

v.B's successor @
MSFC director. served 12-yrs,
longest of any dir. ~~5 yrs~~
(v.B served 10 -
1960-70)

INTERVIEW WITH William Lucas 11-3-98

Q: You have read and written a good deal about Dr. von Braun. Do you have any favorite little pointed stories or anecdotes about him?

WL: Well, I intended to look back on some notes and I just jotted a few things down on a piece of paper here. I don't know if any of them will reach the level of what you wanted to talk about or not. One thing I thought about is the story where we were doing the Redstone Missile, & this indicates how he reacted to the public. The Redstone Missile was a mini rocket. The rocket engine is there and there was heat back into the tail section of the rocket where there were wires and other things. So you normally put a heat shield of some sort there and the heat shield that we used on the Redstone was made up of ceramic material with a gold coating on it to afford reflectivity. It was applied over the ceramic, was sprayed on, and they fired it. So, it looked gold and it was gold, except a very thin amount. So the news people got hold of it, you know. They said, well, I understand you are out here gold plating your tail. Why did you gold plate the tail, Dr. von Braun? And he said, "Solid gold was too expensive."

News
Media

It just killed the whole thing and that ended the questions. He didn't bother to explain the physics of the radiation and reflectivity and so forth. He just said, solid gold is too expensive.

Another little thing, I just jotted down some things as they came to mind, in no order but you undoubtedly saw the scale model of the Saturn V and the Saturn I and IB and the Redstone by his desk. He had them made all to the same scale. This was deliberately done and the scale to the Saturn V was taller than the distance from the table to the ceiling. So, he had this little square cut out of the ceiling and just the ceiling filled up around that so that the Apollo capsule was above the normal ceiling. So, he would laugh. It was a big joke with him. He said he put it that way because he didn't want people to see all that expensive Apollo capsule hardware and compare it to that old Houston hardware. The Marshall stuff was the good stuff. So that stayed there a long long time.

Saturn
Apollo

Von Braun had tremendous breadth of intellect which to me was most impressive, more so than the depth of any one area. But when he had an idea or was close to something, he was pretty single tracked. You couldn't dissuade him from it. If he had a goal, he couldn't change it. I had come here early on to oversee the metallurgy and particularly the corrosive aspect of the rockets. Rockets offer a real challenge corrosion wise because, first of all, you launch them in a seacoast environment and the lightweight materials corrode easily. Secondly, the propellants themselves are highly corrosive substances so it was a challenge to me and that is the reason I came to work on that project. So, I was trying to get some equipment. We didn't have any equipment there to speak of and I was trying to get two things in particular. One was a cabinet that was not very expensive in those times. Today, it would be a few hundred dollars. Also, I wanted to set up some corrosion racks down at the Cape where we launched. There is a standard way of testing for corrosion, accelerated corrosion. You put a rack, according to the specifications, within a 100 feet of the tide, high tide, mark and about 800 feet also back. There is a tremendous difference between the 100 and the 800. I had been trying to get some equipment to work with and I had not made any progress at all. So, Dr. von Braun went down to the Cape and spent

Cape
&
Corrosion
story

(cont'd.)

Pilot

Pilot

Bill Lucas

(Cont'd.)

about a week down there. The bumper on his car rusted and he had a tooth powder can and the bottom of that rusted so he came back right away and called me and said "Hey, you've got to do something about corrosion. We were out there in the desert and nothing ever corroded out there. This is a new environment down there and you've got to look into this." "I just spent a week down there and this happened and this happened, you better get busy and look into this". I said, "Yes Sir, I will do that." So, I took that to the bank. I got back and his trip down there accomplished more than I had been able to do. That is the way he was about a lot of things. You had to get his attention.

