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PLANNING TEXTILES PRODUCTION FOR WAR

27 February 1951

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Publication No. L51-113

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

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Mr. James Spencer Love, Chairman of the Board, Burlington Mills Corporation, was born in Cambridge, Massachusetts, on 6 July 1896. He received his A.B. degree from Harvard University in 1917 and thereupon entered the Army for service--two years--during World War I. As a major in the Infantry, he was cited by General Pershing "for exceptionally meritorious and conspicuous services." In 1919 he entered the field of textile manufacturing and in 1924 founded the Burlington Mills Corporation. He became president of that company in 1930, a post which he held until 1948. In 1948 he was elevated to Chairman of the Board. During World War II, Mr. Love served with the War Production Board as director of the Textile, Clothing, and Leather Bureau from October 1943 until December 1944. He is a former president, National Rayon Weavers Association; former director of the North Carolina Cotton Manufacturers Association; and Trustee of the University of North Carolina. He is a member of the visiting committee of North Carolina State College and the Harvard Graduate School of Business Administration. He is a member of the Anglo-American Productivity Council, the National Industrial Conference Board, the Industries Advisory Committee and the Advertising Council.

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COMMANDER HARTMAN: Gentlemen, a couple of weeks ago you saw the picture "Woven Into the Lives of America." This movie identified itself with the Burlington Mills Corporation and its growth over the last 25 years. We have with us today the man who founded the Burlington Mills, has been its president, and is currently the Chairman of the Board. In addition to his association with the Burlington Mills Corporation, he has most generously given of his services to the Government and industry in many other capacities, as you have noted in his biography.

Mr. Love, it is a great pleasure to have you with us and to introduce you to this audience.

MR. LOVE: Gentlemen, I haven't any prepared address. I am not famous as an orator. Though I am a trustee of three colleges, I have never appeared as a college lecturer before. So, in view of my limited capacity, I hope you will be tolerant.

I am appearing here as a textile man. Though the title of my address is "Planning Textiles Production for War," I am sure the intention of the title is to present the side of the manufacturer, because I wouldn't be quite so presumptuous as to tell the armed services what they should do, other than from what they might learn from a knowledge of what we do or have to do.

I would like to make one claim which was not in the introduction. I did have the happy experience of two years in the Army myself. I was also nearly two years in the War Production Board. So I have been on both sides of the fence. There is no experience in all my life that I value more than the two years in the armed services, which was just after I finished college. I am a great believer in universal training, just from the angle of the experience and the value of it to every individual.

I have been allotted from 30 to 40 minutes, and I am going to try to limit my talk to 30 minutes, because I don't know what you want to hear. I would rather make the question period the longer, so as to be sure that I cover the angles and the things in which you folks are most interested.

I have divided the subject of what I want to say into five major headings. The first one is the readiness of the textile industry for a mobilization or a war period. When I speak of the textile industry, I mean the fabricating industry. I don't mean the production of raw materials. That is an agricultural and a chemical product. I am talking

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about fabricating. Fabricating starts with the raw cotton or wool or rayon, making that into a finished cloth or garment. I am going to go into the structure of the industry later.

The first thing is the facilities. The facilities for fabricating of all raw materials, whether cotton, wool, or rayon, are completely adequate in this country. There are enough looms and spindles to make the requirements of almost any conceivable type of mobilization. That was also true in 1940. That was proved during the war. Since the last war there have been millions of dollars plowed back into the textile industry in the form of new improvements. In the matter of facilities the industry is infinitely better off than it was 10 years ago. Probably the basic reason for that is that the industry has had 10 years of relative prosperity. During the 1940's the industry had 10 very rocky years. When they have rocky years, there isn't the plowing back of capital into new facilities. But now the industry is in good shape, with adequate facilities.

Next is the question of conversion. There is relatively no converting to be done. The facilities in existence can for the most part be shifted over to the fabrics wanted by the armed services. So that is a relatively minor problem.

What problems does the industry face under the present conditions? Well, the major problem today is the prices and shortage of raw materials. I will just touch briefly on the three major ones.

