# Mr. James L. Jennings

# Oral History

# Kennedy Space Center

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## Interviewer: Dr. Roger Launius

African—American

hyphen?

Transcriptionist: Sharon Youngquist

Roger Launius: We're in Jim Jennings' office at the Kennedy Space Center. It is the 19th of July 2002. We're interviewing Jim Jennings at KSC. My name is Roger Launius. I'm the NASA Chief Historian. The first question I would like to ask you, sir, is could you state for the record your full name, birth date, telephone number, that sort of thing, so when somebody finds this five years from now in the archive they'll know where you are.

James Jennings: Okay. My name is James Lewis Jennings. I was born on four twenty of forty-six. My telephone number is 321-867-2355.

Launius: Great. Thank you. Where were you born and where did grow up and what were your parent's occupations and what was something of your home life?

Jennings: I was born in Daysville, Alabama. That 's a little small town in east central Alabama about 50 miles from the Georgia line. My father had a dual career; he was foreman and working in the cotton mills and then he went into his own business and started cutting and hauling logs and cut wood. And my mother was a home-keeper all this time. She didn't work outside of the house until we got older. I went to a small elementary school. You've heard of the two-room elementary schools in the country? I went to one of those where one classroom had one through three and the other one had four through six. So I was educated in that environment by two very dedicated instructors that gave me some confidence and _____. And then I went on to high school at _____( Camp Hill), which was the high school, all black high schools in

those days. And went to Alabama A&M and got a BS degree in Mathematics and later a Masters in Business Administration. And then the University of Alabama in Huntsville and got a Masters in Administrative Science.

Launius: Okay. When did you start college, what year was that?

Jennings: 1964.

Launius: Okay. Your major when you went into college was mathematics, is that correct?

Jennings: Correct.

Launius: Why did you choose that particular major and what were your career plans at that point?

Jennings: Didn't really have career plans. But the reason I majored in mathematics was because I had a high school teacher that taught us mathematics and in Alabama if you don't have at least 8 students in a class they won't pay for the class. So we ended up taking our high level math, trigonometry and geometry during a break or lunch period or we even came back after school to take a class. This teacher was so dedicated that he came back and taught us these classes without getting paid for it. I was pretty good in math and made a high score on the SAT in mathematics so I decided to major in

math not knowing what the outcome of that study would be. Never dreamed that it would be ending up with NASA . . . but such is life.

Launius: Yes indeed. Were you when you were a boy and when you were in college a little bit later on, did you have any special interests in space flight or airplanes or flying? In other words, was NASA something that you thought would be cool to kind of pursue down the road?

Jennings: No it didn't. I never, you know like some people say that they got the NASA bug early on in their career. I didn't get the NASA bug until I actually came to work for NASA. How I ended up coming to NASA . . . I got kind of bored with school for a year and thought about doing something different. So I went down to the Co-op office and a position was open at Marshall Space Flight Center. So I got the Co-op and went to Marshall to work. I started working in computers and I mean I've been hooked ever since. So I kind of lucked into the NASA dream rather than dreaming it and it coming true.

Launius: What year was that that you went to work as a Co-op there at Marshall?

Jennings: In January of '67 I went to work at Marshall as a Co-op.

Launius: And at that point they were building Saturns and trying to go to the moon.

Jennings: Right.

Launius: What was it like there at Marshall in the 1960's?

Jennings: Oh it was very exciting. I remember one of my first jobs was operating a computer where we actually ran the trajectories to the moon. The thing that I remember so uniquely was we ran one program and it only printed out a data point every 28 minutes. So they'd have to grind all of this data and the computers in those days were so slow that it would take that much time to process the data and give a data point. That was my first real memory of how complex it must have really been to get to the moon because it took all of this data crunching just to get one data point on the trajectory to the moon. Listening to the guys talk about the hardware and all the tests. We did a lot of tests at Marshall in those days so you would hear the big booming of the tests of the rockets so that was one of my early first impressions there.

Launius: Okay. After you finished, what was your first job after you'd finished your bachelor's degree at NASA Marshall?

Jennings: Yes. I co-op'd a couple of co-op periods. I graduated and came to work for Marshall. I worked about two months and then had the unfortunate letter from Uncle Sam saying I need you to come on and save the freedom of the country for a couple of years. So I went in the Army for two years and then came back to NASA working in the

computer laboratory as a computer programmer and later on into computer management.

Launius: Okay. In the Army, what did you do there?

Jennings: Luckily I was a computer operator. . .

Launius: Oh, okay.

Jennings: . . . which that skill transformed and so I had a pretty easy time in the Army.

Launius: So not a Viet Nam experience?

Jennings: Not a Viet Nam experience. I'm thankful of that.

Launius: Yes, of course. Did you early on develop I mean you said you weren't as a boy very interested in space flight or so forth. You didn't build rockets and things of this nature. But after you started to become involved with NASA, did you get enamored with the mission in any special way? I think that's the case of a lot of people at NASA as opposed to other agencies.

Jennings: Yeah. You really have to come in and work for NASA and start understanding what the whole program is all about. And that's one of the things that I've always prided myself in to try to understand the whole of the mission that you're working with. So I could see just how my little piece of running this trajectory fit into sending a person to the moon. So I got all caught up in this whole moon thing and how it actually was going work, knowing the trajectories that they had to go through, understand the complicated equipment that had to go on. So you know, we were all, I mean at least I was, just totally attached to this whole process. Even when I left to go into the Army and we were doing the launches to the moon I was always, I would give commentary to all of the other soldiers sitting around and looking at the TV and telling them exactly what was gonna happen and all this, so yeah.

Launius: Cool. Apollo 11, when that landing took place, where were you and how did you react to it? What did you think about it?

Jennings: Well, I was in the Army and we were sitting around looking at TV and I guess that I was just overwhelmed by a sense of accomplishments and knowing that I had a small part of that, and the guys sitting around and me being able to tell them how it happened, what all it took to make it happen, I mean just a great sense of pride and just glad that you had a little piece of input into making that possible.

Launius: What did the fellas around you have to say about it? Some people by the time of the moon landing have suggested that, well the nation was on to other things

and it was not terribly relevant to them. Were they excited as well or did they think it was kind of so what?

Jennings: I can tell you they were excited. And being in a group of people that had been to the Viet Nam war or it was possible that they might be going, I mean that was just a kind of break from worrying about all those things and everybody was just proud to be an American because we were doing this. But I would say that it was almost everybody that I was in contact with at the time was totally involved so it was a momentous event for almost everybody that had a chance to hear it on radio or see it on TV.

Launius: Great. When you did get out of the Army did you come back to KSC or ~~come back to~~ Marshall, MSFC?

Jennings: I got out of the Army in October of '70 and came back to Marshall and I went back to a computer lab doing programming and computer management. And by computer management, I actually managed all of the computer facilities there or all of the electronic equipment. My big responsibility in programming was to understand all of the control cards and all those things that were needed for a user to get onto the computer so that if they came and wanted to use the computer I went and told them what control cards to use and those things. Plus I did some small programming myself. So I did that job from '70 until '75 and then I had an opportunity to go to NASA Headquarters for a year on a development program. So I went to Headquarters for a

year and worked in Center Operations and that's when all of the Centers reported into one organization, and Headquarters kindly had centralized the management of institutions. So I worked in an analysis office for six months there doing special studies. Did a study of all the Center's programs just to see what programs were at what Centers. That's the first time that's been done for somebody to have in one book on what all of the Centers were doing. And then I did a study of all the Center's resource management scheme, their organization so that across the board you could see where the people in the Centers were located, their budgets and all those things. So that was another educational thing for me as well as Headquarters to understand and to know this. And then the next six months I worked as a resource analyst looking at the other Center's budgets. And then I went back to Marshall, went back to the computer organization for a year. After that year we started a comptroller's organization so I moved from the computer world into the budget resources world and this was in 1977. .

Launius: Okay.

Jennings: . . . when I moved into that area.

Launius: All right. Let's go back for just a minute to the earlier period after you came out of the Army to Marshall. That was a fairly trying time, that four or five year period at Marshall. The Lunar Program gets cancelled prematurely in many people's minds and there are reductions that take place at the Center. I think they ran a RIF

there and people were thrown onto the street. Very, very trying. What are your recollections of that particular effort?