Cape
&
Corrosion

Another little anecdote that I just happened to think of this morning, this was after I became director of program development and was trying to plan our future. We had a session with someone at headquarters. I guess it was the administrator. But, he had been out on the west coast and I was in Huntsville. I had been gathering up the presentation and putting all the material together. So, the plan was that he would fly over night into Baltimore and get there say, maybe, two or three o'clock in the morning and he would get a motel and go to bed. I was to fly our plane up to Baltimore, rent a car and then wake him up in time to have a bite to eat and we would go. I did all that and we started driving into Washington then. You know, it is 40-50 miles there and I was going to brief him on the way. Well, he wanted to drive. If you're flying an airplane, he wants to fly and if you're driving a car, he wants to drive. He didn't want somebody to drive, he wanted to drive. So he was driving and I was kind of looking at my material and briefing him on the way. Here he was breezing along down the street. I was not conscious of how fast we were going but he said, look at all those cars stopped up there. We came over a hill and saw a whole line of them. He said what is wrong. I wonder why all those cars are stopped. Well, we got on down there a little bit and they pulled him over into that line. The trouble was, he had been speeding and he had gotten caught in a trap. So I was just as glad at this point that he was driving.

(Marginal)

He was very docile. What can you say. They wanted his driver's license and he gave them his driver's license and they gave him his ticket. I have forgotten. He might have made a few remarks but I can't remember.

Q: What year was that?

WL: IT was about '69 or '70. I became director of program development on Jan 1, 1969. He left here about ~~'71~~ '70

Q: Did he have a heavy foot?

WL: He did pretty much. But, he was listening to what I said and was just going. He liked to fly too, particularly in bad weather. Eberhard Rees said in Germany he got to fly some and he would go with him. He said he didn't like to go with him because if there was a cloud in the sky, he would head right for that because it was more of a challenge in flying.

Piloting
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This reminds me of a little thing. He was checked out. He had instrument rating and a commercial pilot's rating and, he would fly most all the time unless he had some work he had to do. The pilot got to sit in the back seat and he got to sit in the left seat up front. Particularly on

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Pilot

(Cont'd.)

Bill Lucas

take off and landing. If it was a long flight and a boring flight, then he wouldn't sit up there then. But in bad weather, coming from Washington to Huntsville, you know which is about two hours, then he would fly the whole route. One night, I was on the plane and I didn't hear this first hand, but I heard it from Karl Heimberg who was sitting in the jump seat. You know, there is a left seat and a right seat and there is a little jump seat right behind where the flight engineer would sit but often times one of us would sit there just to watch. Well, Karl Heimberg was up there and von Braun, it was a clear night, and he was pointing out this star and that star and he was just giving them a good lecture. It was getting about time to land and he was just about ready to make his turn and land at the airport. Karl was sitting there and he was really puckered up. He said well, he better pay attention to what he was doing. Finally, all of a sudden, von Braun said to Karl "shut up now, I've got to land." Karl had not said a word. He said he was thinking himself, you have to land.

Piloting!

I remember one time, this was in the middle to late '60's. One Friday night about 8 or 8:30 I got a call from von Braun to come over to his house. He would be in meetings a lot during the day and Bonnie would have a big pile of stuff to put in his brief case and he was reading through his mail that night and came upon a letter from Dave Silverstein who was at headquarters at that time. A fellow named Bill Brown who was an engineer out at the Lewis Research Center had worked with Dave for a long period of time. Bill was an enthusiast for fracture mechanics. Fracture mechanics was a fairly new art at the time. It was a highly over simplified thing. It deals with a small structure that can become catastrophic. In other words, the idea is if there is a little crack in a metal part, that crack under certain conditions of stress can grow a little bit and then it becomes what they call a critical flaw size and then it doesn't just grow a little bit at the time, it just explodes and flies apart.

Abe(?)

Abe

The idea was that is why you do a lot of testing. You do a lot of welding and a lot of x-raying to find out the flaw. According to theory that Bill Brown came up with, the critical flaw size was less than the minimal detectable limit of the flaw. In other words, if the flaw is there that you could not find, unless you tested it and found out, you couldn't be sure than whether it would explode. At that time, I think there had only been about one major example but it was one that everybody used. The military was trying to build a large rocket, a large solid rocket motor. I think it was, I've forgotten now, but I think it was about 200 inches in diameter. It was a very large one and the test had blew up, just shattered. That was the cause of it. So, the point that Bill made to Dave Silverstein in Washington was that we were not testing the Saturn V to assure that we didn't have a critical flaw in it and the reason we were not testing it was that, you know, if you have 30 lbs of pressure, that means that 30 lbs of pressure is working against the atmospheric pressure on the outside. But if you go into high altitudes, where your pressure decreases, the text says that the pressure on the inside is greater, the differential is greater. He was sure that it would blow up. That really got von Braun's attention. That was called a critical flaw in the art of fracture mechanics. He was one of the strongest proponents of it at that time.

