

Rees, Eberhard and Mrs. Rees. November 8, 1989. Interviewer: Michael Neufeld. Auspices: DSH. Length: 2 hrs.; 42 pp. Use restriction: Permission required to quote, cite or reproduce.

Rees discusses his early life and education. He then discusses his engineering education at Stuttgart and Dresden and his early work experience. Recruited by Peenemünde as replacement for Heidebrock; he later becomes von Braun's assistant. Discusses von Braun: his personality and talents, enthusiasm for spaceflight, anti-Nazi attitude and arrest. Discusses Dornberger, Stegmaier, Oberth, Zanssen and Reidel I, II and III. Discusses the pilot production plant; impact of changing priority on development; danger of air raids. Discusses the origin of in-house capability and compares German and US capability. Evacuated to central Germany; remained until overrun by US forces.

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Interviewee: Dr. Eberhard Rees and Mrs. Rees

Interviewer: Dr. Michael Neufeld

Location: Huntsville, Alabama

Date: November 8, 1989

TAPE 1, SIDE 1

DR. NEUFELD: Dr. Rees, can you give me for background purposes your full name, your birth date, your birth place?

DR. REES: My name is Eberhard Friedrich Michael Rees, and I sign my name Eberhard F. M. Rees.

NEUFELD: Your birth date?

REES: My birth date is April 28, 1908.

NEUFELD: And your birth place?

REES: Trossingen.

NEUFELD: Where is Trossingen?

REES: Trossingen is in south Germany, in Wuerttemberg. Very close where the Neckar River and the Danube River originate. The biggest city there is Villingen, Rottweil, Tuttlingen. And it's about 50 kilometers to the Lake of Constance.

NEUFELD: OK. That's a very beautiful part of Germany. Your parents' occupations?

REES: My father was a president of the high school in Trossingen.

NEUFELD: Was that a Gymnasium?

REES: Ja, it's a kind of Gymnasium. They have languages there but also Latin so it was a kind of Gymnasium. But not what you call in United States gymnasium. It has nothing to do with sport. Of course we had also what we call in Germany Turnen, or Langlauf or these things, but it was languages, in the main.

NEUFELD: It was a humanistic gymnasium, was it, heavy emphasis on languages and not on science?

REES: Science, physics was pretty good and chemistry and other things.

NEUFELD: So you graduated from the gymnasium. Did you go to the gymnasium where your father--?

REES: --I went to the gymnasium only till I was about 14, and then I went to Stuttgart, to a gymnasium in Stuttgart. I was there from 1923 until 1927, and then I had what is called in Germany the Maturum. And when you have the Maturum, then you are able to go to college in Germany or to university or Technische Hochschule, that we had at that time, now being called universities in Germany.

NEUFELD: Right. Is the Maturum the same as an Abitur essentially?

REES: Abitur, ja. It's the same.

NEUFELD: Did you have an inclination towards technical subjects, science, at the high school level?

REES: No. We had only just on the high school level chemistry and physics.

NEUFELD: So you entered university then?

REES: Then from there I went to Stuttgart University, but at that time it was Technische Hochschule, and before you got there you had to have practical work. So I worked practically in a company in Stuttgart for a whole year. They asked only for half a year but I made at that time a whole year at the company of Bosch, famous company, and there working there in all their departments.

NEUFELD: So as a --

REES:--in electronics and mechanical engineering

NEUFELD: So, what you might call a practicum --

REES: --ja, a practical year. And then we had some more praktikums whenever a student in Stuttgart in my vacation, with other companies.

NEUFELD: What year was it that you worked at Bosch? That would have been about 1927, '28?

REES: I had the Abitur in 1927, and then I worked one year, '27-'28, and then I went to the Technische Hochschule in Stuttgart, as a mechanical engineer, to become a mechanical engineer.

NEUFELD: Was that called Maschinenbau or?

REES: Maschinenbau, ja.

NEUFELD: OK, so it was mechanical engineering, Maschinenbau.

REES: Maschinenbau.

NEUFELD: Did you specialize in any particular area of maschinenbau or mechanical engineering?

REES: No, I didn't.

NEUFELD: You became a Diplom-ingenieur?

REES: Ja. I was in Stuttgart from 1928 at the Technische Hochschule until 1931, and then I went to the Technische Hochschule of Dresden in Saxonia, which was described to me as very good, especially in mechanical engineering. So I left Stuttgart in 1931 and went then to the Technische Hochschule in Dresden, and there I make my Diplom-ingenieur. I graduated in 1934.

NEUFELD: So you finished your Diplom-ingenieur degree in 1934.

REES: 1934, at the end of 1934. It could also have been 1935 but I think it was 1934.

NEUFELD: Did you specialize any further at Dresden in terms of which institutes you worked with or subjects you worked with?

REES: Yes, it was especially thermodynamics. Dresden was especially good in thermodynamics and so I went there mainly in thermodynamic lectures, and so I went there and I made also my Diplom in thermodynamics.

NEUFELD: Was your interest primarily in internal combustion engine technology, the application of thermodynamics?

REES: Ja. And heat transfer. The theory of heat transfer.

NEUFELD: As applied to internal combustion engines or diesel engines or more generally?

REES: It was certainly not rockets, but it was internal combustion engines, and then also in big boilers for making steam for electricity. What's been called in Germany Kraftwerk.

NEUFELD: Electrical power plants.

REES: Electrical power plants.

NEUFELD: And so in 1934 you finished the Diplom-ingenieur and

what was your next, where did you next stop?

REES: Then of course at that time it was rather tough to get a job in Germany. It was about the same time when, before Roosevelt came here in this country. It was really economically all down. But I got a job then in a company in the city of Leipzig.

NEUFELD: In the year 1934?

REES: In the year 1935. Ja. And I was in Leipzig with the company until--

MRS.REES: -- '39.

REES: Until 1940. I was with that company until 1940. At that time, I went into Peenemünde. In February 1940 I went there to Peenemünde. And I got to Peenemünde through a professor of mine in Dresden. You know, Dr. von Braun was very young when he built and opened Peenemünde, so they felt in Berlin, it was General Dornberger, at that time he was a colonel, that he needed somebody who understands science, technology, and also business as it's run in companies, and so there was a Professor Heidebroek who then took a job in Peenemünde as a deputy of Wernher von Braun.

NEUFELD: His name was?

REES: Heidebroek. And I knew Heidebroek quite well from Dresden, and I knew him also from, he was in Darmstadt for a time, and his son was in Stuttgart and was in my fraternity in Stuttgart. So we were fraternity brothers, and I know this is also one of the reasons why I went to Dresden.

NEUFELD: That you knew this fraternity brother of Heidebroek?

REES: Ja.

NEUFELD: OK, so he was the son of this Professor Heidebroek.

REES: Ja.

NEUFELD: OK. I didn't get the details as far as the company was concerned, just to fill in that gap.

REES: OK. Ja, the company was a big foundry. I was not specializing in foundry before, but I had of course also foundry courses, and I also worked practically for some months in a foundry before I went there to university in Stuttgart, and I just took that job because it was so hard to get a job, so I got it, and I got it through that Professor Heidebroek, who knew one of the presidents of that company in Leipzig. It was a very big

foundry.

NEUFELD: Do you remember the name of the company? Just for the record?

REES: The name of the company was Meier und Weichelt. ... It was a very famous company and well known in Germany at the time. What became to the company now after war I do not know. But during the war, from Peenemünde I came down there. They had big contracts during the war actually, and I came down there and visited them sometimes just as a friend.

NEUFELD: You never got them involved in any Peenemünde contracts?

REES: No. We never got them involved in Peenemünde. But they were very good to me and I really liked to save that company but I was interested in what they did in Germany and I got interested to Peenemünde from this Professor Heidebroek. And he needed an assistant in Peenemünde, so I joined Heidebroek in Peenemünde in 1940 as his assistant.

NEUFELD: What was Heidebroek's technical specialty? What was his institute?

REES: He was also mechanical engineer, and a physicist.

NEUFELD: Was he a technical physicist?

REES: Ja. He was as a technical, he came from technical engineering, so he was an engineer. He was not a management man. But later on, when he got up in --as a professor, he was first with the company of course in Germany and he got up really high there and of course came then into management. So he understood also technical management very well. It was one of the reasons why they took him to Peenemünde to assist Wernher von Braun.