Jennings: Well I remember that very explicitly because the lady that had trained me to operate a computer she got one of those RIF slips. I hadn't thought very much of it until she got it. And, I mean, she was devastated because she loved NASA. She just saw her whole career there and it was like taking her life away from her for her not to be able to come to work at Marshall anymore. And so she got laid off with her RIF. Ended up staying off for about 13 months and then getting back on. And I remember it totally affected her not only losing that job but she couldn't make big purchase decisions anymore. I remember talking to her and it was unique I started off working for her and then she ended up working for me later on after the RIF so that was pretty unique but we were always good friends and I used to say Doris go and buy you a car. Jim, I might get laid off. So, we don't realize the total impact that these RIF's had. So I remember we had a RIF almost every year for four or five years after I came back from the Army. We started off and were going to layoff 500, actually to get down to 100 and 150 or less. Some would actually go off the rolls because some would leave, some would go get jobs in the meantime. But that was a period when morale around Marshall was at an all time low, a period when we lost a lot of young talented folks because of the RIFs. The reason I was able to survive all those RIFs, we had a career development program that I was in and that program was exempt from RIFs. I guess 40 or 50 of us that had come in about that '68 time period that were in this program ~~that~~ were able to stay there. And a lot of those folks are kind of leaders in NASA today.

Launius: Okay. All right. One of the things about RIFs and maybe you can characterize this a little bit just in general is it seems to eat the young and you kind of steal your future whenever you do that. I've heard many people say that. Did that seem to be the case at Marshall and were there possible ways in which that might have been avoided?

Jennings: Primarily that was what happened in the sense of myself and those other few people . . . that's one way that you can protect some of your younger folks, put them in some kind of formal development program and protect them. The only other way that you really can protect them is if they are all in a unique competency area like electrical engineers or whatever it is you can set that whole set of skills off of the RIF. Otherwise, if you're doing an across the board type thing people end up bumping and retreating back and that's how the younger people really get affected.

Launius: Right. Right.

Jennings: So there's some containment you can do but by and large it's gonna burst out and you're gonna end up losing some of the younger folks that you would want to keep.

Launius: And at the same time that this happens and while you were there the Center Director, the legendary Wernher von Braun is tapped to go to Washington and

leave the Center. What was the reaction at the Center at that time when their long-time head and a guy who really was pretty well known walks out the door?

Jennings: Well you know, that trickling with the RIFs and the downsizing everybody was really concerned whether Marshall would have a future. So that was one of the big concerns at that time when Wernher left is that they're getting ready to close Marshall. You know this is the first step of that. So that was a big concern that Marshall's mission to support Apollo was gone and successful, there wasn't any apparent big mission on the horizon for us to get involved in so we just thought that maybe this Center won't exist now. And then we brought in Petrone. . .

Launius: Right. Rocco Petrone.

Jennings: . . . who was brought in to I would say to get some, encourage some folks to leave and reorganize the place. . .

(laughter)

Jennings: . . . he did a good job of that.

Launius: Okay.

Jennings: He was a pretty dynamic individual.

Launius: Okay. You weathered all of that. Marshall did survive. It was on a closure list there's no doubt . . .

Jennings: Yeah. Several times.

Launius: Yeah. Probably still is somewhere.

Jennings: Yeah. Somebody's package.

Launius: But then you move to NASA Headquarters. Your experiences with NASA up to that point had been at the Center, at Marshall. . .

Jennings: Right. Um-huh.

Launius: How did your perspective change as a result of going to Headquarters? I've heard lots of people characterize their time at Headquarters as basically a time in never-never-land to be, in words that we can use in this particular interview; they've also characterized it in other ways that are less, even less complimentary. But how did you find it?

Jennings: Well, I found the experience to be rewarding and learning because I went there with a purpose to learn as much about how Headquarters operated as I could

because I've always understood that you need to know what the other organization or other person does for a living and how you can fit and be able to make yourself more valuable for that. I went there with that purpose so I was able to learn a lot there about how decisions were made, why Headquarters needed information from the Centers. I was in one budget meeting there and one of the issues for Marshall came up they needed money to replace some tape drives. And the Marshall analyst hadn't sent up very much data, but because I was there and that was an area that I was managing back at the Center I knew what the requirements were. I knew that these old tape recorders ~~was~~ were too old to be used, you couldn't find parts so I was able to save those things by being there with information. So when I came back to the Center I did a presentation to tell everybody when Headquarters asks for information it's really important. Those guys just don't dream every night how to make your life miserable the next day to ask questions. So I was able to help that. And I was able to make contacts and learn a lot of folks and a lot of those contacts are still intact today. One of the first assignments I got when I got there, at that time they would go around every year and do an assessment of the Centers you know kind of their status and assessment. And it was getting time to go do this assessment the next year and they started finding out that they hadn't followed up on the action from the last year. So they said we gotta get these actions done before we can go back. And they had floated around to different folks to do it, and they hadn't done them so they gave them to me to get them done. So I said okay how do I get this done you know. So I go to the organization responsible for it and I find the very top name at the top of the block so I give him a call and say you know you got an action due from this last organization review. Who's working this for

you? I need to get your input. So he would in turn call his person. His person would call me and cooperation went up 100%. So everybody said how did you get this done? We've been trying to get it done for six months. You gotta know the techniques. So that way I got to communicate with the top guy and we worked that. So I learned a lot of folks at a lot of high levels while I was at Headquarters which has been good for my career.

Launius: Great.

Jennings: So I'm one of those folks that says everybody needs to go to Headquarters for at least six months.

Launius: Okay. What impressions did you have of the NASA or space flight culture that you found at Marshall and at Headquarters and here at KSC? Anything in particular strike you?

Jennings: Well, at Marshall, I guess it was kind of closed, people were kind of fearful of giving out information to an outside organization unless it got approved all through the cycle. But the one thing at Marshall you had a lot of competent engineers. I mean they were really good and I think they were stifled by not being able to share and communicate with everybody. And that's the one thing that I look at. You know the Marshall's management team had a reputation of being I guess micro-managers, autocratic, that type of thing, so people had total fear to go in and present and do these

things. But I thought that if you really knew what you were talking about and really did your homework to go make the presentation it wasn't any problem at all. The folks that got in the most trouble were folks that went in and didn't exactly know what they were talking about and hadn't done their homework. And you know the Center Director would start asking questions and it became obvious to him that the person didn't know the answer, but he kept beating the guy and then strange thing, everybody else would line up and start beating the guy too.

(Laughter)

Jennings:. . . start asking him questions until the guy almost to popped. And then the Center Director says, well Joe if you didn't know the answer all you had to do was say I don't know and I'd get you the answer. And that's after you about stressed the person until they pop. As one of my jobs when I went to the comptroller's office, I was responsible for different areas for my budgets and so I tried to work with the technical guys to make sure that they had their story together when they come to talk to the senior management because if not, they would get destroyed. Some of them listened; some of them didn't and they got destroyed. So that was that environment. Very competent, very closed, clear line of authority to get things done, you know there weren't many mavericks there just running out and doing their own thing. Headquarters was a lot different. A lot more freedom of folks doing their independent thing. You get the job done without a whole lot of control. They just want you to get it done and produce the product. So that was the kind of contrast there. Coming to Kennedy, I would say

Kennedy seemed to be a little bit more disorganized than Marshall. It wasn't quite the structure there. The areas that I worked in in the comptroller's area there wasn't quite as much competency there as at Marshall. I will say that I had a lot more respect for the folks at Marshall when I came to Kennedy to find out that folks really weren't diligent in their understanding exactly what the job was and doing it. So that's a contrast there. The management style, I guess the Debus style had kind of died down by then and we had Dick Smith down here and it was a little bit more lax management environment that we had.

Launius: I don't want to put words in your mouth, but let me ask you this question. Is the German heritage a part of the kind of top down management structure? It seems to be.

Jennings: Yeah. Yeah. It is. And that's the way it was because at Marshall we had the German heritage from the top all the way down through all of the major organizations was headed by the Germans so that structure was there and everybody kind of _____. And I guess at Kennedy, I'm not so sure how much of that structure came down. I know they had it at the top, but I don't know down into the organizations how far that was.

Launius: Okay.

Jennings: But yep, that was a part of it.

Launius: Okay. Yeah. Your work that you did in accounting, I've got a question here that, and it's been of some note of late, NASA's been criticized for lax accounting and some business practices along those lines. Could you discuss the evolution of kind of the accounting structure at NASA and how it's evolved and some of the changes that are currently underway?

