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FOREIGN LOGISTICAL ORGANIZATIONS AND METHODS

12 January 1948

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DR. HUNTER: At a National War College lecture last fall, Mr. Brodie referred to criticisms of the previous year's course made by members of that class. Among other things, they expressed themselves in rather strong terms to the effect that the lecture schedule had "too damned many professors and not enough men of affairs." It is barely possible that some of you may entertain that uncharitable sentiment toward an honored profession. At any rate, I shall pass over very lightly the connection of the speaker, Colonel Millett, with a certain New York institution which was once referred to by an unfriendly critic as the biggest "diploma mill" in the world.

I don't know whether Colonel Millett thinks of himself as a man of affairs or even as a man of distinction. I don't know, but I have some doubts, whether he can meet that acid test of a man of affairs, the experience of having met a pay roll. I do know, however, that he served a fair part of the war with distinction under the Army's most dynamic man of affairs, General Somervell. As a member of the staff of General Robinson's Control Division, he shares that Division's celebrated reputation for getting into the hair of most of the men of affairs in the Army Service Forces and the technical services.

Colonel Millett is a management specialist, a specialist in the management of the public business. As a civilian, he has contributed many things to our understanding of that field. You will find references to his publications in the biographical sketch. As an Army officer, he participated in top-level management of the Army's supply problems experienced during World War II.

Last summer he was called back into the Service to assist General Robinson in making a survey of the logistical organizations and methods of the major European powers during World War II. The results of that investigation are summed up in a report to Secretary of the Army, Royall, under the title "Foreign Logistical Organizations and Methods," which we have in our library. Colonel Millett, this morning, is going to tell us something of his experience last summer and will concentrate primarily on his German experience.

COLONEL MILLETT: General McKinley, Dr. Hunter, gentlemen: While I was in the Army, I learned a rule about speaking which seems to be well founded. The rule is: Never start out with an apology. To prove that I am a civilian, of one kind or another, I am going to violate that rule

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and start out with an apology. I owe it to you because undertaking to say a few words about German economic mobilization for war is a little presumptuous on my part. I make no pretense of having tried to examine the subject exhaustively, or of having used extensively much of the original source material now available. I think there is still a great deal of work to be done on this whole subject which was by no means touched by our efforts last summer. Furthermore, virtually all that I know--I could say more than that: I could say that everything I know and a little extra--has been thrown into the report Dr. Hunter referred to a moment ago.

I understand that in the course of your work here you will be studying procurement organization shortly. I think it will be interesting at least to some of you to look at parts of this report and, more particularly, the section dealing with the German economic mobilization experience. I fear that my telling you this has robbed me of all the ammunition I might use here this morning; I think everything I want to say is actually also in this report. But I may be able, in a few minutes to summarize some of it for you and call attention to what I think are the especially important aspects of that experience.

I think I ought to begin with an explanation, an explanation on two scores. First, many of us, I think, sometimes fail to bear in mind, when we are comparing experiences of other countries with our own or whenever we are examining other nations' experiences, that the institutions, organizations, operating methods of any nation, after all, reflect the past traditions, histories, beliefs of that nation and are peculiar to that nation. I think we have spoken too frequently of comparable experience when, as a matter of fact, it wasn't nearly so comparable as we might have imagined. I think there will be a number of places in your study or examination of German experiences--I may point out one or two of them here this morning--where you will be particularly impressed with the peculiar problems, traditions, beliefs, and attitudes of the German Government.

As a second aspect of that, let me say that I am passing no judgment of any kind on the German Government or Nazism or any of its accoutrements. That is another story. I am not interested, at the moment, in what the Germans did or what they were like, or anything else. I am not here for one moment as an apologist; nor am I here as a prosecutor. Let us just put that in the background. I don't like Nazis--I didn't and I don't--but that is neither here nor there.

With that background, let me begin very quickly to examine what I think are four of the outstanding aspects in the German economic mobilization experience.

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In the first place, there was in the German Army, especially after World War I, considerable appreciation of the importance of economic mobilization as an element of war potential. Certainly, all of the evidence--the documents that have been published and examined thus far--indicates that the Germans were determined upon an aggressive war at some future date after 1918 to make up for the mistakes they had made and the defeat they had suffered in their first try.

Be that as it may, one of the elements of the review of the Germans, 1914-1918 experience was an examination of their home program for arming the forces and a growing realization among a number of officers in what was left of the German Army after 1918 that their economic mobilization had been faulty--faulty in the sense that the importance of the whole problem of the war potential of industry had been ignored by the German Army leaders and by the Great General Staff--and that, in consequence, the forces had not had the equipment and had not had the support from the homeland that was necessary for successful military operation.

More than this, a careful review, especially of English experience, convinced the German High Command that it was essentially economic mobilization, more than any other factor, that had brought about their defeat, because it had been that English economic mobilization which had largely armed the American manpower thrown into the balance in 1918, thus bringing a hasty end to the war. (We often forget this fact about our own experience in World War I. I think a careful examination would reveal, certainly, that not only was it our manpower but it also was British and French material that brought an end to the war in the West in 1918.) The Germans knew this. The Germans had been studying it with a good deal of care. They were asking far-reaching, searching questions about their own experience. So a particular group of enthusiasts interested primarily in procurement problems came to realize that there must be some kind of full-scale economic mobilization if there was to be another war. This was a realization that became fairly well understood within the German Army as early as 1923; and various secret arrangements with German industry were begun at that time and were especially brought to fairly close collaboration by 1927 in what was known as a "statistical society," which was in reality simply a means for exchanging information between the army and most of the large German industries.

