

C O N F I D E N T I A L

UNITED STATES STRATEGIC BOMBING SURVEY

APO 413

Minutes of Meeting with Reichsminister

ALBERT SPEER

Flensburg, 18 May 1945.

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SUBJECT: Interview with Minister Speer, 18 May 1945.

- Q. Today we would like to discuss the problem of the aircraft industry. Did a large combat plane program exist in 1940 - one that maybe exceeded the number on hand for use against England?
- Sp. I can give no answers concerning that period as I only joined the Ministry in 1942. Field Marshall Milch should be able to give you information. From 1939 to 1942, I constructed the buildings for the air armament, that is, the factory buildings to increase the air armament.
- Q. One more question of general character. We know that the airplane production of 1941 was quite low, that is the part of airplane production in the complete armament effort was much lower than the part of army armament, panzers, tanks, etc. Is the reason for that the relinquishing of the plans to invade England or was it to collect enough weapons for the imminent war against Russia?
- Sp. I believe that you are mistaken. I can only state by means of the building program that the extension of air armament in 1939 was more urgent than that of the Army, even in 1941 - that means that air armament had a higher priority than army armament.

You also have to consider that at the time Goering was still an important personality in the total war economy and that his Air Force could get anything they demanded. They certainly didn't have any difficulties in regard to materials allocation.

- Q. Is the relinquishing of plans to invade England the reason for the high planned output of airplanes which never really materialized?
- Sp. As far as I know from the construction part, the main program was for JU 88's and Goering, to push the program they gave Koppenberg from the Junkers firm the leadership for the program. Koppenberg designed a rapidly increasing program for JU 88's which was never accomplished; ~~in the air armament one always planned to reach high production figures in the air armament one always planned to reach high production figures in a short time without reaching these figures by a long way.~~
- Q. Have you any ideas where such detailed plans might be found?
- Sp. No, I don't, but Col. Eschenhauer should know that. He is now probably with General Eisenhower.

BAUMBACH: The JU 88 production has definitely increased, but if one considers the uses for which it was earmarked, as dive and horizontal bombers and then see that it was also used as a night fighter and against Russia, one can see why the production was never sufficient.

- Q. The question now comes up that if the program had such a high priority through Goering, what was the reason for production lagging so much behind plans?

Sp. All I could gather from construction plans was that programs were changed quite frequently, both in regard to models and relation of number of planes to models. And you know if a program is not sustained for at least one year every change will bring a drop. Besides, sub-contractor deliveries were very bad. That was also the source of mistakes of our new constructions as we had new blueprints every few months and then had to change or tear down the buildings. You would see the tragedy of the German air armament to its fullest extent if you could see the collection of valid programs which had been turned over to the German industry. You would note that nearly every three months a new valid program was issued to the industry. If one program lasted longer than three months it was a miracle. By the way, that was the fault of the General Staff of the Air Force (who could order any such changes to the Dir. General for Aircraft (Luftzeugmeister). For example, we built during 1940-1941 new airplane motor works in Marburg, Graz and Wiener Neustadt - which were also attacked by you - and in a period of six months. We were not able to produce the first airplane motors at the Vienna Ostmark Works until 1944 because of so many -changes.

Q. Wiener Neustadt was attacked in the summer of 1943?

(here there is typed in: "Error, it was in Vienna and was called Ostmarkwerke")

Sp. Very little, there was not a large attack. It was practically undamaged up until the fall of 1944.

Q. Have you any basis for judging the total yearly productive capacity of all airplane factories for the years 1940-1941?

Sp. I'm sorry, I don't know. I only know that we just about doubled the factory space of the air armament during the years 1939 to 1941, but that is only a rough guess.

Q. Where could we possibly find the figures for which we just asked?

Sp. They are all with Eschenhauer. He comes from the General Staff of the Air Force and was present at all meetings of the RLM and knows all connections. Or, through Field Marshall Milch.

To come back to the programs, it would be important if you could collect all programs. It was usually the case that these programs started slowly and increased rapidly. After four months a new program came into being which again started slowly and suddenly increased rapidly to decrease again after four months. The reason for that was that the rapid increase had no foundation, as we later found out, because the planning of sub-contractor deliveries had been severely neglected. The rapid increase was therefore an advertising curve, but not a real increase. Therefore, it was necessary to present a new program with new future hopes every four months. The problem was not raw materials but deliveries of sub-contractor's parts such as crankshafts, etc.

