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INDUSTRIAL MOBILIZATION OF GERMANY

18 March 1947

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GENERAL MCKINLEY: Gentlemen, this morning we have quite a treat in store. We have with us Dr. J. Kenneth Galbraith, who is a distinguished economist, educated in Canadian, American, and English institutions of learning. At present he is a member of the Board of Editors of Fortune Magazine.

During World War II, Dr. Galbraith held several important posts in the Office of Price Administration, becoming Deputy Administrator in 1942. He was a Director of the United States Strategic Bombing Survey.

Dr. Galbraith has taught economics at Harvard and Princeton, and is the author of many books and articles on this subject.

This morning his subject is "Industrial Mobilization of Germany."

I take great pleasure indeed in introducing Dr. Galbraith.

DR. GALBRAITH: Thank you very much, General McKinley. It is a very great pleasure to be here this morning.

In examining industrial mobilization, one's first discovery is a pronounced resemblance between the plans and procedures of all countries, however different their politics, if they are faced with essentially similar problems and have an essentially similar economy. While we heard a great deal before the war about what Germany was doing, of the iron determination with which Germany was approaching the task of industrial mobilization, there were in fact pronounced resemblances between what Germany did and what happened later in the United Kingdom and in the United States. The task that Germany faced, like the task that we faced, was to convert its industries from peacetime industry, that is from production of ordinary civilian goods and services, to military use. Germany's task, as ours, was to convert an economy where production was determined by the needs and desires of civilians and controlled not by central authority but by the ebb and flow of prices in the market—high prices stimulating production, low prices retarding it to an economy where production was controlled by a central authority and where it served a war plan. Let us examine this process of mobilization in more detail.

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First, there must be an over-all strategic plan—a notion of the kind of war (or wars) that is to be fought. This, in the last analysis, indicates what is to be produced. Second, there must be a system of controls, or more properly an organization, for getting the production that is needed.

In practice this apparatus for organizing the economy during World War II consisted of three instruments of control. First, there was a system of general price controls which had the effect of setting aside the ordinary functioning of the market for civilian purposes. In the United States, in the United Kingdom, in Germany, and in Japan, one of the first steps in serious mobilization was to set aside the ordinary market machines by which the civilian expresses his tastes in the market and commands civilian goods in return.

The second part of this apparatus, which also was common to all belligerent countries, was a system of controls over the use of resources, a control over the use of steel, nonferrous metals, plant capacity, and in greater or less extent over labor. These were designed to insure that economic resources were employed in making the end products which were being sought.

The third piece of apparatus, which we can dismiss very quickly, is the system of subsidiary controls over the civilian economy which insures that what is left over after military requirements are utilized to the maximum, is distributed equitably to the civilian population and in such a manner as to maintain economic stability and to preserve civilian morale.

To summarize, the three essential pieces of control are: first, the setting aside of the ordinary civilian market and civilian market machinery by a system of general price controls; second, an institution of a system of priorities, allocations, labor controls, and so forth, which channels productive resources into the military products called for by the war plan; and third, the system of subsidiary and supporting controls over the civilian economy which enables the country to sweat out the period of the emergency with an equitable distribution of what is available.

In looking at Germany, or at any belligerent, it is apparent that the first thing we want to know about is the kind of war that is expected. If mobilization, as I have said, is shaped by the war plan, we need to know first of all what that war plan is. In the German case, it is particularly important because the German war mobilization was very profoundly shaped by the kind of war the Nazi leaders expected to fight. And the kind of war the National Socialist leaders got was not the kind they expected and planned for.

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The German war plan was based on a series of political and military propositions. The first of these was that the Western Powers were politically and morally bankrupt. The second proposition was that Russia was inconsequential as a military power. From these two propositions, the Nazi leaders concluded that great victories could be obtained by skillful political strategy, backed up by a force of arms in-being. Any military campaigns would be blitzkriegs or police actions, not long, hard campaigns. At no time would Germany have to fight for more than just a few months at a time.