I cannot go into the detail of these prewar preparations. It is enough to say that up to 1933 little had been done except talk, but the talk had gone quite a long way.

The period from 1933 to 1939, of course, was a period of active economic mobilization, a period of active rearmament with its corresponding burdens upon German industry. I think that what most of us have

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failed to realize is that this rearmament undertaking from 1933 to 1939 was not nearly so extensive as it has popularly been presented to us. The Strategic Bombing Survey has given us some hints on this score, and the German documents which are available to us tell the rest of the story.

In fact, there was a conflict between two big demands from 1933 on in the German economy; a conflict between demands for the armed forces and demands for improving the civilian economy or, more particularly, the civilian standards of living; and it was a conflict which the Nazi regime never resolved. There were high persons in the Nazi Government, like Schacht, who were determined primarily to raise living standards. Many of the high Nazi party officials were actually more interested in raising the living standards of the German people than they were in arming the armed forces. They saw that a great part of the propaganda value of the Nazi regime depended upon actual, visible evidence of improved living standards for the German people. For that reason, if for no other, the Nazi regime was determined to demonstrate its superiority over its predecessor government and also to argue that it was bringing even greater benefits to the German people than the Communist regime to the east was bringing to its people.

Before 1939 Germany had only piecemeal rearmaments. I will cite only one set of statistics to demonstrate this, although there are many which might be used.

On 1 January 1939, after the seizure of the Sudetenland but before the complete occupation of Czechoslovakia, the German Army had only one Panzer division fully equipped. After the seizure of the rest of Czechoslovakia on 15 March 1939, the Germans acquired, by occupation, most of the equipment for one more division. And between 1 January and 1 September 1939 they produced enough to equip one more. When they went into Poland, they had the magnificent total of three armored divisions, with only 600 tanks in reserve. Most of those tanks were very light tanks--Mark I and Mark II tanks. They were only beginning to get into production on the Mark IV, which they had taken largely out of the Skoda designs. There were probably in the neighborhood of 200 or 300 Mark III tanks. That was the nearest thing to a medium tank they had. So it was no very grand and glorious achievement that had been realized.

In the aircraft field, they had 2,000 front-line combat planes divided about evenly between bombers and fighter craft. If the campaign in Poland, which lasted, you will recall, three weeks, had gone another three weeks, the complete stock of ammunition in Germany would have been exhausted.

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That was mobilization up to 1 September 1939. That story demonstrates to me the existence of some mobilization in Germany but also the almost complete absence of any industrial preparation for war on the part of all of Germany's victims. It was the lack of preparation by the victims that was the real tragedy of the situation in 1939 and again in 1940.

Hitler's whole concept of the strategy of war was based upon short campaigns which would use up all of the available material then in hand, followed by periods of recuperation and re-equipping in preparation for another short campaign--one victim at a time. That is the kind of war he fought from 1939 until he finally bogged down in front of Moscow in December 1941. But until that time, he had been successful in his particular method of operation.

A German Army officer told me, last summer, that the General Staff of the German Army made one great mistake, as he saw it, during the war years. Of course, I was curious to know what that was. He said that Hitler asked the General Staff in August 1939 how long it would take to defeat Poland. The General Staff (which was made up essentially of rather conservative officers) told him he ought not count on defeating Poland in less than six weeks; and, of course, it was done in three weeks. Then in the spring of 1940 Hitler asked the General Staff for a careful estimate of how long it was going to take to defeat France and the British Expeditionary Force that was in France, including, of course, the Armies of Holland and of Belgium. The General Staff again was very conservative in preparing its estimates and told him that he ought not count on less than three months and should be prepared for a campaign that might last six months. It was accomplished in six weeks. From that time on Adolph knew more about military strategy than the Army did, and he wouldn't listen to the Army on anything.

I think there is a great deal of truth in that story. Perhaps I ought to add that the Army officer, even in 1947, did not say "Adolph." That is my own term of familiarity.

The real industrial mobilization of Germany began in 1942. It began after the failure in Russia became evident, and it was only then that a real, extensive, full-scale effort was made to mobilize Germany's economic resources, such as they were--but it was too late! Not only were the British, by January 1942, out-producing the Germans in tanks and trucks and airplanes, but there was our own potential added after Hitler had the nerve to declare war upon us in December 1941.

Let me go on to say that while there was this appreciation in the German Army of the importance of economic mobilization, it was not an extensive appreciation. It was not so widespread within the Officer Corps and particularly within the General Staff of the German Army as

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it might have been. Rather, the three most important German Army officers from 1920 to 1940--Seeckt, Fritsch, and Beck--were of the old Prussian military school, which was steeped in the tradition of the Teutonic knight and believed that warfare was still a matter of combat. The only place where you could gain distinction or rightful fame in military activity was on the battle front, and the German General Staff concept was confined to combat operations. There was no General Staff interest in or concern with procurement matters whatsoever. That was true clear to the end of World War II.