Q. Did you consider a long range plane program at that time to eliminate England?

Sp. During the first part of the war, as far as I know, we had the H III against England, then came the JU 88 as relieving type, at the same time with dive bomber properties. We didn't have a long range bomber like your fortressess at that time. We started constructing the HE 177 already in 1940. For that, many new constructions had to be made because new machines with heavy parts had to be used. But as you know, that type never went into action as mistakes of construction type appeared. That was supposed to be the big blow, as well as reconnaissance at sea for submarines, etc.

BAUMBACH: The JU 88 had enough range to reach all parts of England.

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Q. One point is not quite clear - your position in regard to Milch and Goering after the ministry came into being.

Sp. Before I got the air armament?

Q. Yes.

Sp. As I succeeded Todt in 1942, I was Reich Minister for Armament and Munitions. Dr. Todt's orders said that only Army armament was meant. Goering had me come immediately and told me that I had no business with air armament. I should stay out of it. The Air Force does that by itself. I agreed with Milch that it is necessary to have a joint planning. Up until then there was no agreement between Army-Navy and Air Force armament. Thomas was too weak for that. Therefore, Milch and myself got together and eliminated the main points of contention. Officially and actually air armament was separate from army armament. I then founded - I believe toward the end of 1942 - the "Rüstungslieferungsamt" and therefor the first time created the organization which only dealt with sub-contractor's deliveries, such as pistons, crankshafts, sheet metals, etc. The factories just had the task to inquire where they could get the components. Then we had a meeting in the Air Ministry weekly, starting about fall of 1943, which I attended and at which I attempted to remove all difficulties arising from deliveries to the air armament. I had my most important men, Saur, Kehrl, Schieber, etc. with me. That was the first step toward closer cooperation with the air armament. Anyway, all program conferences and all these conferences have been recorded by a stenographer. Milch or Eschenhauer should know where those reports are.

Q. So from 1944 on, when you took over control of the air armament, you were the only head of air armament with Milch as your deputy?

Sp. I tried from the fall of 1943 to get into it. Air armament was important for me because the air attacks destroyed the factories. That is the reason I had conferences to increase air armament although I really didn't have anything to do with it. In 1944 came the famous attacks on fighter production after which the air armament declared attacks on fighter production after which the air armament declared its bankruptcy. After that the fighter staff (Jägerstab) was founded the form of which can be explained by the fact that one had to take some consideration of Goering. Goering was by no means ready to transfer the air armament. We just had to reach that by one of our typical compromises. During that phase - from March 1944 on - Milch retired more and more from the air armament and left the main activities more to Mr. Saur. After we had proven by July 1944 that our method was better than the previous method of the Air Ministry, we demanded that we take over the complete air armament officially which was then transferred to us by Goering on demand of the Führer.

We only controlled fighter production for the defense of the homeland in the Jägerstab, while the total production was in my ministry. Field Marshall Milch was not active as my deputy. He later stepped out altogether as a result of an automobile accident and then remained without duties. Our friendly relations though remained the same up until the end.

Q. What type of planes belong to the classification "combat planes"?

Sp. In general fighters with special armament -mostly single-engined planes.

BAUMBACH: That developed from the concept Stuka, up until then solely the JU 87, which could not be used anymore in the East because of lack of speed - from the concept Stukas and Jabos developed the concept "combat planes", but as standard type the fighter with special armament and facilities for carrying some bombs.

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Sp. The lists, according to types of production, should be found in Hamburg.

Q. Have you any figures divided according to factories?

Sp. They should be at the Technisches Amt. Not in Hamburg. We have only sum totals according to types. You probably should get those figures even at the Main Committee Airplanes at Frydag's office.

Q. Production of day fighters was doubled from 1942 to 1943. Was that part of a long term planning or was that a measure which was the result of our growing bomber program?

Sp. The long-term program called for many more. The production goal was by no means reached, but during 1942-1943, bombers were still in front and fighters behind in way of production. I know that because I got in touch with Galland about that question for I thought it unwise to build bombers when the whole home production was menaced by the enemy bombers. The Fuehrer's and also Goering's opinion was that enemy bombing attacks could only be removed by complying with same, by counter attacks. This opinion was predominant at least until the end of 1943. Galland and myself have always acted against that.