NEUFELD: I know that Dresden, the Technische Hochschule at Dresden was heavily involved in doing research for Peenemünde, after September 1939. I've seen a number of documents from that period which show the assignment of various tasks to various units. Unfortunately I don't have them here, so I don't remember the names of which professors. Of course the name Wolman is familiar to me in electronics.

REES: Well, there were especially professors from the University of Darmstadt, because we had lot of people in Peenemünde from Darmstadt.

NEUFELD: What was the person you said, did you mention a specific name from Darmstadt?

REES: Yes, I can mention especially Dr. Steinhoff.

NEUFELD: Yes, Steinhoff was --

REES: --Dr. Steinhoff who was in Peenemünde the guidance and control man. Through him we got a lot of people from Darmstadt, from the University of Darmstadt, and we had also then acquired some contracts with some professors in Darmstadt working for Peenemünde during the war.

NEUFELD: Why do you think that -- I think Dresden and Darmstadt probably played the largest role in university contracts. Why do you think that was the case? Was it largely personal connections?

REES: Ja, it was personal connections with Dresden and especially with Darmstadt. But in Dresden we had also some good professors with whom I worked at that time, and they had lots of contracts also from Peenemünde.

NEUFELD: Did Heidebroek become an employee of Peenemünde, or was he on assignment from the university?

REES: He was only assigned. And after a while, he wanted to go back. You know, he was an older gentleman, and he said then, "Why don't you take my job?" and then Dr. von Braun had to create at that time, I knew von Braun quite well so I was with Heidebroek in Peenemünde about four or five months, and then he recommended to Wernher von Braun and also the people in Berlin, especially Dr. Dornberger, that I should take that job, and I became then the deputy of Dr. von Braun in 1940.

NEUFELD: Do you remember what month in 1940 that was? When did you come? I guess that was the first part. Can you remember, was it the middle of the year?

REES: I came to Peenemünde in February, at the end of February, 1940. And then I think Heidebroek left in April or so, and then I took his position and became then the deputy of Dr. von Braun.

NEUFELD: What was Heidebroek's job and your job? What were the different activities?

REES: Heidebroek's job was especially helping Dr. von Braun, building up the organization there and so on, because Dr. von Braun was very young and was a physicist, had no experience in running a company, and Peenemünde was sort of company as to organization--he was there as the president of a company, so to speak. And so Heidebroek had set that up, and I continued then as von Braun's deputy, in organization matters and especially in manufacturing. We had quite a good manufacturing division in Peenemünde, and we built the first models in Peenemünde, nowhere

else but just in Peenemünde. We had a big assembly plant there. And then later on during the war, helping another department under Dr. Rudolph, you might have heard that name, setting up the big mass production of the V-2. You know, we developed the V-2 in Peenemünde, but at that time when that was ready and was several times shot quite well, we never had developed it as a mass production item, and it was then done by Rudolph and all those in Peenemünde, that was especially me, and Rudolph was then later on taken away from Peenemünde and was in charge of this underground plant in middle Germany. There they make a mass production. Oh well, they make the V-2, about some 500 or 600 a month. It was quite a production at that time. And this could not be done with a thing which was just designed for development in the beginning at Peenemünde. So it was later on then developed also quite a bit so that it was ready for mass production.

NEUFELD: I have a lot of detailed questions that go right back to the beginning of all of those things. Were you involved at the beginning in recruiting personnel from the universities and companies in other places? Was that part of your job in terms of building the organization? Or that was somebody else's?

REES: That was somebody else's job. But I selected people, talked to people about it, and said these people are for this and this and this job quite suitable. So I was partially in that thing, but I did not hire those people. There was in Peenemünde also a type of civil service, as you had here, so the civil service rules, I wasn't in that at all. But we had a personnel office and they did then the final hiring, when we recommended certain people. And at that time, this was during the war, many of these people were just drafted. We just said, "We need so many engineers in that and that field," and the people were drafted, and partially came back from the front even. For instance, Ernst Stuhlinger, he was close to Stalingrad at that time, and he just was then drafted for Peenemünde as a scientist, and came back.

MRS. REES: My first husband too.

REES: Your first husband too, ja.

NEUFELD: What was his name?

MRS. REES: Haase, Günther Haase.

NEUFELD: That's a name that I know.

MRS. REES: He was drafted. He was in the Flak division, you know what the Flak in Germany was, and they got him from there. He came to Peenemünde in '41, I think.

REES: Flak was Flugzeugabwehrkanone.

NEUFELD: Yes, it originally meant anti-aircraft gun, but was used also for missiles.

REES: And this was then done in the beginning at that time by rocketry, and this is why he came then to Peenemünde.

NEUFELD: Dr. Haase.

REES: Dr. Haase.

NEUFELD: OK, so you came in 1940. You were involved in expanding the organization.

REES: Ja.

NEUFELD: I wanted to ask personal questions about people before I get back into the organization. What was your first impression of von Braun? When did you first meet him? What did you think at that point, and what did you think of him immediately after that?

REES: Well, von Braun was a researcher, outstanding person, and was one of the most outstanding persons I ever met in my life. There's no doubt about it.

NEUFELD: Did he strike you that way on the first meeting?

REES: Ja. He ran those development meetings and scientific meetings real real well right from the outset, and he was in the middle of the things, and he knew the problems of the V-2 real well, also the physics of it, and so von Braun struck me right from the beginning as a very outstanding man. And I can say this, right here. I think he was probably the most outstanding man I met in my life.

NEUFELD: What was his management talent? A lot of people have commented on it, but I'd like your comment on it.

REES: His management talent was that he immediately saw the problem, any problem, no matter it was a technical problem or a problem of science or so or organization, he saw the problem right away. And when he made suggestions to Professor Heidebroek, his suggestions were always, "Why don't we do it that way or that way or that way?" and he was also management-wise pretty good in understanding. Of course he had no background in that particular field right away, but he had a deep understanding of a problem. So problem solving in scientific areas, in management areas, and in many other areas was just his big gift, I would say.

NEUFELD: Did he have a particular talent in dealing with people?

REES: Ja. He had also a talent, quite a talent in dealing with people. That's why all the people never left but rather stuck with him and stayed in there. And of course rocketry at that time was quite new, and it was for engineers very very interesting. Peenemünde was for engineers a most interesting place.

NEUFELD: Is that part of the reason for the atmosphere?

REES: Ja.

NEUFELD: At Peenemünde, that it was enthusiastic?

REES: Ja.

NEUFELD: The problems seemed incredibly interesting?

REES: Ja.

NEUFELD: Did you hear of the rocketry business at all before, in the late twenties with (crosstalk) --

REES: --ja, I knew quite a bit about it. The name of Professor Hermann Oberth, he was the big rocket man at that time. Once in a while he came to Peenemünde, and he was then also for quite some time later on during the war in Peenemünde. But he was mainly a theoretical man, but he himself --- launched quite some small rockets. On some island in the North Sea he had a rocket place there, and he was there on some launching rockets, so he got in technical things also. But he was never good in pipe fitting and this kind of --welding he didn't understand.

NEUFELD: I got the impression that when Oberth came to Peenemünde in the early forties, that he was a little bit at a loss, because in effect the technology had gone beyond him and he didn't feel like he fitted in.

REES:-- yes, I would say, the practical technology.

NEUFELD: You get the impression that he felt somehow a little bit slighted or something, as if he'd been pushed to the side.

REES: Well, in Peenemünde he had never had a big position or so. He was also never employed in Peenemünde, as I remember. But he came there quite often, and he stayed in Peenemünde for quite some time, sometimes, but I don't believe that he was ever an employee of Peenemünde. I can't tell that for sure, but I don't believe it.

NEUFELD: I think he was but he had a minor position, on patents or something.

like '40, '41, '42, in that period, was distrusted a little?

REES: I noticed it all the time, that von Braun was never in these Nazi meetings, or -- I noticed it right from the beginning.

NEUFELD: Were there party meetings in the Peenemünde area, of some people?

REES: Ja, there were party meetings, and in Zinnowitz and all those other places, which were there, to have party meetings, and we had also a man in Peenemünde, one of our engineers, who was in charge of this -- I forgot the name, what it was called at that time, of a Nazi group or a common group I would say at that time, but he himself, that man, was also not a great Nazi. I knew him real well because he worked with me and once in a while he had said, "Well, I have to have one of those meetings again," but he was never a great Nazi. Peenemünde was never a big Nazi place. And I believe that Hitler was never in Peenemünde. Goering came up there several times, I guess, and some other big Nazi people, but Hitler was never in Peenemünde.