One of the most interesting experiences we had last summer was talking to a man who would correspond, we thought, to a G-4 in the American Army. True, he had been Quartermaster General of the Army, the General Staff, running the supply system only from July or August 1944 to the end of the war. The man who had run the supply system of the German Army from the beginning of the war up to that time had been executed, so this officer succeeded him. (Most of the best officers in the German Army were executed shortly after the attempt upon Hitler's life in July 1944. I was amazed when I discovered from the intelligence documents that over 5,000 high officers were executed at that time.) We asked this officer something about the nature of his responsibilities and his duties as a General Staff officer in charge of supply operations. We know, of course, that the German Army General Headquarters was outside of Berlin during the entire war. But the General Headquarters was concerned solely with field operations and almost never with the supporting operations going on inside Germany proper. More than that, the supply officer simply took such information as he was given from Berlin about available supplies and worried from that point on only about distributing these to the various combat forces, in whatever manner would best suit the strategic and tactical situation of the time. He did not have the slightest idea about stocks on hand inside Germany or future procurement schedules, and he could not understand why he should have been concerned with that. It seemed to us that that was an amazing attitude.

As I said, this very fact that the German General Staff ignored procurement problems and economic mobilization problems was an indication of this continuing indifference, despite the World War I experience, toward industrial mobilization.

There was in the German army, in addition to the General Staff officer, a kind of officer called a technical officer. Instead of going to the Kriegs-Akademie (War Academy), which was the training ground of all the General Staff officers, he went to what the Germans called a Technische Hochschule, which was a civilian institution for technical training. The technical officer, who became concerned with industrial and production problems, was looked down upon. Indeed, he could not become a general officer in the German army unless he had combat ex-

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perience. A man could become a general officer only by serving in a combat unit at some time, and that was true clear to the end of the war in Germany. So while I say there was an appreciation of the industrial factor, I add that it was only a partial appreciation; it was not widespread.

The second important factor in German experience is the key role played by German industry.

Most of the research and development for the armed forces was performed by German industry. Most of German industry had large research staffs, and most of German industry, it is quite true, devoted part of its research effort to implements of war; but this was done without much assistance or much interest on the part of the armed forces themselves. German aircraft were, of course, designed by the civilian aircraft industry, and most of the implements of war were also designed primarily in private industry. The army was content to take what was given it. In large part that was true of the navy, and it certainly was largely true of the air forces.

There was not much interest on the part of the military leaders themselves in the improvement of the quality of war material. This meant, then, that whatever was done in German industry largely determined the quality of the war materiel. It was industrial know-how completely which was expected to provide the quantity of materiel that was wanted. The research and development people worried about quality; the industrialists further had to worry about quantity.

The technical officers of the German army, such as they were, did not usually have sufficient training to stand on their own feet compared with the engineer in German industry. The engineers, by and large, looked down their noses at the army officer.

I had a chance last summer to talk with one of these German engineers. He had come out of one of the big steel plants and had become a high Nazi officer. He was in jail at Nurnberg and thought he was going to be tried. I had been told that it has been decided not to try him. He did not know that, and it was not my job to tell him. So he was a bit touchy when we asked him questions and was inclined still to have some of the arrogance he had as a Nazi officer when he went gallivanting all over Germany telling the industrialists how to produce war materiel. The moment I asked that engineer, who had been the top production man on war materiel during the war years, something about the technical officer in the army, he would just shrug his shoulders, throw out his hands, and say, "Emph, huph. They didn't amount to a damn. We ignored them."

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I think he was exaggerating somewhat, but I think he was fairly representing the attitude of the engineer out of German industry toward army officers. That largely applies also to the air forces and the navy.

The great contribution after 1942 of the Speer Ministry--and I will say a little more about what that Ministry was in a minute--was to organize industry effectively to fulfill the responsibilities for war material which they had acquired by a long process of experience. There never had been an effective degree of cooperation among the industries that were engaged in production or research and development of war material, and, in consequence, the Speer Ministry placed its emphasis primarily upon effective organization of industry to fulfill its responsibilities. This was the Ministry's real contribution, it seems to me.

Speer spoke over and over again of self-responsibility of industry as being the key to his Ministry. I think he is not wrong when he puts the emphasis he does on that particular aspect of his job. He did organize industry on a much more effective basis than it had ever been organized before. He placed responsibility upon industry. He completely threw overboard the leadership principle so far as the German economy was concerned. He told Hitler he was going to do so; and, because Hitler had the greatest confidence in him, he made no protest, although some of the party men did not like it very well. Speer placed his entire emphasis upon organizing industry into what he called main committees and main rings. The main committees were end-product industries, and the main rings were raw material processing industries.

Each of these committees had a chairman who was a leading industrial figure. Speer insisted that he must be under 45 years of age. If he could not find a man, for various reasons, under 45 years of age who would be acceptable, then he would take somebody over 45 but with a deputy under 45 years of age. More than this, Speer insisted on taking not the front men--he would have nothing to do with chairmen of boards or with presidents--but the technical men. He wanted the engineers, he wanted the production experts primarily. He took these men and made them chairmen of committees.

Then the various industrial units, the producing units, had a representative on the committee. This particular main committee then became the basic unit in parceling out war contract, in parceling out raw material, in keeping very careful production records, in exchanging know-how--that is, exchanging all forms of industrial experience so that the best practices of one producing unit in an industry could be handed on to another producing unit--and in generally exercising oversight of all war production.

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Speer placed the responsibility for performance one hundred percent upon these main committees and these main rings. Then he told them it was up to them to perform and do the job. It was amazing what was accomplished after 1942 until the last quarter of 1944 when German industry began to collapse. By and large, war production was increased about three times during these three years. It was largely done, I think, without any additions to manpower and without any substantial additions to raw material supply, but through rationalization, the use of the best industrial practices of one producing unit throughout the entire industry, and through the much more careful control of the use of raw materials which was made possible through this pattern of industrial organization.

