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SYNTHETIC RUBBER

6 March 1951

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Mr. John Lyon Collyer, President of B. F. Goodrich Rubber Company, was born in Chelsea-on-Hudson, New York, 18 September 1893. He received the M.E. degree from Cornell University in 1917. He worked with the Bethlehem Shipbuilding Company, as shipyard worker, foreman, head of the personnel division, and superintendent of hull construction, 1917-1922. He was vice-president of Dunlop Tire and Rubber Company, 1923-1929. He was works director, director of manufacturing, and managing director of Dunlop Rubber Co., Ltd., England, 1929-1939. He has been President of B. F. Goodrich Company since 1939. He is Chairman and Director of B. F. Goodrich Rubber Co., Ltd., Canada; Director of American Anode, Inc., and J. P. Morgan & Co., Inc.; Director and Member of Board of Governors, Air Power League; Trustee, Air Foundation; chairman and member, Business Advisory Council, U. S. Department of Commerce, 1947-1948 and member, Executive Committee, 1949; Trustee, Committee for Economic Development; Member, Executive Committee, International Chamber of Commerce; Trustee, Navy Industrial Association; Director and Member, Executive Committee, Rubber Manufacturers' Association; Member and Director, Cornell Research Foundation. He was awarded the Medal of Merit by the Secretary of War for exceptionally meritorious conduct in the performance of outstanding service to the United States in connection with the development and production of synthetic rubber throughout the period of the emergency and as special director, Rubber Programs, War Production Board, 21 March 1945 to 18 July 1945.

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GENERAL VANAMAN: Good morning, gentlemen. The important position of the rubber industry in wartime or peacetime production is well known and obvious to all of us, as is the important position which B. F. Goodrich Company holds in this rubber industry.

The President of B. F. Goodrich Company is our speaker this morning. It gives me a great deal of pleasure and it is really a privilege to present to the students of the Industrial College and to our guests a man who has contributed so much to industrial technology and, above that, so much to our national security—Mr. John L. Collyer, President of B. F. Goodrich Company. Mr. Collyer.

MR. COLLYER: General Vanaman, officers, and civilians of the Industrial College of the Armed Forces: It is indeed a privilege and a pleasure for me to meet with you this morning. I am generally familiar with the instructive programs which are carried on by the Industrial College.

The subject assigned to me for this morning is, "Synthetic Rubber." But in touching the main points of this topic I shall of course talk on the over-all rubber position of the United States, and particularly inflation and government rubber policy.

We are all in agreement, I am sure, that our greatest strength—military, economic, and political—is a sound, virile domestic economy. Either inflation or a shortage of rubber could undermine this foundation and strain our economy to the breaking point. We can have national security in rubber only, as General Vanaman suggested, by making sure that there are adequate supplies of this vital material in peace as well as in war. Without rubber our planes, guns, tanks, and ships could not function; and without rubber our transportation system would be paralyzed and the operation of our industrial plants crippled seriously.

The vital importance of rubber to our economy is, I think, best evidenced by the fact that last year the per capita consumption of new rubber, that is, all types of man-made rubbers, and crude rubber in the United States was 18 pounds compared to only one pound for the rest of the world. Over the years, the increase in the consumption of rubber in the United States and throughout the world has been spectacular.

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The B. F. Goodrich Company was the first rubber company in Ohio, founded there in 1870. Although that was more than 30 years after the discovery of vulcanization of rubber, still the consumption of rubber in that year in the United States was only 4,000 tons, and the world consumption about 8,500 tons. By 1900, with the advent of the automobile, consumption in the United States had climbed to 20,000 tons. By 1915, at the time of the First World War, consumption had reached a total in the United States of 100,000 tons, with world consumption totaling about 150,000 tons. Fifteen years later, in 1930, USA consumption had climbed to 375,000 tons.

It is interesting to note that in the depression thirties, although there were some ups and downs, rubber consumption in the United States and the world continued to climb; and in 1940, the last year before World War II, USA rubber consumption reached a new record of 650,000 tons, with world consumption totaling about 1,150,000 tons.

Now, throughout these 70 years, all the new rubber consumed in the world was agricultural rubber, sometimes called natural rubber or crude rubber. The only exception was a small amount of man-made rubber manufactured in Germany and, in the thirties, the special-purpose rubber in the United States.