NEUFELD: That's true. So I know that most of the people in the top ranks were more or less obliged to join the party, because you were expected to, you know, to do that. Did most of the people at the top ignore party meetings and so forth? They had more pressing things to do? Did they avoid the party meetings and things like that?

REES: I do not know anybody in Peenemünde of the engineers who was a member of the party. For instance I was not a member of the party. And there was not great pressure. This was also --now, if von Braun had been a big Nazi, he would have looked at those people who joined the party. But we were not politically in that whole Nationalsozialistische Partei.

NEUFELD: I'm curious about this. I don't want to press you on it if you don't want to speak about it, but I'm curious as to who from the lower levels--in other words, there were meetings in Zinnowitz and places like that, they were mostly lower level people, do you think?

REES: Ja, I think so. Lower level people. But I don't remember anybody who was a real real big Nazi there. I can't remember that.

MRS. REES: Well, military there, there were some.

REES: Yes, it was a lot of military, and since Dornberger was the boss, he became later on, he was a colonel in 1940 when I came over there but he became then a general in this particular rocket field, but I don't believe that Dornberger was a party member.

And we never talked about this whole area. Of course Dornberger saw Hitler several times, and Hitler was interested of course what we were doing, making the V-2 and so on, but we were interested in engineering and scientific work, and not in any political.

NEUFELD: I asked you about von Braun. What were your impressions of Dornberger when you first met him?

REES: Well, Dornberger of course was the big boss, in Berlin. And he came very often to Peenemünde, and he was especially interested technically also. Dornberger had a doctor's degree and had a technical background and he was especially interested in that whole development, so he came very often to Peenemünde. I felt always that he was a great person. He was different than Dr. von Braun was, but Dornberger was, I admired him quite a bit.

NEUFELD: As a personality, would you say he was a Prussian officer type, in the way he carried himself?

REES: No, he was not an officer type in that sense. He was interested in technical things and he was during the war never in the field as an officer. He had of course, --the boss of Peenemünde, in Peenemünde, was an officer. That was Zanssen, Leo Zanssen. And Zanssen also was this type of guy who never was a Nazi. Whatsoever, you know. We knew Zanssen real well. I lived in Peenemünde directly at that plant, as a bachelor. And Zanssen had his house there too as the boss of Peenemünde, and Zanssen was directly under Dornberger.

NEUFELD: Yes, he was directly under Dornberger as base director.

REES: Directly under Dornberger, and I think they knew each other even from university.

NEUFELD: Yes, Zanssen is someone I'm interested in. I in fact met his daughters in Hamburg a few months ago. They were of course still a bit bitter about the way he was driven out in May, 1943. Do you know anything about that whole incident when he was removed in 1943?

REES: You mean Zanssen? The mistake Zanssen made then, when there was a party, there were quite some parties when people from Berlin came, we always made a party, and Zanssen after a couple of drinks, he just said, "I'm against Hitler." Zanssen was very outspoken. Very outspoken. I sometimes thought at these parties too at times, for heaven's sake, what Zanssen said again hurt quite a bit, during that. Zanssen was really --Dornberger was much more skillful in these things. And Zanssen, after a drink, he --this was the reason why he was finally removed, and Dornberger could not hold him.

NEUFELD: Do you remember any specifics about when that came up, or did it all come up as a rather big surprise to you? All of a sudden Zanssen was gone?

REES: I was surprised, that it came about, because I thought Dornberger would have strong arm enough to hold him. But it was just not possible, and I only learned later a little bit more about it.

NEUFELD: What did you learn later about the specifics?

REES: Well, I learned later on that Zanssen should give up his position in Peenemünde and just had to go to the troops and he was then a general of some military division very close to Moscow even, I think. He went deep into Russia.

NEUFELD: I got the impression, and I haven't been able to get the story straight, that he had taken a leave and had gone to the Russian front once already in 1941. '42. Do you remember anything like that, when he served in the forces before?

REES: No, I don't know anything about that.

NEUFELD: So you don't remember him being gone for a while in that period. There's no recollection of him being gone. You had no recollection that he was gone at an earlier point before he was pushed out.

REES: No, I don't have any recollection. I think he was not gone while I was in Peenemünde, since 1940. February '40 I got to Peenemünde, and from that Zanssen was the boss all the time, and I don't believe he was gone, until he was relieved.

NEUFELD: Do you remember well Lieutenant Colonel Stegmaier?

REES: Ja.

NEUFELD: He was the head of the development work.

REES: Yes, he was under Dornberger in Berlin, Stegmaier. I do not know whether he came then finally to Peenemünde or not, after Zanssen had left.

NEUFELD: I have an organizational chart that shows him as Zanssen's immediate deputy in Peenemünde in 1942.

REES: 1942, ja, that could be. Zanssen came from -- Stegmaier came from Berlin.

NEUFELD: Do you remember his first name? Because I don't even have that, Stegmaier's first name?

REES: I should know, because he was a fraternity brother of me in Stuttgart. I knew him from Stuttgart already.

NEUFELD: Really?

REES: Ja, ja, I knew him from Stuttgart, and then, Stegmaier -- I wonder where I could find out what his first name was.

NEUFELD: In any case, could you describe him? What you thought of him at the time?

REES: Ja. Stegmaier was not the type of character as von Braun or Dornberger. He was a little bit lower I would say --the word intelligence is not the right thing, but --

NEUFELD: Ability?

REES: Yes, his ability. He was a pretty good man. He was a good manager. He also technically knew quite a bit, and he was a doer. When something was set finally by Dornberger, it should be done, then Stegmaier was behind it. And Stegmaier knew quite a bit in the field of manufacturing also.

NEUFELD: Did you know him at the time? He's been described for example by one book as an enthusiastic Nazi type. Is that a fair charge?

REES: No, I don't believe so. But he might have been a member of the party. I do not know. We never talked about that either.

NEUFELD: So he never struck you at that time as having expressed those kinds of sentiments.

REES: No.

NEUFELD: I know for a fact that he had very good connections in the SS. I've seen documents.

REES: That could have been, ja.

NEUFELD: That he had connections with the top of the SS. Some other members of the team --

REES: --but he was never a member of the SS also. I don't believe so.

NEUFELD: He has the, you know, he was not liked by some other people on the team, I gather, because they told me that. One person here in town told me that he had the reputation of being an SS spy among some people. I wonder if that was after the fact?

REES: No, this is not true. This is not true.

NEUFELD: So that was something that didn't strike you at that time.

REES: Ja.

TAPE 1, SIDE 2

NEUFELD: OK, where were we now? I wanted to ask you about this manufacturing aspect that you had passed over briefly earlier. You were first involved when you got there with the issue of fabrication of the development missiles, in the development works.

REES: Ja.

NEUFELD: What task did you undertake in order to build up that capability at that time?

REES: Well, we had very good shops, and very good machinery, and then also good manufacturing people, and what was especially important in the whole V-2 was welding. We developed welding of high strength aluminum which was at that time, because it contained quite some copper, hard to weld, and the welding of the tanks, you know, the V-2 body was out of steel, and then we also always talked about having some V-2 or some bigger rocket where there was no tanks in there, where the body also was holding the fuel and so on. And we never were able to do that, especially because the weight was so important. The weight was number one. Otherwise we would have made out with our rockets, made the range. And so we had a very thin outer shell of the V-2, with high strength steel that would also handle high heat, because on the way down it was heated up quite a bit and we were afraid that it would just melt down and some of the V-2's really in the beginning disintegrated when they were coming down. We had some very high level shots, that goes to Helgoland, and when they came down they disintegrated, and we just wanted to find out. Welding this material was very difficult.

NEUFELD: You're not discussing the tank welding.

REES: No.

NEUFELD: You're discussing the external shell.

REES: The external shell. And the tank welding was of course also quite important because it was of high strength aluminum, which was at that time not available everywhere in Germany, and we developed welding metals that could weld those shells. Those tanks I mean.

NEUFELD: How did you develop the welding? Did you depend much on companies for providing you equipment or knowledge? Did you mostly develop it yourselves?

REES: No. We worked very closely with the companies, but we did the development in Peenemünde also. We did not have the welding done let us say in Bavaria somewhere or some company, some other companies, but we did, we developed the welding directly in Peenemünde. But we had the advice of quite some good companies.