The third aspect of German mobilization experience that I want to say something about was the confusion of administrative organization.

It may come as something of a reassurance to you if I hastily assert that if we had our organizational and administrative problems in Washington during the war, they were nothing compared with what went on in Germany. We used to have some question whether the enemy was outside the United States or in the Social Security Building. Well, we only wondered. There was no doubt in the German minds that the enemy was right back home a large part of the time.

The confusion began immediately after Hitler came into power. The German Army had done the planning just as our Army had done most of the industrial mobilization planning in this country between the two wars. The German army had a number of ideas about what kind of an administrative organization should be set up in order to use the resources of the country effectively for the production of war material. But Hitler scrapped all of these army suggestions. More than that, General von Blomberg, who became Minister of Defense and then Minister of War, a kind of superchief over the three component parts of the armed forces, never pushed very hard to get the army suggestions accepted. He was more or less content to go along with whatever was provided through the machinery of the Nazi regime.

As early as 1935 a secret defense law was passed in Germany which called, in time of war, for a Commissioner General of the Economy; it was commonly understood that the Commissioner General would be the Minister of Economics, who was then Hjalmar Schacht. Immediately after the passage of this law in May 1935 Schacht began to act as if he were already Commissioner General of the Economy, as if all the machinery of war had already been activated. He began to control the use of war material and the use of industrial plants. Instead of directing the resources toward the armed forces, as I said a few minutes ago, he directed them more and more toward the civilian economy.

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Then in September 1936, at the Nurnberg Party Congress, Hitler announced the creation of the Office of the Four-Year Plan and the appointment of Goering as Plenipotentiary General for the Four-Year Plan. In reality there was no plan. More than that, there was only a vague kind of program to be carried out, principally the provision of synthetic gasoline, particularly aviation gasoline, and the provision of synthetic rubber, the lack of which was holding back the aircraft rearmament program. Apart from these two general purposes, there was not very much for the office to do.

Very quickly, however, Goering became involved in the controversy going on between the army primarily and Schacht, until finally, by November 1937, Hitler was willing to dismiss Schacht and turn over general supervision of the entire economy to Goering. From that time on a good deal might have happened if Goering had been interested in doing anything. But the longer the regime lasted, the less interest in everything Goering personally took. His prestige was enormous, so that he could not be replaced very easily. But more and more he was interested in going bear hunting, in draping himself in all kinds of fancy costumes and uniforms and so forth, and in building a beautiful model electric train system out at Karinhall. He became less and less concerned with the German economy. He gave very little attention to it and nobody else could. And the new Minister of Economics, Walter Funk, was nothing more than a messenger boy.

So the controversy still continued, the army pushing for more rapid rearmament and especially for an expansion of the basic industrial plant inside Germany. But the man who kept pushing for this, General Georg Thomas, inside what was known as the Ordnance Office of the Army Weapons Office and later inside von Blomberg's and Keitel's office, was more or less ignored. Very little attention was paid to him. What Hitler said to any army officer who might ask him questions was, "We don't need it; we are not going to fight that kind of a war." And, of course, Keitel, Chief of the Armed Forces High Command, was not one to ask any questions. So the internal conflict continued.

Then, after the war began, the situation was worse confounded by the creation of a new ministry under Todt, who had been the builder of the Westwall and also the great genius who constructed the autobahnen in Germany. Todt was not very much interested in munitions production problems. He was interested chiefly in construction. He had been set up, as a matter of fact, to help the army, and only the army, in some of its production problems with which he was concerned. The ministry, while it existed on paper, actually did very little. This continued until Todt was killed in an airplane accident in February 1942. I sometimes wonder what might have been the future of Germany's war experience if Todt had not, fortunately for the Germans, been killed in

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an aircraft accident, because his successor was Albert Speer.

Speer was an architect. More than that, he was a member of Hitler's intimate entourage. There were not very many members in the so-called family group around the Fuhrer. Goering, for example, was not a member of that close family group. Goebbels was, but he was the only Minister who was. Most of them were peculiar characters of one kind or another. About the only halfway normal person I can think of who was in the group, seems to have been Speer himself.

Speer was Hitler's personal architect and had won Hitler's confidence in designing and supervising the construction of many of the great monuments of the Nazi regime which Hitler was so particularly interested in. When Todt was killed, Hitler summoned Speer to him a day later and told Speer that he was to succeed Todt in all of his jobs: as head of the Organization Todt, which was a construction organization for carrying on jobs outside of Germany; as Ministry of Munitions; and certain other jobs under the Four-Year Plan that Todt had been responsible for.

Of all these jobs, Speer took most seriously the Ministry of Munitions, which existed only on paper until February. I don't think it was entirely a matter of choice. Hitler certainly realized by February 1942 that he was in a tough spot industrially, and he told Speer, "Now, get to work on the industrial problem."

Why Speer should have turned out to be kind of genius is just another peculiar accident of history. I knew of no other way to explain it. I think, by and large, he was an organizational genius. It was Speer's genius more than almost anything else that brought about the industrial mobilization of Germany's resources on a full scale from 1942 to the end of 1944.