Jennings: Yeah. I'll start at Marshall since that's where I first I got into the accounting business. We set up a comptroller's organization at Marshall. Before we kind of had a resources organization then you had the financial organization with accounting separate organizations and each one of them did their thing. But we set up the comptroller's organization who were responsible for all of the finances, both resource management budgets and the accounting and start working closer together. I think at that time we improved some of the quality of the data going into the accounting system because you had folks working in the same organization responsible for getting that data. I think in those days we were probably pretty good, pretty accurate, but with the equipment that we had it wasn't real time data so there might have been some mistakes that you know you found later and they weren't apparent there. And I think that's one of the big things that you're seeing today. I don't think that we are any worse today than we were then it's just so visible because of the accessibility to data and so much data 'til you can see things real time. I think the processes have always been pretty good and in place to keep things. We have occasionally dropped stuff out because of interfaces and different processes that didn't necessarily have anybody

looking across the Centers. For instance, we had some engines the other year that had been transferred from Marshall to Kennedy and they missed getting picked up and dropped off Marshall and didn't get picked up here. So when the headline would say NASA losses billion dollar engine . . . well we knew where it was, the books and paperwork just didn't get there. So those kind of processes I think that we worked over the years to make sure that those kind of things don't happen. But in general I think that the processes have been pretty good. And on this last audit we went through where we didn't get a certified audit, all the data was there and everything but we just couldn't pull all of the data together to show it to the auditor the way he wanted to look at it in time for him to get the audit done so I think that the next time we do an audit that will be taken care of. I think in general NASA's accounting and budgeting procedures are pretty good.

Launius: Okay. NASA's also been criticized over time, this is an issue, that goes back to the sixties, for a lack of diversity in the workforce especially among the senior level of officials. Could you address this concern and its evolution over time for NASA?

Jennings: Yeah, it's a concern and it has been since the sixties and it's a concern today. We haven't done nearly as good a job as we should have in working diversity. I have a unique view of this. We had our first NASA EEO Board in 1972 I think when we set it up and we really started working this issue and at that time the board was made up of deputy center directors, EEO officers, and four employees at large from Centers and I happened to be one of those employees so I've had a view of this for a long time.

And the conversations then are still the conversations today that we have to hire minorities and grow our own and today we are saying that same thing. So diversity is an issue in NASA. We need to work it. And it's imperative that we work it now more so than ever with the changing in the demographics of the country. If we don't work it then we are going to fail as an agency because there's just not going to be the talent that we need to do the things that we want to do. So this was an issue then, it's an issue now. I think that the new administration in NASA recognizes that. In fact we just finished a report a couple of weeks ago on how we can improve diversity in the agency that the Administrator asked for.

Launius: Can you share some of those findings?

Jennings: I guess we didn't look at so much as the cause, we looked at what we can do to improve. You know when you look at the data African Americans salary-wise are significantly lower than everybody else. As a percentage of the workforce Hispanics are really low across the board. In the high grades, women and minorities are just lower in those executive positions. So we looked at what we can do we do to improve, which is my philosophy on those things. So we recommended that we do targeted recruiting. You go to area schools where you know that there are African Americans, you know that there are Hispanics, you know that there are people with disabilities, and you recruit from those areas. You make sure that folks get development assignments and some high visibility positions so that their talents can be recognized and they'll move up. We hold all managers accountable which I think is the best thing for it. When your time for

your bonus comes in addition to all the great technical things you get judged on we have a block there that says how did you do on diversity and that thing is read and your bonus probably goes down along with that. And just total awareness, education, and those things. But I think the two biggest things are to go out and recruit, bring folks in at the entry level and high level and make managers accountable and then it'll change.

Launius: Okay. All right. One of the stories that I've heard, I don't know if you can shed any light on this or not, but Jim Webb, NASA Administrator in the 1960's came down to Marshall Space Flight Center, I'm not sure of the time, I've heard this anecdote from a couple of different people, probably '66, '67, maybe '68 timeframe and beat-up Wernher von Braun for not hiring more black engineers. And his response was I'm trying to but there are not very many engineers African American who want to come and work in Huntsville, Alabama but I'll keep working it. And that was the end of the story. Have you heard anything about those kinds of efforts in the say in the 60's and early 70's at places like Marshall and other parts of the deep south?

Jennings: I probably heard it but I don't think anybody asked or offered jobs to folks. I think it's assumptions just like it is today to say that African American or minorities won't come to work for NASA because they can get paid more money somewhere else. I think we ought to ask them first and let them make the decision. . .

Launius: Okay. Good point.

Jennings: . . . and I think that's the same thing that's happened then that's happening now. We have a lot of student programs but during the summer here we'll probably have 100-150 minority students here with engineering degrees and we don't offer them jobs. We bring them here for the summer. We help pay for their education and we kind of let them go off to graduate school or go work somewhere else because we don't offer them jobs. So one of our proposals was we tie our education program to our hiring program and it's a commitment that we will offer the person a job and the person will come to NASA and continue their education.

Launius: Okay. Could you relate a little bit about your experiences as an African-American working at NASA?

Jennings: Yeah. I started at Marshall as, I guess, a GS3 Co-op so I started from the bottom and dealt with everything. And you know there wasn't any overt racism on the job per se you know I would get the idea every once in a while that you know somebody didn't like for me to be there and the way I handled it, I would go and have a private conversation with them and say, "Look, I'm here. I'm trying to do a good job. If you have a problem with me. . . " And invariably when you talk to folks they say they don't have a problem and they may not. But I've always found that that worked and you didn't have any problems after that. In fact, this one guy was known not to like blacks and whether he did or not I don't know, but the reputation was there, I had to work with the guy, so I just went in and talked to him about it. And he said, "I don't have any problems with blacks or anything. All I do is have problems with somebody that I think

is going to take my job. So what I'll do I'll teach you all that I can to get you to the point to where I think you could take my job." And I said, "Fair enough." The guy turned out to be a good mentor at that level about teaching me what's going on. But yeah, it's there. And where you see it more so is that folks get to certain grades and can't get past and this kind of thing so it's kind of systematized I think.

Launius: There's been an interesting problem in that way and another subtext to this, there's a political cartoon from 1972 that I found in the Washington Post. And it's a very interesting cartoon I think and it has three African-Americans standing looking at the moon and Apollo 17 is on the moon and the program's been cancelled, and it says maybe next time we'll get to go.

Jennings: Yeah.

Launius: There has been some diversity among the astronaut corps and a fair amount of it since that time, but there has been a sense that this is basically a white, middle class, male oriented organization and structure and that the African-American community is quite unconcerned about NASA and space flight and don't feel engaged and perhaps that's because there's not been enough involvement. How would you relate to that?

Jennings: Well, I definitely can relate to that because there haven't been. I know early on when like the first African-American flew, Guion Bluford, . . .

Launius: Yeah.

Jennings: You know we had big events to celebrate that and the word got dispensed out that way so the community felt proud, felt glad. In recent years there's been very little publicity so folks have gotten disengaged and they don't see many blacks or minorities there so they naturally don't relate to it so much. So I think we have to do a better job. First of all we need more in the program and then those that are in it we need to get them out to the black communities and let them know that they are there and so they can make that connection. We have three or four young black ladies in the program now and we've only ~~flew~~ flown one in all of these years. We've flown some white men seven times and you question why we need to keep flying these guys when we have all these other folks that are qualified in the program that need to fly to and get some publicity. But we could do a better job at that program as far as bringing folks in and making sure that we use the ones who are in to educate the total population.

Launius: Spanning your more than thirty years of experience in NASA, are we making improvements or are we basically where we have been?

Jennings: We're making improvements in some sense but primarily we're stagnant in the whole diversity area. We've got a long ways to go there's no doubt about it. You look around at Kennedy, I've made Deputy Center Director but when you look back through the pipeline at folks coming up you don't apparently see that coming up and that's my

concern. To have a few at the top is fine but you should have a lot more pushing from the bottom too so in the next five to ten years you'll see the same kind of thing.

Launius: Are there specific things we could do along those lines that you could suggest? I mean you've talked about specific programs that might bring people in and bring them along. Other things beyond that?

Jennings: You gotta have management commitment.

Launius: Okay.

Jennings: You gotta have management commitment to really want to do those things. I can say that Bob Crippen was a Center Director who was totally committed to diversity and you could see that in some of the decisions he made, some of the folks he promoted to senior levels. I mean his interest in going out and visiting historical black colleges, he personally took time to do those things. He made sure that we hired minorities. It just takes a total commitment.