NEUFELD: How was that relationship handled? Did you have consultants assigned to you? How did you get the knowledge of these other companies? Combine that into your --?

REES: --we had consultants from companies, and we also gave welding contracts to companies, who sent in their welders and their people to Peenemünde.

NEUFELD: As Dornberger and others have written, one of the important parts of your philosophy was creating a big in-house development capability.

REES: Ja.

NEUFELD: Inside.

REES: Inside, yes.

NEUFELD: It's been called "alles unter einem Dach."

REES: Ja.

NEUFELD: You nod to that. Did you hear it at the time?

REES: Ja. It was, this was our basic principle, to do that thing in Peenemünde also because it was of course, also had high security, and so we did it all in Peenemünde.

NEUFELD: Did you hear the phrase, and I'm still trying to search for someone who will tell me where the phrase came from or when it was first said, "alles unter einem Dach" ? Do you know specifically?

REES: -- well, it was not a typical Peenemünde expression. That was all over Germany, "unter einem Dach," any company had that. I heard that quite often before I got to Peenemünde. For instance in my company in Leipzig also, they said, "alles unter einem Dach."

NEUFELD: Meaning, concentrate everything --

REES: --concentrating, rather not doing outside but doing inside. We had quite some development in that foundry which was very interesting. We had higher material, you know. It was a steel foundry and the steel is entirely different when it's liquid than normal iron actually, because normal iron had quite some carbon inside and steel had not too much carbon content. So it was entirely different, and we did quite some development of that already in that company, unter einem Dach, unter selben Dach.

NEUFELD: So this phrase was pretty much a current --

REES:-- yes, I heard it already when I was a student.

NEUFELD: Were you aware as soon as you got there that the concept -- Dornberger's concept, I think it was mostly Dornberger in the beginning, I don't know -- was not to contract a lot of development out to companies at a distance, but to build a big institution at Peenemünde?

REES: Well, it was Dornberger's philosophy and then it was especially supported by us, by the Peenemünde people, by von Braun and so on, so that we really had a hand in there. As soon as you give something too much outside, then you can't control any more so well. We wanted to control all this. So we'd rather have it "unter einem Dach" in Peenemünde.

NEUFELD: Was the secrecy consideration first or the control over what development was being made?

REES: Well, it was both, I would say. I couldn't say it was rather the secrecy than the other points. But it was about the same.

NEUFELD: See, what's interesting of course about that is, to get out of chronology for a second, is that when you came to the United States, you more or less, in the arsenal concept of the US Army had the same situation over again, and then it, under NASA years were obliged to depart from having such a big development in-house. Is that true?

REES: Well, of course, we were at that time in civil service here, and we started then here in Huntsville also to have big shops, and sometimes the people from Washington didn't like that too much, but they couldn't do a thing about it because we just made it, and some people in Washington whom we knew real well and who were our bosses, they had agreed to to that. But they always said, "Don't do too much manufacturing here because industry doesn't like that." It was not so much the Washington people but it was industry didn't like it too much, and there was quite some talk about having our shops here run by industry. We had very close workings with industry here in United States, much more

than we had in Peenemünde.

NEUFELD: Yes, I know, and it's probably been covered to some extent in other interviews, but I know of course that NASA adopted more or less the Air Force philosophy of contracting with big aerospace companies, rather than having an arsenal as the Army had had before. Am I right to say that you and so many people on the team were not very happy when NASA Headquarters or industry pushed that less and less in-house capability in the sixties?

REES: Well, we had discussed this with them and we continued doing it, of course. We might have increased this in-house capability if we wouldn't have continuous rejection from Washington. But it was not that we were unhappy or so. It just was a point.

NEUFELD: OK. Now let me return to the German period. So corporations made smaller parts of the initial development vehicles for V-2, I assume, or did you make virtually everything at the outset of development yourself? Did you contract? I know of course that later on you had to go into mass production and that was a different problem. At the very beginning of the fabrication of test vehicles, did you make virtually everything in-house?

REES: As to the shells and the tanks, I would say yes, but when it came to electronic equipment, that was made out of, probably Fritz Mueller told you about it, those gyroscopic platforms and things, they were made in Berlin. They were not made in Peenemünde at that time. This was too much precision work. This was done by Kreiselgeraete I think, Mueller was with... I don't know the company any more, you probably know.

NEUFELD: He was with Kreiselgeraete.

REES: He was with Kreiselgeraete, and this was done in the company.

NEUFELD: Basically electronics was done --

REES:--yes, electronics, and these mechanical parts of the electronic system were made outside. We had also some good precision mechanic shops in Peenemünde under Dr. Steinhoff. This was never a great thing actually, this, they repaired there. We had never built a gyro in Peenemünde, for instance.

NEUFELD: Yes, that's certainly true. Siemens too who was very, --

REES: Yes, with Siemens we worked in Peenemünde very closely also.

NEUFELD: Yes, because I'm just interested in exploring what all the different, what the balance is, between companies and the government laboratory, and the balance between university research and in-house research. I gather that the university research played a very very important role in certain problems.

REES: Ja. Ja.

NEUFELD: Which areas do you think that university research was of crucial importance?

REES: I can't tell you anything about that. I would have to think that over quite a bit. I just can't give you some facts right here.

NEUFELD: That was mostly handled at the level of the individual development laboratories, I assume.

REES: Ja. Ja. The development laboratories. And it was mainly specially under Dr. Steinhoff, which was called the department BSM.

NEUFELD: Yes, that's --

REES: That is, BSM --

NEUFELD: Bordgeraete, Steuerung und Messgeraete.

REES: Yes, Steuerung und Messegeraete, yes.

NEUFELD: And Thiel I gather was also involved in the propulsion side.

REES: Dr. Thiel was a propulsion man. He was parallel to Dr. Steinhoff.

NEUFELD: Were there any other directors at that level, or is that detail too detailed to remember?

REES: There was Dr. Steinhoff. There was Dr. Thiel.

MRS. REES: Riedel.

NEUFELD: Riedel?

MRS. REES: Also Riedel.

REES: Ja, well, Riedel First, we had two Riedels. At Peenemuende there was Papa Riedel. He was very close to von Braun and was in charge of all the mechanical designs, and then later on he left Peenemuende and we had another Riedel developed, that just

happened, that was Riedel III. We had three Riedels. The first was Papa Riedel. Walter Riedel was another Riedel, who took over the design department of PaPa Riedel.

NEUFELD: Klaus.

REES: Klaus Riedel, ja, you know more than I know. And then came Walter Riedel I think. He was from University of Dresden and he joined us in Peenemünde and he was then finally a Peenemünde employee also. Which, I'm even not so sure, but he went with us to the United States. He was an outstanding man. Papa Riedel was not a Diplom-ingenieur, and this Riedel III, he was just at a higher higher level. So Riedel III and Papa Riedel before and Steinhoff and what was the name of the other one?

NEUFELD: Dr. Thiel.

REES: Dr. Thiel, they were parallel there.

NEUFELD: Roughly the same level.

REES: Roughly , yes.

NEUFELD: I know that Riedel I, Papa Riedel, was more or less pushed to the side or pushed down in 1942-43.

REES: Ja. I do not know how he really got out. I think he retired then during the war even. But after the war I think he was in England. He was in England if I'm not mistaken.

NEUFELD: You don't remember the specific details.

REES: No, I do not remember that specific detail.

NEUFELD: Because I --

REES:--there was I think a lot of difficulty, and then von Braun and Papa Riedel were very close friends because Papa Riedel started this rocket business with Oberth already, so he was an old old rocket man and worked with von Braun when von Braun worked with Oberth, at that time. Way before Peenemünde.

NEUFELD: Yes, he goes back to Max Valier. And Arthur Rudolph.

REES: And Arthur Rudolph.

NEUFELD: At Heylandt.

REES: That's where this old old rocket people, Rudolph also belonged to those.

NEUFELD: But Riedel III came in and more or less supplanted him as chief designer.

REES: As chief designer, yes.

NEUFELD: So you had a high opinion of the second Walter Riedel, Riedel III?

REES: Yes. Klaus Riedel (Riedel II) was also one of the old rocket people, and he was with Oberth also. I liked him very much.

NEUFELD: Was this Klaus Riedel?

REES: Klaus Riedel, yes.

NEUFELD: But you said --this is very confusing --the third Riedel, Riedel III, Walter Riedel who came to Peenemünde, you say you had a high opinion of him?