Speer had his difficulties, especially on labor supply. He thought that labor utilization was primarily a production problem, but in the meantime Hitler had given all labor problems to a Gauleiter named Fritz Sauckel. (Speer had better thank his lucky stars that Sauckel had the labor responsibility. Sauckel was hanged at Nuremberg and Speer got 20 years.) Speer had all kinds of quarrels with Sauckel, who refused to take instructions of any kind from Speer during the war years.

Speer set up machinery under the Four-Year Plan Office which he called the Central Planning Board. This was the nearest thing to a planning agency that Germany had yet had on the economic front during the war and prewar years. He used all of the influence of Goering for his own purposes. He brought most of the Ministry of Economics under his jurisdiction. He still had difficulties with the Ministry of Foreign Affairs on the exploitation of foreign resources. For the

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most part, von Ribbentrop was able to keep the exploitation of the occupied areas under his own control. (Again Speer was probably lucky from the long-range point of view concerning his own life.) But Speer did bring about a degree of unification that had never been achieved before.

He took over virtually all responsibility for army procurement. He got air forces procurement after the famous air raids of February 1944, the famous air attacks from England upon the German aircraft industry. Then the air forces people were happy to turn over air force production to Speer, for it was a down-hill concern at the moment. The navy turned over all naval production to Speer in the summer of 1944, not until July or August.

Now, I say "turned over production," Let me explain in a little more detail exactly what I mean by that. Speer never transferred procurement officers from the army, the air force, or the navy to his Ministry. Actual contracting relationships continued to be in the hands of the three armed forces. The acceptance of all war material, the instructions about its delivery, and storage remained in the hands of the three armed forces. But the fixing of production schedules, the control of raw materials, the expansion of industrial plants remained in Speer's hands, for Speer had placed all of this authority in the main committees and main rings of industry itself to carry out.

General plans for procurement, this is, general statements of munitions requirements were given by the armed forces to Speer directly. Usually they consulted with Speer or one of his subordinates on the details. On major items, Hitler himself dreamed up the programs. He would not have the air forces or the navy or the army--and especially the army--fixing requirements because he thought they didn't know anything about the subject. He decided all these issues himself. More particularly, so far as research and development were concerned, Hitler inspected every single item, even the smallest items, before they were ever adopted as standard for use in the army. That was less true in the navy, but it was true also for all aircraft.

I asked Speer about that, and I got the rather interesting answer that, in fact, Hitler was something of a genius himself on technical matters and his judgment was very, very good--in Speer's eyes, anyway. I think that was the judgment of a good many other people who were fairly well informed and knew the situation. More than that, this was one of the things which interested Hitler more than anything else. He always dreamed of himself apparently as a great strategist and as a great technician and as the only person in all Germany who combined the two qualities. He never delegated either one of those responsibilities. He remained to the end the strategist. He remained to the end the technician, so far as the quality of war material was concerned.

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But Speer did get a large part of the various administrative agencies of Germany under his domination. It is true, as I said, there were exceptions, very important exceptions. But, for the most part, he did get a degree of centralization that they had never had before.

He still had his battles. In the closing days of the war there was a greater and greater effort to undermine Speer; and he became more and more distant from Hitler personally. The party leaders especially were very bitter about Speer and wanted to get rid of him. Apparently there was much talk in the high circles of the Nazi regime after the twentieth of July that the next big purge ought to be in German industry-- by high circles I mean principally Bormann and Goebbels, who were the big plotters of the Nazi party machinery. If they had their way, there might have been a repetition of the army purge throughout all of German industry. Speer fought it. Speer did his best to get around it. I think object No. 1 of any purge must necessarily have been Albert Speer.

But there was great confusion. On such things as price control, on such things as civilian supply generally, on such things as rationing, on such things as agriculture, on such things as transportation, on such things as war finance, Speer had little authority. There continued to be rather bitter conflict between many of the top figures to the end, with Hitler himself as the only person to carry out any degree of coordination at all. Most of the time Hitler was not interested.

Finally, in the fourth place, I want to say just a few words about planning under the Nazi regime. I say this especially because I think many of us have had the idea that somehow, in some way, there must be something about a dictatorial system of government which enables it to plan better or more effectively than a democracy. Well, judge for yourselves from this very brief statement about the German experience.

When the Office of the Four-Year Plan was set up in 1936, there was no such thing as an economic plan, as I mentioned a moment ago. More than that, apart from efforts at bringing about fairly large scale production of synthetic gasoline and synthetic rubber, the Office of the Four-Year Plan never undertook, at any time in its whole history, to prepare a careful plan in the sense of broad objectives of economic output or the division of resources within the various segments of the economy. No statistics were available to planning agencies that would have enabled them to undertake such a task. When Speer came into office in February 1942, he started virtually from scratch, so far as planning the total utilization of the resources of Germany was concerned. I mentioned that he set up a Central Planning Board. He set it up not in his own Ministry, but under the aegis of the Office of the Four-Year

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Plan, because he wanted to use that title and he wanted to use Goering's prestige, especially since Goering was not using it.

Then, laboriously, the Germans began to construct a plan for the division of its economic and its industrial resources. It was done on a hit-or-miss basis. It was done piecemeal. It was done step by step. That was the only way they could do it. In fact, I have come personally to the conclusion that however gloriously we use this word "planning" in thinking about careful control and rationalization of our whole economy (this is in wartime, not peacetime), I am convinced that it is a problem of experience, it is a problem of step-by-step construction.