The early history of Nazi aggression seemed to indicate the wisdom of this concept. Germany, by a process of blackmail and threat, was able to move unopposed into the Rhineland and take over Austria. As the result of a great political campaign against Czechoslovakia, they got first the Sudetanland, and subsequently, without a shot being fired in anger, all of Bohemia and Moravia. The Nazi leaders concluded that their conception was essentially sound, that this was the way to fight. What with the politically and morally bankrupt countries in the West, and a weak Russia, all that was needed was a display of force combined with clever political strategy, and the results were forthcoming.

The Polish campaign, while it did bring the first shots of anger, further seemed to demonstrate the wisdom of this conception. If it came to fighting, the campaigns would be quick and easy. The subsequent campaigns in Scandinavia and against the French further reinforced the conviction that this kind of strategy was essentially valid.

This was the Nazi plan. It was not the plan of the German General Staff. The General Staff generals never subscribed to this doctrine. The differences showed up in sharp disagreements over the kind of preparation that was needed for war.

For their political warfare and blitzkrieg campaigns, the Nazi leaders concluded that they did not need to "arm in depth"—a phrase, by the way, that was much used in German planning. They concluded that all they needed was a large arsenal, a large stockpile if you will, of arms in-being. They wanted a striking force, ground and air, with a ready supply of arms, but since they were not going to fight a long war, they did not worry especially over whether they had the industrial capacity for reproducing those arms. Basic industrial capacity was only needed for a war of attrition. The German political leaders did not contemplate a war of attrition so they put their primary energies into getting a large supply of arms on hand. They did not concentrate on getting steel capacity, chemical capacity, or fuel capacity to support and sustain a long campaign. During the '30's Germany did expand its steel capacity and increased the utilization of domestic ores, and it did expand synthetic oil capacity, so as to be independent of imported

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supplies. It also increased its synthetic rubber capacity, so it was not dependent on natural rubber, and of course it expanded finished arms capacity very greatly. Those steps, however, were the essential minima that had to be taken for any kind of war. They were necessary even to sustain these quick police actions. You have to have oil for an air force even if you don't contemplate its intensive use for more than three or four months at a time. You cannot be dependent on outside supplies. You must have steel and you can't be too dependent on imported ores. The Nazis, however, did not go in for a solidly organized, carefully planned expansion of their basic capacity, on which in turn they would build a solidly organized arms industry sufficient to sustain a long shooting war.

The generals, however, would like to have done just that. The ruling opinion in the General Staff was that Germany should make preparations "in depth." The generals wanted to expand basic steel capacity to maybe 30 or 40 million tons. (They had about 25 million tons.) The generals would have liked to expand synthetic rubber capacity and oil capacity to sustain any possible drain that might be required. They wanted more ordnance capacity, not only for large scale production, but for a large scale reproduction as the fortunes of a long war might require. However, the General Staff lost out, and it was with the National Socialist conception of armament in width for a short war that Germany went into the actual shooting stage.

I might say in passing that there were many other aspects of Germany's war preparations that were consistent with the great emphasis on mobile ground army equipment, great striking power, great fire power, and a short war. For example, this explains why Germany did not develop an independent strategic air force. An independent strategic air force is only serviceable in a long war, a war in which you are striking week after week, month after month, at the enemy's industrial strength and wearing down his total industrial capacity. It is appropriate only to a war of attrition.

Because the GAF was an adjunct of the ground army, the bombing of England in the fall of 1940 and the spring of 1941 was an improvised operation. It was not comparable in planning and conception with the operations of our own strategic air force in Europe or in the Far East.

As I have said, this concept of mobilization looked exceedingly satisfactory for a long period. All Germany had to have was a force in-being more powerful than any opposing force. For a long while this was not difficult. In the Polish campaign, Germany won a very satisfactory victory in a very few weeks. The Norwegian campaign and the French campaign went very satisfactorily, very quickly.

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The industrial mobilization apparatus which sustained those campaigns was of an extremely informal, easy-going character. In spite of all the talk about total war, Germany had a strategic concept which did not require total mobilization. For industrial mobilization in these years, Germany relied on three organizations. They were all deficient in many features.