In cotton there was a crop failure; the crop-control program of the Government had previously kept supplies low and heavy demand has exhausted reserve stocks. Cotton today is 45 cents a pound, with the exchange closed which makes a ceiling, whereas 10 years ago it was 10 cents a pound. There is a shortage. If there is not a really bumper crop this year, the supply and price of cotton will pose a large problem for the cotton mills and those purchasing for the armed services.

An OPS price ceiling or a closed exchange doesn't altogether put a ceiling on cotton, because cotton is a world-wide commodity. The price angle is very serious. It is serious to the manufacturers. They have to stock up with high-priced cotton. It is serious to the public. It is serious to the Government.

Wool is even worse. I am not a wool man basically. I don't know the cause of the world-wide wool shortage, but the price of wool today is \$4.55 versus 80 cents in 1940.

Now, some of you know what that means in terms of the cost of the enormous yardages which are necessary. Wool has been for the armed services perhaps the most important raw material, because it goes into the

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most important types of garments. For durability and warmth it has been considered almost essential. So there we have an 80-cent price 10 years ago and \$4.55 now.

The other raw materials, raw commodities, are the man-made yarns, of which rayon and nylon and others that I will talk about later are the principal ones. The prices of ordinary rayon are approximately one and a half times what they were 10 years ago. Ordinary 150 denier spinnable rayon today is about 78 cents versus 53 cents. Rayon staple that is spun like cotton and wool is approximately 41 cents versus 25 cents. Acetate staple is 48 cents versus 46 cents. So rayon is not up much more, if any, than the decline in the value of the dollar in the last 10 years.

Those are the basic facts.

Now, the supply of rayon for the manufacturer is limited. With the price of cotton and wool as it is, if there were twice as much rayon, especially the spinnable staple type, it might all be used; perhaps three times as much. A great deal of spinnable rayon staple is imported from Europe. That has now been restricted because of the world-wide shortage of textile raw materials. The price of imported rayon staple has gone from about 30 cents six months to a year ago to where we can't buy it for 60 cents today.

So those raw material shortages make problems for the average manufacturer. They make problems for the Government, too, not because there isn't enough of these things for military needs, but because of the very high prices, which certainly is important.

My next major subtopic is some of the problems during World War II. I am speaking now from my own experience in the War Production Board but not in any way authoritatively.

I should say that 80 percent of our time at WPB was spent struggling with the Office of Civilian Requirements and the OPA, and about 20 percent was spent in servicing the armed services. I shan't go into the details of that latter. But there wasn't too much trouble getting what was urgently needed. The trouble was in finding adequate ways to get people to produce for the civilian economy what we wanted them to make and not cut across other programs.

The setup of price control in the textile industry was such--it wasn't intended to be, but it worked out that way--that staples were fully controlled because staples could be catalogued and pinned down. The margins allowed on staples were very narrow, whereas on all sorts of frill things controls were difficult and partially ineffective. There were many legal ways of circumventing price ceilings on novelty items. If a manufacturer was pressed on staples he would find some way of shifting to

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novelties. We had a great struggle over denim, for example; perhaps the greatest battles were over that. Denim is a big item both for civilians and the armed services. The price ceiling on denim allowed one or two cents profit a yard, a very small margin. We couldn't obtain needed expansion in denim because there were plenty of other things that could be made that would show far greater margin. The result was that the civilian market was denuded of staples and filled with junk. The armed services got what they wanted but we in the War Production Board had our problems in trying to find ways to force adequate essential staple fabrics into the civilian market.

From the angle of the armed services the greatest shortage in weaving facilities, I think, was duck. To get enough, we had to force duck into carpet mills and drapery mills, mills that were normally geared up to make other things. The problem there was how to get these people to cooperate. When a drapery mill or a carpet mill goes into the making of duck, however, its cost for making duck might be six to eight cents a yard more than in a mill that is geared to make duck. There again came a price ceiling battle with OPA to get it to recognize that we had to have some special attention to get a fair price for every one. I don't mean to imply that OPA was altogether the villain. Some industry fellows would often chisel on us if they could. The problem was in trying to bring all the elements together in a fair one. That really took the time in the War Production Board.