Launius: Okay. All right. You were put in charge down here of something called the Human Resources and Management Office. What exactly was that and how has that work evolved over time here at KSC?

Jennings: Okay, what we did, I think it was the Human Management and Systems Office, or something like that so we have a little bit more than Human Management, but the way it came about, I was talking to Gene Thomas about which job did I wanted next and I said, "Well since Max Steel is never going to retire from Comptroller I need to do something else I would guess. And we have a lot of these administrative functions that are assigned to different organizations around the Center so we need to pull all of these things together in one organization. So that's what we did, we went and pulled Human Resources, we had a Work Force Analysis office at the time, we had a Information Technology office that now we would call the Chief Information Office. We had Internal Control which looked at all the audits and those type things. We had a Planning Office which was kind of strategic planning and that type thing that was attached up here and a couple more small offices. So we pulled all those things together in one organization to look at the administrative functions across the Center and it worked pretty good I thought. We were able to get some things working together. We were able to, I think, change the Human Resources office some to make it more of a part of a Center versus that control organization down there. But I think it worked pretty good. And later on we did name that organization the Administration Office because it better depicted the things that were in it.

Launius: Okay. I think that was created about '93, is that right?

Jennings: Yep, '93.

Launius: Okay. And you were there I guess until you were appointed at that point Acting Deputy Director and later on they took the Acting out of the title and . . .

Jennings: Yeah, they changed the name to protect the innocent. (Laughs.) Yes, I was there for four years, about four years I think.

Launius: Can you discuss something about your experiences as a KSC Deputy?

Jennings: Oh yeah, it's been interesting. When I came up as Acting Deputy, when Honeycutt brought me up, I had been doing a lot of the kind of deputy stuff for Jay because at the time, a pretty unique time, when the whole 4th floor decided to leave at one time, you know Jay was retiring, Gene Thomas was retiring, Al Parrish was leaving so. _____ you know about September or October of that year. And so I ended up you know going to a lot of the meetings with NASA Headquarters because neither of them liked going to Headquarters and so that kindly pulled this, I guess responsibility in . . .

Launius: Why didn't they like to go to Headquarters?

Jennings: Well, you know it was kind of bad times, the time when we were going through all the Zero-Base, downsizing and stuff and being that they knew that they weren't going to have to live with this stuff they just didn't want to go up and get depressed I guess. (Laughs) But my experience had been great. I was able to come

up and provide some stability to the organization because most folks knew me and knew my style and I guess my real style, if I tried to describe it, is fair and consistency. And I brought that to the job so we were able to keep the Center going, work out administrative stuff, we were able to work the issues that we had to and keep things going until Roy came. And then we were able to provide him with all of the background, all of the issues so that he could take over and provide his leadership.

Launius: Okay, all right. What kind of key events and issues have you wrestled with as the Deputy Director, or specific things that rise to the fore?

Jennings: Well the biggest thing are the issues that deal with people and the downsizing and how you handle all of that. I guess I've been involved in all of the major workforce type studies and implementation since I've been here since 1980 all of the studies and the big one was Zero-Base that somehow I ended up leading that effort for the Center. I don't know how I got to do that because I think I started, yeah I was down in the Administration Office, so we did the study, came up with the plan to do it. I've worked a lot of the strategy for how do we do this without a RIF because that's what the Center Director said he wanted to, he wanted to do this without a RIF and also during all the buy-outs and things he gave me a task, I want you to let everybody participate in this thing but not get rid of all the people that I need to get the job done. And I'm saying how do I do this? So I came up with the idea that we would limit the number of people in certain organizations from participating in the buy-out and some of them we wouldn't let go at all because of the critical skills. One of those was the Space Station

Integration Hardware Office that we'd just set up to help Space Station and other areas where we'd have to say that we had a shortage. So we limited the buy-outs to protect all of the skills we needed yet let the majority of the folks go. So we worked through those things for several years and finally got down to where we thought we had gone too low. I helped work on the arguments to go to Headquarters, knowing that we really needed to bring more folks back into NASA and eventually after a couple of years we got that turned back up. But those are the ones, the most memorable things that I worked on.

Launius: Now, the ZBR was what that '94, '95 timeframe?

Jennings: Yeah, '94, '95 that defined the thing and it actually affected us until like last year, I guess, when we finally declared Zero-Base over with and we'd gone too far and we could build back up our numbers.

Launius: How far did you downsize during that period?

Jennings: We actually got down to about 1650 or so.

Launius: Civil servants?

Jennings: Civil servants. And we were at 2550 or something when it started.

Launius: So we're talking 25% easy.

Jennings: Yeah, yeah. And now we have authority to go back up to a little over 1800 so . . . worked through all of that.

Launius: And how did you, I mean this was a very traumatic issue.

Jennings: Yeah.

Launius: This was done then without a RIF. It was done through attrition, buy-outs, other things. How did you all manage that in terms of morale here at the Center?

Jennings: Well, the first thing we did was hire some consultants to come in and talk to the people, teach the people. They had counseling available, they had resume writing available, and they had things to help them look for another job if they wanted a job. We even brought job fairs on Center. One of the problems we had was most of the folks who have worked with NASA . . . that's the only job they've had. They had this skill set but they didn't have any idea how marketable that skill set was outside of NASA. So we tried to bring in some folks to teach folks that your skills are valuable somewhere else so if you don't get to stay here at NASA you can go and do good work because you have good skills. And that was, although we were saying that we weren't going to have a RIF, people didn't believe it because they looked at the numbers and said you can't get there without a RIF. But we worked this and were really successful

because when we brought in the job fair, folks start finding out that they ~~was~~ were marketable. We started losing too many of the young folks that we wanted to keep so my boss Honeycutt told me you're doing too good a job, I want you to stop that. No more job fairs and all this stuff (laughter) so we had to change our tactic a little bit. But I think the thing that we did that really helped the people was this training development showing them that their skills ~~was~~ were valuable somewhere else and all the assistance we gave them, that they weren't just in this by themselves. And we came up with some programs like if you retire you can go work at the Brevard School System and help with technology and I think we ended up with 25 or 30 folks eventually doing that. So we tried to provide some incentive if you went, there's life after NASA and some jobs out there. So some folks took advantage of that kind of things.

Launius: I have the perception, which may be incorrect, that the people who are working for NASA are more committed to the organization and the mission than is the case in lots of other organizations. Consequently, it's more traumatic for them when they're being told that, well, you need to move on somewhere else. Did you have to wrestle with those kinds of issues?

Jennings: Yeah, that was the real issue. People wanted to work for NASA. They wanted to work the mission. They didn't even want to consider going and working for a contractor that worked for NASA. This whole thing was I want to work for NASA. If I wanted to do this, I would have left and worked for that company out there a long time ago. So you really had to go through that. But what happened was a few people would

leave and go work in other industries and they found out that it wasn't that bad . . . in fact it was pretty good. I got a 50% raise, and you know I like the work. So they start reaching back into NASA for their friends, calling their friends to go work there. So we started losing folks left and right because of that. And folks did find out that although they loved NASA, and you know some of those folks wanted to come back, in fact over the years we have been able to bring some of them back that left and just found out that they weren't happy there and they wanted to come back to NASA. In fact, one of the things that we did early on, we gave folks an option that if you go work and if you come back within six months or whatever it is, you can just come back to your job. And that was another way of getting them to try and see if they liked it outside.

Launius: One of the things that happens in a downsizing like this, you mentioned it a moment ago, that last year basically everybody stood up and said too far, too much. It's not just a question of numbers either it's a question of knowledge.

Jennings: Yeah.

Launius: And how have you all been managing that particular issue of maintaining the knowledge to do the work, balancing that against bringing in new blood, and all of these sorts of issues that are really complicated?

Jennings: Yeah, you really get a big skill mix problem and that's what had happened to us, although you tried to maintain that core, we had lost that in a sense. So when we

got hiring authority this last go around, we ended up going and hiring experienced people primarily from the contractors that had been in our kind of business. So that first couple years of hiring went primarily to folks with experience that they could bring it in. Now we're trying to shift more to bring in fresh-outs (out of school), so that we can preserve the future and have folks that are going to be here for a while. But you're absolutely right, after a while . . . skills start eroding and you just don't have the capability that you once had. And that's one of the problems that NASA has and if you go look and do some plotting way back to the Apollo program, you'll see a big dip in ages. I haven't looked at it lately, but folks my age I would say fifty to sixty, there was that ten years of Apollo that NASA didn't have very many folks, so those would be the folks that would normally be leading the agency now in senior positions. So what we had to do was reach back and bring younger folks on earlier. I don't think we did an adequate job of developing a lot of those folks so now we are trying to have to accelerated development to get ready for those senior jobs.