Another large factor was the Fuehrer's fear that the enemy would one day start gas attacks. If we would have been without a bomber weapon the dominance of the enemy bombers would have been catastrophic in a gas war.

Q. Is there a definite difference between the tactical and the production program? The German attacks on England stopped at the beginning of 1944, but production of bombers was continued until the middle of 1944?

Sp. I can only say that the last great effort to start the fight again against England could be seen in the appointment of General Pelts as "Attack Leader England". About the middle of 1943 - but the machines then went to the south, the rest to the east. In the east the corps "Meister" was forced which was intended for special occasions, but it was used due to the Russian offensive against railway targets.

Q. The project Pelts existed since 1943 - was it the basis for continuing the program until 1944?

Sp. The point is that we have the experience that programs have been changed quite often. The industry finally never kept to programs because they just changed too often and kept on producing and the goods were accepted. One has to consider that from the day on when production is cancelled, that is, deliveries for one, that production can keep on for another four, six months with our conditions. We would not have gotten any other planes, especially not more fighters, if we would not have let bomber production run out; the fighter program also suffered from a lack of components and they didn't have the same parts. So, if we would have said in that moment in which bombers were not urgently needed anymore - I stop them completely, then I wouldn't have gotten any more fighters either because the change of components takes 4-6 months - that is the reason we always let such programs run out.

Q. Because you always had workers difficulties, would it not have been better to use the workers from bomber production in the fighter production?

Sp. Difficulties in regard to workers was not as great as these in regard to deliveries, and we have fed the airplane industry especially heavily. Besides, the German workers were tied down according to localities. Anyway the situation was that those machines were accepted by the Air Force - so they needed them too. The Air Force never decided to say we don't need them at all.

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- Q. Were our attacks in 1944 so heavy that it caused a relief of the labor situation already mentioned by you?
- Sp. No, that came at the end of 1944 - really the beginning of 1945, due to bad transportation coal ran out in our factories.
- Q. As you said before, the plan for fighter production was still greater than the actual increase. How was this plan worked out in detail, that is, so that sufficient workers, raw materials, deliveries, etc. were on hand? Were these taken from other productions to achieve this program, because it has such a high priority?
- Sp. Requests were made to Zentrale Planning for iron, aluminum, etc. and they were, for a few exceptions, for higher programs with predicted results allocated so that the Air Force had theoretically no difficulties to execute this program. In practice, difficulties were present: i. e., crankshafts could not be gotten together in a way possible to carry out the program.
- Q. Did the Zentrale Planning count on deliveries by sub-contractors?
- Sp. At that stage - 1942-1943 - not yet.
- Q. The raw materials had to be accounted for - how was that distributed to the sub-contractors?
- Sp. We don't understand each other. Aluminum was allocated according to sizes in tons, but with aluminum the production of fine sheets was a bottleneck and had not been taken into consideration. They could not roll the aluminum although they had the allocation.
- That was the basic mistake of the Air Force that they did not plan it through sufficiently but left too much to the individual firms.
- Q. Was it necessary to cut off any other programs of the armament for other weapons or to decrease it for that great program, or were they treated equally?
- Sp. 1942-1943, I still was in competition with the Air Force and mainly pushed tanks, artillery and ammunition. We met though in the field of crankshafts. In all other fields the interests were so separate that we could proceed side by side. It was surprising that we had so much more room in our capacities than Thomas had predicted.
- Q. How about workers?
- Sp. At that time we managed well with the many Russian workers we got.
- Q. Have you any idea about the final accomplishment of the fighter production plan; how many fighters did the program hope to produce?
- Sp. I cannot say exactly - we believed in a total airplane production of about 6,000 a month - about 4,000 fighters. This program of 6,000 planes is the program which the planned increase in industrial capacity from the summer of 1944 can be seen. This does not take the effects of air attacks into consideration. You should examine the programs set up in May, June, and July. They would give you the best picture.
- Q. Was there enough production space in 1943 to carry out such a program or were large extensions called for?
- Sp. Theoretically, such a program could have been carried out in 1943. In practice it didn't work because - as we saw after taking over the air armament, the complete sub-contractor's planning was out of order.