Abe?

So, von Braun said, "Hey, look at this letter I've got here." He called me over there at 8:30 at night on a Friday night. He said "What about that? We've got to do something about that". "Do you know this guy?". I said "No, I don't know him". Brown had not said anything to us about it. He had written to Dave Silverstein and Silverstein had written to von Braun and said here is this letter that says that your rocket is going to blow up. That got his attention and set off a few

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years of study on fracture mechanics. Actually, we never did anything different. It was all right as it turned out but it caused us a lot of anxiety and a lot of dollars. As it turned out, there were some parts of it that we never could test. We had to do it by analysis. We didn't have that big a margin. If you are going to fly it, it has to be light, particularly if you are going to fly a rocket that goes one time. So, normally, if you are building a bridge, you have a safety margin maybe ten times, otherwise, it would stand ten times the load that you normally would put on it. In an airplane, we used to have a safety factor of about 1.4. In our case, it was less than that. We usually had about 1.4 but it was not practical to test it on the ground because if you took care of the differential, you would do permanent damage to the rocket on the ground.

This was not very amusing at the time but it was amusing how it got von Braun's attention at 8:30 on a Friday night.

Q: I understand he did take work home often and that Bonnie Holmes has said that Dr. von Braun would take his satchel full, his mail and other things and that when he came in in the morning, not necessarily at the break of dawn, he would dump it and say, "this belongs to you now".

"Boss"

Q: This also suggests that he had somewhat of an impulsive nature.

WL: Most of the time things would wait and he would give them to Bonnie to distribute but this time, it didn't wait. It wasn't a serious threat. I eventually became very good friends with Bill Brown and had a lot of regard for him. He was one of the people from the research center who never had to make things work. He had to do the research and talk about what could be. Von Braun wanted to become thoroughly briefed. When you had to tell him something, you had to be well prepared. He might ignore it until it came into his focus but when it came into his focus, just like the fracture mechanics thing, or anything else, he wanted to know all the details. He could ask a lot of questions that you had not thought about. But, he wanted to have things, he wanted to understand things well enough, that he could discuss them with someone else and I think some times, he practiced on his staff. He would go back into detail. He would have a bunch of people around the table and he would go around and go through the presentation almost off the cuff. He didn't have any presentation materials. He didn't have any trouble putting his ideas forward and more or less challenging people to challenge him. He liked to talk. No question about that. He had to be well briefed and understand in order to talk. He was always anxious to use the latest technology. We always kind of hated for him to go off on a trip because he would go off to these companies and they would always be showing him the gee whiz kind of things and the latest stuff and they wanted to make the best impression on him so they would proudly amplify what they had a little beyond what was justified. Then he would come back and he would start these notes on the way home. These notes would say, look into this and look into that, they are doing this and why aren't we doing that. Often times, we already were. But it just had not gotten his attention. Sometimes it should have but we said, every time he went off it increased the work load. We would have to either adopt or justify why we would not adopt whatever he learned from these other companies.

Cutting
edges

Bill Lucas

You mentioned he was not an early riser. That was for sure. I traveled with him several times after becoming company director of program development because we were getting new business and we were trying to sell. One of the things that you were always told is that you have got to be responsible for waking him up. That wasn't easy and you had better wake him up more than once. He would stay up all night but he didn't like to get up early in the morning.

Late Sleeper

Q: Any specific incidences that you remember?

WL: I never let him sleep through anything but he may have on occasion. I don't know. He always, when we would go to Washington, you would always have a rental car and I never used a rental car in Washington. It was more trouble than it was worth because there was no place to park in the first place and the taxis were so convenient there. He would get a car and the hotel had a parking garage in the basement. But, I would go there and bang on his door the next morning. You would have to get yourself up and plan plenty of time to get him awake.

Q: Which hotel?