Launius: How are you going to do that? What are some of the processes that you're trying to put into place to bring these young folks along faster?

Jennings: Well what we've done is make sure that they get the development courses and things of that nature that you can get to take. And we're also doing rotations, trying to make sure that they get rotated out of Kennedy to Headquarters, other NASA Centers, even some into private industry and make sure they do more rotations at the Centers. One of the unique things about NASA, although we have a lot of really smart

technical folks, one of the things that really sell is that especially in NASA Kennedy people know how to get things done, they know how to make stuff happen. So you don't get that from a text book, you get that by doing and rotating around and seeing how other folks do something and then give them tasks to go off and to do that you have to produce. So that's the skill that I think that we have to do a better job of I'll say controlling or producing because that's what makes Kennedy unique from any technical organization . . . we know how to fix stuff, address and a lot of the problems to come up with the solution and implement that solution to the problem.

Launius: Okay. We'll take a break at this point because the tape is just about out and he'll change the tape and then we'll just carry on if that's okay.

Jennings: All right, fine.

Launius: if you want to stand up or have a . . .

Part II

Launius: Okay, we're back. There are a series of key issues that NASA KSC and we're all kind of in this together and the current Administrator keeps talking about one NASA which I guess is pretty appropriate in many respects, recognizing that each Center is different, so what are some of the other kind of key issues that have to be wrestled with in NASA through the 1990s and up to into the future?

Jennings: Well the real key issue is how do we get Space Station, from a technical standpoint, how do we get Space Station finished, what does it look like when they get finished and how do we get science and research ongoing in this laboratory in outer space? So that issue is really gonna dominate NASA for the next year or two. It's so much money that until you know whether we can get costs under control and bring it in, there's not gonna be money to go off and do other things. Plus NASA's reputation will still be tarnished and we won't be able to convince the Administration or Congress that they should give NASA more money for bigger and better programs in the future. So those issues have to be fixed, we've got to get ~~passed~~ past that, we have to work that problem. Hopefully, we have our arms around it but when this last cost assessment comes in the end of this month hopefully it will be in line with what we project. Another thing we have to do, we have to decide on the infrastructure of NASA, I think everybody would admit that we have too much infrastructure for the money that we get, too many facilities, too many things to keep up for the programs that we have going. So we have to make some major decisions on infrastructure and decisions like do you fix up this old facility that's probably over capacity for what you want to do or do you tear it down and just spend more money to build a new facility that would have applications for the future. Those are the big decisions that have to be made and they need to be made within the next year or so. So that you come up with a whole integrated plan with your programs and facilities for like the next five to ten years anyway. So that needs to be done. On people, we need to really come to grips with the type of workforce we want in the future and go out and really start developing it. The current Administration would like for

NASA to have more temporary employees so that as the mission changes you're flexible enough to change with that. NASA tradition is to have permanent employees to come in and spend their whole career with NASA. So that's a whole culture thing that we really got to wrestle with on how you come up with the right balance there. We don't need all permanent employees but we certainly are not attuned to having a lot of temporary employees especially in an area like Operations because you want somebody that has developed that knowledge that they can carry on. And in some research areas if you're doing some research, you're gonna do it, finish it, move on to something else, that's more applicable there. So those are a couple of big issues. One of the things is the whole accounting financial system we talked about earlier that we don't think is broke but if we're going to have this integrated system for full-cost that's a big issue to get that thing up and working if we're going manage by full-cost because you have to be able to get the data to do that. So that's another big issue we have to work. How we do business with some of the University affiliate organizations working with NASA, how do we really get things done with their organizations. I mean basic research is good but NASA produces a lot of widgets and things that have to go fly and stuff and this is a different environment that we have to figure out these things are going to work, how we are going to manage them. I tell folks if you're looking for a management challenge this is the greatest time to be in NASA because we're changing from the traditional organization where NASA has the project, they're in control, we have a supporting sub-contractor or contractor doing it and we're doing it but when you start spreading it this way well industry is leading this with NASA's help, the University is leading this with NASA's help, I mean that's a different type of management challenge

that we have to deal with. Those are a couple of the biggest that we have to do. The Space Station transportation system, I mean we really have to decide this whole integrated system with the Space Launch Initiative. Shuttle, the follow-on, we have to integrate this thing so we can make good decisions instead of have them in separate little decision packages. What happens to one will depend on what you need to do to do with the other one, so a study is going on now that's crucial. A lot of folks say we need to fly Shuttle up to 2020. Until a couple of weeks ago that sounded pretty good because we had gone on with very few problems but then something happened and you're down for two or three months. Maybe you need to rethink that decision, how many of these kind of things can go wrong to shut us down maybe instead of fixing the old we really need to concentrate on the new.

Launius: Okay. All right. Let's go back for a minute and talk a little bit about your accounting background and how you came from Marshall to the Kennedy Space Center in I guess about 1980 wasn't it something like that. . . ?

Jennings: Yes. Well I got into the comptroller world in 1977. Before I went to Headquarters in '75, I had gone back to and gotten an MBA degree so that's kind of my transition from technical "computer stuff" to more of the business world. And at Marshall I went in the organization where the boss was one grade and everybody else in there had the same grade. I was the youngest person there, and the career path seemed to be not too bright there.

(Laughter)

So I decided it was time to make a move, so I went to Headquarters and talked to some folks, applied for some jobs in Headquarters. The announcement came out down here, I applied for this job and luckily enough I got three job offers within a week, two were at Headquarters and one was here. The one here was a supervisor's job so I decided I'd do that because you can go to Headquarters anytime, you know that. So I figured I'd come here for two or three years and get a little supervisory experience and be on my way. It didn't work that way. (laughs) Twenty-two years later almost, I'm still here. My first job here was doing resources for the Shuttle operations which included all the operations out there. We had the major contractors, Rockwell, Thiokol, and Martin Marietta, who were processing the vehicle. So I did resources for George Page, who was an interesting guy over there, first launch director we had for the Shuttle. So I worked that job for a year and shaped it up. We were having problems with another one of our resources branch, so they sent me down there acting over that branch which was technical support I think. And I went into that branch, into resources, and start talking to folks trying to find out what were the problems, why this branch is not performing, when I thought we were doing the same thing. So I found out that as people had been leaving, they hadn't been reassigning the work. So somebody would leave and nobody would reassign the work. So at the end of the month, reports didn't get done because they weren't assigned to anybody and after the fact somebody had to go back and try to get them done. So we worked that and got that worked out, that was

an easy problem. Folks thought I was a genius after then but all I did was assign the work to somebody else to do.

(Laughter)

And then we decided that at that time we had one or two people trying to pull together the whole integrated budget in the Center, and we need to have an integration office for all this, trying to find somebody to do the integration that needs to be a responsibility. So I recommended that we set up an integration office to pull together all the budgets in them and they agreed to do that. And we reorganized and setup the integration office. I headed up that office and that was about the time that we were really getting into automation, automated POPs and things like that so we were able to pull the data pretty easy. So I did that integration job for a couple of years or so, and then I was promoted to head of resources who was responsible for all of the folks who worked resources here at the Center. That was about '84 – '85.

Launius: Okay.

Jennings: So I did that job. We tried to do some innovative things in there to get folks more developed. And I thought we had a pretty good reputation of doing our resources. And then I got to be promoted to Deputy Comptroller in '88 – '89 something like that. . .

Launius: Okay.

Jennings: . . . somewhere in that timeframe.

Launius: Okay. All right. Throughout your career and especially during the period that you've been in senior leadership here at KSC, what aspects of your work are you most proud of? Are there any particular projects or efforts that you really think turned out great and how and why?

Jennings: Well, you know one of them would have to be kind of a bad situation that I think turned out ~~alright~~ all right was the Zero-Base study and the downsizing and how we were able to handle that and really not layoff anybody. So that's kind of a high mark ~~it~~ there. Another one was the John Glenn launch.

Launius: Oh!

Jennings: For the John Glenn launch, from Headquarters and everywhere I kind of led that effort and that went off smoothly so I thought that was pretty good there.

Launius: We talked about the ZBR a minute ago. Elaborate a little bit on the John Glenn launch if you would.