We had a couple of other programs that were more constructive and more worth while. I was brought to the War Production Board by Mr. Nelson mainly to help resolve a fracas over rayon tire cord. There was a tremendous need for rayon tire cord. After many years of fighting between the so-called cotton lobby and other propagandists, it was admitted under protest by 1943 that rayon did make a better tire cord, that it lasted longer, and that it resisted moisture and heat better over a period of time. So we had to do a job of planning and expediting facilities for more rayon tire cord. This was a very constructive move, but even in 1943 we had a lot of fighting to do. Now it is generally recognized, even by the public, that rayon tires are better; but it was a long struggle.

Even nylon was a struggle at first in the industry. But by the time that the 1941 and 1942 mobilization call got under way nylon was recognized as a superior fiber for almost anything, although we did have to fight for the recognition.

The armed services took 100 percent of the production of nylon during the last emergency. A job of the War Production Board was to find a substitute for nylon. Nylon was so much better for women's hosiery that nobody wanted to furnish the rayon, which was used as a substitute. The rayon makers didn't want to enter a field that had no future. So WPB had to issue orders to see to it that sufficient rayon was given to the ladies hosiery industry so that it could keep running and women could wear stockings.

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Since 1945 I believe the nylon capacity is five or six times greater than it was then. There should now be enough nylon for the emergency needs of the armed services, plus the ladies' hosiery industry, and possibly some other civilian uses.

However, the public demand for nylon is as keen as ever. The public would probably take every bit of nylon available in the country today even if it cost five or six dollars a pound. That is the situation with the nylon facilities. Nobody knows yet how much nylon would be used if it were available. From the angle of the armed services there are still unused facilities and it was proved in the last war that civilians could do without nylon if they had to. Incidentally, civilians could also do without wool if they had to. Many synthetic fibers, one example--like rayon, are adequate substitutes for wool for civilians if it becomes necessary and we have to do it.

I have tried to give you in a very few seconds the highlights of the War Production Board's textile activities in World War II, and what appeared to be the problems of the armed services in textiles.

I want to digress now and present something of a cross section of the textile industry at the present time--the nature of the industry and why the industry is what it is.

In the first place, it is an industry of small scattered units. Why small scattered units? Because it doesn't require more than 60 days to train textile labor and it requires much less capital to start a textile operation than most any other industry. There are more ways for getting into textiles than any other major industry that I know of. The small unit can compete with the large unit, because it doesn't have to have research, sample making, and public relations. It doesn't have to do a lot of things that a large business has to do by reason of its responsibilities. The small fellow can specialize on any one thing that may be good and he can jump in and out; he has greater flexibility. He can keep his fixed overhead very low.

The small business divisions, the fellows on the Hill that worry about small business, don't have to worry about the textile industry, because there are today more small businesses in the textile industry than there ever were before. There are hundreds more than there were 10 years ago. So, as long as it is possible for a fellow to save a little money and start a business, as long as there is genuine free enterprise in this country, I think the textile industry will continue as a group of small businesses.

There are some large companies. There have always been some. I think saleswise, or by most other measures, the largest concerns in the textile business are J. P. Stevens and the Burlington Mills. But they

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probably both constitute somewhat less than 2 percent of the total volume of the textile industry. In cotton there are about 1,200 establishments; in rayon, the man-made yarns, there are about 500 establishments; and in wool there are 465.

Most of those establishments either spin fibers, weave, process, finish or turn out cloth. Very few of them are integrated into garments. In the garment industry there are something like ten or fifteen thousand separate establishments.

But there is no standardization to the organization procedure. A lot of companies just simply spin the yarns, many only weave or knit, and many only twist yarns or finish cloth. There is no standardized setup. However, the trend has been slightly toward greater integration, especially in the larger companies; but in spite of the trend toward integration, however, there are a great many more small companies today than there were 10 years ago.