There was first the Economics Ministry, a civilian organization under the direction of Dr. Funk. Funk was an incompetent and inefficient one-time journalist, who was drunk a great deal of the time. (I might enter a parenthesis here. I don't suppose there was ever a government in modern times upon which the effect of alcohol on administration was quite as great as in the case of Germany, especially in the latter days. When you get to the effect of alcohol on war, I wish you would invite me back because I am very fond of lecturing about that.)

The Economics Ministry was a vast bureaucracy, organized something on the Chamber of Commerce pattern with local "Chambers" leading up to a central organization in Berlin. It had the task of channeling raw materials into military use and did it very badly. While it had been built up to get Germany ready for war, when things got really tough, it had to be junked.

The second instrument of preparation was the Four-Year Plan under the direction of Goering. It appears to have been reasonably effective, but it had a very limited objective. The Four-Year Plan was not so much for the purpose of mobilizing Germany's industrial resources as it was for the purpose of filling in the gaps—the gap in oil capacity, in steel capacity, and in synthetic rubber supply.

Finally, there were the procurement arms of the three services, the Ground Force, the Navy, and the Luftwaffe. Each of these procurement services was highly developed and each procured independently. The Army, which was the senior service, had by far the most extensive procurement organization. It divided the country into regional and local procurement districts, which placed and supervised the orders although depending on the Funk Ministry for the allocation of the raw materials. The Navy and Luftwaffe procurement organizations though well developed were on a much smaller scale.

Between the procurement organizations, there was some staff coordination but it was not especially effective. The Navy, for example, consistently specified small differences in the caliber of its arms so that the Army would not be able to raid its depots in case of emergency. There were small differences in the procurement of the Luftwaffe to serve the same end. There was overlapping and duplication in placing orders and some actual cases of competition for plants and other productive capacity.

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The generals that were in charge were not a very impressive group. I have heard that there is a tradition among the American services which favors sea service over supply services, and which causes Army officers to wish they were out with the troops rather than in the Pentagon Building. I can tell you that this unfortunate tradition was at least as strong in the German services.

In all of this there was very little change until 1942. If you were to make a quick summary, you would say that there was a considerable accumulation of arms which gave the Germans a margin over countries which had greatly lagged in their preparation; there was capacity for production of end products, but no supporting economy for sustaining that production over any considerable period of time; there was far less basic preparation than we guessed at the outbreak of the war. The organization for industrial mobilization was both overorganized and underorganized. Funk's civilian operation was top-heavy and overorganized, and not effective. The Armed Services, with their independent procurement, were competitive and underorganized. Finally, and I want you to mark this particularly, there was in 1939 and 1940 a very fat civilian economy. The German standard of living in 1939 was the highest in history. While in 1940 Germany met a reverse in the Battle of Britain, this did not have a major effect on German thinking. France had been knocked out and the fact that invasion was not possible in the autumn of 1940 did not terribly worry the Germans. They assumed victory was in hand anyway—their state of mind was much the same as ours after VE-Day. They classed England as we did Japan—as an enemy which was surely doomed. They thought that if they organized Europe, England one way or another would wither on the vine.

After the fall of France, German arms production was cut back. There was a general reconversion to civilian production, and actually in that year civilian consumption, which was a good measure of the extent of the war effort, was only about ten percent below the 1939 peak, which was the highest in German history. Civilian consumption was higher in 1940 than in 1937.

Late in 1940 the cutbacks were rescinded when secret orders were issued to prepare for the attack on Russia the following year. The attack on Russia was planned with the same loose and not too effective domestic organization, and with the same idea of a quick campaign, one of three months or four months duration. No plans were made for a long war in Russia. The Germans were convinced that by September or October of 1941 at the latest the Russian campaign would be over.

All of this changed. The critical date was very nearly the same as for the United States—December, 1941. When the Moscow attack failed to go according to plan, several divisions lost their entire equipment, transport was snarled up, locomotives and road transports

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froze up or were lost in quantity, this period of German mobilization, which we could with some truth call the "guns and butter" period, came to an end.