Jennings: Well, we ended up putting together a committee almost a year before the launch to make sure we worked everything. It was composed of headquarters, public affairs people . . . I was kind of co-chair with some person from headquarters. We just worked all the logistics that were necessary to make this happen. All the people worked with all the security, everything, to pull it off and make it happen.

Launius: So everybody realized this was going to be a big deal.

Jennings: Yep.

Launius: Unlike previous Shuttle launches.

Jennings: Yep.

Launius: Something greater than that.

Jennings: Yep.

Launius: And so you had to plan.

Jennings: Plan it, lay it all out and then when the President decided to come, that was you know more stuff in there. . . but with all the planning that we'd done, I mean, that was pretty easy to get done, because we just had this nice big plan and then this

little plan just come and work in the middle of it and their guys come and do a lot of the work on it, so that worked. We even got the bleachers expanded out there at the VIP viewing site for that launch. That was pretty easy to get them. If it hadn't been for the John Glenn launch, we probably wouldn't have gotten them expanded, but I was able to get money to do that just because, where are we going to put all of these people? So that was another high point. I think the real thing that I hope that I'll be remembered for is all the people that I have worked with, and "mentored" that have gone on and done great things in this agency. Then quite a few all around the agency that I've hired or had some connection with that have really done well.

Launius: Okay. I want to talk about the mentoring business in just a minute, but let me go back and ask you one more question about John Glenn.

Jennings: Okay.

Launius: Everybody did realize, obviously, before the fact that this was going to be a different type of Shuttle mission and was going to be more on the public's radar screen.

Jennings: Yep.

Launius: Why do you think that is? I mean, here's this fellow who, yeah, he flew in space previously, he spent some time in Congress, he ran for President, but oh, by the way, he's just another guy and what is it about this?

Jennings: I think it was the fact that he was America's first human to go up in. . .

Launius: Orbit?

Jennings: . . . orbits and he was a hero so all of the folks that could relate to that event, you pull them into this event and along with the Shuttle enthusiasts so I think that the country needs a little nostalgia every once in a while and I think that this is what that was. This was that one event that we could kind of relive the past, we get Walter Cronkite coming back and doing the announcing and all that. I guess in a sense folks got to live the good old days for one more day and we hardly get a chance to do that too often.

Launius: Okay. All right. Well your point about nostalgia is well taken. Was there a similar, and maybe you don't know the answer to this, I mean was this across the board? Did the African-American community have a similar sort of excitement about this that we saw in other areas? Or was it kind of ho-hum? I mean, it's an old white guy.

Jennings: Yeah. I think it was. I think the percentage of increase in enthusiasm for this launch was probably as great across the board.

Launius: Okay.

Jennings: You know.

Launius: All right.

Jennings: I'm not trying to get into numbers but I think if, twenty percent of the majority of folks ~~was~~ were excited, twenty percent of the others were too.

Launius: Okay. All right. Fair enough. It was proportional.

Jennings: Yeah, because I had folks say I got to come to the John Glenn launch, man, can you get me there? And that was across the board.

Launius: Okay.

Jennings: Minority or not.

Launius: Back to mentoring a little bit. Lot's of people have suggested in a variety of settings that that's one of the most effective ways to bring young people along. And

there has been some formalized efforts to try to create mentoring programs at various NASA Centers and there may be one here at KSC. I'm not aware of it, but perhaps. What's your sense about that in particular, I mean, you're obviously proud of your efforts there and that's fine and that's excellent, but what about trying to create formalized programs and making those work and what's the experience been?

Jennings: Well, I think it's hard to do the formalized thing, because folks have to want to do it. I mean you've got to have people that are willing to take time to spend with folks to make it happen. If you don't do that, I think it misses something if folks start looking at it as a job and doing it. You've got to have folks that really have the experience to listen to folks and help them. What I try to do was, number one, when I was hiring, hire good people and give them an opportunity to do things. So, if there's mentoring then that's what it is, and I think that's what helped develop these folks as fast as anything. Give them the opportunity to do things, give them the opportunity to present to other folks so they can see their skills. I remember one lady I hired, was a President Management Intern. The first day she showed up I had gotten this call from Dick Smith to come talk to him about how do we get more folks involved in some university stuff, I said, okay, you just left a university, come go with me, and you're going to get this assignment to go work. I mean, she was terrified, but then she found out she could do it. That's the kind of growth that you give. You can give folks advice on careers, you really need to rotate this kind of thing, so I think that piece of it is good. And I know we talked about doing a formal program here. I'm not sure it works unless it's voluntary. You could have a group of folks that volunteer to be mentors and a group

of folks that want to be mentored and you get those together and they hook up. But telling me I have to mentor Joe, Jane, and Sue, I don't know if that's the right thing to do.

Launius: Okay. All right. You mentioned George Page earlier and I've heard people talk about him in the context of this kind of mentoring. Basically his approach was to find a young individual he thought was pretty smart, kind of throw him into the deep end of the swimming pool and see if they could actually do the job. When I've talked to other people, including him, he said it really wasn't quite like that. The approach was to put them under some pressure and then see how they respond and help them along. Is there a particular approach that makes sense here in terms of mentoring someone?

Jennings: Yeah, well, I think I agree with George with putting them under pressure, but you know, you have a lifeline out for them. I think that's the way people learn and develop faster. Putting them under pressure and giving them something to do. Just give them the guidance and help and give them the tools they need. I mean don't give them an impossible job and just leave them out there, floating until they drown. Give them something that's possible, provide the guidance, have enough relationship with them so that you tell them if you run into problems, come talk to me, that they will. Don't be so overbearing that so they feel if they come talk to you they have failed. I think that's been kind of the way that I've tried to do it

Launius: Okay.

Jennings: I've tried to pick folks. I've tried to give them tough assignments and let them go off and do those things, you help them through and make sure they get the credit for the success at the end of it.

Launius: Okay. Great. We talked about some of the things that you're proud of and some of the successes. What about frustrations? Particular things that get you boiling occasionally? That you want to talk about?

Jennings: There have been a lot of those. First of all, in working a budget process or something, always get frustrated when people start playing games in the budget. Start coming up with requirements that are unrealistic and all of this and you're trying to fight them down to come do something realistic and do the right thing and really get the requirement. I guess I've always tried to have more of an agency perspective view on these things and it really gets me when folks come up with requirements just to get money and we've done that a lot. One of the things, must have been ten, fifteen years ago, I said, we're going to price ourselves out of business with the Shuttle costs because every year it was ten percent more, I'm saying, "Look guys. Why do we need ten percent more?" Eventually it came to that and we found out that we could live with a lot less. But if we'd been systematically trying to look at how we improved the system and not need more money we probably could have done a lot of good things to help. And I get frustrated on the diversity issue. You know, I really do. Because we could do so much and it would be easy to do. But you get things like, well, I can't find any black

engineers, I can't find any Hispanic engineers. And I know that there are a lot of folks out there that would come to work for NASA, quite well educated and well qualified to come. We just don't pursue that segment so that's one of my frustrations. And I guess my frustration now has grown because of the change in the population and I'm really, that back to thinking of the big whole NASA, that if we don't do something we're going to be in trouble with the future. Because if we don't hire diversity now and twenty five years from now, NASA's management still looks like it looks now and the population looks dramatically different from what it does now, how are we going to attract folks to come work for us? That's going to be a real issue. So it's a big problem and we need to work it and it's easily worked. Not one of those rocket scientist type things.

(Laughter)

Launius: I understand. I don't want to put you on the spot here.

Jennings: Go ahead. Take a shot.

{Laughter}

Launius: Do you feel like you're a voice crying in the wilderness on this? Do other people recognize this as a real issue?

Jennings: I think they're beginning to. I'm really encouraged by Sean O'Keefe, Courtney Stadd, and Paul Pastorek, you know, and those are the three guys that are pulling the strings for NASA now. Because they've come to me and said, "What can we do to improve this situation?" So I think that those guys are really seeing it as an issue and understand what's happening from a demographic standpoint. And if you just look at some of the data, it's kind of scary. The Asian and Hispanic population are growing almost exponentially, African-Americans are pretty level and Whites are decreasing dramatically and you look at the folks that have traditionally gone into science and engineering. I mean, we've got a problem here so we need to work on getting more folks going into that field. The overall percentage is decreasing and we don't have the foreigners that we can depend on anymore, because they don't have to come work anymore. Plus 9-11 took a little different take on that, so we could find ourselves with a real technical brain drain and some other country has it and whoever discovers the next computer or next great innovation in the world, the money is going to go that way so this country could start going away.