WL: I don't remember the name. I can picture where it was, somewhere near where the first headquarters at NASA was. There was a bus station in conjunction with this place, but I don't know what the name of it was. I remember one experience we had, we flew out to, we had about a four or five day trip to the west coast. We left here on Sunday morning. We were going out to the Boeing company and then we were going down to visit Mt. Palomar and some private companies in the Los Angeles areas. I don't remember all of those. But I remember, as usual, he was flying and we flew over Mt. Rushmore out there. So, he decided he would take us down on a tour, you know. He went right at the figures, sort of buzzed them. He wanted to show us those figures.

Mt. Rushmore - Piloting

That same trip, we went down to Mt. Palomar. There is a marine base down near San Diego and they were going to take us up there. There were about ten or eleven of us. They had an old bus and we got about half way up the mountain and the bus quit. I mean, it just died right there. They were embarrassed you know. These Marines were embarrassed. They had von Braun and his load of people and they couldn't get him up there. So, we got out. They were trying to call back some way to the base and get some other transportation and we just got out and started walking on up there and eventually, they got a pick up truck and I remember that distinctly. Here we were, von Braun and the rest of us sitting in the back of a pick up truck, sitting on the edge of the pick up truck. Von Braun's hair was flying and I just thought, here is the most famous rocketeer in world riding up the mountain in the back of a pick up truck.

Pickup Truck ride

I would love to have had a picture of that. But it didn't phase him. He just kind of laughed it off. He was able to roll with the circumstances pretty well and I am sure that adverse circumstances bothered him but he had seen enough that he was able to work around those kind of things and use them for his own advantage.

Q: That was on the same trip as the Mt. Rushmore?

WL: Yes.

Bill Lucas

Q: Was Pickering involved in that?

WL: No. That reminds me of another little incident. Medaris was still around. I don't know the exact timing on this but the AIAA had a meeting sponsoring a session on Rocketry in the 50's and 60's. At any rate, on the program was Pickering and Gen. Shriever, Rosen and several other well known figures. Naturally, Shriever was talking about the air force rockets and Pickering was talking about JPL and Rosen was talking about the early work he did on propulsion. So von Braun asked me to present the story of what we had done on the Saturn program. And, he says now, I don't think he was on the program, I'm not sure but he said to me, modesty won't be a virtue in this instance.

So, I went all out. I didn't spare any reservations there. I just went all out and I made a big mistake as it turns out. I didn't give enough credit to General Medaris. He was still around and I thought I gave him enough. Then we published that thing and so he wrote a long scorching letter to von Braun about all these people up there and he had done as much as any of them and more than I had and most and I don't know what all and so von Braun who had put me up there in the first place, he didn't say ignore Medaris and I didn't ignore Medaris, I just didn't give him any credit that he didn't deserve. And so von Braun called me in and said, how are WE going to answer this? I said, it is not to me. I'm not going to answer it at all. But, we had to come up with some kind of letter. I have forgotten what it was but I am sure it was suitable to Medaris.

He was an unusual person and was certainly a main person (Medaris). And he used von Braun and von Braun used him. They used each other. I think von Braun thought a lot of him and respected him and he certainly did von Braun. I was not talking management, I was talking the technical aspect of the thing and I don't recall exactly what I did but I think I gave due credit to Medaris' contribution but it was not suitable to him.

One other interesting insight to von Braun. I have told this before. I don't think I have printed it. Somebody has I guess. But there were not too many people involved, just about four of us. It was some time in the 60's and we were at a launch down at the Cape. We would go down for a launch the day before usually and do whatever was necessary and make preparations. Von Braun had been on vacation with his family out in Mexico or somewhere so he flew in down there and he met us and we had a dinner at Bernard's Surf. I think there were four of us at the table as I recall, there was von Braun, myself and Herman Widner and I guess the other one was Eberhard, I'm not sure. But at any rate, von Braun was asking about what was going on and how things were and we told him while we were eating. Von Braun would give a discourse about what was on his mind. He had just been out with his family and his daughter one of them, had her biology book along with her and he had read that book while he was on vacation. Then he was telling us, I have been reading this book. He said, you know, the human body is a wonderful mechanism. You know, it has redundancy just like we have in rockets, two eye, two ears, and we've got by-pass circuits you know, if something doesn't work, there is another way for the nerve to get around there. He made quite an analogy of about the wonders of the human body. What a wonderful piece of equipment it was. Then he finally concluded, saying, "you know you can't tell me this is a random happening." I thought that was a bit of insight to von Braun's character that you would not get in just everyday conversation. That he did have a true belief in God, of a type. That is a story that I have always remembered.