In January of 1942, at about the same time the United States got down to cases, Fritz Todt was appointed coordinator of procurement. Todt was a very able man. He had built the autobahn and organized the construction industry in Germany. Now he was given supervision of the procurement of the armed services and certain authority over allocation of raw material. He did not have firm authority. That spring, he was killed in an airplane accident and was succeeded by his protegee, Albert Speer.

Speer was a very young man--he is now only 40--and had been an architect for the building of the new Reichschancellery. While he was supervising this construction, Hitler, who was interested in architecture, had noticed him, invited him to lunch a few times, and taken a liking to him. When Todt was killed, Hitler, in what he called one of his intuitive decisions, put Speer in charge of army procurement. This was one of Hitler's intuitive decisions which turned out well.

Speer worked along with about the same authority that Todt had until the autumn of 1943, when he got an executive order--using an American term--from Hitler which gave him full and complete power over German war mobilization. He then got Funk out of his way and the Economics Ministry became a mere rationing authority for the civilian economy. Speer got full control over allocations of raw materials and full control over the procurement of the Army and of the Navy. The services with whom his men worked intimately turned over to him their requirements. Speer reviewed them for practicability, cut them down if necessary, and then arranged production.

Speer did not have control over labor, nor did he have control of Luftwaffe procurement until a later stage. Air generals were as hard to deal with in Germany, I suppose, as they are everywhere. I hope everybody notices that I am handing out insults with an even hand. I am going to say something disagreeable about the Marine Corps in a minute.

From the time Speer took over, there was a spectacular improvement, a really spectacular improvement in German production. Between early 1942, when Speer took office, and July and August 1944, when German war production reached its peak, output tripled. If you want a final measure of how low mobilization was in the early stages, you have only to reflect on how much it increased. To repeat, in July 1944 German war production was three times what it was in January 1942. I might say, parenthetically, that in January 1942, fantastic as it may seem, German war production was suffering from a cutback. In September 1941, which

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was the date when the Russian war was supposed to be over, Hitler cut back armament according to plan. By the end of the year, as a result of those cutbacks—although they were rescinded a couple of months later—production had fallen about 20 percent. Nevertheless German war production in July 1944 was at least two to two and a half times greater than it had been at any previous period.

The Germans also succeeded in shortening their pipe lines. The fact that they were fighting interior lines in itself helped, but they also managed to reduce the time between the design of equipment, its production and its use in battle.

Speer, in large measure, junked the old procurement system of the services or allowed it to survive only as an inspection service. He set up instead committees consisting of engineers, technicians, the best men from the various war industries. He made them responsible for meeting targets and for putting through technical alterations which were called for as specifications changed with the design of new material. The essence of his system was not to take the brass hats of industry, but the engineers and the technicians at the second level. These men were given authority over the industry or over the component producing section of the industry and held responsible for getting the results. By giving them progressively higher targets to shoot at, production was brought up by the boot straps.

While the German war mobilization plan can be extensively criticised for its inadequacy prior to 1942, I have some admiration for what was accomplished after 1942.

Just to finish off with one or two details. Luftwaffe procurement stayed outside of Speer's jurisdiction until February 1944. Speer only got control over aircraft procurement after the great raids on the industry in the latter part of February and early March 1944. When the German aircraft was plastered in those raids, the procurement system of the Luftwaffe nearly collapsed, and Speer was asked to take over. He had long wanted to take over Luftwaffe procurement, and indeed there was a suspicion current in high circles that he had sabotaged the Luftwaffe in order to get it under his control. It was claimed that where there was a choice between allocating materials to the ground army or the navy (for which he was responsible) or to the air forces (for which he was not responsible), the army and navy were favored. As to the truth, I do not know. It does illustrate the high importance of coordinated, organized procurement.

After February 1944 the German aircraft production showed the same kind of upsurge that characterized other types of equipment during the preceding year and a half. In spite of the damage done to the factories, Speer managed to get plants dispersed and working again. Actually, while there was a slight slump in production in the early weeks of March,

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production caught up again in the last weeks of the month, and in April and May was very substantially higher than before the attacks. The production of aircraft continued to increase until the autumn of 1944.