REES: Ja.

NEUFELD: As an organizer?

REES: Higher education than Papa Riedel and Klaus Riedel. So he came with a doctor's degree already from University of Dresden and he was a professor in Dresden and he had higher, much higher education. Papa Riedel was not Diplom-ingenieur, and Klaus Riedel was not a Diplom-ingenieur either. They were just technical men working in the rocket business all the time. And they were practical, practical people. And Klaus Riedel was a Diplom-ingenieur and had a doctor's degree.

NEUFELD: You mean Walter Riedel III?

REES: Ja, Riedel III.

NEUFELD: It's very confusing.

MRS. REES: Yes, it is.

REES: Yes, it just happened that these people had the name Riedel, and they were all not related --and Riedel is not too much of a common name even in Germany. There are a lot of Riedels in Germany, but these three Riedels didn't have any family connection whatsoever.

NEUFELD: I got the impression that --

REES: --the nicest guy was Klaus Riedel. Papa Riedel was always a little bit difficult, and he hated Diplom-ingenieurs. I remember

when I came to Peenemünde, there were a lot of Diplom-ingenieurs here, so he didn't like them too much. But he was a nice guy, Papa Riedel. And a good rocket man, and he did quite some development in the V-2.

NEUFELD: Do you think that because of his background that he was getting a little over his head when he was pushed to the side? Or was that more personal politics or something?

REES: I do not know. I can't make a statement there.

NEUFELD: So as far as the fabrication of the V-2's and the development works were concerned, so you were primarily responsible for building up that manufacturing capability.

REES: Yes.

NEUFELD: In-house to make those things. At what point did you start contracting out for more things? I know that at some point the tanks started to be made by Zeppelin.

REES: Ja. We had then pretty soon Zeppelin in quite big, and this came from Stegmaier. Stegmaier knew the Zeppelin people. Stegmaier was a south German too as I was, and Zeppelin was in the south on the Lake of Constance, and so it was Stegmaier who got Zeppelin actually in this whole thing. And then this famous Dr. Eckener, man who flew the Zeppelin to America at that time, he was at least three times in Peenemünde, quite an interesting expert also. He belongs to that category of von Braun and so, very high intellectual, Eckener was. He was very famous in Germany, and all over the world in the twenties when they flew the Zeppelin to the United States. Dr. Hugo Eckener, Hugo was his first name. And it was always quite an event when he came to Peenemünde. Dornberger came always with him. He was very much interested in our work there, and so these visits of Dr. Eckener in Peenemünde were, when I look now back, one of my highlights in Peenemünde.

NEUFELD: What years did he come? Do you have any recollection at all?

REES: What year he came to Peenemünde? I think '41, '42, '43, '44, '45. I think we got with Zeppelin already in 1941 or so.

NEUFELD: That's when you first contacted them about manufacturing capability.

REES: Ja.

NEUFELD: Because I know that 1942 then they became, the idea came that they would be the second manufacturing location for

production lines.

REES: For production, ja. And it was started there already, but then there came the airpower of the Allies, and so we only could go underground.

NEUFELD: Now, this of course brings me back to the other one, which was Arthur Rudolph's production facility that never came into being, never went into production. It was called the Versuchsserienwerk or the Fertigungstelle.

REES: Ja.

NEUFELD: Did you have much involvement in that at the beginning?

REES: Ja. Well, not from the beginning, because that was built up before I came to Peenemünde, and it was there already when I came to Peenemünde and Rudolph was already at that time in charge, when I came to Peenemünde. So Rudolph at that time was not under von Braun any more. However von Braun was just development and that whole production outfit was under an administrator, military administrator from Berlin. I forgot his name.

NEUFELD: Schubert.

REES: Schubert, ja. You know more than I remember.

NEUFELD: Well, I interviewed Mr. Rudolph in West Germany.

REES: Oh, you saw Rudolph there?

NEUFELD: Yes.

REES: By the way, he has a birthday tomorrow. I have to call him.

NEUFELD: He said he had a cataract operation, after I was gone. I hope it went OK.

REES: But he's now in good shape I guess again?

NEUFELD: I hope so.

REES: Good. I intend to call him tomorrow because tomorrow is his birthday, and he is I think two or three years older than I am. Rudolph is some 84 or 85.

NEUFELD: Now, he said that he was building up the facility, you know, he was planning the facility in those years.

REES: Yes, he was planning that facility, and that facility was already at the buildings, and they were standing there but no

equipment in there then. And then I worked quite a bit with Rudolph on that equipment which they took then partially over as to its design from the development under von Braun, into that Rudolph outfit.

NEUFELD: So that there was a fair degree of consultation.

REES: Ja, ja. Ja. We were very often together with him. Many meetings with Rudolph I remember at that time, how that should be done and that should be done, because we had developed the beginning, and we built the first V-2's under von Braun in PeenemündeOst. Well, Rudolph was PeenemündeOst too. PeenemündeWest was the air force. And so I worked with Rudolph quite a bit.

NEUFELD: I gather that, from what he was saying, that you had planned quite a large facility.

REES: Ja. You know, there was the question all the time, should that V-2 be assembled vertically or horizontally? And at that time, we assembled it vertically in Peenemünde under von Braun in our big shop there, where we had these high buildings, and at that time we also thought that the V-2 should be developed vertically in Rudolph's place, in Peenemünde, in production. And only when we had to go underground, it was then really necessary in those caverns to assemble it horizontally.

NEUFELD: You don't remember that happening earlier? I gather? The horizontal assembly?

REES: We started that in Peenemünde already some, and worked on it some time, but we never had assembled any one in Peenemünde in horizontal position. But then when that possibility came, that we had to go somewhere else, I think it was also vertically assembled at the assembly in Friedrichshafen under Eckener, was also I think vertical, if I'm not mistaken. But at that time already there was quite some talk, why not assemble it horizontally? So that we would not need those high buildings.

NEUFELD: Yes, Mr. Rudolph told me that they had planned a horizontal assembly at the Versuchsserienwerk already, that that was the idea. Of course it was never done.

REES: Ja, it was never done there.

NEUFELD: Because the bombing raid came just weeks before the planned beginning of production.

REES: Ja.

NEUFELD: What do you recall about the problems that the

Versuchsserienwerk had with priorities and materials and manpower? Do you remember it being delayed and other things?

REES: Well, in the beginning when I was there we did not have too high a priority. Then later on Dornberger got us very high priority. I do not know any more the numbers of priorities, what they were called, but we had finally in Peenemünde, in the Versuchsserienwerk and also of course in the mass production, highest priority that you could have in Germany. But that was only when Hitler was convinced or got convinced that there is something to that V-2. You know, in the beginning, I think that Herman Goering, Hitler personally didn't believe, he just thought this is some scientific stuff which would not be needed in this war and so on, and so Hitler was not for the V-2 too much until it was really then going. And in the beginning of course we had launchings which exploded or didn't work, as it is in development like that. When we launched those V-2's from Peenemünde in the Baltic Sea, along the coast of Germany, there were a lot of failures, of course.

NEUFELD: Before you got high priority, say in 1940, '41, do you remember--

REES: I think that high priority we just got in '42 or 43.

NEUFELD: In that era when priorities were changing and you often had cutbacks and things, do you remember much about the effects of that, you know, shifting priorities?

REES: Of course that, you mean, that we didn't have that priorities so high in the beginning?

NEUFELD: Yes, I gather it went, from the work of other people, I know that priorities sort of went up and down a bit between '39 and '41 or into 1942. You'd get higher, then lower, then higher, then lower. There'd be political controversy at the highest level about it. Do you remember the effects on you or does it not stand out now?

REES: Well, it was always then, of course, when we didn't have highest priority, some trouble not getting, when we went to a company and wanted to have some materials, said, well, your priority is so and so, so you can't get it at that time. We'll see that we can put that in some time. And it just became a matter of discussion with the presidents of those companies, the higher management people of those companies, to get these things in finally. We never had to stop because we had lower priority. We always were able to somehow manage that.

NEUFELD: Do you think that had much impact on your development time? Was it a delay in development much, or just the inherent

difficulties?

REES: We had some delay, but I could not say that the V-2 was delayed because in the beginning, early years, we didn't have high priority. I don't believe so.

NEUFELD: It didn't make a big difference.

REES: Ja.

NEUFELD: I mean, I can see obviously that there were delays due to the fact that you were doing something so revolutionary.