interesting,
but not usable

Religion

Bill Lucas

WL: One thing or instance I thought of, some of these things I just remember parts of not the whole details but I remember one time during the Skylab days, we were not ready to launch. As a matter of fact, we were kind of behind the curve there and we were having a management council meeting in Washington with the Administrator and a few key people from the center. At that time, I was director in the design laboratory and had responsibility for a good bit of the design of Skylab. Lee Belew was the manager and remember, we had a break for lunch and von Braun asked me to have lunch with him. That was pretty important, you know. He selected me to have lunch with him. And, I couldn't go to lunch with some of the other people because I was going to lunch with von Braun. He chewed me out, up one side and down the other, for something that came up during the meeting about Skylab, we were not doing all we should be doing. So when some of the folks came back after lunch, they asked how was the lunch with von Braun and I said, "well, when I went to lunch, I didn't know I was going to be lunch." You could just about figure, von Braun had a purpose for whatever he did. And, you had to be a little wary of that. I remember one time another incidence like that when in 1968, in the fall, at that time we could see the end of the Apollo program and we had not really made much preparation. We had been so committed and consumed with Apollo that we had not made much preparation for what came after that. And, so, we had a retreat. A management retreat. Out at Jekyll Island in Georgia. I don't know how many people were there but it was quite a large contingent. All the lab directors and the project directors. We were at this retreat down there to see, what are we going to do next? Here it is 1968 and we are going to land on the moon pretty soon and what are we going to do next?

So, we had an afternoon session of that and discussion and we broke for dinner and then came back and went most of the night and home after that. Ed _____ came to me and said that von Braun wanted me to have dinner with him in his room and he said I am going to order dinner for you, what do you want? Well, I already had the Skylab experience so I knew it was not a ha-ha situation. So, I gave him an order and went to this little meeting. So von Braun said you know, we've got a plan, a group, and we have got to set aside some resources to plan our future and I want you to do that. I was really enjoying my job. I didn't want to change jobs. He said We've got to lay out a plan. I want you to be my vice president of sales. I said, you know, I don't consider my strong point salesmanship. I enjoy what I do. I offered to get some other people I thought could do a good job. He said, you know, you are the person that I would like to have succeed me. I am not going to be around forever and I am going to retire sometime. He said I want to retire before my brains get so scrambled that I can not go back and study some of this stuff and understand what I have been talking about all these years. He said, Eberhard is older than I am and he would not want to be the one and I think you are the person and I would like for you to accept. Of course, you would have to plan what comes next because we are going to run out of business here pretty soon. That is the reason I want you to do that.

Well I was not thrilled. I didn't have the desire to be the director of the center in the first place and I didn't want to leave the job I was in but I always had the position that if you are going to play on the team, you've got to do what the boss says and so I consented to do that.

Manager

V.B.
tapped
Lucas

(how use??)

Bill Lucas

Q: At that time, you were in what role?

WL: I was the director of propulsion and the V.E. lab. At that time he did not reveal what his ultimate plan was.

I think von Braun left sooner than he anticipated leaving. But, I guess they almost had to ask Eberhard. He had been so faithful and he had been a big part of the success of von Braun. You know, von Braun was out selling and he was out having ideas and visions and all that kind of thing but Eberhard was back home making things happen. So that was appropriate.

REES

von Braun usually had a purpose for what he was doing. He didn't have lunch with someone just to have lunch. He usually had some goal. As I have said on other occasions, he had a deep sense of public relations. The significance of public relations to him exceeded that of many people. He had a good sense of timing, what to do. I think he knew how to use whatever was at hand to meet his goals. I don't think his goals changed from the time he was a teenager probably, or at least teens or early 20's, until he died. His aim was beyond the pull of gravity and he used whatever was at hand to achieve his goal, which was a pretty remarkable thing when you think about it. I don't know what his political persuasions were in Nazi Germany. Just knowing the man since that time, I would assume that he used that just like he used things in this country. His goal was there and this was a way that he could get his rocketry financed, which is not a cheap thing.