By way of general summary: German war mobilization went through two phases. First, there was a period of ineffectual, sloppy organization against a war plan that did not call for very much. When that war plan was proven wrong by the reverses at Moscow, Germany had to change and reorganize its whole production plan. It had to reorganize its whole production plan to meet the requirements, not of a blitzkrieg but of a long war.

It was too late at that stage to make the fundamental organization that would have been required or that would have called for increased steel capacity, increased oil capacity, a general broadening base of the economy. However the reorganization itself was not a failure. It was a success compared with what Germany had previously accomplished.

From 1942 on, Germany did a very creditable job. There were some weaknesses that were not patched up. Germany never got a first-rate system of steel allocation. There were other weaknesses in labor utilization. A great many German plants ran all through the war on one shift, a very surprising fact. But after 1942, I think, one has to accord some of the respect to the German achievement that one very justly denies it for the years up to 1942.

Thank you very much.

GENERAL MCKINLEY: We are now open for questions.

COLONEL TAYLOR: I would like to ask you whether you feel that Germany failed in its research and development program?

DR. GALBRAITH: I don't know, Colonel Taylor. That is a question on which I would want to disqualify myself. I am not a scientist, and I really have difficulty answering it. The Wehrmacht did devote a lot of energy and a lot of money to research and development. Next to the atomic bomb, the V2 was perhaps the greatest technical achievement of the war. If the V2 had been combined with an atomic war head, it would have been very, very unfortunate for England and all of us.

A STUDENT: Do you know what work the General Staff did in determining the economic potential of the other countries outside of Germany?

DR. GALBRAITH: Not in detail. The section which did that was taken almost intact. The documents were, I believe, taken to the SHAEF Document Center a few days before or a few days after VE Day. I spent a short time going over them, some of my people a good deal

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more. We were interested in them at that time in what information Germany had about Japan, rather than how accurate their information was on the United States and the United Kingdom. But I have no real feeling as to how well organized or how good these data were. I would say their information on Japan was not too good.

GENERAL MCKINLEY: Do you care to make any remarks on their ability to organize industry in the countries they had taken over?

DR. GALBRAITH: Yes, that is a very interesting point. Of course, the Germans got raw material out of the countries they overran, and they got there just in time, too. When the Germans reached the manganese deposits in Russia, they had only about a month's supply of manganese left. They were awfully short of chrome and nickel when they overran new sources. There was a whole succession of crises which were averted by getting new resources of ferro-alloys. By the time they had taken the Ukraine and Don Basin and had encircled and taken over Scandinavia and France, and the Balkans, they had access to every raw material they needed except oil and natural rubber, but there were very critical periods. The German stockpiles at the outbreak of the war were not large, some wouldn't run more than a few months of wartime consumption.

As far as manufacturing capacity was concerned, the occupied countries did not make a great contribution to Germany. Whether that was deliberate or not it is hard to say. The Germans had generally in mind to make Germany the arsenal and to make France the civilian goods supplier. Therefore, the Germans did not take steps to organize arms production in France in a large way.

As far as intermediate materials like steel were concerned, they had a great deal of difficulty in getting French, Belgian and Luxemburg steel production anywhere near capacity. They captured some 11 million tons of steel capacity, but I doubt if they got more than six or seven million tons in any one year out of those countries.

As a minor sidelight, the Germans did go to some length to develop new propellant capacity in Russia. Perhaps some logistics problem caused them to build two powder plants, I believe, in the Don Basin. It was an unhappy experience because they were about 95 percent completed according to German sources when the Russians recaptured them.

A STUDENT: Doctor, you spoke of there being two concepts of war in Germany, the Party and the military. First, was there a definite time for the shift from one concept to the other? And second, is there any indication that there was much planning from the military concept and much development along that line?

DR. GALBRAITH: No. The Party concept ruled categorically until 1942 when there ceased to be a difference between them.

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A STUDENT: Through the thirties?

DR. GALBRAITH: Through the thirties up until the reverses in Moscow the Party concept of a wealth of arms in-being prevailed, not the General Staff conception of a solid prepared basic capacity. The General Staff did not want a war until 1950 or 1952 because, obviously, their type of planning took a lot more time.