By the time the war came to an end, the Germans were getting pretty good at economic planning, just as we were getting pretty good in the War Production Board and in the Armed Forces by the time the war came to an end. (Incidentally, I remember a staff conference of General Somervell's in the autumn of 1944 in which the staff officers said -- this was only for inside the staff--"This is the first really good Army Supply Program we have developed." The General was taken back because he thought that, with the start of the Army Supply Program in the spring of 1942, we had licked the problem. But they know only too well they had not; they had just made a start. But by the autumn of 1944 the Army Supply Program was getting fairly accurate, and the same thing was true in the War Production Board. The same thing was happening in Germany.)

It was only by the time the war was coming to an end that the Germans had devised, first of all, a fairly complete set of industrial Programs, and were able to set production goals in terms of available raw materials. They never were able to set production goals in terms of manpower, partly because Speer did not have any control over manpower and partly because they had not developed the statistical data with which to do that. But they were able to set production goals for something like 25 or 26 production programs. These programs are outlined in the report on "Foreign Logistical Organizations and Methods."

These programs included what was known as direct war production and indirect war production. Indirect war production was what I think we in this country called mistakenly civilian production throughout the war.

One of the questions I was most concerned about and on which I sought some enlightenment from Speer himself was whether there was any inconsistency in having the man responsible for war production also responsible for what we called civilian production. When I asked Speer that, he just sort of laughed and said he did not see that there was any inconsistency whatsoever. I told him that I thought we had made a

mistake in trying to draw a distinction between war production and civilian production in this country, that actually there is only one kind of production in wartime and that is war production. But war production had to include what was necessary to sustain the entire economy. Speer was very enthusiastic about that and said something in German that I did not quite understand. I had to turn to the translator this time to make sure just what he had said. Both of them were laughing. I thought I must have made some kind of error. I asked again, "What did Herr Speer say?" The answer I got was, "Herr Speer says you should have been his defense attorney at Nurnberg."

I think Speer felt very strongly that there never was any inconsistency in his being responsible personally for both war output and indirect war output. That is the way he labeled it, indirect war output. That is the only differentiation he would ever permit inside his Ministry and inside the Central Planning Board.

The point is that from this experience of two or three years' duration the Germans were finally getting to the point where they could plan effectively and control effectively the output of German industry and could set production programs with some confidence that the programs would be realized. Then, of course, from the last quarter of 1944 on it was useless. Our air attacks, especially upon the transportation system, completely disrupted the German economy, and from that time on the jig was up. Interestingly enough, the peak production of war munitions in Germany took place in August and September 1944, strategic bombing to the contrary notwithstanding. But from that time on the German economy was on the downgrade.

That, briefly, is a summary of the German economic mobilization experience. As I said at the beginning, you can decide for yourselves what lessons there may be in all this experience for us. I hope some of you will be moved by a few of these words anyway to read the account, which can tell the story, I think, a great deal better than I can here personally.

COLONEL MCKENZIE: The report which has been referred to as being in our library not only has a full recital of the lessons and experiences as learned by this team in Germany, but also covers the situation in Italy, Switzerland, France, England, and Sweden. Perhaps you will have some questions on some of the wartime activities of the nations I have just mentioned to ask the Colonel this morning.

How was it that Germany had the effrontery to cut back its production, as I understand it, in 1941 at a time when they knew they were actively plotting with Japan to declare war on the United States? I say that with a realization that we have been taught, at least, that the Germans figured that the big mistake they made in World War I was letting the United States get in it; believing that, they were scrupulously trying to keep us out this time.

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COLONEL MILLETT: Colonel, I think there are two parts to the answer to that question. I should like to go into some detail, but I will refrain.

The Germans did know that the great mistake in 1914-18 was a two-front war, so they were determined to avoid it. But they made a more basic mistake this time of underestimating the potential of the United States. Speer told me that Hitler refused ever to look at any papers which showed America's output or even British output. He always said those papers were propaganda; he didn't want to know a thing about them. He, therefore, never had a realistic sense of what was happening on the other side against him. I think that, without any question, Hitler thought we would be so contained in the Pacific that we never would be effective in Western Europe. He ignored entirely the possibility that we would become involved in a two-front war.

The German General Staff know this, and another German General Staff officer told me last summer, that one of the key figures in the German army wrote a memorandum in the spring of 1942 to Hitler in which he said that they were then in the situation where they were going to be confronted with a two-front war. The General Staff had always told him that was dangerous and should be avoided and wished to recommend that Germany extricate itself from this situation as rapidly as possible. The General Staff did not presume to suggest with whom Germany should try to make peace. They left that up to Hitler, whether he wanted to make peace in the East or in the West. Hitler threw the memorandum in the wastebasket as being an indication of defeatism, and the officer was subsequently executed. He had the rank of Colonel General.

The other part of the story is that the German General Staff of the army had laid out a very careful set of objectives to accomplish in Russia and that from the twenty-second of June, which I believe was the date of invasion, until about the first of October the German army was on that timetable. The objectives were realized with amazing precision. This is evidenced by a diary which was maintained in shorthand by the Chief of Staff of the German army and which subsequently fell into our hands and was translated by us from shorthand into German and then from German into English. That is the basis of a great deal of evidence which is being introduced from time to time at Nurnberg. This diary reveals that as of the first of October, the German General Staff was fairly optimistic about the defeat of Russia; and it was then, in the month of October, that Hitler, reflecting that optimism, directed Keitel to issue instructions ordering a cutback in the munitions program because, as I said earlier, the whole philosophy was short-scale war, use up all the supplies on hand, and then peace, that is, a period of inactivity for recouping and re-equipping. Keitel never issued those instructions, so they were never carried out.