The agricultural rubber was first brought in, as we read in our story books, by Columbus. It was supposed to have gotten its name because when rubbed over a pencil mark the mark would disappear.

The original wild or crude rubber is located in South America and in West Africa. These sources supplied the needs of the world until the turn of the present century.

The seeds from which the great Far Eastern crude rubber plantations have sprung were smuggled out of South America in 1870 by a bold Britisher, Henry Wickham, who was later knighted for this daring deed. These seeds were taken to the Kew Gardens in London, England, where they were planted, germinated, and later transplanted in the Far East. The great pioneering effort in the Far East was carried on mainly by the British and later by the Dutch. In the early 1900's because of the very high price for rubber and the promise of great profit, capital was attracted to the Far East. By 1914 the Far Eastern rubber was supplying half the needs of the world, and by 1940, as you know, the Far East areas were supplying 95 percent of the world's needs of rubber.

In that early 1900 period, with the popularity of the horseless buggy, the demand for rubber exceeded the supply, and the price of crude rubber skyrocketed to a high of \$3 a pound, or \$6,000 a ton in 1910. During that period, scientists and technicians in industry were stimulated

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to endeavors which would have the effect of reducing the cost of tires and other finished products to offset this great increase in the cost of crude rubber.

The B. F. Goodrich Company founded the first research laboratory in the rubber industry 56 years ago, and in this high-priced period made important discoveries; in fact, our company has made practically every major discovery in the field of rubber. As early as 1910, two divisions of the B. F. Goodrich Company made useful inventions in the field of man-made rubber. That work was continued without interruption and during the British Stevenson restriction cartel period, 1922 through 1928, our program was accelerated.

It was my good fortune to become a member of the B. F. Goodrich team in 1939. Prior to that time, for 10 years I had lived and worked outside the United States with a great British company, a rubber company comparable in importance to the leading rubber companies in this country. My former company had manufacturing plants in 10 countries throughout the world, including Germany and Japan, and was one of the largest owners of crude rubber areas in the Far East.

My business took me to all these plants. In my visits to Germany in the thirties I became convinced that war was inevitable; that it would be a near-miracle if the United States could avoid being in that war. I saw firsthand the development of a formidable synthetic rubber industry in Germany at that time—the mounting production of airplane tires and large truck tires. When I came home in 1939 to B. F. Goodrich you can imagine that my deepest concern was our country's dependence on sources on the other side of the world for supplies of the vital material, rubber. But we Americans were apathetic at that time. There was little interest, either in Government or industry circles, about rubber. We were too occupied in criticizing Britain for not being prepared.

But, gentlemen, there was a brighter side to the picture. I found that the B. F. Goodrich Company was far in advance of the Germans. It had developed a general-purpose synthetic rubber—we call it American rubber—which was ready for production. Our directors authorized funds for the construction of a small plant, and in June 1940, 18 months before Pearl Harbor, our company announced that we were producing our own rubber and that we were offering for sale to the American people for the first time passenger-car tires in which this rubber, Ameripol, replaced crude rubber by more than 50 percent.

Now, in making this announcement we had two objectives in view, (1) to awaken the American people to the importance of rubber to our economy and (2) to challenge American industry in this important field in the development and production of American rubbers.

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I am proud to say that we had a large measure of success under both counts. The week following that memorable meeting, we were invited to meet with the Senate Military Affairs Committee. We recommended at that time the building up of the stocks of crude rubber and the appropriation of funds by the Government for the construction of large synthetic rubber plants.

Action was promptly taken in appropriating funds for the building up of crude rubber stocks. When our announcement was made, the stocks of crude rubber within our borders—and we were entirely dependent on them—totaled only 150,000 tons, barely a 3-month supply. When all the ships were in after Pearl Harbor, we had within our country's borders 600,000 tons of crude rubber.