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Q. What deliveries especially?

Sp. Mainly crankshafts again. Due to the lack of crankshafts many motors were laying around which could not be finished. Crankshafts were mainly the bottleneck, for the production of special machines to work on those crankshafts took a long time to be finished. Schieber distinguished himself greatly in this field.

Q. Does that mean in general that your main bottleneck was in the deliveries or in the airframes production?

Sp. No, in the deliveries, and especially in the deliveries for motors, then motors itself, so that even motor production was too small in comparison to the capacity for frames.

Q. Did you make any effort to increase the production of crankshafts and did that result in a factory extension program?

Sp. The difficulties began with the forged pieces which were difficult to produce and of which there were only two or three works capable of making them, such as Krupp in Essen, Kuhag near Hamburg. When these bottlenecks were removed there was still the difficulties of the extremely complicated machines for crankshafts. There we made building additions, mainly in Wasserulfigen near Stuttgart. The volume of those buildings was small as the production of crankshafts does not take much space. We had just overcome those difficulties when your heavy air attacks came.

Q. Were ball-bearings ever a bottleneck?

Sp. Ball-bearings were always pretty short - even from 1942 on. There was also quite an extension of ball-bearings and crankshafts. You were just talking about airplanes. We could produce those because we considered them urgent - in either fields, they were very short.

Q. I was just recollecting our talk when you said that you had saved over 30%

Sp. I'd rather say, more than 30%. We also replaced them partly with slide bearings (Gleitlager) (?).

Q. After telling us all that it would interest us greatly to hear your personal opinion on how the air attacks affected you in 1944. We not only attacked final productions but also sub-contractors and motor works. What was the most critical in the air armament?

Sp. We were for a long time surprised that you attacked the frame production and not the motor production. We were always worried that you would attack BMW, and the others. There were only few big factories for motors, Stuttgart-Untertuerkheim, Genshagen near Berlin, Basdorf-Zuehlsdorf, etc. In practice you made further production for us possible. If you would have attacked the motors at first and not the frames we would have been finished. The capacity of calls was nearly double that of motors (just estimated). So even if you destroyed half of the frames we could still build in the motors that were produced. If you would have attacked the motors instead of the frames in February we could not have produced the 110% in March but only 30%. Anyhow, you did it quite often in the phase that you attacked both the subcontractor and the producer, i. e., Buna and Continental, Hannover. You destroyed 30% of the production and also about 30% at Buna. That was a double attack. The loss of Continental just freed myself from the trouble to think whom I should shut down on the production end.

Q. You probably made some efforts to balance the frame production, and we think we know you did not try to decrease the frames but tried to increase the motors. When would a balance have been reached?

Sp. That is difficult to say because we also had the following difficulties:

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Our motors never came up to your motor's capabilities so that we could not match the performances with yours. That is the reason we didn't have a running motor production which could keep up for a long time, but we had to try to bring about improvements step by step in an almost, I might say, "hysterical" method. There was interrupted production with long intervals and that disturbed the production of motors immensely. We could not have gotten up to the desired motor performance anyhow.

Q. After you had recognized that the chemical attacks became critical, did you think it necessary to cut down on plane production because not enough fuel was available anyhow?

Sp. That was in April 1944 - the decisive conference at Obersalzberg, in which for the first time and too late the Fuehrer and Goering decided to put fighters before anything else, although our fight had been waged since 1942-1943 to put fighters before anything else. This decision was even put back in July and the He 177 was again taken into the program on orders of Goering. From that time on, April 1944, we were only interested in fighters. Everything else should stop. The 177 did not bother us much. We let the whole matter drop. From that time on we tried to produce as many fighters as possible without regards to the gasoline situation. Galland and myself were of the opinion that one cannot say how many fighters were destroyed by your attacks. Anyway, the case was that the number of usable fighters never exceeded our monthly production. That is, perhaps, the most interesting figure. Every month we had to produce the fighters to keep in combat. So you destroyed every month my production and, therefore, the number of my battle-ready fighters was always small. Because the destruction of fighters was so high we had made all efforts to keep production on a high level despite the gasoline shortage. From December 1944, our gasoline was so short that we could not get it to balance at all any more. This relation between monthly production and the fighters at the front can be proven.