The advantage of integration is better control of quality. All processes can be coordinated better toward an ultimate end. The disadvantages of integration are lack of flexibility and conversely greater unwieldiness of operations. I am not going into that subject. It is a long-debated one in the industry. But from the angle of the armed services the integrated companies are better for them to deal with, broadly speaking, because it is better to buy a finished product, and dealing with a vertical supplier gives far better control of product and quality. A company that can work all the way from the fiber to the cloth can also do a better job of cooperation in the development of fabrics, which is most important.

I haven't mentioned silk. Silk represents less than 2 percent of the total textile industry. It has shrunk to a practically negligible amount. It is a very highly luxury item. I don't think there is anything today that silk is used for which nylon can't do better. Silk seems to be going out of the picture.

I would like now to give you the yardage production of these different types of fibers. The annual production of cotton is 9.8 billion yards. In rayon it is approximately 2.45 billion yards, and in wool 480 million yards. In other words, cotton is roughly 70 to 75 percent of the total yardage, rayon is somewhere around 20 percent of the total, and wool is 4 percent.

The consumption of fibers is not in the same proportion, though I don't happen to have the exact figures with me. Wool fabrics are heavier. They go into blankets and heavier fabrics. So, even though there are five times as many yards of rayon fabrics made, the poundage consumption of rayon to wool is only about double. That is very rough.

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I would like now to review very hurriedly the subject of procurement from the angle of the manufacturer. Although this may not be true of wool today, due to the wool shortage, the traditional method of procurement of textiles has been to solicit competitive bids and give the contract to the lowest bidder. I think that is a very desirable method of procurement. It insures the armed services the best possible price. They know what they are doing. There is no chance for collusion or for anybody to be favored or to say the buying wasn't done fairly. I think competitive bidding is always the best way to operate. Perhaps in the present wool situation it isn't possible. I don't know the answer to that. The armed services issue invitations for competitive bids for quantities and qualities; and, with the large number of highly competitive manufacturers and civilian market prices well known, the services are usually assured of very fair prices. When bids do not appear fair the services can always reject or negotiate, and there is always the protection of renegotiation.

Now, as to psychology, you may ask: "Does the manufacturer generally want government business or doesn't he?" Well, inherently the manufacturer would prefer not to take government business, because if he can hold on to his civilian market he is better off. He will get no better price from the Government and he knows the government business won't be permanent. He would rather hold on to his civilian business than let his competitors take his customers away while he is doing government business. So his first motive would be to stay away from government business.

On the other hand, when there is a real war, the manufacturer has to consider other things--public relations, recruitment, even the internal morale angle. Those things during a war pretty well offset any inclination to want to hold on to the civilian customers. The two motives pretty well balance each other--the motive, on the one hand, to keep your civilian customers; and the motive, on the other hand, to have the public and internal relations that result from saying you are doing your bit for the Government.

There are other motives that affect the manufacturer more directly. He is naturally affected by the condition of his looms and the availability of new business at a particular time. It may be that the securing of government business will give him needed raw materials that he must have to cover his looms. That would be particularly true of the man-made yarns section. We have had to go out and take government business often because we wouldn't have enough yarns to cover our looms if we didn't, especially in the nylon area.

We often take government business in order to get priorities for needed equipment or even repairs; because, if we take government orders, we get ratings which enable us to get other things we need; perhaps it is expansion or perhaps just a machine part. So there are all these motives which come into play. But the net of it is that if a fellow wants government business, he will often go out and quote below cost, sometimes well

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below, just to get the priorities that will cover his looms. He knows he will have to quote low to get the business. That is about what I know of the way the orders are placed.

There is one other angle to it. Most manufacturers, particularly the larger ones, cooperate with the services in development work. There isn't a time when we don't have a new experiment or new development in process in which we are cooperating with different branches of the service. We have our laboratories and they have theirs. There is a great deal of cooperation between them. A great number of very valuable fabrics have been developed that way. I think there is now--and there always has been, so far as I know--a spirit of fine understanding between the textile industry and the services along those lines.