But the recommendation for the building of plants for the production of American rubber was unfortunately not acted upon promptly. Our company continued to increase its private production, but it was not until the middle of 1941 that the Government authorized the construction of plants having a capacity of only 40,000 tons a year. It was not until after Pearl Harbor that the large-scale plants having a productive capacity of 600,000 tons a year were authorized. As you know, this amount of 600,000 tons was rapidly stepped up. But from a standing start in January 1942, plants were constructed, production increased, and in May of 1945 the production of American rubbers had reached the rate of one million tons a year. In 1945 consumption in the United States was a new record—800,000 tons, of which 86 percent was our American rubber.

I have touched the high spots of rubber before World War II and during the war. Now, let's turn to what has happened since then.

We came out of the war with a great build-up in civilian demand for rubber products. Our government stockpile of crude rubber, which was the only crude rubber we had in the country, had shrunk from a figure of 600,000 tons down to only 100,000 tons. There could have been no reconversion, as we knew it, without wide unemployment, even if we could have gotten through the war without the American rubber.

During the first postwar year, 1946, the consumption of new rubber in the United States totaled 1,039,000 tons, of which 73 percent was, through necessity, American rubbers. But as the eastern plantations became rehabilitated and staffed the production of crude rubber increased, and it took a larger and larger share of the American market, partly for the reason of price—during the period the price of crude rubber was lower than the cost of our American rubbers—and, second, for the large truck and bus tires the crude rubber was still the superior material.

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Consumption of new rubber in the United States continued at a high level for the five postwar years. In only one year was it less than a million tons, compared to the 1940 total of 650,000 tons. But we used a larger and larger proportion of crude rubber and a smaller and smaller proportion of the American rubbers.

I regret that our company was unsuccessful in its recommendations to Congress that at the end of World War II the government plants for producing American rubber be sold or leased to private industry so that competitive enterprise might take over and make the progress that has been made in so many fields through competitive enterprise. However, this was not done. Our Government continued to retain a government monopoly in this important field of industry. As needs for our American rubbers decreased, the Government reduced production and finally closed plant after plant.

In 1948 some of us in the rubber industry decided that all was not well with rubber for national security. We made a careful study which indicated that if our supplies of rubber from the Far Eastern areas were interrupted or slowed down, or if we had an unusual demand for rubber, that the consequences could be serious. The production of American rubbers which stood at over 800,000 tons in 1945, had decreased in 1948 to about 30,000 tons a month—a rate of 360,000 tons a year. At that time we recommended to the Government that production should be held at a fixed level and that any rubber produced in excess of demands should be put in the government stockpile to tide us over a day when we might have to draw on our crude rubber stocks. We also recommended a rapid increase in the stockpile of crude rubber. These recommendations unfortunately were not followed. But I believe that the Munitions Board was partly in favor of both recommendations.

Early last year our company became deeply concerned about our country's rubber position. In the early part of last year we presented to the Government a warning and a report on rubber, a copy of which will be distributed here today. I think that you will be interested in reading that pre-Korean report wherein we recommended the reactivation of plants for the production of American rubber. Before Korea we had already begun to feel the pinch. The automotive industry in this country, as you know, was producing at an all-time record rate. Civilian demands were heavy. When the North Koreans stormed across the 38th Parallel, it set off a wave of scare-buying, both civilian and government, for stockpiling. The price of crude rubber which stood at 18 cents in January 1950 skyrocketed to 90 cents a pound the latter part of last year. That meant an increased expenditure of tens of millions of dollars to the American people as consumers and taxpayers for the building up of the crude rubber stockpile and for defense products.

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The restriction of new rubber in the United States was rightly limited in September of last year, and in December the Government became the sole importer and distributor of crude rubber. The purpose of this action was to avoid competition of the Government in stockpiling with companies purchasing crude rubber for their own production needs. When the Government took over, the price of crude rubber was about 70 cents a pound; today it is about 80 cents. Now, I am not critical of the Government in making that statement. I feel that it is doing a creditable job. But with conditions such as they are in the world today, every government in the world is stockpiling crude rubber and, as you know, our potential enemies are getting much more of this rubber than their traditional share.

We are still concerned about the rubber problem, mainly the inflation aspects. We feel that in recent months the rubber supply position has improved materially, that it is improving daily, and that barring an all-out war a few months from now, if our Government does not enter into cartel arrangements with foreign governments, or if it does not enter into fixed-price-contract arrangements with the producers of crude rubber, there will be a sharp deflation in the price of rubber and a corresponding reduction in the cost of finished products to the armed services and to civilians. Inflation is not around the corner; it is right on our doorstep. The inflationary pressures which are today at work threaten the soundness of our economy, the very foundation of our strength.