Launius: Yeah, you're suggesting problems that are very present to lots of people if you look at the numbers.

Jennings: Yep.

Launius: Not to talk too much about personalities. Dan Goldin spent almost ten years as NASA Administrator. He talked a lot about the need for diversity. Was it rhetoric and was there any real action?

Jennings: Well, early on there was real action. I mean initially he did some good things. He always believed, that was a real passion for him because he felt some discrimination when he went to Glenn, when he first started, being a Jew and, so he felt all the things said about Jews and where he could live and when he could go. So he had a real passion for it. I think you fight it and you just run out of energy and I think that's where he was on the thing.

Launius: So maybe the current Administrator will do a better job in terms of implementation.

Jennings: Yeah, and that was the difference between Dan and the new guy. Dan was a visionary, and he preached it and he just didn't follow through on the implementation. O'Keefe is more of a pragmatic guy. These are the requirements. This is what you wanted to do and this is how I'm going to hold you accountable.

Launius: Okay.

Jennings: So I think the accountable piece gets results.

Launius: That kind of leads me into my next question. What do you think of the people who have led NASA over the years? How do you feel about the overall leadership? Obviously you give them not all that high a mark on diversity, but beyond that where are we?

Jennings: Well, I guess I relate back all the way 'til. . . Fletcher? Yeah, Fletcher. You know, he did a good job of leading the agency, to get the program going, came back a second time after Challenger and worked us through that. Guess we had a guy named Frosch who was totally out of the water. He just never got it for NASA so he didn't accomplish very much, he was kind of a caretaker for a while. Who else ~~do~~ did we have in there? Dick Truly. Truly was good. Truly's problem, he couldn't deal with Congress. He just hated Congress and so he couldn't work with them that much ~~cause~~ because it was just bad so. . . but he was a good leader but he had that one flaw that you can't afford to have of a NASA Administrator man, you gotta be able to deal with Congress and those guys. I mean he just hated doing that so it showed when he went over there, so that was I guess his thing. Goldin, you know, real visionary, did a lot of things to help the Agency, the cutting of the costs of things, trying to do stuff I'll say more reasonably funded, I won't use faster, better, cheaper, but you know if we hadn't gone through that process we would've lost Station a long time ago, it would've been gone. . . I guess in the end Dan never saw a problem he didn't want to solve so we kept getting whopped about what we really ought to focus on because he'd run upon and talk to somebody this week and all of sudden this is a hot thing we gotta do it, next week is this. So it just got frustrating. . . with the budget going down we just couldn't survive like

that. I think O'Keefe is going to be focused. I think we're gonna make some hard decisions. One day, I tell folks, that there are going to be some who one day wish they had Dan Goldin back because O'Keefe is going to make the hard decisions. We're gonna stop doing some things but we're gonna be better off for it. So the way I'd put them in all of 'em's time, they all did probably some good things, they could've done better, but such is life. But I guess the only one I'd give a really bad mark to is Frosch. Were you around when he came with us? He only stayed two or three years and he went. Oh, the one we missed that I thought was outstanding . . .

Launius: Jim Beggs.

Jennings: . . . Jim Beggs. I think Beggs had a good combination of Goldin and O'Keefe. So I think if he hadn't run into that little mishap with this company that he would've had a really strong legacy there because he was the right leadership to deal with Congress, he was a visionary enough but practical enough to work with him.

Launius: Okay. A little bit different take on a similar question. Some people have suggested that the Centers don't work and play well together and that they obviously have competing interests and competing positions on things and that's legitimate. What's your experience been in terms of the inter-relations of the various Centers and the relationship to Headquarters?

Jennings: Well I guess I'll take that from the micro-view first. There has been some built-in resistance like Marshall and Johnson which has been a problem for years, they just didn't like each other because they ~~was~~ were Marshall and they ~~was~~ were Johnson. So they could've worked a lot better together and then a lot more efficient. A lot of the Code R Centers, they've had their competition because of the work and the cross things, wind tunnels, we had at two or three different Centers and you know everybody competing for the work so that was inefficient. Some of those things we have tried to fix now where our wind tunnel at this Center is responsible and work across. . . I think wind tunnels are being fixed. The real thing at Marshall is trying to be fixed but it's still there. With Kennedy we always were ~~kind~~ at the end of the production line and if you're gonna launch something it's gonna come here so we haven't had as much of an adversary relationship with most of the Centers because we work with them to bring their payloads or vehicles here to launch. But as we try to move into more of this research spaceport technology, I mean the big sign popped right up, "Why you guys want to try to do R&D down there? You're just operations." So that's been a real, real fight to get past that effort and I'm not sure we're past it yet but that's something that clearly we're gonna have to work hard at to show those Centers that we're not trying to do stuff that they were doing. That maybe we should've stuck with we want to be a testbed and take your research and take it to useful products. That was kind of my idea of where we ought to be going. And I think that's overall where we're trying to be going. But in order to try to sell it I think we might of oversold how much research we plan to do. And we still have a problem with Centers just fighting for resources. There's only so much to go around. And we haven't had a strong enough Headquarters over the years to take an active

enough part to provide enough guidelines to make the right decisions on that. So each Center has been kind of fighting and pulling for their own. And I think that this is one of the things that's missing, that you need a Headquarters that's strong enough to look across the board, say these are the programs we're doing, this is the right number of folks working here. Some folks need to be here and to help facilitate in making that happen.

Launius: Okay. KSC has the unique requirement of any of the Centers, to have a very close working relationship with the Air Force. And there's range management issues, but then there's lots of other issues as well. What's been your experience in terms of the interface between KSC and the military side of the house here?

Jennings: It's been good over the years since I've been here. We've worked a lot of issues together, the whole launch business and working that range relationship and being able to get on the range when we need to and get those things. That's been good, I mean we've never encountered any big problems in that whole process and decision making. Over the last few years as we worked closer together like putting the Base Operations Contract together, that's worked fairly good. You know the Air Force kind of think that they'll end up having to pay more in this arrangement but they were getting some free stuff before so we got to level the playing field. So that's been a good relationship and I think that's something you've got to work on, you got to make sure the two leaders talk and work things. But at the working level I think it's working good and we all get the job done.

Launius: Now let me ask you a question about the JBOSC, the Joint Base Operations Support Contract, I think is what that acronym stands for. I see you have on your wall over here a Hammer Award for that particular project. Would you care to comment on that at all?

Jennings: Yeah, that was probably the largest consolidated effort between NASA and a DOD Agency in the country when we put that together, that's probably the largest project so it got a lot of attention, a lot of folks looking at it seeing if it's gonna work, how could it work and all that so that was when the Vice President had his initiative on performance and this was a project that got sent up to him and that committee, I think Shannon was working with the group over there at one time that looked at those things, and they thought that this project was worthy of that. And I think it's a good model that could be used around the country because we have several NASA Centers that's are on Army Bases or Air Force Bases or near there. But it takes a lot of effort to make it work, if you got two different cultures, two different financial systems, so I think the idea to come up with this joint board of Air Force and NASA to actually manage the contract was probably the thing that made it survive.

Launius: Okay. There's considerable concern at KSC and I guess in NASA as a whole as how we re-engineer ourselves and KSC is part of this re-engineering for the new world of the 21st Century. What's taking place in this arena at KSC and how have you been involved in that and what do you envision KSC looking like in say ten years?

Jennings: Well, you know first of all working with the people, we have to work with the people because that makes everything else happen. You're going to see us bringing in more term people, people that are not necessarily expected to work here the rest of their life. We're doing a lot of development stuff to make sure that the people here get training in what they need. We are also looking at facilities I would say that maybe ten years from now we'll have buildings here that's are built by private industry and we just lease them versus NASA building their own. This Research Park I think is going to be a big draw to the Center. I think you're going to see that growing with companies out there doing business with us. So I think the main theme will be the government trying to get out of ownership of all of its facilities and want to lease those. The main structures of the launch facilities, they'll probably still be here but I think in the next generation of launch vehicles there will be thought going into those things that we don't go and use old facilities for that. We need to build new facilities that are much more efficient than the old facility that we can renovate. Across the river when EELVs took over these pads I mean they essentially tore them down and built it up from the ground so the only thing they used was the site and that's probably what you'll see for some of the programs here. But I see us more open with how we get work done, the structure of civil servants and support contractors the way we're doing it and outside commercial world, universities not involved with kind of that. . . the wall will start falling down and you'll see more working university folks, you'll see more NASA folks doing work at universities and universities doing work here, all trying to get the products and jobs done.

