this paper received wide recognition in the circles of scientific education. He holds the honorary degree of Doctor of Engineering, conferred upon him in 1944 by the Illinois Institute of Technology.

Soon after his graduation Mr. Rafferty became Chief Chemist for the Peoples Gas, Light and Coke Company of Chicago. His ability and industry were rewarded with a rapid series of promotions which carried him to the position of Superintendent of Distribution. In 1917 Mr. Rafferty left Peoples Gas to become associated with The Linde Air Products Company which, a little later, became a unit of Union Carbide and Carbon Corporation. His position with Linde was Assistant General Superintendent of Plants, and he had charge of oxygen plants all over the United States. This was Mr. Rafferty's first position with a group of companies which, with his very significant assistance, have become quite important in the industrial world.

Mr. Rafferty was married in 1913 to Miss Mary E. McGough, of Chicago. Jim attributes his success to her loving inspiration and assistance. Knowing Mrs. Rafferty well, I am sure she rightly deserves that tribute. The Raffertys' home life has been most happy and enjoyable, filled with music, literature, and art, for, notwithstanding Jim's love for his work, he really enjoys those things which are good for the soul of anyone. He is always ready for the tasks before him and comes well prepared in peace of mind. The Rafferty home has been blessed by six splendid children who have been a real joy to the parents.

Jim enjoys swimming and dancing but his real hobby has been his work. It is said, "Blessed is he who has found his work," and I say, Blessed is our Company that it has Jim Rafferty. His voice has been heard in every major decision of the Corporation for the last quarter of a century and it has generally been on the right side.

Though Jim's hobby has been his work, to which he has applied himself with exceptional diligence, and, being a family man in the true sense, he has given liberally of his time to his family and their interests and pleasures, he has also always been conscious of and attentive to his civic and religious opportunities and responsibilities and has been interested and active in such affairs of the communities in which he has lived and in the welfare of the people thereof. His activities, as well as his ideals, have been public spirited and Christian - not self centered.

The story of Jim Rafferty as the man is a story of his accomplishments. There are certain qualities which are the key to an understanding of a person's career. These qualities of course vary widely in different individuals. Sometimes, as we so often witness in many walks of life, men of mediocre ability and sterile imaginations achieve positions of great importance. But when we enter into the exacting activities of the business world, qualities of a more solid nature are necessary. In business one often spends many years among the same circle of workers. These colleagues learn the strength and weakness of one's character. In the crucible of the business world the true worth of a man is generally proven out in the stern test of success or failure of his business decisions. It is in such an environment that Jim Rafferty has earned his splendid reputation and signal success. It is a great tribute to him that his fondest and most sincere admirers are those who have been, and are, his closest business associates.

To bring into focus the manner in which his personal characteristics molded the progress of an entire industry and to be of further aid to you in understanding the type of man we are honoring, I believe it may be helpful for me to outline briefly some of the high marks of his work. Let us skip the gas house years to

which Jim jokingly refers as his real technical experience. He came to our Linde Air Products Company in 1917 and since then continuously has been active in promoting the remarkable advance of the oxygen industry, particularly in the field of liquid oxygen. No major decision, from a scientific standpoint, has been made in the oxygen field by our company without Jim's advice. It was his vision of the practicability of the production, distribution, and use of liquid oxygen that sustained the great strides of the Linde Company in this industry.

Jim's principal work, however, has been in another field, that of synthetic organic chemistry. At the time Carbide and Carbon Chemicals Corporation was organized, in 1920, there was practically no engineering, operating, or economic data available on the subject. Out of many years of hard and often discouraging effort, interspersed with many temporary failures and disappointments, there has been evolved an entirely new industry, that of synthetic aliphatic chemicals, in large measure the work of Jim Rafferty.

The coming of the last world war brought about the second major phase of Jim's work. Products of our organization were in the first line of war activity and we were called upon to expand our plants and to maintain them at peak operations. During this period when our organization was already sorely strained, we were asked to superimpose upon our normal business the engineering, construction, and operation of huge war plants for the Government to produce materials, many of which had never before been made on a commercial scale. The heavy responsibility of heading up this Government plant work was placed on Jim Rafferty's shoulders and he carried it to a brilliant fruition. While there were many aspects of this work, I shall mention only the two outstanding ones - the synthetic rubber program and the atomic energy program.