Q. Do you credit this defeat to the destruction in aerial combat or to attacks on aerodromes? Were finished planes destroyed on the ground or in the air?

Sp. The planes were mostly destroyed on the ground; also while ferrying them.

Q. Which of the destroyed planes are included in the statistics? Have the ones destroyed in the factories been listed as finished?

Sp. The planes were not entered before acceptance at the factories. These figures do not include the planes which were destroyed before the test flight.

Q. Also the ones destroyed during transporting them to the Air Force?

Sp. The test flights were made at the factory. I remember something which should be interesting to you. Maybe this is true the world over. The monthly production is concentrated mainly in the last part of the month. Say, if I produce 600 planes I do not make 20 daily but during the last 10 days of the month maybe 400 and the preceding days maybe 200 planes are produced, because I and the factory press the completion of the order; so that your attacks which came toward the end of the month brought immensely higher losses while the ones toward the beginning of the month were hardly noticeable.

I know that you attacked the airplane industry often during the last three days of the month, i.e. in middle Germany, Halberstadt, Oschersleben, etc, and caused tremendous damage. This irregularly distributed production was really an unhealthy

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condition. It can only be explained that there was more pressure put on the workers in the last 10 days. And then all deliveries were used up and they could not continue for a few days. That is not only true of the airplanes industry but all other producers and is of importance to air attacks. For the last week we had tremendous fear of air attacks and when the last third was over then the attacks could come. But the first 2 - 3 days of the next month are just as dangerous. Since the acceptance and transport cannot keep up with the last days' production the stocks only dwindle after a few days.

Q. Although our big attacks were in February 1944 it was still possible to increase production in May and June. What other production was sacrificed for that?

Sp. None. One has to say again that the transfer of March 1 put the whole fighter production on another basis by dismissing, just like at the Army Weapon Office (Heereswaffenamt), the officers and putting men from the industry in their places.

By that great performances were achieved. As you can see by our program they would have been very much higher but for your attacks. I think that we could have increased by another 30, 40 or 50%.

Q. Was it an accident that you took over the air armament during the days after the attacks?

Sp. That was the result of it. In the middle of February the heaviest attacks occurred. At the end of February came Milch and declared his bankruptcy. It was clear to me that the whole productions would be finished then. Then we thought about it and agreed that we would have to make a compromise solution. The fighter Staff was considered (Jaegerstab).

It was presented several times to Goering but he refused to sign it. Then I signed it myself and told him on the telephone that we would start to work. But the cause of these actions were actually the previous air attacks.

Q. Do we understand you: With the beginning of the Fighter Staff you had 100% control and the later taking over of the air armament was just a formality?

Sp. That only applies to the field of fighters, but not to bombers, aerial instruments, bombs, etc. that was separate at first as long as it did not concern fighters - ground equipment and whatever belongs to air armament.

Q. What were the separate steps which led to the mastering of such a tremendous fighter program? It must have been necessary to transfer machine tools to the fighter program, to create factory space, and many other factors; - did you take them from the consumers' goods production or from where?

Sp. No, you can't see it that way. You must have direct interviews with the people from the industry itself. Messerschmidt e.g. They will tell you how badly the air armament was organized.

The officers of the Air Ministry, as I said before, changed the programs very often and were undecided in their decisions; the programs were not sustained for any length of time, they were changed every few weeks, without consulting the industry about its effects. The typical example is the Viennese aerial motor works, Ostmarkwerk, where 50-60-000 qm factory space with machine tools could not produce a single motor for years.

That was the bad utilization of capacity. One would not have been able to make such an increase anyway because of factory space, machine tools, etc. Increases

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immediately at the start for the next month could only be obtained from capacity present. Increase of new capacity always had a starting time of several months.

Q. Was it not even necessary to increase the number of workers?

Sp. Hardly, not in the first period. We added just a few, which did not have such an immediate effect. The learning takes quite some time.