REES: Ja.

NEUFELD: That you had a hard time getting things. But I've been told that money was not usually an issue there. It was manpower. Was that true? Finding skilled people?

REES: Ja. The trouble in these early days was just that Hitler did not believe. He just thought this was a fake thing. But finally he got convinced after the launchings. Unfortunately we never got him to Peenemünde to see a launching, but Goering saw some of the launchings and he was very enthusiastic and finally --

NEUFELD: OK. Do you know whether the changes in priority and so forth had much effect on Rudolph's plant, on the Versuchsserienwerk development?

REES: You mean, that they had lower priority?

NEUFELD: Yes, that they had delays.

REES: I guess they had some delays. But I can't give you any figures of so and so many months delay. In general I do not believe that there was too much delay due to these lower priorities, but if we would not have gotten that higher priority later, we would not have been able to set this whole thing up in a mass production.

NEUFELD: Was there any argument about whether you should produce above ground right at Peenemünde itself, due to the danger from air raids or anything else, earlier on? Did anyone ever say, "This isn't a good idea, to make it right here"?

REES: Well, of course, this was always a difficult thing. We had air raids in Peenemünde, not too much, but that was quite difficult, and if we would have had a quantity production in Peenemünde in Rudolph's place at that time, before we went underground, this would of course have delayed the whole V-2, or

point, is that still available or not or is that material too thin? This was a big thing which is still today. When you come to the Shuttle, that hardware has to be very very light in order to take more people or more material to build a space station and so on. So this is, all the time, you've got the rocket power and then you have to make the whole vehicle as light as possible.

NEUFELD: But you were suffering under the difficulty that you often couldn't get materials that you wanted, right?

REES: Ja. Sometimes, ja. But --

NEUFELD: You had to work everything in --

REES:--I don't remember that we had, even not once, to tell Dornberger "Sorry, we can't continue any more because we don't get material." It just wasn't so. We always were able to get along, with the help of Stegmaier and with the help of Dornberger, so it was never too bad. In the development outfit there under von Braun, we had never had an air raid. Peenemünde was --when the British saw that this V-2 was developed underground and was built underground, we never had air raids up there whatsoever. So during the time of the Allied big air raids, for some reason, they didn't think of Peenemünde any more.

NEUFELD: The first air raid, you were there during the first in August, '43?

REES: Ja. Ja. August '43. You know it.

NEUFELD: What do you remember of the air raid? I would like to interview you too Mrs. Rees but I have a problem with the technical issue of the microphones. Maybe you could say something at the end. But what do you remember of the air raid in August '43, the first air raid?

REES: The first air raid, in August, '43. I remember only that, you know we had a little village there where our people lived at Peenemunde, and there were quite some houses damaged and so on. But we didn't have any trouble in our development work at that time, and some of Rudolph's place over there was damaged too, but not too much either. So the air raids on Peenemünde did not hinder development too much at that time, in the Peenemünde work. But that one air raid, that first one, I think it was the first one, killed about 600 people who were as a work force there in Peenemünde. And some families got killed too. Dr. Thiel and his family got killed too. So this was actually the big double barrel, but facilities were not too much damaged.

NEUFELD: I gather that the labor camp and the prisoner of war camp were hit very hard.

REES: Yes, it was, I don't believe it was prisoner of war, but it was a labor camp, a camp for people who were not POW's but labor assigned to Peenemünde.

NEUFELD: I know there was a POW camp there.

REES: Yes, there was also a POW camp there. People worked in our place also on development and so on and shops. And I always had the feeling that they liked that work better than just being in a POW camp, that they got out there and did some work. It was never hard work, that whole work in Peenemünde was never hard work.

NEUFELD: So I gather it was mostly Russian and Polish POW's.

REES: Ja.

NEUFELD: So they were actually doing laboring jobs inside development?

REES: Laboring jobs, and we had, some of them we had even some better work to be done, so we worked real, very well with them actually.

NEUFELD: How many POW's were involved over in that camp?

REES: I can't give you any figure.

NEUFELD: There were probably a few thousand, I don't know. I think the labor force for construction was partly POW, partly draftees or labor service type of people, I gather.

REES: But in our development plant we did not have too many.

NEUFELD: You needed skilled people or qualified people.

REES: Ja. They did transportation and this kind of thing.

NEUFELD: You were not too secured about the security situation regarding use of prisoners?

REES: No. I don't remember any case that they did some work, deliberate work so that something did not function. I don't remember any case whatsoever. No, we did not have those people in our assembly. There they were kept out entirely.

NEUFELD: You mean in the production vehicles inside the plant.

REES: Yes, inside the plant, ja.

NEUFELD: And in testing I suppose you kept them away from launches.

REES: Yes, we kept them also from the test stands. But when it came to labor there, just the transportation and so on, we had them in, too.

NEUFELD: I'm sure that for so many of those people it was superior to other possibilities, because by and large the prisoners of war from the East were treated very badly, and I'm sure that your prisoners had better jobs and better food probably.

REES: Oh yes.

NEUFELD: Than POW's in a regular camp.

REES: Ja.

TAPE 2, SIDE 1

NEUFELD: Why don't we just continue with what you were saying off tape, which was, the Wasserfall idea came up for the first time when, do you have any recollection when the Wasserfall started?

REES: That came up in 1941. 1942. During that period it came up, because in 1940 and before we didn't have in Germany any attacks by British air force or American air force. Of course America was at that time not even in the war. And only when the air raids became bigger and bigger, then there was quite some priority given to that Wasserfall. And we called it Wasserfall because it was in the beginning very often falling into the water of the Baltic Sea. So it was called finally Wasserfall. We had to find a name which was unsuspecting. We couldn't call it anti-aircraft rocket or something like this, so it was called Wasserfall at that time.

NEUFELD: Do you remember when the idea was first approved? It's very hard to pin down now.

REES: Well, I would say in '41, '42.

NEUFELD: Did you have much contact with that development?

REES: I had contact with Wasserfall, whatever was done in the development work in Peenemünde, I was also in that, and so the Wasserfall, we had test stands there finally and we worked it out quite a bit, but we would have had another year, it would have been, for mass production. You know, it was never, it was proved out quite a bit, but it was never mass produced and it was never used as the V-2 was used against Britain. So it was just not ready for the government.

NEUFELD: Did you note any problems with Wasserfall development

that were caused by politics in the Reich or conflict with the air force, Luftwaffe?

REES: No, I can't tell you anything. There was of course quite some discussion with the air force, whether it should be done that way and should be done in Peenemünde or somewhere else and so on, but I can't remember any real big problem.

NEUFELD: Because I have very little information on it. Perhaps I should interview Mrs. Rees for a few minute at the end or something about this. It was primarily, I know of course that you had to put development facilities on it and of course that meant for example Thiel would have to work on the engine, with the Wasserfall engine development, and so forth. But in terms of the project management, was it largely handled by the Luftwaffe under Haase? The Flakversuchsstelle or whatever it was called?

REES: Flakversuchsstelle, yes. In Peenemünde, yes.

MRS. REES: Dr. Haase wasn't any more with the Flakversuchsstelle at that time. He was in Peenemünde. And he worked strictly for Peenemünde.

NEUFELD: There were a large number of air force officers however assigned to that, right?

MRS. REES: He was an officer too. But he really didn't work in the capacity of an air force officer any more there. Only once a week or so he was in uniform or so.

REES: Well, of course, in Berlin it was not under Dornberger but it was under the air force there.

NEUFELD: Yes.

REES: And of course Dornberger worked very closely with the air force, and I can't tell you any name of an air force official who was in charge in Berlin. Can't tell you that any more. But of course since it was done in Peenemünde, Dornberger was quite well informed and also saw that the work was done and so on and done right, so --

NEUFELD: So you did not observe any particular army-Luftwaffe friction over that?

REES: No. No.

NEUFELD: Because I know that there was high level friction over V-1 versus V-2 as they later came to be called.

REES: Ja.

NEUFELD: That there was a struggle at the level of the chiefs of staff.

REES: Yes. That could have been. I do not know any details on that, but I know that there were quite some discussions, let me say it this way.

NEUFELD: But you didn't personally note a conflict with the Luftwaffe.

REES: No.

NEUFELD: Over these issues or over Wasserfall, over the V-1 launchings or over relations with Luftwaffe people at Peenemünde West and so forth? It was friendly?