A very important point to the textile manufacturer in procurement is continuity. If the services can estimate their requirements and put out their bids so that the people who specialize in the particular fields can keep their looms going, it makes for better prices and it makes for greater efficiency. I don't know how technical I can be with you folks; but, once a textile machine is set, it is like a player piano. It is set to make a particular kind of goods. Textile machines literally have to be "threaded up" each time they are put on another type of fabric or yarn. Therefore, if the type of goods for which they are "threaded up" is taken off and some other type put on, several weeks of production are lost and it is costly. It is not nearly so costly as it is for an automobile manufacturer to change his model or anything like that, but still it is costly. There have been many instances where continuity would have been simple to achieve if the people in the services had just realized the value of continuity and done a little planning.

I want to say a few words now about the man-made yarns. I told you that rayon and other man-made yarns are double the production of wool now. They have crowded silk off the picture and are pushing up into the billions of yards, along with cotton.

Man-made yarns are now 80 percent of the unit volume in the women's dress field. They are 85 percent of women's blouses, and 50 percent of women's suits. In the men's summer-wear suit field, within the last two or three years man-made yarns have taken over more than half the field. In other words, more than half of the light-weight men's summer suits that you will see this year will be made of man-made yarns of some sort.

I have previously mentioned the use of rayon in the tire cord industry. The ladies' hosiery industry is 100 percent in nylon. You know without my telling you about the many uses the armed services are making of nylon. You probably heard Mr. Greenewalt tell you about Orlon. There are similar yarns in the making, such as Chemstrand, Dynel, Fiber V, and others. This latter group of yarns is relatively new and there is as yet only a very small quantity of them in production.

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Speaking purely as my own belief, I think that the man-made yarns will ultimately crowd the woolens out, just as they have crowded silk out. I believe that 15 or 20 years from now wool will be used about as little as silk is now.

Why are the man-made yarns better? Because they can be controlled. They can be controlled as to length of fiber, as to size of fiber, as to resiliency of fiber, and as to weight of fiber. If you want something with a little crimp in it, a crimp can be made. They are not subject to the vagaries of the weather or the vagaries of a speculative market. They can be stabilized as to price. These new yarns are made mostly from such things as oil or natural gas bases,

Another advantage of this group is that in practice, fabrics from these man-made yarns are washable. They don't shrink, as compared with wool, for example. Orlon doesn't shrink at all. In fact, the more you wash it, the more bloom it has. It will dry immediately, just as nylon will. It is much lighter for the corresponding warp and coverage. Insects don't like to eat it. It will hold a crease better. There isn't any textile fabric that won't wrinkle a little--don't let anybody kid you about that--but Orlon and these other new fibers will wrinkle less, I believe, than the finest worsteds.

The Army wool buyers will tell you that there are little things wrong with these new fibers. If there are, they will be corrected. The people like these yarns and will take all they can get, in spite of the opinions of the armed services. They say that wool and cotton interests have their strong lobbyists and supporters over on Capitol Hill. I don't know whether that is why some agricultural products give way slowly or not.

In addition to its other superior characteristics, Orlon also has a decided major price advantage. Orlon staple is selling at around \$1.70 per pound while the Government is paying \$4.75 per pound for wool today. The cost of making Orlon is anywhere from \$1 to \$2 per pound. So for the difference in cost between Orlon and wool you could pay for facilities to make Orlon in less than one year.

Let me put it this way. An Orlon plant to produce 30 million pounds a year might cost 50 million dollars. With a \$2 differential in price between Orlon and wool the return in one year would be 60 million dollars. It might be a boon to the country if every sheep died because we would then get better and less expensive fibers to replace wool much more quickly.

I am an extremist and not an authority, but I have no interest in any chemical concern. I probably would go along with anyone who said some of them make too much money. But they do perform a wonderful service. I do see, looking ahead, more and more of these man-made yarns being used. If the Burlington Mills has had any success, if I have had any success, it

is because we had faith in the man-made yarns. I have tried to give you the reasons why. We pinned our future on them at a time when everyone was skeptical. We have stuck by them. We were among the very first to rush down to DuPont and beg for nylon to make our hosiery when others scoffed. Today we are the biggest hosiery makers in the world. That is the main reason, if you want the secret. Perhaps it took some hard work, too.