DR. PETERSON: At the time Germany shifted into the second phase of the mobilizing of industry were there any corresponding changes in the food program?

DR. GALBRAITH: Yes, in 1939, Dr. Peterson, 1940 and 1941 the standard of living and the food intake was about on a level. There was, of course, rationing but the rations were generous, and except for fats, there was certainly no hardship and really not much sacrifice.

Beginning in 1942, the food position began to get somewhat tighter. It remained perfectly adequate, the food was perfectly good, and there was no deficiency in the caloric intake. It was higher than it was in Britain, but there were no longer any luxuries, no longer any surpluses. That condition remained until the end of the war. Rationing tightened a little bit in 1943, a lot more in 1944, although there was no hunger in Germany at any time during the war except temporarily from bombing.

A STUDENT: Can you tell us how the Germans financed their mobilization, their principal methods, and percentages of taxes, and so on?

DR. GALBRAITH: Yes. In the broad outlines it was the same as in the United States. You first would freeze your prices, then freeze your wages, so you don't have any great increase in income, hold that stable. Then you divide the load of procurement between what you can get back out of those incomes in the form of taxes and new money that you put in in the form of loans borrowed. In general, the Germans relied a little more on borrowing, much more than the British did, somewhat more than we did. Speaking roughly, they relied more on new money than we did. There was an expansion of about sevenfold in the German currency or its equivalent between the outbreak of the war and the end of the war.

The kinds of taxes Germany levied were the principal difference. It is important to keep in mind that Germany was a fascist state. It involved coalition between the Nazis and the ultra reactionary industrialists who, as a part of the bargain, exacted protection from taxation. German taxes in the upper income brackets were comparatively low. They were very much lower than in Britain and considerably lower than in this country. At the same time, the taxes at the bottom of the scale of workers ran up anywhere from three or four times what they were in England, and eight or ten times what they were in the United States.

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GENERAL McKINLEY: It wasn't popular to kick about it, though, was it?

DR. GALBRAITH: No, there was no great agitation!

A STUDENT: We have read that the economic mobile units of the Wehrmacht preceded the fighting forces, and then after victory, they followed. How did they accomplish this without getting caught? How did they operate in the initial phase?

DR. GALBRAITH: What were the units?

A STUDENT: Economic mobile units, they were called, of the Wehrmacht.

DR. GALBRAITH: I would really doubt that they did.

A STUDENT: I questioned it. That is why I asked.

DR. GALBRAITH: Of course, they did have units in the battle of France which secured gasoline supplies and things of that nature in advance of the main elements. I suppose that is what is implied by that story.

DR. HUNTER: Suppose the German General Staff conception of arming in depth had been adopted from the outset or at an early date, could you suggest what possible effect that would have had on the course of the war in 1943 and 1944?

DR. GALBRAITH: Well, I think this is a point to keep in mind there. If the General Staff idea had been followed, there wouldn't have been any war in 1942 or 1943. They were not ready for it by then. Their idea was building up steel capacity, building up large stockpiles of nonferrous metals, ferro-alloys, building up oil and rubber. General Thomas, who was in charge of economic planning for the procurement branch of the ground forces, said that 1950 or 1952 was the earliest that they would be ready for the General Staff kind of war. Now, of course, by 1950 or 1952 it is entirely possible that we and the British would have aroused ourselves to the point where, with our large potential, we would have been even more ready. That is a gamble. Maybe the General Staff couldn't have won as easily in 1952.

DR. HUNTER: The collapse in 1945 then was definitely due to this lack of a broad base of armament?

DR. GALBRAITH: No. I certainly wouldn't say so. Germany was defeated by countries with a wide superiority who met the Germans and beat them. I think of Admiral Doenitz' explanation of why the submarine offensive failed. He said, "The collapse of the submarine campaign in

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1945 is to be attributed to the fact that Germany no longer existed, having been overrun by American and British troops.

GENERAL MCKINLEY: Well, Doctor, there seems to be no other questions. We are very grateful to you indeed for coming here and giving us this very splendid talk. Thank you very much.

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