REES: Ja. So that worked very well in Peenemünde. And it was just this way, that the V-2 was developed so far that there was no trouble with the Wasserfall and Peenemünde and our shops any more, so it just came in right, when the V-2 was about developed and was almost out.

NEUFELD: So you didn't notice a real conflict over priority levels in Wasserfall/C-2?

REES: No.

NEUFELD: So that was say in 1943-44.

REES: The Wasserfall got into our shops and so on only in 1944 actually.

NEUFELD: In terms of fabrication.

REES: And at that time, fabrication, and you know fabrications of course, development too should be done that way, so we did quite some development of the fabrication in our shops actually.

NEUFELD: Is it true that the fabrication of missiles was moved out of the old shops after the air raid? I gather that those shops were hit. What was supposed to be the Versuchsserienwerk was not hit very hard. Did you have to move in the making of missiles?

REES: No.

NEUFELD: You don't remember that.

REES: I don't remember that any more.

NEUFELD: That shifting, the shifting of production. That's what

I've heard. I don't know much about, whether the building that had originally been Rudolph's building was used by you. But you don't recall that.

REES: Ja. I don't recall that any more too well.

NEUFELD: So would you say your primary responsibilities in the years 1943, '44, were the production of the V-2? Manufacturing in Mittelwerke and manufacturing in companies making some parts.

REES: Ja. I was quite often at the Mittelwerke, but I was never assigned there. I was never longer there than two or three days, and got then problems back from Mittelwerke to Peenemünde. We worked it out and then -- and we did some launching from the first vehicles where it was made in the Mittelwerke, to see whether they would work. And those launchings we made at that time in Poland. You know. The launchings in Poland were so much important because we really saw then the missile come down, whereas when we had our early launchings on the Baltic Sea, we had always the missiles came down in the water. Never had an impact actually. So that it was difficult. So it was then finally put to Poland.

NEUFELD: I gather actually that Himmler was behind the idea of the move to Poland, after the air raid, wanting land farther in. I know Himmler visited a couple of times, and was probably not necessarily a very welcome guest, but do you remember him?

REES: I remember him, ja. We had to --I think Herr Himmler was there maybe three or four times at Peenemünde.

NEUFELD: Do you remember the first time at all?

REES: No, I couldn't tell you that. We had, others gave him a briefing, what the V-2 was, actually, and how it looked like and where our problems are, and then we had lunch with him, I remember. But I don't believe that Himmler ever stayed overnight here in Peenemünde. When he was there two days, he came the next day back again. I don't believe that he ever stayed overnight in Peenemünde.

NEUFELD: How did he strike you at the time?

REES: Well -- I never talked to him directly. I was just in those meetings. He asked not too many questions even. So I--

NEUFELD: --have no impression?

REES: --I don't believe that he was too deeply in the technological part. Himmler was not too much interested in technological problems, just how many people you would need or

additional people, this type of thing. And deadlines of course, he was very much interested.

NEUFELD: Was he viewed as a threat at the beginning? I know of course obviously as time went on, the army and the SS became increasingly enemies or at odds. The SS became a threat to the army.

REES: No. I can't make any statement on that. I just do not know. I only know that as I have heard, that Himmler wanted to take the whole Peenemünde over to his SS. Also I do not know -- it didn't work, which was quite all right with us.

NEUFELD: You weren't very aware at the time that they were pushing to take over. Was this something that only became apparent later on?

REES: Well, I think that was in '44, when Himmler was convinced that this was a good weapon, that it worked. But I do not know even whether we launched any V-2 when Himmler was up there. I don't remember that any more.

NEUFELD: So it only became later on that you sort of began to feel that this is a threat to you.

REES: Ja.

NEUFELD: That this is dangerous. Kammler, Dr. Kammler, the SS man, Hitler's man, when did you first run into him?

REES: Kammler, I think that was in '44 or so. He came quite often to Peenemünde. He was a man with whom you could work quite well, and he was quite understanding, and we never had any threat that, also he was a very strong SS man. Kammler was directly under Himmler. But we had not any trouble with Kammler whatsoever. And Kammler then later on was very much interested in the V-2 manufacturing, so probably Rudolph had much more contact with Kammler actually as we had in Peenemünde. And I don't believe that Kammler was too much interested in the Wasserfall.

NEUFELD: So that really was not his interest whatsoever, his involvement, at least not till the very end of the war. So in 1944, you encountered him occasionally at meetings but he hadn't been terribly -- I gather some people described him as being terribly overbearing.

REES: Well, he was a very big SS man, on top, and he asked quite some questions, of course. But you could work quite well with him. He was not too difficult a man actually. But he was a man with very high power. And you'd better didn't say No to him or things like this. We knew him, that it was not difficult to get

into trouble with him, and we were able to avoid that.

NEUFELD: Do you remember much about the changes that took place in the army officers over you? I know, not long after the air raid, Dornberger sort of went away from direct command over Peenemünde, was more involved in preparing for deployment, and --

REES: Well, I do not know. You know, Dornberger moved to Peenemünde actually for quite some time. He was living there for quite some time, after Zanssen had left, and Dornberger came to Peenemünde for a month I would say, even for some months.

NEUFELD: Some months. After September, '43, he was created as sort of a separate organization.

REES: Ja.

NEUFELD: As General ZBV. He disappeared as a daily presence, I gather, although he must have come back often.

REES: Ja.

NEUFELD: And General Rossman, or maybe he was a colonel at that time but I think he was a general, Rossman came in as the head.

REES: Rossman came, ja, as the head, after Zanssen had left we had Rossman come in.

NEUFELD: Did you have dealings with him? In an extensive way?

REES: Yes, I had dealings with him, because, as I had dealings with Zanssen, I had also dealings with Rossman quite a bit. But it was rather easy. Rossman was easier to deal with than with Zanssen.

NEUFELD: That's interesting, because a number of people told me the opposite, that they liked Zanssen and they didn't like Rossman, but that wasn't your feeling at all.

REES: Ja. Ja. I can't say I liked Zanssen less than Rossman, because with Rossman we didn't have too much contact as with Zanssen. Rossman didn't come into the plant too much, whereas Zanssen was in there almost daily, came and complained, with orders, why don't you do this, why don't you do it that way? And so we had with Zanssen much more contact than we had with Rossman.

NEUFELD: And it wasn't always contact that you were happy with. Interference.

REES: I do not believe that we had any difficulties or trouble with Rossman, actually where, we never came to the point that we had to -- Rossman or even Zanssen at that time was ordering that he want to have removed this man and that man and that man, and so, no, being fired, it never came to contacts like this. We had very easy contact with Zanssen and with Rossman also, only Zanssen I saw quite often, and it was just, early development, and Rossman came when the V-2 was developed already and --

NEUFELD: He didn't know much about it.

REES: Ja, he didn't know much about it, and about the technical part of it. I do not know the background of Rossman, if Rossman was even an engineer or not.

NEUFELD: He may have been but --

REES: I can't remember him any more, even.

NEUFELD: He certainly wasn't part of the old group.

REES: No, he was not part of the old group.

NEUFELD: The army officer group that had been involved with army ordnance from the beginning.

REES: But as I remember, he was a nice guy. We had never too much trouble with him.

NEUFELD: And you didn't perceive that von Braun had any conflicts with those people.

REES: No.

NEUFELD: The army officers.

REES: No. No.

NEUFELD: That's interesting. It gives me a different level of perspective, because there are people who told me that when Rossman came in and the other new people came in, that they had conflicts with those new army officers.

REES: There were always troubles, of course, problems, that were discussed and then resolved somehow or other, but I don't believe we had any difficulties with Rossman either.

NEUFELD: So that situation more or less stayed until August, '44, when you were suddenly converted into a civilian corporation.

REES: Ja.

NEUFELD: As Elektromechanische Werke.

REES: Yes, Electromechanische Werke, we had at that time a high level man on top for Siemens who was in Peenemünde, Mr. Storch. And he of course applied to work the place over in the way industry does it, and we worked very nicely together with him also. Of course, that was the time when a lot of people already saw that the war was lost and so on, and so we just at that time tried to see that we could get that Wasserfall in mass production. We launched it quite a bit and it finally started working, but we were far off having that mass produced. So that whole process we had from Peenemünde development of the V-2 to that underground plant was quite troublesome, and we just started on the Wasserfall about the same thing, and then of course, the war was over and when it came to January, February, March, '45 --

NEUFELD: It was all over. But when you had difficulties with Wasserfall, do you remember what were your biggest problems technically?