Our airplane industry was a young industry. The Air Ministry had also grown fast. before 1933 we had no airplane industry and no ministry. On the other hand the Army had their regular firms such as Drupp, Rheinmetall, Mannesmann, etc., and in these first-class engineers and technicians. Due to the rapid growth of the airplane industry we did not have the group of first-class men; it really was a second-class group. Something else must be taken into consideration. We suffered in the airplane industry because the designers were also general managers. We have Messerschmidt, Heinkel, Tank, etc., they were general managers at the same time. We remedied that only very late and then only partially. If the development chief is manager at the same time he causes unrest in the factory because he is always on the lookout for technical improvements and feels himself responsible in the first place for that. He cannot exercise the duties of the manager - primarily to leave the works alone and to oppose any changes, with a real belief as he himself is inclined to changes too. A man like Messerschmidt is an artist. One should never put an artist at the head of such a large firm (unless a minister over the armament) (laugh).

What was lacking in the airplane industry was a sound foundation which could undertake the thorough planning of these programs for the components. The first measures we took on March 1 was to take the technicians out of the Main Committees and the best production planners out of the Army armament and to put them into their armament and we had great success with that. They determined that there was actually no solid planning up to that time. These persons were very important to me as I had already recognized before.

Something else which must have antagonized the good technicians was that court martials were often resorted to. If some firm could not fulfil its program a military court was put together and there the military members of the court who had no ideas of the problem considered whether the firm head should be punished for not fulfilling his program. I had prohibited that in the Army armament. The result was that the valuable persons said to themselves: I prefer to produce for the army.

Q. Isn't it strange that civilians were put before military court?

Sp. Yes, that it was. Goering often ordered it and Milch also joined him. Nothing ever came out of it. The court was never able to see into the connections. But it was bothersome and the people were somewhat burdened by it for that time.

Q. The question now comes up that you were able to triple the production of day fighters from September 1943 to September 1944, and that even in 1944 when production fell out due to the air attacks. We agree with you when you say that you did not need any more capacity. It must have been necessary to increase the number of workers?

Sp. Naturally there were many. I understood the previous question to refer to skilled workers. To rebuild the destroyed factories and to extend partial evacuations we had to use many workers. Practically the whole Building Trade was at the disposal. I imagine we used about 300 - 400000 workers for that purpose.

Q. Was that mostly the OT?

Sp. You cannot differentiate there. In the Reich the building trade was the OT and

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th therefore the building firms.

Q. Was the use of these 400 000 men noticeable in the whole economy, besides the necessary machines and materials?

Sp. Yes, that was the case. From March 1944 on construction had to be totally switched over to repairing air raid damages of the air armament only. Even materials. At the same time there were great needs of concrete to proceed with the construction of bomb proof relocation places.

The picture changed from May 12th on when the attacks against Hydrier works began. These works were still more important and so we could not any longer recognize the priority of the aviation industry and had to balance both within our limited possibilities. As to figures, one can say that during that time production of bombers decreased to 105, that is by 300. A bomber - and there were still 4 motor jobs among them - requires certainly three times as much as a fighter plane for its production so that one arrives at a figure of 300 x 3 or 900.

Q. Would you have been able to attain the 1944 output within the production space which was sufficient for 1943?

Sp. Certainly; for during the year 1943 air raids against the aviation industry did not yet take place.

In 1944 we had simultaneously the following difficulties:

1. Air raids,
2. Dispersal of the whole aviation industry into branch plants,
3. The already started switching over to U-boat construction which resulted in that a certain share of machine tools had to idle temporarily.

All this taken together, the newly added capacity was largely balanced by these difficulties.

Q. You talked about the program whose goal it was to produce 4000 fighters and 6000 airplanes. If there would have been no air attacks by us when would you have reached that production goal?

Sp. It was planned for November - December 1944, but was undoubtedly too optimistic. We would certainly have reached it by February - March 1945, but the program was even without air attacks purely theoretical, because it was found that our types were much too slow and bad; they would not have been kept in the program, but new motors and other intermediate steps would have been devised to keep up in the race. And through that the figures again would not have been reached.

Q. You said yesterday in general that you noticed that exactly the reverse effect was caused by air attacks as was intended and that it even caused an increase in production. Did that also hold true to the airplane industry?

Sp. I wanted to come back to that question anyway. That was something which we often said jokingly. We said that air attacks force one to improvise and that through that better performances were given. But you cannot defend this seriously. One can say that the impossibility of planning and the necessity for improvisations have their advantages too.

Q. One thing is not clear to us. While the June production was 1664 fighters, why were there not more than 500 - 550 planes at the west front during those critical days?