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That was fortunate, for about the time Keitel called in the army to tell it what the instructions were (this was toward the end of October) the army, for the first time, was beginning to worry. By the first of November von Brauchitsch, the Commander-in-Chief, was convinced that the army was behind schedule. The winter was coming on, and he felt it would not make Moscow and Leningrad, as it had intended, before winter set in. It was then that von Brauchitsch asked that the whole army fall back and prepare for winter some distance behind the then front lines. Hitler refused to permit this, and von Brauchitsch retired as Commander-in-Chief.

I think broadly that is the story.

GENERAL MCKINLEY: I am very much interested in your statement about industry, through its own interest, designing military equipment. In trying to compare the German situation with that in America, I was inclined to feel that there must be something peculiar to the German people which causes a difference in the amount of interest that a German civilian production engineer has in the military as compared with the interest in the military of an American civilian production engineer. Would you comment on that?

COLONEL MILLETT: Yes, sir. I think that is a very important difference between our experience and their's. That is the reason, I suppose, more than any other, that perhaps justified our trying the industrialists at Nurnberg. It was largely the engineers of Krupp, of Rheinmetall, of I. G. Farben Industrie, and of two or three other large plants that were the designers of German military equipment. They continued to work on designing in the entire war period as well as from 1920 to 1939. More general interest was taken there than was ever manifest by the army itself, and more designs were prepared there than in the army.

There was no air force, of course, during the earlier years, but such aviation developments as took place were in the hands of Messerschmidt and the civilian leaders of the industry rather than in the hands of the air force personnel.

The same thing was largely true of submarine developments. One of Speer's principal criticisms of the German navy on the score of its submarine construction was that there were four or five very old companies located along the North Sea and the Baltic Sea--principally the Baltic--which had done the shipbuilding work for the German navy since the time of Bismarck and the creation of the Empire in 1870. Speer said the Germans' methods were outmoded. He said they had good engineers but no mass production techniques, so he introduced mass production techniques for the first time in the shipbuilding industry similar to

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those which we used here in this country during the war. But those five companies--not the navy officers themselves--designed the naval vessels and naval ordnance.

Explain it however you will, that situation existed and continued straight through the war years. In fact, the industrialists would bring weapons to Hitler and demonstrate them to him.

I found, interestingly enough, that there were almost no proving grounds in the hands of the army or the air force. This was certainly true of the army, although it was less true of the air force. There were no proving grounds operated by the army. The proving grounds were all operated by the big industrialists. When proof-firing of heavy guns was necessary, for example, the smaller producers sent their guns to the big industrialists for proving on the latter's grounds.

QUESTION: If the technical officer in the army had the minor position he did, who spark-plugged the development in atomic bombs, rockets, the V-1, the V-2, and so forth? If that was done by the industrialists, at what point did they bring in the army to let them know what they were going to do when they got the thing finished?

COLONEL MILLETT: As a matter of fact, we have heard too much about the scientific status of German industry. Actually, it was very spotty. It was not universal, I found, by any means. For instance, the Germans were far behind us on all kinds of electronics equipment. The Germans admit that now. So far as work on the atomic bomb or atomic energy is concerned, there are others who know more about that than I do; but my impression, from what I learned the past summer, is that they never got to first base with it. Again, such interest as was evidenced came from the research people in German industry and German universities. There was very little interest in it in the armed forces themselves.

As for the V-1 and V-2, the air forces people were especially interested in V-1. Here again, the spark-plugging came from a small group of people, scientific research men, out of German industry and out of German universities.

The V-2 is quite an interesting story, by the way. The V-2 was an SS project, and one of Speer's biggest complaints in the summer of 1944 was that he could not get any kind of supervision over the materials that were going into the research and development and then into the production of the V-2. But Himmler simply thumbed his nose at Speer and had absolutely nothing to do with him. He said that all of the production work of the SS was his business and nobody else's; he ran it solely to suit himself. Speer had never had any knowledge

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of that whatsoever. The V-2 was an SS project and was done, again, by some German scientists who were mobilized into the SS by Himmler and worked there.

QUESTION: I understand that many of the factories were moved underground. Could you tell us something about the effectiveness of that?

COLONEL MILLETT: I am going to beg off from that question and say that there is a paper in the report which deals with the underground situation. Let me say only this: There was much less extensive underground installation in Germany than some of us have been led to believe. I will add, from my own knowledge, that Speer himself had very grave reservations about there being any use in trying to move German industry underground. He thought, first, the transportation problem would only be exaggerated by it and, second, that it just was not feasible in the time they had available.

QUESTION: How did the Nazi regime finance the war contractors?

COLONEL MILLETT: That is a very interesting question. I am happy to say that also is in the report. Some seven different methods were used. By and large, they faced exactly the same problem we faced in this country. The government had to finance plant expansion and had to provide large-scale working capital to German industry. As I say, some seven different methods were worked out: they were fairly complicated.

The army had an arrangement which was rather similar to our Defense Plant Corporation. It was an army arrangement which Speer eventually took over and put under his own wing. It provided the capital for construction of plants, which were then turned over for operation to private industry.