The picture of the future is more and more man-made yarns. I think that will be the answer to shortages. It is the answer to the ravages of the weather, to the uncertainties of agriculture. Don't worry about agriculture. There will be plenty of other things the farmers can do. A smart farmer nowadays is diversified and often doesn't just grow cotton. Some cotton farmers went into raising beef cattle and now are doing much better than the farmers who stayed in cottons, so don't worry about them.

There isn't any man-made fiber that can yet take the place of cotton in all uses. So long as cotton can be grown for less than 40 cents per pound, it will stay in a great many items. They may take cotton out of tire cord and a good many other things, but there are certain things for which they haven't yet developed a fiber which has the quality of cotton. Some of them are towels and sheets and cheap washable items. But I believe a suitable fiber will eventually be developed that will even take the place of cotton.

I have now covered the things that I thought most of you expected me to cover. I will be delighted to answer any questions on things that I haven't covered.

QUESTION: I am interested to find out why there are not more people getting into the manufacture of nylon and Orlon if the demand is so much greater than the supply. What is holding them back?

MR. LOVE: That is a question that I wish you had asked Mr. Greenewalt, and I would like to have listened to his answer. But I think it is because of the patents, the know-how, and the very large amount of capital needed. I think also that it has been due perhaps to ignorance on the part of people who might otherwise have gone into it. There is no one in the textile industry who is familiar with the chemical end of those fibers. Like myself, they don't have the capital or the know-how to get into the chemical business. On the other hand, the people in the chemical business who might have gone into these man-made yarns of the nylon type haven't known what was going on in the textile business. The angle of the patents is also important.

I understand, unofficially, that one or two other companies are being licensed to make nylon now. There has been a plant announced jointly by Monsanto and American Viscose.

I have personally done a lot of missionary work with bankers and others who might be interested in trying to solve that very same question, because there seems to me to be no field where the chances of profit are better.

Another answer is that various and sundry companies have been making other special types of yarn. For instance, Celanese, which is the biggest company in the acetate field, has had and still has its own particular types. There are just as many types of these yarns as there are chemists. They are different versions of the same thing. Rather than copy DuPont, they all want to develop their own types.

I think a lot of those companies had a time schedule under which they expected to get into these yarns in a year or two. Actually it is taking them 5 or 10 years to develop the research and get what they wanted. In the meantime they have been so busy keeping up with the present demand and have been doing so well on what they can make now that they haven't felt the urge or the impetus to experiment. There isn't a rayon producer who hasn't had more demand than he could supply for several years.

QUESTION: Our group is studying industrial plants. As you know, immediately following the war a great many government plants were sold or leased to private industry. In your expansion program did you find it to your interest to buy or lease any of these plants; and, if so, how is it working out?

MR. LOVE: The only government plant that we acquired--and we got it by purchase--was the Ordnance plant at Dublin, Virginia. We have the plant, but the Ordnance Department, I believe, is going to take back the warehouses in this current mobilization.

Frankly, we were sorry we did not build a new plant instead of putting our money into that one. On paper it looked as if we bought a bargain, but we found out later that if we had built a new plant suited to our own purposes from the ground up, we would have been better off. However, that was a very isolated case. We are using it for a finishing plant.

QUESTION: You didn't speak very much about your manpower problem. I am wondering if maybe technological progress in your industry has reduced your requirements in manpower or other phases and that this is why you didn't speak about it. Would you mind commenting on that a bit?

MR. LOVE: I could have mentioned manpower when I was speaking about going out after government business. In a period of acute manpower shortage, such as we had about 1944 and 1945, it would be good practice to build up your percentage of government business.

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Today in our industry, in the principal areas where we happen to be-- Virginia, North Carolina, Tennessee, and Georgia--there isn't any particular manpower shortage. There is a very well-balanced situation in employment today in those areas. I think everyone who is able to and wants to work is employed, and still there isn't any shortage. That is probably why that problem isn't on our minds. It may be very different in Detroit and New England or somewhere else, but it isn't where we operate.