Summary

Vision

Single minded

I understand that he got pretty close to being in real trouble on occasion for having devoted too much attention to the research aspect of rocketry rather than producing. He used the opportunity to come to this country to do the same thing. He didn't want to go to Russia. I think he visualized that this country was better able to support what he wanted to do and he did that. I think when he was working on the Redstone Rocket, we were working on a satellite launcher without calling it that. They tested the re-entry body and the reason we could launch Explorer I in less than 90 days was that we had already developed the rocket to do it. You couldn't do that today in any stretch of the imagination.

Q: So, you are saying although that was a military weapon, the Redstone, it was designed to deliver a warhead, and then later or from the start, it was perceived as a vehicle to test re-entry.

WL: Well, it was not perceived to start with that way, but I am saying that he utilized whatever came along to his advantage to do what he wanted to do. 1952 was when he published these articles in Colliers about the space station. He gave Colliers just sketches of a huge rocket much larger than Saturn V. But, you see, we developed the Redstone Rocket to launch the payloads, nuclear warheads. Then we developed the, right at the end there, the intermediate range, the Jupiter. Then, the Jupiter was a longer range rocket. We made it out of steel like we made the Redstone. It would burn up. See the Redstone only went 150 miles or so but this went 1500 miles, it would go out of the atmosphere and come back down and the kind of nose cone we put on the Jupiter would have burned out. It never would have gotten to the ground so we needed a way to test that and we were using rocket motors to test the nose cones out there on the arsenal. But the idea was conceived of using multi-stage rocket, a Redstone, to test the nose cone. You had three stages, but before we had the explorer, we had just this one to test this nose cone, a

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scale model of the nose cone, we would fly it up and fly it back down to simulate the heating environment you would get for an intermediate range missile. So that was done along about the time that we were talking about the international geophysical year. We had proposed, von Braun and his team had proposed to fly a satellite weighing about 15 lbs. The Vanguard came along with 40 lbs. What we were going to use was this rocket that had been developed and I am sure in the back of von Braun's mind, when we talked about testing nose cones, he was thinking the ultimate goal was to get out of this atmosphere. So, that is why I said, I believe, I am not positive because I was not there, but from all reports, and my own observations in later years, I feel confident that he was using the German party to support his goal of going off the surface of the earth and going to the moon, and just the same way, he used our army to do the same thing. It was not until 1960 that we got completely out of the military. It was military up to that point. I don't think you can say he was a war-like individual because he developed the Redstone and the Jupiter.

single-minded ✓

Q: Have you seen or heard about this new NASA book? (Bob tells about his review of book)

WL: You know in that connection, I remember another incident. He had a staff luncheon every day when he was here and one time, we had some dignitaries come in. He invited General Mark Clark. We discussed different things and obviously von Braun was talking about rocketry and at the end of lunch, Gen. Clark stood up and said "Dr. von Braun, I enjoyed being with you today and I appreciate what you are doing for my country sir." And von Braun said, "Sir it is my country too." That has always stuck in my mind. That was in the late 60's or early 70's. This was out at Marshall in von Braun's conference room. I think he had to be sincere because he would not have thought of that so quickly. He didn't know what Gen. Clark was going to say.

An American

You know, if you want to get criticized, just do something. You know if you do anything you are going to get criticized. But if we had lost the war, it would have been a different matter. I did what I was told when I was in the navy during WWII. And I didn't say, well I don't think this is a gracious thing to do. I just did it. And, regardless of what you think that von Braun might think of his Government, it was still his home land.

German

^{in Germany}
You know, von Braun was always interested in what was going on in the Center. Even after he left. During the final months that von Braun was sick, he had MSFC send him new reports which we would send in bundles. He would read them in bed.

Dying days

Q: When do you think he became aware of his serious illness?

WL: Well, it was, I guess, when he had some bleeding. Which I don't think was more than two years before he died. I have a picture of him at the Cape, probably he was there for a launch or something. It may have been about '75. This was the last picture taken at the Cape of him.

Q: Was that cancer of the colon?