You doubtless remember the critical situation which this country faced after Pearl Harbor when our sources of supply of natural rubber were cut off and it was apparent that, unless an adequate supply of synthetic rubber of suitable quality could be provided and maintained, our Armed Services and civilian economy could not effectively function. The situation facing the country was summarized by the

President's Rubber Survey Committee, popularly known as the Baruch Committee, as follows:

"Of all of the critical and strategic materials, rubber is the one which presents the greatest threat to the safety of our Nation and to the Allied Cause. We find the situation to be so dangerous that unless corrective measures are taken immediately, the country will face both a military and civilian collapse."

The critical bottleneck in the synthetic rubber program was butadiene - the principal constituent of the type of synthetic rubber upon which the Government's program was largely based. Fortunately, our Chemicals Corporation had for some years conducted research and experimental work for the production of butadiene from alcohol. Although at the time our Chemicals Corporation, of which Jim was the head, had not even built a pilot plant, the Company was asked to greatly speed up its research and engineering work and to build and operate two large butadiene plants using its process then but in the development stage. The Company also furnished the process engineering and operating experience for the third plant.

These three plants had a total rated capacity of 220,000 tons of butadiene a year. From the beginning, all units of these plants produced far in excess of their rated capacities. At times some of the units attained over 200% of their rated capacities. These plants produced over 77% of the total amount of butadiene made in the critical year 1943 and over 64% of the total quantity made in 1944.

The worth of this effort is attested by statements which Mr. Rafferty received from officials high in the Government. Mr. William M. Jeffers, the first Rubber Director, wrote to Mr. Rafferty in the following terms:

"As my final contribution to the rubber program, I want to say to you in all sincerity that had it not been for you and your great organization, the people who look upon rubber as tires would have been forced to the conclusion that the rubber program was more or less of a failure and so I feel it is fair to say and it is accurate to say that had it not been for the contribution of Carbide and Carbon Chemicals Corporation, this program could not have succeeded."

Similarly, Mr. Bradley Dewey, who succeeded Mr. Jeffers as Rubber Director and who is a past recipient of your Medal, wrote Mr. Rafferty as follows:

"Before winding up my affairs with the synthetic rubber program, I wish to express my appreciation for the magnificent performance of your organization in the production of raw materials for GR-s. The Carbide and Carbon Chemicals Corporation should be extremely proud of the part it has played in the success of the synthetic rubber program. Without you, this country might well have met with disaster."

The tasks assumed by our Corporation, and by it entrusted in large measure to Jim Rafferty, in the atomic energy program were, if anything, of greater complexity than those of the synthetic rubber program. One of our units was asked to make a broad geological survey for uranium-bearing ores. Other units were asked to build a number of plants to process and treat uranium ores and perform important steps in the production of the final product. Various of our units performed important research work ranging from the development of special materials for plant construction to special materials for the assembling of the bomb itself. The most significant phase of this work, however, was performed by the Chemicals Group in assisting in the design, construction and engineering of the huge gas diffusion plant at Oak Ridge, Tennessee, and in operating that plant from its beginning. For this work, also, Jim Rafferty has received expressions of profound appreciation from officials of the Government. General Leslie R. Groves, in charge of the entire program, wrote that:

"No one outside the project can ever appreciate how much we depended on you and how well you performed your well-nigh impossible task."

Let it not be thought that our organization claims or has ever claimed either the synthetic rubber program or the atomic energy program to be its own. We have sought no particular credit for the success of either. Both programs comprehended the co-ordination and consolidation of much of the Nation's scientific and industrial resources. Yet, important aspects of each program were assigned to organizations of Union Carbide and Carbon Corporation, and on this occasion I feel that it

is due to Jim Rafferty that appropriate recognition be given to the fact that the assignments to the various units of our Corporation were successfully accomplished and that Jim Rafferty directed the industrial pioneering of these particular assignments which were important phases of those programs which have meant so much to our Nation and to the world in both peace and war.

When one contemplates such outstanding accomplishments of a lifelong friend and associate he may be prone to view the attainments without assessing the human qualities which have brought about these successes. Occasions such as this are constructively opportune in that they may prompt an appraisal of those human qualities which have been exemplified in such magnificent contributions to industry and to mankind.