I should have said in describing our industry that it is located mostly along the Atlantic seaboard, from Georgia through Maine.

QUESTION: May I go ahead just a little bit further? Have you been able to reduce the requirements for manpower by progress in the design and utilization of machinery, and so forth, say, from 1945 to the present day? Has there been any marked reduction in manpower compared to the yardage produced?

MR. LOVE: Yes. Definitely. We call that productivity. Over the last 25 years I should say that the productivity, measured in yards per productive worker, has probably at least doubled, perhaps even more than doubled. I don't have those figures before me.

We figure on some gain in productivity every year. That is a constant trend. On the other hand, the company has taken on more and more employees every year in spite of the increase in productivity of each worker, because we have diversified. We have gone into new fabrics every year. Also fabrics are much more complex than they used to be. Whatever surplus manpower might have resulted from the increase in productivity, it has been absorbed in making more complex fabrics or better fabrics of different types.

I have studied productivity a great deal, because I have been a representative through ECA on the Anglo-American Productivity Council, which has been investigating productivity differences between England and this country. In the textile industry it was admitted on both sides of the water that the productivity of the American textile worker was something over double that of the British. It varied in different types of operations, but it was something over double.

That was due to a great many things. It was not due entirely to the differences in machinery. One thing we found was that the power available per industrial worker in this country is more than double what it is in England. You must have power to make textiles. It was partly due to better machines and methods and also partly due to better raw materials and a number of other things.

I do feel that we can increase our productivity every year. I can say that it is a constant goal. However, figures would show that, in all

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industries, in spite of these increases in productivity, there are more people employed today than ever before.

QUESTION: Someone has developed a process for depositing aluminum on top of a cloth fabric and using it as a coating to make a fabric that would be as warm as wool. What has happened to that? We haven't heard any more about it. Is it satisfactory?

MR. LOVE: It has been promoted by one company, Deering-Milliken--a very responsible concern. It is offered under the trade name of Milium. Frankly, I haven't heard very much about it lately. I have seen some advertising. Our own technicians and specialists haven't been very enthusiastic about it. I haven't heard the question asked in several months. That doesn't mean that the product has no value. It is not a new thing, however. Its main objection is its lack of porosity.

QUESTION: Is it a good substitute for wool?

MR. LOVE: Certainly not for shirts or blankets or things like that. A shirt must have a certain amount of porosity. A blanket has to have some too. You must be able to breathe through it.

QUESTION: Are any textile raw materials being unduly hoarded by manufacturers?

MR. LOVE: I wouldn't think they are, to any great extent. Of course, cotton is the major raw material. The figures are readily available by months showing the stocks in warehouses and manufacturing plants, as well as the consumption figures. In cotton I would guess that within the industry the stocks are less than they were a year ago. In wool I don't know. I am not sufficiently concerned with wool to know whether mill stocks are enough to consider them a factor in mobilization. I would say that the stocks of textile raw materials at mills are not very important as a factor.

QUESTION: It would appear to me that one of the biggest problems in cotton is the farmer who quits cotton to become a dairyman because he makes more money out of it. It would seem that, if this continues, it is going to end up in drying up the cotton supply. Would you mind discussing that problem a little further?

MR. LOVE: I didn't say "dairyman"; I said "beef cattle." I think that it is a problem. Of course, it is one which affects the price of cotton and which will hasten the trend into further diversification for the farmer. On the other hand, a 45-cent price for cotton--remember, it was 30 cents a year ago--will probably arrest the trend at least temporarily. A bumper cotton crop is expected and hoped for this year.

QUESTION: In connection with another phase of industrial mobilization, specifically the allocation of plant capacity, I wonder if you would care to mention a few opinions from the standpoint of the manufacturer. I have no doubt that Burlington Mills is well represented in the program by means of signed agreements between certain of your mills and the armed services. Has Burlington Mills been called into that program wherein the capacity of certain mills is spoken for in the event of mobilization or war?

MR. LOVE: No. I don't know of any such agreement at all.