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Sp. More were sent. 2000 planes were sent which Galland had intended for the defense of homeland production. You never saw them because they had been destroyed in transit flights and on the ground, some by insufficient training. By that can be deduced that you can't believe the production figures because you have never seen them. It is our opinion that at the end about 25% of the production was lost during the transit flights because of bad training. Is that right, Baumbach?

BAUMBACH. I don't know, but the figures were very high, if not even higher.

Sp. I have seen 8 - 10 machines land at one time and 4 crack up.

BAUMBACH. The loss in transit flights of fighters were 3 - 4 times as high as ferrying bombers. That is caused mostly by the training. The field was smaller and the men better trained as in the numerically larger fighter force, where the training has gone down much faster than in the Bomber Force.

Sp. The mistake was, as Baumbach mentioned already, that more care was taken in 1943 towards the training. In addition no fuel was allocated. It would have been about 10 - 20 000 t. monthly out of a total allocation of 160 000 t. to the GAF.

Q. Was the jet-plane production especially stimulated due to the bottle-necks in the components industry?

Sp. No, we figured on the jet plane as a decisive turn in the airwar, and not as removing the bottle-neck but as a new plane.

Q. We now want to turn to the question of dispersals. The question was raised: When were they first planned to a large extent and how was it executed? Especially in regard to the airplane industry?

Sp. At that time we carried out the first large scale dispersals in the electric industry from Berlin, during the series of attacks on Berlin, around August 1943. We dispersed especially the Radar industry (Funkmess-Industrie), to Upper Silesia. At that time dispersal was not planned in advance. However, when focal points of the bombing attacks became apparent we tried to disperse accordingly. The range of installations to be dispersed was very wide, and we didn't know where to begin as long as we could not predict the plan of the enemy. The ball bearings industry was the second largest scale dispersal that we carried out, caused again only through the attack on Schweinfurt. The third dispersal was really the aircraft industry when the attacks in February 1944 took place. Outside of that there was some dispersal of course in important component industries, and in finished munitions. But according to focal point, dispersal was started only when a focal point had become clear from enemy operations. There was no other practical way possible; we didn't know if you would next attack tanks, guns or whatever else. And you can't disperse the entire industry, that is an impossible program.

At first all dispersals were above ground. We were able to regard Upper Silesia and central Germany as suitable bases, so that even during the attacks on focal points we dispersed large parts of the crankshaft industry to Upper Silesia. We were forced to go underground by the penetration of the attacks on German industry into central Germany and finally as far as Upper Silesia. The underground program was planned for the first time on a large scale early in 1943, that means prior to the first February attacks. But the difficulties then seemed so large, industry didn't feel like going underground. Also the situation was not yet critical enough to go underground.

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Q. Could you indicate approximately how many percent of frame production as well as engine production was finally underground?

Sp. No, I can't do that. These figures should be available at the technical office (Technisches Amt).

Towards the end we had about one million square meters total underground space. But up to the end we never achieved a complete conveyer-belt production (Bandlieferung) - from components to engines and frames to the finished airplane - underground on a large scale. We got up to 50% in some types, but others were still above ground. Submarine underground dispersal was never solved. That took too long. For that you need an immense amount of space.

Q. Was dispersal a considerable load on the entire economy?

Sp. Dispersal put an immense load on industry for two reasons. First, the plants were torn apart by dispersal. The leading technical personnel was also torn apart and consequently the quality of management went down. Second, we suffered through the bad conditions of communication and through bad transport conditions. However, here we have to differentiate between two phases. The first phase of dispersal above ground, during which the plants are torn apart, and the second phase of underground evacuation, where we finally reunited the plants.

There never was time for that. And another thing that is important that I mentioned yesterday is that the machine tools were always idle due to the evacuations.

Q. The labor question for example - did it have an effect on the whole economy and what was the effect of the labor use which was transferred to evacuation work as a factor of the complete economy?

Sp. The subterranean evacuations were mostly handled by miners from the Ruhr and Saar mines which at that time did not have to produce so much coal because of the transportation question, so that we had really no losses in that respect. The others came from the building trade and doubtless the advantage of a subterranean evacuation considered over a long period of time was very great as the workers used constantly for the removal of air raid damages would then be freed of that task, as soon as the evacuations could be carried out. That was a single use which would have had effect had it been successful.