WL: I believe so. You know he had this bleeding and it stopped but then started again. It wasn't long after that then that he died. He was on an Alaskan trip, either the first time or the second time the bleeding started. I'm not sure.

Bill Lucas

WL: Do you remember the Pine Wood Derby, the boy scouts would have? Von Braun's son Peter, you know, was going to make and race one. Of course, von Braun was not there and Maria who was just about as mechanical as nobody, she was helping him and they just messed it up so bad they couldn't even use it. So they had to go down to the hobby shop and buy another set to work on. But after that, we were all somewhere together and she was talking about that and I said, well, I can tell you my youngest son was undefeated and he ran in the cubs and he ran against the Weebelos and somebody said, "It helps to have a 200 ^{man} laboratory behind you."

We would polish those axles and put lubricate on them and I wouldn't let them play with those until they ran. But anyway, I gave her a few pointers on how to polish those things and they made another one. I didn't see it but von Braun was there I think when the race was run. They didn't win so on the way back, Eberhard was telling me this story, on the way back from the competition, Peter was kind of down cast and von Braun said, Well, now Peter, you know, it is a practice of making these things. Somebody wins and somebody loses, so you enjoy building the thing, but Peter is alleged to have said "But GD we lost." So von Braun was telling Eberhard about that and Eberhard told me and the Eberhard told von Braun, "the first thing is to teach your son not to say "GD"."

Family Man: Maria, Peter

You know von Braun was right. The idea is not to win. The idea is to have the bonding between the daddy and the son. It turned out, I think Mike ran three times and the first time I was there and he won against the Weebelos and the next year he figured he was going to win again and we made another one and I said, Mike we were lucky last time and we might not win this time and he said, oh yeah, we will and he did. Well the third time, I was gone and I was glad because if he had lost, well, he was convinced he couldn't lose.

Q: Did von Braun ever talk about what a joy it was to be involved in building this observatory on Monte Sano?

WL: I never heard him comment on it. I knew he did that. There is a story, you know, he was not doing well in Math at all and had to be sent away to school and his mother gave him, when he was confirmed in the Lutheran Church, a small telescope. So, he took this with him to school and he persuaded the principal of that school to get the school a bigger telescope. His was not big enough and he persuaded them to get a five inch telescope and then he persuaded his fellow students to help build a place to mount it, showing early on his persuasiveness.

Boyhood

Q: I am aware of his role in getting the UA research institute created and then the space and rocket center after that.

WL: That reminds me of how that research institute came. At the time, we had a graduate school before we had an undergraduate school. We had a graduate study steering committee. We were in the army back in the 50's. I was a member of that committee and as a matter of fact, I was chairman of it for some time and then when we split off between NASA and Marshall and the army, we had the joint steering committee. One year, the army person would be chairman and the next year, the Marshall person was. I remember Jerry McCall and Shelton and I were the three main Marshall people and Jerry wanted to get things done quickly and we were trying to get them to move along and inform us of this graduate program and move it up here. I

Community Life

(cont'd.)

Bill Lucas

(cont'd.)

remember one meeting we had, Jerry said, now Dr. von Braun you ought to tell them this, you ought to tell them so and so and he said "No, that is not the right way. You know, if you fellows get out on a limb and I am back here at the trunk and somebody starts sawing it off, I can pull you back. You know, if you go too far, push too far, I can always say, well, you know the fellows, they are young and they got a little overly aggressive but you know I will take care of that. But, he said, if all four of us are out there on the limb together and somebody starts sawing it off, we are gone. There is nobody to pull us back."

That was a pretty good observation I think. You know there is some risk you have to take in making your point. If you have the top man make it too and it goes sour, there is nobody to get you out. But if the top man, he is above the clouds you know, he is sitting back here and patronizing the young fellows who are running off and doing things they ought not to do, he can save them. He was instrumental in getting the research institute and then the graduate program.

END OF INTERVIEW

Note:

A good one.
(same as
F. Williams
interview
note)
BW

Dr. Wm. Lucas

11-3-98

taped

- Redstone rocket & "Gold-plated tail" - heat shield - gold plating -

"Solid gold is too expensive."
- no explan. - that ended the questions!