Thank you, gentlemen.

QUESTION: Mr. Collyer, As I understand it, the Government owns all the synthetic rubber plants. Does it have a legal monopoly or does it have a monopoly strictly by reason of the fact that it owns those plants? Your company started the production of synthetic rubber. Now, what has prevented industry from building its own synthetic rubber plants and meeting that general threat that a lot of businessmen feel, namely, keeping the Government out of industry.

MR. COLLYER: That is an excellent question. The American rubbers can be classified under two main headings. The first is the special-purpose rubbers, where rubber that has a special use is produced. In the special-purpose field we have the neoprene and certain other rubbers. In that special-purpose field the development of these rubbers is followed very closely the development of special skills. In our own B. F. Goodrich Chemical Company today we are producing and selling 12 different kinds of rubber.

Now, the other main field is the general-purpose rubber, mainly the tire rubber. Back in 1941, just after Pearl Harbor, our Government rightly asked the leading companies to put into a patent pool all their discoveries

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and developments. I can tell you it was with a twinge that the B. F. Goodrich Company did it because it had the main know-how. Anyhow, it made all that information available to the Government and to the operators designated by the Government during the war. At the end of the war, the Government did not break up that patent pool, so that if a company made a discovery it would have the right to its discovery, until last year. That was one of the things our company urgently asked the Government to do. The productive capacity and the production of the general-purpose rubber, which is the Government rubber (known as GR-S), is much greater than the production of all the special-purpose rubbers put together.

The Government has continued the ownership of those plants and the production of the rubber. Your question, I believe is: Why should that affect a private producer? The reason is that the Government has kept the selling price at a point where it is not possible for private capital to undertake the cost of plants at today's present level and meet that competition. We have been through a similar situation in steel. But I think in the synthetic rubber field, American rubber field, where the Government has over 90 percent of the productive capacity, that you would consider it a practical monopoly.

Now, if those plants after this emergency are sold or leased to private companies—and I hope they will be—then I am convinced that competitive enterprise will make for greater progress than for the Government to retain the operation. I have seen it work both ways in this country and throughout the world, and although the Government has spent millions of dollars on rubber research since the outbreak of World War II, every single major discovery in this field was really off the shelf before the Government took over. Cold rubber, for example, was put into the patent pool by the B. F. Goodrich Company at the outbreak of World War II.

QUESTION: Mr. Collyer, are there any cogent reasons why the rubber industry was not developed more in South America? That happened to be the originating area and yet it apparently has fallen by the wayside.

MR. COLLYER: The only rubber in South America, with one exception, is the wild rubber. The exception is the former Ford Company plantations. Back during the Stevenson cartel Mr. Ford became very much concerned about our country's rubber being in the hands of foreign rubber cartels. He made an enormous investment in South America to see whether we could develop anything in that area. He had many problems. For one thing, there was the South American leaf disease, which to rubber is like the boll-weevil is to cotton; however, I think that problem was overcome. But he

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also had production problems, labor problems. The conditions for operation were not anywhere near as good as in the Far East or in Liberia. Our own Department of Agriculture has made some constructive moves in trying to stimulate production. As a matter of fact, they are holding a meeting right now to consider this problem. One of our company representatives attended last week.

The only crude rubber that our company has ever owned is a small experimental tract in the Dominican Republic, where we had some very high-yielding trees. We presented all those trees and the seeds to our Government to use in passing on to other areas in South America.

But the fact is that although some people thought that in World War II South America would be a large producer, we actually never got above the same total they produced back in 1910.

GENERAL VANAMAN: I am sorry gentlemen, that we cannot have any more questions. Mr. Collyer must be on his way.

Mr. Collyer, on behalf of our faculty and student body, I thank you very much for a most instructive lecture and discussion period. We only wish you could stay longer, but we know you must be on your way.

Thank you very much, sir.

MR. COLLYER: Thank you very much, General. Good luck to all of you!

(23 May 1951—650)S.

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