Q. When there was an evacuation, let us say, from southern Germany to Silesia, did you only transport the skilled workers or also a great number of unskilled workers too. That would have been a migration of some extent, or did you take the workers from the new location?

Sp. One of the main difficulties was the lodging of the workers principally because all districts to which we had to evacuate had been filled with evacuees from the bombed areas. That was the reason we tried to move the specialists only and leave the other workers at their old location. That was the usual procedure. If there was space we tried to put up all the workers because they were already trained.

Q. Did you ever have overproduction in the airplane industry so that it was possible to draw workers from that overproduction and send them to a place where you might have increased production with an extra night shift?

Sp. I would have liked to have done that. I could not afford to do that because of my differences with Sauckel. I would never have gotten back the workers because they had to go through the Labor Offices. If I would have said to one Regional Labor Office that the workers are free here and can be temporarily loaned out somewhere else, I would have never got back from the Labor Office.

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That was particularly bad in the Ruhr area as there, for example, specialists were freed in a bombed out forging plant and could have been used in another still operating. It was never possible to direct that with a free hand, but even these workers had to be transferred by the Labor Office and would have been lost to the bombed firm. That is the reason why Krupp, for example, never reported those workers which were free temporarily.

Another thing - the Labor Offices were tied down to Gau boundary lines and any transfer from gaus had to be approved by Sauckel. If one could have carried out such transfers without any trouble it would have been possible to save about another 10% of all workers, maybe even more, which the industry never reported as available because they were afraid that by doing so they would lose them for good.

Q. About the question of evacuation is it your opinion that it would be a much more effective counter measure against air attacks to put the factories underground instead of dispersing them?

Sp. Naturally, in the long run. With dispersal no production is possible. That is out of the question.

Besides the underground evacuations we were constructing six reinforced cement works with 60 000 to 100 000 sqm area which were to be built above ground similar to the submarine pens. Two are near Landsberg/Lech and Muehlradung/Oberbayern, which had been nearly completed. They had been constructed according to new methods with which we also had fooled the enemy air force during their attacks on the V-weapons in France. When one makes cement buildings one needs large wooden scaffolds which are very vulnerable to air attacks because the bombs throw everything around. Here we started to make large sand piles, in the form of an arch and then poured the cement; that way we saved the wooden scaffolds and you did not notice what it meant. Then we carted away the sand. That is the way we constructed the six airplane factories of which two, as I said before, are at Landshut/Lech.

Q. Did you use general measurements for production and what kind of index did you have? In America we have a certain index which is determined by the National Bank, and then we have another index for the total National income. On what basis did you measure the armament and war production?

Sp. The curves are measured according to prices which are determined and never changed.

These curves are also suitable to show the actual growth of the GAF in which the decrease of bombers is considered according to value.

Q. We have worked on these curves but have not understood one thing. May I give an American example: One tank, made by firm A and Firm B costs at firm A 40 000 dollars and at firm B 55 000 dollars; the difference is due to larger mass production, better rationalization, etc.

Sp. To advance the rationalisation we have introduced ceiling prices at the beginning of my work. These prices were determined by the industry together with the forces. The industry was not forced to accept the ceiling price. Who accepted it had tax advantages, e.g., he was exempted from the War Tax which gave him added incentive for rationalization.

These ceiling prices were laid down. Most of the firms agreed to it because of the tax advantages. Before that the hours spent on a product determined the price, so that large differences came up. This type of price determination led to nobody

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having any interest in rationalization, because a larger number of hours brought more profit.

- Q. Would it be possible to get those prices which are the basis for the index so that we could "dissect" those curves much better?
- Sp. Those prices can be had at Wagenfuhr at the Planungsamt. He is the best man from the Statistischen Reichsamt.
- Q. To your knowledge, have there been made statistical studies on the effect of the air war on Germany?
- Sp. As I said already yesterday, the Planungsamt made studies on that subject, even what percentage of workers were tied down due to air attacks. But these are very theoretical. Questionnaires had to be curtailed in these critical times and the factories, due to the destruction of their apparatus, could only make very theoretical appraisals. The appraisals vary tremendously.

Signed: Speer