REES: I can't remember that.

NEUFELD: The engine development or electronics.

REES: Yes, we had problems in every field, but at the time we had learned so much on the V-2 already that those problems were never as serious as they were in the beginning of the V-2. Of course, it had to be quite accurate, because we wanted to hit an airplane.

NEUFELD: Yes, I gather that the --

REES:--and so the Wasserfall was not a too easy project.

NEUFELD: I gather that the major gap was the development of a guidance system, which was the Luftwaffe's responsibility.

REES: Yes. We were not through that whole guidance system yet. But it looked promising. As I said, if it would have been another year, we would have completed it. After the war, the American engineers and military with whom we talked about it were very much interested in the Wasserfall, rather than the V-2.

NEUFELD: Right, it was modified as Hermes.

REES: Ja.

NEUFELD: The conversion to Elektromechanische Werke, was that sudden for you?

REES: No. That was not just from one day to the other. You know,

we talked about that months ago, before, and Mr. Storch was with Peenemünde before that, and so it was not just from one day to another one. It was just a flowing of --so it was not any big shock or so whatsoever, in contrary, it worked pretty nicely. Storch was a very good man technically and management-wise we had very good understanding with him.

NEUFELD: So when did the idea of converting it to a private company come up before? Did the idea, you felt it had been discussed for months?

REES: Well, it was, the idea was discussed for a long time, I think already in '43 some time, but it never had made any organizational changes on that, and so also, when we went finally private industry, we never had organization changes too much. There was almost no -- we stayed in civil service, and as I remember, these other times, I remember it not too well. I remember only the work with Storch who was quite nice. I liked Storch very much and he was from Siemens and --but there was not almost any change in Peenemünde. We just continued our technical work just the way we had before.

NEUFELD: Because on the organizational chart, von Braun was reduced to the level officially the same as three other directors. You didn't actually see any real change in how he functioned?

REES: No. You think that he was on the same level for instance as Dr. Thiel also? Thiel was killed in that air raid.

NEUFELD: In the organizational chart, yes, he's at the same level as Schilling and I think yourself, actually, and there was, you know, under the numbering system there was EW 100, 200, 300 I think.

REES: This wasn't so. Von Braun was the boss until the end. And only when we were industry, the uppermost boss was Storch in Peenemünde, but then there was Professor von Braun, there was never any thought of Storch higher or von Braun higher. Von Braun was civil service. I believe we stayed even in civil service, even when we were a private company.

NEUFELD: So you don't remember converting to private corporation salaries, status, it just didn't make a difference?

REES: I don't know any more. But it could have been that we were finally private industry and got higher salaries. But I just can't remember this any more.

NEUFELD: Actually government owned industry but officially a company.

REES: Yes, government owned, government owned industry, so it was still. Dornberger still was practically the boss.

NEUFELD: So that effectively, whatever the official chart said, you functioned more or less the same as before.

REES: We functioned the same, and von Braun was still the boss, and he was not in line with the others. You mentioned Schilling. Schilling was in charge of the test stands.

NEUFELD: Because I've seen this chart that says basically there were four equal levels and there was --I think it was von Braun, you, Steinhoff and Schilling, something like that, on this Elektromechanische organizational chart, were at the same level, one level.

REES: There was Riedel III must have been also.

NEUFELD: Maybe he was one of the four.

REES: He was one of four or five.

NEUFELD: At that level. But everyone perceived von Braun as the real technical leader.

REES: Von Braun was still the boss, there's no doubt about it.

NEUFELD: OK, I guess we should wrap up. Did conditions at Peenemünde noticeably deteriorate in 1944? Or did you pretty much have adequate rations, materials?

REES: Well, we left then finally Peenemünde when the Russians came, and it was of course deteriorating, but we left I think in January or February, '45, going to Middle Germany.

NEUFELD: Do you recall any discussion about what to do after the war in private circles at that time?

REES: Well, we said privately that we wanted to stay in the rocket business because the rocket business, because the rocket business was now with us at that time. We were enthusiastic rocket people, and we knew that after the war this rocket business would continue somehow or other. We were then contacted by the American army, very early after the war. I think we had contact with them already in May, '45. And I came then with Dr. von Braun over already in September to this country.

NEUFELD: Did you discuss when you came up to the evacuation -- I know obviously you couldn't say anything like this to the SS or or somebody because it was dangerous, but did you discuss at that time that the Americans were the preferable place to end up?

REES: Yes, we discussed, if we would end up somewhere, we would like to be in the American zone. We went away from Peenemünde because we didn't want to be in the Russian zone. We didn't want to be captured by the Russians. We'd rather be with the Americans and the British and the French.

NEUFELD: But you perceived that out of the three Western countries, you'd rather be --

REES: --ja. Ja.

NEUFELD: That was only discussed among very very --

REES:-- privately, of course. You just could not see what would happen, that Germany would be divided, or that -- it came much later, when we were already in the United States.

NEUFELD: You evacuated then to Thüringen, Middle Germany?

REES: To Middle Germany.

NEUFELD: And were there only a month or so?

REES: We were there about a month or so, ja. We still tried to set up our development. But, we had built even a little test stand there where could test the Wasserfall, for instance, but this was all at the end. As I said, we went --I looked at the area over in November, December, '44, that we would some time have to leave and go there, and we found then that place, I forgot even the name, you probably know it.

NEUFELD: Bleicherode?

REES: Bleicherode, and we liked that Bleicherode very much, and there we could also go into some caverns there at the Harz Mountains, and so that was the place that we finally then went, and we went in by boat, the Elbe River up there, and then by truck into Bleicherode.

NEUFELD: Did you have the feeling at the time that you were sort of going through the motions, that you could pretend to be developing but that it was all a waste of time, given the end of the war? I know efforts were made at Bleicherode and so forth to continue development, but did you have the feeling that there was a point in doing that, or just that you had to do it because you didn't have a choice?

REES: We just had to do it. You can't just say, I'm going to walk away. You just can't do it. So we did all that movement to Middle Germany, to Bleicherode, and so on together still and had our whole people come with us, people who did not want to come we

left alone there, and there were quite some people who'd rather stay there with their families and so on, they wouldn't mind being with the Russians. We never had a single case in court or so.

NEUFELD: What I'm getting at is, how seriously did you all take it? Did you sort of feel, this is obviously a waste of time, you know, the war's over?

REES: Well, it's very hard to make a statement on that. I personally didn't think that we would continue in a big way in Middle Germany, but nobody in Germany could say, OK, the war is now over, in January, 1945. We just continued, as a soldier didn't walk away.

NEUFELD: So it was a sense of just living on a day to day basis trying to get along.

REES: Oh, ja. Ja.

NEUFELD: So you went to Bavaria in April, 1945, at Garmisch-Partenkirchen and that area.

REES: I stayed in Middle Germany all the time. I did not go with that group to Garmisch-Partenkirchen. Von Braun went with them, and I, as his deputy, stayed with our people in Bleicherode all the time. I never went to the Alps Mountains with that group. That was a group of about 150 people and so on. Rudolph went with them, I think, and quite some other people. I stayed with our plant there until we were overrun by the Americans.

NEUFELD: When was that, towards the end of the month some time?

REES: That was I think the beginning of May or so. I don't know any more. Or the end of April and beginning of May.

NEUFELD: So your first contact was--

REES:--yes, we were contacted, by people from Washington who were under General Toftoy. We talked to them, and then later on those people down there were captured by the American Air Force. At that time the American Air Force took that over, and they let them go, and they came up to our place. Von Braun came up to our place, and we were dealing with the American Army.

NEUFELD: OK, well, I guess that seems a --you wanted to quit by 6, and it's a logical place to stop anyway, so I thank you very much for your informative interview.

REES: You're welcome. I hope you got information enough. I might have contradicted some other statements of other people, I don't

know, but --

NEUFELD: Well, there are different things here. Memory's not always correct, but you give new information anyway, and even though the dates may have to be changed --and also there's a different perspective. I mean, in your big organization, not everybody --

REES: --for instance, I wouldn't remember Rossman if you didn't bring up that name. I wouldn't have remembered him.

NEUFELD: Yes, some people just don't make much of an impression, and it's not important anyway. But there are always different perspectives, so that some people get along with one individual, another individual doesn't get along, and that's true in any human organization. Thank you very much.

REES: You're welcome.