The air forces also provided all of the capital for the plant expansion of the aircraft industry. They did it also through a government corporation which they controlled and which, I think, Speer got his hands on only in the last days of the war when it didn't make any difference. He wanted control of them because he felt that financing plant expansion was a vital part of his whole control to prevent large-scale plant expansion. They faced the same problem we did, that is, whether to expand plants or to make munitions during war. Speer was determined that they were going to make munitions and that they were not going to expand plants to any great extent. They had to face that problem and they did.

QUESTION: In discussing Speer's organization of industry, you emphasized his placing responsibility on industry itself and then went on to say that he threw over the leadership principle. I don't

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understand your meaning of that. Would you care to amplify it?

COLONEL MILLET: The idea of the leadership principle was that all instructions had to come from the fount of all knowledge and filter down. As a matter of fact, in 1934 German industry had been organized on the leadership principle through a very elaborate structure set up under the Ministry of Economics. But the structure was all on paper. That is another thing that amused me about the German experience. Apparently the Germans also know what it means to set up an organization on paper and then never run it. They had that in the Ministry of Economics. It never worked. But the idea was that all the basic decisions about policy and program would come from the top and would be transmitted down this chain of command, if you want to call it that, to the industrial unit at the bottom.

Instead of that, Speer said, "I am not going to give you fellows anything except very broad policy instructions. I am putting total responsibility upon you to develop the means of carrying out the broad objectives we have in mind. You are free to develop your initiative any way you please, and we are going to give credit to the people who do. We expect to get ideas from down here, not from up above, and we expect you people to do the job. Don't come running to us all the time to discuss what should be done." As a matter of fact, that did work substantially as he had projected it and was quite a radical departure from the general experience inside Germany, which was if you exercise any degree of initiative down below, you are very apt to get into a great deal of trouble with your superiors above.

QUESTION: I was very much impressed by the fact that in every village in Germany there was a small factory doing small work. Was that Speer's organization? Would you care to say a word on that?

COLONEL MILLET: Yes and no. That is a very interesting factor about Germany. Most of us did not realize the extent to which German industry was still in the handicraft stage, the extent to which there was still a great deal of this very, very small-scale work being done in households or being done, as you mentioned, in very small producing units in the villages throughout Germany. We have had the feeling, I think, that a good deal of German industrial organization had been paralleling our own experience in developing larger and larger units. That was just an impression we had exaggerated a great deal.

The Speer Ministry did undertake to harness all this work. It had to because the work was so widespread. More than that, if it didn't control and harness the work, two things happened: It cut down production potential; but more than that, it was liable to fritter away all kinds of raw materials. So there was a very real effort made to gain control.

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At the same time the Speer Ministry saw that production efficiency, from its point of view, lay in moving towards larger and larger producing units. The Speer Ministry was trying constantly has best it could to eliminate the smaller producing units. If the war had gone on long enough and the controls had been severe enough, as I think they would have been, most of the smaller units would have been eliminated.

Another thing about German production technique that was somewhat surprising to me was the extent to which so much of German industry was still on the "custom built" basis instead of on a mass production basis. I think a very large part of the great increase in war materiel which took place from 1942 to 1944 was due simply to the introduction of mass production techniques in German industry. There were not many industries which had gone anything like so far as we have gone in this country in the use of mass production methods.

COLONEL MCKENZIE: You spoke of the fact that there was very little regard held in the minds of the German professional soldier for the logistics or the technical man, so much so that he had to be on the battlefield to become a general officer. I recall that it is quite far along in your report that you change the title of Thomas from Colonel to General. Can you tell me just when that was?

COLONEL MILLETT: I think he became a general while serving in OPW, the High Command Staff, just after the beginning of the war, about 1940. He was permitted to become a general because in his youth he had served in the infantry. He did not have combat experience after he had become a colonel, as a matter of fact, but he had served in a combat regiment during World War I. He was given the rank of major general, which corresponds to our brigadier general, about 1940, on the basis of that previous combat experience.

COLONEL MCKENZIE: Constructive credits, in other words.

COLONEL MILLETT: Constructive credits.

MR. SWAREN: You speak about the handicraft portion of Germany's work. Looking toward another war when atomic bombs or other types of very heavy bombing will make much smaller plants unprofitable targets for bombing, can you cite any lesson you saw in the organization of Germany's small industry that might be valuable to us in considering dispersion.

COLONEL MILLETT: The only way I can answer that is to say that I thank God every day in the week that I am not worrying about that problem. That's your job.

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My feeling coming away from Germany was that plant dispersion is almost a hopeless task. There is the competing interest of mass production, that is, quantity, on the one hand (which was so vital to Germany and where more than anywhere else the Germans broke down), and the factor of safety, on the other hand. So far as the bombing experience of World War II is concerned, German industry was not severely handicapped by our strategic bombing. That is the verdict of the Strategic Bombing Survey. I think it is the only answer that anyone who studies German mobilization experience can come to.

But that is no answer for next time because, rightly, the Air Force people can tell us that next time the bombs are going to be far, far more powerful than they were last time.

German industry was heavily concentrated in three or four areas; there is no doubt that that concentration made for production efficiency. It had been developed for economic reasons, and those economic reasons were also, from a purely technical point of view, production efficiency reasons. To have tried to shift that pattern on any sizable scale would have been to reduce greatly war output.

You face exactly the same situation in this country; and if there is an answer to it, I hope you people have it.

COLONEL MCKENZIE: Colonel Millett, on behalf of the College, I want to thank you for this most interesting and educational lecture. Thank you.

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