If I were asked, "What are the outstanding traits of Jim's character and makeup which have been reflected in and by his exceptional attainments"? - and my theme presupposes the question - I would say that they are his vision, his confidence and courage, his incomparable mental and physical industry, and his exceptional facility for enlisting and holding the interest and loyalty of his associates.

It is not always easy to appraise the human qualities which bring success. Sometimes different people discern different attributes in their appraisals of the same man. But in Jim Rafferty's case his methods of working are not obscure. First, he has the practical vision of the success of the theretofore unknown, and, when a project is entrusted to his care, we all know he approaches it with profound confidence in its success and with complete faith in himself and his associates to carry the undertaking to a successful conclusion. Without this confidence that any worthwhile endeavor can be successfully completed, Jim Rafferty would not have risked his future on a project which looked so hopeless as that of the Chemicals Company did at times in the early 1920's. Few people would have dared risk so much on a process not yet tested in a pilot plant as was the risk of the butadiene process during the war. But the acid test of his confidence was in the atomic energy program. Again, while many doubted, he had the vision and the confidence, and put

all he had into the undertaking with no thought of failure. The confidence in success of the leader in turn inspires the same kind of faith in others in management, who must decide whether funds shall be risked, and in his co-workers, whose efforts determine whether or not the venture shall succeed.

Having undertaken a project with high hope of success, Jim Rafferty does not try to do everything himself. He is no bottleneck. Instead he goes after the best man available for the job at hand. He is a rare judge of men, and once he decides whom he wants for a particular job, he becomes a ruthless collector of talent. When the talent is assembled and as the work progresses, he delegates to each man responsibility limited only by the full measure of that man's abilities. The result is that his co-workers grow under responsibility and in turn learn to pass responsibility down the line. An able, flexible team is the result, and the success of any project Jim Rafferty heads up is the result of highly co-ordinated teamwork. Prima donnas are not wanted.

Jim has the power of decision. He has always exercised it and he has been willing to take the consequences, good or bad. His unselfish devotion to the task at hand is a great inspiration to those associated with him. He never claims credit for himself but, instead, gives to his co-workers much credit which is rightfully his own. All those who work under his leadership know that they will be justly treated, that he plays no favorites, and that the work done determines the reward. This has made for the accomplishment of great things in our organization.

Though the American Section of the Society of Chemical Industry is making this award to Mr. Rafferty upon the basis of his signal accomplishments, to some few of which I have referred briefly, let it not be thought that, because of those accomplishments or of this honor, Jim is going to rest on his laurels, which by ordinary standards he might well be entitled to do. Jim is not an ordinary man and such is not his character.

Today Mr. Rafferty is carrying a heavy load and is engaged in some of the most important work of his life. As a Vice-President, Director, and Member of

the Executive Committee of Union Carbide and Carbon Corporation and as Chairman of the Board of Directors of Carbide and Carbon Chemicals Corporation and of Bakelite Corporation, his voice carries much weight on all questions of major policy. As Chairman of the Research Committee of our organization he is actively in charge of the over-all direction of a wide diversity of research work, some of which we hope and believe to be as promising as that which resulted under his leadership for these many years in the present business of Union Carbide and Carbon Corporation. Accordingly, I think we may consider the award tonight as an interim honor to one still at the height of his career. I do not know whether the same person can receive your Medal more than once but, if so, I shall not be at all surprised if some day you should again decide to present it to Jim Rafferty for work yet to be done.

It is a real pleasure to see a close friend so highly honored as is Jim Rafferty this evening. All of you who are acquainted with him and his accomplishments know that in this presentation the Chemical Industry is well maintaining the high standards set by its prior awards and is giving added prestige to its Medal.

It is somewhat embarrassing to dissect Jim Rafferty before his own eyes, but the fault is not mine. I was invited to do the job and I have enjoyed doing it in accordance with my own analysis. Of course much more could be said of Jim Rafferty, and you will hear more from other speakers, including some overly modest remarks by Jim Rafferty himself. Accordingly, I shall conclude by congratulating Jim on his receipt of this well-earned recognition and the Society upon its good judgment in selecting the recipient.