QUESTION: Are you familiar with the allocation of facilities program?

MR. LOVE: I don't think it would be necessary in textiles. I don't believe that this program would be applied to the fabrication of textiles, because the optimum requirements of the armed services wouldn't occupy over 30 percent of the productive facilities of the textile industry. The question is how much the civilians would have to skimp on clothing. Even at the height of the shortages in World War II the average civilian had plenty of clothing. So I don't believe that the services are negotiating that type of thing with the textile people. I think that would be more with the heavy industries--planes and things of that sort. I don't know a thing about it.

QUESTION: You say that man-made yarns are better than natural fibers. We understand that little can be done to increase the production of such fibers because of the shortage of sulphuric acid, which in turn is based on a shortage of sulphur. If we had a mobilization of our resources, how much chance do you think there is of the production of sulphur being rehabilitated beyond what facilities we have today?

MR. LOVE: Well, sulphur would be one of many items. I think it is true today in the enormous world-wide industrial activity that has taken place that shortages of raw materials are not necessarily confined to textile raw materials. But I understand that additional sulphur facilities are in the making.

These shortages do come up. My impression is that sulphur is not required in fibers like nylon and Orlon. Sulphur is used in ordinary rayon. But maybe it will be sulphur this month and hydrochloric acid another month. It seems that in a mobilization period there are always shortages developing. But I think the facilities for sulphur production are actually greater now than before. Is there anything really critical about sulphur?

QUESTION: Yes.

MR. LOVE: I know it is short, but can't facilities be created for making sulphur within a reasonable time?

QUESTION: I don't think so. From what we have heard previously, it is a very serious shortage, especially in Orlon and nylon and so on, the fibers that require sulphuric acid from sulphur. But the question really is: Should one of these sources of raw materials for the textile industry dry up, can it be rehabilitated in a relatively short period?

MR. LOVE: I have enough faith in the ingenuity of this country to believe that in almost any man-made raw material the facilities can be built up. Of course, that is why we must have regulations, and that is why we must have a National Production Authority. First, we have to spread these short things over the channels where they are needed most. Second, we have to see to it that facilities are expanded to build up the supply.

In an economy like ours at the present time, we will have over a period of years first this thing and then another thing short. The thing to do is to anticipate those shortages and provide against them. I haven't heard anybody in our industry speak of a sulphuric acid shortage as anything that wouldn't be taken care of in time.

I was talking a month ago to Mr. Langbourne Williams, of Freeport Sulphur, about it. He said, yes; there is a shortage, and it is due to ECA having been supplying a lot of sulphur to the European countries. Those countries have come up for more, and we can't just drop them overnight like a hot potato. We had to give them time to rehabilitate their own facilities.

I haven't heard any of my rayon suppliers use the excuse of sulphur being short. They have used every excuse in the world for not giving us all we wanted, but they haven't been laboring that particular one. It may be that you are giving me some advance information.

QUESTION: Does the productivity in the wool and cotton mills increase when you get to the staple commodities such as the fibers used by the military as compared to the productivity in the normal range of civilian fabrics?

MR. LOVE: Well, I don't believe there would be a marked difference. Naturally, the more you standardize, and the more you tend to stabilize your fabrics, the greater the productivity. That is normal anywhere in any industry.

Now, it just so happens that the requirements of the armed services for man-made yarns are generally not in large quantities. They are using them mostly for new purposes, as substitutes for other materials.

In my own company we have one large cotton mill, which accounts for about 20 percent of our volume, and we use a little wool; but man-made

yarns are our specialty. Our productivity in nylon is less now, because we have to do a great deal of experimenting and fussing around to get our fabrics exactly like they are wanted.

To the extent that the armed services buy such things as uniform cloth and sheetings, where there are such enormous quantities involved, it would be a good thing if they could get that continuity that I spoke about. That should make for greater productivity.

COMMANDER HARTMAN: Mr. Love, we could keep you here, shooting questions at you, for the rest of the day. We certainly do appreciate the excellent and informative talk that you have given us. On behalf of the college I thank you very much.