-
- Saturn models -

- built to scale

- ceiling extended -

"all that expensive Apollo capsule hardware."

-
- V.B.'s extensive breadth of knowledge - metallurgy - corrosive @ seacoast environ.

> bumper on VB car rusted & bottom of his tooth powder can rusted!

- told Bill to get busy on anti-corrosion!

'69 or '70

- Bill dir. of program devel.
was to fly up & meet v.B
in Baltimore - then,
v.B driving car -
had heavy foot -
-

- v.B liked to fly - esp in
heavy weather -
wd. always head for the
cloud (or cloudbank) in
the sky - liked the challenge
-

1 flight - Heimborg in jump seat
not s

"Shut up, now, I've got
to land."

mid- to late '60s -

a Fri night, ^{8:30 pm} call to
come over to v.B house -

v.B reading his mail -

Bill Brown - Lewis Res Ctr.

↑ "fracture mechanics"

letter from Abe Silverslein abt. Brown.

- advised testin Sat. 5 to find
"critical flaw"

it got V.B. atten -
caused lot of anxiety
& dollars - but no problem
ultimately

"He liked to talk" - but
insisted on being well versed
on everything.

dreaded his going off on trips*
- lots of notes & questions
when he returned

* to cos. & other centers

V.B. not an early riser -
on trips, had respon. for
waking him up - not an easy
task - liked to stay up half
the night, but didn't like
to get up.

had to bang on his door

- 4-5 day trip to W. Coast
- Boeing, Mt.
- Bill Lucas was on flight
buzzed Mt. Rushmore!

-
- Marine base in San Diego
 - bus - half way up mtn.,
old bus died.
 - > ended up riding up mtn.
on back of pickup truck!
didn't faze him - just
rolled w/ punches - v.B
hair ~~was~~ blowing in breeze

-
- AIAA - rocketry in '50s & '60s
 - program includ. pioneers (3)
Pickering, Shriever, Milt
Rosen, et al.
 - v.B asked Bill to make pre-
sentation for him on Saturn,
etc.
 - "Modesty ~~is~~ ^{will} ~~not~~ not
be a virtue in this instance!"

scorching letter from Medaris:

v.B:

"How are we going to
answer this?"

paper was on technical aspects, ↑

-
- in '60s, for Cape launch -
went down day before -
V.B had been on vaca. w/
fam. ~~at vaca~~ in Mexico or
someplace,
flew in to Cape - then having
din. @ Bernard's Surf w/
Rees, Weidner, Lucas -
 - dau's biology textbook
V.B had read
 - gave discourse over din.
 - redundancies in human
body parts & organs -
"You know, you can't tell
me this is a random
happening."

-
- session - break for lunch
 - V.B asked Bill to join him
- chewed him out -
- Bill: "When I went to lunch,
I didn't know I was going
to be lunch!"

-
- (168)
- As Apollo was going to wind
down - retreat @ Jekyll Is.
by MSFC - on "what do we do
next" -
long session -
 - V.B wanted to have din. in his

room w/ folks - during break
in long mtg -
wanted Bill to be "my"
"V.P. for sales" -
on post-Apollo plans
Lucas then dir. of Propul.
& V.E. Lab -
told Bill he wanted him to
succeed him, V.B.

• Believes V.B. left MSFC sooner
than he anticipated or
preferred

• V.B.'s sense of P.R. -
had same goals from

used whatever was at
hand to achieve his goals

• Mark Clark visit to MSFC, ^{thanks}
"Dr. von Br., I appreciate ^{etc.}
what you're doing for my country."
V.B.: "Sir, it's my country too."

• in D.C., enemies isolated him
from his team in HSV.

When v.B. sick in final mos.,
still had MSFC send him
bundles of new reports,
etc. - so he could read
in bed - still interested -

- last pic taken @ Cape
('75? '76?) w/ Von B. &
(Apol-Soyuz) Saturn 5 -

- had bleeding 1st on trip
to Alaska 2nd?

- stopped for a time,
then resumed

See Bergquist book
on: illness -
also quoted Lucas @
VBCC dedication

VAH -

grad. study steering com. @
ABMA - then joint " " (Army
& NASA) -

v.B. remarks on "out on a limb
& sawing it off."