Launius: Okay. All right. This is a question I ask almost everybody. If a young person interested in working at NASA or maybe is starting a career at NASA came to you and ask you for kind of career advice what would you tell them?

Jennings: First of all I would try to find out what they ~~was~~ Well interested in, are you really interested in doing what NASA does for a living and, if you are, it's a good place to work. You need to first of all be technical-proficient in your job, with your job. You need to find out what's going on in organizations around you. You need to understand the total NASA environment. You need to be flexible, be willing to move from different organizations internal to the Center and even to move from different Centers. You need to plan to go spend some time in Headquarters and you just need to, all the time, keep the goals of NASA in front of you. Don't get too parochial and to do your project like that's the only one you're doing. And you know of course continue your education and development and that type thing.

Launius: Okay.

Jennings: But the biggest thing I want to leave them with is you need to rotate. You need to do different things and you know learn as much about the organization and its needs as possible.

Launius: Okay. Thinking in the broad term about space flight and space exploration, where do you think we might be in say fifty years or a hundred years? We're obviously going to be launching rockets or a third, fourth, fifth generation of those somewhere down the road and we're going to probably be doing that from right here but what's the future hold in your view?

Jennings: I say fifty years from now I see us traveling all through space primarily having I'd say a docking station in outer space where we'd take off to go to other places from. I think the big thing would be transfer vehicles where we take off from places and go other places. Unless we have a big breakthrough on some other kind of propulsion system, I see nuclear probably being the propulsion system for a lot those things that are going in outer space. That's the only way you can get there cheap enough. You know if you look to some of the movies and stuff where you have people living in space, I think folks will be living on these outposts and processing these vehicles to go and come to other places so . . . like in fifty years from now I think that's possible.

Launius: Great. Are there any other insights or experiences you'd like to relate as a closing comment?

Jennings: You know looking back at NASA for thirty-five years we've made a lot of progress in a lot of different areas. Women can now wear pants to work. (laughter) When I came into NASA, I mean because you didn't wear pants back in those days, you had to wear dresses. So the culture has come a long way but it still has a way to go. I

think that as NASA opens up and becomes more involved with universities, corporations, and we become more of an open NASA to society that we would change and grow and become a better organization.

Launius: Okay. Great. Are there any other questions?

Background voice.

Launius: Okay. In terms of the KSC directors any comments on any of them, their leadership styles, their personalities. . .

Jennings: Yeah, Dick Smith was Center Director when I came here and I had known Dick from Marshall so. . . Dick was a more of a laid back manager, I mean he didn't get too engaged but he listened and he kind of methodically made decisions. There weren't too many decisions that were urgent for Dick. He was laid back, let's methodically think about this thing and get it going so. . . Everything was pretty stable when he was Center Director. We were getting ready to launch the Shuttle and we got that going and so things kind of went pretty good until Challenger. After then, Forrest McCartney came in who was focused on getting the Shuttle flying again and that's where he concentrated his energy. Certain parts of the Center he wasn't too interested in but he did focus on getting the Shuttle going again. And his good trait was he went out and spent time with the people doing the work. You know you talk to the technicians, Forrest would show up one or two-o-clock in the morning and talk to those guys so he had a unique

leadership to get folks to focus on the task and get that done and move on. So he was good for us at the time. Then we had Bob Crippen who was pretty much a well-rounded, interested in the whole Center, let's focus on getting everything done and pull it up. Bob was more into details than either one of the other Center Directors, you know, he was one of those guys that could dwell into details and understand it all and do it. He was interested in diversity and the Center as a whole and he made a big effort in that. Honeycutt was. . . tell me what I need to know. You guys are big guys, you know what you're doing. If you need me let me know. If I need to know something you'll let me know, otherwise I'll see you later. So he was . . . interesting thing about Jay, I remember when he first was named Center Director and I came into Jay and I called his secretary and said I need to come talk to Jay. I need two hours. She said he only gives half hour meetings. I said I gotta have at least an hour. So I go in with these two pages of issues that Jay needs to worry about. So we start going through them and Jay says well why don't you worry about this one, why don't you tell somebody else to do that one, why don't you do this, why don't you. . . So after about forty-five minutes Jay said is there anything else I can do for you. . .

(Laughter)

Jennings: . . . and we didn't leave him with any issues. So I left with most of them. So he was that kind of manager but he was good to work for. Roy is more detailed, more of a visionary to do other things besides the primary work, like spaceport technology stuff, looking at how much more stuff we can do with that. So he is really a

visionary. More of the, I guess, space program at the global level than just Kennedy Space Center. So I would say that his contribution probably is going to be more to the whole and folks may question was all of this good for KSC?

Launius: Okay. All right. Other questions?

Background voices.

Launius: We can do that, certainly. Obviously and you were working at the point of challenger in accounting, in comptroller I think?

Jennings: Yeah.

Launius: That was a traumatic experience for everybody, well everybody in the nation, but certainly at KSC and NASA, where were you when that took place, what kind of role did you play in the immediate aftermath, just kind of relate that story.

Jennings: Yeah, when it happened I was up at a class, up ~~at~~ above Daytona where we go to this place up there, but I was up at the class. There was kind of a group of us I guess fifteen or twenty folks from KSC up at the class and we were out on the beach watching the launch and obviously we saw something was wrong. And once we found out what it was everybody kind of came back to the Center and it was really, really traumatic. You know Ron McNair was a good friend of mine, frat brother, so that from

the personal part of it plus the thought of losing all those folks. But the role that I played after then was budget exercise after budget exercise after budget exercise. I mean we would get requirements down on Friday to run a budget exercise with it due Monday morning at eight-o-clock. So we spent a lot of weekends working options of when we could fly, what we were doing, what the costs were and all of that, ~~stuff.~~ So the business exercise of trying to figure out how to get back to flying, how much it's going to cost and that type thing. My contribution of getting back to fly was pretty much leading the whole budget effort and going through those things because at that time our comptroller left right after then and so I was the point person for all of the budget stuff here at the Center during that time.

Launius: Along those lines, one of the things that Forrest McCartney told us was that he said when he arrived we had a very clear understanding of what the problem had been that had caused this particular accident and that we could've simply made a decision that we weren't gonna fly below a certain degree in terms of the climate and that would've resolved that issue. But instead we grounded the fleet for a long period of time and there were enormous numbers of fixes to all kinds of things. . .

Jennings: Yeah.

Launius: . . . some of them were SRB related directly causing the problem but others were other things and that he thought that probably what we did was excessive. You as a person working the accounting issues had to deal with all the budgeting

associated with this. Did you all get into debates over those kinds of issues about what is appropriate and what is maybe overkill?

Jennings: No, we didn't, because I think at that time everybody was focused on, let's not let anything like this happen again. So there weren't too many strong arguments about not doing something that everybody in the technical world was saying would provide more of a safety margin so we didn't get into a lot of those debates on whether to do them or not.

Launius: Okay.

Jennings: But I think Forrest, in retrospect, was trying to get on with life, a lot of the stuff that we did. Folks saw this as an opportunity to get this particular thing in that they probably had advocated for years so we just took the time to fix it and I think that was the right thing to do. We probably could have gotten back to flying quicker but would we have had the confidence that we did after . . .

Launius: In the context of the terrorists attacks of 9-11-2001, what's been taking place at the Center to kind of insure that we're safe, in general terms obviously. . . not specifically.

Jennings: In general we've upped security quite a bit. You know we've done that. We've hopefully sensitized people to be more aware of that. As a group of folks when it

happened we were at a retreat so you had the whole senior management there kind of experiencing this thing together so the idea was we ended the retreat, we came back to the Center, we met and then we decided to go on with the retreat here on-site. We had left some folks in charge. We decided to let them keep working the day-to-day things that we did to increase security and that type thing. But I think the real sense of it was this was a tragedy, it happened but life goes on so we need to do what we need to do as managers to keep the space program going as safely as we can. And those safety things have been implemented in the program.

Launius: Okay.

Jennings: We're trying to get those to be as routine as possible so I think that's where we are.

Launius: All right. Thank you. Anything else? All right. Thank you so much for your time. We do appreciate it.

Jennings: You're quite welcome.

Launius: It's just great.

Jennings: All right.